512.439.4700
TBPELS F-1386
TBPELS 10110501
www.LJA.com
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735

GRANADA RIDGE DEVELOPMENT

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

CONTRIBUTING ZONE PLAN MODIFICATION

February 2025

Prepared for:

GRANADA RIDGE, LLC
201 N. ELM STREET, SUITE 201
GREENSBORO, NORTH CAROLINA 27401

Prepared by:

LJA ENGINEERING, INC.
7500 RIALTO BOULEVARD,
BUILDING II, SUITE 100
AUSTIN, TEXAS 78735
(512) 439-4700
FRN-F-1386

LJA PROJECT NO. A379-0401

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: GRANADA RIDGE DEVELOPMENT								**2. Regulated Entity No.:** RN109936435	
3. Customer Name: GRANADA RIDGE, LLC								**4. Customer No.: 605835933**	
5. Project Type: (Please circle/check one)	New		Modification			Extension		Exception	
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential			**8. Site (acres):**		39.99 Acres	
9. Application Fee:	$6,500		**10. Permanent BMP(s):**			2 Sedimentation / Filtration			
11. SCS (Linear Ft.):	n/a		**12. AST/UST (No. Tanks):**						
13. County:	Travis		**14. Watershed:**			Slaughter Creek and Williamson 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.)	___	_X_	___
Region (1 req.)	___	_X_	___
County(ies)	___	_X_	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	_X_Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	_X_Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Reese Hurley, P.E. Print Name of Customer/Authorized Agent
Signature of Customer/Authorized Agent — Date: 02-24-2025

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):	

Modification of a Previously Approved Contributing Zone 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.

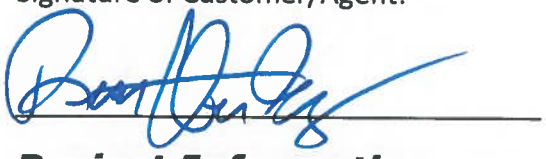
Signature

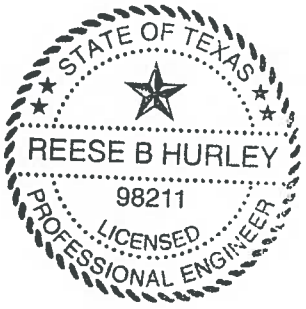
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Modification of a Previously Approved Contributing Zone Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Reese B. Hurley, PE

Date: 02-24-2025

Signature of Customer/Agent:





Project Information

1. Current Regulated Entity Name: GRANADA RIDGE DEVELOPMENT
   Original Regulated Entity Name: Slaughter and Williamson Creek
   Assigned Regulated Entity Number(s) (RN): 109936435
   Edwards Aquifer Protection Program ID Number(s): 11002295,11000813
   ☒ The applicant has not changed and the Customer Number (CN) is: 605835933
   ☐ 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):

☒ Any physical or operational modification of any best management practices or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;

☐ Any change in the nature or character of the regulated activity from that which was originally approved;

☐ A change that would significantly impact the ability to prevent pollution of the Edwards Aquifer and hydrologically connected surface water; or

☐ Any development of land previously identified in a contributing zone plan as undeveloped.

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.

CZP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	39.998	39.998
Type of Development	Multifamily	Multifamily
Number of Residential Lots	464	372
Impervious Cover (acres)	9.09	9.47
Impervious Cover (%)	22.8%	24.1%
Permanent BMPs	Sand Filter	Sand Filter
Other	———	———

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	———	———
Other	———	———

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	———	———
Other	———	———

CZP Modification #2	***Approved Project***	***Proposed Modification***
Summary		
Acres	39.998	39.998
Type of Development	Multifamily	Multifamily
Number of Residential Lots	372	372
Impervious Cover (acres)	9.47	9.467
Impervious Cover (%)	24.1%	23.7%
Permanent BMPs	Sand Filters	Sand Filters
Other	Pond #1 WQV = 69,307 cf. Pond #2 WQV = 61,570 cf.	Pond #1 WQV = 41,674 cf. Pond #2 WQV = 50,704 cf.

CZP Modification #3	***Approved Project***	***Proposed Modification***
Summary		
Acres	39.998	39.998
Type of Development	Multifamily	Multifamily
Number of Residential Lots	372	372
Impervious Cover (acres)	9.467	9.401
Impervious Cover (%)	23.7%	23.5%
Permanent BMPs	Sand Filters	Sand Filters
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 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. ☒ Acreage has not been added to or removed from the approved plan.
   ☐ Acreage has been added to or removed from the approved plan and is discussed in *Attachment B: Narrative of Proposed Modification*.

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.

ATTACHMENT A – Original Approval Letter and Approved Modification Letters

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 11, 2021

Mr. Claudel Pressa
Granada Ridge, LLC
201 North Elm Street, Suite 201
Greensboro, North Carolina 27401

Re: Edwards Aquifer, Travis County

NAME OF PROJECT: Granada Ridge Development; Located SE of Scenic Brook Blvd and E US Hwy 290 intersection; ETJ of Austin, Texas

TYPE OF PLAN: Request for Approval of a Contributing Zone Plan (CZP); 30 Texas Administrative Code (TAC) Chapter 213 Subchapter B Edwards Aquifer

Regulated Entity No. RN109936435; Additional ID No. 11002295

Dear Mr. Pressa:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP Application for the above-referenced project submitted to the Austin Regional Office by LJA Engineering on behalf of Granada Ridge, LLC on November 25, 2020. Final review of the CZP was completed after additional material was received on February 9, 2021. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project 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 two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed project will have an area of approximately 39.99 acres. It will include the construction of 13 multi-family apartment buildings, one amenity center, drives, parking, associated utilities, and drainage improvements. The total impervious cover will be 9.10 acres (22.8 percent). Project wastewater will be disposed of by conveyance to the South Austin Regional Wastewater Plant owned and operated by the City of Austin.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two (2) sedimentation/filtration basins, designed using the TCEQ technical guidance document, complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 7,921 pounds of TSS generated from the 9.10 acres of total impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

SPECIAL CONDITIONS

I. All permanent pollution abatement measures shall be operational prior to occupancy of the facilities within their respective drainage areas.

II. All sediment and/or media removed from the water quality basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable

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.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved Contributing Zone Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP 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.
6. 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 name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.
7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved Storm Water Pollution Prevention Plan (SWPPP) 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. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. 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:

8. 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, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
9. 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 significantly reduced. 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).
10. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. The following records shall be maintained and made available to the executive director upon request: 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.
12. 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.
13. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 5, above.

After Completion of Construction:

14. Owners of permanent BMPs and measures must ensure that the 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 Austin Regional Office within 30 days of site completion.
15. The applicant shall be 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. A copy of the transfer of responsibility must be filed with the executive director through the Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
16. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Contributing Zone Plan. If the new owner intends to commence any new regulated activity on the site, a new Contributing Zone 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.

17. A Contributing Zone 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 Contributing Zone 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.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

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 the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Robert Sadlier, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

RCS/ng

Enclosures: Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Reese Hurley, P.E., LJA Engineering, Inc.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 21, 2022

Mr. Dennis Burton
Granada Ridge, LLC
P.O. Box 9846
Greensboro, North Carolina 27429-0846

Re: Edwards Aquifer, Travis County

NAME OF PROJECT: Granada Ridge Development, located S.E. of Scenic Brook Dr. and E. HWY 290; Austin ETJ, Texas

TYPE OF PLAN: Request for a Modification of a Contributing Zone Plan (CZP-MOD); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11002759; Regulated Entity No. RN109936435

Dear Mr. Burton,

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP-MOD for the above-referenced project submitted to the Austin Regional Office by LJA Engineering, Inc. on behalf of Granada Ridge, LLC on November 3, 2021. Final review of the CZP-MOD was completed after additional materials were received on March 4, 2022, March 17, 2022, and March 21, 2022. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected, and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project 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 two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The Granada Ridge Development CZP was approved by letter dated November 3, 2017 (EAPP ID: 11000813) and has since expired. Subsequently, the Granada Ridge Development CZP was approved by letter dated February 11, 2021 (EAPP ID: 11002295); construction for the project has not yet commenced.

PROJECT DESCRIPTION

The proposed multi-family residential project will have a site area of approximately 39.99 acres. It will consist of 372 multi-family units within three apartment buildings, drive aisles, surface parking, and associated utilities. The impervious cover will be 9.47 acres (23.7 percent). Project wastewater will be disposed of by conveyance to the existing South Austin Regional Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two partial sedimentation/ filtration basins, Pond #1, and Pond #2, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be used to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 8,243 pounds generated from the 9.47 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

SPECIAL CONDITIONS

I. This modification supersedes all Special and Standard Conditions listed in the CZP approval letter dated February 11, 2021 (EAPP ID: 11002295).

II. All permanent pollution abatement measures shall be operational prior to occupancy of the facility.

III. All sediment and/or media removed from the water quality basins during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

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.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved CZP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP 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.

6. 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.
7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved CZP, 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. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. 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.

<u>During Construction:</u>

8. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
9. 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 significantly reduced. 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).
10. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. The following records shall be maintained and made available to the executive director upon request: 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.
12. 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.
13. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 5 above.

<u>After Completion of Construction:</u>

14. Owners of permanent BMPs and measures must ensure that the 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 Austin Regional Office within 30 days of site completion.

15. The applicant shall be 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. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through Austin Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
16. Upon legal transfer of this property, the new owner(s) 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.
17. 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.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

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 Ms. Jade Mendiola of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/jkm

Enclosure: Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Reese Hurley, P.E., LJA Engineering, Inc.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 2, 2024

Mr. Dennis H. Burton, P.E.
Granda Rodge, LLC
P.O. Box #9846
Greensboro, NC 27429

Re: Modification of an approved Contributing Zone Plan (CZP-MOD)
Granada Ridge Development; Located SE of Scenic Brook Dr. and E HWY 290; Austin (ETJ), Travis County, Texas
Edwards Aquifer Protection Program ID: 11003795, Regulated Entity No. RN109936435

Dear Mr. Burton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the application for the above-referenced project submitted to the Edwards Aquifer Protection Program (EAPP) by LJA Engineering, Inc. on behalf of the applicant, Granada Ridge, LLC on November 16, 203.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213. The permanent best management practices (BMPs) and measures represented in the application were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are **approved,** subject to applicable state rules and the conditions in this letter.

This approval expires two years from the date of this letter, unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of 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 contributing zone plan or modification to a plan. A motion for reconsideration must be filed in accordance with 30 TAC §50.139.

This approval letter **supersedes** and replaces the prior approvals (CZP: EAPP ID No. 11002295, dated February 11, 2021; CZP-MOD: EAPP ID No. 11002759 dated March 21, 2022) which shall hereafter be void and of no effect.

PROJECT DESCRIPTION

The proposed multi-family project will have an area of approximately 39.998 acres. The project will include the construction of three multi-family buildings, drive aisles, parking, utilities, water quality facilities, and associated appurtenances. The plan includes corrections to water quality basin sizing. The impervious cover will be 9.467 acres (23.67 percent). Project wastewater will be disposed of by conveyance to the existing South Austin Regional Wastewater Treatment Plant.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two partial sedimentation/filtration basins (Pond #1 and Pond #2), designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices,* will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 8,243 pounds of TSS generated from the 9.467 acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The permanent BMPS shall be operational prior to occupancy or use of the proposed project. Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

SPECIAL CONDITIONS

I. This modification is subject to all the special and standard conditions listed in the approval letters dated February 11, 2021 (EAPP ID No. 11002295) and March 21, 2022 (EAPP ID No. 11002759).

STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and all technical specifications in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control) as required based on the specifics of the plan.

2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

Prior to Commencement of Construction:

3. The plan holder of any approved contributing zone plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.

4. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. 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.

5. Temporary erosion and sedimentation (E&S) controls as described in the referenced 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. The application must indicate the placement of permanent aboveground storage tanks facilities for static hydrocarbons and hazardous substances with cumulative storage capacity of 500 gallons or more. Subsequent permanent storage tanks on this project site require a modification to be submitted and approved prior to installation.

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. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.

9. The following records shall be maintained and made available to the executive director upon request: 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.

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.

After Completion of Construction:

11. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE **must certify** in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.

12. The applicant shall be 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 or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

The holder of the approved Contributing Zone Plan is responsible for compliance with Chapter §213 subchapter B and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 subchapter B and is subject to administrative rule or orders and penalties as provided under §213.25 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved contributing zone plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. James “Bo” Slone, P.G. of the Edwards Aquifer Protection Program at (512) 239-5711 or the regional office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/jcs

cc: Mr. Reese Hurley, P.E., LJA Engineering, Inc.

ATTACHMENT B – Narrative of Proposed Modification

1. Replacing the previously proposed three (3) building footprints with six (6) smaller building footprints. Within the previously proposed building 1 footprint, are now proposed buildings 1A and 2B. Within the previously proposed building 2 footprint, are now proposed buildings 3D and 4C. Within the previously proposed building 3 footprint, are now proposed buildings 5C and 6D. The number of proposed units (372) will not increase with this correction.

2. Adding sidewalks, ADA ramps, and risers to provide access to the buildings from the drive aisles and increase the overall connectivity of the site.

3. Adding one (1) maintenance building.

4. Modifying the pool hardscape layout.

5. Relocating the compactor/dumpster enclosure and modifying the layout.

6. Adding two (2) access gates and a call box. Widening the drive aisle to provide additional space for a visitor call box drive aisle.

7. Adding 93 surface parking spots (including 21 accessible spaces).

8. Modifying retaining walls to accommodate additional sidewalks.

9. Removing access drives to the removed underground parking garages.

10. Adding roof drain storm sewer lines for building 2B, 3D, 4C, 5C, and 6D. Adding 4 grate inlets and storm pipes for additional parking across from building 3D. Adding one storm sewer lateral for the pool hardscape drainage.

11. Adjusting the drainage areas to accommodate the modified site plan. To accommodate the additional impervious cover from the added surface parking, call box drive aisle, maintenance building, pool hardscaping, and sidewalks in the drainage areas draining to pond 1, Drainage Area P-2 has been made smaller and P-7 made larger. Hence, a portion of Building 1A will now drain to Pond 2 instead of Pond 1. To offset the additional area draining to Pond 2, Drainage Area P-11 is being made smaller and P-3A is being made larger. This is accomplished via a proposed diversion dike, which will redirect flows from a permeable area, previously in Drainage Area P-11, to P-3A.

    The total building coverage is decreasing with this correction, allowing for additional impervious cover from the added surface parking, sidewalks, and amenities draining to Pond 2. Also, permeable sidewalks in leu of concrete sidewalks are proposed on parts of the site to keep the amount of impervious cover draining to Ponds 1 and 2 consistent with the previous correction.

Undeveloped drainage areas: UPD-2, UDP-5, and UDP-7, are being reduced by a total of 0.06 acres. As a result, the flows at point of confluences O-2 and O-3 are being slightly reduced. The change in size of UDP-7 was not significant enough to affect the resulting flows to point of confluence O-4. To offset the additional area being captured onsite from these drainage areas, UDP-3 is being increased by 0.06 acres and Drainage Area Pond #1 is being decreased by 0.06 acres. Therefore, the overall size of the drainage areas for Pond 1 and Pond 2 are unchanged.

The resulting flows at point of confluence CP #1 are increasing by less than 1 cfs for the 2-, 10-, 25-, and 100-years flows. The resulting flows are still significantly below the existing condition flows. Please see the attached replacement and redline Sheet 11 for the modified drainage areas and flow calculations.

Please see the table below, showing the overall areas draining to Ponds 1 and 2 are unchanged with this correction. The amount of impervious cover draining to Pond 1 will decrease by 0.01 acres with this correction and is not significant enough to affect the resulting flows. The impervious cover draining to Pond 2 is unchanged with this correction.

12. Adding one (1) ¾" water service for the added maintenance building. Adding three (3) 8" fire and three (3) 4" water services for the three (3) added buildings (buildings 2B, 4C, and 5C). Extending the fire and water services for buildings 1A, 3D, and 6D to the proposed riser room locations.

13. Adding one (1) fire hydrant so that there will be one fire hydrant within 100 feet of building 1A's riser room and extending one (1) fire hydrant lead past the proposed sidewalk.

14. Adding two grinder pumps. Grinder Pump 1 will be located between buildings 3D and 4C and will convey the wastewater from 18 units of building 3D and 12 units of 4C for a total of 30 units. Grinder Pump 2 will be located between buildings 5C and 6D and will convey the wastewater from 12 units of building 5C and 26 units of 6D for a total of 38 units.

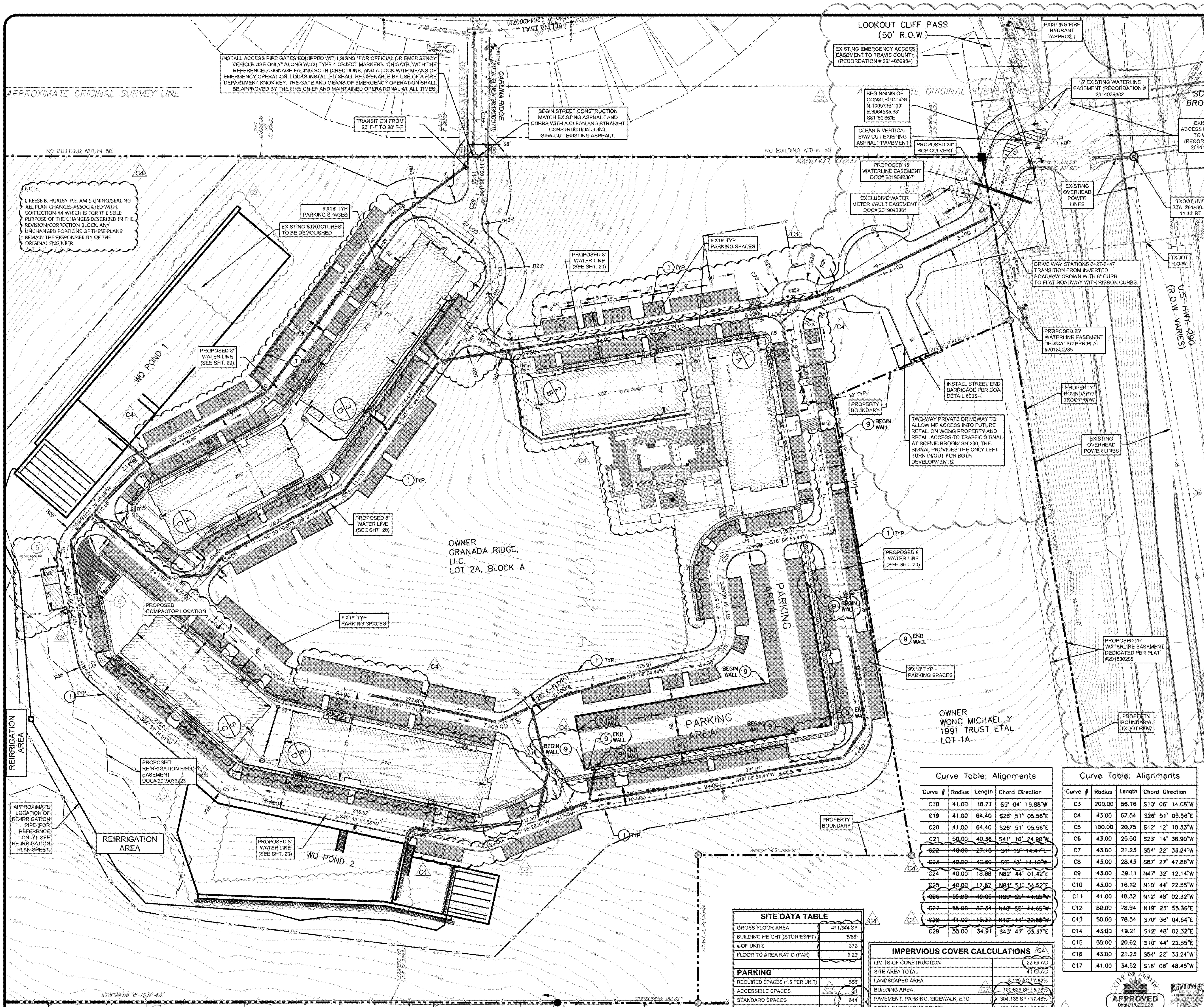
15. Adding wastewater line C to convey flows from Grinder Pump 1 to the gravity wastewater system. Adding wastewater line D and two (2) manholes to convey flows from Grinder Pump 2 to the gravity wastewater system.

16. Adding one (1) wastewater service extending from WWL-B for building 1A. Adding one (1) wastewater service for building 3D units going to Grinder Pump 1. Adding two (2) wastewater services for building 4C (one connecting to Grinder Pump 1 and one connecting to WWL-A). Adding one (1) wastewater service for building 5C units going to Grinder Pump 2. Adding two (2) wastewater services for building 6D (one connecting to Grinder Pump 2 and one connecting to wastewater line D). Modifying the wastewater services to buildings 2B and 5C to accommodate the new building footprints.

17. Adding six (6) electrical transformers.

18. Modifying the limit of construction and silt fence along limit of construction. Adding tree protection fencing to several trees that are now near the limit of construction. Adding inlet protection to new proposed inlets. Removing several trees that cannot be protected because of construction.

ATTACHMENT C – Current Site Plan of the Approved Project



Curve Table: Alignments			
Curve #	Radius	Length	Chord Direction
C18	41.00	18.71	S5° 04' 19.88"W
C19	41.00	64.40	S26° 51' 05.56"E
C20	41.00	64.40	S26° 51' 05.56"E
C21	50.00	40.36	S41° 16' 24.90"W
~~C22~~	~~40.00~~	~~27.18~~	~~S1° 19' 14.47"E~~
~~C23~~	~~40.00~~	~~42.60~~	~~S9° 43' 14.10"W~~
C24	40.00	18.88	N82° 44' 01.42"E
C25	40.00	17.67	N81° 51' 54.52"E
~~C26~~	~~55.00~~	~~49.05~~	~~N85° 55' 44.65"W~~
~~C27~~	~~55.00~~	~~37.34~~	~~N40° 55' 44.65"W~~
~~C28~~	~~41.00~~	~~15.37~~	~~N10° 44' 22.55"W~~
C29	55.00	34.91	S43° 47' 03.37"E

Curve Table: Alignments			
Curve #	Radius	Length	Chord Direction
C3	200.00	56.16	S10° 06' 14.08"W
C4	43.00	67.54	S26° 51' 05.56"E
C5	100.00	20.75	S12° 12' 10.33"W
C6	43.00	25.50	S23° 14' 38.90"W
C7	43.00	21.23	S54° 22' 33.24"W
C8	43.00	28.43	S87° 27' 47.86"W
C9	43.00	39.11	N47° 32' 12.14"W
C10	43.00	16.12	N10° 44' 22.55"W
C11	41.00	18.32	N12° 48' 02.32"W
C12	50.00	78.54	N19° 23' 55.36"E
C13	50.00	78.54	S70° 36' 04.64"E
C14	43.00	19.21	S12° 48' 02.32"E
C15	55.00	20.62	S10° 44' 22.55"E
C16	43.00	21.23	S54° 22' 33.24"W
C17	41.00	34.52	S16° 06' 48.45"W

SITE DATA TABLE (C4)	
GROSS FLOOR AREA	411,344 SF
BUILDING HEIGHT (STORIES/FT)	5/65'
# OF UNITS	372
FLOOR TO AREA RATIO (FAR)	0.23
PARKING	
REQUIRED SPACES (1.5 PER UNIT)	558
ACCESSIBLE SPACES (C2)	21
STANDARD SPACES	644
TOTAL SPACES PROVIDED	665

IMPERVIOUS COVER CALCULATIONS (C4)	
LIMITS OF CONSTRUCTION	22.69 AC
SITE AREA TOTAL	40.00 AC
LANDSCAPED AREA	3.129 AC / 7.82%
BUILDING AREA (C2)	100,625 SF / 5.78%
PAVEMENT, PARKING, SIDEWALK, ETC.	304,136 SF / 17.46%
TOTAL IMPERVIOUS COVER	409,467 SF / 23.50%

SITE LEGEND

1. CONSTRUCT 6" BARRER CURB & GUTTER, SEE SPILL AND CATCH CURB DETAIL.
2. LIMITS OF CONSTRUCTION (20.76 ACRES) — LOC — LOC — LOC —
3. FIRE HYDRANT
4. TRAFFIC DIRECTIONS
5. 5'-MIN. CURB TRANSITION FROM 6" TO 0" HIGH
6. HEAVY-DUTY PAVEMENT SECTION
7. LIGHT-DUTY PAVEMENT SECTION
8. RIDGID HEAVY-DUTY PAVEMENT SECTION
9. RETAINING WALL

- 2:1 EARTHEN SLOPES REINFORCED WITH PERMANENT TRM.
- EXISTING ACCESS EASEMENT TO WONG
- EXISTING EMERGENCY ACCESS EASEMENT
- PROPOSED BUILDING FOOTPRINT
- POROUS PAVEMENT SIDEWALK
- CONCRETE SIDEWALK
- ACCESSIBLE ROUTE

CONSTRUCTION NOTES

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL REFERENCE THE GEOTECHNICAL ENGINEERING REPORT PREPARED FOR ALL GEOTECHNICAL ENGINEERING INFORMATION. CONTRACTOR TO INSTALL PAVEMENT DESCRIBED IN PAVEMENT OPTIONS AND DESIGN SECTION OF THE GEOTECHNICAL REPORT.
3. CONTRACTOR SHALL VERIFY EXISTING SLOPE, SOIL CONDITIONS, AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. ALL CROSS SLOPES ON NEW SIDEWALK CONSTRUCTION SHALL BE LESS THAN 2%, AND RUNNING SLOPE SHALL BE LESS THAN 5%.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING PLANS & FOUNDATION DETAILS (NOT PROVIDED WITH THIS SET).
5. ALL BUILDINGS TO HAVE CONCRETE SLAB FOUNDATION.
6. ACCESS TO THE UNITS IN THE BUILDINGS WILL BE INTERNALLY FROM UNDERGROUND GARAGE.
7. THERE SHALL BE A VERTICAL WALL AROUND THE BUILDING AS NEEDED TO RETAIN EARTH OUTSIDE DUE TO DIFFERENCE IN VERTICAL ELEVATIONS.(REFER TO ARCHITECT PLANS).
8. SIDEWALK SHALL BE INSTALLED AS SHOWN IN ARCHITECTURAL PLANS.(NOT PROVIDED WITH THIS SET).
9. FOR ACCESS ROAD CONSTRUCTION, SAW-CUT EXISTING ASPHALT ROADWAY AND MATCH SURFACE ELEVATION WITH NEW PAVEMENT.
10. ALL AREAS BETWEEN THE BUILDINGS AND PAVEMENT SHALL BE LANDSCAPED AND DETAILED IN THE LANDSCAPE PLANS(NOT INCLUDED WITH THIS SET).
11. ALL ACCESS ROADS AROUND THE BUILDINGS ARE DESIGNED TO MEET FIRE CODES.
12. PARKING AREA STRIPING SHALL BE 4" MINIMUM UNLESS OTHERWISE DESIGNATED AND PAINTED WHITE PER COA STD. 860S (EXCLUDING REFLECTIVE GLASS BEADS).
13. TREES AND SHRUBS ARE STRICTLY PROHIBITED FROM BEING INSTALLED WITHIN TEN (10) LINEAR FEET OF ANY AUSTIN WATER INFRASTRUCTURE. ANY REVISIONS/CORRECTIONS TO THIS SITE PLAN, SP-2016-0586D, THAT PROPOSES TO INSTALL ANY TYPE OF PLANTINGS WILL REQUIRE A COMPLETE REVIEW AND FINAL APPROVAL BY AUSTIN WATER TO ENSURE THERE ARE NO CONFLICTS WITH AUSIN WATER INFRASTRUCTURE.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

CITY OF AUSTIN APPROVED Date 01/02/2025

REVIEWED Pipeline Plan Review

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
OVERALL SITE PLAN
AUSTIN, TX 78736

REVISIONS			
NO.	DESCRIPTION	BY	DATE
C2	[illegible]	DSM	04/11/2023
C4	UPDATE BUILDINGS FOOTPRINTS AND POOL HARDSCAPE, ADD SIDEWALKS, PARKING, MAINTENANCE BUILDING, WIDEN ACCESS GATE LANE, UPDATE DATA TABLES AND CALCULATIONS	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: OSP

STATE OF TEXAS — REESE B HURLEY — 98211 — LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

OSP

SHEET NO. 13 OF 66 SHEETS

REPLACEMENT SHEET

SP-2018-0138D

Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), 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.

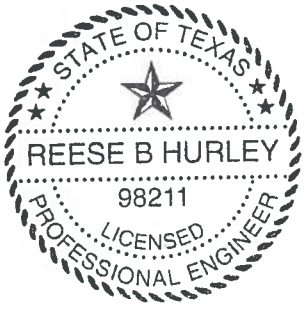
Signature

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 **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Reese B. Hurley, PE

Date: 02-24-2025

Signature of Customer/Agent:



Regulated Entity Name: GRANADA RIDGE DEVELOPMENT

Project Information

1. County: Travis County
2. Stream Basin: Slaughter and Williamson Creek
3. Groundwater Conservation District (if applicable): N/A
4. Customer (Applicant):

   Contact Person: Dennis H. Burton, PE
   Entity: GRANADA RIDGE, LLC
   Mailing Address: P.O. Box # 9846
   City, State: GREENSBORO, NC Zip: 27429-0846
   Telephone: (336)814-3235 Fax: _____
   Email Address: dburton@cipconst.com

5. Agent/Representative (If any):

Contact Person: Reese B. Hurley, PE
Entity: LJA Engineering
Mailing Address: 7500 Rialto Blvd, Bldg II, Suite 100
City, State: Austin, TX Zip: 78735
Telephone: (512)439-4700 Fax: (512)439-4716
Email Address: rhurley@lja.com

6. Project Location:

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

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

8327 W. US Highway 290, Austin, Texas, Travis County, 78736, located on the south side of West US Highway 290 across from Scenic Brook Drive in Travis County

8. ☒ **Attachment A - Road Map**. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

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

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. 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

11. 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/Not cleared)
☒ Other: Under Construction

12. The type of project is:

☐ Residential: # of Lots: _____
☐ Residential: # of Living Unit Equivalents: _____
☒ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 39.998 Acres

Total disturbed area: 22.69 Acres

14. Estimated projected population: 558

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	*Sq. Ft.*	*Sq. Ft./Acre*	*Acres*
Structures/Rooftops	101125	÷ 43,560 =	2.322
Parking	308,342	÷ 43,560 =	7.079
Other paved surfaces	0	÷ 43,560 =	0
Total Impervious Cover	409,467	÷ 43,560 =	9.401

Total Impervious Cover 9.401 **÷ Total Acreage** 39.998 **X 100 =** 23.50**% Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

17. ☒ Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. Type of project:

- ☐ TXDOT road project.
- ☐ County road or roads built to county specifications.
- ☐ City thoroughfare or roads to be dedicated to a municipality.
- ☐ Street or road providing access to private driveways.

19. Type of pavement or road surface to be used:

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

21. Pavement Area:

Length of pavement area: _____ feet.
Width of pavement area: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

22. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

23. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

24. ☒ **Attachment E - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

25. ☐ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☒ N/A

26. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

☐ **Attachment F - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):
The sewage collection system will convey the wastewater to the SOUTH AUSTIN REGIONAL WASTEWATER PLAN (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than

one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

☐ **Attachment G - Alternative Secondary Containment Methods**. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

Table 3 - Secondary Containment

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

Total: _____ Gallons

30. Piping:

☐ All piping, hoses, and dispensers will be located inside the containment structure.
☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
☐ The piping will be aboveground
☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ **Attachment H - AST Containment Structure Drawings**. A scaled drawing of the containment structure is attached that shows the following:

☐ Interior dimensions (length, width, depth and wall and floor thickness).
☐ Internal drainage to a point convenient for the collection of any spillage.
☐ Tanks clearly labeled
☐ Piping clearly labeled
☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.

    Site Plan Scale: 1" = 30'.

35. 100-year floodplain boundaries:

    ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

    ☒ No part of the project site is located within the 100-year floodplain.

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA FIRM 48453C0560J,effective January 21, 2020 .

36. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

    ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

39. ☒ Areas of soil disturbance and areas which will not be disturbed.

40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

41. ☒ Locations where soil stabilization practices are expected to occur.

42. ☐ Surface waters (including wetlands).

    ☒ N/A

43. ☒ Locations where stormwater discharges to surface water.

    ☐ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

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

☐ N/A

48. ☒ 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

49. ☒ 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

50. 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.

51. 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 I - 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.

52. ☒ **Attachment J - 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.

53. ☒ **Attachment K - 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.

54. ☒ **Attachment L - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

☐ N/A

55. ☒ **Attachment M - Construction Plans**. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan**. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

☐ Prepared and certified by the engineer designing the permanent BMPs and measures
☐ Signed by the owner or responsible party
☐ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
☐ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ **Attachment O - 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

58. ☒ **Attachment P - 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 result in water quality degradation.

☐ N/A

Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ 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.

60. ☒ 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.

Administrative Information

61. ☒ 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.

62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

☐ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ATTACHMENT A – Road Map

LOCATION MAP

(N.T.S.)

GRANADA RIDGE DEVELOPMENT
8327 WEST US 290 HWY, AUSTIN, TEXAS 78736

LJA ENGINEERING
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 5124394700 LJA.com TBPE F-1386

ATTACHMENT B – USGS
Quadrangle Map

ATTACHMENT TO FORM 10257 - CZP
ATTACHMENT B - USGS QUADRANGLE MAP

U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

USGS science for a changing world

The National Map US Topo

SIGNAL HILL QUADRANGLE
TEXAS
7.5-MINUTE SERIES

Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 14R
10 000-foot ticks: Texas Coordinate System of 1983 (south central and central zones)

Imagery.....NAIP, May 2010
Roads.....©2006-2012 TomTom
Names.....GNIS, 2012
Hydrography.....National Hydrography Dataset, 2010
Contours.....National Elevation Dataset, 2002
Boundaries.....Census, IBWC, IBC, USGS, 1972 - 2012

MN 4° 29' 80 MILS
GN 0° 32' 9 MILS
UTM GRID AND 2013 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
600 NU PU
Grid Zone Designation 14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.7

TEXAS
QUADRANGLE LOCATION

Shingle Hills	Bee Cave	Austin West
Dripping Springs	Signal Hill	Oak Hill
Driftwood	Mountain City	Buda

ADJOINING 7.5' QUADRANGLES

ROAD CLASSIFICATION

Interstate Route
US Route
Ramp
State Route
Local Road
4WD

Interstate Route US Route State Route

SIGNAL HILL, TX
2013

ATTACHMENT C – Project Narrative

Granada Ridge Development is a proposed 39.99-acre multi-family residential development that will consist of 372 multifamily units located in the City of Austin Extraterritorial Jurisdiction in Travis County, Texas (MAPSCO Grid 611X and City of Austin Grid Nos. A18 and A19). The project includes six (6) apartment buildings, drive aisles, surface parking, two partial sedimentation/filtration type water quality ponds with added retention irrigation, two detention ponds, and associated utilities. The current address is 8327 US Highway 290, Austin, Texas 78736. The development will account for a total impervious cover of 9.401 acres, including building coverage, paved drive aisles and parking, and concrete sidewalks, utilities will include water, wastewater, and storm sewer. The two partial sedimentation filtration-type ponds will provide water quality for the development at removal rates that meet or exceed those required as shown on the attached TCEQ Total Suspended Solids (TSS) removal spreadsheet. Additionally, re-irrigation is proposed to provide additional treatment per City of Austin Barton Springs Zone requirements.

The property is currently undeveloped. No known habitable structures exist onsite. No known hazardous materials or waste contamination are suspected onsite. The site is located within the portions of the Slaughter and Williamson Creek Watershed designated as the Barton Springs Zone. The subject property is within the Edwards Aquifer contributing zone. The site is within the Extraterritorial Jurisdiction of the City of Austin in Travis County, Texas.

The northern portion of the site drains to Williamson Creek and the southern portion of the site drains to Slaughter Creek, both of which are tributaries of the Colorado River. Under existing conditions, the site generally drains via overland flow to two basins, one on each side of the topographic ridge. The area northwest of the ridge drains north and east, eventually to Williamson Creek. The area southeast of the saddle drains south and east, eventually to Slaughter Creek.

ATTACHMENT D – Factors Affecting Surface Water Quality

Potential sources of sediment to stormwater runoff:

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

Potential sources other than sediment:

- small fueling activities
- minor equipment maintenance
- sanitary facilities
- solvents, adhesives, paints, etc.
- paving materials, concrete, mortar

ATTACHMENT E – Volume and Character of Stormwater

Under existing conditions, precipitation that falls onto the site drains via sheet flow and shallow concentrated flow to six (6) confluence points. Drainage Area E-5 includes 5.11 acres of runoff that drains via overland flow to Study Point O-4 and ultimately concentrates enroute to the northern property boundary before being captured by the existing US 290 drainage system. Drainage Area E-1 includes 7.21 acres that drains easterly toward the Study Point O-1, Drainage Area E-6 includes 6.61 acres that drains east toward the Study Point O-3; Drainage Area E-7 includes 6.41 acres that drain toward CP-2. these three Points of Confluence will ultimately reach the Candelaria Drive Drainage System. Drainage Area E-2 include 8.38 acres that drains southwesterly Point #O-2, Drainage Areas E-3 (6.23 Ac.) and E-4 (3.09) combined include 9.32 acres that drain southwesterly towards CP-1 and are collected by an unnamed City of Austin regulated waterway. The drainage study was performed according to City of Austin Standards per the regulations in effect at the time of plan approval.

The Developed Conditions Drainage Area Map shows the proposed drainage patterns of the site. The developed conditions analysis was performed to consider the same 6 study points modeled in the existing conditions analysis. The proposed runoff resulting from developed conditions will be collected by the onsite storm system and conveyed to the proposed water quality and detention ponds.

The proposed onsite drainage patterns will route approximately the same drainage area to each of the study points as in existing conditions. Precipitation that falls on the proposed pavement, and landscaped areas will be captured by proposed onsite storm inlets. As a result of these proposed measures, the volume and character of the stormwater runoff from the site will be improved from predevelopment levels. Runoff coefficients for the existing conditions 25-year and 100-year events were determined to be 0.42 and 0.49, respectively. The post construction runoff coefficients were determined to be 0.67 and 0.77, respectively.

ATTACHMENT F – Suitability Letter from Authorized Agent (if OSSF is proposed)

Not Applicable

ATTACHMENT G – Alternative Secondary Containment Methods (if AST with an alternative method of secondary containment is proposed)

Not Applicable.

ATTACHMENT H – AST Containment Structure Drawings (if AST is proposed)

Not Applicable.

ATTACHMENT I – 20% or Less Impervious Cover Waiver

Not Applicable.

ATTACHMENT J – BMPs for Upgradient Stormwater

The site is located within the portions of the Slaughter and Williamson Creek Watershed designated as the Barton Springs Zone. Approximately 34.9 acres of upgradient stormwater is conveyed onto the property. The offsite stormwater does not flow through the portion of the site proposed to be developed therefore, the upgradient stormwater will not be affected by the proposed construction activity.

ATTACHMENT K – BMPs for On-Site Stormwater

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction, runoff from building surfaces, paved areas, and managed lawn/landscape areas will be mitigated by permanent revegetation of disturbed areas. Two proposed partial sedimentation/filtration ponds will serve as permanent BMP's to provide the required treatment. In addition to partial sedimentation/filtration, re-irrigation of the fully captured water quality volume is being provided onsite as part of meeting City of Austin Barton Springs Zone (BSZ) requirements. City of Austin BSZ requirements mandate capturing and treating a substantially larger volume than is required by the TCEQ. TSS removal will be accomplished by the sand filter component of each pond with both the sedimentation and filtration pond areas meeting TCEQ area requirements.

The overall 39.99-acre property will be developed with 9.401 acres of impervious cover. This stipulates a total TSS load removal of 8,183 lbs. Approximately 0.10 acres of proposed impervious cover that cannot be captured due to topographical constraints will drain offsite. The impervious cover that is uncaptured must be mitigated by showing that the proposed BMP's can still provide the overall TSS removal requirement for the site. The TSS removal will be accomplished by the two proposed partial sedimentation filtration ponds shown on the construction plans.

Drainage Basins 1 and 2 each require the L_M removal amounts shown in the following table below. In order to account for the uncaptured IC, the desired L_M for each pond has been increased by ½ of the total deficiency (88 lbs), thus 44 lbs per each pond. By increasing the desired L_M's, the total overall TSS removal amount can still be accomplished onsite by the two proposed BMP's with efficiency ratings less than 1.

	Desired Lm	Required Lm	F
Basin 1 / Pond 1	3830	3786	0.89
Basin 2 / Pond 2	4344	4300	0.89
Uncaptured IC	-	88	-
Total Site	**8183**	**8183**	**0.89**

ATTACHMENT L – BMPs for Surface Streams

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction, runoff from building surfaces, paved areas, and managed lawn/landscape areas will be mitigated by permanent revegetation of disturbed areas.

ATTACHMENT M – Construction Plans

Copies of the construction plans for the proposed improvements and temporary BMPs are included with this submittal.

ATTACHMENT N – Inspection, Maintenance, Repair, and Retrofit Plan

See attached document labeled “Maintenance Plan for Permanent Best Management Practices”

ATTACHMENT O – Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs

Not Applicable

ATTACHMENT P – Measures for Minimizing Surface Stream Contamination

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed where more concentrated flow occurs. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction, runoff from building surfaces, paved areas, and managed lawn/landscape areas will be mitigated by permanent revegetation of disturbed areas. Proposed partial sedimentation/filtration pond BMP's will provide the required treatment. The proposed water quality ponds are sedimentation/filtration type water quality ponds with re-irrigation of the full water quality volume onsite. For TCEQ review purposes, the sand filter component of the ponds provides the required TSS load removal. Re-irrigation is provided to satisfy additional City of Austin requirements.

The overall 39.99-acre property will be developed with 9.401 acres of impervious cover. This stipulates a total TSS load removal of 8,183 lbs. Approximately 0.10 acres of proposed impervious cover that cannot be captured due to topographical constraints will drain offsite. The impervious cover that is uncaptured must be mitigated by showing that the proposed BMP's can still provide the overall TSS removal requirement for the site.

Drainage Basins 1 and 2 each require the L_M removal amounts shown in the following table below. In order to account for the uncaptured IC, the desired L_M for each pond has been increased by ½ of the total deficiency (88 lbs), thus 44 lbs per each pond. By increasing the desired L_M's, the total overall TSS removal amount can still be accomplished onsite by the two proposed BMP's with efficiency ratings less than 1.

	Desired Lm	Required Lm	F
Basin 1 / Pond 1	3830	3786	0.89
Basin 2 / Pond 2	4344	4300	0.89
Uncaptured IC	-	88	-
Total Site	**8183**	**8183**	**0.89**

Maintenance Plan
For Permanent Best Management Practices
Granada Ridge Development

PROJECT NAME *Granada Ridge Development*

ADDRESS: *8327 W. US Highway 290*

CITY, STATE ZIP *Austin, Texas 78737*

The Best Management Practices associated with Water Quality for this project includes the use of a Retention/Irrigation Pond, Pump Station, Irrigation Lines and Spray Heads for irrigating stormwater.

Stormwater collected onsite by storm inlets is conveyed to the splitter box via storm sewers. The splitter box weir is set to the water quality elevation. When the required water quality volume is collected in the water quality pond, the splitter box diverts the remainder toward the northeast side of the site.
The water quality pond contains a sedimentation basin and a filtration basin. The sedimentation basin collects sediment and debris. Water then filters through a rock gabion into the filtration basin, where a sand bed traps additional small particles in order to eliminate clogging of the pump and irrigation system. Perforated underdrains convey the water to the wet well. The submersible pump is designed to turn on 12 hours after the storm event and should empty the water quality pond via irrigation through pressure pipes and spray heads within 72 hours.

MAINTENANCE FOR STRUCTURAL (STORMWATER CAPTURE) SYSTEMS

Routine Maintenance for All Structural Systems

Water quality ponds of all types have similar routine maintenance requirements, although most ponds have some unique maintenance needs, as detailed in this section. The following general maintenance requirements apply to all pond BMPs.

BMP facilities must be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation.

During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired or revegetated immediately.

Grass areas in and around earthen ponds must 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 of grass is performed, a mulching mower must be used, or grass clippings must be caught and removed, as with all water quality BMPs.

Debris and litter accumulated in the facility must be removed during each inspection.

Excessive sediment must be removed and properly disposed of in an approved off-site disposal area. Excessive sediment is when accumulations reach 6 inches in depth.

Design drawdown times must not be exceeded by more than 24 hours. The design drawdown time is 72 hours from the first accumulation of stormwater or when the pond reaches full capacity. If drawdown times are excessive, repairs should occur immediately.

With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, gabions, retaining walls, etc.) must be identified and repaired immediately.

A maintenance access route shall extend to the pond from a public or private road. The maintenance access shall have a slope of no greater than 4:1.

Inlet and outlet structures should be inspected and cleaned out of any debris or sediment. If there are major damage to either the inlet or outlet controls, the damaged areas should be repaired.

Upon completion of the construction of these facilities, the contractor shall provide the owner/responsible party with all parts lists, suppliers, and other similar information.

ADDITIONAL MAINTENANCE REQUIREMENTS FOR SPECIFIC STRUCTURAL (STORMWATER CAPTURE) BMPS

Retention/Irrigation Pond, Pump Station and Irrigation system

Remove sediment from sediment chamber area in front of rock gabion, and from the pump sump area at least 2 times annually or when depth reaches 6 inches.

Rake the sand bed area to break up any crust that has been formed. Remove all grass from the sand bed area. If sand bed area has any accumulation of sediment on surface, the sediment must be removed. This procedure is performed by hand operations. No mechanized machinery should be allowed on top of the sand bed area.

The pumping and irrigation system must be inspected and tested (or observed while in operation) to assure proper operation at least 2 times annually. At least one of these inspections must occur during or immediately following wet weather.

Immediately repair any leaks, broken spray heads, or other malfunctions with the irrigation system.

Upon completion of the construction of these facilities, the contractor shall provide the owner/responsible party with all parts lists, O&M manuals, suppliers, and other similar information.

RECORD KEEPING OF INSPECTIONS, MAINTENANCE AND REPAIRS SHALL BE MAINTAINED BY THE RESPONSIBLE PARTY.

An amended copy of this document will be provided to the Texas Commission on Environmental Quality within thirty (30) days of any changes in the following information.

Engineer's Certification

I certify that the BMP described by this Maintenance Plan has been designed in compliance with the regulations of Title 30 Texas Administrative Code Chapter 213.

By: Reese B. Hurley

Reese B. Hurley, P.E.

Maintenance Certification

Responsible Party for Maintenance: Granada Ridge, LLC

Address: 201 North Elm Street, Suite

201 City, State Zip: Greensboro, NC 27401

Telephone Number: (336)275-6198

Signature of Responsible Party

2/5/21

Date

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

POND #1

Project Name: Granada Ridge

Date Prepared: 10/5/2023

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

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Travis	
Total project area included in plan * =	39.99	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	9.40	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	8183	lbs.

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	7.83	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	4.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.56	
$L_{M\ THIS\ BASIN}$ =	3786	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter

Removal efficiency = 89 percent

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

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

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_I = Impervious area proposed in the BMP catchment area

A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	7.83	acres
A_I =	4.35	acres
A_P =	3.48	acres
L_R =	4340	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 3840 lbs

F = 0.88

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

Rainfall Depth = 1.50 inches

Post Development Runoff Coefficient = 0.39

On-site Water Quality Volume = 16637 cubic feet

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

Off-site area draining to BMP = 0.00 acres

Off-site Impervious cover draining to BMP = 0.00 acres

Impervious fraction of off-site area = 0

Off-site Runoff Coefficient = 0.00

Off-site Water Quality Volume = 0 cubic feet

Storage for Sediment = 3327

Total Capture Volume (required water quality volume(s) x 1.20) = 19965 cubic feet

Provided Capture Volume = 41674 cubic feet

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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate = 0.1 in/hr **Enter determined permeability rate or assumed value of 0.1**

Irrigation area = NA square feet

NA acres

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = NA cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = 19965 cubic feet

Minimum filter basin area = 1664 square feet

Maximum sedimentation basin area = 6655 square feet **For minimum water depth of 2 feet**

Minimum sedimentation basin area = 416 square feet **For maximum water depth of 8 feet**

Provided filter basin area = 5445 square feet

Provided sedimentation basin area = 6120 square feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

POND #2

Project Name: Granada Ridge

Date Prepared: 10/5/2023

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

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

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

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Travis	
Total project area included in plan * =	39.99	acres
Predevelopment impervious area within the limits of the plan* =	0.00	acres
Total post-development impervious area within the limits of the plan* =	9.40	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	8183	lbs

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

Number of drainage basins / outfalls areas leaving the plan area = 2

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

Drainage Basin/Outfall Area No. = 2

Total drainage basin/outfall area =	9.11	acres
Predevelopment impervious area within drainage basin/outfall area=	0.00	acres
Post-development impervious area within drainage basin/outfall area=	4.94	acres
Post-development impervious fraction within drainage basin/outfall area=	0.54	
$L_{M\ THIS\ BASIN}$ =	4300	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter

Removal efficiency = 89 percent

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

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

where:

A_C = Total On-Site drainage area in the BMP catchment area

A_I = Impervious area proposed in the BMP catchment area

A_P = Pervious area remaining in the BMP catchment area

L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	9.11	acres
A_I =	4.94	acres
A_P =	4.17	acres
L_R =	4932	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4350 lbs

F = 0.88

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

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.38	
On-site Water Quality Volume =	18947	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	3789	
Total Capture Volume (required water quality volume(s) x 1.20) =	22736	cubic feet
Provided Capture Volume =	50704	cubic feet

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

7. Re+103;116tention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 3-46

Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr	Enter determined permeability rate or assumed value of 0.1
Irrigation area =	NA	square feet	
	NA	acres	

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = NA cubic feet

9. Filter area for Sand Filters Designed as Required in RG-348 Pages 3-58 to 3-63

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	22736	cubic feet	
Minimum filter basin area =	1895	square feet	
Maximum sedimentation basin area =	7579	square feet	For minimum water depth of 2 feet
Minimum sedimentation basin area =	474	square feet	For maximum water depth of 8 feet
Provided filter basin area =	4900	square feet	
Provided sedimentation basin area =	5300	square feet	

512.439.4700
TBPELS F-1386
TBPELS 10110501
www.LJA.com
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735

GRANADA RIDGE DEVELOPMENT

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

STORMWATER POLLUTION PREVENTION PLAN

February 2025

Prepared for:

GRANADA RIDGE, LLC
201 N. ELM STREET, SUITE 201
GREENSBORO, NORTH CAROLINA 27401

Prepared by:

LJA ENGINEERING, INC.
7500 RIALTO BOULEVARD,
BUILDING II, SUITE 100
AUSTIN, TEXAS 78735
(512) 439-4700
FRN-F-1386

LJA PROJECT NO. A379-0401

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GRANADA RIDGE DEVELOPMENT

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

STORMWATER POLLUTION PREVENTION PLAN

A. SITE DESCRIPTION

1. Project Name: Granada Ridge Development

2. Location: The current address is 8327 W. US Highway 290, Austin, Texas, Travis County, 78736. The Project is located on the south side of West US Highway 290 across from Scenic Brook Drive in Travis County.

3. Facility Operators: CIP CONSTRUCTION COMPANY *(Plans and Specifications)*
   201 N. ELM STREET, SUITE 201
   GREENSBORO, NORTH CAROLINA 27401

   Date N.O.I. submitted:
   General Permit Authorization No.:
   CIP CONSTRUCTION COMPANY *(Contractor)*
   201 N. ELM STREET, SUITE 201
   GREENSBORO, NORTH CAROLINA 27401

   Date N.O.I. submitted:
   General Permit Authorization No.:

4. Property Owner: GRANADA RIDGE, LLC *(Plans and Specifications)*
   201 N. ELM STREET, SUITE 201
   GREENSBORO, NORTH CAROLINA 27401

Project Description: Granada Ridge Development is a 39.99 Acre proposed multi-family development consisting of 372 units located on the south side of West US Highway 290 across from Scenic Brook Drive in Travis County in the City of Austin Extraterritorial Jurisdiction in Travis County, Texas (MAPSCO Grid 611X and City of Austin Grid Nos. A18 and A19). The project includes three (3) apartment buildings, drive aisles, surface parking, two sedimentation/filtration type water quality ponds, two detention ponds, and associated utilities.

The subject tract lies within the portions of the Slaughter and Williamson Creek Watershed designated as the Barton Springs Zone. The subject property is not located within any floodplains or floodways, as shown on the Federal Emergency Management Association, Flood Insurance Rate Map of Travis County, Map Number 48453C0560H, effective date September 26, 2008.

5. Site Area: The construction limits and disturbance caused by construction will include approximately 22.69 acres.

6. Runoff Coefficient: Currently, the site area for the Granada Ridge Development property is represented by a composite runoff coefficient for the 25-year and 100-year events before construction are estimated to be 0.42 and 0.49, respectively. The post construction runoff coefficients are expected to be 0.67 and 0.77, respectively.

7. Existing Soils: According to the Soil Conservation Service (SCS) Soil Survey of Travis County, Texas, the subject tract consists solely of Brackett-Rock Outcrop Complex Soils (BlD). The Brackett Soils consists of well drained, gravelly clay loam and clay loam underlain by limestone bedrock. Per the SCS Soil Survey, the shrink swell potential of the Brackett soils is Low. The Soil Survey also identifies the liquid limit and plasticity index, which are typically used in determining the potential vertical rise (PVR) and shrink-swell potential of the soils. The various soil properties for Brackett Soils are summarized below.

Soil Name	Drainage Class	Hydrologic Soil Group	Permeability (in / hour)	Liquid Limit	Plasticity Index
Brackett Soils	Well Drained	D	0.06-1.98	40	17.3

8. Factors Affecting Surface Water Quality:

   Potential sources of sediment to stormwater runoff:
   - Clearing and grubbing operations
   - Grading and site excavation operations
   - Vehicle tracking
   - Topsoil stripping and stockpiling
   - Landscaping operations

   Potential sources other than sediment:
   - Small fueling activities
   - Minor equipment maintenance
   - Sanitary facilities
   - Solvents, adhesives, paints, etc.
   - paving materials, concrete, mortar

10. Location of Receiving Waters: Granada Ridge Development is situated within the portions of the Slaughter and Williamson Creek Watershed designated as the Barton Springs Zone. The site is divided by a ridge to two drainage areas. The northern portion of the site drains to Williamson Creek and the southern portion of the site drains to Slaughter Creek, both of which are tributaries of the Colorado River. The subject property is within the Barton Springs Section of the Edwards Aquifer recharge or contributing zone. It does contain a water quality transition zone or critical water quality zones as regulated by the City of Austin. Elevations on the site range from 1081 feet mean sea level (ft msl) near the northern and eastern property boundary to 983 ft msl at the southwestern corner and slopes are generally under 15% on the property.

11. Off-Site Operations: Disposal of spoil material will be the responsibility of the Contractors. Spoil shall be temporarily disposed of at the designated onsite temporary disposal area and permanently removed to a permitted off-site spoil disposal area. The Contractors shall be independently responsible as Operators for obtaining necessary permits in conjunction with the off-site disposal of spoil material or acquisition of borrow material.

12. Endangered Species: There are no known endangered species within the boundaries of the project per the Environmental Resource Inventory (ERI) prepared by Terracon, dated May 2014. Based on the vegetative makeup of the forested areas of the site, it's is possible that suitable habitat for the state and federally listed Endangered Golden-cheeked Warbler is present on-site. The Balcones Canyonlands Conservation Plan (BCCP) Habitat Zones Map (available through Travis County) maps areas as Zone – Confirmed Habitat, Zone 2 – Unconfirmed Habitat, or Zone 3 – Not Known to be Habitat for the Golden-cheeked Warbler. The site is mapped as Zone 2, which refers to areas which may include habitat, but have not been studied as of yet. **Appendix F**.

B. POLLUTION PREVENTION CONTROLS

1. Sequence of Construction:

   (1) Install tree protection. (±3 acres)

   (2) Install temporary erosion and sedimentation controls. (±23 acres)

   (3) Clear and grub for roadways, underground utilities, and pond. (±18 acres)

   (4) Excavate and place embankment to roadway subgrade. (±4 acres)

   (5) Construct all underground utilities. (±3 acres)

   (6) Test utilities.

   (7) Assure all utilities have been placed within roadway. (±4 acres)

   (8) Once all utilities below subgrade have been tested, finish subgrade and test. (±3 acres)

   (9) Lay first coarse of base (±4 acres)

   (10) Lay curb and gutter and sidewalk ramp turn downs. (±2 acres)

   (11) Dress up behind back of curb. (±2 acres)

   (12) Lay second coarse base. (±4 acres)

   (13) After base has been tested and passed, lay asphalt. (±4 acres)

   (14) Complete sidewalk ramps. (±1 acre)

   (15) Finish grading behind curb and revegetate. (±5 acre)

   (16) After vegetation is established, remove temporary erosion controls.

2. Erosion and Sedimentation Controls:

Temporary vegetative stabilization:

1. From September 15 to March 1, seeding shall be with cool season cover crops (Wheat at 0.5 pounds per 1000 SF, Oats at 0.5 pounds per 1000 SF, Cereal Rye Grain at 0.5 pounds per 1000 SF) with a total rate of 1.5 pounds per 1000 SF. Cool season cover crops are not permanent erosion control.

2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF.
   a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
   b. Hydromulch shall comply with Table 1, below.
   c. Temporary erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
   d. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 1 Hydromulching for Temporary Vegetative Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
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	1500 to 2000 lbs per acre

Permanent vegetative stabilization:

1. From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetation stabilization is desired, the grasses shall be mowed to a height of less than one half (1/2) inch and the area shall be re-seeded in accordance with 2. below:

2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF with a purity of 95% with 85% germination. Bermuda grass is a warm season grass and is considered permanent erosion control.
   a. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of ½ pound per 1000 SF.
   b. Hydromulch shall comply with Table 2 below.
   c. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil, but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at daily intervals (minimum) during the first two months. Rainfall occurrences of ½ inch or more shall postpone the watering schedule for one week.
   d. Permanent erosion control shall be acceptable when the grass has grown at least 1 ½ inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
   e. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Table 2 Hydromulching for Permanent Vegetation Stabilization

Material	Description	Longevity	Typical Applications	Applications Rates
Bonded Fiber Matrix (BFM)	80% Organic Defibrated Fibers 10% Tackifier	6 Months	On slopes up to 2:1 and erosive soil conditions	2500 to 4000 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	3000 to 4500 lbs per acre (see manufacturers recommendations)

b. Structural Controls:

(i) Erosion and sediment structural controls have been designed to retain sediment on-site to the

extent practicable with consideration for local topography, soil type, and rainfall.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.

(iii) CIP Construction Company will be the facility operator with control over the construction plans and specifications, including the ability to make modifications in the plans and specifications. Prior to site clearing, grading and excavation, stabilized construction entrances will be installed, tree protection/limit of construction fencing will be installed, and silt fences will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. Rock berms will be placed downstream of the areas where concentrated runoff occurs. To insure that no additional areas are disturbed other than those included in the limits of construction, orange mesh fences will be placed on the upstream side of the limits of construction to keep construction activity out of areas not designated for construction. The Contractor will install the stabilized construction entrance and silt fence prior to the start of any construction and be responsible for maintenance of those facilities throughout construction. The Contractor will be responsible for stabilization (revegetation). The Contractor will also be responsible for removing the temporary controls once the revegetation is established.

3. Stormwater Management Controls:

a. Temporary Sediment Controls: A stabilized construction entrance will be place as shown on the *Erosion/Sedimentation Control & Tree Protection Plan* and silt fences will be constructed at the downstream edge of the disturbed areas. Silt fence will also be used at selected locations of significant fill, around material stockpile sites, and around any other area that would be a pollutant source during storm events. The rock berms will be placed immediately downstream of areas where concentrated runoff occurs, and within defined channels downstream from development, as appropriate. Additionally, silt fence will typically be utilized on the downstream side of rock berms to supplement sediment removal. The water quality and detention ponds will be rough graded at the beginning of construction, so they can be used as a sediment trap during construction. The utility trenches will also be utilized as temporary sediment traps to the extent feasible during construction.

The contractor will install the erosion/sedimentation controls prior to the start of any construction. The contractor will be responsible for maintaining the erosion control measures and removing the controls once the revegetation is established. The locations of such controls are shown in *the Erosion/Sedimentation Control & Tree Protection Plan*.

b. Permanent Stormwater Controls: Once construction associated with this project is completed, the site will be revegetated in accordance with the stabilization practices identified in this plan. The existing Water Quality Pond and Vegetative Filter Strips will provide water quality control and treatment for stormwater runoff from the developed areas being conveyed to the creeks.

4. Other Controls:

a. Waste Disposal: All construction-related waste materials will be collected and stored at a temporary onsite spoil disposal site. The Contractors will be independently responsible as Operators for controlling and preventing offsite migration of litter, construction debris, and construction materials.

b. Sanitary Waste: The Contractors will be responsible for placing portable units onsite during construction, and waste will be collected and disposed of in accordance with state and local regulations.

c. Off-site Vehicle Tracking: Stabilized construction entrances will be provided at the entry location to the construction project. The Contractors will be responsible for maintaining the entrances, and removing any sediment deposited onto adjacent streets. Vehicles leaving the site will be washed, as required.

d. Dust Control: Contractors will spray water on disturbed areas and spoils areas, and apply mulch, as required, to control dust.

e. Dewatering: When it becomes necessary to pump standing water from the site, the Contractors shall utilize the methods depicted in the Dewatering Detail included with this plan. Standing water removed via open channel will be routed through silt fence and/or rock berm before leaving the site.

5. Timing of Controls and Measures: Erosion and sediment structural control measures will be in place prior to clearing, grading or construction of any portion of the site. Construction phasing may occur, but in all instances erosion and sedimentation control measures will be in place in those areas prior to start of construction. Disturbed areas will be restored as described under Stabilization Practices. Temporary erosion and sediment controls will be removed only after all disturbed areas have been restored.

C. STATE AND LOCAL REQUIREMENTS

The Stormwater Pollution Prevention Plan complies with the requirements of the City of Austin, Travis County, and the Texas Commission on Environmental Quality (TCEQ) in effect at the time of permitting.

D. INSPECTION AND MAINTENANCE PROCEDURES

CIP Construction Company (and/or their qualified agents) and Contractors, as Operators, shall be independently responsible for inspection of the controls, and for required record keeping (reference Appendix A). All Operators will be responsible for revisions to the controls, as necessary, based on inspections. The Contractors will be responsible for maintenance of the controls.

1. Inspection of Controls:

a. Personnel provided by the Operators shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of TPDES General Permit No. TXR150000, familiar with the construction site, and knowledgeable of this plan. Sediment and erosion control measures identified in this plan shall be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

b. Where sites have been finally or temporarily stabilized, inspections shall be conducted at least once every month.

c. In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

d. This plan must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the plan must be completed within seven (7) calendar days following the inspection. If existing controls are modified or if additional controls are necessary, an implementation schedule must be described in this plan and/or Inspection and Maintenance Report, and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

e. An Inspection and Maintenance Report summarizing the scope of the inspection, the dates of the inspection, and major observations relating to the implementation and/or revision of this plan must be made and retained as part of the plan. Major observations should include: The locations of

discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. Reports must identify any incidents of non-compliance.

2. Maintenance of Controls:

   a. All protective measures and controls identified in this plan shall be maintained in effective operating condition. If, through inspections or other means, it is determined that controls are not operating effectively, then the Contractors, as Operators, shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the plan and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

   b. If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the Operators shall replace or modify the control as soon as practicable after making the discovery.

   c. Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%.

   d. For perimeter controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

   e. If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event if feasible. If the Operators do not own or operate the off-site conveyance, then the Operators must work with the owner or operator of the property to remove the sediment.

E. POLLUTION PREVENTION MEASURES

1. Non-Storm Water Discharges: The following non-stormwater discharges may occur from the site during the construction period:

   a. Discharges from fire-fighting activities;

   b. Uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);

   c. Water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials have been removed; and if local, state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;

   d. Uncontaminated water used to control dust;

   e. Potable water sources including waterline flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life);

f. Uncontaminated air conditioning condensate;

g. Uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and

h. Lawn watering and similar irrigation drainage.

2. Material Inventory: The materials or substances listed below are expected to be present onsite during construction:

- Concrete and concrete products
- Asphalt and asphalt products
- Metal reinforcing materials - rebar, welded wire fabric
- Fertilizers
- Petroleum based products
- Wood
- Plastic (PVC) and metal pipe and fittings
- Rock, gravel, sand, and soil
- Paint

3. Material Management Practices: The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff:

a. Good Housekeeping: The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store only enough product required to do the job.
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers.
- Materials will be stored in the temporary spoils disposal area as shown on erosion/sedimentation control plan, or an area as may otherwise be approved by CIP Construction Company and Engineer.
- Products will be kept in their original containers with the original manufacturers' labels.
- Whenever possible, all of a product will be used before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The Contractor will inspect daily to ensure proper use and disposal of materials onsite.

b. Hazardous Products: These practices are used to reduce the risks associated with hazardous materials (if applicable):

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data will be retained, as they contain important product information.
- If surplus product must be disposed of, manufacturers' and/or local and state recommended

methods for proper disposal will be followed.

c. The following product specific practices will be followed onsite:

- Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphaltic substances used onsite will be applied according to the manufacturers' recommendations.

- Fertilizers: Fertilizers will be applied only in the minimum amounts recommended by the manufacturer or as otherwise indicated on the plans. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. The contents of any partially used bags of fertilizer will be stored in a manner so as to avoid spills.

- Concrete: Onsite concrete truck wash out is allowed, but is restricted as noted below. Excess dried concrete will be removed from the site and transported to a permitted off-site spoil disposal area.

    - Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited.

    - Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measure to prevent runoff from the construction site.

    - Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck washout water is prohibited at all times, and the Operators shall insure that controls are sufficient to prevent the discharge of concrete truck wash out as the result of rain.

    - The discharge of wash out water shall not cause or contribute to groundwater contamination.

4. Spill Control Practices: In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

    - Site personnel will be made aware of the manufacturers' recommended methods for spill cleanup and the location of the information and cleanup supplies.

    - Materials and equipment necessary for spill cleanup will be kept onsite in an accessible location known to site personnel.

    - All spills will be cleaned up immediately upon discovery.

5. Releases of Reportable Quantities (RQ): The EPA has issued regulations that define what reportable quantity levels are for oil and hazardous substances. These regulations can be found at 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302. The TCEQ has issued similar regulations under 30 TAC Chapter 327. If there is an RQ release during the construction period, then the following steps must be taken:

- For quantities less than the reportable quantity* – The contractor will contain and isolate the spilled substance. The remaining spilled substance and contaminated soil will be removed and disposed of properly.

- For quantities more than the reportable quantity* – The contractor will contain and isolate the spilled substance in accordance with 30 TAC Chapter 327. The contractor will then contact the appropriate spill response team and the TCEQ Austin Regional Office (512)339-2929 or the State Emergency Response Center at 1 (800)832-8224 and the National Response Center immediately at (800) 424-8802. The remaining spilled substance and contaminated soil will be removed and disposed of in an using approved emergency response methods. The proper authorities shall be kept informed during the cleanup process. Within 14 days, modify the SWPPP with a written description of the release providing the date and circumstances of the release and the steps to be taken to prevent another release.

* Reportable quantity (RQ) is defined in 30 TAC Chapter 327. The RQ for petroleum products, oil, and industrial solid waste are shown below. For hazardous substances see 30 TAC Chapter 327.4 and 40 CFR Chapter 302.4.

The RQ for *oil, petroleum product and used oil* is as follows:

(1) The RQ for crude oil and oil other than that defined as petroleum product or used oil shall be:
  (A) for spills or discharges onto land – 210 gallons (five barrels); or
  (B) for spills or discharges directly into water in the state – quantity sufficient to create a sheen.
(2) The RQ for petroleum product or used oil shall be:
  (A) except as noted under (B) below, for spills or discharges onto land – 25 gallons;
  (B) for spills or discharges to land from PST exempted facilities – 210 gallons (five barrels); or
  (C) for spills or discharges directly into water in the state – quantity sufficient to create a sheen.

The RQ for spills or discharges into water in the state for *industrial solid waste or other substances* shall be 100 pounds.

6. Spill Response Handbook: The TCEQ Small-Business Handbook for Spill Response (RG-285) is provided as a supplementary resource and can be found in *Appendix D*.

1. Project Location Map

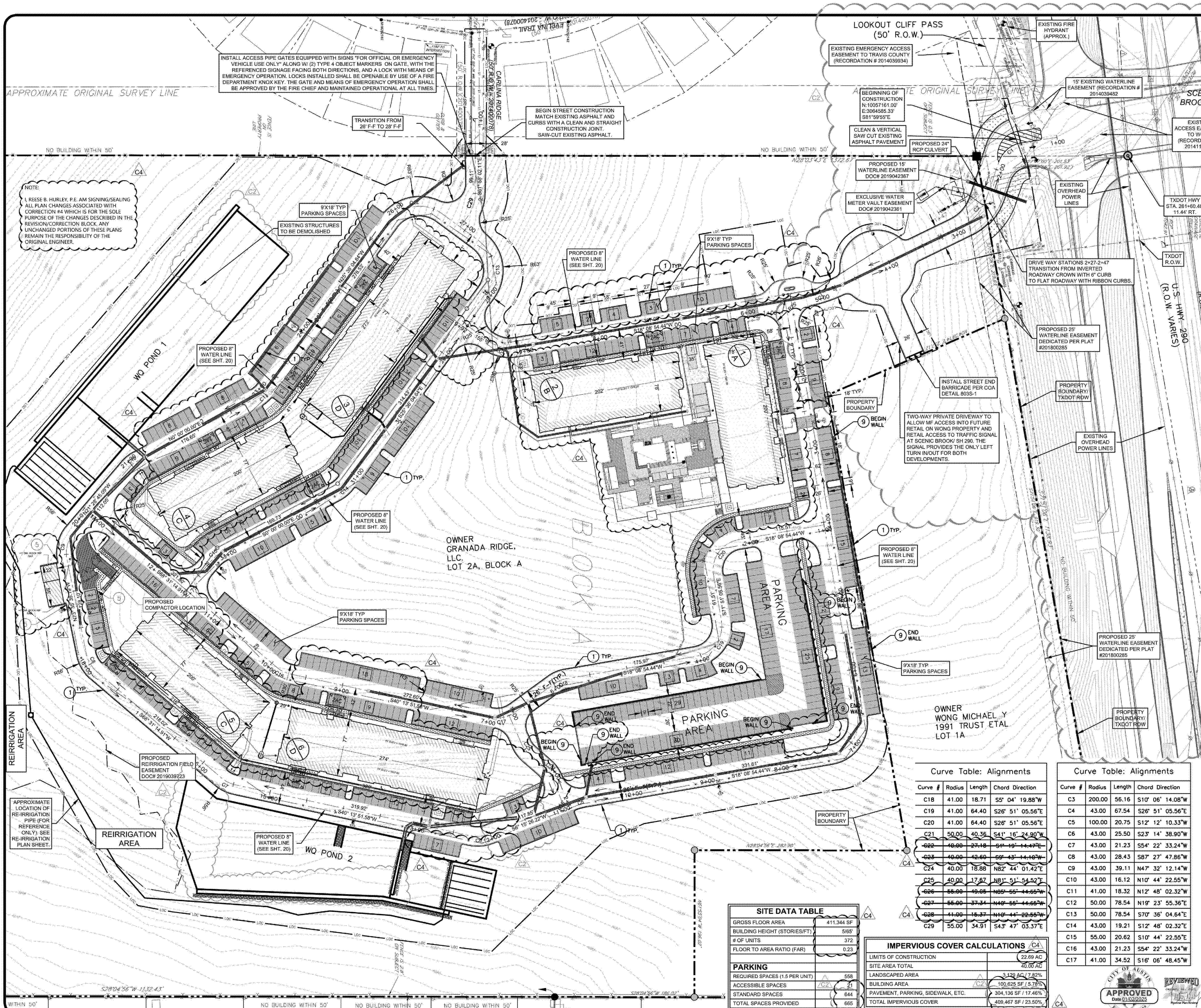
LOCATION MAP

(N.T.S.)

GRANADA RIDGE DEVELOPMENT
8327 WEST US 290 HWY, AUSTIN, TEXAS 78736

LJA ENGINEERING
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
t 5124394700 LJA.com TBPE F-1386

2. Site Map / Temporary Erosion/Sedimentation Control & Tree Protection Plan



SITE LEGEND	
1	CONSTRUCT 6" BARRER CURB & GUTTER, SEE SPILL AND CATCH CURB DETAIL.
2	LIMITS OF CONSTRUCTION (20.76 ACRES) — LOC —
3	FIRE HYDRANT
4	TRAFFIC DIRECTIONS
5	5'-MIN. CURB TRANSITION FROM 6" TO 0" HIGH
6	HEAVY-DUTY PAVEMENT SECTION
7	LIGHT-DUTY PAVEMENT SECTION
8	RIDGID HEAVY-DUTY PAVEMENT SECTION
9	RETAINING WALL
	2:1 EARTHEN SLOPES REINFORCED WITH PERMANENT TRM.
	EXISTING ACCESS EASEMENT TO WONG
	EXISTING EMERGENCY ACCESS EASEMENT
	PROPOSED BUILDING FOOTPRINT
	POROUS PAVEMENT SIDEWALK
	CONCRETE SIDEWALK
	ACCESSIBLE ROUTE

CONSTRUCTION NOTES

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL REFERENCE THE GEOTECHNICAL ENGINEERING REPORT PREPARED FOR ALL GEOTECHNICAL ENGINEERING INFORMATION. CONTRACTOR TO INSTALL PAVEMENT DESCRIBED IN PAVEMENT OPTIONS AND DESIGN SECTION OF THE GEOTECHNICAL REPORT.
3. CONTRACTOR SHALL VERIFY EXISTING SLOPE, SOIL CONDITIONS, AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. ALL CROSS SLOPES ON NEW SIDEWALK CONSTRUCTION SHALL BE LESS THAN 2%, AND RUNNING SLOPE SHALL BE LESS THAN 5%.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING PLANS & FOUNDATION DETAILS (NOT PROVIDED WITH THIS SET).
5. ALL BUILDINGS TO HAVE CONCRETE SLAB FOUNDATION.
6. ACCESS TO THE UNITS IN THE BUILDINGS WILL BE INTERNALLY FROM UNDERGROUND GARAGE.
7. THERE SHALL BE A VERTICAL WALL AROUND THE BUILDING AS NEEDED TO RETAIN EARTH OUTSIDE DUE TO DIFFERENCE IN VERTICAL ELEVATIONS.(REFER TO ARCHITECT PLANS).
8. SIDEWALK SHALL BE INSTALLED AS SHOWN IN ARCHITECTURAL PLANS.(NOT PROVIDED WITH THIS SET).
9. FOR ACCESS ROAD CONSTRUCTION, SAW-CUT EXISTING ASPHALT ROADWAY AND MATCH SURFACE ELEVATION WITH NEW PAVEMENT.
10. ALL AREAS BETWEEN THE BUILDINGS AND PAVEMENT SHALL BE LANDSCAPED AND DETAILED IN THE LANDSCAPE PLANS(NOT INCLUDED WITH THIS SET).
11. ALL ACCESS ROADS AROUND THE BUILDINGS ARE DESIGNED TO MEET FIRE CODES.
12. PARKING AREA STRIPING SHALL BE 4" MINIMUM UNLESS OTHERWISE DESIGNATED AND PAINTED WHITE PER COA STD. 860S (EXCLUDING REFLECTIVE GLASS BEADS).
13. TREES AND SHRUBS ARE STRICTLY PROHIBITED FROM BEING INSTALLED WITHIN TEN (10) LINEAR FEET OF ANY AUSTIN WATER INFRASTRUCTURE. ANY REVISIONS/CORRECTIONS TO THIS SITE PLAN, SP-2016-0586D, THAT PROPOSES TO INSTALL ANY TYPE OF PLANTINGS WILL REQUIRE A COMPLETE REVIEW AND FINAL APPROVAL BY AUSTIN WATER TO ENSURE THERE ARE NO CONFLICTS WITH AUSIN WATER INFRASTRUCTURE.

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction
C18	41.00	18.71	S5° 04' 19.88"W
C19	41.00	64.40	S26° 51' 05.56"E
C20	41.00	64.40	S26° 51' 05.56"E
C21	50.00	40.36	S41° 16' 24.90"W
~~C22~~	~~40.00~~	~~27.18~~	~~S1° 19' 14.47"E~~
~~C23~~	~~40.00~~	~~42.60~~	~~S9° 43' 14.10"W~~
C24	40.00	18.88	N82° 44' 01.42"E
C25	40.00	17.67	N81° 51' 54.52"E
~~C26~~	~~55.00~~	~~49.05~~	~~N85° 55' 44.65"W~~
~~C27~~	~~55.00~~	~~37.34~~	~~N40° 55' 44.65"W~~
~~C28~~	~~41.00~~	~~15.37~~	~~N10° 44' 22.55"W~~
C29	55.00	34.91	S43° 47' 03.37"E

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction
C3	200.00	56.16	S10° 06' 14.08"W
C4	43.00	67.54	S26° 51' 05.56"E
C5	100.00	20.75	S12° 12' 10.33"W
C6	43.00	25.50	S23° 14' 38.90"W
C7	43.00	21.23	S54° 22' 33.24"W
C8	43.00	28.43	S87° 27' 47.86"W
C9	43.00	39.11	N47° 32' 12.14"W
C10	43.00	16.12	N10° 44' 22.55"W
C11	41.00	18.32	N12° 48' 02.32"W
C12	50.00	78.54	N19° 23' 55.36"E
C13	50.00	78.54	S70° 36' 04.64"E
C14	43.00	19.21	S12° 48' 02.32"E
C15	55.00	20.62	S10° 44' 22.55"E
C16	43.00	21.23	S54° 22' 33.24"W
C17	41.00	34.52	S16° 06' 48.45"W

SITE DATA TABLE

GROSS FLOOR AREA	411,344 SF
BUILDING HEIGHT (STORIES/FT)	5/65'
# OF UNITS	372
FLOOR TO AREA RATIO (FAR)	0.23
PARKING	
REQUIRED SPACES (1.5 PER UNIT)	558
ACCESSIBLE SPACES	21
STANDARD SPACES	644
TOTAL SPACES PROVIDED	665

IMPERVIOUS COVER CALCULATIONS

LIMITS OF CONSTRUCTION	22.69 AC
SITE AREA TOTAL	40.00 AC
LANDSCAPED AREA	3.129 AC / 7.82%
BUILDING AREA	100,625 SF / 5.78%
PAVEMENT, PARKING, SIDEWALK, ETC.	304,136 SF / 17.46%
TOTAL IMPERVIOUS COVER	409,467 SF / 23.50%

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

CITY OF AUSTIN APPROVED Date 01/02/2025

REVIEWED January 02, 2025 Pipeline Plan Review

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
OVERALL SITE PLAN
AUSTIN, TX 78736

REVISIONS			
NO.	DESCRIPTION	BY	DATE
C2		DSM	04/11/2023
C4		DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: OSP

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

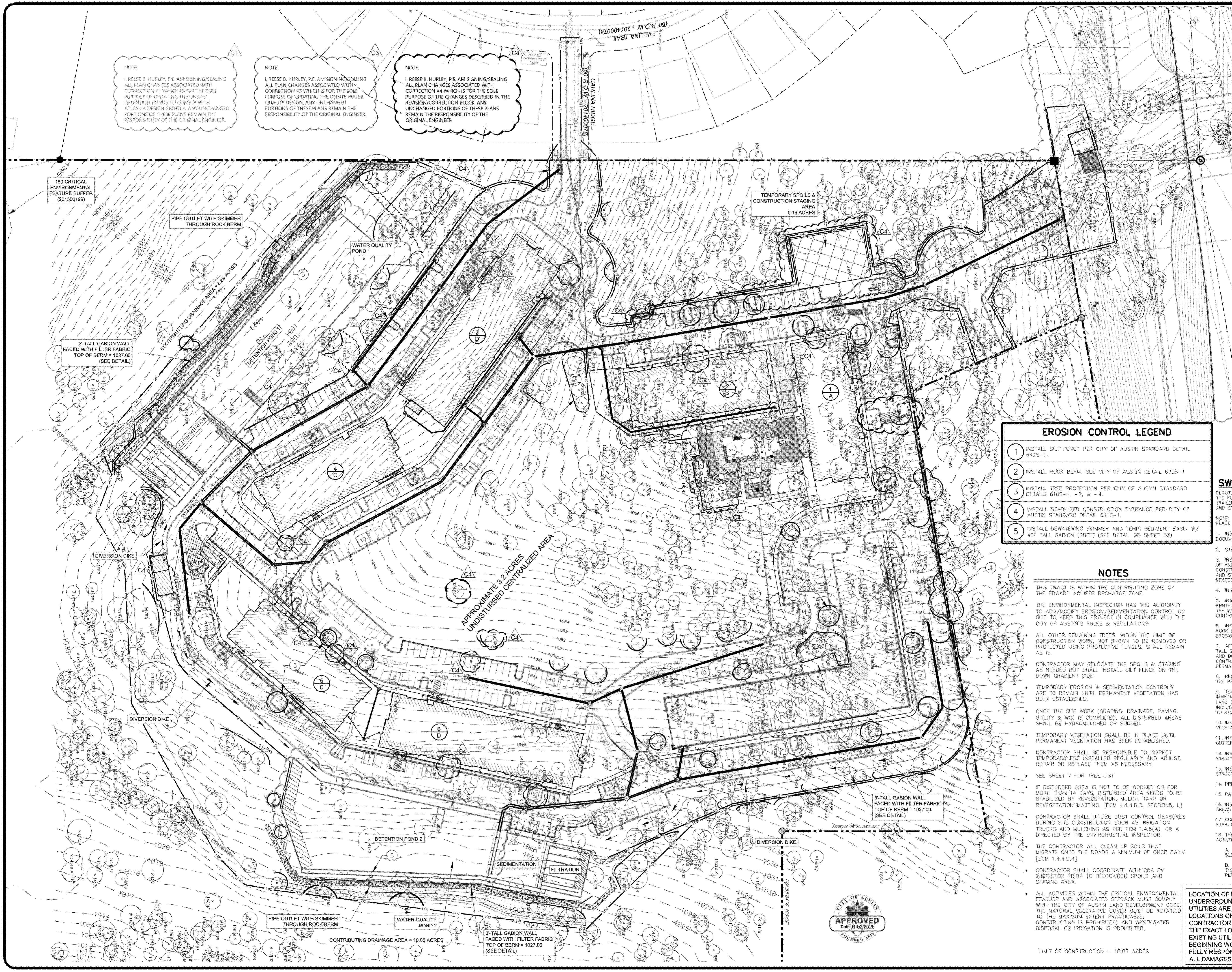
JOB NUMBER: A379-0401

OSP

SHEET NO. 13 OF 66 SHEETS

REPLACEMENT SHEET

SP-2018-0138D



LEGEND

	PROPERTY LINE
LOC	LIMITS OF CONSTRUCTION
(1) SF	SILT FENCE
(4)	STABILIZED CONSTRUCTION ENTRANCE
	INLET PROTECTION
	TEMP. EROSION BLANKET, TYPE C (PER COA STD. 605S)
(2)	ROCK BERM
	40"-TALL GABION WALL FACED W/ FILTER FABRIC
	DIVERSION DIKE
	INSTALL TYPE III BARRICADE (SKID-MOUNTED W/ SAND BAGS) FULL WIDTH OF STREET
(3)	TREES TO BE PROTECTED AND SAVED; INSTALL FENCE
	TREES TO BE REMOVED
FFE	FINISHED FLOOR ELEVATION
GFE	GARAGE FLOOR ELEVATION
WA	WASHOUT AREA
	TEMPORARY SPOILS & CONSTRUCTION STAGING AREA
(5)	TEMPORARY SEDIMENT BASIN W/ PIPE OUTLET AND SKIMMER (SEE DETAIL)

EROSION CONTROL LEGEND

1	INSTALL SILT FENCE PER CITY OF AUSTIN STANDARD DETAIL 642S-1.
2	INSTALL ROCK BERM. SEE CITY OF AUSTIN DETAIL 639S-1
3	INSTALL TREE PROTECTION PER CITY OF AUSTIN STANDARD DETAILS 610S-1, -2, & -4.
4	INSTALL STABILIZED CONSTRUCTION ENTRANCE PER CITY OF AUSTIN STANDARD DETAIL 641S-1.
5	INSTALL DEWATERING SKIMMER AND TEMP. SEDIMENT BASIN W/ 40" TALL GABION (RBFF) (SEE DETAIL ON SHEET 33)

NOTES

- THIS TRACT IS WITHIN THE CONTRIBUTING ZONE OF THE EDWARD AQUIFER RECHARGE ZONE.
- THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD/MODIFY EROSION/SEDIMENTATION CONTROL ON SITE TO KEEP THIS PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN'S RULES & REGULATIONS.
- ALL OTHER REMAINING TREES, WITHIN THE LIMIT OF CONSTRUCTION WORK, NOT SHOWN TO BE REMOVED OR PROTECTED USING PROTECTIVE FENCES, SHALL REMAIN AS IS.
- CONTRACTOR MAY RELOCATE THE SPOILS & STAGING AS NEEDED BUT SHALL INSTALL SILT FENCE ON THE DOWN GRADIENT SIDE.
- TEMPORARY EROSION & SEDIMENTATION CONTROLS ARE TO REMAIN UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- ONCE THE SITE WORK (GRADING, DRAINAGE, PAVING, UTILITY & WQ) IS COMPLETED, ALL DISTURBED AREAS SHALL BE HYDROMULCHED OR SODDED.
- TEMPORARY VEGETATION SHALL BE IN PLACE UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- CONTRACTOR SHALL BE RESPONSIBLE TO INSPECT TEMPORARY ESC INSTALLED REGULARLY AND ADJUST, REPAIR OR REPLACE THEM AS NECESSARY.
- SEE SHEET 7 FOR TREE LIST
- 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. [ECM 1.4.4.B.3, SECTION5, I.]
- CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR A DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- THE CONTRACTOR WILL CLEAN UP SOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. [ECM 1.4.4.D.4]
- CONTRACTOR SHALL COORDINATE WITH COA EV INSPECTOR PRIOR TO RELOCATION SPOILS AND STAGING AREA.
- ALL ACTIVITIES WITHIN THE CRITICAL ENVIRONMENTAL FEATURE AND ASSOCIATED SETBACK MUST COMPLY WITH THE CITY OF AUSTIN LAND DEVELOPMENT CODE. THE NATURAL VEGETATIVE COVER MUST BE RETAINED TO THE MAXIMUM EXTENT PRACTICABLE; CONSTRUCTION IS PROHIBITED; AND WASTEWATER DISPOSAL OR IRRIGATION IS PROHIBITED.

LIMIT OF CONSTRUCTION = 18.87 ACRES

SWPPP IMPLANTATION SEQUENCE

DENOTE ON SITE MAP THE IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AS THEY OCCUR OR INSTALLED: CONSTRUCTION TRAILER, LAYDOWN AREA, PORTA POTTY, CONCRETE WASHOUT PIT AND STOCKPILE AREAS.

NOTE: DOWNSLOPE PROTECTION MEASURES MUST ALWAYS BE IN PLACE BEFORE EXISTING SOILS ARE DISTURBED.

1. INSTALL SWPPP INFORMATION SIGN AND POST REQUIRED DOCUMENTS NEAR THE CONSTRUCTION EXIT/ENTRANCE.
2. STAKE/ FLAG THE LOC.
3. INSTALL PERIMETER SEDIMENT CONTROL BMPS IN THE VICINITY OF AND DOWN RADIANT FROM, THE LOCATION OF THE PLANNED CONSTRUCTION EXIT, CONSTRUCTION TRAILER TEMPORARY PARKING AND STORAGE. CLEAR ONLY THE MINIMAL AREA ACTUALLY NECESSARY TO INSTALL THESE PERIMETER CONTROLS.
4. INSTALL STABILIZED CONSTRUCTION EXIT.
5. INSTALL REMAINING PERIMETER CONTROL BMPS AND TREE PROTECTION FENCE AS SHOWN ON THE SITE MAP. CLEAR ONLY THE MINIMAL AREA NECESSARY TO INSTALL THE PERIMETER CONTROLS AND TREE PROTECTION FENCE.
6. INSTALL TEMPORARY SEDIMENTATION BASINS, DIVERSION BERMS, ROCK BERMS, SILT FENCE AND ALL OTHER BMPS SHOWN ON EROSION CONTROL PLAN.
7. AFTER THE TEMPORARY SEDIMENTATION BASINS WITH THE 40" TALL GABIONS FACED WITH FILTER FABRIC, OUTLET PIPE, SKIMMERS AND DIVERSION BERMS ARE INSTALLED AND STABILIZED. THE CONTRACTOR MAY CONTINUE CLEARING AND GRUBBING THE PERMANENT PONDS, BUILDING AREAS AND PAVEMENT AREAS.
8. BEGIN GRADING OF THE SITE AND START CONSTRUCTION OF THE PERMANENT PONDS, BUILDING AREAS AND PAVEMENT AREAS.
9. TEMPORARILY STABILIZE, THROUGHOUT THE CONSTRUCTION AND IMMEDIATELY FOLLOWING THE COMPLETION OF THE MOST RECENT LAND DISTURBING/GRADING ACTIVITIES, ALL DISTURBED AREAS, INCLUDING MATERIAL STOCKPILES THAT ARE SCHEDULED OR LIKELY TO REMAIN INACTIVE FOR MORE THAN 14 DAYS OR MORE.
10. IMMEDIATELY PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO GRADE.
11. INSTALL UTILITIES, UNDER DRAINS, STORM SEWER, CURB AND GUTTERS.
12. INSTALL RIPRAP/REVETMENT MATS AROUND OUTLET STRUCTURES AS EACH OUTLET STRUCTURE AS INSTALLED.
13. INSTALL IN THE PROTECTION AT ALL STORM SEWER STRUCTURES AS EACH INLET STRUCTURE IS INSTALLED.
14. PREPARE SITE FOR PAVING.
15. PAVE SITE.
16. INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES, PER BMP DETAILS.
17. COMPLETE GRADING AND INSTALLATION PERMANENT STABILIZATION OVERALL AREAS, EASEMENTS AND PONDS.
18. THE SITE SHALL BE FULLY STABILIZED AND ALL CONSTRUCTION ACTIVITIES SHALL HAVE BEEN COMPLETED THEN:
    A. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL BMPS.
    B. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF THE TEMPORARY BMPS AND APPLY FOR TERMINATION OF PERMIT.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
EROSION SEDIMENTATION CONTROL & TREE PROTECTION PLAN
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
C1	[illegible]	DSM	12/21/2022
C2	[illegible]	DSM	04/04/2023
C3	[illegible]	DSM	09/14/2023
C4	MODIFY TREE PROTECTION, LIMIT OF CONSTRUCTION, DIVERSION DIKE, AND SILT FENCE. REMOVE TREES, ADD INLET PROTECTION	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ESC

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

ESC

SHEET NO. 9 OF 66 SHEETS

C4 C3 C2 C1 REPLACEMENT SHEET

SP-2018-0138D

3. Water Quality Plan / Permanent Controls

GRANADA RIDGE SITE PLAN
POND #1 TABLES

GRANADA RIDGE POND #1 Detention Pond Staging

Elev., ft.	Area, (Acre)
1028	0.00
1029	0.09
1030	0.35
1031	0.58
1032	0.68
1033	0.68
1034	0.68

GRANADA RIDGE POND #1 Detention Pond Storage-Discharge

Storm	Elev., ft.	Storage, Acre-FT	Discharge, cfs
2 yr.	1030.7	0.60	13.4
10 yr.	1031.8	1.20	16.6
25 yr.	1032.3	1.50	29.9
100 yr.	1032.9	1.90	68.7

GRANADA RIDGE Outlet Rating POND #1

Stage/Elev., ft.	1 - 1.0' Circular Opening @ 1029.00 Q (cfs)	25.00' Weir @ 1032.00 Q (cfs)	222.00' Weir @ 1032.42 Q (cfs)	Total Flows (cfs)
1028	0.00	0	0	0.00
1029	6.95	0	0	6.95
1030	9.68	0	0	9.68
1031	11.96	0	0	11.96
1032	13.69	0	0	13.69
1033	15.31	75	0	90.31
1034	16.77	212.13	294.18	523.08

GRANADA RIDGE SITE PLAN
POND #2 TABLES

GRANADA RIDGE POND #2 Detention Pond Staging

Elev., ft.	Area, (Acre)
1025	0
1026	0.09
1027	0.36
1028	0.61
1029	0.68
1030	0.68
1031	0.68

GRANADA RIDGE POND #2 Detention Pond Storage-Discharge

Storm	Elev., ft.	Storage, Acre-FT	Discharge, cfs
2 yr.	1027.7	0.60	16.4
10 yr.	1028.6	1.10	26.6
25 yr.	1029.2	1.50	32.7
100 yr.	1030.0	2.10	55.3

GRANADA RIDGE Outlet Rating POND #2

Elev., ft.	1 - 1.0' Circular Opening @ 1025.00 Q (cfs)	3 - 1' Circular Opening @ 1027.00 Q (cfs)	32.00' Weir @ 1029.75 Q (cfs)	247.00' Weir @ 1030.50 Q (cfs)	Total Flow (cfs.)
1025	0.00	0.00	0	0	0.00
1026	9.66	6.72	0	0	16.38
1027	12.25	11.35	0	0	23.60
1028	15.01	13.89	0	0	28.90
1029	17.33	16.04	0	0	33.37
1030	19.37	17.94	12.00	0	49.31
1031	21.22	19.65	134.56	261.96	437.03

GRANADA RIDGE - WATER QUALITY POND #1 (LJA)
Stage-Storage Table

Stage (ft msl)	Area (sf)	Area (acres)	Storage Incremental (cf)	Storage Cummulat(wsef)	Storage Cummulat(wsac-ft)
1033.68	5,645	0.125	0.00	0.00	0.000
1032	7,570	0.169	2,243.61	2,243.61	0.052
1033	11,303	0.259	9,339.45	11,583.06	0.266
1034	11,343	0.260	11,322.89	22,905.95	0.526
1035	11,381	0.261	11,361.73	34,267.68	0.787
1035.68	11,408	0.262	7,405.85	41,673.53	0.957
1036	11,450	0.262	5,994.52	45,668.05	1.048
1037	11,498	0.263	11,439.85	57,106.88	1.311
1038	11,497	0.264	11,477.42	68,584.29	1.574

GRANADA RIDGE - WATER QUALITY POND #2 (LJA)
Stage-Storage Table

Stage (ft msl)	Area (sf)	Area (acres)	Storage Incremental (cf)	Storage Cummulat(wsef)	Storage Cummulat(wsac-ft)
1026.6	3,996	0.092	0.00	0.00	0.000
1027	5,534	0.127	1,906.04	1,906.04	0.044
1028	8,255	0.190	6,894.59	8,800.63	0.202
1029	8,306	0.191	8,280.35	17,080.98	0.392
1030	8,355	0.192	8,330.62	25,411.59	0.583
1031	8,406	0.193	8,380.44	33,792.03	0.776
1032	8,456	0.194	8,430.81	42,222.84	0.969
1033	8,507	0.195	8,481.23	50,703.87	1.164

COA APPENDIX R-5
RETENTION/IRRIGATION POND #1 CALCULATIONS FOR DEVELOPMENT PERMITS

DRAINAGE AREA DATA

Drainage Area to Control	7.83 ac.
Drainage Area Impervious Cover	55.44 %
Capture Depth (0.5"*((IC-20)/100))	1.40 in.

WATER QUALITY CONTROL CALCULATIONS	Required	Provided
The Water Quality Control is to be **Retention Irrigation**		
25-year Peak Flow Rate to Control (Q25)	73.1 cfs	
100-year Peak Flow Rate to Control (Q100)	97.5 cfs	
Water Quality Volume (WQV= CD*DA*3630)	39,792 cf.	41,674 cf.
Rentention Pond Volume	min. WQV cf.	132,585 cf.
Water Quality Elevation	1035.49 ft. msl	1035.65 ft. msl
Elevation of Splitter/Overflow Weir	min. WQ elev. ft. msl	1035.65 ft. msl
Length of Splitter Weir		50.0 ft.
Required Head to Pass Q100 (H = (Q_{100}/(3 x L))^2/3)	maximum 1.0 ft.	0.70 ft.
Pond Freeboard Provided to Pass Q_{100}	minimum 0.25 ft.	2.65 ft.

COA APPENDIX R-5
RETENTION/IRRIGATION POND #2 CALCULATIONS FOR DEVELOPMENT PERMITS

DRAINAGE AREA DATA

Drainage Area to Control	9.11 ac.
Drainage Area Impervious Cover	54.47 %
Capture Depth (0.5"*((IC-20)/100))	1.52 in.

WATER QUALITY CONTROL CALCULATIONS	Required	Provided
The Water Quality Control is to be **Retention Irrigation**		
25-year Peak Flow Rate to Control (Q25)	93.8 cfs	
100-year Peak Flow Rate to Control (Q100)	125.6 cfs	
Water Quality Volume (WQV= CD*DA*3630)	50,265 cf.	50,704 cf.
Retention Pond Volume	min. WQV cf.	135,836 cf.
Water Quality Elevation	1032.95 ft. msl	1033.00 ft. msl
Elevation of Splitter/Overflow Weir	min. WQ elev. ft. msl	1033.00 ft. msl
Length of Splitter Weir		60.0 ft.
Required Head to Pass Q100 (H = (Q_{100}/(3 x L))^2/3)	maximum 1.0 ft.	0.74 ft.
Pond Freeboard Provided to Pass Q_{100}	minimum 0.25 ft.	0.26 ft.

IRRIGATION AREA CALCULATIONS
(ACCOUNTS FOR TOTAL PROVIDED WQV)

Soil Permeability	minimum 0.03 in/hr	0.2	in/hr
Pond Drawdown	maximum 72 hrs.	60	hrs
Irrigation Rate		0.2	in/hr
Irrigation Area		4.92	ac

Point of Confluence Summary
GRANADA RIDGE

	2 yr.		10 yr.		25 yr.		100 yr.	
Point of Confluence	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
CP #1	30.20	20.70	54.20	30.40	70.70	39.60	98.00	91.20
CP#2	19.60	19.40	35.00	30.70	45.50	38.70	63.00	62.60
O-1	22.20	19.60	39.50	35.30	51.40	46.10	71.00	63.90
O-2	26.80	24.00	48.20	43.10	63.00	56.20	87.40	77.80
O-3	20.20	7.40	36.00	13.30	46.90	17.40	64.70	24.20
O-4	17.20	9.50	30.60	16.80	39.70	22.00	54.80	30.40

* The stormwater flow off the site has not been increased from the existing condition.

Granada Ridge Development
Dam Safety Calculations
Maximum Water Surface Elevations in Spillway (ft., msl.)

	1 Hr. PMP	2 Hr. PMP	3 Hr. PMP	6 Hr. PMP	12 Hr. PMP	24 Hr. PMP	48 Hr. PMP	72 Hr. PMP
Detention Pond #1	1033.3	1033.4	1033.3	1033	1032.8	1032.7	1032.3	1032.2
Detention Pond #2	1030.6	1030.6	1030.6	1030.5	1030.1	1030	1029.4	1028
Water Quality Pond #1	1038.7	1038.8	1038.7	1038.6	1038.5	1038.4	1038.3	1038.2
Water Quality Pond #2	1033.7	1033.8	1033.7	1033.6	1033.5	1033.4	1033.3	1033.2

Granada Ridge Development
Dam Safety Calculations
Flow Into Ponds (cfs)

	1 Hr. PMP	2 Hr. PMP	3 Hr. PMP	6 Hr. PMP	12 Hr. PMP	24 Hr. PMP	48 Hr. PMP	72 Hr. PMP
Water Quality Pond #1	93.8	105.2	95	70.7	50.5	44.9	19.9	13.1
Water Quality Pond #2	109.1	122.4	110.5	82.3	58.8	52.3	23.1	15.3

*Probable Maximum Precipitations were acquired from Table 2-8 in Section. 2.6.1 of the City of Austin Drainage Criteria Manual.
**Probable Maximum Flood temporal distributions were obtained from Figure 2-4, Appendix D of the City of Austin Drainage Criteria Manual.

SLAT — STORMWATER LOAD ANALYSIS TOOL 2.1

Quick Guide

1. Enable Macros in the worksheet.
2. Click "Restore Defaults" button to the right.
3. Fill all **yellow cells** with project specifics, moving from top to bottom.
4. Click "View Full Results" button.
5. Project Passes if Green "COMPLIANT" button appears.

Find the **Full User Manual** at austintexas.gov/department/stormwater-management

Questions? Email SLAT@austintexas.gov

Click Here To **Restore Defaults** For a New Analysis

Click Here To **View Results**

KEY: Required User Input | **Key User Input** | Internal Calculation | Error | **Calculator Output** | Does Not Apply

Step 1: Input site characteristics in yellow highlighted cells

Granada Ridge Development	Reese Hurley	8/12/2023	SLAT 2.1 - 08/2022

	Drainage Area A	Drainage Area B
Is your site within the Barton Springs Zone (BSZ)?	Yes	
How many drainage areas, n_{max}, does your site have?	2	
Drainage area to the control, A_n (acres)	7.83	9.11
Base impervious cover of the drainage area, IC_B (%)	0.0	0.0
Developed impervious cover of the drainage area, IC_D (%)	55.4	54.5

Step 2: Input SCM characteristics in yellow highlighted cells

	Drainage Area A	Drainage Area B
SCM 1 (First in Series)	SCM A1	SCM B1
SCM Type	Retention Basin	Retention Basin
Is SCM 1 **off-line**?	Yes (Off-Line)	Yes (Off-Line)
What is the Water Quality Volume, *WQV* (inches) [aka Capture Depth]	1.4	1.52
Minimum water quality volume allowed (in)	0.85	0.85
SCM 1 Actual Volume (ft^3)	39792	50265
Do you know the **drawdown time** or the **flow rate**?	Drawdown Time	Drawdown Time
Drawdown Time, *DDT* (hrs) [tot. time to empty full SCM	60	60
Flow Rate (gpm) [use only for "alternative" controls]		
Treatment Rate, Ω (in/hr)	0.023	0.025
Do you already know the **runoff capture efficiency**?	No	No
User Entered Runoff Capture Efficiency, RCE (%)		
Runoff Capture Efficiency, RCE (%)	95.2%	95.8%
Conveyance		
How is effluent from SCM 1 discharged?	Pumped	Pumped
Delay after end of rainfall before discharging SCM 1 (hrs)	12	12
SCM 2 (Second in Series)	SCM A2	SCM B2
SCM Type	Infiltration Field	Infiltration Field
Do you know the infiltrated or reused water quantity?	No; infiltrate all routed water	No; infiltrate all routed water
User-entered infilt. water quality volume, WQV_{inf} (in)		
-OR- Percent of yearly runoff infiltrated, RCE_{inf} (%)		
Soil infiltration rate (in/hr)	0.2	0.2
Ratio of drawdown time / irrigation time, for any zone	2	2
Approximate Minimum Field Area (Ac)	1.83	2.31

Step 3: Input Effluent Data for Alternative SCMs

Pollutant	Units		
COD	mg/L		
E. coli	CFU/100mL		
Pb	mg/L		
TN	mg/L		
TP	mg/L		
TSS	mg/L		
Zn	mg/L		

Pollutant	Units		
COD	mg/L		
E. coli	CFU/100mL		
Pb	mg/L		
TN	mg/L		
TP	mg/L		
TSS	mg/L		
Zn	mg/L		

GRANADA RIDGE DETENTION POND #1
100 YR. SPILLWAY DESIGN

Provided Overflow Elevation	=	1033.42
Top of Wall Elevation	=	1034.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	115.0
C = Weir coefficient	3.0
L = Width of weir (feet)	222.0
H = Depth of flow (feet)	0.31
Max. WSE_{100} in Detention Pond =	1033.73

GRANADA RIDGE DETENTION POND #2
100 YR. SPILLWAY DESIGN

Provided Overflow Elevation	=	1030.50
Top of Wall Elevation	=	1031.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	125.6
C = Weir coefficient	3.0
L = Width of weir (feet)	247.0
H = Depth of flow (feet)	0.31
Max. WSE_{100} in Detention Pond =	1030.81

GRANADA RIDGE WATER QUALITY POND #1
OVERFLOW WEIR DESIGN

Provided Overflow Elevation	=	1038.00
Top of Box Elevation	=	1039.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	97.5
C = Weir coefficient	3.0
L = Width of weir (feet)	50.0
H = Depth of flow (feet)	0.75
Max. WSE_{100} in Box =	1038.75

SPLITTER BOX ORIFICE

Q = 25 year developed flow into splitter box (cfs)	73.10
A = Area of Orifice Provided, ft^2	16.00
V = Velocity of the flow exiting splitter box orifice (fps)	4.57

GRANADA RIDGE WATER QUALITY POND #2
OVERFLOW WEIR DESIGN

Provided Overflow Elevation	=	1033.00
Top of Box Elevation	=	1034.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	113.5
C = Weir coefficient	3.0
L = Width of weir (feet)	60.0
H = Depth of flow (feet)	0.74
Max. WSE_{100} in Box =	1033.74

SPLITTER BOX ORIFICE

Q = 25 year developed flow into splitter box (cfs)	85.00
A = Area of Orifice Provided, ft^2	16.00
V = Velocity of the flow exiting splitter box orifice (fps)	5.31

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

TXDOT NOTE:
DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
DRAINAGE & WATER QUALITY CALCULATIONS
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER C1 COMMENTS DATED 12/27/2022	DSM	12/27/2022
2	UPDATE BOX CULVERT AND DRAINAGE AREA MAP	DSM	04/04/2023
3	REVISE BOX CULVERT AND DRAINAGE AREA MAP PER C1 COMMENTS DATED 04/14/2023	DSM	06/14/2023

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: GRANADA RIDGE WATER QUALITY CALCULATIONS

STATE OF TEXAS — REESE B HURLEY — 98211 — LICENSED PROFESSIONAL ENGINEER

FOR C3 ONLY 09/14/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

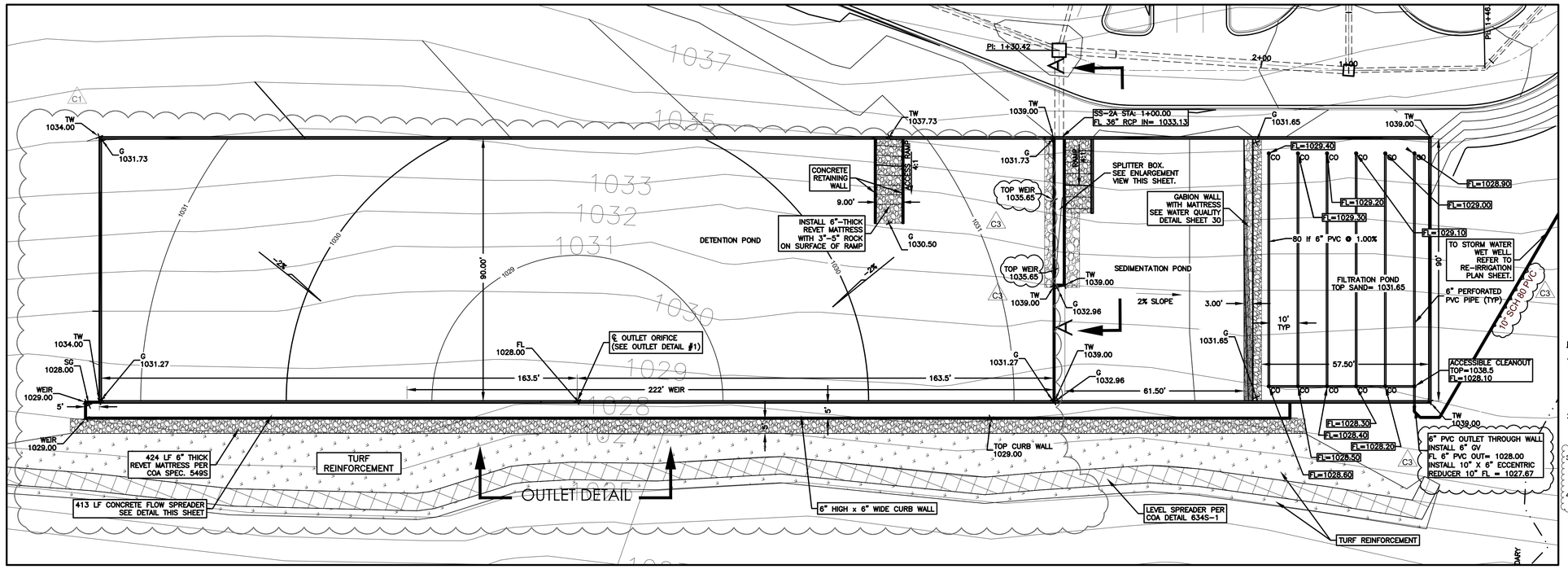
JOB NUMBER: A379-0401

DM03

SHEET NO. 12 OF 63 SHEETS

SP-2018-0138D

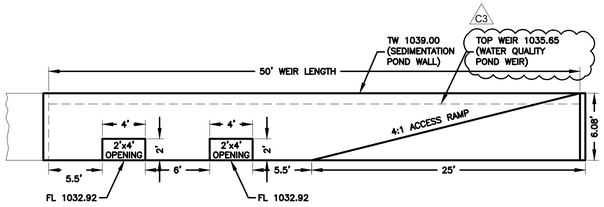
C3 C2 C1 REPLACEMENT SHEET



NOTE:
SEDIMENTATION/FILTRATION BASIN SHALL DE DESIGNED AND CONSTRUCTED PER CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL CRITERIA.

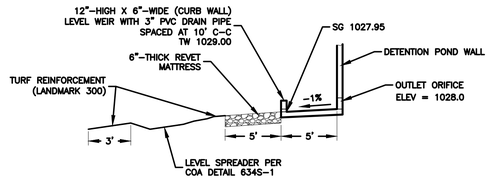
WATER QUALITY POND-1 PLAN VIEW

SCALE: 1"=20'



SECTION A-A

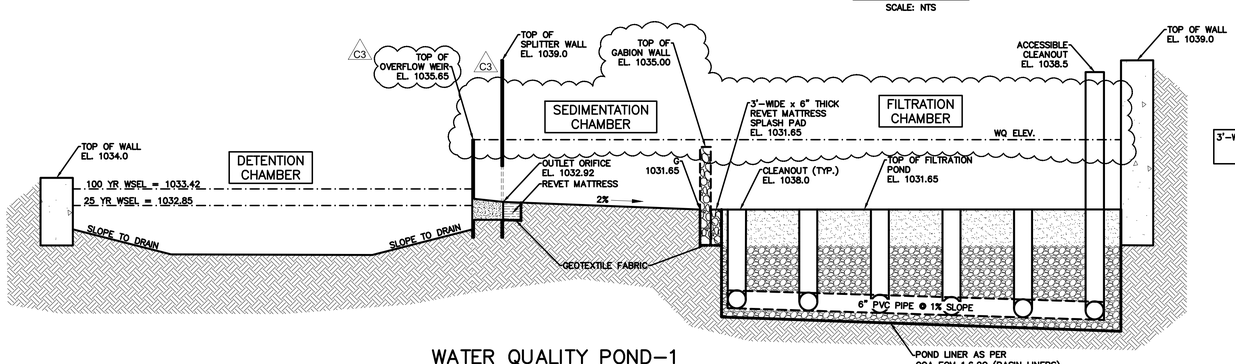
SCALE: NTS



NOTE:
1. ALL CONCRETE IN FLOW SPREADER SHALL BE 6" THICK AND REINFORCED WITH #4 BARS 18"C-C BOTH WAYS.
2. SUBGRADE BELOW CONCRETE TO BE COMPACTED TO MEET EMBANKMENT SPECIFICATION 132S.
3. SEE PLAN VIEW FOR ELEVATIONS.
4. TURF REINFORCEMENT MAT SHALL BE INSTALLED WITHIN AN ANCHOR TRENCH (PER MANUFACTURER'S SPECIFICATIONS) IMMEDIATELY AT REVET MATTRESS, CONTINUE TO OVERLAP LEVEL SPREADER AND ANCHORED 3' MINIMALLY BEYOND CREST OF LEVEL SPREADER.
5. THE TURF REINFORCEMENT MAT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THE MAT SHALL BE PLACED ON MINIMALLY 4" OF TOPSOIL AS PER COA ITEM NUMBER 601S.3A. THE TOPSOIL SHALL BE FERTILIZED PER 606S. SEEDING SHALL INCLUDE TACKIFIER AND CELLULOSE FIBER MULCH, WATERED UNTIL 1½" OR GREATER IN HEIGHT. GRASS TYPE SHALL BE NATIVE GRASS SEED MIX PER COA ITEM 604S.6.
6. FIELD ADJUSTMENTS OF THE EROSION CONTROLS MAY BE REQUIRED DURING CONSTRUCTION UPON THE DIRECTION OF COA INSPECTOR.

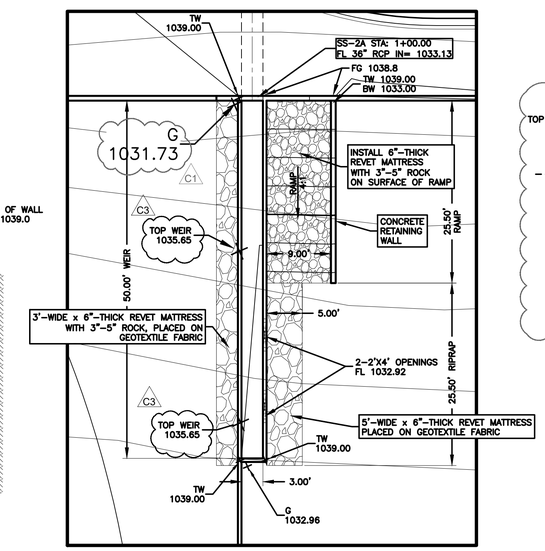
OUTLET DETAIL #2

SCALE: NTS



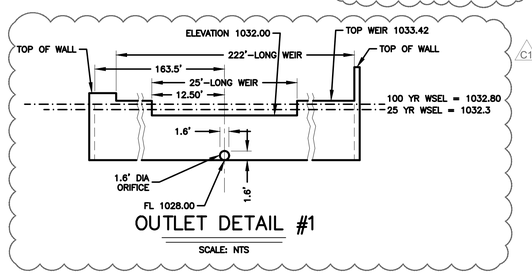
WATER QUALITY POND-1 TYPICAL CROSS SECTION VIEW

SCALE: NTS



SPLITTER BOX ENLARGEMENT VIEW

SCALE: 1"=10'



OUTLET DETAIL #1

SCALE: NTS

SPOT ELEVATION ABBREVIATIONS:

TW	TOP OF WALL
G	GROUND
FL	FLOW LINE
SG	SLAB GRADE

NOTE:

1. 6'-HIGH IRON FENCE BY MASTER-HALCO SHALL BE INSTALLED ON TOP OF WATER QUALITY POND FRONT AND SIDE WALLS, ALONG WITH 2-10' WIDE OPENINGS FOR ACCESS LOCATED AT ACCESS RAMPS. TOTAL LENGTH OF FENCE 515 LF. FENCE DETAIL PROVIDED ON SHEET 30.
2. INSTALL CLEANOUTS WITH REMOVABLE PVC CAP AT EVERY LATERAL AND AT EVERY TEE CONNECTION. THE TOP OF THESE CLEANOUTS SHALL BE FLUSH WITH THE TOP OF SAND BED (EL. 1031.65)
3. A POND LINER IS NOT REQUIRED FOR THIS PROJECT PER COA CODE AND THEREFORE THERE IS NOT AN APPLICABLE QA/QC PLAN OR 3RD PARTY INSPECTOR. THE LINER IS BEING INSTALLED VOLUNTARILY BY THE LANDOWNER.
4. THE POND LINER MUST EXTEND BENEATH BOTH THE SEDIMENTATION AND FILTRATION BASINS.

C3

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C1

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

FOR C3 ONLY 09/14/2023

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- -700- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- STORM SEWER MANHOLE
- SIGN (AS NOTED)

10 0 5 10 20 (IN FEET) GRAPHIC SCALE 1"=20'

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
POND 1 PLAN
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
3	NOTE DETAILS BOX CHANGE, TI BOX RISE DETENTION POND SIDE, INCREASE LOWER WATER QUALITY WEIR ELEVATION, LARGE AND ADD REDUCER TO WATER QUALITY POND OUTLET PIPES TO WET WELL	DSM	09/14/2023

REVISIONS

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: POND 1 PLAN

REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

WQ01

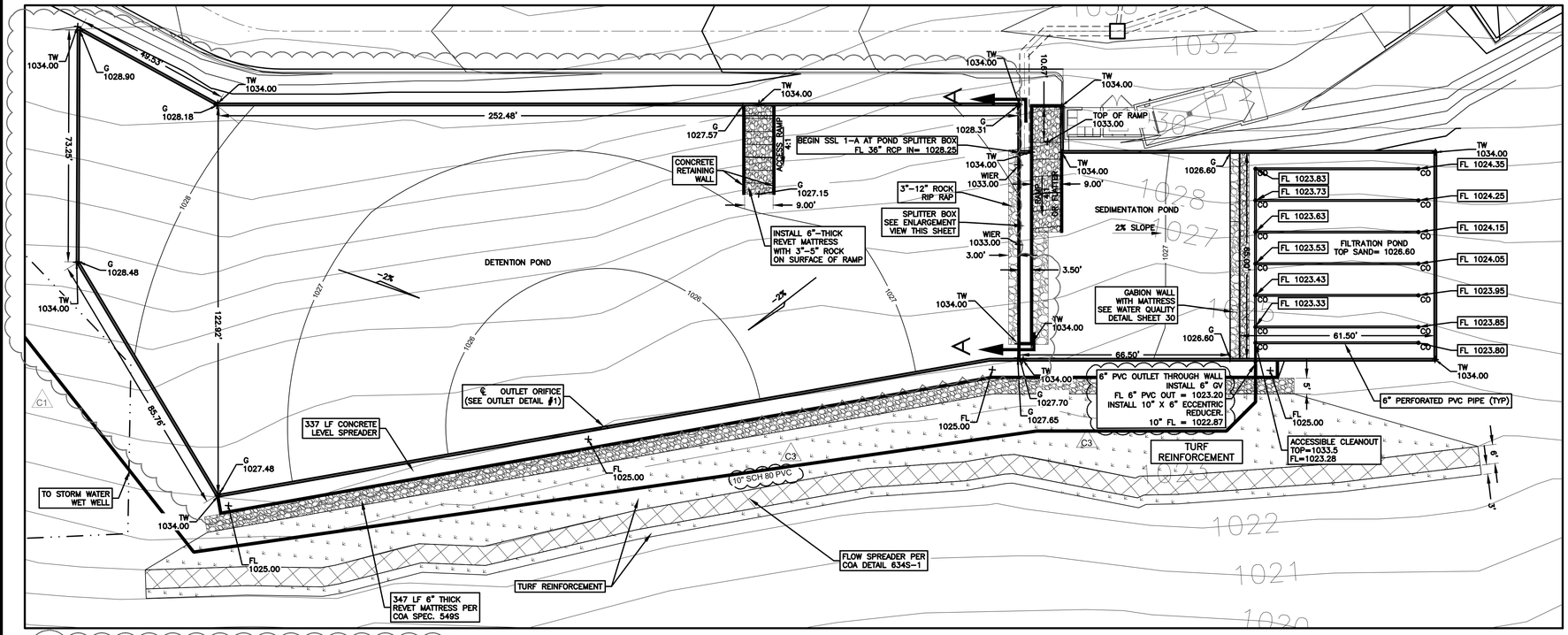
SHEET NO. 30 C3 OF 63 SHEETS

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C3 C1 REPLACEMENT SHEET



SPOT ELEVATION ABBREVIATIONS:

TW	TOP OF WALL
G	GROUND
FL	FLOW LINE
SG	SLAB GRADE

NOTE:

1. 6'-HIGH IRON FENCE BY MASTER-HALCO SHALL BE INSTALLED ON TOP OF WATER QUALITY POND FRONT AND SIDE WALLS, ALONG WITH 2-10' WIDE OPENINGS FOR ACCESS LOCATED AT ACCESS RAMPS. TOTAL LENGTH OF FENCE 570 LF. FENCE DETAIL PROVIDED ON SHEET 30.
2. INSTALL CLEANOUTS WITH REMOVABLE PVC CAP AT EVERY LATERAL AND AT EVERY TEE CONNECTION. THE TOP OF THESE CLEANOUTS SHALL BE FLUSH WITH THE TOP OF SAND BED (EL. 1026.60)
3. A POND LINER IS NOT REQUIRED FOR THIS PROJECT PER COA CODE AND THEREFORE THERE IS NOT AN APPLICABLE QA/QC PLAN OR 3RD PARTY INSPECTOR. THE LINER IS BEING INSTALLED VOLUNTARILY BY THE LANDOWNER.
4. THE POND LINER MUST EXTEND BENEATH BOTH THE SEDIMENTATION AND FILTRATION BASINS.

C3

10 0 5 10 20
(IN FEET)
GRAPHIC SCALE 1"=20'

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- -700- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- SD STORM SEWER MANHOLE
- SIGN (AS NOTED)

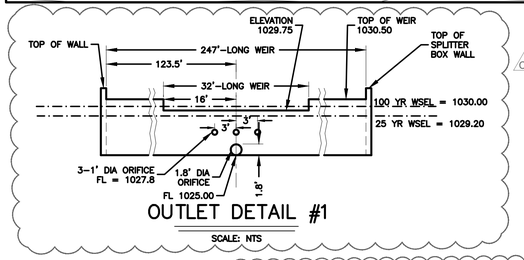
GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY

POND 2 PLAN

AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
			12/21/2022
3	UPSIZE AND ADD REDUCER TO WATER QUALITY POND OUTLET PIPE TO WET WELL	DSM	09/14/2023

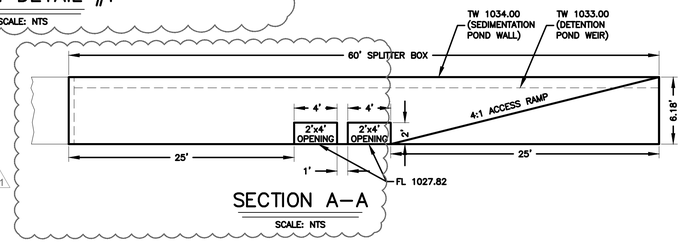


OUTLET DETAIL #1

SCALE: NTS

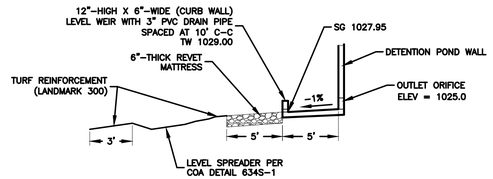
WATER QUALITY POND-2 PLAN VIEW

SCALE: 1"=20'



SECTION A-A

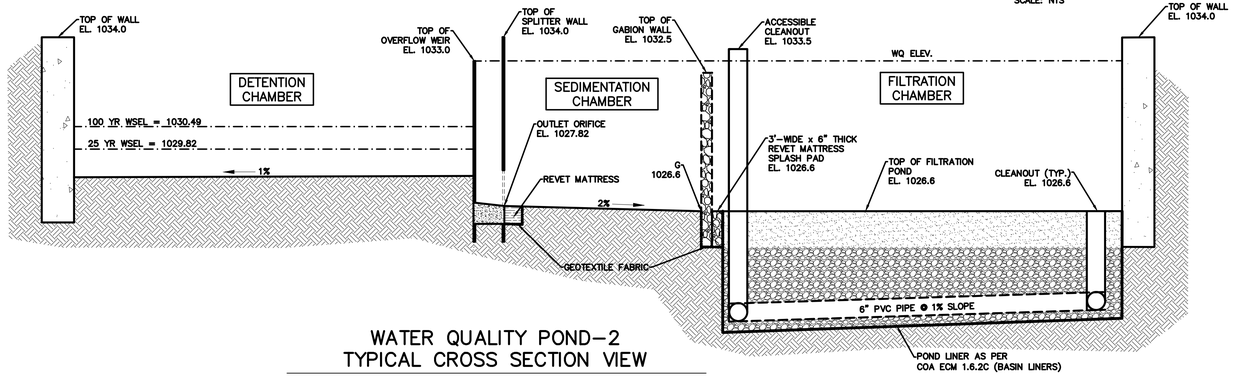
SCALE: NTS



NOTE:
1. ALL CONCRETE IN FLOW SPREADER SHALL BE 6" THICK AND REINFORCED WITH #4 BARS 18"C-C BOTH WAYS.
2. SUBGRADE BELOW CONCRETE TO BE COMPACTED TO MEET EMBANKMENT SPECIFICATION 132S.
3. SEE PLAN VIEW FOR ELEVATIONS.
4. TURF REINFORCEMENT MAT SHALL BE INSTALLED WITHIN AN ANCHOR TRENCH (PER MANUFACTURER'S SPECIFICATIONS) IMMEDIATELY AT REVET MATTRESS, CONTINUE TO OVERLAP LEVEL SPREADER AND ANCHORED 3' MINIMALLY BEYOND CREST OF LEVEL SPREADER.
5. THE TURF REINFORCEMENT MAT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THE MAT SHALL BE PLACED ON MINIMALLY 4" OF TOPSOIL AS PER CoA ITEM NUMBER 601S.3A. THE TOPSOIL SHALL BE FERTILIZED PER 606S. SEEDING SHALL INCLUDE TACKIFIER AND CELLULOSE FIBER MULCH, WATERED UNTIL 1½" OR GREATER IN HEIGHT. GRASS TYPE SHALL BE NATIVE GRASS SEED MIX PER COA ITEM 604S.6.
6. FIELD ADJUSTMENTS OF THE EROSION CONTROLS MAY BE REQUIRED DURING CONSTRUCTION UPON THE DIRECTION OF THE COA INSPECTOR.

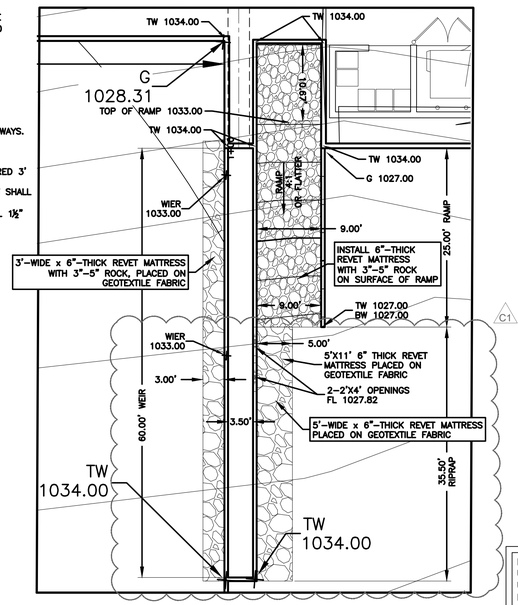
OUTLET DETAIL #2

SCALE: NTS



WATER QUALITY POND-2 TYPICAL CROSS SECTION VIEW

SCALE: NTS



SPLITTER BOX ENLARGEMENT VIEW

SCALE: 1"=10'

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C3

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C1

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED
PROFESSIONAL ENGINEER

FOR C3 ONLY 09/14/2023

JOB NUMBER:	A379-0401
DATE:	09/13/2023
DESIGNED BY:	RBH
DRAWN BY:	DSM
CHECKED BY:	RBH
DRAWING NAME:	POND 2 PLAN

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

WQ02

SHEET NO. 31 OF 63 SHEETS

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C3 C1 REPLACEMENT SHEET

A. Sample Inspection and Maintenance Report Form

TPDES Construction Inspection and Maintenance Report Form

Project Name: Granada Ridge Development

Permit Number:

Facility Operators: CIP CONSTRUCTION COMPANY
201 N. ELM STREET, SUITE 201
GREENSBORO, NORTH CAROLINA 27401

Inspector's Name:
(attach qualifications summary for each inspector)

Date of Last Rainfall:
Amount of Last Rainfall:
Date of Inspection:

Inspection Notes

Condition Code*	Area Inspected	Changes Required (if any)
☐	Stabilized Construction Entrance(s)	
☐	Silt fencing and rock berms downstream of improvements	
☐	Severe service rock berm and silt fencing downstream of detention pond	
☐	Sediment Trap (Water Quality Pond)	
☐	Silt fencing downstream of Temporary Spoils/ Construction Staging Areas	
☐	Areas temporarily and/or finally stabilized (inspect at least once every month)	
☐		
☐		

*Condition Codes
01 - In compliance with the storm water pollution prevention plan and permit
02 - To be repaired or replaced within 24 hours.
03 - To be repaired or replaced within 48 hours.
04 - To be repaired or replaced within 7 days.

Please note major construction activities taking place. Include dates when major grading activities and/or disturbances occur, dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of controls that need to be maintained; locations of controls that failed to operate as designed or proved inadequate for a particular location; and locations where additional controls are needed. (Attach additional pages as required and/or attach daily construction reports.)

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____.

Signature: _____ Date: _____.

B. Names and Qualifications of Personnel Making Inspections

C. Certified Notices of Intent and Acknowledgement Certificates

TCEQ Office Use Only
Permit No:
CN:
RN:

Notice of Intent (NOI) for an Authorization for Stormwater Discharges Associated with Construction Activity under TPDES General Permit TXR150000

IMPORTANT INFORMATION

Please read and use the General Information and Instructions prior to filling out each question in the NOI form.

Use the NOI Checklist to ensure all required information is completed correctly. **Incomplete applications delay approval or result in automatic denial.**

Once processed your permit authorization can be viewed by entering the following link into your internet browser: http://www2.tceq.texas.gov/wq_dpa/index.cfm or you can contact TCEQ Stormwater Processing Center at 512-239-3700.

ePERMITS

Effective September 1, 2018, this paper form must be submitted to TCEQ with a completed electronic reporting waiver form (TCEQ-20754).

To submit an NOI electronically, enter the following web address into your internet browser and follow the instructions: https://www3.tceq.texas.gov/steers/index.cfm

APPLICATION FEE AND PAYMENT

The application fee for submitting a paper NOI is $325. The application fee for electronic submittal of a NOI through the TCEQ ePermits system (STEERS) is $225.

Payment of the application fee can be submitted by mail or through the TCEQ ePay system. The payment and the NOI must be mailed to separate addresses. To access the TCEQ ePay system enter the following web address into your internet browser: http://www.tceq.texas.gov/epay.

Provide your payment information for verification of payment:

- If payment was mailed to TCEQ, provide the following:
  - Check/Money Order Number: Click here to enter text
  - Name printed on Check: Click here to enter text
- If payment was made via ePay, provide the following:
  - Voucher Number: Click here to enter text
  - A copy of the payment voucher is attached to this paper NOI form.

RENEWAL (This portion of the NOI is not applicable after June 3, 2018)

Is this NOI for a renewal of an existing authorization? ☐ Yes ☒ No

If Yes, provide the authorization number here: TXR15 Click here to enter text.

NOTE: If an authorization number is not provided, a new number will be assigned.

SECTION 1. OPERATOR (APPLICANT)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? CN Click here to enter text.

(Refer to Section 1.a) of the Instructions)

b) What is the Legal Name of the entity (applicant) applying for this permit? (The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

Wong Real Estate Management, LP

c) What is the contact information for the Operator (Responsible Authority)?

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Michael Wong Suffix: Click here to enter text.

Title: Click here to enter text. Credentials: Click here to enter text.

Phone Number: (512) 323 - 6000 Fax Number: Click here to enter text.

E-mail: mwong@aimrealestategroup.com

Mailing Address: 1800 Lavaca street, Suite 110

City, State, and Zip Code: Austin, Texas 78701

Mailing Information if outside USA:

Territory: Click here to enter text.

Country Code: Click here to enter text. Postal Code: Click here to enter text.

d) Indicate the type of customer:

☐ Individual	☐ Federal Government
☒ Limited Partnership	☐ County Government
☐ General Partnership	☐ State Government
☐ Trust	☐ City Government
☐ Sole Proprietorship (D.B.A.)	☐ Other Government
☐ Corporation	☐ Other: Click here to enter text.
☐ Estate	

e) Is the applicant an independent operator? ☒ Yes ☐ No

(If a governmental entity, a subsidiary, or part of a larger corporation, check No.)

f) Number of Employees. Select the range applicable to your company.

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

g) Customer Business Tax and Filing Numbers: (**Required** for Corporations and Limited Partnerships. **Not Required** for Individuals, Government, or Sole Proprietors.)

State Franchise Tax ID Number: Click here to enter text.

Federal Tax ID: Click here to enter text.

Texas Secretary of State Charter (filing) Number: Click here to enter text.

DUNS Number (if known): Click here to enter text.

SECTION 2. APPLICATION CONTACT

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3

☒ No, complete this section

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Danny Miller, P.E. Suffix: Click here to enter text.

Title: Vice President Credential: Click here to enter text.

Organization Name: LJA Engineering, Inc.

Phone Number: (512) 439-4700 Fax Number: (512) 439 - 4716

E-mail: dmiller@lja.com

Mailing Address: 7500 Rialto Blvd., Building 2, Suite 100

Internal Routing (Mail Code, Etc.): Click here to enter text.

City, State, and Zip Code: Austin, Texas 78735

Mailing information if outside USA:

Territory: Click here to enter text.

Country Code: Click here to enter text. Postal Code: Click here to enter text.

SECTION 3. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

a) If this is an existing permitted site, what is the Regulated Entity Number (RN) issued to this site? RN Click here to enter text.

(Refer to Section 3.a) of the Instructions)

b) Name of project or site (the name known by the community where it's located): Scenic Brook Commercial

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): The proposed development consists of three commercial buildings (21,102 SF total), fire access drives, parking, sand filter water quality pond, detention pond and associated utilities.

d) County or Counties (if located in more than one): Travis County

e) Latitude: 30.23020278 Longitude: 97.89986667

f) Site Address/Location

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete *Section A*.

If the site does not have a physical address, provide a location description in *Section B*. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Section A:

Street Number and Name: 8313 W. US 290 HWY

City, State, and Zip Code: Austin, Texas 78736

Section B:

Location Description: Click here to enter text

City (or city nearest to) where the site is located: Click here to enter text

Zip Code where the site is located: Click here to enter text

SECTION 4. GENERAL CHARACTERISTICS

a) Is the project or site located on Indian Country Lands?

☐ Yes, do not submit this form. You must obtain authorization through EPA Region 6.

☒ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes. Note: The construction stormwater runoff may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA Region 6.

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? **1542**

d) What is the Secondary SIC Code(s), if applicable? Click here to enter text

e) What is the total number of acres to be disturbed? 5.122 Acres

f) Is the project part of a larger common plan of development or sale?

☐ Yes

☒ No. The total number of acres disturbed, provided in e) above, must be 5 or more. If the total number of acres disturbed is less than 5, do not submit this form. See the requirements in the general permit for small construction sites.

g) What is the estimated start date of the project? Click here to enter text

h) What is the estimated end date of the project? Click here to enter text

i) Will concrete truck washout be performed at the site? ☒ Yes ☐ No

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? Slaughter Creek and Williamson Creek

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? Onion Creek and ultimately the Colorado River

l) Is the discharge into a Municipal Separate Storm Sewer System (MS4)?

☐ Yes ☒ No

If Yes, provide the name of the MS4 operator: Click here to enter text

Note: The general permit requires you to send a copy of this NOI form to the MS4 operator.

m) Is the discharge or potential discharge from the site within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, as defined in 30 TAC Chapter 213?

☒ Yes, complete the certification below.

☐ No, go to Section 5

I certify that the copy of the TCEQ-approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) that is included or referenced in the Stormwater Pollution Prevention Plan will be implemented. ☒ Yes

SECTION 5. NOI CERTIFICATION

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the Construction General Permit (TXR150000). ☒ Yes

Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3, provided all obligations are confirmed by at least one operator.

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: Click here to enter text.

Operator Signatory Title: Click here to enter text.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Confirm each item (or applicable item) in this form is complete. This checklist is for use by the applicant to ensure a complete application is being submitted. **Missing information may result in denial of coverage under the general permit.** (See NOI process description in the General Information and Instructions.)

APPLICATION FEE

If paying by check:

☐ Check was mailed **separately** to the TCEQs Cashier's Office. (See Instructions for Cashier's address and Application address.)

☐ Check number and name on check is provided in this application.

If using ePay:

☐ The voucher number is provided in this application and a copy of the voucher is attached.

RENEWAL

☐ If this application is for renewal of an existing authorization, the authorization number is provided.

OPERATOR INFORMATION

☐ Customer Number (CN) issued by TCEQ Central Registry

☒ Legal name as filed to do business in Texas. (Call TX SOS 512-463-5555 to verify.)

☒ Name and title of responsible authority signing the application.

☒ Phone number and e-mail address

☒ Mailing address is complete & verifiable with USPS. www.usps.com

☒ Type of operator (entity type). Is applicant an independent operator?

☒ Number of employees.

☒ For corporations or limited partnerships – Tax ID and SOS filing numbers.

☒ Application contact and address is complete & verifiable with USPS. http://www.usps.com

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

☐ Regulated Entity Number (RN) (if site is already regulated by TCEQ)

☒ Site/project name and construction activity description

☒ County

☒ Latitude and longitude http://www.tceq.texas.gov/gis/sqmaview.html

☒ Site Address/Location. Do not use a rural route or post office box.

GENERAL CHARACTERISTICS

☒ Indian Country Lands –the facility is not on Indian Country Lands.

☒ Construction activity related to facility associated to oil, gas, or geothermal resources

☒ Primary SIC Code that best describes the construction activity being conducted at the site. www.osha.gov/oshstats/sicser.html

☒ Estimated starting and ending dates of the project.

☒ Confirmation of concrete truck washout.

☒ Acres disturbed is provided and qualifies for coverage through a NOI.

☒ Common plan of development or sale.

☒ Receiving water body or water bodies.

☒ Segment number or numbers.

☐ MS4 operator.

☒ Edwards Aquifer rule.

CERTIFICATION

☐ Certification statements have been checked indicating Yes.

☐ Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original.

Texas Commission on Environmental Quality
General Permit Payment Submittal Form

Use this form to submit your Application Fee only if you are mailing your payment.

Instructions:

- Complete items 1 through 5 below:
- Staple your check in the space provided at the bottom of this document.
- *Do not mail this form with your NOI form.*
- *Do not mail this form to the same address as your NOI.*

Mail this form and your check to either of the following:

By Regular U.S. Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

By Overnight or Express Mail
Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA General Permit: TXR150000

1. Check or Money Order No: Click here to enter text
2. Amount of Check/Money Order: Click here to enter text
3. Date of Check or Money Order: Click here to enter text
4. Name on Check or Money Order: Click here to enter text
5. NOI Information:

   If the check is for more than one NOI, list each Project or Site (RE) Name and Physical Address exactly as provided on the NOI. **Do not submit a copy of the NOI with this form, as it could cause duplicate permit application entries!**

   If there is not enough space on the form to list all of the projects or sites the authorization will cover, then attach a list of the additional sites.

   Project/Site (RE) Name: Scenic Brook Commercial

   Project/Site (RE) Physical Address: 8313 W US 290 HWY, Austin, Texas 78736

Staple the check or money order to this form in this space.

D. TCEQ Small-Business Handbook for Spill Response (RG-285)

TNRCC REGULATORY GUIDANCE

Pollution Cleanup Division
RG-285
June 1997

SUBJECT: # Small-Business Handbook for Spill Response

Purpose

The purpose of this handbook is to help small businesses to comply with the Texas Natural Resource Conservation Commission's (TNRCC's) Spill Rule. From this document, you will learn when and how to report a spill and how to enlist the aid of the TNRCC and other authorities, as needed, in responding to a spill. This handbook is for guidance only; it does not replace or supersede the official rules and regulations.

The purpose of the Spill Rule, which is found in Title 30 Texas Administrative Code (30 TAC) Chapter 327, is to deal responsibly with threats to human health or the environment posed by incidents that may cause the contamination of groundwater or surface water. The rule sets guidelines for initial notification, response actions, and follow-up reports that the responsible person must follow when a discharge or spill occurs.

The Spill Rule—in a Nutshell

The Spill Rule requires the party responsible for causing a spill that by its nature and size presents the threat of contaminating groundwater or surface water to:

- control and contain the spill (or see that this is done);
- clean up the results of the spill (or see that this is done);
- notify the appropriate authorities, which may range from the local fire department to the TNRCC, depending on the threat posed by the spill;
- make follow-up reports to the TNRCC about the continuing progress or completion of the cleanup.

To explain how to comply with the Spill Rule, this document will address the following questions:

- What is a spill (as far as the Spill Rule is concerned)?
- What should I do when the spill is serious?
- What about less serious spills?
- What kinds of spills need to be reported?
- What should my report say?
- Who can tell me what is in my spill?
- How can the TNRCC help me?
- What happens when I report a spill?
- What kinds of spills are not covered by this rule?
- Where do I look for more information?

What Is a Spill?

As defined in the rule, a spill is any incident in which oil, hazardous substances, industrial waste, or "other substances" contaminate or may contaminate surface water or groundwater in the state of Texas. Because substances spilled on the ground may find their way into groundwater, lakes, rivers, or streams, the definition includes spills on the ground as well as spills that go directly into water.

The definition of a "discharge or spill" is broad; it covers just about any accidental action or oversight that leads to the possible contamination of water. The following examples represent only a few of the many different kinds of incidents that this definition covers:

- A worker at a pest control service discovers that liquid pesticide has leaked from a storage tank into the ground.
- A landscaper rinses tanks that held herbicide, and then the rinse water escapes into a storm sewer.
- A truck loaded with avocados overturns, spilling its cargo and its fuel on the highway.
- A worker at a boat repair shop accidentally pours a solvent-based varnish remover on pavement. Most of the solvent evaporates quickly.
- A trenching crew hits a buried pipeline, causing oil to leak into the surrounding soil.

For simplicity, the term "spill" will be used in this document to refer to any incident covered by the definition

given in 30 TAC Section (§) 327.2 for *discharge or spill*. Certain kinds of incidents that might threaten water supplies are covered by other rules or are under the authority of other agencies. Incidents that are not covered by the Spill Rule are described at the end of this document.

What Should I Do When the Spill Is Serious?

Whenever a spill or discharge involves an imminent threat to human health, notify local emergency authorities *immediately* and cooperate with them in responding to the spill. "Local emergency authorities" usually means the local fire department and law enforcement agency, but could also mean the local fire marshal, health department, or emergency planning committee.

The rule also calls for the responsible person to take certain reasonable steps to respond to the spill:

- Get to the scene, or make sure that hired response personnel get to the scene.
- Begin efforts to stop the discharge or spill.
- Minimize the impact of the spill to public health, surface water, and the ground or subsurface soil.
- Neutralize the effects of the incident.
- Remove the discharged or spilled substances.
- Manage wastes associated with the spill and cleanup.

What about Less Serious Spills?

Spills that do not present an imminent threat to human health still must be cleaned up. Even if the spill is small enough that a reporting requirement is not triggered, the person responsible for the spill must make sure that the spill is cleaned up.

What Kinds of Spills Need to Be Reported?

Whether a spill needs to be reported to the TNRCC depends on the material spilled, how much of it is spilled, and where it is spilled. General guidelines for determining whether a spill must be reported, based on this rule and federal standards, appear in Table 1. Spills involving less than 1 pound of material, except for oil spills, do not need to be reported to the TNRCC. They must be reported to local authorities if they pose an imminent threat to public health.

If the amount of material spilled or discharged within any 24-hour period is equal to or greater than the amount indicated in Table 1, the rule calls for the party responsible for the spill to notify the TNRCC within 24 hours. There are three ways to satisfy this reporting requirement by phone:

- Call **1-800-832-8224** (the Environmental Response Hot Line). This line is answered 24 hours a day.
- Call the TNRCC Spill Reporting Hot Line, which is also answered 24 hours a day, at 512/463-7727.
- During regular business hours, call the TNRCC regional office that serves the county in which the spill occurred.

The Spill Rule also allows the responsible person to use other reasonable methods to provide this initial notification.

Spills of a Single Hazardous Substance
Whenever an individual hazardous substance is spilled, determining whether a reportable quantity has been spilled only involves developing a reliable estimate of how much material was spilled and comparing that value with the reportable quantity (RQ) found in the column headed "Final RQ" in Table 302.4 of Title 40 Code of Federal Regulations (40 CFR) Part 302.

Spills of Mixtures
Whenever a mixture that contains a hazardous substance is spilled, a federal rule, often called the Mixture Rule, is used to determine whether a reportable quantity has been spilled. The wording of the Mixture Rule makes it particularly important for small businesses to know as much as possible about the composition of the materials they use or handle.

According to the Mixture Rule, if a mixture is known to contain a hazardous substance, but the amount of that substance in the mixture is not known, then all of the material spilled is assumed to be the hazardous substance for the purpose of determining whether a reportable spill has occurred. On the other hand, if the composition of the mixture is known, that information is used to determine whether the amount of mixture spilled contains a reportable quantity of the hazardous substance.

To see how the Mixture Rule works, let's look at two possible outcomes involving the spill of 1 quart of an insecticide containing aldrin. The RQ for aldrin is 1 pound.

First possible outcome. Assume that the person responsible for the spill knows only that the insecticide contains aldrin, not *how much* aldrin is in the insecticide. According to the Mixture Rule, all of the material spilled must be assumed to be aldrin under these circumstances. A quart of a solution weighs about 2 pounds, which is greater than the RQ for aldrin. This spill must be reported.

Second possible outcome. Now assume that the person responsible for the spill knows that the insecticide contains not more than 1 percent aldrin by weight. According to the

Mixture Rule, this person should then calculate how much aldrin could have been in the quart of solution spilled:

2 lb solution × 1 lb aldrin/100 lb = 0.02 lb aldrin

If aldrin is the only hazardous substance in the mixture, then this spill does not have to be reported according to the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA). Be sure to do this sort of calculation for all the substances in the mixture, even if the product label describes them as "inert" or "filler."

The difference between the outcomes in the above example is not *what* was spilled, but *what was known* about the material that was spilled. Because one business had more information available about the materials it uses, its employee was able to determine that the spill was insignificant without contacting the TNRCC.

Table 1. Reportable Quantities (RQs) According to the Spill Rule

	SITE OF SPILL	
TYPE OF SPILL	**On Land**	**In Water**
Hazardous substance		
If CERCLA RQ = 1–100 lb	CERCLA RQ	CERCLA RQ
If CERCLA RQ > 100 lb	CERCLA RQ	100 lb
Crude oil	210 gal	Enough to form a sheen
Used oil or petroleum product		
At a PST exempt facility*	210 gal	Enough to form a sheen
All others	25 gal	Enough to form a sheen
Oil other than crude oil, used oil, or petroleum product	210 gal	Enough to form a sheen
Other substances	No RQ	100 lb
Industrial solid waste	No RQ	100 lb

NOTE: This table applies only to the reporting of spills and discharges according to the Spill Rule, 30 TAC §§327.1–327.5. To find values of CERCLA RQs for hazardous substances, please refer to 40 CFR Table 302.4.

*The term "PST exempt facility" refers to facilities that are exempt from the Aboveground Storage Tank Program. Petrochemical plants, petroleum refineries, and electricity generation, transmission, and distribution facilities are some examples of PST exempt facilities.

What Should My Report Say?

There are a number of different levels of reporting, so let's go through them one at a time.

Initial Notification
Within 24 hours, report the following information as best it is known:

- Your name, address, and telephone number (as the person making the report)
- The date, time, and location of the spill
- A specific description of the substance or substances spilled
- An estimate of how much was spilled
- The duration of the incident
- The name of the body of water affected or threatened by the spill
- The source of the spill
- A description of the extent of actual or potential water pollution or harmful impacts to the environment
- An identification of any environmentally sensitive areas or natural resources at risk
- The name, address, and telephone number of the responsible person (if not you)
- The name, address, and telephone number of the contact person at the site of the spill (if not you)
- A description of any action that has been taken, is being taken, or will be taken to contain and respond to the spill
- Any known or anticipated health risks
- The identity of any governmental authorities or agencies that are already responding to the spill
- Any other information that may be significant to the response action

The Spill Rule requires only that you provide all of the

above information that you know—by phone, in person, or in writing. The rule does not require that a written report be on a standard form. You may decide to develop your own form, but the rule also allows you to use the reporting form of any other agency that requires you to report the spill.

If you use the reporting form of another agency and it does not provide all of the information described above, you must add the rest of the required information on a separate sheet.

Update Notification
If anything happens that would trigger a change in the response to the spill—for better or for worse—notify the agency as soon as possible.

Correction of Records
If you report a spill and later decide that the spill did not have to be reported, you may send the regional office a letter to show your reasoning. Be sure to include all the information staff will need to understand your new decision.

If, after reviewing your letter, the regional office staff agrees that the spill was not reportable, that determination will be added to the agency records. If staff disagrees with your decision, the agency will notify you (that is, the responsible person) within 30 days.

Other Required Notice
In addition to notifying the TNRCC and local governmental authorities, make a reasonable attempt to notify the owner and occupants of any property adversely affected by the spill. Provide this notice as soon as possible, but no later than two weeks after discovering the spill.

Notifying the TNRCC satisfies the federal requirement to notify the State Emergency Response Commission, but does not satisfy the notification requirements of any permit or any other local, state, or federal law.

Reporting the spill to the Environmental Response Hot Line (1-800-832-8224) satisfies the initial notification requirements of the Spill Rule and the Texas Water Code. Depending on the material spilled, there may be other reporting requirements.

Who Can Tell Me What Is in My Spill?

It is the responsibility of a business to ensure that its employees know the nature and contents of the materials they handle or use. It is not feasible for any document to cover the full range of possible combinations of substances. The manufacturer or supplier of a product may be a good source of information about the contents and specific formulation of a proprietary mixture.

Often it is not necessary to know the precise formula of a mixture to know how to classify it under the Spill Rule. The TNRCC regional office is one of a number of possible resources that could help you classify at least some materials into broad reporting categories according to the Spill Rule and CERCLA.

How Can the TNRCC Help Me?

Through your local regional office, the Small Business Assistance Program (1-800-447-2827), and the Emergency Response Section (512/239-2507), the TNRCC can help you prepare for spills before they happen as well as respond to them appropriately when they do.

If minor but reportable spills are an unavoidable part of your business, you might call your regional office to investigate the possibility of making one report on a regular schedule (e.g., once a month) to cover all minor spills that occur in that time frame. Depending on the individual situation, the regional manager may approve such an alternative notification plan for a fixed installation. *Such a plan would require the written approval of the regional manager.*

Your regional manager may also permit you to notify the agency by fax of spills that occur during regular business hours. If you do get permission to notify by fax, you may want to prepare a form that employees can fill out quickly when a spill occurs. You could print information that will not change (e.g., location of the facility, the name of the surface water affected, if any, etc.) as part of the form itself.

What Happens When I Report a Spill?

A number of things:

- Of greatest importance, you ensure that all resources that are available and needed to minimize the impact of the spill are put to use.
- Based on the information you provide, the regional staff of the TNRCC can help you to determine whether the spill is serious and, regardless of whether it is serious, the best ways to control the spill and minimize the damage it may cause.
- If necessary, the TNRCC can help coordinate the response to a spill that poses an imminent threat to public health or sources of water.
- You reduce the range of penalties that could be assessed against you or your business as a result of the spill.

Reporting a spill is not the same as admitting that pollution

has occurred (see “Correction of Records” above).

Does This Rule Cover *All* Spills?

No, it doesn’t. Certain spills would fall under the jurisdiction of other agencies in the state of Texas. The following kinds of spills, discharges, or emissions are covered by other rules:

- Oil spills in or near coastal waters. The Railroad Commission of Texas (RRC) regulates such spills when they are relatively small (240 barrels or less). The Texas General Land Office (GLO) has jurisdiction for larger incidents affecting coastal waters. The term *coastal waters* basically includes the Gulf of Mexico and all of its bays, inlets, and estuaries, as well as portions of their navigable tributaries. A detailed definition of *coastal waters* appears in the GLO Rules, 31 TAC §19.2. When reporting a spill, don’t worry about this difference in jurisdiction. Use the Environmental Response Hot Line (1-800-832-8224) to report the spill, and your report will be forwarded to the appropriate agency.
- Spills or waste discharges regulated by the RRC. This essentially means incidents related to the exploration, production, and development of oil, gas, geothermal resources, and uranium. Specific details can be found in the Texas Water Code §26.131.
- Emissions only to air. If you spill a liquid and it then evaporates, the spill is not an “emission only to air.” A spill that evaporates is covered by the Spill Rule and may be covered by other regulations.
- Lawful discharges or waste disposal. This category includes the lawful placement of waste or accidental discharge of material into a solid waste management unit registered or permitted under 30 TAC Chapter 335 Subchapter A; any discharge that is covered by a specific permit, order, or rule issued under U.S. or Texas law, if that permit, order, or rule provides another specific reporting requirement; and discharges or spills that are continuous and stable in nature, and are reported to the U.S. Environmental Protection Agency according to 40 CFR §302.8.
- The lawful application of fertilizers, pesticides, or other materials to land or water.
- Certain activities associated with aboveground and underground storage tanks, which are covered by Texas Water Code Chapter 26 Subchapter I.
- Discharges or spills that occur during the normal course of rail transportation.

Related Literature

Consider reviewing the following documents or having them available as reference materials.

State of Texas Oil and Hazardous Substances Spill Contingency Plan. This document, currently being developed by the cooperation of all state agencies that participate in spill response, is a compilation of all state rules that cover spills. When it is available, you may obtain copies from the TNRCC Publications Unit (512/239-0028).

State of Texas Coastal Oil Spill Prevention and Response. 31 TAC Chapter 19. This document comprises the GLO’s oil spill rules.

The following documents are available from the U.S. Government Printing Office:

Title 40 Code of Federal Regulations Part 302. This is a portion of the federal law dealing with the handling of hazardous substances.

National Oil and Hazardous Substances Pollution Contingency Plan. 40 CFR Part 300. This document covers all federal rules on spills.

Emergency Planning and Notification. 40 CFR Part 355. The regulation establishes the list of extremely hazardous substances, threshold planning quantities, and facility notification responsibilities necessary for developing and implementing state and local emergency response plans.

Hazardous Chemical Reporting and Community Right-to-Know. These regulations establish reporting requirements that provide the public with important information about the hazardous chemicals in their communities.

Toxic Substances Control Act. 40 CFR Parts 700–766. Several specific constituents, such as PCBs and dioxins, require additional regulation because of their direct impact on human health and the environment. The TSCA specifies procedures for handling these materials. Additional reporting may also be required.

E. TPDES General Permit No. TXR150000 for Stormwater Discharges from Construction Activities.

Texas Commission on Environmental Quality

P.O. Box 13087, Austin, Texas 78711-3087

GENERAL PERMIT TO DISCHARGE UNDER THE

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces
TPDES General Permit No. TXR150000, issued March 5, 2008

Construction sites that discharge stormwater associated with construction activity

located in the state of Texas

may discharge to surface water in the state

only according to monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the Commission of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of stormwater and certain non-stormwater discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein shall expire at midnight, five years from the permit effective date.

EFFECTIVE DATE: March 5, 2013

ISSUED DATE: FEB 19 2013

Bryan W. Shaw

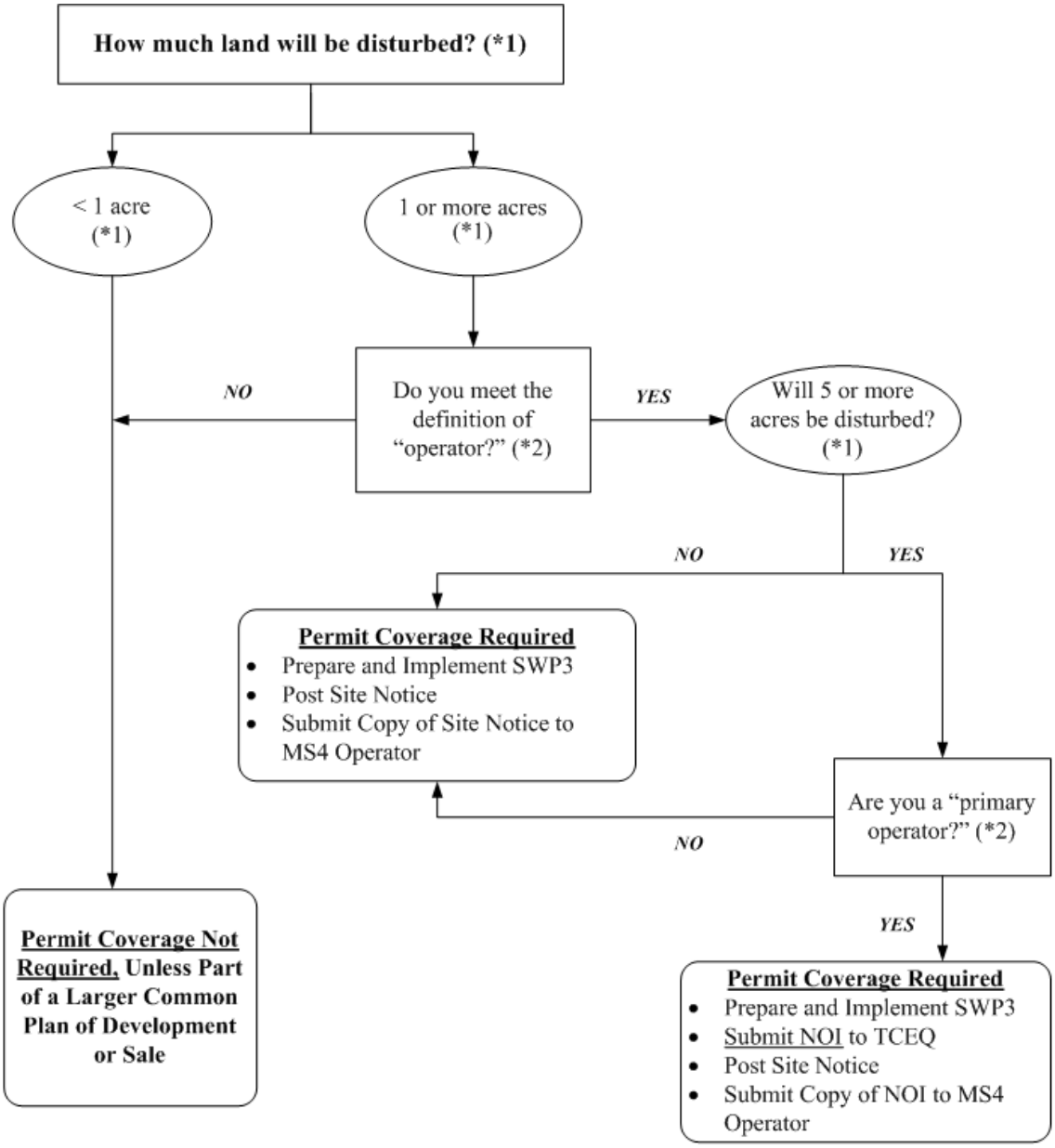
For the Commission

TPDES GENERAL PERMIT NUMBER TXR150000 RELATING TO STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Table of Contents

Part I. Flow Chart and Definitions

Section A. Flow Chart to Determine Whether Coverage is Required



(*1) To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "common plan of development or sale").

(*2) Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.

Section B. Definitions

Arid Areas - Areas with an average annual rainfall of 0 to 10 inches.

Best Management Practices (BMPs) - Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction - The initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., stockpiling of fill material, demolition).

Common Plan of Development - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development (also known as a "common plan of development or sale") is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities. A common plan of development does not necessarily include all construction projects within the jurisdiction of a public entity (e.g., a city or university). Construction of roads or buildings in different parts of the jurisdiction would be considered separate "common plans," with only the interconnected parts of a project being considered part of a "common plan" (e.g., a building and its associated parking lot and driveways, airport runway and associated taxiways, a building complex, etc.). Where discrete construction projects occur within a larger common plan of development or sale but are located ¼ mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same "common plan" is not included in the area to be disturbed.

Construction Activity - Includes soil disturbance activities, including clearing, grading, and excavating; and does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (e.g., the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities). Regulated construction activity is defined in terms of small and large construction activity.

Dewatering – The act of draining rainwater or groundwater from building foundations, vaults, and trenches.

Discharge – For the purposes of this permit, the drainage, release, or disposal of pollutants in stormwater and certain non-stormwater from areas where soil disturbing activities (e.g., clearing, grading, excavation, stockpiling of fill material, and demolition), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck wash out, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

Drought-Stricken Area – For the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) "Drought to persist or intensify", (2) "Drought ongoing, some improvement", (3) "Drought likely to improve, impacts ease", or (4) "Drought development likely". See http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html.

Edwards Aquifer - As defined under Texas Administrative Code (TAC) § 213.3 of this title (relating to the Edwards Aquifer), that portion of an arcuate belt of porous, water-bearing, predominantly carbonate rocks known as the Edwards and Associated Limestones in the Balcones Fault Zone trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak

Limestone, McKnight Formation, West Nueces Formation, Devil's River Limestone, Person Formation, Kainer Formation, Edwards Formation, and Georgetown Formation. The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut Formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

Edwards Aquifer Recharge Zone - Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as that area designated as such on official maps located in the offices of the Texas Commission on Environmental Quality (TCEQ) and the appropriate regional office. The Edwards Aquifer Map Viewer, located at http://www.tceq.texas.gov/compliance/field_ops/eapp/mapdisclaimer.html, can be used to determine where the recharge zone is located.

Edwards Aquifer Contributing Zone - The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer. The contributing zone is located upstream (upgradient) and generally north and northwest of the recharge zone for the following counties: all areas within Kinney County, except the area within the watershed draining to Segment No. 2304 of the Rio Grande Basin; all areas within Uvalde, Medina, Bexar, and Comal Counties; all areas within Hays and Travis Counties, except the area within the watersheds draining to the Colorado River above a point 1.3 miles upstream from Tom Miller Dam, Lake Austin at the confluence of Barrow Brook Cove, Segment No. 1403 of the Colorado River Basin; and all areas within Williamson County, except the area within the watersheds draining to the Lampasas River above the dam at Stillhouse Hollow reservoir, Segment No. 1216 of the Brazos River Basin. The contributing zone is illustrated on the Edwards Aquifer map viewer at http://www.tceq.texas.gov/compliance/field_ops/eapp/mapdisclaimer.html.

Effluent Limitations Guideline (ELG) – Defined in 40 Code of Federal Regulations (CFR) § 122.2 as a regulation published by the Administrator under § 304(b) of the Clean Water Act (CWA) to adopt or revise effluent limitations.

Facility or Activity – For the purpose of this permit, a construction site or construction support activity that is regulated under this general permit, including all contiguous land and fixtures (for example, ponds and materials stockpiles), structures, or appurtances used at a construction site or industrial site described by this general permit.

Final Stabilization - A construction site status where any of the following conditions are met:

A. All soil disturbing activities at the site have been completed and a uniform (that is, evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

B. For individual lots in a residential construction site by either:

   (1) the homebuilder completing final stabilization as specified in condition (a) above; or

   (2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization. If temporary stabilization is not feasible, then the homebuilder may fulfill this requirement by retaining perimeter controls or BMPs, and informing the homeowner of the need for removal of temporary controls and the establishment of final stabilization.

Fullfillment of this requirement must be documented in the homebuilder's stormwater pollution prevention plan (SWP3).

C. For construction activities on land used for agricultural purposes (such as pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to surface water and areas that are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

D. In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:

(1) Temporary erosion control measures (for example, degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and

(2) The temporary erosion control measures are selected, designed, and installed to achieve 70% of the native background vegetative coverage within three years.

Hyperchlorination of Waterlines – Treatment of potable water lines or tanks with chlorine for disinfection purposes, typically following repair or partial replacement of the waterline or tank, and subsequently flushing the contents.

Impaired Water - A surface water body that is identified on the latest approved CWA §303(d) List as not meeting applicable state water quality standards. Impaired waters include waters with approved or established total maximum daily loads (TMDLs), and those where a TMDL has been proposed by TCEQ but has not yet been approved or established.

Indian Country Land – (from 40 CFR §122.2) (1) all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (2) all dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Indian Tribe - (from 40 CFR §122.2) any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation.

Large Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.)

Linear Project – Includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

Minimize - To reduce or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - A separate storm sewer system owned or operated by the United States, a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, that discharges to surface water in the state.

Notice of Change (NOC) – Written notification to the executive director from a discharger authorized under this permit, providing changes to information that was previously provided to the agency in a notice of intent form.

Notice of Intent (NOI) - A written submission to the executive director from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) - A written submission to the executive director from a discharger authorized under a general permit requesting termination of coverage.

Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary Operator – the person or persons associated with a large or small construction activity that meets either of the following two criteria:

(a) the person or persons have on-site operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

(b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a Storm Water Pollution Prevention Plan (SWP3) for the site or other permit conditions (for example, they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person or entity, often the property owner, whose operational control is limited to:

(a) the employment of other operators, such as a general contractor, to perform or supervise construction activities; or

(b) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

Secondary operators must either prepare their own SWP3 or participate in a shared SWP3 that covers the areas of the construction site where they have control over the plans and specifications.

If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

Outfall - For the purpose of this permit, a point source at the point where stormwater runoff associated with construction activity discharges to surface water in the state and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other water of the U.S. and are used to convey waters of the U.S.

Permittee - An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge stormwater runoff and certain non-stormwater discharges.

Point Source – (from 40 CFR §122.2) Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant - Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland. For the purpose of this permit, the term "pollutant" includes sediment.

Pollution - (from Texas Water Code (TWC) §26.001(14)) The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Rainfall Erosivity Factor (R factor) - the total annual erosive potential that is due to climatic effects, and is part of the Revised Universal Soil Loss Equation (RUSLE).

Receiving Water - A "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges.

Semiarid Areas - areas with an average annual rainfall of 10 to 20 inches

Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying stormwater; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.)

Steep Slopes – Where a state, Tribe, local government, or industry technical manual (e.g. stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 15 percent or greater in grade.

Stormwater (or Stormwater Runoff) - Rainfall runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Associated with Construction Activity - Stormwater runoff from a construction activity where soil disturbing activities (including clearing, grading, excavating) result in the disturbance of one (1) or more acres of total land area, or are part of a larger common plan of development or sale that will result in disturbance of one (1) or more acres of total land area.

Structural Control (or Practice) - A pollution prevention practice that requires the construction of a device, or the use of a device, to reduce or prevent pollution in stormwater

runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization - A condition where exposed soils or disturbed areas are provided a protective cover or other structural control to prevent the migration of pollutants. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either permanent stabilization can be achieved or until further construction activities take place.

Total Maximum Daily Load (TMDL) - The total amount of a pollutant that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

Turbidity – A condition of water quality characterized by the presence of suspended solids and/or organic material.

Waters of the United States - (from 40 CFR §122.2) Waters of the United States or waters of the U.S. means:

(a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) all interstate waters, including interstate wetlands;

(c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

  (1) which are or could be used by interstate or foreign travelers for recreational or other purposes;

  (2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

  (3) which are used or could be used for industrial purposes by industries in interstate commerce;

(d) all impoundments of waters otherwise defined as waters of the United States under this definition;

(e) tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) the territorial sea; and

(g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the U.S. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the U.S. (such as

disposal area in wetlands) nor resulted from the impoundment of waters of the U.S. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Stormwater Associated with Construction Activity

Discharges of stormwater runoff from small and large construction activities may be authorized under this general permit.

2. Discharges of Stormwater Associated with Construction Support Activities

Examples of construction support activities include, but are not limited to, concrete batch plants, rock crushers, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas. Construction support activities authorized under this general permit are not commercial operations, and do not serve multiple unrelated construction projects. Discharges of stormwater runoff from construction support activities may be authorized under this general permit, provided that the following conditions are met:

(a) the activities are located within one (1) mile from the boundary of the permitted construction site and directly support the construction activity;

(b) an SWP3 is developed for the permitted construction site according to the provisions of this general permit, and includes appropriate controls and measures to reduce erosion and discharge of pollutants in stormwater runoff from the construction support activities; and

(c) the construction support activities either do not operate beyond the completion date of the construction activity or, at the time that they do, are authorized under separate Texas Pollutant Discharge Elimination System (TPDES) authorization. Separate TPDES authorization may include the TPDES Multi Sector General Permit (MSGP), TXR050000 (related to stormwater discharges associated with industrial activity), separate authorization under this general permit if applicable, coverage under an alternative general permit if available, or authorization under an individual water quality permit.

3. Non-Stormwater Discharges

The following non-stormwater discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

(a) discharges from fire fighting activities (fire fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, or similar activities);

(b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);

(c) water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used, where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials

have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;

(d) uncontaminated water used to control dust;

(e) potable water sources, including waterline flushings, but excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life;

(f) uncontaminated air conditioning condensate;

(g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and

(h) lawn watering and similar irrigation drainage.

4. Other Permitted Discharges

Any discharge authorized under a separate National Pollutant Discharge Elimination System (NPDES), TPDES, or TCEQ permit may be combined with discharges authorized by this general permit, provided those discharges comply with the associated permit.

Section B. Concrete Truck Wash Out

The wash out of concrete trucks at regulated construction sites must be performed in accordance with the requirements of Part V of this general permit.

Section C. Limitations on Permit Coverage

1. Post Construction Discharges

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the notice of termination (NOT) or removal of the appropriate site notice, as applicable, for the regulated construction activity.

2. Prohibition of Non-Stormwater Discharges

Except as otherwise provided in Part II.A. of this general permit, only discharges that are composed entirely of stormwater associated with construction activity may be authorized under this general permit.

3. Compliance With Water Quality Standards

Discharges to surface water in the state that would cause, have the reasonable potential to cause, or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative general permit (see Parts II.H.2. and 3.) to authorize discharges to surface water in the state if the executive director determines that any activity will cause, has the reasonable potential to cause, or contribute to a violation of water quality standards or is found to cause, has the reasonable potential to cause, or contribute to, the impairment of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II.H.2. of this general permit.

4. Impaired Receiving Waters and Total Maximum Daily Load (TMDL) Requirements

New sources or new discharges of the pollutants of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the EPA approved CWA §303(d) List. Pollutants of concern are those for which the water body is listed as impaired.

Discharges of the pollutants of concern to impaired water bodies for which there is a TMDL are not eligible for this general permit unless they are consistent with the approved TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges into their SWP3, in order to be eligible for coverage under this general permit. For consistency with the construction stormwater-related items in an approved TMDL, the SWP3 must be consistent with any applicable condition, goal, or requirement in the TMDL, TMDL Implementation Plan (I-Plan), or as otherwise directed by the executive director.

5. Discharges to the Edwards Aquifer Recharge or Contributing Zone

Discharges cannot be authorized by this general permit where prohibited by 30 TAC Chapter 213 (relating to Edwards Aquifer). In addition, commencement of construction (i.e., the initial disturbance of soils associated with clearing, grading, or excavating activities, as well as other construction-related activities such as stockpiling of fill material and demolition) at a site regulated under 30 TAC Chapter 213, may not begin until the appropriate Edwards Aquifer Protection Plan (EAPP) has been approved by the TCEQ's Edwards Aquifer Protection Program.

(a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone (CZ), operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

(b) For existing discharges located within the Edwards Aquifer Recharge Zone, the requirements of the agency-approved Water Pollution Abatement Plan (WPAP) under the Edwards Aquifer Rule is in addition to the requirements of this general permit. BMPs and maintenance schedules for structural stormwater controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in stormwater runoff are in addition to the requirements in this general permit for this pollutant.

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities. For example, this permit does not limit the authority of a home-rule municipality provided by Texas Local Government Code §401.002.

8. Indian Country Lands

Stormwater runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES

regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Oil and Gas Production

Stormwater runoff from construction activities associated with the exploration, development, or production of oil or gas or geothermal resources, including transportation of crude oil or natural gas by pipeline, are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES regulations, authority for these discharges must be obtained from the EPA.

10. Stormwater Discharges from Agricultural Activities

Stormwater discharges from agricultural activities that are not point source discharges of stormwater are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities. Discharges of stormwater runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of concentrated animal feeding operations, would be point sources regulated under this general permit.

11. Endangered Species Act

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by this permit, unless the requirements of the Endangered Species Act are satisfied. Federal requirements related to endangered species apply to all TPDES permitted discharges and site-specific controls may be required to ensure that protection of endangered or threatened species is achieved. If a permittee has concerns over potential impacts to listed species, the permittee may contact TCEQ for additional information.

12. Other

Nothing in Part II of the general permit is intended to negate any person's ability to assert the force majeure (act of God, war, strike, riot, or other catastrophe) defenses found in 30 TAC §70.7.

Section D. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Operators of large construction activities continuing to operate after the effective date of this permit, and authorized under TPDES general permit TXR150000 (effective on March 5, 2008), must submit an NOI to renew authorization or a NOT to terminate coverage under this general permit within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the previous TPDES permit.

2. Small Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the effective date of this general permit must be authorized, either

under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Discharges from ongoing small construction activities that commenced prior to the effective date of this general permit, and that would not meet the conditions to qualify for termination of this permit as described in Part II.E. of this general permit, must meet the requirements to be authorized, either under this general permit or a separate TPDES permit, within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the previous TPDES permit.

Section E. Obtaining Authorization to Discharge

1. Automatic Authorization for Small Construction Activities With Low Potential for Erosion:

If all of the following conditions are met, then a small construction activity is determined to occur during periods of low potential for erosion, and a site operator may be automatically authorized under this general permit without being required to develop an SWP3 or submit an NOI:

(a) the construction activity occurs in a county listed in Appendix A;

(b) the construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;

(c) all temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, permanent stabilization activities have been initiated, and a condition of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site;

(d) the permittee signs a completed TCEQ construction site notice, including the certification statement;

(e) a signed copy of the construction site notice is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until completion of the construction activity;

(f) a copy of the signed and certified construction site notice is provided to the operator of any MS4 receiving the discharge at least two days prior to commencement of construction activities;

(g) any supporting concrete batch plant or asphalt batch plant is separately authorized for discharges of stormwater runoff or other non-stormwater discharges under an individual TPDES permit, another TPDES general permit, or under an individual TCEQ permit where stormwater and non-stormwater is disposed of by evaporation or irrigation (discharges are adjacent to water in the state); and

(h) any non-stormwater discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

Part II.G. of this general permit describes how an operator may apply for and obtain a waiver from permitting, for certain small construction activities that occur during a period with a low potential for erosion, where automatic authorization under this section is not available.

2. Automatic Authorization For All Other Small Construction Activities:

Operators of small construction activities not described in Part II.E.1. above may be automatically authorized under this general permit, and operators of these sites shall not be required to submit an NOI, provided that they meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) sign and certify a completed TCEQ small construction site notice, post the notice at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities, prior to commencing construction, and maintain the notice in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities); and

(c) provide a copy of the signed and certified construction site notice to the operator of any municipal separate storm sewer system receiving the discharge prior to commencement of construction activities.

Operators of small construction activities as defined in Part I.B of this general permit shall not submit an NOI for coverage unless otherwise required by the executive director.

As described in Part I (Definitions) of this general permit, large construction activities include those that will disturb less than five (5) acres of land, but that are part of a larger common plan of development or sale that will ultimately disturb five (5) or more acres of land, and must meet the requirements of Part II.E.3. below.

3. Authorization for Large Construction Activities:

Operators of large construction activities that qualify for coverage under this general permit must meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) primary operators must submit an NOI, using a form provided by the executive director, at least seven (7) days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction activities. If an additional primary operator is added after the initial NOI is submitted, the new primary operator must submit an NOI at least seven (7) days before assuming operational control, or if utilizing electronic NOI submittal, prior to assuming operational control. If the primary operator changes after the initial NOI is submitted, the new primary operator must submit a paper NOI or an electronic NOI at least ten (10) days before assuming operational control;

(c) all operators of large construction activities must post a site notice in accordance with Part III.D.2. of this permit. The site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction, and must be maintained in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities);

(d) prior to commencing construction activities, all primary operators must (1) provide a copy of the signed NOI to the operator of any MS4 receiving the discharge and to any secondary construction operator, and (2) list in the SWP3 the names and addresses of all MS4 operators receiving a copy;

(e) all persons meeting the definition of "secondary operator" in Part I of this permit are hereby notified that they are regulated under this general permit, but are not required to submit an NOI, provided that a primary operator at the site has submitted an NOI, or is required to submit an NOI, and the secondary operator has provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may alternatively submit an NOI under this general permit, may seek coverage under an alternative TPDES individual permit, or may seek coverage under an alternative TPDES general permit if available; and

(f) all secondary operators must provide a copy of the signed and certified Secondary Operator construction site notice to the operator of any MS4 receiving the discharge prior to commencement of construction activities.

4. Waivers for Small Construction Activities:

Part II.G. describes how operators of certain small construction activities may obtain a waiver from coverage.

5. Effective Date of Coverage

(a) Operators of small construction activities as described in either Part II.E.1. or II.E.2. above are authorized immediately following compliance with the applicable conditions of Part II.E.1. or II.E.2. Secondary operators of large construction activities as described in Part II.E.3. above are authorized immediately following compliance with the applicable conditions in Part II.E.3. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(b) Primary operators of large construction activities as described in Part II.E.3. above are provisionally authorized seven (7) days from the date that a completed NOI is postmarked for delivery to the TCEQ, unless otherwise notified by the executive director. If electronic submission of the NOI is provided, and unless otherwise notified by the executive director, primary operators are authorized immediately following confirmation of receipt of the NOI by the TCEQ. Authorization is non-provisional when the executive director finds the NOI is administratively complete and an authorization number is issued for the activity. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(c) Operators are not prohibited from submitting late NOIs or posting late notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement actions for any unpermitted activities that may have occurred between the time construction commenced and authorization was obtained.

6. Notice of Change (NOC)

If relevant information provided in the NOI changes, an NOC must be submitted at least 14 days before the change occurs, if possible. Where 14-day advance notice is not possible, the operator must submit an NOC within 14 days of discovery of the change. If

the operator becomes aware that it failed to submit any relevant facts or submitted incorrect information in an NOI, the correct information must be provided to the executive director in an NOC within 14 days after discovery. The NOC shall be submitted on a form provided by the executive director, or by letter if an NOC form is not available. A copy of the NOC must also be provided to the operator of any MS4 receiving the discharge, and a list must be included in the SWP3 that includes the names and addresses of all MS4 operators receiving a copy.

Information that may be included on an NOC includes, but is not limited to, the following: the description of the construction project, an increase in the number of acres disturbed (for increases of one or more acres), or the operator name. A transfer of operational control from one operator to another, including a transfer of the ownership of a company, may not be included in an NOC.

A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing number (or charter number) that is on record with the Texas Secretary of State must be changed.

An NOC is not required for notifying TCEQ of a decrease in the number of acres disturbed. This information must be included in the SWP3 and retained on site.

7. Signatory Requirement for NOI Forms, Notice of Termination (NOT) Forms, NOC Letters, and Construction Site Notices

NOI forms, NOT forms, NOC letters, and Construction Site Notices that require a signature must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

8. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

(a) the TPDES CGP authorization number for existing authorizations under this general permit, where the operator submits an NOI to renew coverage within 90 days of the effective date of this general permit;

(b) the name, address, and telephone number of the operator filing the NOI for permit coverage;

(c) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;

(d) the number of acres that will be disturbed by the applicant;

(e) confirmation that the project or site will not be located on Indian Country lands;

(f) confirmation that a SWP3 has been developed in accordance with this general permit, that it will be implemented prior to construction, and that it is compliant with any applicable local sediment and erosion control plans; for multiple operators who prepare a shared SWP3, the confirmation for an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator;

(g) name of the receiving water(s);

(h) the classified segment number for each classified segment that receives discharges from the regulated construction activity (if the discharge is not directly to a classified segment, then the classified segment number of the first classified segment that those discharges reach); and

(i) the name of all surface waters receiving discharges from the regulated construction activity that are on the latest EPA-approved CWA § 303(d) List of impaired waters.

Section F. Terminating Coverage

1. Notice of Termination (NOT) Required

Each operator that has submitted an NOI for authorization under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit. Authorization must be terminated by submitting an NOT on a form supplied by the executive director. Authorization to discharge under this general permit terminates at midnight on the day the NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this permit terminates immediately following confirmation of receipt of the NOT by the TCEQ. Compliance with the conditions and requirements of this permit is required until an NOT is submitted.

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge (with a list in the SWP3 of the names and addresses of all MS4 operators receiving a copy), within 30 days after any of the following conditions are met:

(a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;

(b) a transfer of operational control has occurred (See Section II.F.4. below); or

(c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

(a) if authorization was granted following submission of an NOI, the permittee's site-specific TPDES authorization number for the construction site;

(b) an indication of whether the construction activity is completed or if the permittee is simply no longer an operator at the site;

(c) the name, address, and telephone number of the permittee submitting the NOT;

(d) the name (or other identifier), address, county, and location (latitude/longitude) of the construction project or site; and

(e) a signed certification that either all stormwater discharges requiring authorization under this general permit will no longer occur, or that the applicant is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or have been transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

3. Termination of Coverage for Small Construction Sites and for Secondary Operators at Large Construction Sites

Each operator that has obtained automatic authorization and has not been required to submit an NOI must remove the site notice upon meeting any of the conditions listed below, complete the applicable portion of the site notice related to removal of the site notice, and submit a copy of the completed site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator, with documentation of such notification included in the SWP3), within 30 days of meeting any of the following conditions:

(a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;

(b) a transfer of operational control has occurred (See Section II.F.4. below); or

(c) the operator has obtained alternative authorization under an individual or general TPDES permit.

Authorization to discharge under this general permit terminates immediately upon removal of the applicable site notice. Compliance with the conditions and requirements of this permit is required until the site notice is removed.

4. Transfer of Operational Control

Coverage under this general permit is not transferable. A transfer of operational control includes changes to the structure of a company, such as changing from a partnership to a corporation, or changing to a different corporation type such that a different filing (or charter) number is established with the Texas Secretary of State.

When the primary operator of a large construction activity changes or operational control is transferred, the original operator must submit an NOT within ten (10) days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least ten (10) days prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the NOT must be provided to the operator of any MS4 receiving the discharge in accordance with Section II.F.1. above.

Operators of regulated construction activities who are not required to submit an NOI must remove the original site notice, and the new operator must post the required site notice prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the completed site notice must be provided to the operator of any MS4 receiving the discharge, in accordance with Section II.F.3. above.

A transfer of operational control occurs when either of the following criteria is met:

(a) Another operator has assumed control over all areas of the site that have not been finally stabilized; and all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator, provided that the permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Record of this notification (or attempt at notification) shall be retained by the operator in accordance with Part VI of this permit. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

(b) A homebuilder has purchased one or more lots from an operator who obtained coverage under this general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the requirements listed above, including the development of a SWP3 if necessary. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to lot(s) it has operational control over, and the original operator remains responsible for common controls or discharges, and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

Section G. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for stormwater discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit, where all of the following conditions are met. This waiver from coverage does not apply to non-stormwater discharges. The operator must insure that any non-stormwater discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

(a) the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5);

(b) the operator submits to the TCEQ a signed waiver certification form, supplied by the executive director, certifying that the construction activity will commence and be completed within a period when the value of the calculated R factor is less than five (5); and

(c) the waiver certification form is postmarked for delivery to the TCEQ at least seven (7) days before construction activity begins or, if electronic filing is available, then any time following the receipt of written confirmation from TCEQ that a complete electronic application was submitted and acknowledged.

2. Steps to Obtaining a Waiver

The construction site operator may calculate the R factor to request a waiver using the following steps:

(a) Estimate the construction start date and the construction end date. The construction end date is the date that final stabilization will be achieved.

(b) Find the appropriate Erosivity Index (EI) zone in Appendix B of this permit.

(c) Find the EI percentage for the project period by adding the results for each period of the project using the table provided in Appendix D of this permit, in EPA Fact Sheet 2.1, or in USDA Handbook 703, by subtracting the start value from the end value to find the percent EI for the site.

(d) Refer to the Isoerodent Map (Appendix C of this permit) and interpolate the annual isoerodent value for the proposed construction location.

(e) Multiply the percent value obtained in Step (c) above by the annual isoerodent value obtained in Step (d). This is the R factor for the proposed project. If the value is less than 5, then a waiver may be obtained. If the value is five (5) or more, then a waiver may not be obtained, and the operator must obtain coverage under Part II.E.2. of this permit.

Alternatively, the operator may calculate a site-specific R factor utilizing the following online calculator: http://ei.tamu.edu/index.html, or using another available resource.

The waiver certification form is not required to be posted at the small construction site.

3. Effective Date of Waiver

Operators of small construction activities are provisionally waived from the otherwise applicable requirements of this general permit seven (7) days from the date that a completed waiver certification form is postmarked for delivery to TCEQ, or immediately upon receiving confirmation of approval of an electronic submittal, if electronic form submittals are available.

4. Activities Extending Beyond the Waiver Period

If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

(a) recalculate the R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new waiver certification form at least two (2) days before the end of the original waiver period; or

(b) obtain authorization under this general permit according to the requirements delineated in either Part II.E.2. or Part II.E.3. before the end of the approved waiver period.

Section H. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC §305 (relating to Consolidated Permits). Applications for individual permit coverage should be submitted at least three hundred and thirty (330) days prior to commencement of construction activities to ensure timely authorization.

2. Individual Permit Required

The executive director may suspend an authorization or deny an NOI in accordance with the procedures set forth in 30 TAC §205 (relating to General Permits for Waste Discharges), including the requirement that the executive director provide written notice to the permittee. The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit in the following circumstances:

(a) the conditions of an approved TMDL or TMDL I-Plan on the receiving water;

(b) the activity being determined to cause a violation of water quality standards or being found to cause, or contribute to, the loss of a designated use of surface water in the state: and

(c) any other consideration defined in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) including 30 TAC Chapter 205.4(c)(3)(D), which allows the commission to deny authorization under the general permit and require an individual permit if a discharger “has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director.”

Additionally, the executive director may cancel, revoke, or suspend authorization to discharge under this general permit based on a finding of historical and significant noncompliance with the provisions of this general permit, relating to 30 TAC §60.3 (Use of Compliance History). Denial of authorization to discharge under this general permit or suspension of a permittee’s authorization under this general permit shall be done according to commission rules in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

3. Alternative Discharge Authorization

Any discharge eligible for authorization under this general permit may alternatively be authorized under a separate general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges), if applicable.

Section I. Permit Expiration

1. This general permit is effective for a term not to exceed five (5) years. All active discharge authorizations expire on the date provided on page one (1) of this permit. Following public notice and comment, as provided by 30 TAC §205.3 (relating to

Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit.

2. If the executive director publishes a notice of the intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.
3. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit. If the application for an individual permit is submitted before the expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual permit. No new NOIs will be accepted nor new authorizations honored under the general permit after the expiration date.

Part III. Stormwater Pollution Prevention Plans (SWP3)

All regulated construction site operators shall prepare an SWP3, prior to submittal of an NOI, to address discharges authorized under Parts II.E.2. and II.E.3. of this general permit that will reach Waters of the U.S., including discharges to MS4s and privately owned separate storm sewer systems that drain to Waters of the U.S., to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project. The SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater associated with construction activity and non-stormwater discharges described in Part II.A.3., in compliance with the terms and conditions of this permit.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project, provided reference is made to the other operators at the site. Where there is more than one SWP3 for a site, permittees must coordinate to ensure that BMPs and controls are consistent and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure compliance with the terms and conditions of this general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators must independently obtain authorization, but may work together to prepare and implement a single, comprehensive SWP3 for the entire construction site.

1. The SWP3 must clearly list the name and, for large construction activities, the general permit authorization numbers, for each operator that participates in the shared SWP3. Until the TCEQ responds to receipt of the NOI with a general permit authorization number, the SWP3 must specify the date that the NOI was submitted to TCEQ by each operator. Each operator participating in the shared plan must also sign the SWP3.

2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.
3. The SWP3 may provide that one operator is responsible for preparation of a SWP3 in compliance with the CGP, and another operator is responsible for implementation of the SWP3 at the project site.

Section B. Responsibilities of Operators

1. Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

All secondary operators and primary operators with control over construction plans and specifications shall:

(a) ensure the project specifications allow or provide that adequate BMPs are developed to meet the requirements of Part III of this general permit;

(b) ensure that the SWP3 indicates the areas of the project where they have control over project specifications, including the ability to make modifications in specifications;

(c) ensure that all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their BMP s as necessary to remain compliant with the conditions of this general permit; and

(d) ensure that the SWP3 for portions of the project where they are operators indicates the name and site-specific TPDES authorization number(s) for operators with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If the party with day-to-day operational control has not been authorized or has abandoned the site, the person with control over project specifications is considered to be the responsible party until the authority is transferred to another party and the SWP3 is updated.

2. Primary Operators with Day-to-Day Operational Control

Primary operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with an SWP3 and other permit conditions must ensure that the SWP3 accomplishes the following requirements:

(a) meets the requirements of this general permit for those portions of the project where they are operators;

(b) identifies the parties responsible for implementation of BMPs described in the SWP3;

(c) indicates areas of the project where they have operational control over day-to-day activities; and

(d) includes, for areas where they have operational control over day-to-day activities, the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications.

Section C. Deadlines for SWP3 Preparation, Implementation, and Compliance

The SWP3 must be prepared prior to obtaining authorization under this general permit, and implemented prior to commencing construction activities that result in soil

disturbance. The SWP3 must be prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site. If the SWP3 is retained off-site, then it shall be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request.
2. A primary operator of a large construction activity must post the TCEQ site notice near the main entrance of the construction site. An operator of a small construction activity seeking authorization under this general permit and a secondary operator of a large construction activity must post the TCEQ site notice required in Part II.E.1., 2., or 3. of this general permit in order to obtain authorization. If the construction project is a linear construction project, such as a pipeline or highway, the notices must be placed in a publicly accessible location near where construction is actively underway. Notices for these linear sites may be relocated, as necessary, along the length of the project. The notices must be readily available for viewing by the general public; local, state, and federal authorities; and contain the following information:
   (a) the site-specific TPDES authorization number for the project if assigned;
   (b) the operator name, contact name, and contact phone number;
   (c) a brief description of the project; and
   (d) the location of the SWP3.
3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Revisions and Updates to SWP3s

The permittee must revise or update the SWP3 whenever the following occurs:

1. a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. results of inspections or investigations by site operators, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must include, at a minimum, the information described in this section and must comply with the construction and development effluent guidelines in Part III, Section G of the general permit.

1. A site or project description, which includes the following information:
   (a) a description of the nature of the construction activity;
   (b) a list of potential pollutants and their sources;
   (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site, including estimated start dates and duration of activities;
   (d) the total number of acres of the entire property and the total number of acres where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas that are authorized under the permittee's NOI;
   (e) data describing the soil or the quality of any discharge from the site;
   (f) a map showing the general location of the site (e.g. a portion of a city or county map);
   (g) a detailed site map (or maps) indicating the following:
      (i) drainage patterns and approximate slopes anticipated after major grading activities;
      (ii) areas where soil disturbance will occur;
      (iii) locations of all controls and buffers, either planned or in place;
      (iv) locations where temporary or permanent stabilization practices are expected to be used;
      (v) locations of construction support activities, including off-site activities, that are authorized under the permittee's NOI, including material, waste, borrow, fill, or equipment or chemical storage areas;
      (vi) surface waters (including wetlands) either at, adjacent, or in close proximity to the site, and also indicating those that are impaired waters;
      (vii) locations where stormwater discharges from the site directly to a surface water body or a municipal separate storm sewer system;
      (viii) vehicle wash areas; and
      (ix) designated points on the site where vehicles will exit onto paved roads (for instance, this applies to construction transition from unstable dirt areas to exterior paved roads).

      Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.
   (h) the location and description of support activities authorized under the permittee's NOI, including asphalt plants, concrete plants, and other activities providing support to the construction site that is authorized under this general permit;
   (i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;
   (j) a copy of this TPDES general permit;
   (k) the NOI and acknowledgement certificate for primary operators of large construction sites, and the site notice for small construction sites and for secondary operators of large construction sites;
   (l) stormwater and allowable non-stormwater discharge locations, including storm drain inlets on site and in the immediate vicinity of the construction site; and

(m) locations of all pollutant-generating activities, such as paving operations; concrete, paint and stucco washout and water disposal; solid waste storage and disposal; and dewatering operations.

2. A description of the BMPs that will be used to minimize pollution in runoff.

The description must identify the general timing or sequence for implementation. At a minimum, the description must include the following components:

(a) General Requirements

(i) Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.

(iii) Controls must be developed to minimize the offsite transport of litter, construction debris, and construction materials.

(b) Erosion Control and Stabilization Practices

The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the site, compliant with the requirements of Part III.G.1 and G.2 of this general permit, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where it is possible.

(i) Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, and other similar measures.

(ii) The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in Part III.D.1 of this general permit:

(A) the dates when major grading activities occur;

(B) the dates when construction activities temporarily or permanently cease on a portion of the site; and

(C) the dates when stabilization measures are initiated.

(iii) Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. Stabilization measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased. The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Except as provided in (A) through (D) below, these measures must be completed as soon as practicable, but no more than 14 calendar days after the initiation of soil stabilization measures:

(A) Where the immediate initiation of stabilization measures after construction activity temporarily or permanently ceased is precluded

by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

(B) In arid areas, semi-arid areas, or drought-stricken areas where the immediate initiation of stabilization measures after construction activity has temporarily or permanently ceased or is precluded by arid conditions, erosion control and stabilization measures must be initiated as soon as practicable. Where vegetative controls are not feasible due to arid conditions, the operator shall immediately install, and within 14 calendar days of a temporary or permanent cessation of work in any portion of the site complete, non-vegetative erosion controls. If non-vegetative controls are not feasible, the operator shall install temporary sediment controls as required in Paragraph (C) below.

(C) In areas where temporary stabilization measures are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible, and must demonstrate that the perimeter controls will retain sediment on site to the extent practicable. The operator must continue to inspect the BMPs at the frequency established in Section III.F.7.(a) for unstabilized sites.

(D) If the initiation or completion of vegetative stabilization is affected by circumstances beyond the control of the permittee, vegetative stabilization must be initiated or completed as soon as conditions or circumstances allow it on the site. The requirement to initiate stabilization is triggered as soon as it is known with reasonable certainty that work will be stopped for 14 or more additional calendar days.

(iv) Final stabilization must be achieved prior to termination of permit coverage.

(v) TCEQ does not expect that temporary or permanent stabilization measures to be applied to areas that are intended to be left un-vegetated or un-stabilized following construction (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, or materials).

(c) Sediment Control Practices

The SWP3 must include a description of any sediment control practices used to remove eroded soils from stormwater runoff, including the general timing or sequence for implementation of controls.

(i) Sites With Drainage Areas of Ten or More Acres

(A) Sedimentation Basin(s)

(1) A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. A sedimentation basin may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin. Capacity calculations shall be included in the SWP3.

(2) Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

(3) If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.

(4) Unless infeasible, when discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface.

(B) Perimeter Controls: At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(ii) Controls for Sites With Drainage Areas Less than Ten Acres:

(A) Sediment traps and sediment basins may be used to control solids in stormwater runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(B) Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided. If a calculation is performed, then the calculation shall be included in the SWP3.

(C) If sedimentation basins or impoundments are used, the permittee shall comply with the requirements in Part III.G.6 of this general permit.

3. Description of Permanent Stormwater Controls

A description of any measures that will be installed during the construction process to control pollutants in stormwater discharges that may occur after construction operations have been completed must be included in the SWP3. Permittees are only responsible for the installation and maintenance of stormwater management measures prior to final stabilization of the site or prior to submission of an NOT.

4. Other Required Controls and BMPs

(a) Permittees shall minimize, to the extent practicable, the off-site vehicle tracking of sediments and the generation of dust. The SWP3 shall include a description of controls utilized to accomplish this requirement.

(b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials.

(c) The SWP3 must include a description of potential pollutant sources from areas other than construction (such as stormwater discharges from dedicated asphalt plants and dedicated concrete batch plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(d) Permittees shall place velocity dissipation devices at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) to provide a non-erosive flow velocity from the structure to a water course, so that the natural physical and biological characteristics and functions are maintained and protected.

(e) Permittees shall design and utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

(f) Permittees shall ensure that all other required controls and BMPs comply with all of the requirements of Part III.G of this general permit.

5. Documentation of Compliance with Approved State and Local Plans

(a) Permittees must ensure that the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by federal, state, or local officials.

(b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or stormwater management site plans or site permits approved by state or local official for which the permittee receives written notice.

(c) If the permittee is required to prepare a separate management plan, including but not limited to a WPAP or Contributing Zone Plan in accordance with 30 TAC Chapter 213 (related to the Edwards Aquifer), then a copy of that plan must be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee shall maintain a copy of the approval letter for the plan in its SWP3.

6. Maintenance Requirements

(a) All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

(b) If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator shall replace or modify the control as soon as practicable after making the discovery.

(c) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter

controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

(d) If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee shall work with the owner or operator of the property to remove the sediment.

7. Inspections of Controls

(a) Personnel provided by the permittee must inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site. Sediment and erosion control measures identified in the SWP3 must be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 must also contain a record of the total rainfall measured, as well as the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater, the SWP3 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 inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of “dry” season and beginning of “wet” season).

(b) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.7.(a) above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion. In these circumstances, controls must be inspected at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.7.(a)

above. The conditions of the controls along each inspected 0.25 mile portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile portion to either the end of the next 0.25 mile inspected portion, or to the end of the project, whichever occurs first.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection. The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season).

(c) In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

(d) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

(e) A report summarizing the scope of the inspection, the date(s) of the inspection, and major observations relating to the implementation of the SWP3 must be made and retained as part of the SWP3. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Actions taken as a result of 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 this permit. The report must be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

8. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-stormwater components of the discharge, as listed in Part II.A.3. of this permit.
9. The SWP3 must include the information required in Part III.B. of this general permit.
10. The SWP3 must include pollution prevention procedures that comply with Part III.G.4 of this general permit.

Section G. Erosion and Sediment Control Requirements Applicable to All Sites

Except as provided in 40 CFR §§125.30-125.32, any discharge regulated under this general permit, with the exception of sites that obtained waivers based on low rainfall erosivity, must achieve, at a minimum, the following effluent limitations representing the degree of effluent reduction attainable by application of the best practicable control technology currently available (BPT).

1. *Erosion and sediment controls*. Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:

   (a) Control stormwater volume and velocity within the site to minimize soil erosion;

   (b) If any stormwater flow will be channelized at the site, stormwater controls must be designed to control both peak flowrates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion;

   (c) Minimize the amount of soil exposed during construction activity;

   (d) Minimize the disturbance of steep slopes;

   (e) Minimize sediment discharges from the site. The design, installation, and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;

   (f) If earth disturbance activities are located in close proximity to a surface water, provide and maintain appropriate natural buffers if feasible and as necessary, around surface waters, depending on site-specific topography, sensitivity, and proximity to water bodies. Direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration. If providing buffers is infeasible, the permittee shall document the reason that natural buffers are not feasible, and shall implement additional erosion and sediment controls to reduce sediment load;

   (g) Preserve native topsoil at the site, unless infeasible; and

   (h) Minimize soil compaction in post-construction pervious areas. In areas of the construction site where final vegetative stabilization will occur or where infiltration practices will be installed, either:

      (1) restrict vehicle and equipment use to avoid soil compaction; or

      (2) prior to seeding or planting areas of exposed soil that have been compacted, use techniques that condition the soils to support vegetative growth, if necessary and feasible;

   (i) TCEQ does not consider stormwater control features (e.g., stormwater conveyance channels, storm drain inlets, sediment basins) to constitute “surface waters” for the purposes of triggering the buffer requirement in Part III.G.(f) above.

2. *Soil stabilization*. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. In the context of this requirement, “immediately” means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Temporary

stabilization must be completed no more than 14 calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage. In arid, semi-arid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative non-vegetative stabilization measures must be employed as soon as practicable. Refer to Part III.F.2.(b) for complete erosion control and stabilization practice requirements.

3. *Dewatering*. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited, unless managed by appropriate controls.
4. *Pollution prevention measures*. Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:
   (a) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
   (b) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and
   (c) Minimize the discharge of pollutants from spills and leaks, and implement chemical spill and leak prevention and response procedures.
5. *Prohibited discharges*. The following discharges are prohibited:
   (a) Wastewater from wash out of concrete trucks, unless managed by an appropriate control (see Part V of the general permit);
   (b) Wastewater from wash out and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
   (c) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
   (d) Soaps or solvents used in vehicle and equipment washing.
6. *Surface outlets*. When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Part IV. Stormwater Runoff from Concrete Batch Plants

Discharges of stormwater runoff from concrete batch plants at regulated construction sites may be authorized under the provisions of this general permit provided that the following requirements are met for concrete batch plant(s) authorized under this permit. If discharges of stormwater runoff from concrete batch plants are not covered under this general permit, then discharges must be authorized under an alternative general permit or individual permit. This permit does not authorize the discharge or land disposal of any wastewater from concrete batch plants at regulated construction sites. Authorization for these wastes must be obtained under an individual permit or an alternative general permit.

Section A. Benchmark Sampling Requirements

1. Operators of concrete batch plants authorized under this general permit shall sample the stormwater runoff from the concrete batch plants according to the requirements

of this section of this general permit, and must conduct evaluations on the effectiveness of the SWP3 based on the following benchmark monitoring values:

Table 1. Benchmark Parameters

Benchmark Parameter	Benchmark Value	Sampling Frequency	Sample Type
Oil and Grease	15 mg/L	1/quarter (*1) (*2)	Grab (*3)
Total Suspended Solids	100 mg/L	1/quarter (*1) (*2)	Grab (*3)
pH	6.0 – 9.0 Standard Units	1/quarter (*1) (*2)	Grab (*3)
Total Iron	1.3 mg/L	1/quarter (*1) (*2)	Grab (*3)

(*1) When discharge occurs. Sampling is required within the first 30 minutes of discharge. If it is not practicable to take the sample, or to complete the sampling, within the first 30 minutes, sampling must be completed within the first hour of discharge. If sampling is not completed within the first 30 minutes of discharge, the reason must be documented and attached to all required reports and records of the sampling activity.

(*2) Sampling must be conducted at least once during each of the following periods. The first sample must be collected during the first full quarter that a stormwater discharge occurs from a concrete batch plant authorized under this general permit.

January through March

April through June

July through September

October through December

For projects lasting less than one full quarter, a minimum of one sample shall be collected, provided that a stormwater discharge occurred at least once following submission of the NOI or following the date that automatic authorization was obtained under Section II.E.2., and prior to terminating coverage.

(*3) A grab sample shall be collected from the stormwater discharge resulting from a storm event that is at least 0.1 inches of measured precipitation that occurs at least 72 hours from the previously measurable storm event. The sample shall be collected downstream of the concrete batch plant, and where the discharge exits any BMPs utilized to handle the runoff from the batch plant, prior to commingling with any other water authorized under this general permit.

2. The permittee must compare the results of sample analyses to the benchmark values above, and must include this comparison in the overall assessment of the SWP3's effectiveness. Analytical results that exceed a benchmark value are not a violation of this permit, as these values are not numeric effluent limitations. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. The operator must investigate the cause for each exceedance and must document the results of this investigation in the SWP3 by the end of the quarter following the sampling event.

The operator's investigation must identify the following:

(a) any additional potential sources of pollution, such as spills that might have occurred,

(b) necessary revisions to good housekeeping measures that are part of the SWP3,

(c) additional BMPs, including a schedule to install or implement the BMPs, and

(d) other parts of the SWP3 that may require revisions in order to meet the goal of the benchmark values.

Background concentrations of specific pollutants may also be considered during the investigation. If the operator is able to relate the cause of the exceedance to background concentrations, then subsequent exceedances of benchmark values for that pollutant may be resolved by referencing earlier findings in the SWP3. Background concentrations may be identified by laboratory analyses of samples of stormwater runon to the permitted facility, by laboratory analyses of samples of stormwater run-off from adjacent non-industrial areas, or by identifying the pollutant is a naturally occurring material in soils at the site.

Section B. Best Management Practices (BMPs) and SWP3 Requirements

Minimum SWP3 Requirements – The following are required in addition to other SWP3 requirements listed in this general permit (including, but not limited to Part III.F.7. of this permit):

1. Description of Potential Pollutant Sources - The SWP3 must provide a description of potential sources (activities and materials) that may reasonably be expected to affect the quality of stormwater discharges associated with concrete batch plants authorized under this permit. The SWP3 must describe practices that that will be used to reduce the pollutants in these discharges to assure compliance with this general permit, including the protection of water quality, and must ensure the implementation of these practices.

   The following must be developed, at a minimum, in support of developing this description:

   (a) Drainage – The site map must include the following information:

      (1) the location of all outfalls for stormwater discharges associated with concrete batch plants that are authorized under this permit;

      (2) a depiction of the drainage area and the direction of flow to the outfall(s);

      (3) structural controls used within the drainage area(s);

      (4) the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activities (including fueling, repair, and storage areas for vehicles and equipment scheduled for maintenance); areas used for the treatment, storage, or disposal of wastes; liquid storage tanks; material processing and storage areas; and loading and unloading areas; and

      (5) the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater (including the areas that drain to the treatment device); areas with significant materials; and areas where major spills or leaks have occurred.

   (b) Inventory of Exposed Materials – A list of materials handled at the concrete batch plant that may be exposed to stormwater and that have a potential to

affect the quality of stormwater discharges associated with concrete batch plants that are authorized under this general permit.

(c) Spills and Leaks - A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to stormwater and that drain to stormwater outfalls associated with concrete batch plants authorized under this general permit must be developed, maintained, and updated as needed.

(d) Sampling Data - A summary of existing stormwater discharge sampling data must be maintained, if available.

2. Measures and Controls - The SWP3 must include a description of management controls to regulate pollutants identified in the SWP3's "Description of Potential Pollutant Sources" from Part IV.B.1.(a) of this permit, and a schedule for implementation of the measures and controls. This must include, at a minimum:

(a) Good Housekeeping - Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.

(1) Operators must prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), settled dust, or other significant materials from paved portions of the site that are exposed to stormwater. Measures used to minimize the presence of these materials may include regular sweeping or other equivalent practices. These practices must be conducted at a frequency that is determined based on consideration of the amount of industrial activity occurring in the area and frequency of precipitation, and shall occur at least once per week when cement or aggregate is being handled or otherwise processed in the area.

(2) Operators must prevent the exposure of fine granular solids, such as cement, to stormwater. Where practicable, these materials must be stored in enclosed silos, hoppers or buildings, in covered areas, or under covering.

(b) Spill Prevention and Response Procedures - Areas where potential spills that can contribute pollutants to stormwater runoff, and the drainage areas from these locations, must be identified in the SWP3. Where appropriate, the SWP3 must specify material handling procedures, storage requirements, and use of equipment. Procedures for cleaning up spills must be identified in the SWP3 and made available to the appropriate personnel.

(c) Inspections - Qualified facility personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) must be identified to inspect designated equipment and areas of the facility specified in the SWP3. The inspection frequency must be specified in the SWP3 based upon a consideration of the level of concrete production at the facility, but must be a minimum of once per month while the facility is in operation. The inspection must take place while the facility is in operation and must, at a minimum, include all areas that are exposed to stormwater at the site, including material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, truck wash down and equipment cleaning areas. Follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections must be maintained and be made readily available for inspection upon request.

(d) Employee Training - An employee training program must be developed to educate personnel responsible for implementing any component of the SWP3, or personnel otherwise responsible for stormwater pollution prevention, with the provisions of the SWP3. The frequency of training must be documented in

the SWP3, and at a minimum, must consist of one training prior to the initiation of operation of the concrete batch plant.

(e) Record Keeping and Internal Reporting Procedures - A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of stormwater discharges, must be included in the SWP3. Inspection and maintenance activities must be documented and records of those inspection and maintenance activities must be incorporated in the SWP3.

(f) Management of Runoff - The SWP3 shall contain a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.

3. Comprehensive Compliance Evaluation – At least once per year, one or more qualified personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) shall conduct a compliance evaluation of the plant. The evaluation must include the following.

(a) Visual examination of all areas draining stormwater associated with regulated concrete batch plants for evidence of, or the potential for, pollutants entering the drainage system. These include but are not limited to: cleaning areas, material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down and equipment cleaning areas. Measures implemented to reduce pollutants in runoff (including structural controls and implementation of management practices) must be evaluated to determine if they are effective and if they are implemented in accordance with the terms of this permit and with the permittee's SWP3. The operator shall conduct a visual inspection of equipment needed to implement the SWP3, such as spill response equipment.

(b) Based on the results of the evaluation, the following must be revised as appropriate within two weeks of the evaluation: the description of potential pollutant sources identified in the SWP3 (as required in Part IV.B.1., "Description of Potential Pollutant Sources"); and pollution prevention measures and controls identified in the SWP3 (as required in Part IV.B.2., "Measures and Controls"). The revisions may include a schedule for implementing the necessary changes.

(c) The permittee shall prepare and include in the SWP3 a report summarizing the scope of the evaluation, the personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the SWP3, and actions taken in response to the findings of the evaluation. The report must identify any incidents of noncompliance. Where the report does not identify incidences of noncompliance, the report must contain a statement that the evaluation did not identify any incidence(s), and the report must be signed according to 30 TAC §305.128, relating to Signatories to Reports.

(d) The Comprehensive Compliance Evaluation may substitute for one of the required inspections delineated in Part IV.B.2.(c) of this general permit.

Section C. Prohibition of Wastewater Discharges

Wastewater discharges associated with concrete production including wastewater disposal by land application are not authorized under this general permit. These wastewater discharges must be authorized under an alternative TCEQ water quality permit or otherwise disposed of in an authorized manner. Discharges of concrete truck wash out at construction sites may be authorized if conducted in accordance with the requirements of Part V of this general permit.

Part V. Concrete Truck Wash Out Requirements

This general permit authorizes the wash out of concrete trucks at construction sites regulated under Sections II.E.1., 2., and 3. of this general permit, provided the following requirements are met. Authorization is limited to the land disposal of wash out water from concrete trucks. Any other direct discharge of concrete production waste water must be authorized under a separate TCEQ general permit or individual permit.

1. Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit.
2. Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site.
3. Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck wash out water is prohibited at all times, and the operator shall insure that its BMPs are sufficient to prevent the discharge of concrete truck wash out as the result of rainfall or stormwater runoff.
4. The discharge of wash out water must not cause or contribute to groundwater contamination.
5. If a SWP3 is required to be implemented, the SWP3 shall include concrete wash out areas on the associated site map.

Part VI. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required by Part II.E.3. For activities in which an NOT is not required, records shall be retained for a minimum period of three (3) years from the date that the operator terminates coverage under Section II.F.3. of this permit. Records include:

1. A copy of the SWP3;
2. All reports and actions required by this permit, including a copy of the construction site notice;
3. All data used to complete the NOI, if an NOI is required for coverage under this general permit; and
4. All records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

Part VII. Standard Permit Conditions

1. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued, and is grounds for enforcement action, for terminating, revoking, or denying coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit.
2. Authorization under this general permit may be suspended or revoked for cause. Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for revoking, suspending, or

terminating authorization under this permit. Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.

3. It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.
4. Inspection and entry shall be allowed under TWC Chapters 26-28, Texas Health and Safety Code §§361.032-361.033 and 361.037, and 40 CFR §122.41(i). The statement in TWC §26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.
5. The discharger is subject to administrative, civil, and criminal penalties, as applicable, under TWC Chapter 7 for violations including but not limited to the following:
   (a) negligently or knowingly violating the federal CWA §§301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA §402, or any requirement imposed in a pretreatment program approved under CWA §§402(a)(3) or 402(b)(8);
   (b) knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance; and
   (c) knowingly violating §303 of the federal CWA, and placing another person in imminent danger of death or serious bodily injury.
6. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).
7. Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.
8. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.
9. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
10. The permittee shall comply with the reporting requirements in 40 CFR §122.41(l), as applicable.

Part VIII. Fees

1. A fee of must be submitted along with the NOI:
   (a) $325 if submitting a paper NOI, or
   (b) $225 if submitting an NOI electronically.

2. Fees are due upon submission of the NOI. An NOI will not be declared administratively complete unless the associated fee has been paid in full.
3. No separate annual fees will be assessed for this general permit. The Water Quality Annual Fee has been incorporated into the NOI fees as described above.

Appendix A: Automatic Authorization

Periods of Low Erosion Potential by County – Eligible Date Ranges

Andrews: Nov. 15 - Apr. 30

Archer: Dec. 15 - Feb. 14

Armstrong: Nov. 15 - Apr. 30

Bailey: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Baylor: Dec. 15 - Feb. 14

Borden: Nov. 15 - Apr. 30

Brewster: Nov. 15 - Apr. 30

Briscoe: Nov. 15 - Apr. 30

Brown: Dec. 15 - Feb. 14

Callahan: Dec. 15 - Feb. 14

Carson: Nov. 15 - Apr. 30

Castro: Nov. 15 - Apr. 30

Childress: Dec. 15 - Feb. 14

Cochran: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Coke: Dec. 15 - Feb. 14

Coleman: Dec. 15 - Feb. 14

Collingsworth: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

Concho: Dec. 15 - Feb. 14

Cottle: Dec. 15 - Feb. 14

Crane: Nov. 15 - Apr. 30

Crockett: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Crosby: Nov. 15 - Apr. 30

Culberson: Nov. 1 - May 14

Dallam: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Dawson: Nov. 15 - Apr. 30

Deaf Smith: Nov. 15 - Apr. 30

Dickens: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Dimmit: Dec. 15 - Feb. 14

Donley: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

Eastland: Dec. 15 - Feb. 14

Ector: Nov. 15 - Apr. 30

Edwards: Dec. 15 - Feb. 14

El Paso: Jan. 1 - Jul. 14, or May 15 - Jul. 31, or Jun. 1 - Aug. 14, or Jun. 15 - Sept. 14, or Jul. 1 - Oct. 14, or Jul. 15 - Oct. 31, or Aug. 1 - Apr. 30, or Aug. 15 - May 14, or Sept. 1 - May 30, or Oct. 1 - Jun. 14, or Nov. 1 - Jun. 30, or Nov. 15 - Jul. 14

Fisher: Dec. 15 - Feb. 14

Floyd: Nov. 15 - Apr. 30

Foard: Dec. 15 - Feb. 14

Gaines: Nov. 15 - Apr. 30

Garza: Nov. 15 - Apr. 30

Glasscock: Nov. 15 - Apr. 30

Hale: Nov. 15 - Apr. 30

Hall: Feb. 1 - Mar. 30

Hansford: Nov. 15 - Apr. 30

Hardeman: Dec. 15 - Feb. 14

Hartley: Nov. 15 - Apr. 30

Haskell: Dec. 15 - Feb. 14

Hockley: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Howard: Nov. 15 - Apr. 30

Hudspeth: Nov. 1 - May 14

Hutchinson: Nov. 15 - Apr. 30

Irion: Dec. 15 - Feb. 14

Jeff Davis: Nov. 1 - Apr. 30 or Nov. 15 - May 14

Jones: Dec. 15 - Feb. 14

Kent: Nov. 15 - Jan. 14 or Feb. 1 - Mar. 30

Kerr: Dec. 15 - Feb. 14

Kimble: Dec. 15 - Feb. 14

King: Dec. 15 - Feb. 14

Kinney: Dec. 15 - Feb. 14

Knox: Dec. 15 - Feb. 14

Lamb: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Loving: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Lubbock: Nov. 15 - Apr. 30

Lynn: Nov. 15 - Apr. 30

Martin: Nov. 15 - Apr. 30

Mason: Dec. 15 - Feb. 14

Maverick: Dec. 15 - Feb. 14

McCulloch: Dec. 15 - Feb. 14

Menard: Dec. 15 - Feb. 14

Midland: Nov. 15 - Apr. 30

Mitchell: Nov. 15 - Apr. 30

Moore: Nov. 15 - Apr. 30

Motley: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Nolan: Dec. 15 - Feb. 14

Oldham: Nov. 15 - Apr. 30

Parmer: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Pecos: Nov. 15 - Apr. 30

Potter: Nov. 15 - Apr. 30

Presidio: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Randall: Nov. 15 - Apr. 30

Reagan: Nov. 15 - Apr. 30

Real: Dec. 15 - Feb. 14

Reeves: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Runnels: Dec. 15 - Feb. 14

Schleicher: Dec. 15 - Feb. 14

Scurry: Nov. 15 - Apr. 30

Shackelford: Dec. 15 - Feb. 14

Sherman: Nov. 15 - Apr. 30

Stephens: Dec. 15 - Feb. 14

Sterling: Nov. 15 - Apr. 30

Stonewall: Dec. 15 - Feb. 14

Sutton: Dec. 15 - Feb. 14

Swisher: Nov. 15 - Apr. 30

Taylor: Dec. 15 - Feb. 14

Terrell: Nov. 15 - Apr. 30

Terry: Nov. 15 - Apr. 30

Throckmorton: Dec. 15 - Feb. 14

Tom Green: Dec. 15 - Feb. 14

Upton: Nov. 15 - Apr. 30

Uvalde: Dec. 15 - Feb. 14

Val Verde: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Ward: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Wichita: Dec. 15 - Feb. 14

Wilbarger: Dec. 15 - Feb. 14

Winkler: Nov. 1 - Apr. 30, or Nov. 15 - May 14

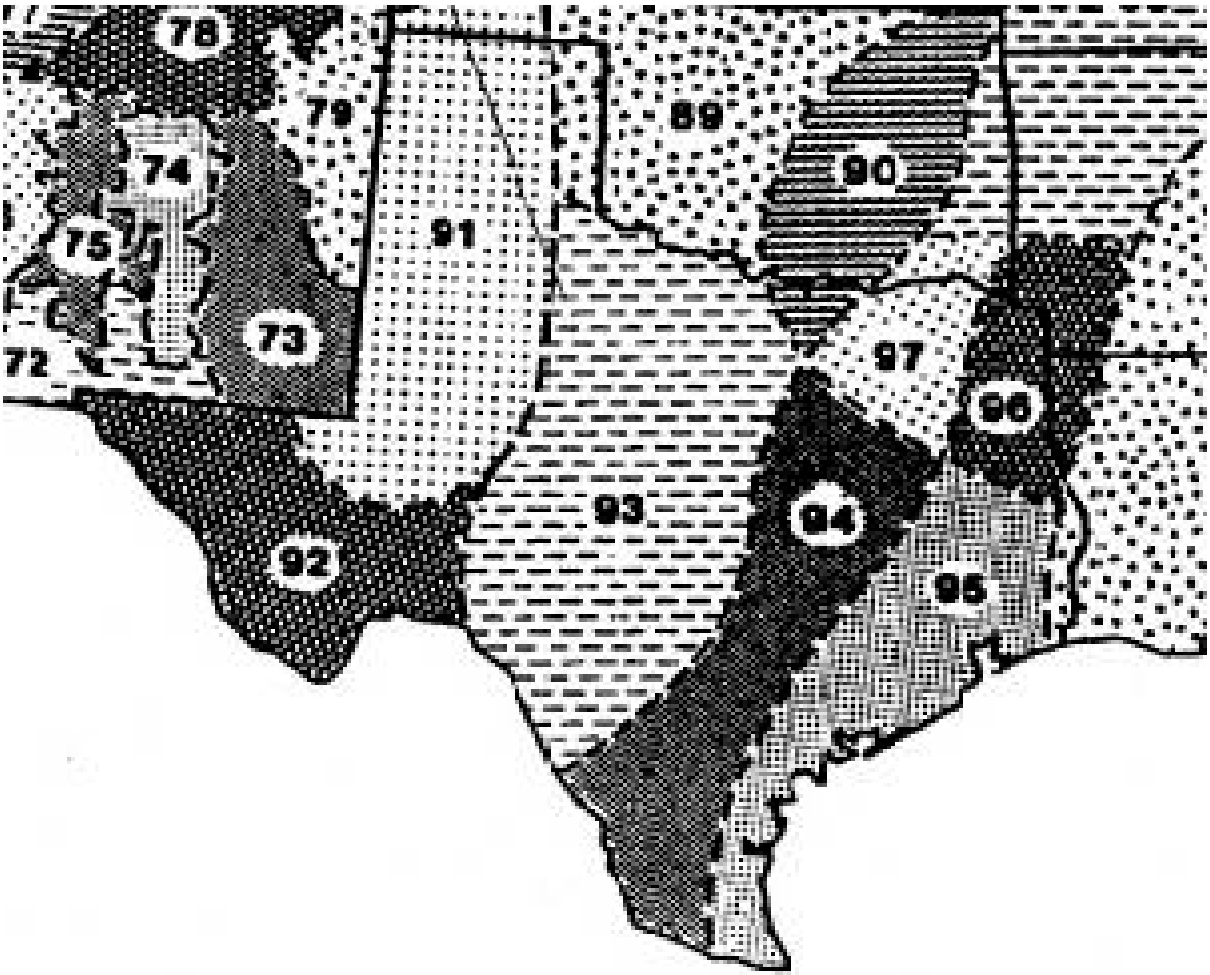
Yoakum: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Young: Dec. 15 - Feb. 14

Wheeler: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

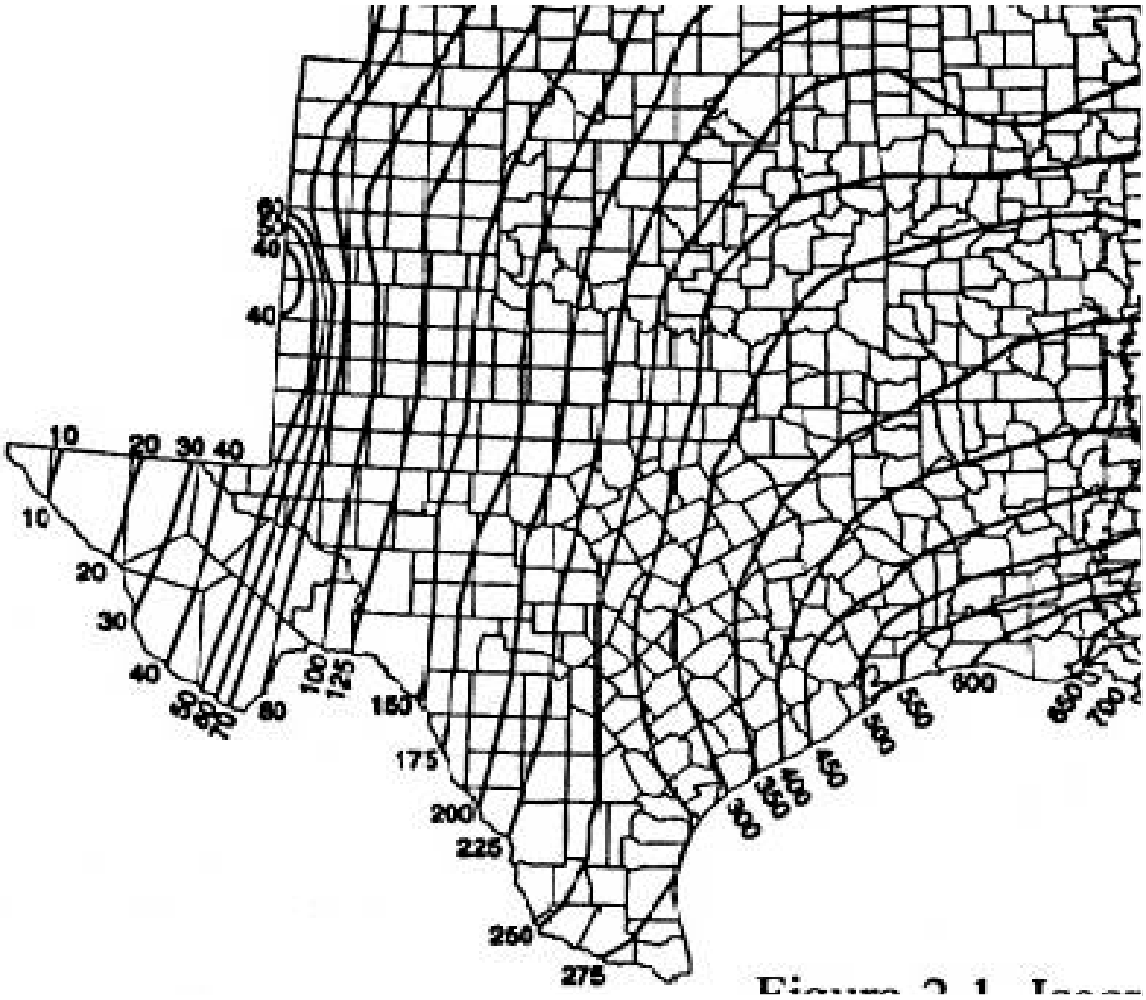
Zavala: Dec. 15 - Feb. 14

Appendix B: Erosivity Index (EI) Zones in Texas



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix C: Isoerodent Map



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix D: Erosivity Indices for EI Zones in Texas

Periods:

EI #	1/1	1/16	1/31	2/15	3/1	3/16	3/31	4/15	4/30	5/15	5/30	6/14	6/29	7/14	7/29	8/13	8/28	9/12	9/27	10/12	10/27	11/11	11/26	12/11	12/31
89	0	1	1	2	3	4	7	2	8	27	38	48	55	62	69	76	83	90	94	97	98	99	100	100	100
90	0	1	2	3	4	6	8	13	21	29	37	46	54	60	65	69	74	81	87	92	95	97	98	99	100
91	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
92	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
93	0	1	1	2	3	4	6	8	13	25	40	49	56	62	67	72	76	80	85	91	97	98	99	99	100
94	0	1	2	4	6	8	10	15	21	29	38	47	53	57	61	65	70	76	83	88	91	94	96	98	100
95	0	1	3	5	7	9	11	14	18	27	35	41	46	51	57	62	68	73	79	84	89	93	96	98	100
96	0	2	4	6	9	12	17	23	30	37	43	49	54	58	62	66	70	74	78	82	86	90	94	97	100
97	0	1	3	5	7	10	14	20	28	37	48	56	61	64	68	72	77	81	86	89	92	95	98	99	100
106	0	3	6	9	13	17	21	27	33	38	44	49	55	61	67	71	75	78	81	84	86	90	94	97	100

* Each period begins on the date listed in the table above and lasts until the day before the following period. The final period begins on December 11 and ends on December 31.

Table adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

F. USFWS Memo and Endangered Species Report

City of Austin Environmental Resource Inventory and Habitat Assessment

Broadstone Scenic Brook – Oak Hill

West Highway 290

Austin, Travis County, Texas

May 14, 2014

Terracon Project No. 96147284

Prepared for:

Alliance Residential
Austin, Texas

Prepared by:

Terracon Consultants, Inc.

Austin, Texas

May 14, 2014

Terracon

Mr. Brandon Easterling
Alliance Resiential
West Highway 290
Austin, Texas

Telephone: (512) 371-5820
Email: beasterling@allresco.com

Re: Critical Environmental Feature and Hydrogeologic Portions of the City of Austin Environmental Resource Inventory and Habitat Assessment
Broadstone Scenic Brook – Oak Hill
West Highway 290
Austin, Travis County, Texas
Terracon Project No. 96147284

Dear Mr. Easterling:

Terracon Consultants, Inc. (Terracon) is pleased to provide this critical environmental feature (CEF) and hydrogeologic report portion of the City of Austin (COA) Environmental Resource Inventory (ERI) and Habitat Assessment (HA), prepared for the above-referenced site.

The results of our consulting services are solely the professional opinion of Terracon based on the site conditions documented and observed at the time of the field assessment. It should be noted that some CEFs may be seasonal or ephemeral, indicating that their presence/absence and condition are dependent on various weather conditions (including rainfall) and other changes in the surrounding ecosystem. Terracon is not liable for ephemeral and/or seasonal CEFs that are exposed or created after Terracon's field assessment. Additionally, Terracon's opinion is based on the most current regulations; therefore, changes in regulations may require a re-evaluation of the findings of this report. It is recommended that if this report is not to be submitted promptly to the COA, an updated report (based on an additional field assessment) be prepared. We appreciate the opportunity to provide this report. Should you have any questions or require additional information, please call us at 512-442-1122.

Sincerely,
Terracon Consultants, Inc.

Arthur D. Potts
Field Environmental Scientist

Hilary D. Johns P.G.
Manager – Environmental Services

ENVIRONMENTAL RESOURCE INVENTORY

(*Critical Environmental Feature and Hydrogeologic Elements*)

AND HABITAT ASSESSMENT

46-ACRE TRACT
WEST HIGHWAY 290
AUSTIN, TRAVIS COUNTY, TEXAS
Project No. 96147284
May 14, 2014

1.0 INTRODUCTION

This report presents Terracon Consultants, Inc.'s (Terracon) critical environmental feature (CEF) and hydrogeologic portions of the City of Austin (COA) Environmental Resource Inventory (ERI) and Habitat Assessment (HA) prepared for the above-referenced site. The purpose of the ERI is to satisfy a COA, Land Development Code §25-8-121 *Environmental Assessment Requirement,* which necessitates that an ERI be performed for any development: (1) over a karst aquifer; (2) within an area draining to a karst aquifer or reservoir; (3) in a water quality transition zone; (4) in a critical water quality zone; (5) in a floodplain; or (6) on a tract with a gradient of more than 15 percent.

Terracon personnel performed a field assessment of the site and surrounding areas (within approximately 150 feet of the site) on May 7, 2014. The field assessment was performed to evaluate the presence or absence of geologic, natural, or manmade features including: faults, fractures, riparian woodlands, water wells, borings, and excavations, as well as, COA CEFs (as defined by Land Development Code §25-8-1 *Definitions*) including: bluffs, canyon rimrocks, caves, sinkholes, springs, seeps, and wetlands. Additionally, the site was assessed to determine if suitable habitat for any threatened or endangered species existed on the site. Terracon completed the assessment process by conducting a review of the existing literature. The following sections present the results of the ERI and HA.

2.0 ENVIRONMENTAL SETTING

2.1 Site Description

The 46-acre site is located on West Highway 290 in Austin, Travis County, Texas. The site location (in relation to the surrounding area) is depicted on Figure 1, which was reproduced from a portion of a United States Geological Survey (USGS) 7.5-minute series topographic map (attached). The site consists of vacant land with a livestock pond in the southwestern corner of the site. A recent aerial photograph (Figure 2) and photographs depicting current site conditions are also attached.

2.2 Land Use

Based on a review of available historical black and white and infrared aerial photographs (1973, 1980, 1990, 1996, 2001, 2005, and 2009), the site appears to have consisted of undeveloped land with a livestock tank in the southwestern portion of the site since at least the early 1970s. During field investigation, livestock barns and pens were observed in the central portion of the site;

however, no signs of current agricultural use were observed. Additionally, several deer stands and feeders were observed throughout the site.

The area surrounding the site includes TxDOT right-of-way and Highway 290 to the north, residences to the east and south, and agricultural land and undeveloped land to the west.

2.3 Vegetation

The site is located within the Edwards Plateau Region of Texas (Gould, 1960), and can be further described as being part of the Live Oak-Mesquite Savanna region of the Edwards Plateau physiographic province (Amos and Gehlbach, 1988). Dominant vegetation associated with this region includes Texas oak (*Quercus texana*), live oak (*Q. virginiana*), plateau live oak (*Q. fusiformis*), honey mesquite (*Prosopis glandulosa*), Indiangrass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparium*), wild rye (*Elymus* sp.), and buffalograss (*Buchloë dactyloides).*

According to the TPWD's *Vegetation Types of Texas* maps, the site is located in an area designated as "Live Oak-Mesquite-Ashe Juniper Parks" (26b). This vegetation type occurs primarily on level to gently rolling uplands and ridge tops of the Edwards Plateau. Dominant species associated with Live Oak-Mesquite-Ashe juniper Parks include Texas oak, shin oak (*Quercus havardii*), mesquite, Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), flameleaf sumac (*Rhus lanceolata*), agarita (*Mahonia trifoliolata*), Texas persimmon (*Diospyros texana*), Texas thistle (*Cirsium texanum*), saw greenbrier (*Smilax bona-nox*), prickly pear cactus (*Opuntia sp.*), little bluestem (*Schizachyrium scoparium*), curly mesquite (*Prosopis pubescens*), Texas grama (*Bouteloua rigidiseta*), and Texas wintergrass (*Stipa leucotricha*).

Based on visual observations made during the field investigation, the site predominantly consists of dense growth of Ashe juniper with interspersed plateau live oak. Dominant herbaceous vegetation includes, but is not limited to, square-bud daisy (*Tetragonotheca texana*), plains blackfoot (*Melampodium leucanthum*), little bluestem, curly mesquite, and prickly pear cactus, Coryphantha cactus (*Coryphantha sp.*). Understory species include agarita (*Mahonia trifoliolata*), Texas persimmon, flameleaf sumac, and saw greenbrier. Overall canopy cover for the site is estimated at 75 percent.

2.4 Topography and Surface Water

This site is located within the Suburban Zone. The majority of the site is located with the Slaughter Creek Watershed; however the northern portion of the site is located within the Williamson Creek Watershed. The site is not located within the Edwards Aquifer Recharge or Transition Zones as mapped by the 1998 City of Austin Watershed Regulation Areas Map and the Texas Commission on Environmental Quality (TCEQ) Recharge Zone Boundary Maps. Based on a review of the USGS Signal Hill, Texas 7.5 minute topographic map, the site ranges from approximately 985 to 1,085 feet above mean sea level, with the site moderately sloping towards the south. A pond is indicated in the southwestern corner of the site, and an unnamed tributary to Slaughter Creek (depicted as an intermittent stream by a dashed blue line) is depicted approximately 250 feet southwest of the site.

No other potential surface water bodies are depicted on the site or within 150 feet of the site.

As mapped by the Federal Emergency Management Agency (FEMA), the site is mapped as Zone X, which corresponds to areas outside of the 500-year floodplain. National Wetland Inventory (NWI) maps (prepared by the United States Fish and Wildlife Service [USFWS]), indicated that a pond is present in the southwestern corner of the site.

During the field investigation, a livestock tank was observed in the southwestern corner of the site. The feature appears to be off-channel and ephemeral in nature, with no apparent inflow water source. At the time of the site investigation, no water was observed in the pond.

2.5 Geology

The site is located outside of the recharge zone of the Edwards aquifer. The surficial geologic unit present at the site has been identified as the Glen Rose Formation (Garner and Young, 1976). The Glen Rose Formation forms the lower confining unit to the Edwards aquifer and consists of a yellowish-tan, thinly bedded limestone and marl. The upper member of the Glen Rose consists of shale and marl alternating with thin beds of limestone and dolomite. This alternating bedding of limestone and marl forms the typical stair-step topography observed in outcrops in the area and on the site. Thicknesses of about 600 feet are present in the area. The upper 100 feet is typically heavily weathered and contains abundant porous soft dolomite and burrowed limestone resulting in gentle slopes and many springs. The dolomitic portions of the upper member contain water and make up part of the upper Trinity aquifer.

Surface exposure onsite of the Glen Rose is generally obscured by the presence of soil cover. Several debris piles, which included boulders of Glen Rose limestone and several small, outcrops were observed on the site. No evidence of any faulting was observed on the site and none is shown on any of the available published geologic maps of the area. Additionally, a review of aerial photographs did not reveal any lineations, which typically indicate the presence of faulting. No caves, sinkholes, or significant solution cavities were observed on the site.

2.6 Soils

As mapped by the Natural Resource Conservation Service's *Soil Survey of Travis County, Texas*, the site is underlain by the Speck-Tarrant Association, which consists of shallow, stony, loamy soils and very shallow, stony clay soils overlying limestone. Characteristics of specific on-site soils were obtained from the USDA's *Web Soil Survey* and are provided in the table below:

TABLE 1: SOILS

Soil Name	Soil Type	Soil Depth (FEET)	Underlying Material	Permeability	Available Water Capacity	Shrink-Swell Capacity	Hydric*
Brackett-Rock outcrop complex, 1 to 12 percent slopes (BlD)	Clay loam	0 to 1.5	Interbedded limestone and marl	High	Low	Low	No

*Please note that the hydric soil classification indicated above is determined by the USDA NCSS; however, localized hydric soils could be present in wetland areas (if applicable).

2.7 Water Wells and Other Man-made Excavations

A search was made for water wells, borings, and excavations on or within 150 feet of the site. Based on a review of Water Well Data (obtained from the Texas Water Development Board [TWDB] website), no water wells were recorded on or within 150 feet of the site. No water wells, borings, or excavations were identified in the immediate vicinity of the site (150 feet from the site) by visual reconnaissance from within site boundaries during Terracon's field reconnaissance.

3.0 CRITICAL ENVIRONMENTAL FEATURES

A wetland area, identified as W1 in Table 2 below, was observed in the southwestern corner of the site. The feature appears to be a livestock tank. Based on observations made during Terracon's field reconnaissance, it is Terracon's opinion that the feature would be classified as a CEF.

Using a hand-held GPS unit, Terracon documented the approximate locations of the CEF on the site and within 150 feet of the site boundaries, which are provided in the table below. Additionally, the approximate location of the CEF is depicted on the Exhibit 2.

TABLE 2: CEFs

CEF Type	Map ID	Latitude	Longitude	CEF Dimension (Average)	
ON-SITE				Width/Height (ft)	Length (ft)
Pond	W1	30° 13' 38.66" N	97° 54' 15.61" W	65	90

No other bluffs, caves, rimrock, sinkholes, wetlands, seeps, or springs (as defined by the COA) were identified on the site or within 150 feet of the site (as defined by the COA).

Additionally, an animal burrow was observed on-site which superficially may appear to be a void feature. Based on the geologic substrate observed on-site (the Glen Rose formation), karst features are not expected to be present. The burrow does not appear to be a recharge feature.

Please note that the COA is the final authority on whether features are classified as CEFs. Therefore, the results of our consulting services are solely the professional opinion of Terracon based on conditions documented and observed at the time of the field assessment.

3.1 Proposed Protective Measures

It is Terracon's opinion that proposed protective measures should include a 50 foot setback from the pond CEF (W1). It should be noted that the COA may administratively approved modified setbacks from CEF features on a case-by-case basis.

As noted above, Terracon did not identify evidence of significant recharge features or other voids during the field investigation; however, it should be noted that the COA has implemented Void and Water Flow Mitigation (Rule Nos. R161-08.04 through R161.08.06). If a void or cave is encountered during any future site excavation/development, construction activities should cease until a certified geologist can evaluate the feature and establish mitigation methods.

4.0 HABITAT ASSESSMENT

4.1 Literature Review

Literature and agency file searches were conducted to identify the potential occurrence of any federally listed threatened and endangered (T&E) species in the vicinity of the site. The search included information from the USFWS website and the Texas Natural Diversity Database (TXNDD) located at the TPWD. Federally listed T&E species are reported on the USFWS Southwest Region Ecological Services Office's Endangered Species List by County for Texas web page (accessed May 2014).

Although no longer listed as a T&E species by the USFWS, the bald eagle (*Haliaeetus leococephalus*) is protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (Migratory Act). Both acts prohibit the "taking" (pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing) bald eagles and/or their parts, nests, or eggs. Furthermore, the USFWS has listed the Eskimo curlew (*Numenius borealis*), interior least tern (*Stema antillarum athalassos*), and piping plover (*Charadrius melodus*) (all protected by the Migratory Act) as potentially occurring in many or all Texas counties.

A request was made for research staff at TPWD to review occurrences of T&E species sightings within Travis County. Upon the issuance of this report, Terracon had not received a response from TPWD.

Table 3 provides a brief description of each of the above-listed species' preferred habitats and an evaluation of the habitat suitability of the site based on these preferences.

Table 3: Protected Species Assessment Findings

Species	USFWS Status	TPWD Status	Species/Habitat Description	Habitat Present in Project Area?	Findings
Mollusks					
False spike mussel *Quadrula mitchelli*	-	T	Possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins	No; adequate waterways not present on-site	No impact
Smooth pimpleback *Quadrula houstonensis*	-	T	Small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins	No; adequate waterways not present on-site	No effect
Texas fatmucket *Lampsilis bracteata*	-	T	Streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	No; adequate waterways not present on-site	No effect
Texas fawnsfoot *Truncilla macrodon*	-	T	Little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals, possibly sand, gravel, and perhaps sandy-mud bottoms in moderate flows; Brazos and Colorado River basins	No; adequate waterways not present on-site	No effect
Texas pimpleback *Quadrula petrina*	C	T	Mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	No; adequate waterways not present on-site	No effect
Reptiles					
Texas horned lizard *Phrynosoma cornutum*	-	T	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September	No; consultation with TPWD biologist indicates the species has not been observed in Travis County in several decades	No effect

Species	USFWS Status	TPWD Status	Species/Habitat Description	Habitat Present in Project Area?	Findings
Amphibians					
Barton Springs salamander *Eurycea sosorum*	-	E	Known only from the outlets of Barton Springs in Travis County. The springs are within the Colorado River Basin and are fed by flow from the Edwards Aquifer.	No; spring-fed streams not present within project vicinity	No effect
Birds					
American Peregrine Falcon *Falco peregrinus* Arctic Peregrine Falcon *Falco peregrinus tundrius*	DL	T	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No; potential migrant	No impact; potential migrant
Bald Eagle *Haliaeetus leucocephalus*	DL	T	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds	No; potential migrant	No impact; potential migrant
Black-capped Vireo *Vireo atricapilla*	E	E	Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer	No; adequate vegetation not present within project site	No effect

Species	USFWS Status	TPWD Status	Species/Habitat Description	Habitat Present in Project Area?	Findings
Golden-cheeked Warbler *Setophaga chrysoparia*	E	E	Juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer	Yes	May effect
Interior Least Tern *Sterna antillarum athalassos*	E	E	Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	No; adequate water for feeding not present within the site vicinity	No effect
Whooping Crane *Grus americana*	E	E	Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	No; potential migrant	No effect; potential migrant
Mammals					
Red wolf *Canis rufus*	E	E	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	No; species extirpated	No effect

Status Codes:
E = Endangered C = Candidate Species T = Threatened NL = Not listed DL = Delisted

TPWD data last revised March 31, 2014; obtained May 2014
USFWS data last revised January 2014; obtained May 2014

4.2 T&E Species Summary

During the site investigation, site conditions were observed to determine the likelihood of containing suitable habitat for state and federally listed threatened and endangered species. Based on the vegetative makeup of the forested areas of the site, it's is possible that suitable habitat for the state and federally listed Endangered Golden-cheeked Warbler is present on-site. The Balcones Canyonlands Conservation Plan (BCCP) Habitat Zones Map (available through Travis County) maps areas as Zone – Confirmed Habitat, Zone 2 – Unconfirmed Habitat, or Zone 3 – Not Known to be Habitat for the Golden-cheeked Warbler. The site is mapped as Zone 2, which refers to areas which may include habitat, but have not been studied as of yet.

Based on the vegetation observations, Terracon recommends that the site should be surveyed by a qualified biologist for the presence/absence of the Golden-cheeked Warbler prior to site development. However, it should also be noted that landowners may choose to participate in the BCCP, in lieu of conducting presence/absence surveys. Travis County administers the public participation program on behalf of the BCCP Coordinating Committee. Travis County works with landowners and developers planning to develop land in endangered species habitat to mitigate "take" through participation in the BCCP. "Take" is defined by the USFWS as: "To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect any threatened or endangered species. Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction)."

The City of Austin manages the infrastructure mitigation program on behalf of the BCCP Coordinating Committee. This process allows for the construction of public schools, roadway, utilities, and other capital improvement projects throughout the permit area. A fee schedule has been developed and approved for participation in the BCCP. Fees for lands located within Golden-cheeked Warbler Zone 2 are $2,750 per acre. Applications for participation are available at through Travis County and can be found at http://www.co.travis.tx.us/tnr/bccp/participating.asp.

5.0 REFERENCES

(Amos) Amos, B.B., and Gehlbach, F.R., Edwards Plateau Vegetation, Plant Ecological Studies in Central Texas, 1988.

(COA) City of Austin Watershed Protection and Development Review Department, Environmental Resources Management Division. *City of Austin Biological Resource Sector Maps*.

(Gould) Gould, F.W., G.O. Hoffman, and C.A. Rechenthin. *Vegetational Areas of Texas,* 1960. College Station: Texas Agricultural Extension Service, Texas A&M University.

(FEMA) Federal Emergency Management Agency. Flood Insurance Rate Map, Travis County, Community Panel Number 48453C0580 H (dated September 26, 2008).

(TCEQ) Texas Commission on Environmental Quality, formerly the Texas Natural Resource Conservation Commission. Edwards Aquifer Recharge Zone Boundary Maps. 1996. Accessed August 2013.

(TPWD) Texas Parks and Wildlife Department. *The Vegetation Types of Texas, Including Cropland.* 1984.

(TWDB) Texas Water Development Board. Water Well Drillers' Records. Accessed August 2013.

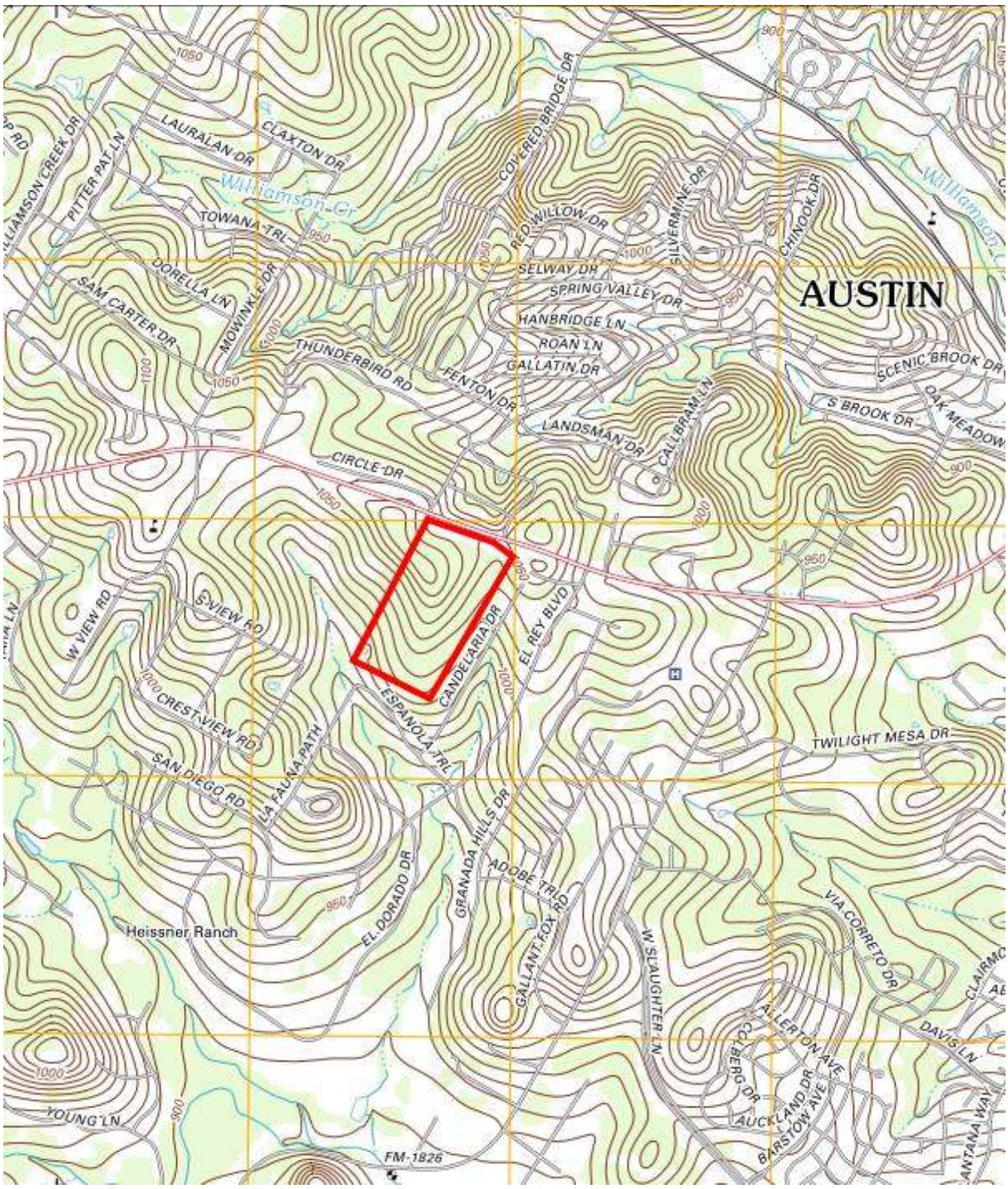
(USFWS) US Fish and Wildlife Service. National Wetland Inventory (NWI) Wetland Mapper, available on-line: www.fws.gov/wetlands/Data/Mapper.html. Accessed August 2013.

(USGS) US Geological Service 7.5 minute Topographic Quadrangle Map, Signal Hill, Texas, 1986.

(UT-BEG) University of Texas – Bureau of Economic Geology. *Geologic Atlas of Texas, Austin Sheet.* The University of Texas at Austin. Reprinted 1981.

(UT-BEG) *Geologic Map of the Austin Area*. Revised 1992.

(Werchan) Werchan, Leroy E., A.C. Lowther, and Robert N. Ramsey. *Soil Survey of Travis County, Texas*. US Department of Agriculture, Soil Conservation Service, in cooperation with the Texas Agricultural Experiment Station, 1974.



(property lines approximate)

Signal Hill, Texas

2013
USGS Topographic Quadrangle
7.5 Minute Series

Scale: 1:24,000

N

Terracon

Broadstone Scenic Brook - Oak Hill
Austin, Travis County, Texas

Terracon Project No. 96147284

Figure 1

(property lines approximate)

DATE: 2009		Terracon **Broadstone Scenic Brook - Oak Hill** **West Highway 290** Austin, Travis County, Texas Terracon Project No. 96147284
SOURCE: Aerials Express Scale 1" = 400'	N	
Frame: N/A		**Figure 2**

Photo 1 Typical view of vegetation

Photo 2 Pond CEF (W1) observed in southwestern corner of site

Photo 3 Non-CEF animal burrow observed on-site

Photo 4 Typical view of vegetation in northern portion of the site

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

I Craig Carlock,
Print Name

Chief Operating Officer,
Title - Owner/President/Other

of GRANADA RIDGE, LLC,
Corporation/Partnership/Entity Name

have authorized Reese B. Hurley, P.E.
Print Name of Agent/Engineer

of LJA Engineering, Inc.
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:

Craig Carlak
Applicant's Signature

10-11-2023
Date

THE STATE OF NC §

County of Guilford §

BEFORE ME, the undersigned authority, on this day personally appeared Craig Carlak 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 11th day of October, 23.

NOTARY PUBLIC

Stuart Kaufman
Typed or Printed Name of Notary

STUART KAUFMAN
Notary Public, North Carolina
Guilford County
My Commission Expires
12/22/27

MY COMMISSION EXPIRES: 12/22/27

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Granada Ridge Development
Regulated Entity Location: 8327 W. US Highway 290, Austin, Texas, Travis County, 78736.
Name of Customer: Granada Ridge, LLC
Contact Person: Reese B. Hurley, P.E. Phone: 512-439-4700
Customer Reference Number (if issued):CN _____
Regulated Entity Reference Number (if issued):RN 109936435
Austin Regional Office (3373)

☐ Hays ☒ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	39.99 Acres	$ 6,500.00
Sewage Collection System	L.F.	$
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: 2/24/2025

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN		**RN 1099364**

SECTION II: Customer Information

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

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

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

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

Granada Ridge, LLC | CIP Construction Company

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0803188300	32069194226		

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

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

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

15. Mailing Address:	PO BOX 9846							
	City	Greensboro	**State**	NC	**ZIP**	27429	**ZIP + 4**	0846

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*

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

(336) 275-6198		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Granada Ridge Development

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	8327 W. US Highway 290							
	City	Austin	**State**	TX	**ZIP**	78736	**ZIP + 4**	8005
24. County	Travis							

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

25. Description to Physical Location:	Located on the south side of West US Highway 290 across from Scenic Brook Drive in Travis County.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Austin			TX	78736	

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

27. Latitude (N) In Decimal:	30.231410		**28. Longitude (W) In Decimal:**	-97.900532	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	13	53.076	97	54	1.9152

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)
1522		236116	

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

Multifamily Apartments - For Rent

34. Mailing Address:	**PO BOX 9846**							
	City	**Greensboro**	**State**	**NC**	**ZIP**	**27429**	**ZIP + 4**	**846**
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(336) 814-3235		( ) -

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

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

SECTION IV: Preparer Information

40. Name:	Reese B. Hurley	**41. Title:**	Senior Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 439-4700		(512) 439-4716	rhurley@lja.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:	Granada Ridge, LLC	**Job Title:**	Chief Operating Officer
Name *(In Print):*	Craig Carlock	**Phone:**	(336)274- 8531
Signature:	Craig Carlock	**Date:**	10-4-2023

NON-CONSOLIDATED SITE DEVELOPMENT PLANS for

GRANADA RIDGE DEVELOPMENT

BROADSTONE SCENIC BROOK AMENDED

8327 W. US 290 HWY
AUSTIN, TEXAS 78736
MARCH 2019

Inspection Notice: Please call Development Services Department, Site and Subdivision Inspection Division at ... to arrange for payment of inspection fees and job assignment for inspection of the public utilities to this site. Inspection fees must be paid before any pre-construction meeting can be held.

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER. APPROVAL OF THESE PLANS BY THE CITY OF AUSTIN DOES NOT REMOVE THESE RESPONSIBILITIES.

REVIEWED BY THE AUSTIN WATER UTILITY APPLIES ONLY TO FACILITIES WITHIN PUBLIC STREETS OR PUBLIC UTILITY EASEMENTS. ALL OTHER WATER AND WASTEWATER FACILITIES INSIDE PRIVATE PROPERTY ARE UNDER THE JURISDICTION OF BUILDING INSPECTION.

ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN METHODS OF FLANG OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANG OR SWIVEL TEES WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.

REVIEWED MAR 2 9 2019 Austin Water Utility

AUSTIN WATER UTILITY EXPIRATION DATE MAR 2 9 2022

FIRE FLOW DEMAND PER CURRENT INTERNATIONAL FIRE CODE (C4)	DOMESTIC & IRRIGATION WATER DEMAND (C4)
BUILDING SIZE IN SQUARE FEET – 44,019 SF (BUILDING TYPE D)	WATER SUPPLY FIXTURE UNITS (WSFU'S) – 2,346
BUILDING TYPE PER CURRENT I.F.C. – V-A	DOMESTIC DEMAND CALCULATED PER THE WSFU'S – 365 GPM
BUILDING HEIGHT – 65 FT – HIGH RISE BLDG. YES/NO (CIRCLE ONE)	IRRIGATION DEMAND – 100 GPM
AVAILABLE FIRE FLOW CALCULATED AT 20 PSI – 4,974 GPM	AUSTIN WATER PRESSURE ZONE(S) – SOUTHWEST C
~~REQUIRED FIRE FLOW PER I.F.C. – 3,750 GPM~~	STATIC PRESSURE – 69 PSI (TEST HYDRANT), 80 PSI (RESIDUAL HYDRANT)
(C4) REDUCED FIRE FLOW PER 75% FIRE SPRINKLER REDUCTION – 937.5 GPM	HIGHEST PRESSURE – 76 PSI (MASTER METER LOCATION)
PRIVATE INTERNAL FIRE SPRINKLER SYSTEM DEMAND – 250 GPM	LOWEST PRESSURE – 72 PSI (MASTER METER LOCATION)
(C4) MINIMUM FIRE FLOW 937.5 GPM (DESIGN ENG. MUST INCLUDE 1500 MIN. OR REDUCED FIRE FLOW AMOUNT, WHICHEVER IS GREATER)	LOTS WITH 65 PSI OR GREATER REQUIRE A PRV TO BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE DOMESTIC WATER METER

STATE OF TEXAS — REESE B. HURLEY — 88211 — LICENSED PROFESSIONAL ENGINEER — 05-23-2023 FOR C2

OWNER:	GRANADA RIDGE, LLC. 201 N. ELM STREET, SUITE 201 GREENSBORO, NC 27401 (336) 814-3239	ENGINEER:	DOUCET & ASSOCIATES 7401 B HWY. 71 WEST, SUITE 160 AUSTIN, TEXAS 78735 (512) 583-2600	ARCHITECT:	BSB DESINGS, INC (847) 776-3290
CONTACT:	DENNIS BURTON	CONTACT:	SUMITA KADARIYA, P.E.	CONTACT:	DEENA ROUMELIOTIS
DEVELOPER:	CP CONSTRUCTION COMPANY 201 N. ELM STREET, SUITE 201 GREENSBORO, NC 27401 (336) 274-8531	LAND SURVEY:	CHAPARRAL PROFESSIONAL LAND SURVERYING, INC. 3500 McCALL LANE AUSTIN, TEXAS 78744 (512) 443-1724	MEP ENGINEER:	JORDAN SKALA 1801 S MOPAC EXPY #310 AUSTIN, TX 78746 (512) 676-3100
CONTACT:	BRIAN SLEVAR, AIA, NCARB	CONTACT:	JOBY EARLY, R.P.L.S.	CONTACT:	REX A. DRAKE

Travis County TNR has approved plan correction No. C1, volunteered by the permit holder and addressing pond modifications related to updated Atlas 14 precipitation, on March 8, 2023 by Teresa Calkins, P.E. (512.854.7569; Teresa.Calkins@traviscountytx.gov)

Travis County TNR has approved plan Correction No. C2 on April 29, 2023 by Teresa Calkins, P.E. (512 854-7569, Teresa. Calkins@traviscountytx.gov.

SITE DEVELOPMENT PERMIT NUMBER: SP-2018-0138D DATE ______

LEGAL DESCRIPTION: LOT 2A, BLOCK A, 35.998 ACRES, TRAVIS COUNTY, TEXAS, BROADSTONE SCENIC BROOK AMENDED LOTS 1 AND 2, BLOCK A, ACCORDING TO THE PLAT OF RECORD DOCUMENT #201800285, OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS.

FLOODPLAIN: ZONE "X" AS IDENTIFIED BY FEMA, F.I.R.M. PANEL NO.48453C0460H, TRAVIS COUNTY, TEXAS DATED SEPTEMBER 26, 2008. NO PORTION FOR THIS PROPERTY (AS SHOWN HERE ON) IS LOCATED WITHIN A 100-YEAR FLOODPLAIN.

WATERSHED NOTES:

1. SMALL PORTION ON THE NORTH SIDE OF THE PROJECT IS LOCATED IN THE WILLIAMSON CREEK WATERSHED, REMAINDER PORTION OF THIS PROJECT IS LOCATED IN THE SLAUGHTER CREEK WATERSHED.
2. WATERSHED CLASSIFICATION IS BARTON SPRINGS ZONE, SAVE OUR SPRINGS INITIATIVE (SOS) APPLIES FOR WATER QUALITY.
3. THE SITE IS LOCATED OVER THE CONTRIBUTING ZONE OF THE EDWARDS AQUIFER RECHARGE ZONE, TCEQ PERMIT WILL BE REQUIRED.

WATERSHED PROTECTION REGULATIONS: NOT DETERMINED

ZONING: N/A. SITE IS LOCATED WITHIN THE 2 MILE ETJ

LANDUSE: N/A PRINCIPAL STREET TYPE N/A

CRITICAL ENVIRONMENTAL FEATURE: WETLAND IN THE TRACT, BUT NONE WITHIN CONSTRUCTION LIMIT

RELATED CASE NO(S): C14-2008-0155 (ZONING) BROADSTONE SCENIC BROOK (SUBDIVISION)

AUSTIN WATER UTILITY: SOUTHWEST C (PRESSURE ZONE) SER # 3298 (WATER) SER # 3299 (WASTEWATER) EXISTING RECORDED EASEMENT: RECORDATION # 2014039482

Travis County Fire Marshal's Office
PERMITTED FOR CONSTRUCTION
SITE PLAN ONLY

Gary Howell, PLAN REVIEWER — 12:15 pm, May 02, 2023

AUSTIN FIRE DEPARTMENT HYDRANT TEST FLOW:	
HYDRANT #:	696573
STATIC PRESSURE:	69 PSI
VELOCITY PRESSURE:	60 PSI
FLOW RATE:	1300 GPM

APPLICABLE WATERSHED ORDINANCE: SOS

OPERATING PERMIT

WHERE APPLICABLE UNDER 25-8-233: OP-18-06218

WPDR SIGN-OFF AND DATE: 06/21/2018

ORIGINAL SUBMITTAL DATE: MARCH 20, 2018

SUBMITTED BY: SUMITA KADARIYA, P.E. DOUCET & ASSOCIATES 7401 B HWY. 71 WEST, SUITE 160 AUSTIN, TEXAS 78735 (512) 583-2600 — DATE 03/28/2019

APPROVED BY: CITY OF AUSTIN DEVELOPMENT SERVICES DEPARTMENT — DATE 4/9/19

APPROVED BY: AUSTIN WATER — 3/29/19

APPROVED BY: INDUSTRIAL WASTE — DATE

TXDOT DRIVEWAY PERMIT

TXDOT UIR PERMIT

Signature and Permit Block for Travis County Reviewed By:

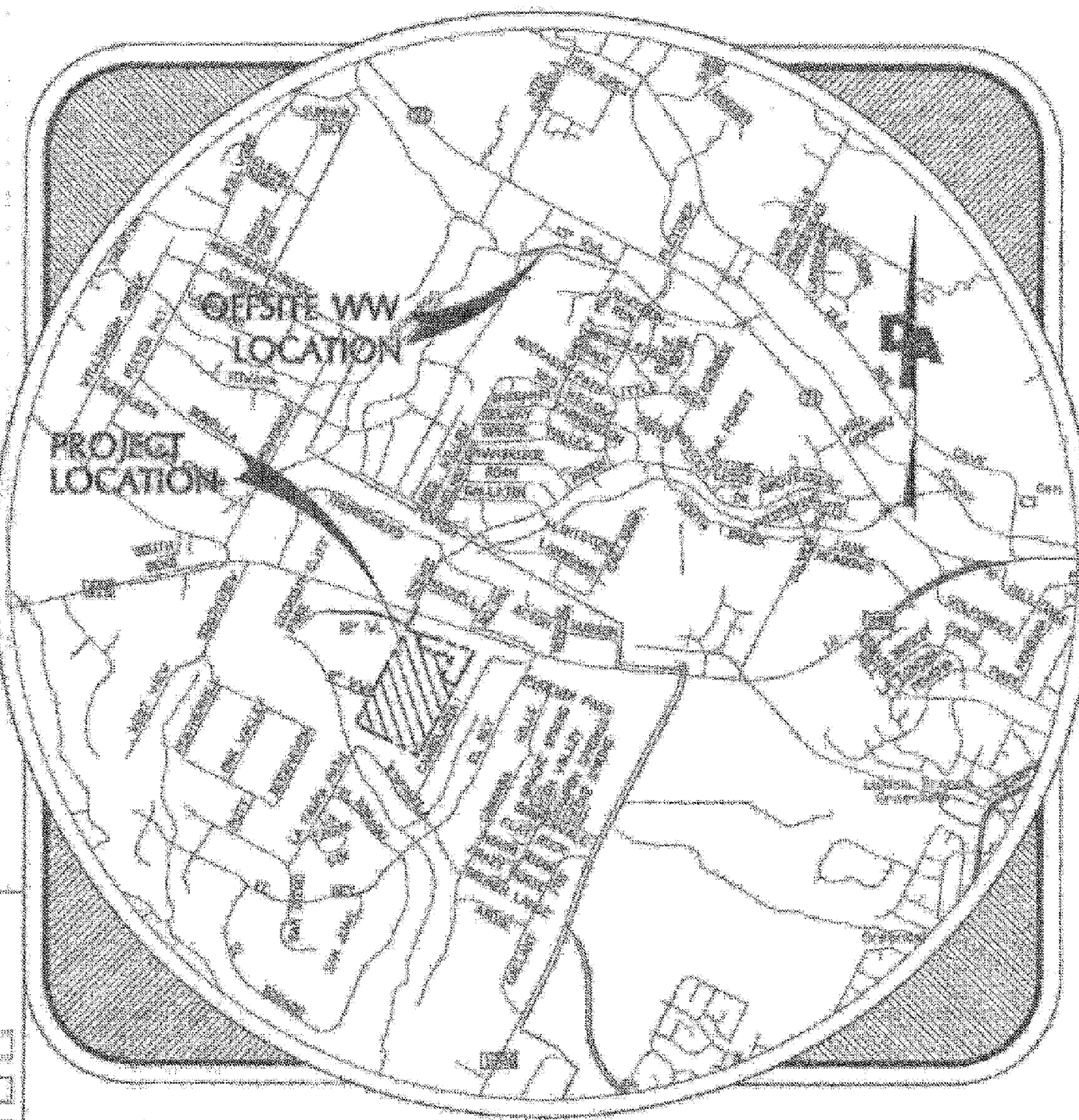
County Fire Marshal's Office — 04/5/19

Travis County Transportation and Natural Resources — 4-8-2019

Development Permit Number 16-9877 — Date 4-8-2019

"Trees and shrubs are strictly prohibited from being installed within ten (10) linear feet of any Austin Water infrastructure. Any revisions/corrections to this site plan, SP-2018-0138D, that propose to install any type of plantings will require a complete review and final approval by Austin Water to ensure there are no conflicts with Austin Water infrastructure."

WATER AND WASTEWATER SERVICE EXTENSION REQUEST FOR CONSIDERATION



VICINITY MAP
SCALE N.T.S.
MAPSCO PG. #: 611 X GRID#: A 18
641 B A 19

DOUCET & ASSOCIATES

Civil Engineering - Planning - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetandassociates.com
Firm Registration Number: 3937

NOTE: THE ENGINEER WHO PREPARED THESE PLANS IS RESPONSIBLE FOR THEIR ADEQUACY. IN APPROVING THESE PLANS, TRAVIS COUNTY/CITY OF AUSTIN MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

NOTE: FOR INTEGRATED PEST MANAGEMENT PLAN, SEE AGREEMENT FILED IN DOCUMENT NO. 2019044933, OFFICIAL PUBLIC RECORDS, TRAVIS COUNTY, TEXAS.

NOTE: APPROVAL OF THESE PLANS BY THE CITY OF AUSTIN INDICATES COMPLIANCE WITH APPLICABLE CITY REGULATIONS ONLY. APPROVAL BY OTHER GOVERNMENTAL ENTITIES MAY BE REQUIRED PRIOR TO THE START OF CONSTRUCTION. THE APPLICANT IS RESPONSIBLE FOR DETERMINING WHAT ADDITIONAL APPROVALS MAY BE NECESSARY.

NOTE: THESE SITE PLANS INCLUDE THE UNDERLINED IMPROVEMENTS IN THE APPROVED SER #3299 AND #3298 AS SHOWN BELOW.

THIS PROJECT SHALL UPGRADE THE PUMPING CAPACITY OF THE EXISTING RIDGEVIEW LIFT STATION IN ORDER TO ADEQUATELY SERVE THE ADDITIONAL WASTEWATER FLOW PROPOSED TO BE CONTRIBUTED BY THIS DEVELOPMENT.

THE CONSTRUCTION OF SCENIC BROOK INTERSECTION, FOR ACCESS TO THIS DEVELOPMENT, WILL BE WITH THE ASSOCIATED DONATION AGREEMENT CSJ#0113-08-068 (US 290- SCENIC BROOK) EXECUTED ON 02-19-2018.

WATER AND WASTEWATER SERVICE EXTENSION REQUEST FOR CONSIDERATION

(C1) NOTE: I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS 14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

(C4) NOTE: I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

Sht #	Sheet Title
1	COVER SHEET
2	GENERAL NOTES-1
3	GENERAL NOTES-2
4	FINAL PLAT-1
5	FINAL PLAT-2
6	TOPO & TREE SURVEY
7	TREE LIST
8	SLOPE MAP
9	EROSION SEDIMENTATION CONTROL & TREE PROTECTION PLAN
10	EXISTING DRAINAGE AREA MAP
11	PROPOSED DRAINAGE AREA MAP
12	DRAINAGE & WATER QUALITY CALCULATIONS
13	OVERALL SITE PLAN
14	GRADING & DRAINAGE PLAN-1
15	GRADING & DRAINAGE PLAN-2
16	GRADING & DRAINAGE PLAN-3
17	GRADING & DRAINAGE PLAN-4
18	STORMSEWER PROFILES-1
19	STORMSEWER PROFILES-2
20	OVERALL UTILITY PLAN
21	PUBLIC & PRIVATE WASTEWATER PLAN & PROFILE – WWL-A
22	PRIVATE WASTEWATER PLAN & PROFILE – WWL-B
23	PUBLIC OFFSITE WATERLINE PLAN – WL-A
24	PUBLIC OFFSITE WATERLINE PROFILE – WL-A
25	PUBLIC & PRIVATE OFFSITE WATERLINE PLAN & PROFILES – WL-B
26	PUBLIC OFFSITE WATERLINE PLAN & PROFILE WL-B1
27	OFFSITE WASTEWATER PLAN & PROFILE
28	OFFSITE WASTEWATER PLAN & PROFILE (CONT.)
29	MANHOLE BY-PASS PUMPING SPECIFICATION
30	POND 1 PLAN
31	POND 2 PLAN
32	WATER QUALITY DETAILS
33	IRRIGATION PLAN I
34	IRRIGATION PLAN II
35	EROSION & SEDIMENTATION DETAILS
36	UTILITY DETAILS
37	UTILITY DETAILS (2)
38	UTILITY DETAILS (3)
39	UTILITY DETAILS (4)
40	DRAINAGE DETAILS
41	SITE DETAILS
42	TXDOT DETAILS
43	ELECTRICAL LEGEND
44	ELECTRICAL SITE PLAN DEMOLITION
45	EXISTING SITE AND JIB CRANE PLAN
46	EXISTING LIFT STATION PUMP REPLACEMENT
47	WATER QUALITY POND STRUCTURAL NOTES & DETAILS
48	WATER QUALITY POND 1 STRUCTURAL PLAN
49	WATER QUALITY POND 2 STRUCTURAL PLAN
50	WATER QUALITY POND STRUCTURAL SECTIONS
51	WATER QUALITY POND STRUCTURAL SECTIONS
52	WATER QUALITY POND STRUCTURAL SECTIONS
53	WATER QUALITY POND STRUCTURAL SECTIONS
64	ROOF DRAIN PLAN 01
65	ROOF DRAIN PLAN 02
66	GRINDER PUMP DETAILS - GD01

Copy of City of Austin Originals MILLER

City of Austin
Water and Wastewater Utility
Special Services Division
(512) 972-1060

THIS PROJECT HAS 10 PRIVATE HYDRANTS LOCATED WITHIN THE PROPERTY. THE PROPERTY OWNER IS REQUIRED TO COMPLY WITH AUSTIN FIRE CODE. FAILURE TO COMPLY MAY RESULT IN CIVIL AND/OR CRIMINAL REMEDIES AVAILABLE TO THE CITY. THE PERFORMANCE OF THIS OBLIGATION SHALL ALWAYS REST WITH THE OWNER OF RECORD. FIRE HYDRANTS ON PRIVATE PROPERTY ARE REQUIRED TO BE SERVICED, MAINTAINED AND FLOWED ANNUALLY, USING A CONTRACTOR REGISTERED WITH THE CITY TO PROVIDE SERVICE.

DAM SAFETY CERTIFICATION:
"I, SUMITA KADARIYA TEXAS LICENSE NUMBER 120590 CERTIFY THAT THE DESIGN OF THE DAM IN THIS SET OF PLANS CAN SAFELY PASS 75-PERCENT OF THE PROBABLE MAXIMUM FLOOD BASED ON THE HYDROLOGIC, HYDRAULIC, STRUCTURAL AND GEOTECHNICAL ANALYSIS USING STANDARD ACCEPTED ENGINEERING PRACTICES."

Travis County Revision Block:

No.	Revision Description	Reviewed By:	Date

REVISIONS/CORRECTIONS:

NO.	DESCRIPTION
C1	
C2	
C3	
C4	

SITE PLAN APPROVAL SHEET 1 OF 53
FILE NUMBER SP-2018-0138D APPLICATION DATE 3/30/18
APPROVED BY COMMISSION ON n/a UNDER SECTION 117 OF CHAPTER 25-5 OF THE CITY OF AUSTIN CODE.
EXPIRATION DATE (25-5-81, LDC) 4/9/22 CASE MANAGER R. Avila
PROJECT EXPIRATION DATE (ORD. #970905-A) n/a
Director, Planning and Development Review Department
RELEASED FOR GENERAL COMPLIANCE: n/a ZONING n/a
Rev. 1 ______ Correction 1 ______
Rev. 2 ______ Correction 2 ______
Rev. 3 ______ Correction 3 ______
Final plat must be recorded by the project Expiration Date, if applicable. Subsequent Site Plans which do not comply with the Code current at the time of filing, and all required Building Permits and/or a notice of construction (if a building permit is not required), must also be approved prior to the Project Expiration Date.

STATE OF TEXAS — SUMITA KADARIYA — 120590 — LICENSED PROFESSIONAL ENGINEER — 03/28/2019

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

COVER SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

Designed: SK, IC, DS
Drawn: IC, DM
Reviewed: DS
Date: MARCH 2019
SHEET 1 OF 65
Project No: 1490-001

SP-2018-0138D

ORDINANCE REQUIREMENTS:

1. ALL IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE RELEASED SITE PLAN. ANY ADDITIONAL IMPROVEMENTS WILL REQUIRE A SITE PLAN AMENDMENT AND APPROVAL FROM THE PLANNING AND DEVELOPMENT REVIEW DEPARTMENT.
2. APPROVAL OF THIS SITE PLAN DOES NOT INCLUDE BUILDING CODE APPROVAL AND FIRE CODE APPROVAL FOR THE BUILDING PERMIT APPROVAL.
3. A DRIVEWAY PERMIT IS REQUIRED PRIOR TO CONSTRUCTION OF ALL APPROACHES.
4. THE OWNER IS RESPONSIBLE FOR ALL COST OF RELOCATION, OR DAMAGE TO, UTILITIES. (THIS NOTE IS FOR THE BENEFIT OF THE CITY OF AUSTIN AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PROTECT UTILITY LINES OR TO RELOCATE LINES AS NECESSARY.)
5. ADDITIONAL ELECTRIC EASEMENTS MAY BE REQUIRED AT A LATER DATE.
6. WATER AND WASTEWATER SERVICE WILL BE PROVIDED BY THE CITY OF AUSTIN.
7. A DEVELOPMENT PERMIT MUST BE ISSUED PRIOR TO AN APPLICATION FOR BUILDING PERMIT FOR NON-CONSOLIDATED SITE PLANS.

CONSTRUCTION SEQUENCING:

THE CONTRACTOR WILL GENERALLY FOLLOW THIS SEQUENCE OF CONSTRUCTION FOR EACH PHASE OF WORK:

1. COORDINATE ALL START-UP WORK WITH OWNER. ASSIGN ENVIRONMENTAL PROJECT MANAGER WHO WILL BE ON-SITE GREATER THAN 90% OF THE TIME DURING CONSTRUCTION ACTIVITY, AND BE RESPONSIBLE FOR ITEMS LISTED UNDER SECTION 1.2.2.3 OF THE ENVIRONMENTAL CRITERIA MANUAL – CITY OF AUSTIN.
2. INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTIVE FENCES PER APPROVED ESC PLANS PRIOR TO ANY SITE PREPARATION WORK.
3. SILT AND SEDIMENT SHALL BE REMOVED AFTER ANY SIGNIFICANT RAINFALL OR WHEN THE DEPTH OF SILT/SEDIMENT IS 4" AT ANY ROCK BERM OR SILT FENCE.
4. THE ENVIRONMENTAL PROJECT MANAGER MUST CONTACT THE CITY OF AUSTIN SUPERVISOR OF ENVIRONMENTAL INSPECTION AT 974-2278 TO ARRANGE A PRE-CONSTRUCTION MEETING AT LEAST THREE DAYS IN ADVANCE OF THE MEETING DATE. EROSION CONTROLS WILL BE REVISED, IF NEEDED, TO COMPLY WITH INSPECTOR'S DIRECTIVES. DESIGN ENGINEER REPRESENTATIVE SHALL ALSO BE INVITED FOR THE MEETING.
5. ENVIRONMENTAL PROJECT MANAGER WILL SCHEDULE A MID-CONSTRUCTION CONFERENCE TO COORDINATE CHANGES IN THE CONSTRUCTION SCHEDULE AND EVALUATE EFFECTIVENESS OF THE EROSION CONTROL PLAN AFTER POSSIBLE CONSTRUCTION ALTERATIONS TO THE SITE. PARTICIPANTS SHALL INCLUDE THE CITY INSPECTOR, PROJECT ENGINEER, GENERAL CONTRACTOR, AND ENVIRONMENTAL PROJECT MANAGER. THE ANTICIPATED COMPLETION DATE AND FINAL CONSTRUCTION SEQUENCE AND INSPECTION SCHEDULE WILL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR.
6. BEGIN DEMOLITION AND SITE CLEARING.
7. CONSTRUCTION AREAS SHALL BE STRIPPED OF ALL VEGETATION, LOOSE TOPSOIL, COBBLES, AND BOULDERS. (NOTE THAT SITE STRIPPING COULD FREQUENTLY LOOSEN LIMESTONE ROCKS AND BOULDERS, WHICH SHOULD BE EXCAVATED AND REMOVED FROM THE CONSTRUCTION AREA.)
8. ROUGH GRADE SITE IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
9. ROUGH CUT WATER QUALITY AND DETENTION PONDS
10. INSTALL UTILITIES IMPROVEMENTS.
11. CONSTRUCT BUILDING PADS FOR BUILDING B1, B2, & B3.
12. COMPLETE GRADING, DRAINAGE, WATER QUALITY/DETENTION PONDS AND PAVING. INSTALLATION OF BASE MATERIALS AND/OR PAVING SHOULD OCCUR AS SOON AS IT IS FEASIBLE TO DO SO.
13. HYDROMULCH OR SOD ALL DISTURBED AREAS AND CLEAN UP THE SITE.
14. INSTALL LANDSCAPING AS PER APPROVED LANDSCAPING PLANS.
15. FINALIZE ALL SITE IMPROVEMENTS.
16. FINAL CLEANING OF EROSION AND SEDIMENTATION CONTROLS AND STORM DRAIN STRUCTURES. THIS SHALL OCCUR PRIOR TO FINAL PAYMENT.
17. RECEIVE THE CITY OF AUSTIN APPROVAL FOR COMPLETION OF SITE WORK.
18. DISPOSE OF ALL CONSTRUCTION DEBRIS AND TRASH. HYDROMULCH ANY DISTURBED AREAS FOLLOWING SITE CLEANUP. COMPLETE AND CLEAN OUT PERMANENT EROSION CONTROL AND SITE RESTORATION. REMOVE ESC ONLY AFTER FINAL INSPECTION AND APPROVAL OF ENVIRONMENTAL INSPECTOR.
19. PROJECT ENGINEER AND LANDSCAPE ARCHITECT SHALL SCHEDULE FINAL INSPECTION OF SITE WITH ENVIRONMENTAL INSPECTOR, AND SUBMIT CONCURRENCE LETTERS TO THE CITY OF AUSTIN. REMOVE ANY TEMPORARY ESC AND TREE PROTECTION UPON APPROVAL OF COA ENVIRONMENTAL INSPECTOR. RESTORE ANY AREAS DISTURBED DURING REMOVAL OF EROSION/SEDIMENTATION CONTROLS.

APPENDIX P-4: – STANDARD SEQUENCE OF CONSTRUCTION

THE FOLLOWING SEQUENCE OF CONSTRUCTION SHALL BE USED FOR ALL DEVELOPMENT. THE APPLICANT IS ENCOURAGED TO PROVIDE ANY ADDITIONAL DETAILS APPROPRIATE FOR THE PARTICULAR DEVELOPMENT.

1. TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED AS INDICATED ON THE APPROVED SITE PLAN OR SUBDIVISION CONSTRUCTION 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.
2. THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR MUST CONTACT THE WATERSHED PROTECTION DEPARTMENT, ENVIRONMENTAL INSPECTION, AT 512-974-2278, 72 HOURS PRIOR TO THE SCHEDULED DATE OF THE REQUIRED ON-SITE PRECONSTRUCTION MEETING.
3. 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 PLAN.
4. ROUGH GRADE THE POND(S) AT 100% PROPOSED CAPACITY. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A SUMP PIT OUTLET AND AN EMERGENCY SPILLWAY MEETING THE REQUIREMENTS OF THE DRAINAGE CRITERIA MANUAL AND/OR THE ENVIRONMENTAL CRITERIA MANUAL, AS REQUIRED. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL INSTALLATION OF THE PERMANENT WATER QUALITY POND(S).
5. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE.
6. BEGIN SITE CLEARING/CONSTRUCTION (OR DEMOLITION) ACTIVITIES.
7. IN THE BARTON SPRINGS ZONE, THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR WILL SCHEDULE A MID-CONSTRUCTION CONFERENCE TO COORDINATE CHANGES IN THE CONSTRUCTION SCHEDULE AND EVALUATE EFFECTIVENESS OF THE EROSION CONTROL PLAN AFTER POSSIBLE CONSTRUCTION ALTERATIONS TO THE SITE. PARTICIPANTS SHALL INCLUDE THE CITY INSPECTOR, PROJECT ENGINEER, GENERAL CONTRACTOR AND ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR. THE ANTICIPATED COMPLETION DATE AND FINAL CONSTRUCTION SEQUENCE AND INSPECTION SCHEDULE WILL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR.
8. PERMANENT WATER QUALITY PONDS OR CONTROLS WILL BE CLEANED OUT AND FILTER MEDIA WILL BE INSTALLED PRIOR TO/CONCURRENTLY WITH REVEGETATION OF SITE.
9. COMPLETE CONSTRUCTION AND START REVEGETATION OF THE SITE AND INSTALLATION OF LANDSCAPING.
10. UPON COMPLETION OF THE SITE CONSTRUCTION AND REVEGETATION OF A PROJECT SITE, THE DESIGN ENGINEER SHALL SUBMIT AN ENGINEER'S LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT CONSTRUCTION, INCLUDING REVEGETATION, 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.
11. UPON COMPLETION OF LANDSCAPE INSTALLATION OF A PROJECT SITE, THE LANDSCAPE ARCHITECT SHALL SUBMIT A LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT THE REQUIRED LANDSCAPING 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.
12. AFTER A FINAL INSPECTION HAS BEEN CONDUCTED BY THE CITY INSPECTOR AND WITH APPROVAL FROM THE CITY INSPECTOR, REMOVE THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND COMPLETE ANY NECESSARY FINAL REVEGETATION RESULTING FROM REMOVAL OF THE CONTROLS. CONDUCT ANY MAINTENANCE AND REHABILITATION OF THE WATER QUALITY PONDS OR CONTROLS.

SPECIAL NOTES:

1. CITY OF AUSTIN STANDARDS AND SPECIFICATIONS SHALL TAKE PRECEDENCE OVER OTHER SPECIFICATIONS WHERE CONFLICTS EXIST.
2. ALL TRENCHING SHALL CONFORM TO TCEQ & ASTM STANDARDS.
3. ALL SITE WORK TO BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERING REPORT, FOR ALL GEOTECHNICAL ENGINEERING INFORMATION.
4. BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS AND ANY CONTRACT DOCUMENTS AND FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF THEIR KNOWLEDGE AND HIS/HER SUBCONTRACTORS AND MATERIAL SUPPLIERS KNOWLEDGE THAT ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.
5. ALL SIDEWALKS AND RAMPS TO MEET ADA STANDARDS AND REQUIREMENTS. CONTRACTOR TO INSTALL HANDRAILS AT ALL LOCATIONS WHERE PEDESTRIAN ACCESS FOR A VERTICAL ELEVATION DIFFERENTIAL OF 30" IS ENCOUNTERED OR AT SIDEWALKS EXCEEDING 5%. IF A CONFLICT IN HANDRAIL OR GRADE REQUIREMENTS EXIST, THE CONTRACTOR SHALL USE THE MOST STRINGENT REQUIREMENT.
6. CONTRACTOR TO OBTAIN AND UNDERSTAND ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND APPROVALS BY CITY, STATE, AND FEDERAL GOVERNMENT.
7. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP. [TAS 4.3.7]
8. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30". [TAS 4.8.2]
9. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50 [TAS 4.3.7]
10. FACILITY TO BE USED AS MULTI-FAMILY RESIDENTIAL. EACH PARKING STALL SHALL BE 9'X18' MIN. FOR 90° PARKING.
11. ALL DETENTION BASINS, WATER QUALITY PONDS AND APPURTENANCES WHICH RECEIVE STORMWATER RUNOFF FROM MULTI-FAMILY DEVELOPMENT SHALL BE MAINTAINED BY THE RECORD OWNER IN ACCORDANCE WITH THE MAINTENANCE STANDARDS IN THE DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL

PEDERNALES ELECTRIC COOPERATIVE (PEC) NOTES:

1. PEC HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. AUSTIN ENERGY WILL PERFORM ALL TREE WORK IN COMPLIANCE WITH CHAPTER 30-5, SUBCHAPTER B OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
2. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE PEC WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES. THESE EASEMENTS AND/OR ACCESS ARE REQUIRED TO PROVIDE ELECTRIC SERVICE TO THE BUILDING AND WILL NOT BE LOCATED SO AS TO CAUSE THE SITE TO BE OUT OF COMPLIANCE WITH THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
3. THE OWNER SHALL BE RESPONSIBLE FOR INSTALLATION OF TEMPORARY EROSION CONTROL, REVEGETATION AND TREE PROTECTION. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR ANY TREE PRUNING AND TREE REMOVAL THAT IS WITHIN TEN FEET OF THE CENTER LINE OF THE OVERHEAD ELECTRICAL FACILITIES DESIGNED TO PROVIDE ELECTRIC SERVICE TO THIS PROJECT. THE OWNER SHALL INCLUDE PEC'S WORK WITHIN THE LIMITS OF CONSTRUCTION FOR THIS PROJECT.
4. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR MAINTAINING CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, CITY OF AUSTIN RULES AND REGULATIONS AND TEXAS STATE LAWS PERTAINING TO CLEARANCES WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD POWER LINES AND EQUIPMENT. AUSTIN ENERGY WILL NOT RENDER ELECTRIC SERVICE UNLESS REQUIRED CLEARANCES ARE MAINTAINED. ALL COSTS INCURRED BECAUSE OF FAILURE TO COMPLY WITH THE REQUIRED CLEARANCES WILL BE CHARGED TO THE OWNER.

GENERAL CONSTRUCTION NOTES:

1. RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE CITY ENGINEERS REVIEW THE APPLICATION FOR CODE COMPLIANCE.
2. CONTRACTOR SHALL CALL DIG TESS (TEXAS EXCAVATION SAFETY SYSTEM) 1-800-344-8377 FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.
3. CONTRACTOR SHALL NOTIFY THE PLANNING AND DEVELOPMENT REVIEW DEPARTMENT AT 974-7161 AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET R.O.W. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S R.O.W. MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
4. FOR SLOPES OR TRENCHES GREATER THAN FIVE FEET IN DEPTH, A NOTE MUST BE ADDED STATING: "ALL CONSTRUCTION OPERATIONS MUST BE ACCOMPLISHED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS FOR THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION." (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DRIVE, SUITE 375, AUSTIN, TEXAS.)
5. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS.
6. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY OR FINAL INSPECTION RELEASE BY THE CITY, THE DESIGN ENGINEER SHALL CERTIFY IN WRITING, THAT THE PROPOSED DRAINAGE AND DETENTION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.
7. THE CITY OF AUSTIN 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.
8. ALL ON-SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
9. ALL CONSTRUCTION IN CITY RIGHT-OF-WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
10. ALL ON-SITE CONSTRUCTION SHALL ALSO BE IN ACCORDANCE WITH LOCAL CODES AND SPECIFICATIONS. IN THE EVENT OF DISCREPANCIES BETWEEN LOCAL SPECIFICATIONS AND PROJECT SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
11. ALL WORK IN STATE RIGHT-OF-WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.
12. EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
13. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR ACTUAL BUILDING DIMENSIONS, PORCH, DOWNSPOUTS AND RAMP LOCATIONS.
14. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATION OF ALL UTILITY SERVICES TO BUILDING INCLUDING SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION, WATER, ELECTRICAL, TELEPHONE AND GAS SERVICES. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES WITH LOCAL COMPANIES TO AVOID CONFLICTS AND TO ASSURE THAT PROPER DEPTHS ARE ACHIEVED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES FOR EXACT LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
15. CONTRACTOR TO COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES.
16. CONTRACTOR IS RESPONSIBLE FOR REPAIRS IF THERE IS DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
17. TOPOGRAPHIC INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY BY CHAPARRAL PROFESSIONAL, LAND SURVEYING, DATED NOVEMBER 18, 2015.
18. IF CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS, HE/SHE SHOULD CONTACT THE ENGINEER AND OWNER IMMEDIATELY.
19. CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION AND SHALL REPLACE OR REPAIR, AT HIS/HER OWN EXPENSE, BENCHMARKS AND MONUMENTATION DISTURBED DURING CONSTRUCTION.
20. IF CONTRACTOR RELOCATES OR SETS NEW BENCHMARKS, THE VERTICAL ELEVATIONS OF THE BENCHMARKS SHALL BE SET WITHIN A TOLERANCE OF 0.010 FT.
21. DIMENSIONS ARE TO FACE-OF-CURB UNLESS OTHERWISE NOTED.
22. CONTRACTOR SHALL NOTIFY THE CITY OF AUSTIN – SITE & SUBDIVISION DIVISION TO SUBMIT REQUIRED DOCUMENTATION, PAY CONSTRUCTION INSPECTION FEES, AND TO SCHEDULE THE REQUIRED SITE AND SUBDIVISION PRE-CONSTRUCTION MEETING. THIS MEETING MUST BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE ROW OR PUBLIC EASEMENTS. PLEASE VISIT HTTP://AUSTINTEXAS.GOV/PAGE/COMMERCIAL-SITE-AND-SUBDIVISION-INSPECTIONS FOR A LIST OF SUBMITTAL REQUIREMENTS, FEE CALCULATIONS, AND TO ARRANGE A PAYMENT OF INSPECTION FEES.

TREE AND NATURAL AREA PROTECTION:

1. ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING.
2. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO CITY OF AUSTIN STANDARDS FOR TREE PROTECTION, SEE SHEET 32 FOR DETAILS.
3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.
5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE), OR, FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINES, IN ORDER TO PREVENT THE FOLLOWING:
7. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
8. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
9. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
10. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).
11. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE CITY ARBORIST).
12. PRIOR TO EXCAVATION WITHIN TREE DRIPLINES, OR THE REMOVAL OF TREES ADJACENT TO OTHER TREES THAT ARE TO REMAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.
13. IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING, AND WHERE VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH FOUR (4) INCHES OF ORGANIC MULCH TO BE PRODUCED ON SITE, TO MINIMIZE SOIL COMPACTION.
14. PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE.
15. WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY AS NECESSARY DURING PERIODS OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
16. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

EROSION CONTROL NOTES – P-1

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS, TREE/NATURAL AREA PROTECTIVE FENCING, AND CONDUCT "PRE-CONSTRUCTION" TREE FERTILIZATION (IF APPLICABLE) PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION). 2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE ENVIRONMENTAL CRITERIA MANUAL AND THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. THE COA ESC PLAN SHALL BE CONSULTED AND USED AS THE BASIS FOR A TPDES REQUIRED SWPPP. IF A SWPPP IS REQUIRED, IT SHALL BE AVAILABLE FOR REVIEW BY THE CITY OF AUSTIN ENVIRONMENTAL INSPECTOR AT ALL TIMES DURING CONSTRUCTION, INCLUDING AT THE PRE-CONSTRUCTION MEETING. THE CHECKLIST BELOW CONTAINS THE BASIC ELEMENTS THAT SHALL BE REVIEWED FOR PERMIT APPROVAL BY COA EV PLAN REVIEWERS AS WELL AS COA EV INSPECTORS.

–PLAN SHEETS SUBMITTED TO THE CITY OF AUSTIN MUST SHOW THE FOLLOWING:

- ☐DIRECTION OF FLOW DURING GRADING OPERATIONS.
- ☐LOCATION, DESCRIPTION, AND CALCULATIONS FOR OFF-SITE FLOW DIVERSION STRUCTURES.
- ☐AREAS THAT WILL NOT BE DISTURBED; NATURAL FEATURES TO BE PRESERVED.
- ☐DELINEATION OF CONTRIBUTING DRAINAGE AREA TO EACH PROPOSED BMP (E.G., SILT FENCE, SEDIMENT BASIN, ETC.).
- ☐LOCATION AND TYPE OF E&S BMPS FOR EACH PHASE OF DISTURBANCE.
- ☐CALCULATIONS FOR BMPS AS REQUIRED.
- ☐LOCATION AND DESCRIPTION OF TEMPORARY STABILIZATION MEASURES.
- ☐LOCATION OF ON-SITE SPOILS, DESCRIPTION OF HANDLING AND DISPOSAL OF BORROW MATERIALS, AND DESCRIPTION OF ON-SITE PERMANENT SPOILS DISPOSAL AREAS, INCLUDING SIZE, DEPTH OF FILL AND REVEGETATION PROCEDURES.
- ☐DESCRIBE SEQUENCE OF CONSTRUCTION AS IT PERTAINS TO ESC INCLUDING THE FOLLOWING ELEMENTS:
  1. INSTALLATION SEQUENCE OF CONTROLS (E.G. PERIMETER CONTROLS, THEN SEDIMENT BASINS, THEN TEMPORARY STABILIZATION, THEN PERMANENT, ETC.)
  2. PROJECT PHASING IF REQUIRED (LOC GREATER THAN 25 ACRES)
  3. SEQUENCE OF GRADING OPERATIONS AND NOTATION OF TEMPORARY STABILIZATION MEASURES TO BE USED
  4. SCHEDULE FOR CONVERTING TEMPORARY BASINS TO PERMANENT WQ CONTROLS
  5. SCHEDULE FOR REMOVAL OF TEMPORARY CONTROLS
  6. ANTICIPATED MAINTENANCE SCHEDULE FOR TEMPORARY CONTROLS

–CATEGORIZE EACH BMP UNDER ONE OF THE FOLLOWING AREAS OF BMP ACTIVITY AS DESCRIBED BELOW:

3.1 MINIMIZE DISTURBED AREA AND PROTECT NATURAL FEATURES AND SOIL
3.2 CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT
3.3 STABILIZE SOILS
3.4 PROTECT SLOPES
3.5 PROTECT STORM DRAIN INLETS
3.6 ESTABLISH PERIMETER CONTROLS AND SEDIMENT BARRIERS
3.7 RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES
3.8 ESTABLISH STABILIZED CONSTRUCTION EXITS
3.9 ANY ADDITIONAL BMPS

–NOTE THE LOCATION OF EACH BMP ON YOUR SITE MAP(S).

–FOR ANY STRUCTURAL BMPS, YOU SHOULD PROVIDE DESIGN SPECIFICATIONS AND DETAILS AND REFER TO THEM.

–FOR MORE INFORMATION, SEE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL 1.4.

3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND ENVIRONMENTAL INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS, TREE/NATURAL AREA PROTECTION MEASURES AND "PRE-CONSTRUCTION" TREE FERTILIZATION (IF APPLICABLE) PRIOR TO BEGINNING ANY SITE PREPARATION WORK. THE OWNER OR OWNER'S REPRESENTATIVE SHALL NOTIFY THE DEVELOPMENT SERVICES DEPARTMENT, 512-974-2278 OR BY EMAIL AT ENVIRONMENTALINSPECTIONS@AUSTINTEXAS.GOV, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE. COA APPROVED ESC PLAN AND TPDES SWPPP (IF REQUIRED) SHOULD BE REVIEWED BY COA EV INSPECTOR AT THIS TIME.
5. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST OR CITY ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY AUTHORIZED COA STAFF. MINOR CHANGES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES.
6. THE CONTRACTOR IS REQUIRED TO PROVIDE A CERTIFIED INSPECTOR THAT IS EITHER A LICENSED ENGINEER (OR PERSON DIRECTLY SUPERVISED BY THE LICENSED ENGINEER) OR CERTIFIED P

FIRE PROTECTION NOTES:

1. THE AUSTIN FIRE DEPARTMENT REQUIRES FINAL ASPHALT OR CONCRETE PAVEMENT ON REQUIRED ACCESS ROADS PRIOR TO THE START OF CONSTRUCTION. AS AN ALL WEATHER DRIVING SURFACE OR ACCEPTABLE ALTERNATIVE METHOD.
2. FIRE HYDRANTS SHALL BE INSTALLED WITH THE CENTER OF THE FOUR (4) INCH OPENING (STEAMER) LOCATED AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE STEAMER OPENING OF FIRE HYDRANTS SHALL FACE THE APPROVED FIRE ACCESS DRIVEWAY OR PUBLIC STREET AND SET BACK FROM THE CURB LINE(S) AN APPROVED DISTANCE, TYPICALLY THREE (3) TO SIX (6) FEET. THE AREA WITHIN THREE (3) FEET IN ALL DIRECTIONS FROM ANY FIRE HYDRANT SHALL BE FREE OF OBSTRUCTIONS, AND THE AREA BETWEEN THE STEAMER OPENING AND THE STREET OR DRIVEWAY GIVING EMERGENCY VEHICLE ACCESS SHALL BE FREE OF OBSTRUCTIONS.
3. TIMING OF INSTALLATION: WHEN FIRE PROTECTION FACILITIES ARE INSTALLED BY THE CONTRACTOR, SUCH FACILITIES SHALL INCLUDE SURFACE ACCESS ROADS. EMERGENCY ACCESS ROADS OR DRIVES SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION. WHEN THE FIRE DEPARTMENT APPROVES AN ALTERNATE METHOD OF PROTECTION, THIS REQUIREMENT MAY BE MODIFIED AS DOCUMENTED IN THE APPROVAL OF THE ALTERNATE METHOD.
4. ALL EMERGENCY ACCESS ROADWAYS AND FIRE LANES, INCLUDING PERVIOUS/DECORATIVE PAVING, SHALL BE ENGINEERED AND INSTALLED AS REQUIRED TO SUPPORT THE AXLE LOADS OF EMERGENCY VEHICLES. A LOAD CAPACITY SUFFICIENT TO MEET THE REQUIREMENTS FOR HS–20 LOADING (16 KIPS/WHEEL) AND A TOTAL VEHICLE LIVE LOAD OF 80,000 POUNDS IS CONSIDERED COMPLIANT WITH THIS REQUIREMENT.
5. FIRE LANES DESIGNATED ON SITE PLANS SHALL BE REGISTERED WITH THE CITY OF AUSTIN FIRE DEPARTMENT AND INSPECTED FOR FINAL APPROVAL.
6. THE MINIMUM VERTICAL CLEARANCE REQUIRED FOR EMERGENCY VEHICLE ACCESS ROADS OR DRIVES IS 14 FEET FOR THE FULL WIDTH OF THE ROADWAY OR DRIVEWAY.

NOTES:

1. THE CONTRACTOR SHALL GIVE 48 HR. NOTICE TO ENGINEER PRIOR TO TESTS.
2. NO PERMENANT SPOILS ALLOWED ON THIS SITE.
3. ALL DISTURBED AREAS WITHIN THIS PROJECT SHALL BE REVEGETATED AND ALL PERMENANT EROSION/SEDIMENTATION CONTROLS COMPLETED PRIOR TO THE ISSUANCE OF OCCUPANCY PERMITS.
4. ADDITIONALLY, ANY AREA WITHIN THE LIMIT OF CONSTRUCTION OF THE PROJECT WHICH IS NOT ADEQUATELY REVEGETATED SHALL BE BROUGHT INTO COMPLIANCE PRIOR TO RELEASE.

EXHIBIT 82.301B TRAVIS COUNTY STANDARD CONSTRUCTION NOTES FOR SITE DEVELOPMENT

1. EACH DRIVEWAY MUST BE CONSTRUCTED IN ACCORDANCE WITH TRAVIS COUNTY CODE SECTION 82.302(G), AND EACH DRAINAGE STRUCTURE OR SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF AUSTIN DRAINAGE CRITERIA MANUAL, UNLESS OTHER DESIGN CRITERIA ARE APPROVED BY TRAVIS COUNTY.
2. BEFORE BEGINNING ANY CONSTRUCTION, THE OWNER MUST OBTAIN A TRAVIS COUNTY DEVELOPMENT PERMIT AND POST THE DEVELOPMENT PERMIT, THE TCEQ SITE NOTICE, AND ANY OTHER REQUIRED PERMITS AT THE JOB SITE.
3. CONSTRUCTION MAY NOT TAKE PLACE WITHIN TRAVIS COUNTY RIGHT–OF–WAY UNTIL AFTER THE OWNER HAS SUBMITTED A TRAFFIC CONTROL PLAN TO TRAVIS COUNTY AND OBTAINED WRITTEN APPROVAL OF THE TRAFFIC CONTROL PLAN FROM TRAVIS COUNTY.
4. THE CONTRACTOR AND PRIMARY OPERATOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION AND THE SWP3 IN THESE APPROVED PLANS. THE CONTRACTOR AND PRIMARY OPERATOR SHALL REQUEST TRAVIS COUNTY INSPECTION AT SPECIFIC MILESTONES IN THE SEQUENCE OF THE CONSTRUCTION OF THE SITE DEVELOPMENT CORRESPONDING TO THE PRIORITY INSPECTIONS SPECIFIED IN CONSTRUCTION SEQUENCING NOTES IN THESE APPROVED PLANS. DEVELOPMENT OUTSIDE THE LIMITS OF CONSTRUCTION SPECIFIED IN THE APPROVED PERMIT AND CONSTRUCTION PLANS IS PROHIBITED.
5. BEFORE BEGINNING ANY CONSTRUCTION, ALL STORM WATER POLLUTION PREVENTION PLAN (SWP3) REQUIREMENTS SHALL BE MET, AND THE FIRST PHASE OF THE TEMPORARY EROSION CONTROL (ESC) PLAN INSTALLED WITH A SWP3 INSPECTION REPORT UPLOADED TO MYPERMITNOW.ORG. ALL SWP3 AND ESC PLAN MEASURES AND PRIMARY OPERATOR SWP3 INSPECTIONS MUST BE PERFORMED BY THE PRIMARY OPERATOR IN ACCORDANCE WITH THE APPROVED PLANS AND SWP3 AND ESC PLAN NOTES THROUGHOUT THE CONSTRUCTION PROCESS.
6. BEFORE STARTING CONSTRUCTION, THE OWNER OR CONTRACTOR OR THEIR DESIGNATED REPRESENTATIVES SHALL SUBMIT A REQUEST VIA THE MYPERMITNOW.ORG CUSTOMER PORTAL FOR TRAVIS COUNTY TO REQUEST AND SCHEDULE A MANDATORY PRECONSTRUCTION CONFERENCE AND ESC INSPECTION. IF FURTHER ASSISTANCE IS NEEDED, THE TNR PLANNING AND ENGINEERING DIVISION STAFF OR TNR STORM WATER MANAGEMENT PROGRAM STAFF CAN BE CONTACTED BY TELEPHONE AT 512–854–9383.
7. THE CONTRACTOR SHALL KEEP TRAVIS COUNTY TNR ASSIGNED INSPECTION STAFF CURRENT ON THE STATUS OF SITE DEVELOPMENT AND UTILITY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY TRAVIS COUNTY AND REQUEST PRIORITY INSPECTIONS THROUGH THE MYPERMITNOW.ORG CUSTOMER PORTAL FOR TRAVIS COUNTY IN ACCORDANCE WITH THE SPECIFIC MILESTONES IN THE CONSTRUCTION SEQUENCING NOTES IN THESE APPROVED PLANS.
8. CONTOUR DATA SOURCE: CHAPARRAL PROFESSIONAL LAND SURVEYING, INC.
9. FILL MATERIAL MUST BE MANAGED AND DISPOSED OF IN ACCORDANCE WITH ALL REQUIREMENTS SPECIFIED IN THE APPROVED PLANS, SWP3, AND THE TRAVIS COUNTY CODE. THE CONTRACTOR SHALL STOCKPILE FILL AND CONSTRUCTION MATERIALS ONLY IN THE AREAS DESIGNATED ON THE APPROVED PLANS AND NOT WITHIN THE 100–YEAR FLOOD PLAIN, WATERWAY SETBACK, CRITICAL ENVIRONMENTAL FEATURE SETBACK, OR OUTSIDE THE LIMITS OF CONSTRUCTION. DISPOSAL OF SOLID WASTE MATERIALS, AS DEFINED BY STATE LAW (E.G., LITTER, TIRES, DECOMPOSABLE WASTES, ETC.) IS PROHIBITED IN PERMANENT FILL SITES.
10. BEFORE DISPOSING ANY EXCESS FILL MATERIAL OFF–SITE, THE CONTRACTOR OR PRIMARY OPERATOR MUST PROVIDE THE COUNTY INSPECTOR DOCUMENTATION THAT DEMONSTRATES THAT ALL REQUIRED PERMITS FOR THE PROPOSED DISPOSAL SITE LOCATION, INCLUDING TRAVIS COUNTY, TCEQ NOTICE, AND OTHER APPLICABLE DEVELOPMENT PERMITS, HAVE BEEN OBTAINED. THE OWNER OR PRIMARY OPERATOR MUST REVISE THE SWP3 AND ESC PLAN IF HANDLING OR PLACEMENT OF EXCESS FILL ON THE CONSTRUCTION SITE IS REVISED FROM THE EXISTING SWP3. IF THE FILL DISPOSAL LOCATION IS OUTSIDE TRAVIS COUNTY OR DOES NOT REQUIRE A DEVELOPMENT PERMIT, THE CONTRACTOR OR PRIMARY OPERATOR MUST PROVIDE THE COUNTY INSPECTOR THE SITE ADDRESS, CONTACT INFORMATION FOR THE PROPERTY OWNER OF THE FILL.
11. THE DESIGN ENGINEER IS RESPONSIBLE FOR THE ADEQUACY OF THE CONSTRUCTION PLANS. IN REVIEWNG THE CONSTRUCTION PLANS, TRAVIS COUNTY WILL RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
12. IN THE EVENT OF ANY CONFLICTS BETWEEN THE CONTENT IN THE SWP3 SITE NOTEBOOK AND THE CONTENT IN THE CONSTRUCTION PLANS APPROVED BY TRAVIS COUNTY, THE CONSTRUCTION PLANS SHALL TAKE PRECEDENCE.
13. A MINIMUM OF TWO SURVEY BENCHMARKS SHALL BE SET, INCLUDING DESCRIPTION, LOCATION, AND ELEVATION; THE BENCHMARKS SHOULD BE TIED TO A TRAVIS COUNTY CONTROL BENCHMARK WHEN POSSIBLE.
14. ANY EXISTING PAVEMENT, CURBS, SIDEWALKS, OR DRAINAGE STRUCTURES WITHIN COUNTY RIGHT–OF–WAY WHICH ARE DAMAGED, REMOVED, OR SILTED, WILL BE REPAIRED BY THE CONTRACTOR AT OWNER OR CONTRACTOR'S EXPENSE BEFORE APPROVAL AND ACCEPTANCE OF THE CONSTRUCTION BY TRAVIS COUNTY.
15. CALL THE TEXAS EXCAVATION SAFETY SYSTEM AT 8–1–1 AT LEAST 2 BUSINESS DAYS BEFORE BEGINNING EXCAVATION ACTIVITIES.
16. ALL STORM SEWER PIPES SHALL BE CLASS III RCP, UNLESS OTHERWISE NOTED.
17. CONTRACTOR IS REQUIRED TO OBTAIN A UTILITY INSTALLATION PERMIT IN ACCORDANCE WITH TRAVIS COUNTY CODE SECTION 82.901(A)(3) BEFORE ANY CONSTRUCTION OF UTILITIES WITHIN ANY TRAVIS COUNTY RIGHT–OF–WAY.
18. THIS PROJECT IS LOCATED ON FLOOD INSURANCE RATE MAP 48453 C0 560H.
19. TEMPORARY STABILIZATION MUST BE PERFORMED IN ALL DISTURBED AREAS THAT HAVE CEASED CONSTRUCTION ACTIVITIES FOR 14 DAYS OR LONGER, IN ACCORDANCE WITH THE STANDARDS DESCRIBED IN THE SWP3 AND ESC PLAN SHEET NOTES.
20. PERMANENT SITE STABILIZATION/RE–VEGETATION MUST BE PERFORMED IMMEDIATELY IN ALL SITE AREAS WHICH ARE AT FINAL PLAN GRADE AND IN ALL SITE AREAS SPECIFIED IN THE APPROVED PLANS FOR PHASED RE–VEGETATION, IN ACCORDANCE WITH THE STANDARDS DESCRIBED IN THE SWP3 AND ESC PLAN SHEET NOTES.
21. ALL TREES WITHIN THE RIGHT–OF–WAY AND DRAINAGE EASEMENTS SHALL BE SAVED OR REMOVED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION PLANS. TRAVIS COUNTY TREE PRESERVATION STANDARDS IN TRAVIS COUNTY CODE SECTION 82.973, INCLUDING INSTALLATION AND MAINTENANCE OF ALL SPECIFIED TREE PROTECTION MEASURES, MUST BE FOLLOWED DURING CONSTRUCTION.
22. AN ENGINEER'S CONCURRENCE LETTER IN ACCORDANCE WITH TRAVIS COUNTY CODE SECTION 82.953 MUST BE SUBMITTED VIA THE MYPERMITNOW.ORG CUSTOMER PORTAL FOR TRAVIS COUNTY WHEN CONSTRUCTION IS SUBSTANTIALLY COMPLETE. THE ENGINEER'S CONCURRENCE LETTER MUST BE SUBMITTED BEFORE THE CONTRACTOR OR PRIMARY OPERATOR REQUESTS A FINAL INSPECTION BY TRAVIS COUNTY.

EXHIBIT 82.301B TRAVIS COUNTY STANDARD CONSTRUCTION NOTES FOR SITE DEVELOPMENT (CONTINUED)

23. SITE IMPROVEMENTS MUST BE CONSTRUCTED IN CONFORMANCE WITH THE ENGINEER'S CONSTRUCTION PLANS APPROVED BY TRAVIS COUNTY. NON–CONFORMANCE WITH THE APPROVED PLANS WILL DELAY FINAL INSPECTION APPROVAL BY THE COUNTY UNTIL PLAN CONFORMANCE IS ACHIEVED OR ANY REQUIRED PLAN REVISIONS ARE APPROVED.
24. FINAL SITE STABILIZATION. ALL AREAS DISTURBED BY THE CONSTRUCTION MUST BE PERMANENTLY REVEGETATED AND ALL TEMPORARY SEDIMENT CONTROLS AND ACCUMULATED SEDIMENTATION MUST BE REMOVED BEFORE THE COUNTY WILL ISSUE A CERTIFICATE OF COMPLIANCE FOR FINAL SITE STABILIZATION AS PART OF FINAL INSPECTION AND PROJECT COMPLETION. A DEVELOPERS CONTRACT, AS DESCRIBED IN THE SWP3 AND ESC NOTES SHEET MAY BE EXECUTED WITH TRAVIS COUNTY FOR CONDITIONAL ACCEPTANCE OF A PROJECT FOR WHICH HAS ESC FISCAL SECURITY POSTED AND FOR WHICH ALL ITEMS ARE COMPLETE.

AUSTIN WATER UTILITY
STANDARD CONSTRUCTION NOTES October 1, 2021

1. THE CITY STANDARD CONSTRUCTION SPECIFICATIONS CURRENT AT THE TIME OF BIDDING SHALL COVER MATERIALS AND METHODS USED TO DO THIS WORK.
2. CONTRACTOR MUST OBTAIN A ROW PERMIT FROM AUSTIN TRANSPORTATION DEPT, RIGHT OF WAY MANAGEMENT DIVISION BEFORE BEGINNING CONSTRUCTION WITHIN THE RIGHT–OF–WAY OF A PUBLIC STREET OR ALLEY. ACTIVITY WITHIN RIGHT–OF–WAY SHALL COMPLY WITH APPROVED TCP.
3. AT LEAST 48 HOURS PRIOR TO BEGINNING ANY UTILITY CONSTRUCTION ACTIVITY IN PUBLIC ROW OR PUBLIC EASEMENT, THE CONTRACTOR SHALL NOTIFY THE APPLICABLE CITY OF AUSTIN INSPECTION GROUP (AUSTIN TRANSPORTATION, DEVELOPMENT SERVICES, OR PUBLIC WORKS). SEE CURRENT NOTIFICATION REQUIREMENTS AT WWW.AUSTINTEXAS.GOV.
4. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM AT 1–800–344–8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF AUSTIN WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
5. NO OTHER UTILITY SERVICE/APPURTENANCES SHALL BE PLACED NEAR THE PROPERTY LINE, OR OTHER ASSIGNED LOCATION DESIGNATED FOR WATER AND WASTEWATER UTILITY SERVICE THAT WOULD INTERFERE WITH THE WATER AND WASTEWATER SERVICES.
6. MINIMUM TRENCH SAFETY MEASURES SHALL BE PROVIDED, AS REQUIRED BY OSHA, CITY SPECIFICATION 509S, AND CITY/COUNTY CONSTRUCTION INSPECTORS.
7. ALL MATERIALS TESTS ORDERED BY THE OWNER FOR QUALITY ASSURANCE PURPOSES, SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY AND FUNDED BY THE OWNER IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEM 18045.04.
8. PRESSURE TAPS SHALL BE ALLOWED ON A CASE BY CASE BASIS, AS DETERMINED BY THE DIRECTOR'S DESIGNEE. NORMALLY PRESSURE TAPS 4 INCHES AND LARGER SHALL BE ALLOWED IN THE FOLLOWING CASES: A) A TEST SHUT OUT INDICATES AN ADEQUATE SHUT OUT TO PERFORM THE WORK IS NOT FEASIBLE B) MORE THAN 30 CUSTOMERS OR A SINGLE CRITICAL CUSTOMER (AS DEFINED BY AUSTIN WATER) WOULD BE IMPACTED BY THE SHUT OUT OR C) THE EXISTING WATER LINE WARRANTS IT.
9. WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARD SPECIFICATION ITEMS 510.3 (27)–(29). FORCE MAIN PRESSURE TESTING SHALL BE CONDUCTED AND FALL UNDER THE SPECIFICATIONS AS WATER LINES (PRESSURE PIPE) OR AT THE PRESSURES SHOWN ON THE APPROVED PLANS.
10. ALL MATERIALS USED ON THIS PROJECT MUST BE LISTED ON THE STANDARD PRODUCTS LISTING. ANY MATERIAL NOT LISTED HAS TO GO THROUGH THE REVIEW OF THE STANDARDS COMMITTEE FOR REVIEW AND APPROVAL PRIOR TO START OF PROJECT. TESTING AND EVALUATION OF PRODUCTS ARE REQUIRED BEFORE APPROVAL WILL BE GIVEN ANY CONSIDERATION.
11. WHEN WATER SERVICES ARE DAMAGED AND THE SERVICE MATERIAL IS POLYETHYLENE (PE), THE LINE SHALL BE REPAIRED ONLY BY HEAT FUSION WELD, AT BRASS FITTINGS, OR THE FULL LENGTH SHALL BE REPLACED PER CURRENT STANDARD DETAIL(S). WHEN POLYBUTYLENE (PB) TUBING IS DAMAGED OR TAMPERED WITH IN ANY WAY, THE FULL LENGTH OF SERVICE LINE SHALL BE REPLACED. (NOTE: FULL LENGTH IS FROM THE CORPORATION STOP TO THE METER.) REPAIR COUPLINGS ARE NOT ALLOWED FOR ANY WATER OR WASTEWATER SERVICE LINE REPAIR, RECONNECT, OR REPLACEMENT.
12. WHEN AN EXISTING WATERLINE SHUT OUT IS NECESSARY AND POSSIBLE, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR WHO WILL THEN NOTIFY AUSTIN WATER DISPATCH AND THE AFFECTED CUSTOMERS A MINIMUM OF FORTY–EIGHT (48) HOURS IN ADVANCE.
13. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR SO THAT HE CAN NOTIFY THE AUSTIN WATER AT 972–0000 AT A MINIMUM OF 72 HOURS PRIOR TO RELOCATING ANY DOMESTIC OR FIRE DEMAND WATER METERS. THE CONTRACTOR SHALL CAREFULLY REMOVE ALL METERS AND METERS BOXES THAT ARE INDICATED TO BE RELOCATED OR SALVAGED. THE CONTRACTOR SHALL INSTALL THE REMOVED METER OR CITY PROVIDED METER AT THE NEW LOCATION INDICATED ON THE CONSTRUCTION PLANS.
14. THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL LOCATIONS OF EXISTING UTILITIES, BELOW GROUND AND OVERHEAD, PRIOR TO STARTING ONSITE UTILITY WORK.
15. ALL WATER, WASTEWATER, AND RECLAIMED MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE SEPARATION DISTANCES INDICATED ON THE PLANS, PER UTILITY CRITERIA MANUAL AND TCEQ CHAPTERS 210, 217, AND 290.
16. PROJECT–SPECIFIC SHOP DRAWINGS SHALL BE SUBMITTED FOR AW APPROVAL FOR PRE–CAST CIRCULAR VERTICAL MANHOLE SECTIONS LARGER THAN 48" DIAMETER. THE SHOP DRAWINGS SHALL INCLUDE THE FLOWLINE ELEVATION OF ALL CONNECTING PIPES; ELEVATIONS OF TRANSITIONS FROM LARGE DIAMETER SECTIONS TO 48" DIAMETER SECTIONS; TOP OF MANHOLE AND SURROUNDING GROUND ELEVATIONS; AND DETAILS OF SPECIAL CONSTRUCTION CONSIDERATIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
17. WHEN CONCRETE MANHOLES LARGER THAN 48 INCH DIAMETER ARE USED, DRAWINGS THAT ARE SEALED BY A PROFESSIONAL ENGINEER SHALL BE SUBMITTED FOR BASE SLABS, FLAT TOP LIDS (IF USED), AND FLAT TYPE CONCRETE PIECES USED TO TRANSITION FROM LARGER TO SMALLER DIAMETER MANHOLE SECTIONS.
18. ALL FIRE HYDRANTS AND VALVES THAT ARE TO BE ABANDONED SHALL BE REMOVED, SALVAGED AND RETURNED TO AUSTIN WATER. NOTICE SHOULD BE GIVEN 48 HOURS PRIOR TO PIPELINE OPERATIONS DISTRIBUTION SYSTEM –VALVES AND HYDRANT SERVICES SUPERVISOR AT 512–972–1280.
19. ALL EXISTING WATER METERS IDENTIFIED TO BE RELOCATED OR ABANDONED AT THE DEVELOPMENT SHALL BE REMOVED FROM THE METER BOX PRIOR TO CONSTRUCTION AND GIVEN IMMEDIATELY TO THE CITY OF AUSTIN INSPECTOR.
20. THE ENGINEER SHALL CALL OUT THE SIZE, TYPE AND USE (DOMESTIC OR IRRIGATION) OF ALL EXISTING WATER METERS TO BE RELOCATED OR REPURPOSED. WATER METER NUMBERS WILL NOT BE REQUIRED TO BE PLACED ON THE PLAN SHEET. A SEPARATE AUSTIN WATER TAPS OFFICE FORM WILL BE USED TO PROVIDE RELEVANT DATA FOR THE EXISTING INFORMATION ON EXISTING METERS TO RECEIVE APPROPRIATE CREDITS. THIS FORM SHALL BE DIRECTLY SUBMITTED TO AUSTIN WATER TAPS OFFICE FOR REVIEW AND PROCESSING.
21. NO CONNECTION MAY BE MADE BETWEEN THE PRIVATE PLUMBING AND AUSTIN WATER INFRASTRUCTURE UNTIL A CITY APPROVED WATER METER HAS BEEN INSTALLED.
22. METER BOXES AND CLEAN OUTS SHALL NOT BE LOCATED WITHIN PAVED AREAS SUCH AS DRIVEWAYS AND SIDEWALKS.

C2

UTILITY CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
2. ON–SITE SANITARY SEWER PIPE SHALL BE PVC, ASTM D–2241 SDR26 WITH INTEGRAL BELL, BELL & SPIGOT TYPE JOINTS (WITH RUBBER) OR DUCTILE IRON (D.I.) PIPE (CLASS 350) WITH PUSH–ON OR MECHANICAL JOINTS UNLESS OTHERWISE NOTED.
3. WATER LINE SHALL BE D.I. PIPE (CLASS 350) OR PVC AWWA C900 UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL COMPLY WITH THE LATEST OSHA STANDARDS OR DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION.
5. ALL STORM SEWER PIPES TO BE CLASS III RCP UNLESS NOTED OTHERWISE.
6. CONTRACTOR SHALL NOTIFY CITY INSPECTORS AT LEAST 48 HOURS PRIOR TO COMMENCING UTILITY CONSTRUCTION IN PUBLIC R.O.W. OR EASEMENT.
7. THRUST BLOCKING SHALL BE USED AT ALL WATER LINE TEES, BENDS, DEAD ENDS, ETC. IN ACCORDANCE WITH CITY REQUIREMENTS.
8. CONTRACTOR SHALL CONTACT CITY OF AUSTIN FOR SPECIFICATIONS AND MAKE OF VALVES, VALVE BOXES, FIRE HYDRANTS, AND ALL OTHER WATER LINE APPURTENANCES.
9. CONTRACTOR WILL BE REQUIRED TO FURNISH AN AS–BUILT WATER & WASTEWATER PLAN TO THE ENGINEER OF RECORD AND TO THE CITY OF AUSTIN UTILITY DEPARTMENT PRIOR TO ACCEPTANCE OF THIS WORK.
10. CONTRACTOR SHALL CONDUCT HIS WORK SO AS NOT TO DISTURB THE EXISTING WATER LINE OR CONTAMINATE THE WATER IN EXISTING C.O.A. WATER LINES.
11. ALL WORK AND MATERIALS RELATED TO THE INSTALLATION OF WATER AND WASTEWATER LINES SHALL CONFORM WITH THE LATEST CITY OF AUSTIN SPECIFICATIONS AND TCEQ REGULATIONS, TAC CHAPTER 217 AS APPLICABLE.
12. CONTRACTOR, AT HISOWN EXPENSE, SHALL PERFORM LOW PRESSURE AIR TESTING FOR ALL WASTE WATER LINES INSTALLED. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMP AND GUAGES), SUPPLIES AND LABOR REQUIRED TO PERFORM THE TEST.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CONTRIBUTING ZONE PLAN
GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES –LEGAL DISCLAIMER THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE ED'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ONSITE.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF PRIOR TO THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON–SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL TCEQ–0592A (REV. JULY 15, 2015) PAGE 2 OF 2 STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
    - 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.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
C. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVED CONTRIBUTING ZONE PLAN.

AUSTIN REGIONAL OFFICE
12100 PARK 35 CIRCLE, BUILDING A
AUSTIN, TEXAS 78753–1808
PHONE (512) 339–2929
FAX (512) 339–3795

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233–4480
PHONE (210) 490–3096
FAX (210) 545–4329

SITE PREPARATION

BUILDING AREAS AND ALL AREAS TO SUPPORT SELECT FILL SHALL BE STRIPPED OF ALL VEGETATION, FILL SOILS, LOOSE TOPSOIL, LARGE ROCKS AND DELETERIOUS MATERIAL. TREE ROOTS GREATER THAN 1 INCH IN DIAMETER SHALL BE GRUBBED AND REMOVED. ANY VOIDS RESULTING FROM REMOVAL OF LIMESTONE BOULDERS OR TREE ROOTS SHOULD BE BACKFILLED WITH A SUITABLE, COMPACTED FILL MATERIAL, FREE OF ORGANICS, DEGRADABLE MATERIAL, AND PARTICLES EXCEEDING 4 INCHES IN SIZE. CONTRACTOR SHALL COMPLETELY REMOVE ALL STRATUM I DARK BROWN CLAYS SOILS FRO

$129.00 October 15, 2018 201800285

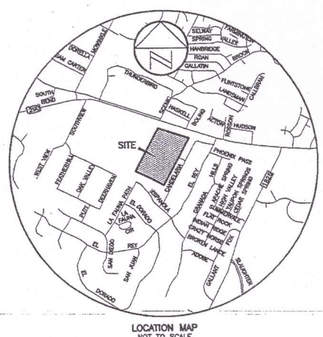
BROADSTONE SCENIC BROOK, AMENDED LOTS 1 AND 2, BLOCK A

TRAVIS COUNTY CONSUMER PROTECTION NOTICE FOR HOMEBUYERS

IF YOU ARE BUYING A LOT OR HOME, YOU SHOULD DETERMINE WHETHER IT IS INSIDE OR OUTSIDE THE CITY LIMITS. DEPENDING ON STATE LAW AND OTHER FACTORS, LAND OUTSIDE THE CITY LIMITS MAY BE SUBJECT TO FEWER LOCAL GOVERNMENT CONTROLS OVER THE DEVELOPMENT AND USE OF LAND THAN INSIDE THE CITY LIMITS.

BECAUSE OF THIS, LOCAL GOVERNMENT MAY NOT BE ABLE TO RESTRICT THE NATURE OR EXTENT OF DEVELOPMENT NEAR THE LOT OR HOME NOR PROHIBIT NEARBY LAND USES THAT ARE INCOMPATIBLE WITH A RESIDENTIAL NEIGHBORHOOD. THIS CAN AFFECT THE VALUE OF YOUR PROPERTY.

TRAVIS COUNTY REQUIRES THIS NOTICE TO BE PLACED ON SUBDIVISION PLATS. IT IS NOT A STATEMENT OR REPRESENTATION OF THE OWNER OF THE PROPERTY, THE SUBDIVIDER, OR THEIR REPRESENTATIVES.



LOCATION MAP
NOT TO SCALE

C8J-2017-0250.0A

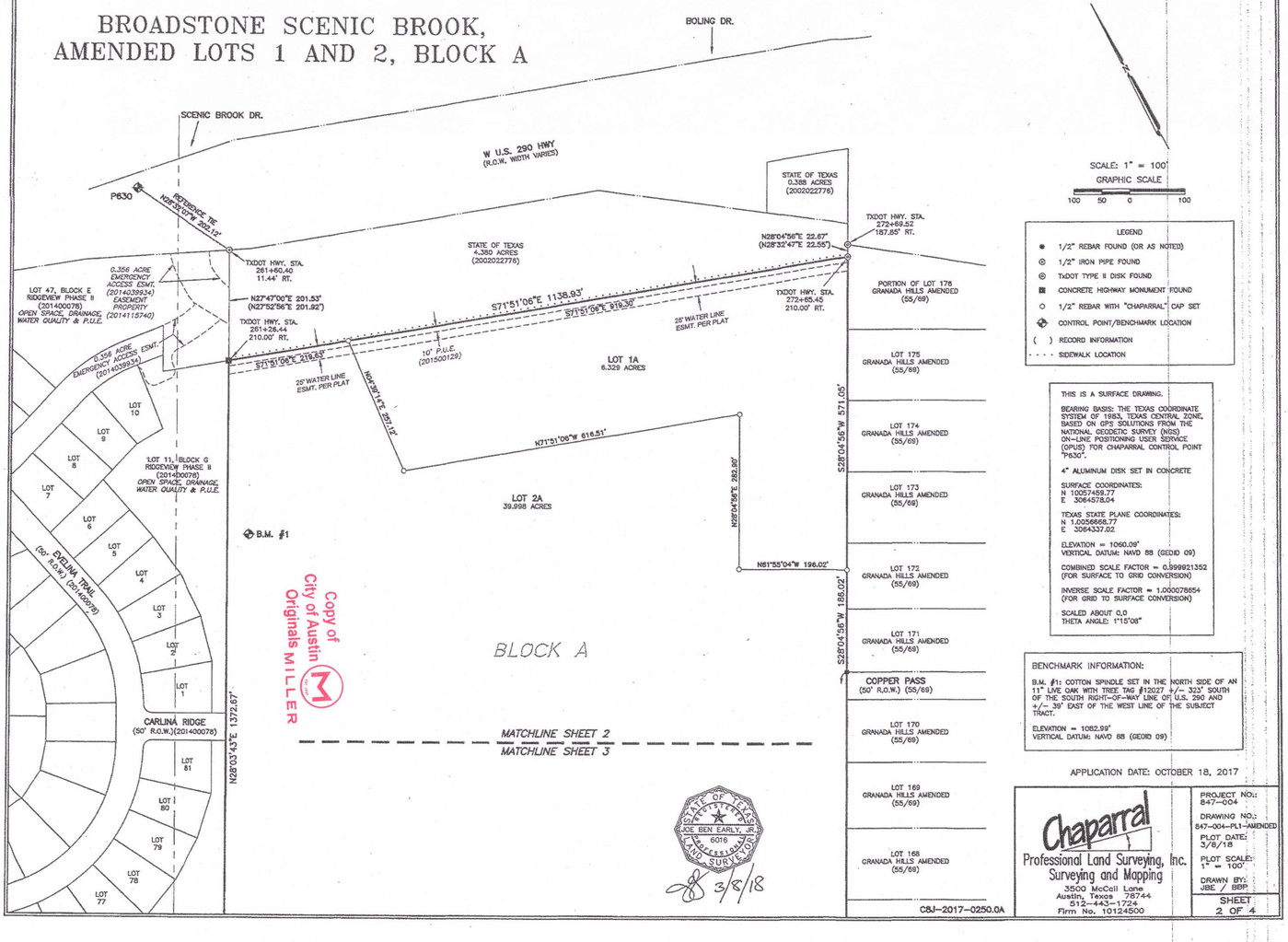
APPLICATION DATE: OCTOBER 18, 2017

Chaparral
Professional Land Surveying, Inc.
Surveying and Mapping
3500 McCall Lane
Austin, Texas 78744
512-443-1724
Firm No. 10124500

PROJECT NO.: 847-004
DRAWING NO.: 847-004-PL1-AMENDED
PLOT DATE: 3/8/18
PLOT SCALE: 1" = 100'
DRAWN BY: JBE / BBP
SHEET 1 OF 4

201800285

BROADSTONE SCENIC BROOK, AMENDED LOTS 1 AND 2, BLOCK A



Copy of City of Austin Originals MILLER

STATE OF TEXAS JOE BEN EARLY, JR. 6016 LICENSED LAND SURVEYOR
3/8/18

C8J-2017-0250.0A

APPLICATION DATE: OCTOBER 18, 2017

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SHEET 2 OF 4

City of Austin
Reviewed for General Compliance
APR 09 2019

FOR REFERENCE ONLY

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

FINAL PLAT-1

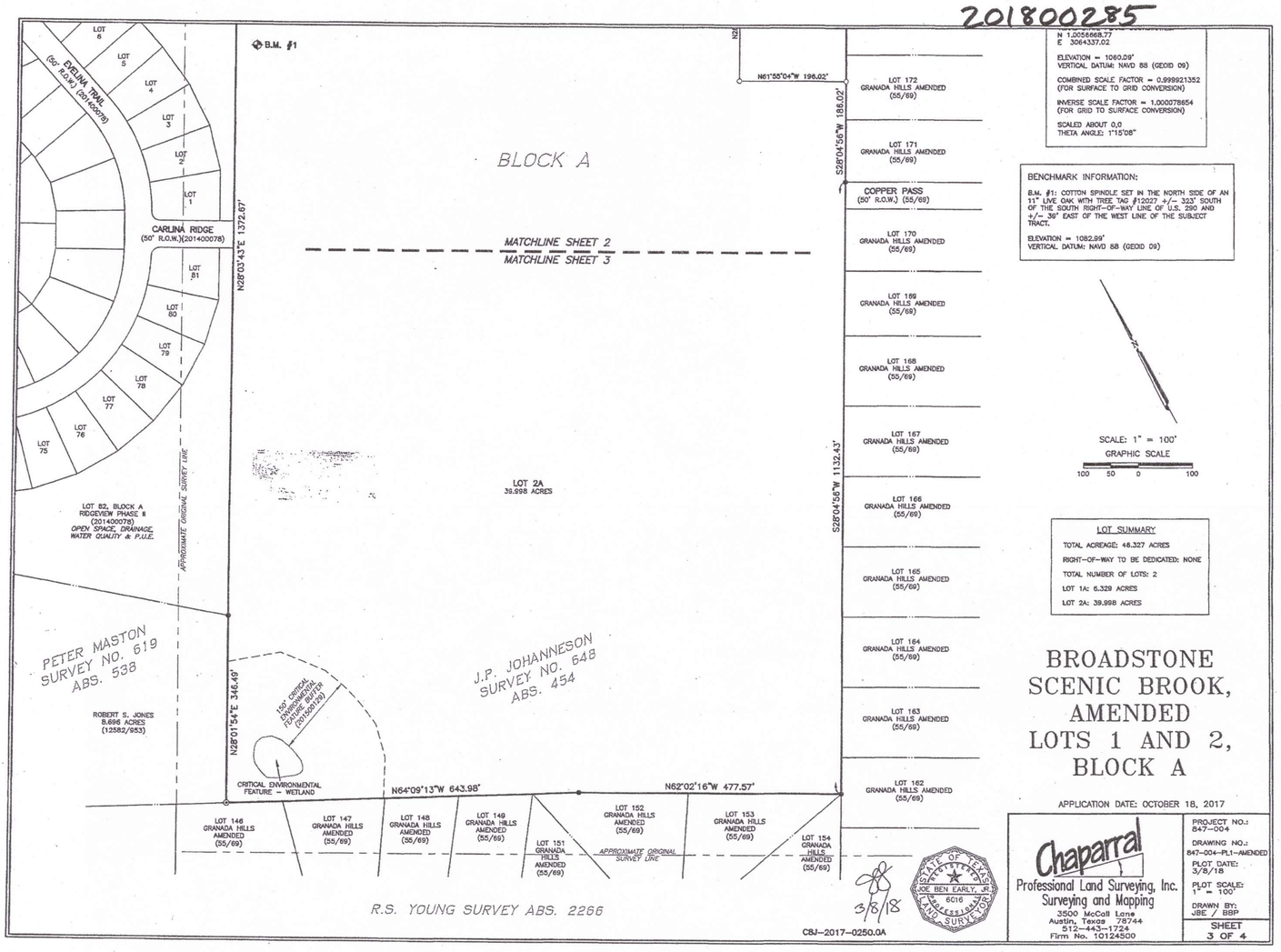
DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

Project No. 1490-001
SHEET 4 OF 53
Date: March 2019
Reviewed: DS
Drawn: BG, DM
Designed: SK, LC, DS

SP-2018-0328D

Drawing: P:\1490-001\dwg\working_drawings\submitted_files\CD\1490-001-CD-FINAL PLAT.dwg
User: GPARSONS
Last Modified: Dec. 06, 18 - 17:42
Plot Date/Time: Mar. 27, 19 - 18:10:50

201800285



201800285

BROADSTONE SCENIC BROOK, AMENDED LOTS 1 AND 2, BLOCK A

STATE OF TEXAS
COUNTY OF TRAVIS

KNOW ALL MEN BY THE PRESENTS:

THAT MITCHEL WONG, TRUSTEE OF THE MICHAEL Y. WONG 1991 TRUST, TRUSTEE OF THE LAWRENCE SHAWN WONG 1991 TRUST, TRUSTEE OF THE PATRICK Y. WONG 1991 TRUST, TRUSTEE OF THE SHANNON M. WONG 1991 TRUST, BEING OWNER OF LOT 1, BLOCK A, BROADSTONE SCENIC BROOK, A SUBDIVISION OF RECORD IN DOCUMENT NO. 201500129 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, CONVEYED BY DEEDS OF RECORD IN DOCUMENT NO. 2016215691 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS;

THAT WONG REAL ESTATE MANAGEMENT, LP, BEING OWNER OF LOT 2, BLOCK A, BROADSTONE SCENIC BROOK, A SUBDIVISION OF RECORD IN DOCUMENT NO. 201500129 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS, CONVEYED BY DEEDS OF RECORD IN DOCUMENT NO. 2017177646 OF THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS;

SAID SUBDIVISION HAVING BEEN APPROVED FOR AMENDMENT PURSUANT TO CHAPTER 212.016, OF THE LOCAL GOVERNMENT CODE, DO HEREBY AMEND LOTS 1 AND 2 IN ACCORDANCE WITH THE MAP OR PLAT ATTACHED HERETO, FOR THE PURPOSE OF MOVING COMMON LOT LINES, TO BE KNOWN AS:

BROADSTONE SCENIC BROOK, AMENDED LOTS 1 AND 2, BLOCK A

AND DO HEREBY DEDICATE TO THE PUBLIC THE USE OF ALL STREETS AND EASEMENTS SHOWN HEREON, SUBJECT TO ANY AND ALL EASEMENTS OR RESTRICTIONS HERETOFORE GRANTED AND NOT RELEASED.

WITNESS MY HAND THIS THE 28th DAY OF September, 2018 A.D.

BY: Mr Wong

MITCHEL WONG
1700 STONERIDGE TERRACE
AUSTIN, TX 78746

STATE OF TEXAS

COUNTY OF TRAVIS

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED MITCHEL WONG, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT AND HE ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED.

WITNESS MY HAND AND SEALED IN MY OFFICE, THIS THE 28th DAY OF September 2018 AD.

NOTARY PUBLIC, STATE OF TEXAS

Laura Krippner
PRINTED NAME

5-21-2022
MY COMMISSION EXPIRES

LAURA KRIPPNER
Notary Public, State of Texas
Comm. Expires 05-21-2022
Notary ID 131576720

SURVEYOR'S CERTIFICATION:

I, JOE BEN EARLY, JR., AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF SURVEYING AND HEREBY CERTIFY THAT THIS PLAT COMPLIES WITH THE SURVEYING RELATED PORTIONS OF TITLE 30 OF THE AUSTIN CITY CODE AS AMENDED, IS TRUE AND CORRECT, AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE BY ME OR MADE UNDER MY SUPERVISION, MADE ON THE GROUND JANUARY 5, 2017.

3/8/18

JOE BEN EARLY, JR. R.P.L.S. 6016
SURVEYING BY:
CHAPARRAL PROFESSIONAL LAND SURVEYING, INC.
3500 MCCALL LANE
AUSTIN, TEXAS 78744
(512) 443-1724
FIRM NO. 10124500

STATE OF TEXAS JOE BEN EARLY, JR. 6016 REGISTERED PROFESSIONAL LAND SURVEYOR

ENGINEER'S CERTIFICATION:

I, DANIEL RYAN, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF ENGINEERING, AND HEREBY CERTIFY THAT THIS PLAT IS FEASIBLE FROM AN ENGINEERING STANDPOINT AND COMPLIES WITH THE ENGINEERING RELATED PORTIONS OF TITLE 30 OF THE AUSTIN CITY CODE, AS AMENDED, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

NO PORTION OF THIS TRACT IS WITHIN THE BOUNDARIES OF THE 100 YEAR FLOOD OF A WATERWAY THAT IS WITHIN THE FEDERAL EMERGENCY MANAGEMENT AGENCY, NATIONAL FLOOD INSURANCE PROGRAM, AS SHOWN ON MAP NO. 48453C0560H, DATED SEPTEMBER 26, 2008 FOR TRAVIS COUNTY, TEXAS AND INCORPORATED AREAS.

6-21-2018

DANIEL RYAN, P.E.

ENGINEERING BY:
LJA ENGINEERING, INC.
5316 HIGHWAY 290 WEST, SUITE 150
AUSTIN, TEXAS 78735
(512) 439-4700
TBPE FIRM NO. F-1386

STATE OF TEXAS DANIEL RYAN 89458 LICENSED PROFESSIONAL ENGINEER

GENERAL NOTES:

1. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO THE CITY OF AUSTIN WATER AND WASTEWATER UTILITY SYSTEM.

2. THE WATER AND WASTEWATER UTILITY SYSTEM SERVING THIS SUBDIVISION MUST BE IN ACCORDANCE WITH THE CITY OF AUSTIN UTILITY DESIGN CRITERIA. THE WATER AND WASTEWATER UTILITY PLAN MUST BE REVIEWED AND APPROVED BY THE AUSTIN WATER UTILITY. ALL WATER AND WASTEWATER CONSTRUCTION MUST BE INSPECTED BY THE CITY OF AUSTIN. THE LANDOWNER MUST PAY THE CITY INSPECTION FEE WITH THE UTILITY CONSTRUCTION.

3. THE WATER AND/OR WASTEWATER EASEMENTS INDICATED ON THIS PLAT ARE FOR THE PURPOSE OF CONSTRUCTION, OPERATION, MAINTENANCE, REPAIR, REPLACEMENT, UPGRADE, DECOMMISSIONING AND REMOVAL OF WATER AND/OR WASTEWATER FACILITIES AND APPURTENANCES. NO OBJECTS, INCLUDING BUT NOT LIMITED TO, BUILDINGS, RETAINING WALLS, TREES OR OTHER STRUCTURES ARE PERMITTED IN WATER AND/OR WASTEWATER EASEMENTS EXCEPT AS APPROVED BY THE CITY OF AUSTIN AND TRAVIS COUNTY TEXAS.

4. PRIOR TO CONSTRUCTION, A SITE DEVELOPMENT PERMIT MUST BE OBTAINED FROM THE CITY OF AUSTIN.

5. PEDERNALES ELECTRIC COOPERATIVE (PEC) HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THEIR EASEMENTS CLEAR. PEC WILL PERFORM ALL TREE WORK IN COMPLIANCE WITH CHAPTER 30-5, SUBCHAPTER B OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.

6. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE PEC WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES. THESE EASEMENTS AND/OR ACCESS ARE REQUIRED TO PROVIDE ELECTRIC SERVICE TO THE BUILDING, AND WILL NOT BE LOCATED SO AS TO CAUSE THE SITE TO BE OUT OF COMPLIANCE WITH THE CITY OF AUSTIN LAND DEVELOPMENT CODE.

7. THE OWNER SHALL BE RESPONSIBLE FOR INSTALLATION OF TEMPORARY EROSION CONTROL, REVEGETATION AND TREE PROTECTION. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR ANY INITIAL TREE PRUNING AND TREE REMOVAL THAT IS WITHIN TEN FEET OF THE CENTERLINE OF ANY PROPOSED OVERHEAD ELECTRIC FACILITIES DESIGNED TO PROVIDE ELECTRIC SERVICE TO THIS PROJECT. THE OWNER SHALL INCLUDE PEC'S WORK WITHIN THE LIMITS OF CONSTRUCTION FOR THIS PROJECT.

8. EROSION/SEDIMENTATION CONTROLS ARE REQUIRED FOR ALL CONSTRUCTION ON EACH LOT, INCLUDING SINGLE-FAMILY AND DUPLEX CONSTRUCTION, PURSUANT TO THE LAND DEVELOPMENT CODE AND THE ENVIRONMENTAL CRITERIA MANUAL.

9. THE OWNER OF THIS SUBDIVISION, AND HIS OR HER SUCCESSORS AND ASSIGNS, ASSUMES RESPONSIBILITY FOR THE PLANS FOR CONSTRUCTION OF SUBDIVISION IMPROVEMENTS WHICH COMPLY WITH APPLICABLE CODES AND REQUIREMENTS OF THE CITY OF AUSTIN. THE OWNER UNDERSTANDS AND ACKNOWLEDGES THAT PLAT VACATION OR REPLATTING MAY BE REQUIRED AT THE OWNER'S SOLE EXPENSE, IF PLANS TO CONSTRUCT THIS SUBDIVISION DO NOT COMPLY WITH SUCH CODES AND REQUIREMENTS.

10. PRIOR TO CONSTRUCTION ON LOTS IN THIS SUBDIVISION, DRAINAGE PLANS WILL BE SUBMITTED TO THE CITY OF AUSTIN AND TRAVIS COUNTY FOR REVIEW. POST-DEVELOPMENT STORMWATER RUN-OFF SHALL BE MAINTAINED AT OR BELOW PREDEVELOPMENT LEVELS BY USING PONDING OR OTHER APPROVED METHODS.

11. NO BUILDINGS, FENCES, LANDSCAPING OR OTHER STRUCTURES ARE PERMITTED IN DRAINAGE EASEMENTS EXCEPT AS APPROVED BY THE CITY OF AUSTIN AND TRAVIS COUNTY.

12. PROPERTY OWNER SHALL PROVIDE ACCESS TO DRAINAGE EASEMENTS, STORMSEWER EASEMENTS, AND WATER QUALITY EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY GOVERNMENT AUTHORITIES HAVING JURISDICTION.

13. ALL DRAINAGE EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE OWNER(S) OR HIS/HER ASSIGNS.

14. TRAVIS COUNTY DEVELOPMENT PERMIT IS REQUIRED PRIOR TO ANY SITE DEVELOPMENT.

15. BY APPROVING THIS PLAT, THE CITY OF AUSTIN ASSUMES NO OBLIGATION TO CONSTRUCT ANY INFRASTRUCTURE IN CONNECTION WITH THIS SUBDIVISION. ANY SUBDIVISION INFRASTRUCTURE REQUIRED FOR THE DEVELOPMENT OF THE LOTS IN THIS SUBDIVISION IS THE RESPONSIBILITY OF THE DEVELOPER AND/OR THE OWNERS OF THE LOTS. FAILURE TO CONSTRUCT ANY REQUIRED INFRASTRUCTURE TO CITY STANDARDS MAY BE JUST CAUSE FOR THE CITY TO DENY APPLICATIONS FOR CERTAIN DEVELOPMENT PERMITS INCLUDING BUILDING PERMITS, SITE PLAN APPROVALS, AND/OR CERTIFICATES OF OCCUPANCY.

16. THE OWNERS OF THE PROPERTY ARE RESPONSIBLE FOR THE IMPLEMENTATION OF THE INTEGRATED PEST MANAGEMENT PLAN APPROVED BY THE CITY OF AUSTIN AND AS AMENDED FROM TIME TO TIME BY THE CITY OF AUSTIN.

17. A 10' PUBLIC UTILITY EASEMENT IS HEREBY DEDICATED ADJACENT TO ALL R.O.W.

18. ALL ACTIVITIES WITHIN THE CRITICAL ENVIRONMENTAL FEATURE AND ASSOCIATED SETBACK MUST COMPLY WITH THE CITY OF AUSTIN LAND DEVELOPMENT CODE. THE NATURAL VEGETATIVE COVER MUST BE RETAINED TO THE MAXIMUM EXTENT PRACTICABLE; CONSTRUCTION IS PROHIBITED; AND WASTEWATER DISPOSAL OR IRRIGATION IS PROHIBITED

19. PARKLAND FEES HAVE BEEN PAID TO TRAVIS COUNTY FOR 372 RESIDENTIAL UNITS IN LIEU OF PARKLAND DEDICATION.

20. SIDEWALKS SHALL BE INSTALLED AT THE OWNER'S EXPENSE AT LOCATIONS SHOWN WHEN HIGHWAY 290 W IS IMPROVED WITH CURB AND GUTTER.

21. THE MAXIMUM IMPERVIOUS COVER ON LOTS 1A AND 2A SHALL NOT EXCEED 11.53 ACRES.

22. ALL NOTES AND RESTRICTIONS FROM THE PREVIOUS PLAT, "BROADSTONE SCENIC BROOK", A SUBDIVISION OF RECORD IN DOCUMENT NO. 201500129, SHALL APPLY TO THIS AMENDED PLAT/RESUBDIVISION PLAT.

THIS SUBDIVISION PLAT IS LOCATED WITHIN THE 2 MILE EXTRATERRITORY JURISDICTION OF THE CITY OF AUSTIN ON THIS THE 2nd DAY OF OCTOBER 2018.

APPROVED, ACCEPTED AND AUTHORIZED FOR RECORD BY THE DIRECTOR, DEVELOPMENT SERVICES DEPARTMENT, CITY OF AUSTIN, COUNTY OF TRAVIS, THIS THE 2nd DAY OF OCTOBER 2018 AD.

FERMIN SUTANA, ENC
J. RODNEY GONZALES, DIRECTOR
DEVELOPMENT SERVICES DEPARTMENT

APPROVED, ACCEPTED AND AUTHORIZED FOR RECORD, UNDER SECTION 30-2-84(B)(2), AUSTIN/TRAVIS COUNTY SUBDIVISION REGULATIONS, BY THE EXECUTIVE MANAGER, TRANSPORTATION AND NATURAL RESOURCES, TRAVIS COUNTY, THIS THE 4th DAY OF October 2018 AD.

Stephen C. McDonald, Interim Director — 10/04/2018
COUNTY EXECUTIVE — DATE
TRANSPORTATION AND NATURAL RESOURCES

STATE OF TEXAS:
COUNTY OF TRAVIS:

I, DANA DEBEAUVOIR, CLERK OF TRAVIS COUNTY, TEXAS, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING AND ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 15 DAY OF October 2018 A.D. AT 4:14 O'CLOCK P M., AND DULY RECORDED ON THE 15 DAY OF October 2018 A.D. AT 4:14 O'CLOCK P M., OFFICIAL PUBLIC RECORDS OF SAID COUNTY AND STATE IN DOCUMENT # 201800285

WITNESS MY HAND AND SEAL OF OFFICE OF THE COUNTY CLERK, THE 15 DAY OF October 2018 A.D.

DANA DEBEAUVOIR, COUNTY CLERK TRAVIS COUNTY, TEXAS
J.S. Williams
DEPUTY

APPLICATION DATE: OCTOBER 18, 2017

Chaparral
Professional Land Surveying, Inc.
Surveying and Mapping
3500 McCall Lane
Austin, Texas 78744
512-443-1724
Firm No. 10124500

PROJECT NO.: 847-004
DRAWING NO.: 847-004-PL1-AMENDED
PLOT DATE: 3/8/18
PLOT SCALE: 1" = 100'
DRAWN BY: JBE / BBP
SHEET 4 OF 4

CBJ-2017-0250.0A

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

FOR REFERENCE ONLY

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

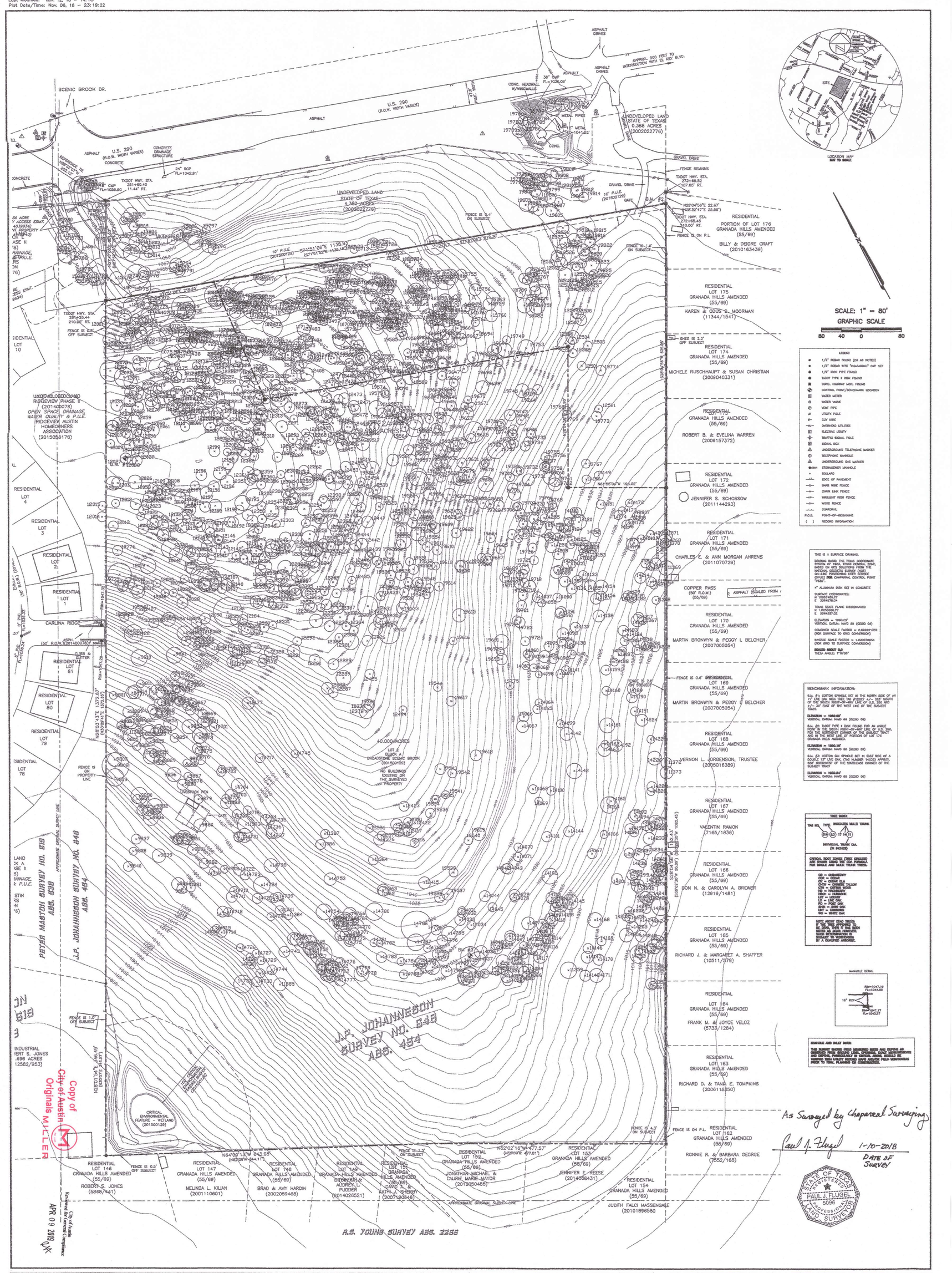
FINAL PLAT-2

Designed: SK, LC, DS
Drawn: BC, DM
Reviewed: DS
Date: MARCH 2019
SHEET 5 OF 53
Project No: 1490-001

SP-2018-0138D

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

Drawing: P:\1490-001\dwg\working_drawings\submitted_Res\CD\1490-001-CD-EXIST. SURVEY.dwg
User: GPARSONS
Last Modified: Jan. 12, 18 - 14:16
Plot Date/Time: Nov. 06, 18 - 23:18:22



GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

TOPO & TREE SURVEY

Project No:	1490-001
SHEET	6 OF 53
Date:	NOVEMBER 2018
Reviewed:	DG, DM
Drawn:	BC, DM
Designed:	SK, LC, DS

SP-2018-0178D

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

TREE LIST

9801 CDR 8
9802 CDR 8
9803 LO 10
9804 LO 10 8
9805 LO 10 9 7
9806 CDR 9
9807 LO 14
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9809 LO 12 11
9810 LO 13 7
9811 CDR 8
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14172 CDR 8
14173 CDR 8
14174 LO 9
14175 CDR 8
14176 LO 9
14177 CDR 8
14178 CDR 9 8
14179 LO 9
14180 LO 8
14181 LO 10
14182 LO 10
14183 LO 9 3
14184 LO 11
14185 LO 9
14186 LO 9
14187 LO 12
14188 LO 8
14189 LO 14
14190 LO 9 4
14191 LO 9
14192 LO 12
14193 LO 12
14194 LO 13
14195 CDR 10
14196 LO 9
14197 CE 10 DEAD
14198 LO 11
14199 LO 8
14200 CDR 8
14201 LO 11
14202 CDR 9
14203 CDR 8
14204 CE 10
14205 CDR 12
14206 CE 14 DEAD
14207 CDR 10
14208 LO 8
14209 CDR 8
14210 CDR 8
14211 LO 9
14212 LO 8
14213 LO 9 4
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14215 CDR 10
14216 CDR 8
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14218 LO 9 7
14219 LO 13
14220 LO 13
14221 CDR 8
14222 CDR 9
14223 CDR 10
14224 LO 12
14225 LO 8
14226 LO 14
14227 LO 8 4
14228 LO 8
14229 CDR 11 5
14230 CDR 10
14231 CDR 8
14232 LO 8
14233 LO 9 6
14234 CDR 9
14235 LO 12
14236 CDR 8
14237 LO 8
14238 LO 9
14239 CE 13
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14243 CE 12
14244 CE 10
14245 CDR 9
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14247 CDR 9
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14251 LO 8
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14257 LO 11
14258 HSCH 8 7 6
14259 LO 11
14280 LO 8
14281 LO 12 6
14282 CE 11
14263 CE 15
14264 CE 11
14285 LO 10
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14288 LO 14
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14706 CDR 8
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14711 LO 11
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14719 LO 10
14720 LO 10
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14742 CDR 8
14743 LO 11
14744 CDR 10
14745 LO 9
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14748 LO 12
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14769 LO 9
14770 LO 18
14771 LO 10
14772 LO 12
14773 LO 11
14774 LO 11
14775 LO 12
14776 CDR 8 4
14777 LO 11
14778 LO 15
14779 LO 11
14780 CDR 12 7 4
14781 CDR 8
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15702 LO 9 9
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15704 CDR 8
15705 CDR 9
15706 LO 8
15707 LO 8
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15745 WO 11
15746 LO 8
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15748 LO 16
15749 LO 20
15750 LO 14 DEAD
15751 LO 13
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15753 LO 13
15754 UNK 9 DEAD
15755 LO 11
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15757 CDR 8
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15799 LO 14 10
15800 LO 10
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15802 CDR 9
15803 CDR 9
15804 UKT/SHIN OAK 11
15808 WO 14
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15807 CDR 9 5
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15812 CE 17
15813 CDR 8
15814 LO 9
15815 LO 13
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15819 CDR 10
15820 CE 11
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19694 CDR 8
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19698 LO 18 5
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19702 LO 17
19703 CDR 9
19704 LO 10
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19711 LO 11
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19764 CDR 9
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19775 LO 8
19776 LO 10
19777 LO 16 15
19778 LO 10
19779 LCT 10 6 6
19780 LCT 8
19781 CTN 15
19782 CTN 17
19783 HB 9
19784 CB 8
19785 CTN 12

19786 CTN 14
19787 CHTW 10
19788 CB 13
19789 CB 8 8 5
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19791 LO 8
19792 LO 10 6
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19794 LO 11
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19797 LO 14
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19808 LO 10 8
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23490 LO 8
23491 LO 8
23492 LO 10
23493 LO 8 5
23494 LO 15
23495 LO 9
23496 LO 9
23497 CDR 8
23498 LO 13
23499 LO 13 12
23500 CDR 8

TREE INDEX

TAG NO. TYPE INDICATES MULTI TRUNK
514 LO 17 14 11
INDIVIDUAL TRUNK DIA. (IN INCHES)

CRITICAL ROOT ZONES (TREE CIRCLES) ARE SHOWN USING THE COA FORMULA FOR SINGLE AND MULTI TRUNK TREES.

CB = CHINABERRY
CDR = CEDAR
CE = CEDAR ELM
CHTW = CHINESE TALLOW
CTN = COTTON WOOD
HB = HACKBERRY
HSCH = HUISACHE
LCT = LOCUST
LO = LIVE OAK
PO = POST OAK
SHIN = SHIN OAK
UKT = UNKNOWN
WO = WHITE OAK

NOTE ABOUT DEAD TREES: IF THE TREE APPEARED TO BE DEAD, THEN IT HAS BEEN NOTED AS DEAD; HOWEVER, SUCH DETERMINATION IS SUBJECT TO VERIFICATION BY A QUALIFIED ARBORIST.

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

As Surveyed by Chaparral Surveying

Paul J. Flugel 1-10-2018

STATE OF TEXAS REGISTERED PAUL J. FLUGEL 5096 PROFESSIONAL LAND SURVEYOR

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512) 583-2600
www.doucetengineers.com
Firm Registration Number: 3937

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

TREE LIST

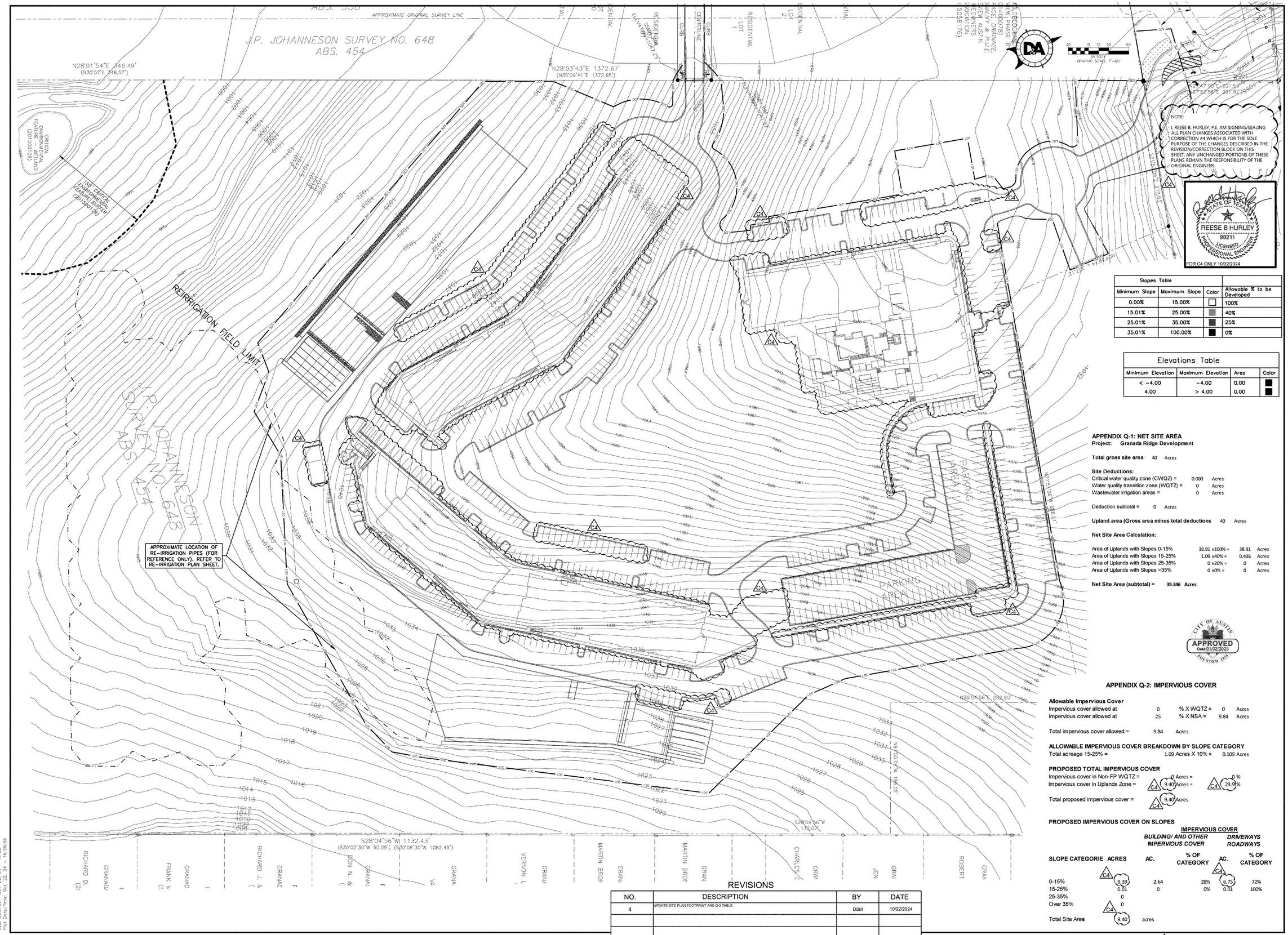
Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	NOVEMBER 2018

SHEET 7 OF 53

Project No.: 1490-001

SP-2018-0138D

Drawings: P:\1490-001\dwg\working_drawings\submitted_files\02\1490-001-CD-EXIST. SURVEY.dwg
User: GP-ARSONS
Last Modified: Jan 12, 18 - 14:18
Plot Date/Time: Nov. 06, 18 - 23:19:25



NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK ON THIS SHEET. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 10/22/2024

Slopes Table			
Minimum Slope	Maximum Slope	Color	Allowable % to be Developed
0.00%	15.00%		100%
15.01%	25.00%		40%
25.01%	35.00%		25%
35.01%	100.00%		0%

Elevations Table			
Minimum Elevation	Maximum Elevation	Area	Color
< -4.00	-4.00	0.00	
4.00	> 4.00	0.00	

APPENDIX Q-1: NET SITE AREA
Project: Granada Ridge Development

Total gross site area 40 Acres

Site Deductions:
Critical water quality zone (CWQZ) = 0.000 Acres
Water quality transition zone (WQTZ) = 0 Acres
Wastewater irrigation areas = 0 Acres

Deduction subtotal = 0 Acres

Upland area (Gross area minus total deductions 40 Acres

Net Site Area Calculation:

Area of Uplands with Slopes 0-15%	38.91 x100% =	38.91	Acres
Area of Uplands with Slopes 15-25%	1.09 x40% =	0.436	Acres
Area of Uplands with Slopes 25-35%	0 x20% =	0	Acres
Area of Uplands with Slopes >35%	0 x0% =	0	Acres

Net Site Area (subtotal) = 39.346 Acres

CITY OF AUSTIN
APPROVED
Date 01/02/2025
FOUNDED 1839

APPENDIX Q-2: IMPERVIOUS COVER

Allowable Impervious Cover
Impervious cover allowed at 0 % X WQTZ = 0 Acres
Impervious cover allowed at 25 % X NSA = 9.84 Acres

Total impervious cover allowed = 9.84 Acres

ALLOWABLE IMPERVIOUS COVER BREAKDOWN BY SLOPE CATEGORY
Total acreage 15-25% = 1.09 Acres X 10% = 0.109 Acres

PROPOSED TOTAL IMPERVIOUS COVER
Impervious cover in Non-FP WQTZ = 0 Acres = 0 %
Impervious cover in Uplands Zone = C4 9.40 Acres = C4 23.9%

Total proposed impervious cover = C4 9.40 Acres

PROPOSED IMPERVIOUS COVER ON SLOPES

SLOPE CATEGORIE	ACRES	IMPERVIOUS COVER: BUILDING/ AND OTHER IMPERVIOUS COVER AC.	% OF CATEGORY	DRIVEWAYS ROADWAYS AC.	% OF CATEGORY
0-15%	C4 9.39	2.64	28%	C4 6.75	72%
15-25%	0.01	0	0%	0.01	100%
25-35%	0				
Over 35%	0				
Total Site Area	C4 9.40 acres				

REVISIONS

NO.	DESCRIPTION	BY	DATE
4	UPDATE SITE PLAN FOOTPRINT AND Q-2 TABLE.	DSM	10/22/2024

C4 REPLACEMENT SHEET

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

SLOPE MAP

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED PROFESSIONAL ENGINEER

Designed: SK, LC, DS
Drawn: BC, DM
Reviewed: DS
Date: MARCH 2019

SHEET 8 OF 66 C4

Project No.: 1490-001

SP-2018-0138D

Drawing: I:\A379\0401 - Granada Ridge\Correction 4\Replacement Sheet DWGs\A379-0401-SLOPE_sheet 8.dwg
User: DMURRAY
Last Modified: Oct 22, 24 - 16:51
Last Plotted: Oct 22, 24 - 16:56

NOTE: (C1)

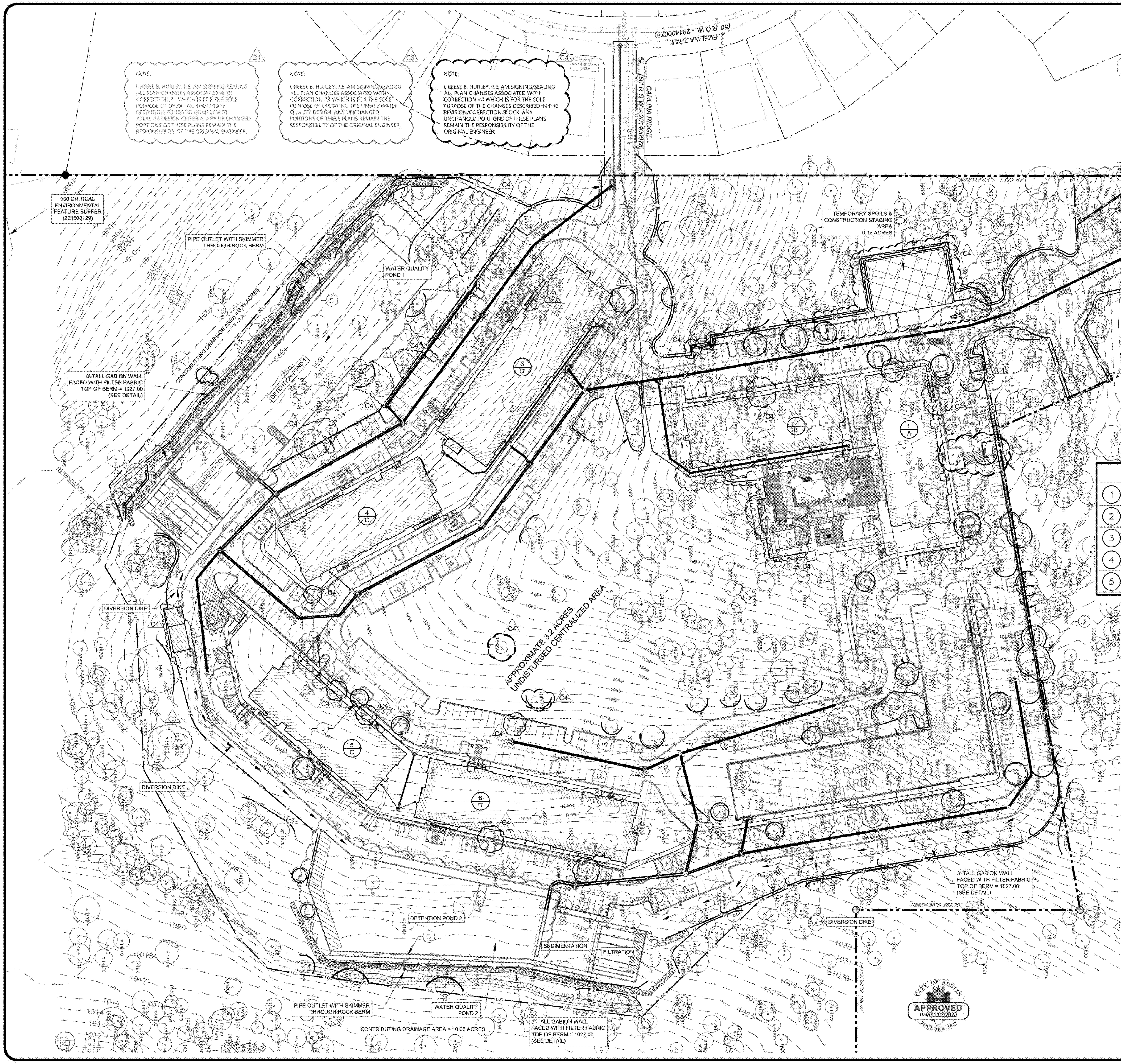
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

NOTE: (C3)

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

NOTE: (C4)

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.



30 0 15 30 60
(IN FEET)
GRAPHIC SCALE 1"=60'

LEGEND

	PROPERTY LINE
LOC	LIMITS OF CONSTRUCTION
(1) SF	SILT FENCE
(4)	STABILIZED CONSTRUCTION ENTRANCE
	INLET PROTECTION
	TEMP. EROSION BLANKET, TYPE C (PER COA STD. 605S)
(2)	ROCK BERM
	40"-TALL GABION WALL FACED W/ FILTER FABRIC
	DIVERSION DIKE
	INSTALL TYPE III BARRICADE (SKID-MOUNTED W/ SAND BAGS) FULL WIDTH OF STREET
(3)	TREES TO BE PROTECTED AND SAVED; INSTALL FENCE
	TREES TO BE REMOVED
FFE	FINISHED FLOOR ELEVATION
GFE	GARAGE FLOOR ELEVATION
WA	WASHOUT AREA
	TEMPORARY SPOILS & CONSTRUCTION STAGING AREA
(5)	TEMPORARY SEDIMENT BASIN W/ PIPE OUTLET AND SKIMMER (SEE DETAIL)

EROSION CONTROL LEGEND

1	INSTALL SILT FENCE PER CITY OF AUSTIN STANDARD DETAIL 642S-1.
2	INSTALL ROCK BERM. SEE CITY OF AUSTIN DETAIL 6395-1
3	INSTALL TREE PROTECTION PER CITY OF AUSTIN STANDARD DETAILS 610S-1, -2, & -4.
4	INSTALL STABILIZED CONSTRUCTION ENTRANCE PER CITY OF AUSTIN STANDARD DETAIL 641S-1.
5	INSTALL DEWATERING SKIMMER AND TEMP. SEDIMENT BASIN W/ 40" TALL GABION (RBFF) (SEE DETAIL ON SHEET 33)

NOTES

- THIS TRACT IS WITHIN THE CONTRIBUTING ZONE OF THE EDWARD AQUIFER RECHARGE ZONE.
- THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD/MODIFY EROSION/SEDIMENTATION CONTROL ON SITE TO KEEP THIS PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN'S RULES & REGULATIONS.
- ALL OTHER REMAINING TREES, WITHIN THE LIMIT OF CONSTRUCTION WORK, NOT SHOWN TO BE REMOVED OR PROTECTED USING PROTECTIVE FENCES, SHALL REMAIN AS IS.
- CONTRACTOR MAY RELOCATE THE SPOILS & STAGING AS NEEDED BUT SHALL INSTALL SILT FENCE ON THE DOWN GRADIENT SIDE.
- TEMPORARY EROSION & SEDIMENTATION CONTROLS ARE TO REMAIN UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- ONCE THE SITE WORK (GRADING, DRAINAGE, PAVING, UTILITY & WQ) IS COMPLETED, ALL DISTURBED AREAS SHALL BE HYDROMULCHED OR SODDED.
- TEMPORARY VEGETATION SHALL BE IN PLACE UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- CONTRACTOR SHALL BE RESPONSIBLE TO INSPECT TEMPORARY ESC INSTALLED REGULARLY AND ADJUST, REPAIR OR REPLACE THEM AS NECESSARY.
- SEE SHEET 7 FOR TREE LIST
- 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. [ECM 1.4.4.B.3, SECTIONS, I.]
- CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR A DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- THE CONTRACTOR WILL CLEAN UP SOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. [ECM 1.4.4.D.4]
- CONTRACTOR SHALL COORDINATE WITH COA EV INSPECTOR PRIOR TO RELOCATION SPOILS AND STAGING AREA.
- ALL ACTIVITIES WITHIN THE CRITICAL ENVIRONMENTAL FEATURE AND ASSOCIATED SETBACK MUST COMPLY WITH THE CITY OF AUSTIN LAND DEVELOPMENT CODE. THE NATURAL VEGETATIVE COVER MUST BE RETAINED TO THE MAXIMUM EXTENT PRACTICABLE; CONSTRUCTION IS PROHIBITED; AND WASTEWATER DISPOSAL OR IRRIGATION IS PROHIBITED.

LIMIT OF CONSTRUCTION = 18.87 ACRES

SWPPP IMPLANTATION SEQUENCE

DENOTE ON SITE MAP THE IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AS THEY OCCUR OR INSTALLED: CONSTRUCTION TRAILER, LAYDOWN AREA, PORTA POTTY, CONCRETE WASHOUT PIT AND STOCKPILE AREAS.

NOTE: DOWNSLOPE PROTECTION MEASURES MUST ALWAYS BE IN PLACE BEFORE EXISTING SOILS ARE DISTURBED.

1. INSTALL SWPPP INFORMATION SIGN AND POST REQUIRED DOCUMENTS NEAR THE CONSTRUCTION EXIT/ENTRANCE.
2. STAKE/ FLAG THE LOC.
3. INSTALL PERIMETER SEDIMENT CONTROL BMPS IN THE VICINITY OF AND DOWN RADIANT FROM, THE LOCATION OF THE PLANNED CONSTRUCTION EXIT, CONSTRUCTION TRAILER TEMPORARY PARKING AND STORAGE. CLEAR ONLY THE MINIMAL AREA ACTUALLY NECESSARY TO INSTALL THESE PERIMETER CONTROLS.
4. INSTALL STABILIZED CONSTRUCTION EXIT.
5. INSTALL REMAINING PERIMETER CONTROL BMPS AND TREE PROTECTION FENCE AS SHOWN ON THE SITE MAP. CLEAR ONLY THE MINIMAL AREA NECESSARY TO INSTALL THE PERIMETER CONTROLS AND TREE PROTECTION FENCE.
6. INSTALL TEMPORARY SEDIMENTATION BASINS, DIVERSION BERMS, ROCK BERMS, SILT FENCE AND ALL OTHER BMPS SHOWN ON EROSION CONTROL PLAN.
7. AFTER THE TEMPORARY SEDIMENTATION BASINS WITH THE 40" TALL GABIONS FACED WITH FILTER FABRIC, OUTLET PIPE, SKIMMERS AND DIVERSION BERMS ARE INSTALLED AND STABILIZED. THE CONTRACTOR MAY CONTINUE CLEARING AND GRUBBING THE PERMANENT PONDS, BUILDING AREAS AND PAVEMENT AREAS.
8. BEGIN GRADING OF THE SITE AND START CONSTRUCTION OF THE PERMANENT PONDS, BUILDING AREAS AND PAVEMENT AREAS.
9. TEMPORARILY STABILIZE, THROUGHOUT THE CONSTRUCTION AND IMMEDIATELY FOLLOWING THE COMPLETION OF THE MOST RECENT LAND DISTURBING/GRADING ACTIVITIES, ALL DISTURBED AREAS, INCLUDING MATERIAL STOCKPILES THAT ARE SCHEDULED OR LIKELY TO REMAIN INACTIVE FOR MORE THAN 14 DAYS OR MORE.
10. IMMEDIATELY PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO GRADE.
11. INSTALL UTILITIES, UNDER DRAINS, STORM SEWER, CURB AND GUTTERS.
12. INSTALL RIPRAP/REVETMENT MATS AROUND OUTLET STRUCTURES AS EACH OUTLET STRUCTURE AS INSTALLED.
13. INSTALL IN THE PROTECTION AT ALL STORM SEWER STRUCTURES AS EACH INLET STRUCTURE IS INSTALLED.
14. PREPARE SITE FOR PAVING.
15. PAVE SITE.
16. INSTALL APPROPRIATE INLET PROTECTION DEVICES FOR PAVED AREAS AS WORK PROGRESSES, PER BMP DETAILS.
17. COMPLETE GRADING AND INSTALLATION PERMANENT STABILIZATION OVERALL AREAS, EASEMENTS AND PONDS.
18. THE SITE SHALL BE FULLY STABILIZED AND ALL CONSTRUCTION ACTIVITIES SHALL HAVE BEEN COMPLETED THEN:
    A. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL BMPS.
    B. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL OF THE TEMPORARY BMPS AND APPLY FOR TERMINATION OF PERMIT.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
EROSION SEDIMENTATION CONTROL & TREE PROTECTION PLAN
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
C1	[illegible]	DSM	12/21/2022
C2	[illegible]	DSM	04/04/2023
C3	[illegible]	DSM	09/14/2023
C4	[illegible]	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ESC

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

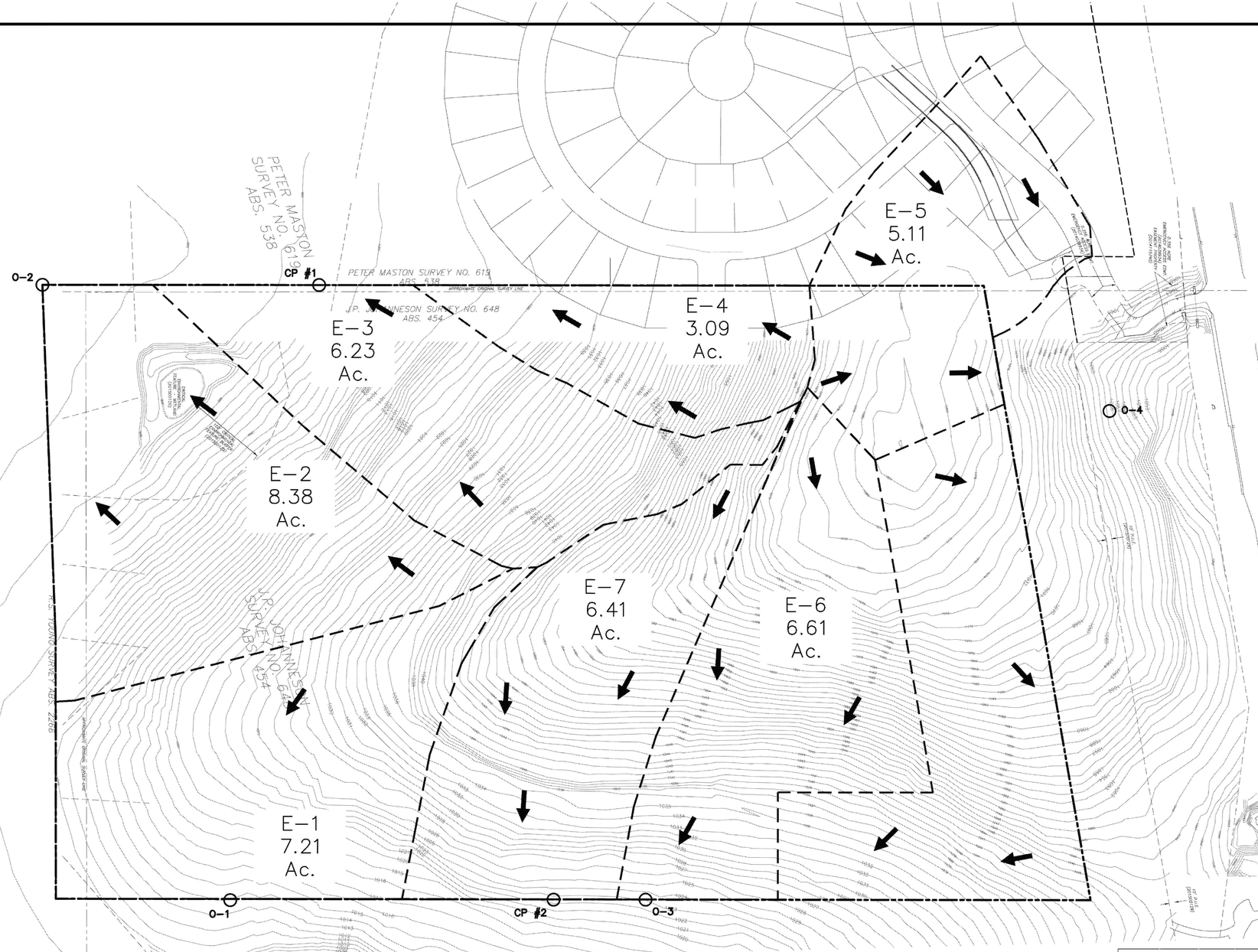
JOB NUMBER: A379-0401

ESC

SHEET NO. 9 (C2)
OF 66 (C4) SHEETS

(C4) (C3) (C2) (C1) REPLACEMENT SHEET

SP-2018-0138D



NOTE:

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C1

GRANADA RIDGE GLOBAL DRAINAGE SUMMARY
EXISTING CONDITIONS

Time of Concentration Calculations
GRANADA RIDGE

COA 2yr. Rainfall, (in.) 4.14 C1

EXISTING TIME OF CONCENTRATION

	Sheet Flow				Shallow Concentrated Flow (Unpaved)				Channel Flow								
DRAINAGE AREA (DA)	n	S	L	T_{t1}	S	L	V	T_{t2}	n	S	L	A	P	R_h	V	T_{t3}	T_{c} min.
E-1	0.2	0.06	100	6.99	0.06	787	3.95	3.32	-	-	-	-	-	-	-	0.00	10.31
E-2	0.2	0.08	100	6.23	0.08	779	4.56	2.85	-	-	-	-	-	-	-	0.00	9.08
E-3	0.2	0.074	100	6.43	0.074	761	4.39	2.89	-	-	-	-	-	-	-	0.00	9.31
E-4	0.2	0.088	100	5.99	0.088	330	4.79	1.15	-	-	-	-	-	-	-	0.00	7.14
E-5	0.2	0.053	100	7.34	0.053	260	3.71	1.17	-	-	-	-	-	-	-	0.00	8.51
E-6	0.2	0.064	100	6.81	0.064	854	4.08	3.49	-	-	-	-	-	-	-	0.00	10.30
E-7	0.2	0.064	100	6.81	0.064	841	4.08	3.43	-	-	-	-	-	-	-	0.00	10.24

C1

Drainage Calculations
GRANADA RIDGE

C1

Existing Conditions

				Flows (cfs.)			
Drainage Area	Area (Ac.)	CN	Tc (min.)	2 yr.	10 yr.	25 yr.	100 yr.
E-1	7.21	79.0	10.3	22.2	39.5	51.4	71.0
E-2	8.38	79.0	9.1	26.9	48.2	63.0	87.4
E-3	6.23	79.0	9.3	19.6	35.3	46.1	64.0
E-4	3.09	79.0	7.1	10.6	18.9	24.6	34.0
E-5	5.11	80.0	8.5	17.2	30.6	39.7	54.8
E-6	6.61	79.0	10.3	20.2	36.0	46.9	64.7
E-7	6.41	79.0	10.2	19.6	35.0	45.5	63.0

GENERATED FROM HEC-HMS MODEL FOR DETENTION ANALYSIS C1

Point of Confluence
GRANADA RIDGE

Existing Conditions

	2 yr.	10 yr.	25 yr.	100 yr.
Point of Confluence				
CP #1 (E-3, E-4)	30.2	54.2	70.7	98.0
CP#2 (E-7)	19.6	35.0	45.5	63.0
O-1 (E-1)	22.2	39.5	51.4	71.0
O-2 (E-2)	26.8	48.2	63.0	87.4
O-3 (E-6)	20.2	36.0	46.9	64.7
O-4 (E-5)	17.2	30.6	39.7	54.8

C1

GRANADA RIDGE DEVELOPMENT
Existing "Tc" Value Calculations

		Sheet Flow				Shallow Flow				Channel Flow			Total	Total Allowed
Drainage Area	Area (Ac.)	Length ft	Slope ft/ft	n	Tt min	Length ft	Slope ft/ft	V ft/sec	Tt min	Length ft	Tt min		Tc min	Tc min C1
E-1	7.21 Ac.	100	0.060	0.2	6.99 min	787	0.060	4.0	3.32	0	0.00		10.31	10.3 min
E-2	8.38 Ac.	100	0.080	0.2	6.23 min	779	0.080	4.6	2.85	0	0.00		9.08	9.1 min
E-3	6.23 Ac.	100	0.074	0.2	6.43 min	761	0.074	4.4	2.89	0	0.00		9.31	9.3 min
E-4	3.09 Ac.	100	0.088	0.2	5.99 min	330	0.088	4.8	1.15	0	0.00		7.14	7.1 min
E-5	5.11 Ac.	100	0.053	0.2	7.34 min	260	0.053	3.7	1.17	0	0.00		8.51	8.5 min
E-6	6.61 Ac.	100	0.064	0.2	6.81 min	854	0.064	4.1	3.49	0	0.00		10.30	10.3 min
E-7	6.41 Ac.	100	0.064	0.2	6.81 min	841	0.064	4.1	3.43	0	0.00		10.24	10.2 min

C1

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C1 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
EXISTING DRAINAGE MAP
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
1	UPDATE EXISTING FLOWS BASED ON ATLAS 14 AND UPDATE TO LAR TITLE BLOCK	DSM	12/21/2022

JOB NUMBER: A379-0401
DATE: 12/21/2022
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: EXISTING DRAINAGE MAP

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER

FOR C1 ONLY 12/22/2022

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

DM01

SHEET NO. 10 OF 53 SHEETS

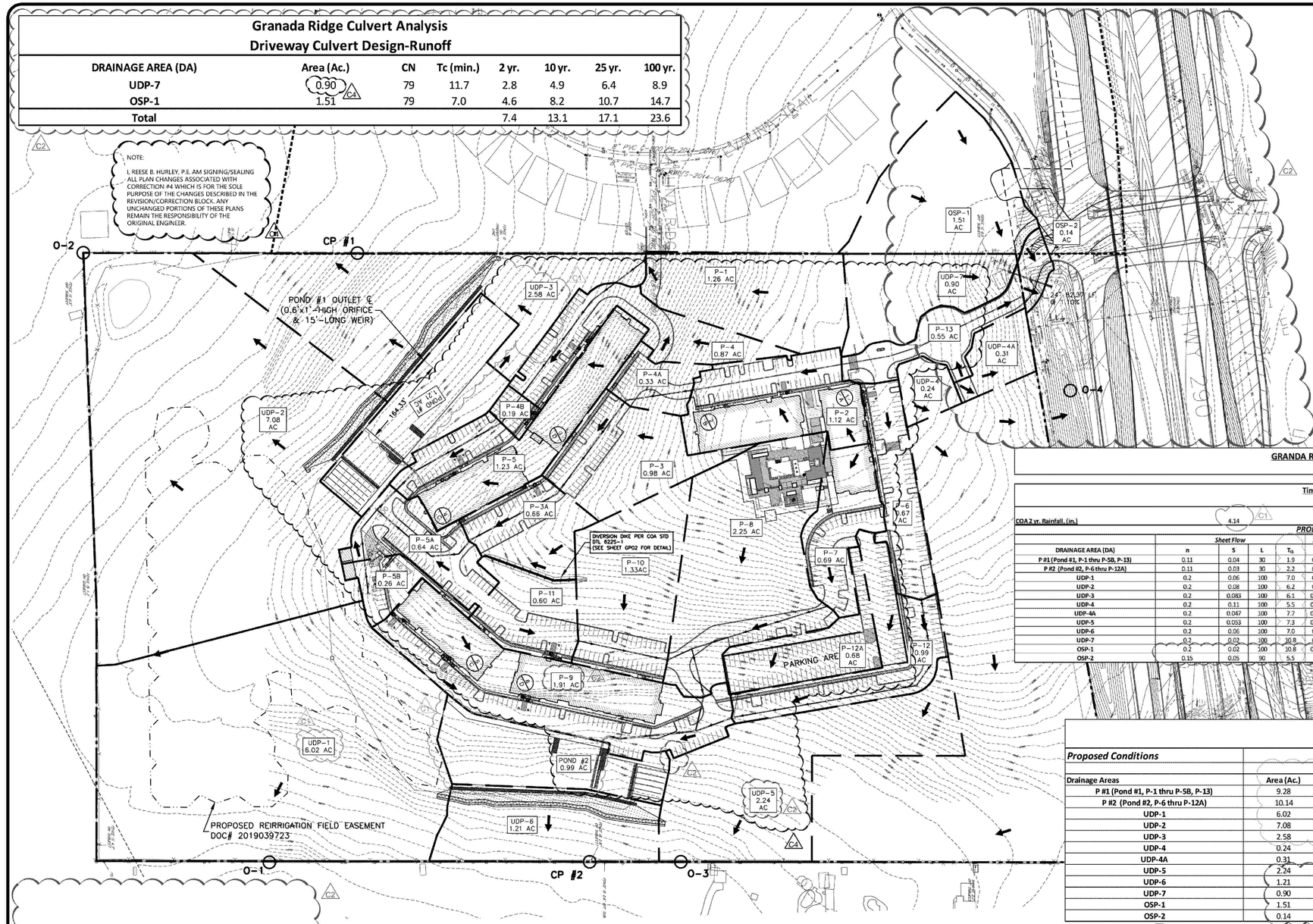
J:\A379\0401 - Granada Ridge\Correction 1\Replacement Sheet\dwg\A379-001-CD-ShAvwg
User: dmurray
Last Modified: Dec. 21, 22 - 18:49
Plot Date/Time: Dec. 21, 22 - 18:50

Granada Ridge Culvert Analysis
Driveway Culvert Design-Runoff

DRAINAGE AREA (DA)	Area (Ac.)	CN	Tc (min.)	2 yr.	10 yr.	25 yr.	100 yr.
UDP-7	0.90	79	11.7	2.8	4.9	6.4	8.9
OSP-1	1.51	79	7.0	4.6	8.2	10.7	14.7
Total				7.4	13.1	17.1	23.6

NOTE:

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.



NOTES:

1. ALL FLOWS FROM THE ROOFTOP MUST BE CONVEYED TO THE PARKING AREAS AND STORM CONVEYANCE SYSTEM.
2. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS, AND PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE DEVELOPMENT SERVICES DEPARTMENT, THE DESIGN ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DETENTION AND FILTRATION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS.
3. CONTRACTOR SHALL CALL ONE CALL CENTER (1800-344-8377) FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET ROW.
4. NO 100-YEAR FLOODPLAIN EXISTS WITHIN THE LIMITS OF THE PROPOSED DEVELOPMENT.
5. TURN ENDS OF EARTHEN LEVEL SPREADER UPSLOPE FOR A DISTANCE OF 1.5' (OR +0.5' GROUND ELEVATION) TO PREVENT WATER FROM FLOWING AROUND ENDS OF LEVEL SPREADER.

TXDOT NOTE:

DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCATION, OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

50 0 25 50 100
IN FEET
GRAPHIC SCALE 1"=100'

LEGEND

- PROPERTY LINE
- 872 EXISTING CONTOURS
- 872 PROPOSED CONTOURS
- DRAINAGE AREA
- DIRECTION OF FLOW
- OVERLAND FLOW DIRECTION
- ACREAGE: P-1 / 1.25 AC — DRAINAGE AREA I.D. P= PROPOSED UDP= UNDEVELOPED OSP= OFF SITE

Point of Confluence
GRANADA RIDGE
Proposed Conditions

Point of Confluence	2 yr.	10 yr.	25 yr.	100 yr.
CP #1 (P #1, UDP-3)	20.9	30.8	39.9	91.8
CP#2 (P #2, UDP-6)	19.4	30.7	38.7	62.6
O-1 (UDP-1)	19.6	35.3	46.1	63.9
O-2 (UDP-2)	23.9	42.9	56.0	77.5
O-3 (UDP-5)	7.4	13.3	17.4	24.0
O-4 (UDP-4, UDP-4A, UDP-7, OSP-1, OSP-2)	9.5	16.8	22.0	30.4

GRANADA RIDGE GLOBAL DRAINAGE SUMMARY
PROPOSED CONDITIONS

Time of Concentration Calculations
GRANADA RIDGE

COA 2 yr. Bainfall, (in.) 4.14

PROPOSED TIME OF CONCENTRATION

	Sheet Flow				Shallow Concentrated Flow (Paved)				Channel Flow								
DRAINAGE AREA (DA)	n	S	L	T_{t1}	S	L	V	T_{t2}	n	S	L	A	P	R_h	V	T_{t3}*	T_c, min.
P #1 (Pond #1, P-1 thru P-5B, P-13)	0.11	0.04	30	1.9	0.04	20	4.07	0.08	-	-	-	-	-	-	-	-	5.0
P #2 (Pond #2, P-6 thru P-12A)	0.11	0.03	30	2.2	0.04	20	4.07	0.08	-	-	-	-	-	-	-	-	5.0
UDP-1	0.2	0.06	100	7.0	0.06	376	3.95	1.59	-	-	-	-	-	-	-	-	8.6
UDP-2	0.2	0.08	100	6.2	0.08	400	4.56	1.46	-	-	-	-	-	-	-	-	7.7
UDP-3	0.2	0.083	100	6.1	0.083	201	4.65	0.72	-	-	-	-	-	-	-	-	6.9
UDP-4	0.2	0.11	100	5.5	0.093	193	4.92	0.65	-	-	-	-	-	-	-	-	6.1
UDP-4A	0.2	0.047	100	7.7	0.055	72	3.78	0.32	-	-	-	-	-	-	-	-	8.0
UDP-5	0.2	0.053	100	7.3	0.053	205	3.71	0.92	-	-	-	-	-	-	-	-	8.3
UDP-6	0.2	0.06	100	7.0	0.03	29	2.79	0.17	-	-	-	-	-	-	-	-	7.2
UDP-7	0.2	0.02	100	10.8	0.06	211	3.95	0.89	-	-	-	-	-	-	-	-	11.7
OSP-1	0.2	0.02	100	10.8	0.064	40	4.08	0.16	-	-	-	-	-	-	-	-	11.0
OSP-2	0.15	0.05	90	5.5					-	-	-	-	-	-	-	-	5.5

Drainage Calculations
GRANADA RIDGE

Proposed Conditions

				Undetained Flows, cfs				Detained Flows, cfs.			
Drainage Areas	Area (Ac.)	CN	Tc (min.)	2 yr.	10 yr.	25 yr.	100 yr.	2 yr.	10 yr.	25 yr.	100 yr.
P #1 (Pond #1, P-1 thru P-5B, P-13)	9.28	88.0	5.0	41.0	68.0	85.9	115.0	13.4	16.6	29.9	68.7
P #2 (Pond #2, P-6 thru P-12A)	10.14	88.0	5.0	44.8	74.3	93.8	125.6	16.4	26.6	32.7	55.3
UDP-1	6.02	79.0	8.6	19.6	35.3	46.1	63.9				
UDP-2	7.08	79.0	7.7	23.9	42.9	56.0	77.5				
UDP-3	2.58	79.0	6.9	8.9	15.9	20.8	28.7				
UDP-4	0.24	79.0	6.1	0.8	1.5	1.9	2.7				
UDP-4A	0.31	79.0	8.0	1.0	1.9	2.4	3.4				
UDP-5	2.24	79.0	8.3	7.4	13.3	17.4	24.0				
UDP-6	1.21	79.0	7.2	4.2	7.4	9.7	13.4				
UDP-7	0.90	79.0	11.7	2.8	4.9	6.4	8.9				
OSP-1	1.51	79.0	11.0	4.6	8.2	10.7	14.7				
OSP-2	0.14	93.3	5.5	0.7	1.1	1.3	1.7				

No Detention

GENERATED FROM HEC-HMS MODEL FOR DETENTION ANALYSIS

GRANADA RIDGE DEVELOPMENT
"C" Value Calculations
Proposed Runoff Calculations using Rational Method

D.A. Number	Drainage Area (SF)	Drainage Area (Ac)	Impervious Area (SF)	Impervious Area (Ac)	C 2-Year	C 10-Year	C 25-Year	C 100-Year
P-1	54,868	1.26	2598	0.06	0.39	0.44	0.48	0.55
P-2	48,871	1.12	48579	1.12	0.73	0.81	0.86	0.95
P-3	42,492	0.98	14099	0.32	0.49	0.55	0.59	0.67
P-3A	28,918	0.66	12788	0.29	0.53	0.59	0.64	0.72
P-4	37,947	0.87	20470	0.47	0.56	0.63	0.68	0.76
P-4A	14,292	0.33	6664	0.15	0.54	0.60	0.65	0.73
P-4B	8,102	0.19	5764	0.13	0.63	0.70	0.74	0.83
P-5	53,544	1.23	31124	0.71	0.58	0.65	0.69	0.77
P-5A	28,043	0.64	19628	0.45	0.62	0.69	0.74	0.82
P-5B	11,142	0.26	7645	0.18	0.62	0.69	0.73	0.82
P-6	29,395	0.67	21546	0.49	0.63	0.71	0.75	0.84
P-7	30,052	0.69	8710	0.20	0.47	0.53	0.58	0.65
P-8	98,030	2.25	32279	0.74	0.49	0.55	0.59	0.67
P-9	83,167	1.91	89183	1.59	0.67	0.74	0.79	0.88
P-10	58,011	1.33	9680	0.22	0.43	0.49	0.53	0.60
P-11	26,151	0.60	9933	0.23	0.51	0.57	0.61	0.69
P-12	42,988	0.99	37840	0.87	0.69	0.76	0.81	0.90
P-12A	29,742	0.68	26966	0.60	0.68	0.76	0.81	0.90
P-13	23,807	0.55	20265	0.47	0.68	0.75	0.80	0.89

GRANADA RIDGE DEVELOPMENT
Proposed "Tc" Value Calculations

Drainage Area	Area (Ac.)	Sheet Flow: Length ft	Slope ft/ft	n	Tt min	Shallow Flow: Length ft	Slope ft/ft	V ft/sec	Tt min	Channel Flow: Length ft	V ft/s	A ft²	Pw ft	R ft	N	Slope ft/ft	Tt min	Total Tc min	Total Allowed Tc min
P-1	1.26 Ac.	100	0.030	0.14	7.78 min	277	0.114	5.4	0.85	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	8.61	8.6 min
P-2	1.12 Ac.	61	0.012	0.02	1.28 min	345	0.030	2.8	2.06	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.34	5.0 min
P-3	0.98 Ac.	100	0.04	0.11	5.69 min	218	0.040	3.2	1.13	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	6.82	6.8 min
P-3A	0.66 Ac.	100	0.04	0.09	4.90 min	132	0.040	3.2	0.68	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	5.58	5.6 min
P-4	0.87 Ac.	100	0.05	0.08	3.74 min	368	0.065	4.1	1.50	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	5.24	5.2 min
P-4A	0.33 Ac.	100	0.10	0.09	3.21 min	108	0.065	4.1	0.44	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.65	5.0 min
P-4B	0.19 Ac.	75	0.02	0.05	3.31 min	0	0.065	4.1	0.00	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.31	5.0 min
P-5	1.23 Ac.	80	0.05	0.07	3.03 min	447	0.021	2.3	3.21	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	6.24	6.2 min
P-5A	0.64 Ac.	100	0.04	0.06	3.23 min	156	0.060	4.0	0.66	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.89	5.0 min
P-5B	0.26 Ac.	100	0.04	0.06	3.32 min	14	0.060	4.0	0.06	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.38	5.0 min
P-6	0.67 Ac.	100	0.05	0.05	2.77 min	308	0.033	2.9	1.74	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	4.51	5.0 min
P-7	0.69 Ac.	100	0.07	0.11	4.50 min	244	0.072	4.3	0.94	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	5.44	5.4 min
P-8	2.25 Ac.	100	0.02	0.11	7.13 min	461	0.083	4.7	1.65	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	8.79	8.8 min
P-9	1.91 Ac.	43	0.05	0.04	1.07 min	537	0.010	1.6	5.63	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	6.70	6.7 min
P-10	1.33 Ac.	100	0.06	0.13	5.35 min	295	0.068	4.2	1.17	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	6.52	6.5 min
P-11	0.60 Ac.	100	0.05	0.10	4.78 min	285	0.025	2.5	1.88	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	6.66	6.7 min
P-12	0.99 Ac.	100	0.05	0.03	1.86 min	412	0.052	3.7	1.87	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.73	5.0 min
P-12A	0.68 Ac.	100	0.05	0.03	1.91 min	348	0.052	3.7	1.57	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.48	5.0 min
P-13	0.55 Ac.	100	0.04	0.04	2.24 min	175	0.040	3.2	0.90	0	4.56	1.8	4.7	0.4	0.01	0.005	0.00	3.14	5.0 min

NOTE:

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

CITY OF AUSTIN APPROVED Date 01/02/2025 FOUNDED 1839

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C4 C2 C1 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
DEVELOPED
DRAINAGE MAP
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	UPDATED DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.	DSM	12/17/2024
2	UPDATED DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.	DSM	04/15/2023
3	UPDATED DRAINAGE AREA MAP CALCULATIONS FOR EXISTING DRAINAGE AREA ADD	DSM	04/17/2024
4			

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: DEVELOPED DRAINAGE MAP

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

DM02

SHEET NO. 11 OF 66 SHEETS

C4

GRANADA RIDGE SITE PLAN
POND #1 TABLES

GRANADA RIDGE POND #1 Detention Pond Staging

Elev., ft.	Area, (Acre)
1028	0.00
1029	0.09
1030	0.35
1031	0.58
1032	0.68
1033	0.68
1034	0.68

GRANADA RIDGE POND #1 Detention Pond Storage-Discharge

Storm	Elev., ft.	Storage, Acre-FT	Discharge, cfs
2 yr.	1030.7	0.60	13.4
10 yr.	1031.8	1.20	16.6
25 yr.	1032.3	1.50	29.9
100 yr.	1032.9	1.90	68.7

GRANADA RIDGE Outlet Rating POND #1

Stage/Elev., ft.	1 - 1.0' Circular Opening @ 1029.00 Q (cfs)	25.00' Weir @ 1032.00 Q (cfs)	222.00' Weir @ 1032.42 Q (cfs)	Total Flows (cfs)
1028	0.00	0	0	0.00
1029	6.95	0	0	6.95
1030	9.68	0	0	9.68
1031	11.96	0	0	11.96
1032	13.69	0	0	13.69
1033	15.31	75	0	90.31
1034	16.77	212.13	294.18	523.08

GRANADA RIDGE SITE PLAN
POND #2 TABLES

GRANADA RIDGE POND #2 Detention Pond Staging

Elev., ft.	Area, (Acre)
1025	0
1026	0.09
1027	0.36
1028	0.61
1029	0.68
1030	0.68
1031	0.68

GRANADA RIDGE POND #2 Detention Pond Storage-Discharge

Storm	Elev., ft.	Storage, Acre-FT	Discharge, cfs
2 yr.	1027.7	0.60	16.4
10 yr.	1028.6	1.10	26.6
25 yr.	1029.2	1.50	32.7
100 yr.	1030.0	2.10	55.3

GRANADA RIDGE Outlet Rating POND #2

Elev., ft.	1 - 1.0' Circular Opening @ 1025.00 Q (cfs)	3 - 1' Circular Opening @ 1027.00 Q (cfs)	32.00' Weir @ 1029.75 Q (cfs)	247.00' Weir @ 1030.50 Q (cfs)	Total Flow (cfs.)
1025	0.00	0.00	0	0	0.00
1026	9.66	6.72	0	0	16.38
1027	12.25	11.35	0	0	23.60
1028	15.01	13.89	0	0	28.90
1029	17.33	16.04	0	0	33.37
1030	19.37	17.94	12.00	0	49.31
1031	21.22	19.65	134.56	261.96	437.03

GRANADA RIDGE - WATER QUALITY POND #1 (LJA)
Stage-Storage Table

Stage (ft msl)	Area (sf)	Area (acres)	Storage Incremental (cf)	Storage Cummulat(wsef)	Storage Cummulat(wsac-ft)
1033.68	5,645	0.125	0.00	0.00	0.000
1032	7,570	0.169	2,243.61	2,243.61	0.052
1033	11,303	0.259	9,339.45	11,583.06	0.266
1034	11,343	0.260	11,322.89	22,905.95	0.526
1035	11,381	0.261	11,361.73	34,267.68	0.787
1035.68	11,408	0.262	7,405.85	41,673.53	0.957
1036	11,450	0.262	5,994.52	45,668.05	1.048
1037	11,498	0.263	11,439.85	57,106.88	1.311
1038	11,497	0.264	11,477.42	68,584.29	1.574

GRANADA RIDGE - WATER QUALITY POND #2 (LJA)
Stage-Storage Table

Stage (ft msl)	Area (sf)	Area (acres)	Storage Incremental (cf)	Storage Cummulat(wsef)	Storage Cummulat(wsac-ft)
1026.6	3,996	0.092	0.00	0.00	0.000
1027	5,534	0.127	1,906.04	1,906.04	0.044
1028	8,255	0.190	6,894.59	8,800.63	0.202
1029	8,306	0.191	8,280.35	17,080.98	0.392
1030	8,355	0.192	8,330.62	25,411.59	0.583
1031	8,406	0.193	8,380.44	33,792.03	0.776
1032	8,456	0.194	8,430.81	42,222.84	0.969
1033	8,507	0.195	8,481.23	50,703.87	1.164

COA APPENDIX R-5
RETENTION/IRRIGATION POND #1 CALCULATIONS FOR DEVELOPMENT PERMITS

DRAINAGE AREA DATA

Drainage Area to Control	7.83 ac.
Drainage Area Impervious Cover	55.44 %
Capture Depth (0.5"*((IC-20)/100))	1.40 in.

WATER QUALITY CONTROL CALCULATIONS	Required	Provided
The Water Quality Control is to be **Retention Irrigation**		
25-year Peak Flow Rate to Control (Q25)	73.1 cfs	
100-year Peak Flow Rate to Control (Q100)	97.5 cfs	
Water Quality Volume (WQV= CD*DA*3630)	39,792 cf.	41,674 cf.
Rentention Pond Volume	min. WQV cf.	132,585 cf.
Water Quality Elevation	1035.49 ft. msl	1035.65 ft. msl
Elevation of Splitter/Overflow Weir	min. WQ elev. ft. msl	1035.65 ft. msl
Length of Splitter Weir		50.0 ft.
Required Head to Pass Q100 (H = (Q_{100}/(3 x L))^2/3)	maximum 1.0 ft.	0.70 ft.
Pond Freeboard Provided to Pass Q_{100}	minimum 0.25 ft.	2.65 ft.

COA APPENDIX R-5
RETENTION/IRRIGATION POND #2 CALCULATIONS FOR DEVELOPMENT PERMITS

DRAINAGE AREA DATA

Drainage Area to Control	9.11 ac.
Drainage Area Impervious Cover	54.47 %
Capture Depth (0.5"*((IC-20)/100))	1.52 in.

WATER QUALITY CONTROL CALCULATIONS	Required	Provided
The Water Quality Control is to be **Retention Irrigation**		
25-year Peak Flow Rate to Control (Q25)	93.8 cfs	
100-year Peak Flow Rate to Control (Q100)	125.6 cfs	
Water Quality Volume (WQV= CD*DA*3630)	50,265 cf.	50,704 cf.
Retention Pond Volume	min. WQV cf.	135,836 cf.
Water Quality Elevation	1032.95 ft. msl	1033.00 ft. msl
Elevation of Splitter/Overflow Weir	min. WQ elev. ft. msl	1033.00 ft. msl
Length of Splitter Weir		60.0 ft.
Required Head to Pass Q100 (H = (Q_{100}/(3 x L))^2/3)	maximum 1.0 ft.	0.74 ft.
Pond Freeboard Provided to Pass Q_{100}	minimum 0.25 ft.	0.26 ft.

IRRIGATION AREA CALCULATIONS
(ACCOUNTS FOR TOTAL PROVIDED WQV)

Soil Permeability	minimum 0.03 in/hr	0.2	in/hr
Pond Drawdown	maximum 72 hrs.	60	hrs
Irrigation Rate		0.2	in/hr
Irrigation Area		4.92	ac

Point of Confluence Summary
GRANADA RIDGE

	2 yr.		10 yr.		25 yr.		100 yr.	
Point of Confluence	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
CP #1	30.20	20.70	54.20	30.40	70.70	39.60	98.00	91.20
CP#2	19.60	19.40	35.00	30.70	45.50	38.70	63.00	62.60
O-1	22.20	19.60	39.50	35.30	51.40	46.10	71.00	63.90
O-2	26.80	24.00	48.20	43.10	63.00	56.20	87.40	77.80
O-3	20.20	7.40	36.00	13.30	46.90	17.40	64.70	24.20
O-4	17.20	9.50	30.60	16.80	39.70	22.00	54.80	30.40

* The stormwater flow off the site has not been increased from the existing condition.

Granada Ridge Development
Dam Safety Calculations
Maximum Water Surface Elevations in Spillway (ft., msl.)

	1 Hr. PMP	2 Hr. PMP	3 Hr. PMP	6 Hr. PMP	12 Hr. PMP	24 Hr. PMP	48 Hr. PMP	72 Hr. PMP
Detention Pond #1	1033.3	1033.4	1033.3	1033	1032.8	1032.7	1032.3	1032.2
Detention Pond #2	1030.6	1030.6	1030.6	1030.5	1030.1	1030	1029.4	1028
Water Quality Pond #1	1038.7	1038.8	1038.7	1038.6	1038.5	1038.4	1038.3	1038.2
Water Quality Pond #2	1033.7	1033.8	1033.7	1033.6	1033.5	1033.4	1033.3	1033.2

Granada Ridge Development
Dam Safety Calculations
Flow Into Ponds (cfs)

	1 Hr. PMP	2 Hr. PMP	3 Hr. PMP	6 Hr. PMP	12 Hr. PMP	24 Hr. PMP	48 Hr. PMP	72 Hr. PMP
Water Quality Pond #1	93.8	105.2	95	70.7	50.5	44.9	19.9	13.1
Water Quality Pond #2	109.1	122.4	110.5	82.3	58.8	52.3	23.1	15.3

*Probable Maximum Precipitations were acquired from Table 2-8 in Section. 2.6.1 of the City of Austin Drainage Criteria Manual.
**Probable Maximum Flood temporal distributions were obtained from Figure 2-4, Appendix D of the City of Austin Drainage Criteria Manual.

SLAT — STORMWATER LOAD ANALYSIS TOOL 2.1

Quick Guide

1. Enable Macros in the worksheet.
2. Click "Restore Defaults" button to the right.
3. Fill all **yellow cells** with project specifics, moving from top to bottom.
4. Click "View Full Results" button.
5. Project Passes if Green "COMPLIANT" button appears.

Find the **Full User Manual** at austintexas.gov/department/stormwater-management

Questions? Email SLAT@austintexas.gov

Click Here To **Restore Defaults** For a New Analysis

Click Here To **View Results**

KEY: Required User Input | **Key User Input** | Internal Calculation | Error | **Calculator Output** | Does Not Apply

Step 1: Input site characteristics in yellow highlighted cells

Granada Ridge Development	Reese Hurley	8/12/2023	SLAT 2.1 - 08/2022

	Drainage Area A	Drainage Area B
Is your site within the Barton Springs Zone (BSZ)?	Yes	
How many drainage areas, n_{max}, does your site have?	2	
Drainage area to the control, A_n (acres)	7.83	9.11
Base impervious cover of the drainage area, IC_B (%)	0.0	0.0
Developed impervious cover of the drainage area, IC_D (%)	55.4	54.5

Step 2: Input SCM characteristics in yellow highlighted cells

	Drainage Area A	Drainage Area B
SCM 1 (First in Series)	SCM A1	SCM B1
SCM Type	Retention Basin	Retention Basin
Is SCM 1 **off-line**?	Yes (Off-Line)	Yes (Off-Line)
What is the Water Quality Volume, *WQV* (inches) [aka Capture Depth]	1.4	1.52
Minimum water quality volume allowed (in)	0.85	0.85
SCM 1 Actual Volume (ft^3)	39792	50265
Do you know the **drawdown time** or the **flow rate**?	Drawdown Time	Drawdown Time
Drawdown Time, *DDT* (hrs) [tot. time to empty full SCM	60	60
Flow Rate (gpm) [use only for "alternative" controls]		
Treatment Rate, Ω (in/hr)	0.023	0.025
Do you already know the **runoff capture efficiency**?	No	No
User Entered Runoff Capture Efficiency, RCE (%)		
Runoff Capture Efficiency, RCE (%)	95.2%	95.8%
Conveyance		
How is effluent from SCM 1 discharged?	Pumped	Pumped
Delay after end of rainfall before discharging SCM 1 (hrs)	12	12
SCM 2 (Second in Series)	SCM A2	SCM B2
SCM Type	Infiltration Field	Infiltration Field
Do you know the infiltrated or reused water quantity?	No; infiltrate all routed water	No; infiltrate all routed water
User-entered infilt. water quality volume, WQV_{inf} (in)		
-OR- Percent of yearly runoff infiltrated, RCE_{inf} (%)		
Soil infiltration rate (in/hr)	0.2	0.2
Ratio of drawdown time / irrigation time, for any zone	2	2
Approximate Minimum Field Area (Ac)	1.83	2.31

Step 3: Input Effluent Data for Alternative SCMs

Pollutant	Units		
COD	mg/L		
E. coli	CFU/100mL		
Pb	mg/L		
TN	mg/L		
TP	mg/L		
TSS	mg/L		
Zn	mg/L		

Pollutant	Units		
COD	mg/L		
E. coli	CFU/100mL		
Pb	mg/L		
TN	mg/L		
TP	mg/L		
TSS	mg/L		
Zn	mg/L		

GRANADA RIDGE DETENTION POND #1
100 YR. SPILLWAY DESIGN

Provided Overflow Elevation	=	1033.42
Top of Wall Elevation	=	1034.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	115.0
C = Weir coefficient	3.0
L = Width of weir (feet)	222.0
H = Depth of flow (feet)	0.31
Max. WSE_{100} in Detention Pond =	1033.73

GRANADA RIDGE DETENTION POND #2
100 YR. SPILLWAY DESIGN

Provided Overflow Elevation	=	1030.50
Top of Wall Elevation	=	1031.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	125.6
C = Weir coefficient	3.0
L = Width of weir (feet)	247.0
H = Depth of flow (feet)	0.31
Max. WSE_{100} in Detention Pond =	1030.81

GRANADA RIDGE WATER QUALITY POND #1
OVERFLOW WEIR DESIGN

Provided Overflow Elevation	=	1038.00
Top of Box Elevation	=	1039.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	97.5
C = Weir coefficient	3.0
L = Width of weir (feet)	50.0
H = Depth of flow (feet)	0.75
Max. WSE_{100} in Box =	1038.75

SPLITTER BOX ORIFICE

Q = 25 year developed flow into splitter box (cfs)	73.10
A = Area of Orifice Provided, ft^2	16.00
V = Velocity of the flow exiting splitter box orifice (fps)	4.57

GRANADA RIDGE WATER QUALITY POND #2
OVERFLOW WEIR DESIGN

Provided Overflow Elevation	=	1033.00
Top of Box Elevation	=	1034.00

Using the weir flow equation: Q = C*L*H^(3/2)

Q = 100 year developed flow into splitter box (cfs)	113.5
C = Weir coefficient	3.0
L = Width of weir (feet)	60.0
H = Depth of flow (feet)	0.74
Max. WSE_{100} in Box =	1033.74

SPLITTER BOX ORIFICE

Q = 25 year developed flow into splitter box (cfs)	85.00
A = Area of Orifice Provided, ft^2	16.00
V = Velocity of the flow exiting splitter box orifice (fps)	5.31

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

TXDOT NOTE:
DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
DRAINAGE & WATER QUALITY CALCULATIONS
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER C1 COMMENTS DATED 12/27/2022	DSM	12/27/2022
2	UPDATE BOX CULVERT AND DRAINAGE AREA MAP	DSM	04/04/2023
3	REVISE BOX CULVERT AND DRAINAGE AREA MAP PER C1 COMMENTS DATED 04/14/2023	DSM	06/14/2023

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: GRANADA RIDGE WATER QUALITY CALCULATIONS

STATE OF TEXAS — REESE B HURLEY — 98211 — LICENSED PROFESSIONAL ENGINEER

FOR C3 ONLY 09/14/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

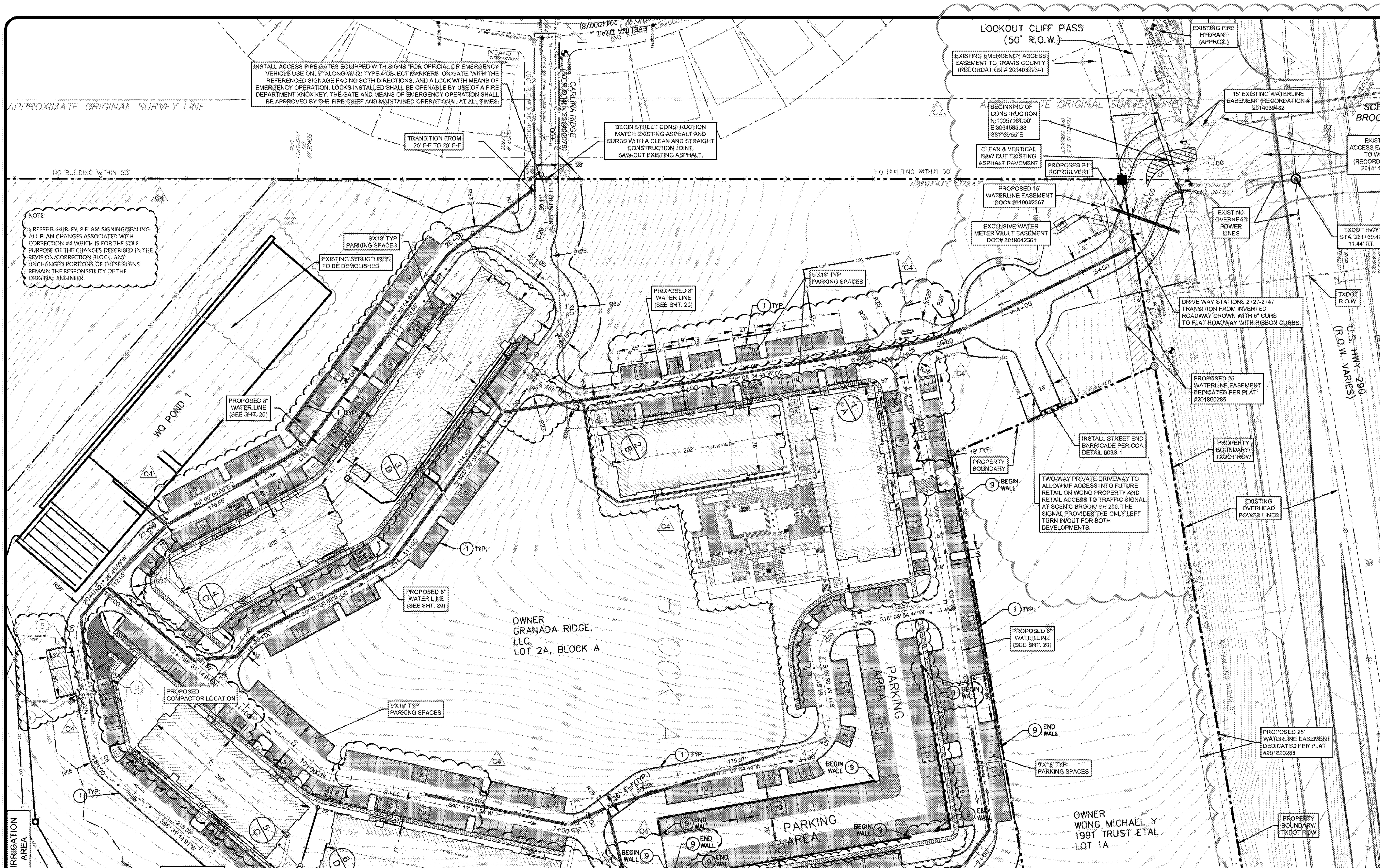
JOB NUMBER: A379-0401

DM03

SHEET NO. 12 OF 63 SHEETS

SP-2018-0138D

C3 C2 C1 REPLACEMENT SHEET



SITE LEGEND

1	CONSTRUCT 6" BARRER CURB & GUTTER, SEE SPILL AND CATCH CURB DETAIL.
2	LIMITS OF CONSTRUCTION (20.76 ACRES)
3	FIRE HYDRANT
4	TRAFFIC DIRECTIONS
5	5'-MIN. CURB TRANSITION FROM 6" TO 0" HIGH
6	HEAVY-DUTY PAVEMENT SECTION
7	LIGHT-DUTY PAVEMENT SECTION
8	RIDGID HEAVY-DUTY PAVEMENT SECTION
9	RETAINING WALL
	2:1 EARTHEN SLOPES REINFORCED WITH PERMANENT TRM.
	EXISTING ACCESS EASEMENT TO WONG
	EXISTING EMERGENCY ACCESS EASEMENT
	PROPOSED BUILDING FOOTPRINT
	POROUS PAVEMENT SIDEWALK
	CONCRETE SIDEWALK
	ACCESSIBLE ROUTE

CONSTRUCTION NOTES

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL REFERENCE THE GEOTECHNICAL ENGINEERING REPORT PREPARED FOR ALL GEOTECHNICAL ENGINEERING INFORMATION. CONTRACTOR TO INSTALL PAVEMENT DESCRIBED IN PAVEMENT OPTIONS AND DESIGN SECTION OF THE GEOTECHNICAL REPORT.
3. CONTRACTOR SHALL VERIFY EXISTING SLOPE, SOIL CONDITIONS, AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. ALL CROSS SLOPES ON NEW SIDEWALK CONSTRUCTION SHALL BE LESS THAN 2%, AND RUNNING SLOPE SHALL BE LESS THAN 5%.
4. REFER TO ARCHITECTURAL PLANS FOR BUILDING PLANS & FOUNDATION DETAILS (NOT PROVIDED WITH THIS SET).
5. ALL BUILDINGS TO HAVE CONCRETE SLAB FOUNDATION.
6. ACCESS TO THE UNITS IN THE BUILDINGS WILL BE INTERNALLY FROM UNDERGROUND GARAGE.
7. THERE SHALL BE A VERTICAL WALL AROUND THE BUILDING AS NEEDED TO RETAIN EARTH OUTSIDE DUE TO DIFFERENCE IN VERTICAL ELEVATIONS.(REFER TO ARCHITECT PLANS).
8. SIDEWALK SHALL BE INSTALLED AS SHOWN IN ARCHITECTURAL PLANS.(NOT PROVIDED WITH THIS SET).
9. FOR ACCESS ROAD CONSTRUCTION, SAW-CUT EXISTING ASPHALT ROADWAY AND MATCH SURFACE ELEVATION WITH NEW PAVEMENT.
10. ALL AREAS BETWEEN THE BUILDINGS AND PAVEMENT SHALL BE LANDSCAPED AND DETAILED IN THE LANDSCAPE PLANS(NOT INCLUDED WITH THIS SET).
11. ALL ACCESS ROADS AROUND THE BUILDINGS ARE DESIGNED TO MEET FIRE CODES.
12. PARKING AREA STRIPING SHALL BE 4" MINIMUM UNLESS OTHERWISE DESIGNATED AND PAINTED WHITE PER COA STD. 860S (EXCLUDING REFLECTIVE GLASS BEADS).
13. TREES AND SHRUBS ARE STRICTLY PROHIBITED FROM BEING INSTALLED WITHIN TEN (10) LINEAR FEET OF ANY AUSTIN WATER INFRASTRUCTURE. ANY REVISIONS/CORRECTIONS TO THIS SITE PLAN, SP-2016-0586D, THAT PROPOSES TO INSTALL ANY TYPE OF PLANTINGS WILL REQUIRE A COMPLETE REVIEW AND FINAL APPROVAL BY AUSTIN WATER TO ENSURE THERE ARE NO CONFLICTS WITH AUSIN WATER INFRASTRUCTURE.

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction
C18	41.00	18.71	S5° 04' 19.88"W
C19	41.00	64.40	S26° 51' 05.56"E
C20	41.00	64.40	S26° 51' 05.56"E
C21	50.00	40.36	S41° 16' 24.90"W
~~C22~~	~~40.00~~	~~27.18~~	~~S1° 19' 14.47"E~~
~~C23~~	~~40.00~~	~~42.60~~	~~S9° 43' 14.10"W~~
C24	40.00	18.88	N82° 44' 01.42"E
C25	40.00	17.67	N81° 51' 54.52"E
~~C26~~	~~55.00~~	~~49.05~~	~~N85° 55' 44.65"W~~
~~C27~~	~~55.00~~	~~37.34~~	~~N40° 55' 44.65"W~~
~~C28~~	~~41.00~~	~~15.37~~	~~N10° 44' 22.55"W~~
C29	55.00	34.91	S43° 47' 03.37"E

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction
C3	200.00	56.16	S10° 06' 14.08"W
C4	43.00	67.54	S26° 51' 05.56"E
C5	100.00	20.75	S12° 12' 10.33"W
C6	43.00	25.50	S23° 14' 38.90"W
C7	43.00	21.23	S54° 22' 33.24"W
C8	43.00	28.43	S87° 27' 47.86"W
C9	43.00	39.11	N47° 32' 12.14"W
C10	43.00	16.12	N10° 44' 22.55"W
C11	41.00	18.32	N12° 48' 02.32"W
C12	50.00	78.54	N19° 23' 55.36"E
C13	50.00	78.54	S70° 36' 04.64"E
C14	43.00	19.21	S12° 48' 02.32"E
C15	55.00	20.62	S10° 44' 22.55"E
C16	43.00	21.23	S54° 22' 33.24"W
C17	41.00	34.52	S16° 06' 48.45"W

SITE DATA TABLE

GROSS FLOOR AREA	411,344 SF
BUILDING HEIGHT (STORIES/FT)	5/65'
# OF UNITS	372
FLOOR TO AREA RATIO (FAR)	0.23
PARKING	
REQUIRED SPACES (1.5 PER UNIT)	558
ACCESSIBLE SPACES	21
STANDARD SPACES	644
TOTAL SPACES PROVIDED	665

IMPERVIOUS COVER CALCULATIONS

LIMITS OF CONSTRUCTION	22.69 AC
SITE AREA TOTAL	40.00 AC
LANDSCAPED AREA	3.129 AC / 7.82%
BUILDING AREA	100,625 SF / 5.78%
PAVEMENT, PARKING, SIDEWALK, ETC.	304,136 SF / 17.46%
TOTAL IMPERVIOUS COVER	409,467 SF / 23.50%

CITY OF AUSTIN APPROVED Date 01/02/2025

REVIEWED Pipeline Plan Review

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
OVERALL SITE PLAN
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2	[illegible]	DSM	04/11/2023
C4	UPDATE BUILDINGS FOOTPRINTS AND AREAS, LANDSCAPE, ADD SIDEWALKS, PARKING, MAINTENANCE BUILDINGS. WIDEN ACCESS GATE LANE. UPDATE DATA TABLES AND CALCULATIONS.	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: OSP

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

OSP

SHEET NO. 13 OF 66 SHEETS

REPLACEMENT SHEET

SP-2018-0138D

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORM/SEWER LINE
- ROOF DRAIN LINE
- STORM SEWER MANHOLE
- SIGN (AS NOTED)

NOTES:

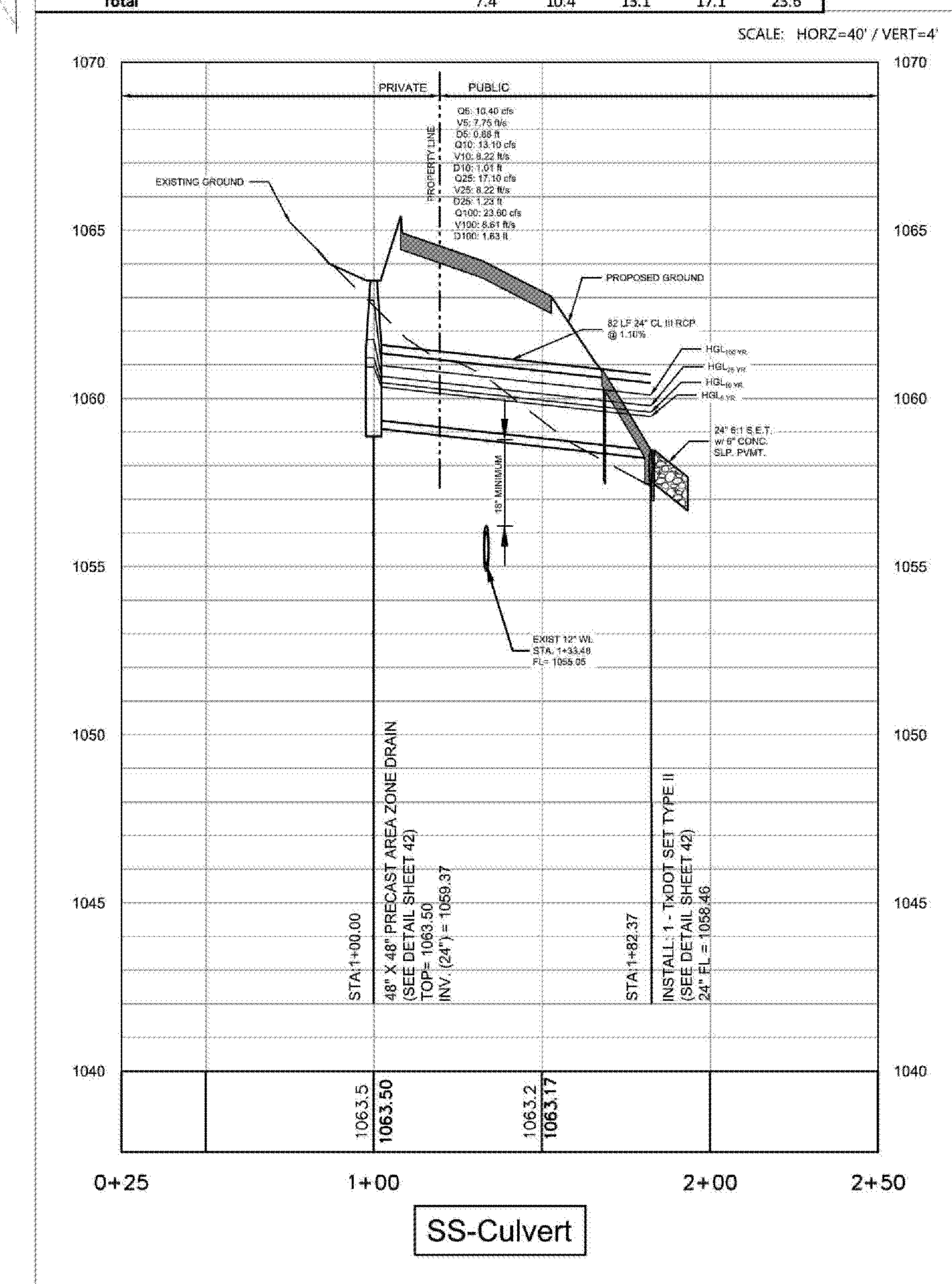
1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN-4 SHEET FOR TYPICAL PAVEMENT SECTION DETAILS.
3. ALL RETAINING WALLS AND FOOTINGS SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.
4. SEE ROOF DRAIN PLAN, SHEETS RD01-02, FOR ROOF DRAIN ANNOTATION.

SPOT ELEVATION LEGEND

TP= TOP PAVEMENT
TW= TOP OF WALL
BW= BOTTOM OF WALL
CL= PAVEMENT CENTERLINE
TS= TOP OF SLAB
FL= FLOW LINE
FG= FINISHED GRADE

Granada Ridge Culvert Analysis
Driveway Culvert Design-Runoff

DRAINAGE AREA (DA)	Area (Ac.)	CN	Tc (min.)	2 yr.	5 yr.	10 yr.	25 yr.	100 yr.
UDP-7	0.90	79	11.7	2.8	3.9	4.9	6.4	8.9
OSP-1	1.51	79	7.0	4.6	6.5	8.2	10.7	14.7
Total				7.4	10.4	13.1	17.1	23.6



TXDOT NOTE:
DRAINAGE FOR THIS DEVELOPMENT HAS BEEN DESIGNED SUCH THAT THERE WILL BE NO ADVERSE IMPACTS ON THE CAPACITY, FUNCTION OR INTEGRITY OF TEXAS DEPARTMENT OF TRANSPORTATION RIGHT OF WAY DRAINAGE FACILITIES.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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CITY OF AUSTIN APPROVED Date 01/02/2025

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
GRADING & DRAINAGE PLAN 01
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2		DSM	04/04/2023
C4		DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: GRADING PLAN 01

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
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Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

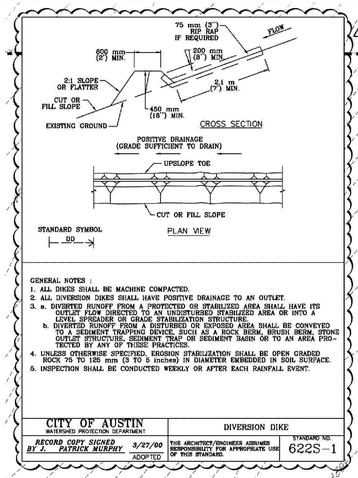
JOB NUMBER: A379-0401

GP01

SHEET NO. 14 OF 66 SHEETS

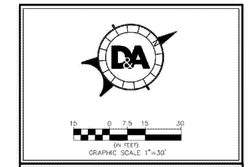
REPLACEMENT SHEET

SP-2018-0138D



GENERAL NOTES :
1. ALL DIKES SHALL BE MACHINE COMPACTED.
2. ALL DIVERSION DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. a. DIVERTED RUNOFF FROM A PROTECTED OR STABILIZED AREA SHALL HAVE ITS OUTLET FLOW DIRECTED TO AN UNDISTURBED STABILIZED AREA OR INTO A LEVEL SPREADER OR GRADE STABILIZATION STRUCTURE.
b. DIVERTED RUNOFF FROM A DISTURBED OR EXPOSED AREA SHALL BE CONVEYED TO A SEDIMENTATION CONTROL OR AS A ROCK, BRUSH, BRUSH, STONE OR SILT SCREEN STRUCTURAL BARRIER TRAP OR SEDIMENT BASIN OR TO AN AREA PROTECTED BY ANY OF THESE PRACTICES.
4. UNLESS OTHERWISE SPECIFIED, EROSION STABILIZATION SHALL BE OPEN GRADED ROCK 75 TO 150 mm (3 TO 6 inches) IN DIAMETER EMBEDDED IN SOIL SURFACE.
5. INSPECTION SHALL BE CONDUCTED WEEKLY OR AFTER EACH RAINFALL EVENT.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	DIVERSION DIKE	
RECORD COPY SIGNED BY J. PATRICK MURPHY 3/27/00 ADOPTED	THIS ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 622S-1



LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- 700 EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- ROOF DRAIN LINE
- SO STORM SEWER MANHOLE
- SIGN (AS NOTED)

NOTES:
1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN-4 SHEET FOR TYPICAL PAVEMENT SECTION DETAILS.
3. SEE ROOF DRAIN PLAN, SHEETS RD01-02, FOR ROOF DRAIN ANNOTATION.

SPOT ELEVATION LEGEND

TP= TOP PAVEMENT
TW= TOP OF WALL
BW= BOTTOM OF WALL
CL= PAVEMENT CENTERLINE
TS= TOP OF SLAB
FL= FLOW LINE
FG= FINISHED GRADE

C1 NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C4 NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

CITY OF AUSTIN APPROVED Date 01/22/2025 FOUNDED 1839

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C4 C1 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
GRADING AND DRAINAGE PLAN 02
AUSTIN, TX 78736

REVISIONS NO.	DESCRIPTION	BY	DATE
1	UPDATE PROPOSED GRADING FOR DETENTION POND 2*, UPDATE TO LJA TITLE BLOCK	DSM	12/16/2022
4	UPDATE GRADING, DRAINAGE, STRUCTURAL, WATER & SANITARY SEWER PLANS TO ADDRESS COMMENTS FROM CITY OF AUSTIN REVIEW	DSM	06/17/2024

JOB NUMBER:	A379-0401
DATE:	09/13/2023
DESIGNED BY:	RBH
DRAWN BY:	DSM
CHECKED BY:	RBH
DRAWING NAME:	GRADING PLAN 02

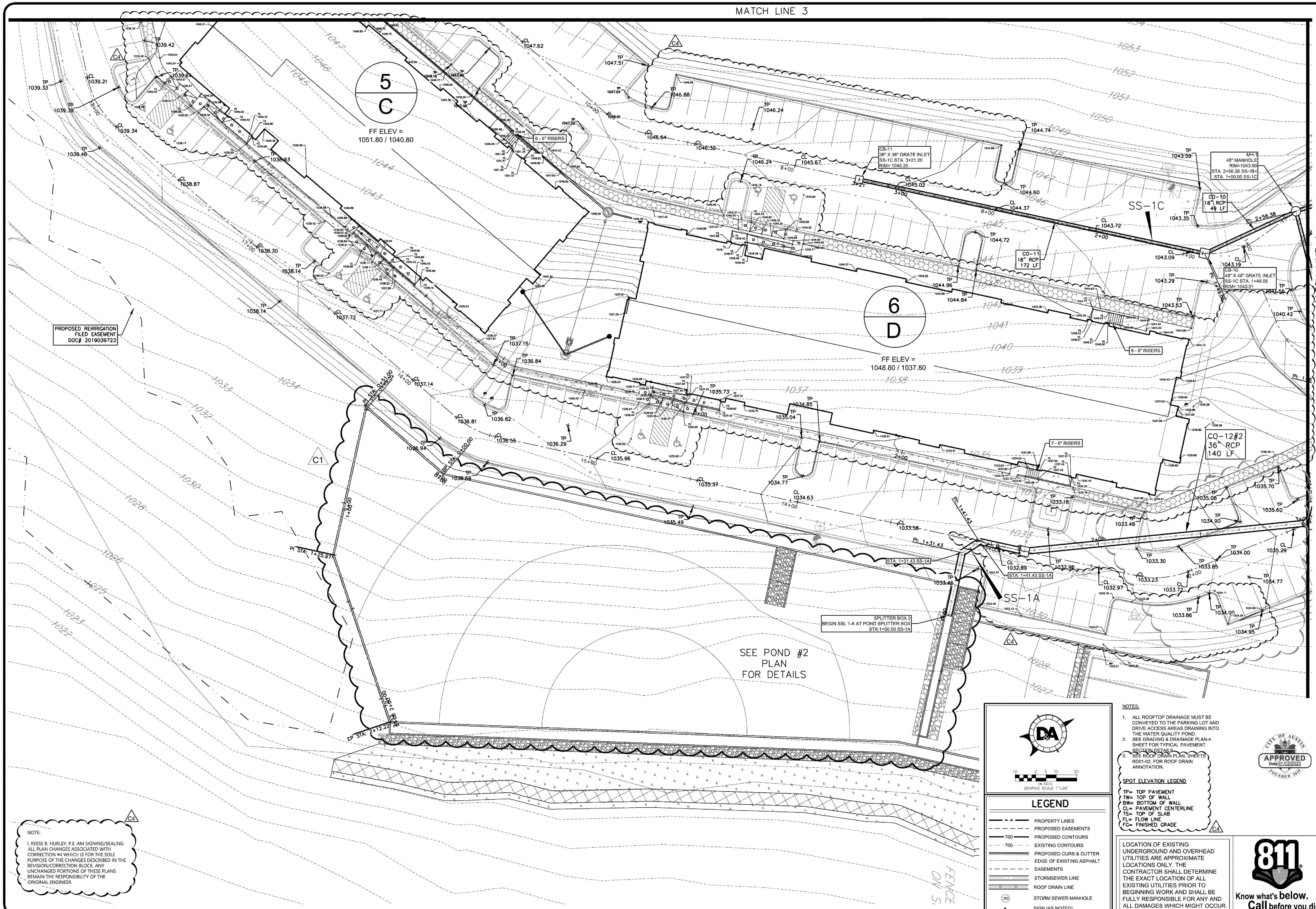
STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

GP02

SHEET NO. 15 OF 66 C4 SHEETS



NOTE:

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(IN FEET)
GRAPHIC SCALE 1"=20'

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- ROOF DRAIN LINE
- STORM SEWER MANHOLE
- SIGN (AS NOTED)

NOTES:

1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN-4 SHEET FOR TYPICAL PAVEMENT SECTION DETAILS.
3. SEE ROOF DRAIN PLAN, SHEETS RD01-02, FOR ROOF DRAIN ANNOTATION.

SPOT ELEVATION LEGEND

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TW= TOP OF WALL
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CITY OF AUSTIN APPROVED Date 01/02/2025 FOUNDED 1839

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C4 C2 C1 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
GRADING AND DRAINAGE PLAN 03
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	UPDATE PROPOSED GRADING FOR DETENTION POND #2. UPDATE TO LJA TITLE BLOCK.	DSM	12/21/2022
2	[illegible]	DSM	04/06/2023
4	UPDATE GRADING FOR NEW BUILDING FOOTPRINTS, SIDEWALK, ACCESSIBLE ROUTES, AND ADDED PARKING.	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: GRADING PLAN 03

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
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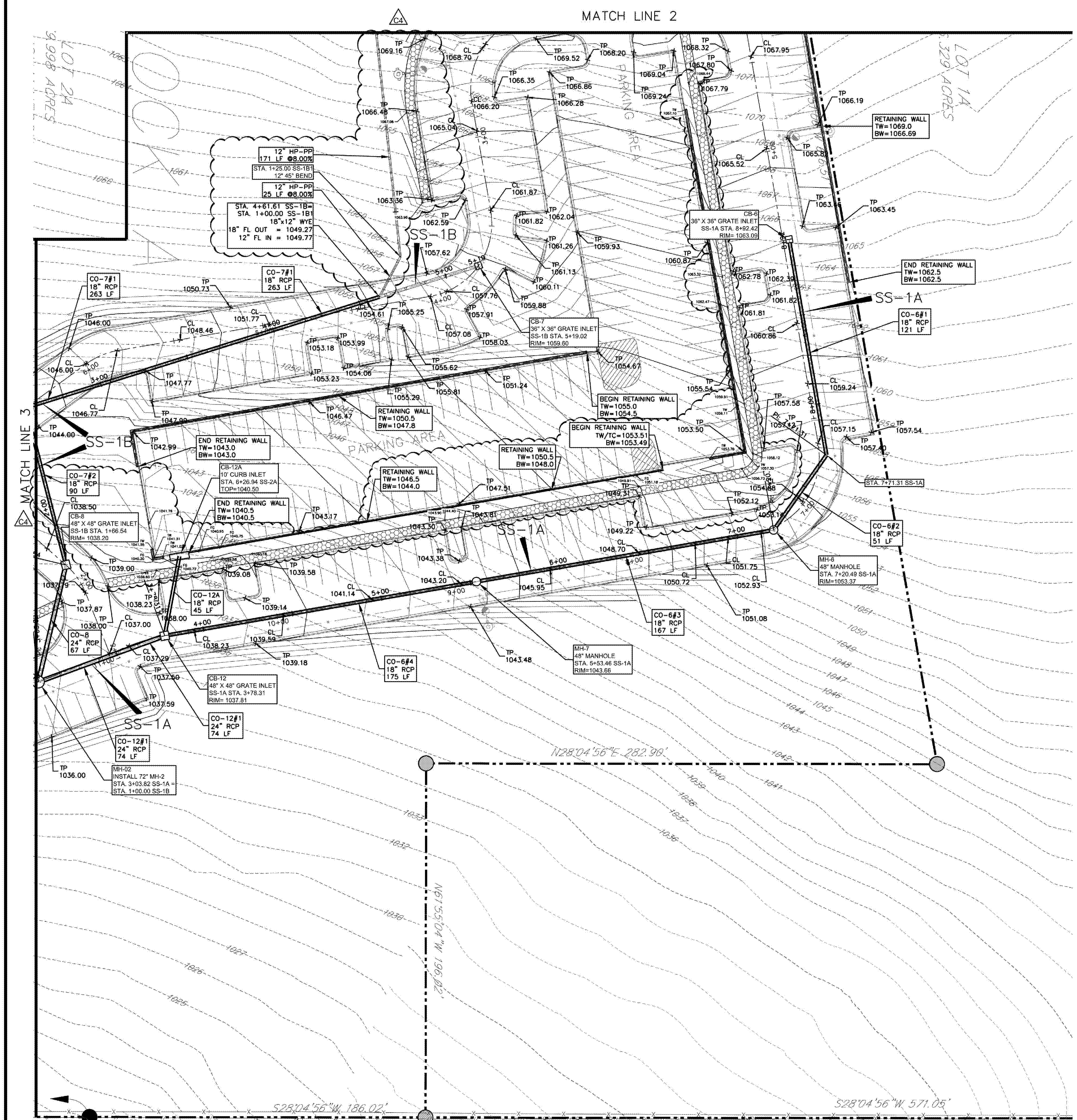
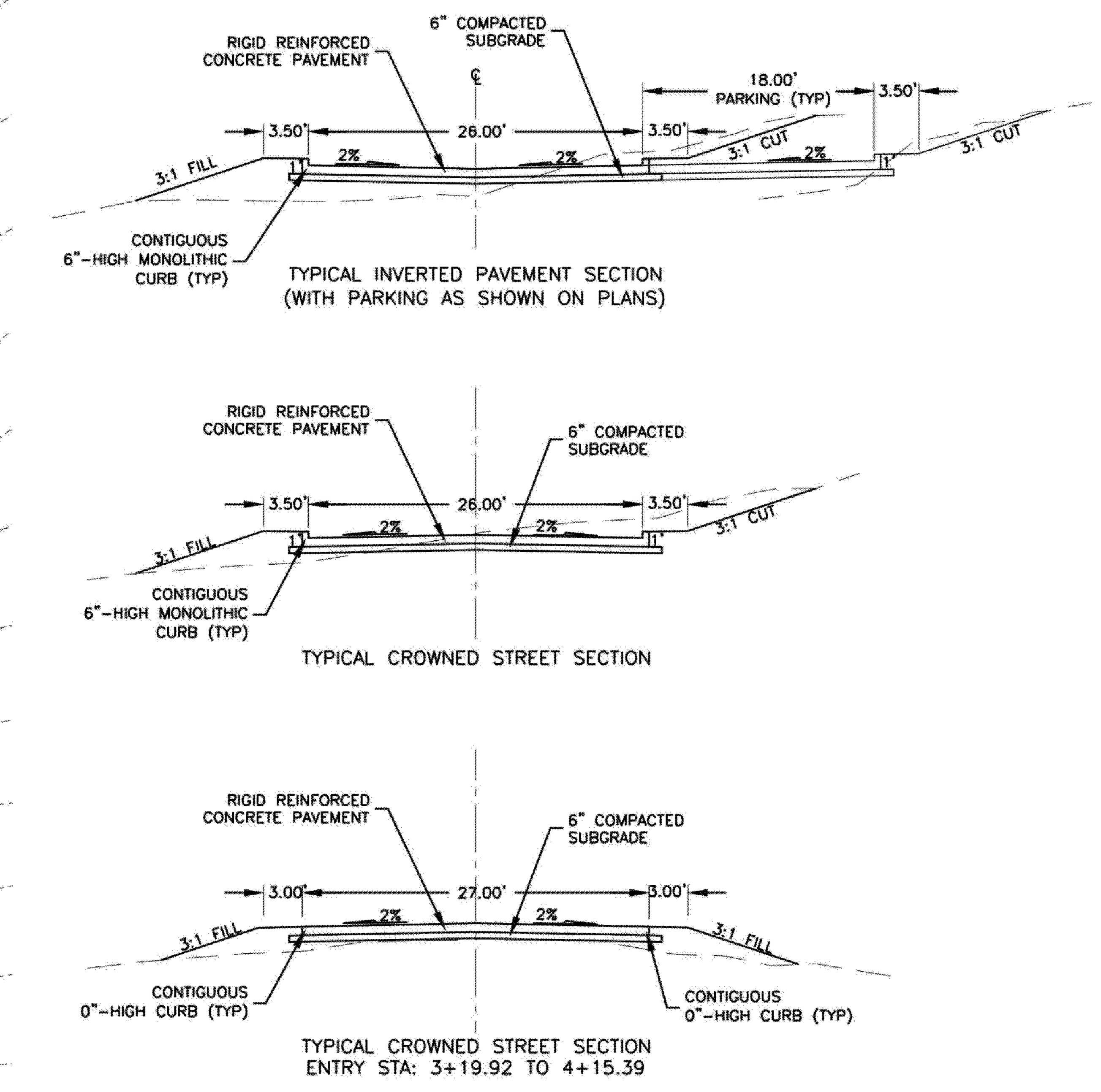
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

GP03

SHEET NO. 16 OF 66 SHEETS





LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- ROOF DRAIN LINE
- STORM SEWER MANHOLE
- SIGN (AS NOTED)

NOTES:

1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN-4 SHEET FOR TYPICAL PAVEMENT SECTION DETAILS.
3. ALL RETAINING WALLS AND FOOTINGS SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.

SPOT ELEVATION LEGEND

TP= TOP PAVEMENT
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RIGID PAVEMENT

Traffic Type	Portland Cement Concrete
Light Duty Traffic	5 in.
Heavy duty Traffic	6 in.

The concrete pavements shall be reinforced with bar mats. As a minimum, the welded wire mats shall be No. 3 reinforcing bars spaced 18 inches on center in both directions. The concrete reinforcing shall be placed approximately 1/3 the slab thickness below the surface of the slab, but not less than 2 inches. The reinforcing shall not extend across expansion joints.

Joints in concrete pavements aid in the construction and control the location and magnitude of cracks. Where practical, lay out the construction, expansion, control and sawed joints to form square panels. The ratio of slab length-to-width shall not exceed 1.25. Maximum recommended joint spacing are 12 ft longitudinal and 12 ft transverse.

All control joints shall be formed or sawed to a depth of at least 1/4 the thickness of the concrete slab. Sawing of control joints shall begin as soon as the concrete will not ravel, generally the day after placement. Control joints may be hand formed or formed by using a premolded filler. All longitudinal and transverse construction joints shall be dowelled to promote load transfer. Isolation joints are needed to separate the concrete slab from fixed objects such as drop inlets, light standards and buildings. Expansion joint spacings are not to exceed a maximum of 75 ft and no expansion or construction joints shall be installed parallel to the low point of a swale or drainage collection locations.

Reinforced concrete pavement shall cure a minimum of 3 and 7 days before allowing automobile and truck traffic, respectively.

SUBGRADE PREPARATION

Subgrades to support pavements shall be stripped of all existing vegetation. The exposed subgrades shall be constructed, shaped and compacted in accordance with the TxDOT Item 110. Subgrade soils shall be scarified to a minimum depth of 6 inches and recompacted to a minimum of 95 percent of the maximum dry density as determined by determined from the Texas Department of Transportation Compaction Test (TxDOT, Tex-113-E). The moisture content of the subgrade shall be maintained within the range of optimum moisture content to 3 percentage points above optimum until permanently covered. Soft, weak areas identified by proof-rolling shall be removed and replaced with suitable fill. Proof-rolling shall be performed under the continuous observation of the geotechnical engineer's or testing lab representative.

In areas where competent and intact limestone rock subgrade is encountered, the subgrade can be proofrolled in order to densify and locate any weak compressible zones. Compaction tests will not be required on competent and intact limestone rock.

NOTE:

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STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

CITY OF AUSTIN APPROVED Date 01/02/2025

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
GRADING AND DRAINAGE PLAN 04
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	UPDATE PROPOSED GRADING PER EDITION TO ALIGN WITH UPDATES TO LA TITLE BLOCK	DSM	12/21/2022
4	[illegible]	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: GRADING PLAN 04

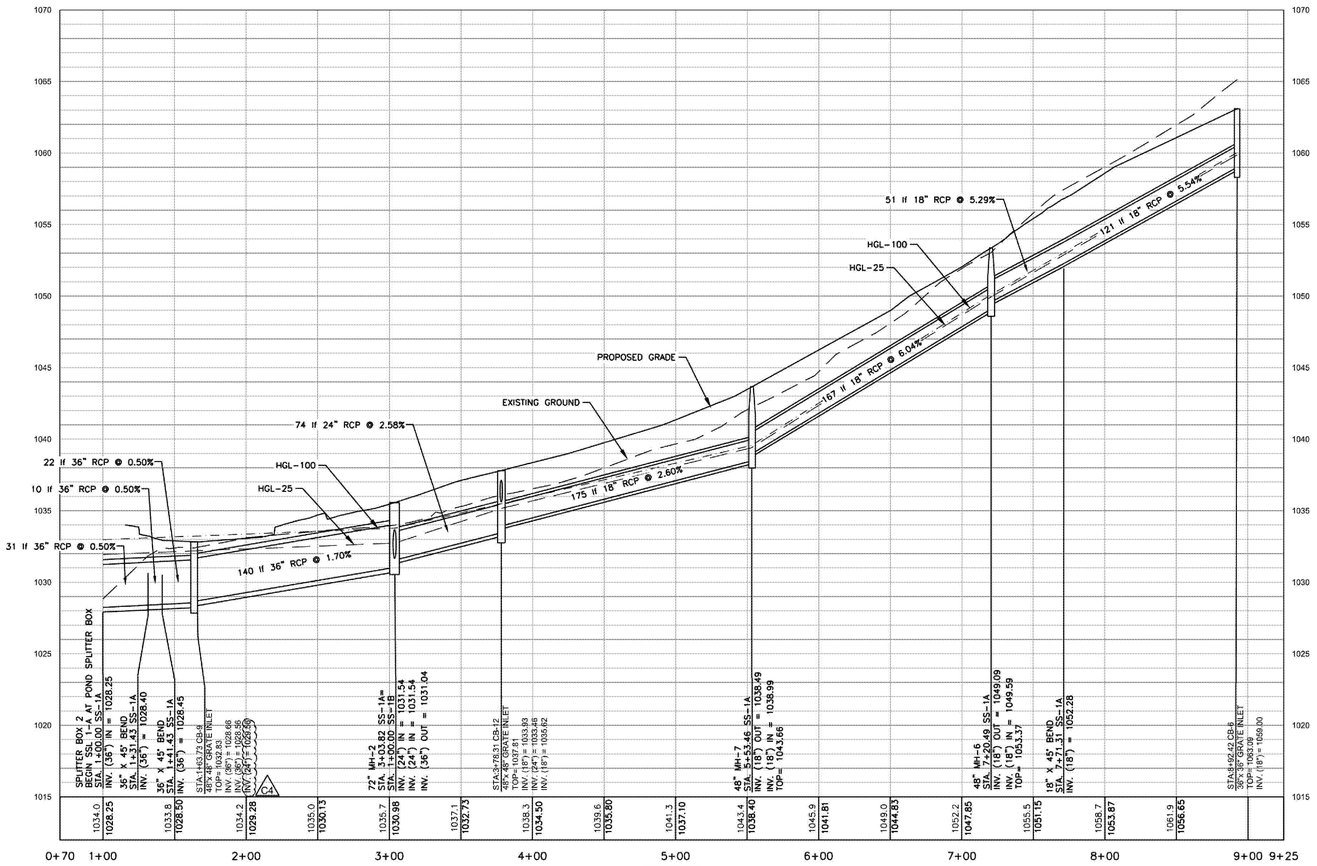
LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

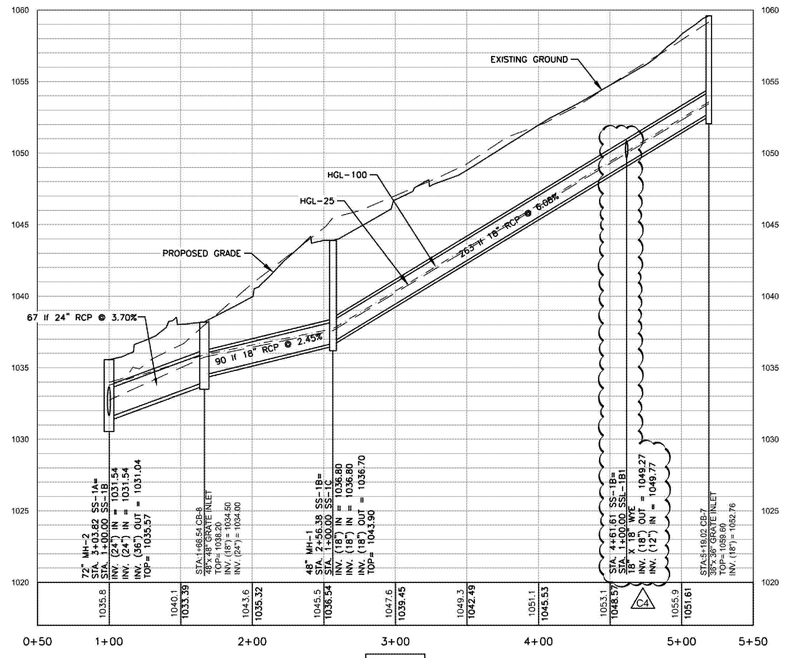
GP04

SP-2018-0138D

C4 REPLACEMENT SHEET



SS-1A



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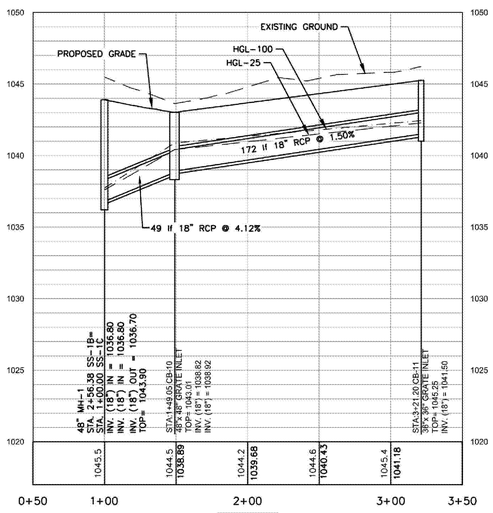

SS-1C

NOTE:
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C4

Granada Ridge - Drainage Pipes Table

Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (ft)	Slope (ft/ft)	Diameter (in)	Velocity-25 Yr (ft/s)	Velocity-100 Yr (ft/s)
CO-1#1	CB-1	1,042.00	T-7	1,037.00	125	0.04	18	9.93	10.99
CO-1#2	T-7	1,037.00	CB-4	1,036.45	110	0.005	18	3	4.35
CO-2#1	CB-2	1,055.85	MH-5	1,050.84	129	0.039	18	12.39	9.99
CO-3#1	CB-3	1,048.67	T-4	1,047.69	99	0.01	24	8.09	8.66
CO-3#2	T-4	1,047.69	CB-3A	1,045.89	180	0.01	24	8.12	8.61
CO-3A#1	CB-3A	1,045.34	T-5	1,043.50	35	0.053	24	15.88	17.18
CO-3A#2	T-5	1,043.50	T-6	1,040.74	51	0.054	24	16.05	17.36
CO-3A#3	T-6	1,040.74	CB-5A	1,033.59	132	0.054	24	16.04	17.36
CO-4	CB-4	1,036.35	CB-4B	1,035.51	168	0.005	18	5.35	7.76
CO-4A#1	CB-4A	1,053.50	MH-5	1,053 17	34	0.01	18	4.64	1.72
CO-4A#2	MH-5	1,050.34	CB-3	1,049.17	116	0.01	18	8.44	11.41
CO-4B	CB-4B	1,035.01	CB-5	1,033.21	184	0.01	24	6.97	4.76
CO-5A	CB-5A	1,033.59	CB-5	1,033.21	100	0.004	30	5.63	7.71
CO-5B#1	CB-5B	1,035.42	T-11	1,034.46	119	0.008	18	1	1.39
CO-5B#2	T-11	1,034.46	CB-5A	1,034.09	47	0.008	18	0.91	1.31
CO-6#1	CB-6	1,059.00	T-8	1,052.28	121	0.056	18	11.04	12.06
CO-6#2	T-8	1,052.28	MH-6	1,049.59	51	0.053	18	10.81	11.81
CO-6#3	MH-6	1,049.09	MH-7	1,038.99	167	0.06	18	11.34	12.41
CO-6#4	MH-7	1,038.49	CB-12	1,033.93	175	0.026	18	8.35	9.1
CO-7#1	CB-7	1,052.76	MH-1	1,036.89	263	0.061	18	10.03	11.03
CO-7#2	MH-1	1,036.70	CB-8	1,034.50	90	0.024	18	10.33	10.77
CO-8	CB-8	1,034.00	MH-2	1,031.54	67	0.037	24	14.15	15.3
CO-10	CB-10	1,038.82	MH-1	1,036.80	49	0.041	18	11.98	13 06
CO-11	CB-11	1,041.50	CB-10	1,038.92	172	0.015	18	6.49	7.14
CO-12#1	CB-12	1,033.46	MH-2	1,031.54	74	0.026	24	11.59	12.52
CO-12#2	MH-2	1,031.04	CB-9	1,028.66	140	0.017	36	12.04	13.1
CO-12A	CB-12A	1,036.50	CB-12	1,035.62	45	0.02	18	7.76	8.42
CO-13 #3	T-2	1,058.67	MH-4	1,057.85	164	0.005	18	4.27	3.07
CO-13#1	CB-13	1,060 50	MH-3	1,059.45	209	0.005	18	4.33	3.25
CO-13#2	MH-3	1,058.95	T-2	1,058.67	56	0.005	18	4.28	3.11
CO-13#4	MH-4	1,057.35	CB-2	1,056.35	200	0.005	18	4.24	2.97
CO-Splitter Box #1	CB-5	1,033.21	Out-1	1,033 13	30	0.003	36	6.14	8.78
CO-Splitter Box #2	CB-9	1,028.56	Out-2	1,028.25	63	0.005	36	7.44	10.56

Granada Ridge - Inlet Table

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Hydraulic Grade Line (ft) 25 yr Analysis	Hydraulic Grade Line (ft) 100 yr Analysis
CB-1	1,046.31	1,042.00	20	5	1,042 89	1,043.08
CB-2	1,068.33	1,055 85	4.17	4.17	1,057.34	1,060.53
CB-3	1,055.00	1,048.67	3	3	1,050.28	1,051.94
CB-3A	1,049.57	1,045.34	3	3	1,047.38	1,047.83
CB-4	1,041.00	1,036.35	3	3	1,038.28	1,040.54
CB-4A	1,057.50	1,053.50	10	3	1,054.06	1,056.36
CB-4B	1,041.50	1,035 01	3	3	1,036.67	1,037.58
CB-5	1,038.70	1,033 21	4.17	4.17	1,036.34	1,036.57
CB-5A	1,038.17	1,033 59	3	3	1,036.95	1,037 75
CB-5B	1,038.90	1,035 42	3	3	1,036.99	1,037.84
CB-6	1,063.00	1,059.00	3	3	1,059 87	1,060.03
CB-7	1,059.60	1,052 76	3	3	1,053.45	1,053.58
CB-8	1,038.20	1,034.00	4.17	4.17	1,035.74	1,035.91
CB-9	1,032 85	1,028 56	4.17	4.17	1,032 19	1,033.23
CB-10	1,043.01	1,038 82	4.17	4.17	1,040.41	1,040.88
CB-11	1,045.25	1,041 50	3	3	1,042.28	1,042.44
CB-12	1,037.81	1,033 46	4.17	4.17	1,035 16	1,035.49
CB-12A	1,040.50	1,036 50	10	3	1,037.41	1,037.58
CB-13	1,064.50	1,060 50	3	3	1,061.30	1,062.27

CITY OF AUSTIN
APPROVED
Date 01/02/2025
FOR C4 ONLY 06/17/2024

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
STORMSEWER
PROFILES - 1
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
4	UPDATE TITLE BLOCK, UPDATE C SIZE AND FORMLINE OF ROOF DRAIN CONNECTION AND WYE FOR 12 INCH MAIN FROM 18 INCH	DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ST01

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

ST01

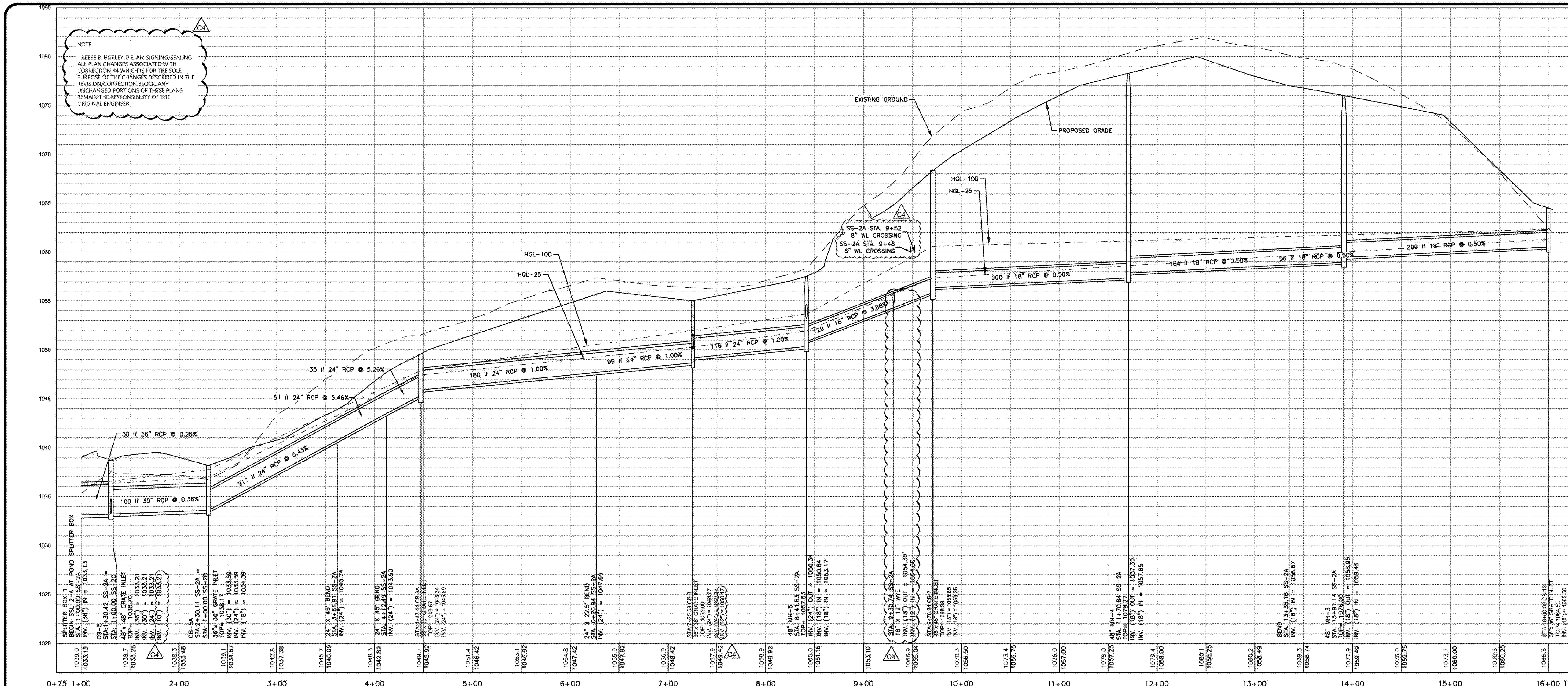
SHEET NO. 18 OF 66 C4 SHEETS

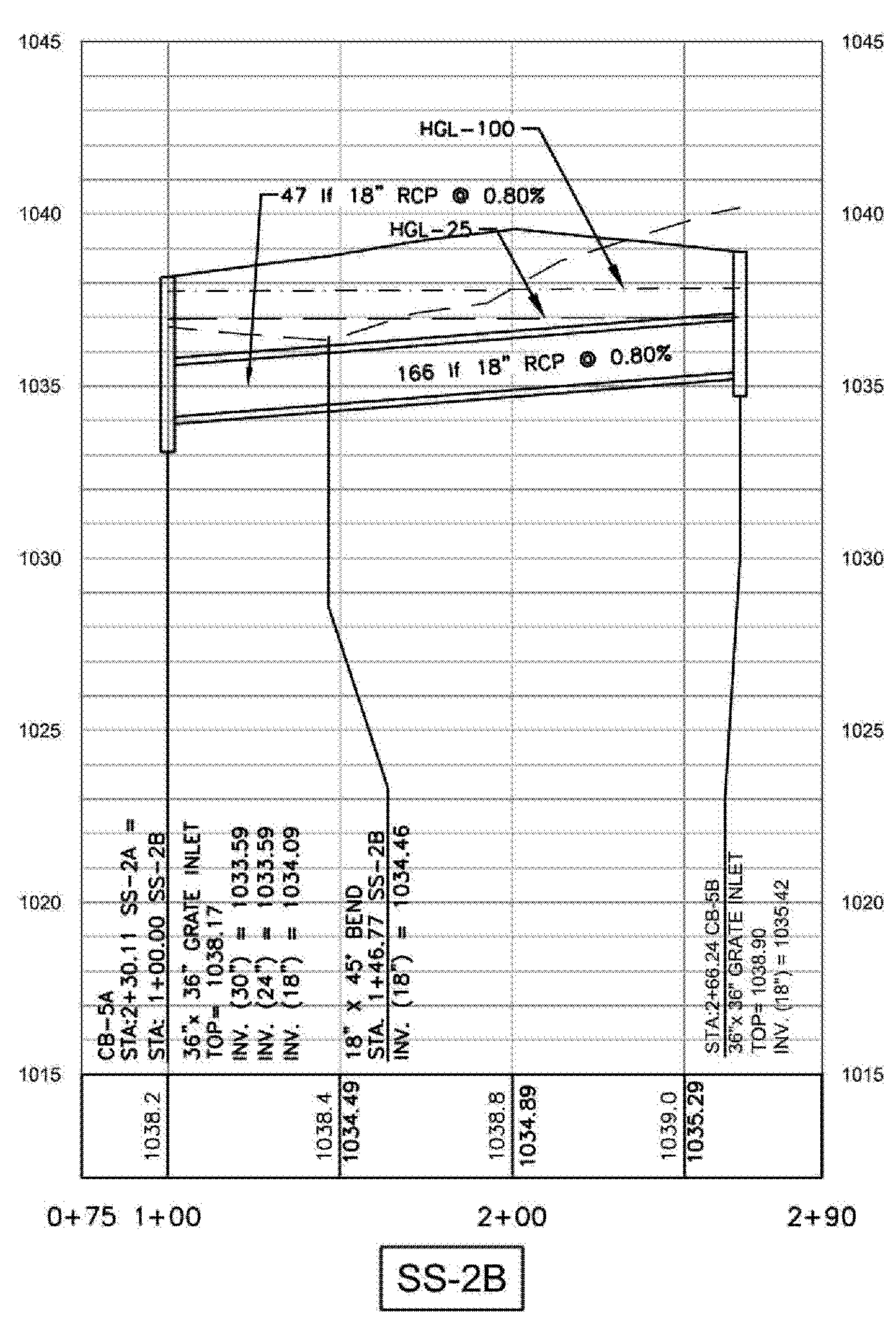
SP-2018-0138D

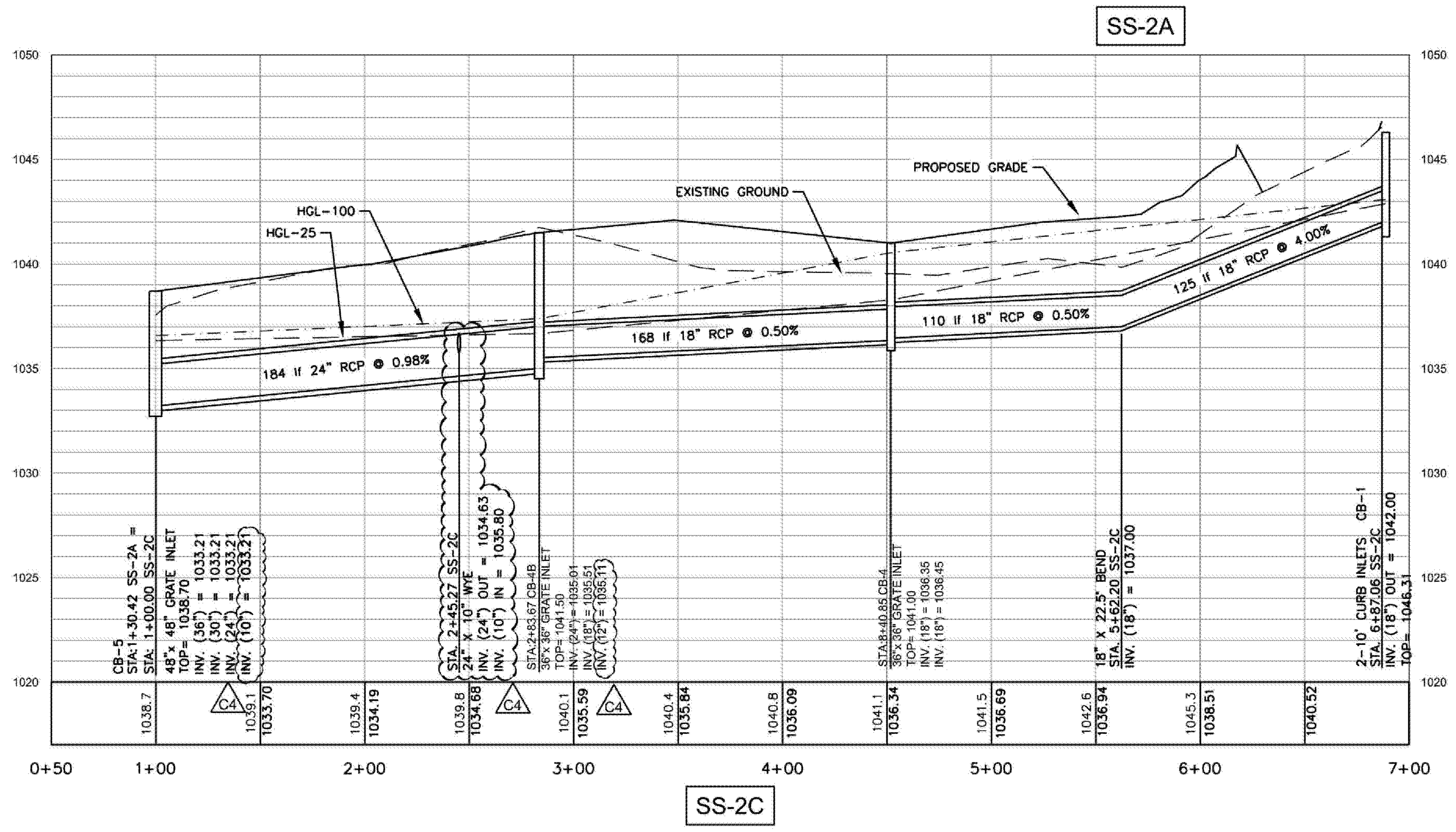
C4 REPLACEMENT SHEET

J:\A379-0401 - Granada Ridge\Correction 4\Replacement Sheet Info\A379-0401-GP-ST01_sheet 14-19.64.65.dwg
User: dmurray
Last Modified: Jul 24, 24 - 10:08
Plot Date/Time: Jul 09, 24 - 10:20:18

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.







Granada Ridge - Drainage Pipes Table

Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (ft)	Slope (ft/ft)	Diameter (in)	Velocity-25 Yr (ft/s)	Velocity-100 Yr (ft/s)
CO-1#1	CB-1	1,042.00	T-7	1,037.00	125	0.04	18	9.93	10.99
CO-1#2	T-7	1,037.00	CB-4	1,036.45	110	0.005	18	3	4.35
CO-2#1	CB-2	1,055.85	MH-5	1,050.84	129	0.039	18	12.39	9.99
CO-3#1	CB-3	1,048.67	T-4	1,047.69	99	0.01	24	8.09	8.66
CO-3#2	T-4	1,047.69	CB-3A	1,045.89	180	0.01	24	8.12	8.61
CO-3A#1	CB-3A	1,045.34	T-5	1,043.50	35	0.053	24	15.88	17.18
CO-3A#2	T-5	1,043.50	T-6	1,040.74	51	0.054	24	16.05	17.36
CO-3A#3	T-6	1,040.74	CB-5A	1,033.59	132	0.054	24	16.04	17.36
CO-4	CB-4	1,036.35	CB-4B	1,035.51	168	0.005	18	5.35	7.76
CO-4A#1	CB-4A	1,053.50	MH-5	1,053.17	34	0.01	18	4.64	1.72
CO-4A#2	MH-5	1,050.34	CB-3	1,049.17	116	0.01	18	8.44	11.41
CO-4B	CB-4B	1,035.01	CB-5	1,033.21	184	0.01	24	6.97	4.76
CO-5A	CB-5A	1,033.59	CB-5	1,033.21	100	0.004	30	5.63	7.71
CO-5B#1	CB-5B	1,035.42	T-11	1,034.46	119	0.008	18	1	1.39
CO-5B#2	T-11	1,034.46	CB-5A	1,034.09	47	0.008	18	0.91	1.31
CO-6#1	CB-6	1,059.00	T-8	1,052.28	121	0.056	18	11.04	12.06
CO-6#2	T-8	1,052.28	MH-6	1,049.59	51	0.053	18	10.81	11.81
CO-6#3	MH-6	1,049.09	MH-7	1,038.99	167	0.06	18	11.34	12.41
CO-6#4	MH-7	1,038.49	CB-12	1,033.93	175	0.026	18	8.35	9.1
CO-7#1	CB-7	1,052.76	MH-1	1,036.80	263	0.061	18	10.03	11.03
CO-7#2	MH-1	1,036.70	CB-8	1,034.50	90	0.024	18	10.33	10.77
CO-8	CB-8	1,034.00	MH-2	1,031.54	67	0.037	24	14.15	15.3
CO-10	CB-10	1,038.82	MH-1	1,036.80	49	0.041	18	11.98	13.06
CO-11	CB-11	1,041.50	CB-10	1,038.92	172	0.015	18	6.49	7.14
CO-12#1	CB-12	1,033.46	MH-2	1,031.54	74	0.026	24	11.59	12.52
CO-12#2	MH-2	1,031.04	CB-9	1,028.66	140	0.017	36	12.04	13.1
CO-12A	CB-12A	1,036.50	CB-12	1,035.62	45	0.02	18	7.76	8.42
CO-13 #3	T-2	1,058.67	MH-4	1,057.85	164	0.005	18	4.27	3.07
CO-13#1	CB-13	1,060.50	MH-3	1,059.45	209	0.005	18	4.33	3.25
CO-13#2	MH-3	1,058.95	T-2	1,058.67	56	0.005	18	4.28	3.11
CO-13#4	MH-4	1,057.35	CB-2	1,056.35	200	0.005	18	4.24	2.97
CO-Splitter Box #1	CB-5	1,033.21	Out-1	1,033.13	30	0.003	36	6.14	8.78
CO-Splitter Box #2	CB-9	1,028.56	Out-2	1,028.25	63	0.005	36	7.44	10.56

Granada Ridge - Inlet Table

Label	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Hydraulic Grade Line (ft) 25 yr Analysis	Hydraulic Grade Line (ft) 100 yr Analysis
CB-1	1,046.31	1,042.00	20	3	1,042.89	1,043.08
CB-2	1,068.33	1,055.85	4.17	4.17	1,057.34	1,060.53
CB-3	1,055.00	1,048.67	3	3	1,050.28	1,051.94
CB-3A	1,049.57	1,045.34	3	3	1,047.38	1,047.83
CB-4	1,041.00	1,036.35	3	3	1,038.28	1,040.54
CB-4A	1,057.50	1,053.50	10	3	1,054.06	1,056.36
CB-4B	1,041.50	1,035.01	3	3	1,036.67	1,037.38
CB-5	1,038.70	1,033.21	4.17	4.17	1,036.34	1,036.57
CB-5A	1,038.17	1,033.59	3	3	1,036.95	1,037.75
CB-5B	1,038.90	1,035.42	3	3	1,036.99	1,037.84
CB-6	1,063.09	1,059.00	3	3	1,059.87	1,060.03
CB-7	1,059.60	1,052.76	3	3	1,053.45	1,053.58
CB-8	1,038.20	1,034.00	4.17	4.17	1,035.74	1,035.91
CB-9	1,032.83	1,028.56	4.17	4.17	1,032.19	1,033.23
CB-10	1,043.01	1,038.82	4.17	4.17	1,040.41	1,040.88
CB-11	1,045.25	1,041.50	3	3	1,042.28	1,042.44
CB-12	1,037.81	1,033.46	4.17	4.17	1,035.16	1,035.49
CB-12A	1,040.50	1,036.50	10	3	1,037.41	1,037.58
CB-13	1,064.50	1,060.50	3	3	1,061.30	1,062.27

CITY OF AUSTIN APPROVED Date 01/02/2025

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
STORMSEWER PROFILES - 2
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
4		DSM	06/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ST02

STATE OF TEXAS REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

ST02

SHEET NO. 19 OF 66

SP-2018-0138D

C4 REPLACEMENT SHEET

MH #262141 Remarks:
Core new 8 connection to manhole and cut in new invert to connection. New invert to match into existing flowline. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipe. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. The manhole invert grade shall 1) be a continuation of the inlet and outlet pipe grades carried through to the centerline of the manhole, or 2) have a minimum slope of 2.5 percent between the inlet and outlet pipe inverts, or 3) have a minimum difference of 0.10 feet between the inlet and outlet pipe inverts, whichever provides the maximum difference in invert elevation between the inlet and outlet pipes. In all cases, the bottom(s) of the channel(s) shall provide a smooth transition between the inlet and outlet pipes. Where the wastewater lines enter a manhole above the flowline of the outlet, the invert shall be filleted to prevent splashing and solids deposition. All damaged or altered MH interior surface coatings shall be repaired and replaced with new coating per SPL WW-511.

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #4 WHICH IS FOR THE SOLE PURPOSE OF THE CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

OWNER
GRANADA RIDGE, LLC.
LOT 2A, BLOCK A

OWNER:
WONG MICHAEL Y
1991 TRUST ETAL
LOT 1A,
UNDEVELOPED LAND USE

THIS PROJECT SHALL UPGRADE THE PUMPING CAPACITY OF THE EXISTING RIDGEVIEW LIFT STATION IN ORDER TO ADEQUATELY SERVE THE ADDITIONAL WASTEWATER FLOW PROPOSED TO BE CONTRIBUTED BY THIS DEVELOPMENT. UPGRADES SHALL INCLUDE, BUT ARE NOT LIMITED TO, REPLACEMENT OF EXISTING PUMPS, GENERATOR AND STARTERS.

"Trees and shrubs are strictly prohibited from being installed within ten (10) linear feet of any Austin Water Infrastructure. Any revisions/corrections to this site plan, SP-2016-0586D, that proposes to install any type of plantings will require a complete review and final approval by Austin Water to ensure there are no conflicts with Austin Water infrastructure."

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- EXISTING WATER METER
- PROP. BACKFLOW PREVENTER
- STORM SEWER MANHOLE
- EX./PROP. WASTE MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET

Q_{PW} =	GPM	FLOW CAPACITY
P_{QW} =	GPM	PEAK WET WEATHER FLOW
P_{QD} =	GPM	PEAK DRY WEATHER FLOW
V_{PW} =	FPS	PEAK WET WEATHER VELOCITY
V_{PD} =	FPS	PEAK DRY WEATHER VELOCITY
D_{PW} =	IN	PEAK WET WEATHER DEPTH
D_D =	IN	PEAK DRY WEATHER DEPTH

JOINT RESTRAINT TABLE

PIPE SIZE	CONNECTION TYPE	MIN. JOINT RESTRAINT LENGTH (LF)
4"	22.5° BEND	5
	45° BEND	8
	DEAD END**	45
6"	22.5° BEND	6
	45° BEND	10
	DEAD END**	60
8"	11.25° BEND	6
	22.5° BEND	8
	45° BEND	15
	TEE x 4" BRANCH*	4
	TEE x 6" BRANCH*	8
	TEE x 8" BRANCH*	38
	DEAD END**	80

* – RESTRAINED LENGTH ALONG RUN SHALL BE RESTRAINED MINIMALLY 8' EACH SIDE OF TEE
** – EXCLUDING FIRE HYDRANT LATERALS, WHICH SHALL BE RESTRAINED ENTIRELY & EACH SIDE OF INLINE WATER VALVES

WATER SUPPLY FIXTURE UNITS	2,346
DOMESTIC WATER DEMAND	365 GPM
WATER METER SIZE	10"x2" FIRE DEMAND
BACKFLOW PREVENTER T & S	12" WATTS 774 DOUBLE CHECK VALVE
DRAINAGE FIXTURE UNITS	3,621

(BUILDING #1 441 DFU BUILDING #4 552 DFU
BUILDING #2 504 DFU BUILDING #5 552 DFU
BUILDING #3 786 DFU BUILDING #6 786 DFU)

NOTE:
1. ALL WATERLINES UPSTREAM OF WATER METER AND BACKFLOW PREVENTER ARE PUBLIC.
2. PRIVATE WASTEWATER CLEANOUTS SHALL BE INSTALLED IN BETWEEN ANY RUNS THAT EXCEED 300' BETWEEN MANHOLES.
3. CONTRACTOR SHALL REHABILITATE EXISTING MANHOLES, AS PER THE MANHOLE SPECIFIC REMARKS PROVIDED ON EACH MANHOLE (REFER TO NOTE ON EACH EXISTING MANHOLE CALLOUT FOR SPECIFIC REHABILITATION SCOPE FOR THAT MANHOLE).

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

APPROVED Date 01/02/2025 CITY OF AUSTIN FOUNDED 1839

REVIEWED January 02, 2025 Pipeline Plan Review

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
OVERALL UTILITY PLAN
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
2		DSM	04/04/2023
4		DSM	11/25/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: 2000ILUTL01.DWG

REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 11/25/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

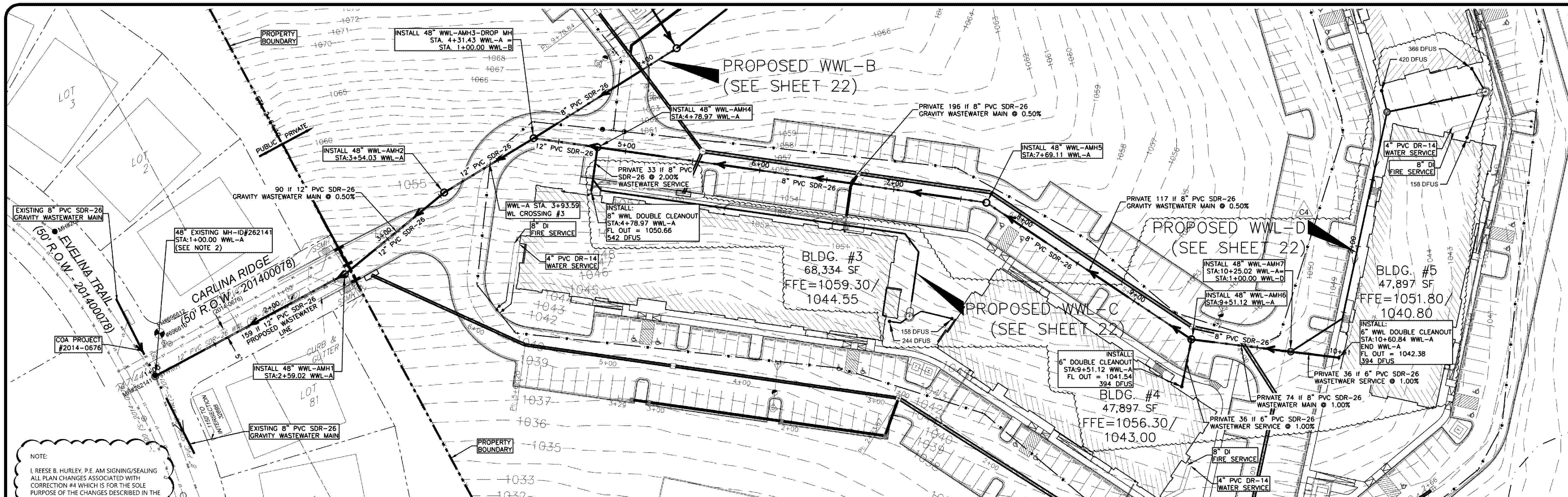
UTL01

SHEET NO. 20 OF 66 SHEETS

C4 C2 REPLACEMENT SHEET

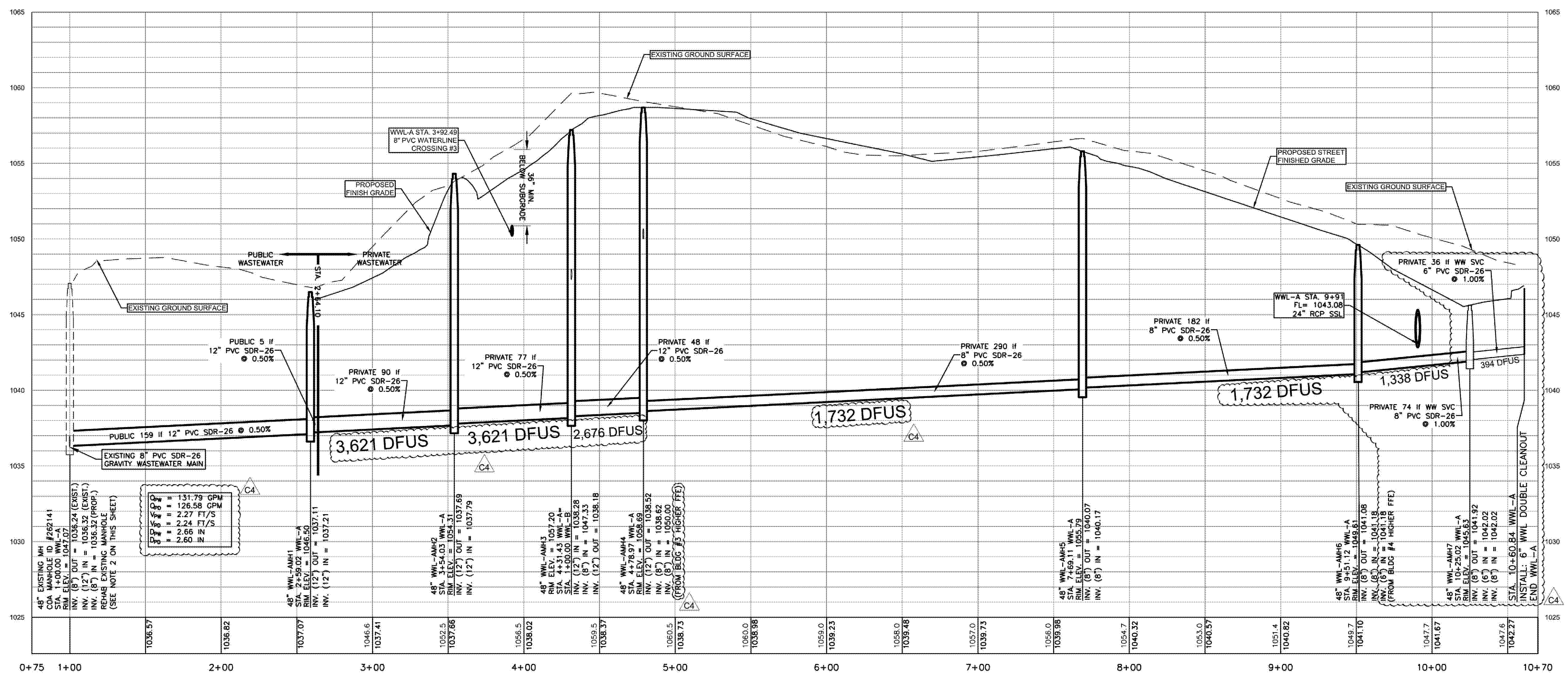
SP-2018-0138D

J:\A379\0401 - Granada Ridge\Correction 4\Replacement Sheet Dwgs\A379-0401-UTL sheet 01.dwg
User: dsmay
Last Modified: Nov. 25, 24 - 11:05
Plot Date/Time: Nov 25, 24 - 11:05:37



PUBLIC & PRIVATE WWL-A PLAN VIEW

SCALE: 1"=40'



PUBLIC & PRIVATE WWL-A PROFILE VIEW

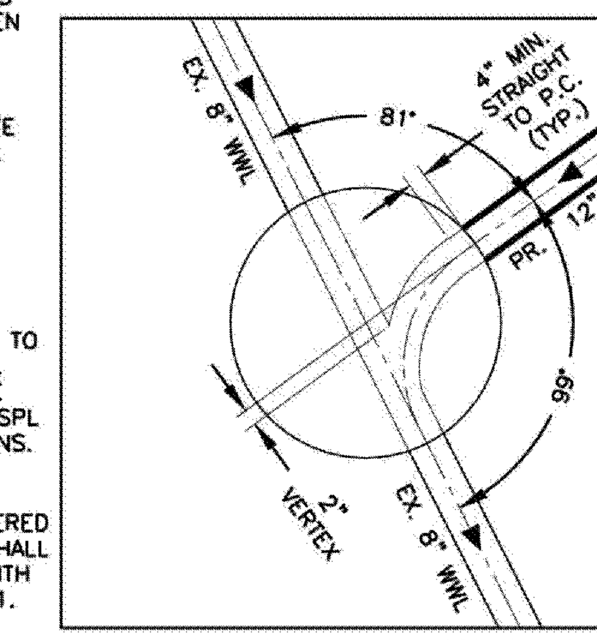
SCALE: HORIZ. 1"=40', VERT. 1"=4'

NOTE:

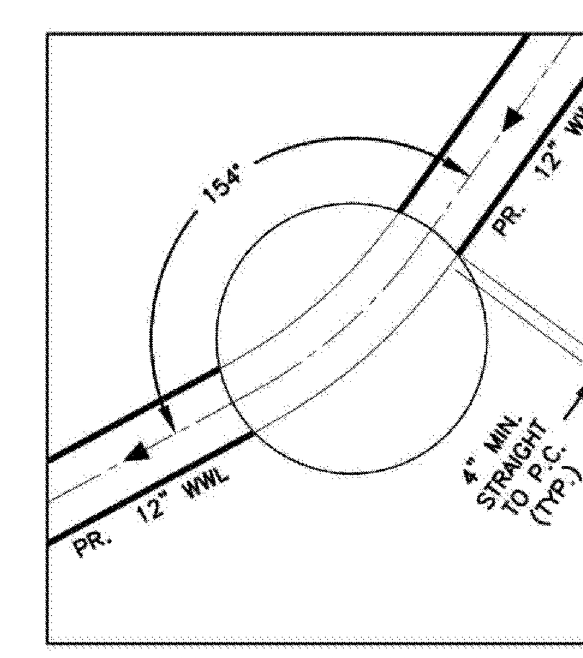
1. PRIVATE WASTEWATER CLEANOUTS SHALL BE INSTALLED IN BETWEEN ANY RUNS THAT EXCEED 300' BETWEEN MANHOLES.
2. CONTRACTOR SHALL REHABILITATE EXISTING MANHOLE #262141 AS PER MH #262141 REHAB NOTE BELOW:

MH #262141 REHAB NOTE:

CORE NEW 8" CONNECTION TO MANHOLE AND RESHAPE INVERT TO MATCH INTO EXISTING FLOWLINE. INSTALL WITH PIPE TO MANHOLE SEALS PER SPL WW-146A OR SPL WW-146D AT WALL PENETRATIONS. INVERTS SHALL BE "U" SHAPED CHANNELS WITH LONG-RADIUS SWEEPS. ALL DAMAGED OR ALTERED MANHOLE INTERIOR COATINGS SHALL BE REPAIRED AND REPLACED WITH NEW COATING PER SPL WW-511.



STA. 1+00.00 WWL-A
EX. MH #262141
NOT TO SCALE



STA. 2+59.02 WWL-A
PR. MH WWL-AMH1
NOT TO SCALE

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- EXISTING WATER METER
- PROP. BACKFLOW PREVENTER
- STORM SEWER MANHOLE
- EX./PROP. WASTE MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET

Q_C = ___ GPM	FLOW CAPACITY
P_W = ___ GPM	PEAK WET WEATHER FLOW
P_D = ___ GPM	PEAK DRY WEATHER FLOW
V_W = ___ FPS	PEAK WET WEATHER VELOCITY
V_D = ___ FPS	PEAK DRY WEATHER VELOCITY
D_W = ___ IN	PEAK WET WEATHER DEPTH
D_D = ___ IN	PEAK DRY WEATHER DEPTH

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

APPROVED Date 01/02/2025 (CITY OF AUSTIN)

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
PUBLIC AND PRIVATE WASTEWATER PLAN & PROFILE - WWL - A
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
4	UPDATE TO C4 TITLE BLOCK, ADD WASTEWATER SERVICES TO NEW BUILDINGS, UPDATE SANITARY SEWER DESIGN, UPDATE DFUS FOR NEW BUILDINGS	DSM	11/26/2024

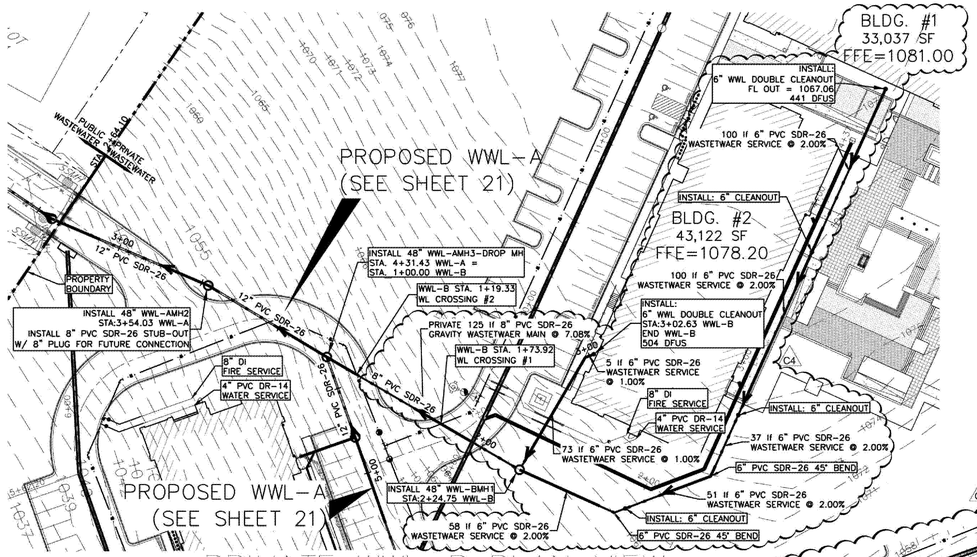
JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: WW00

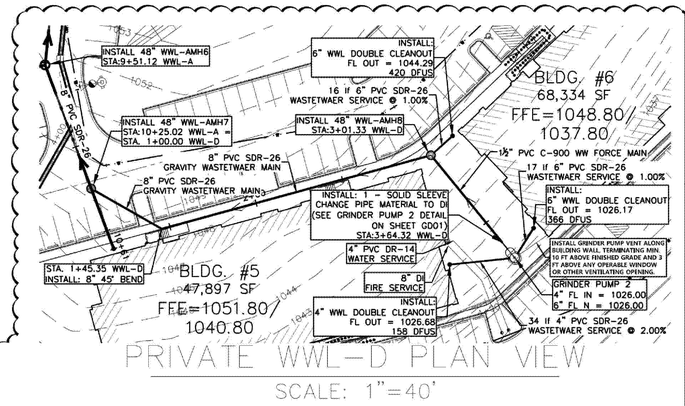
STATE OF TEXAS — REESE B HURLEY — 98211 — LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 11/26/2024

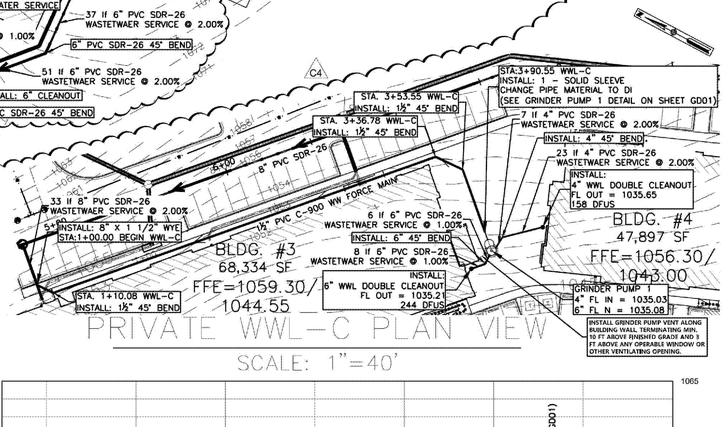
LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

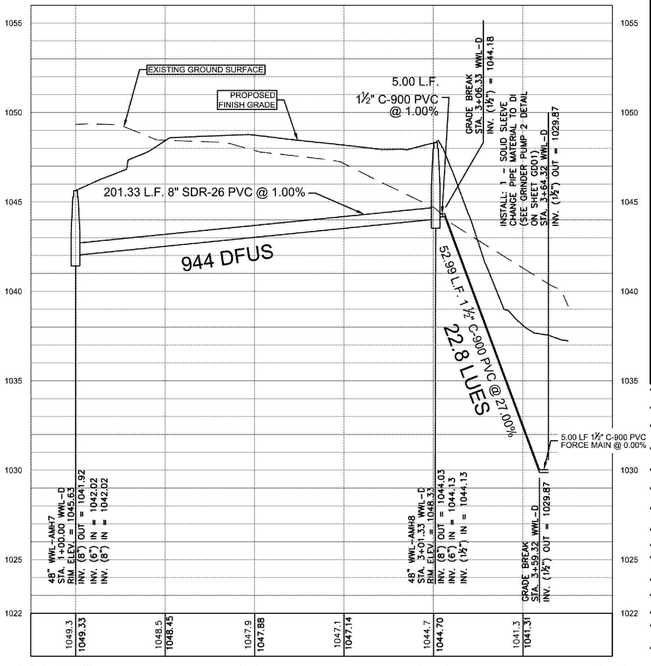
JOB NUMBER: A379-0401
WW00
SHEET NO. 21 OF 66 SHEETS

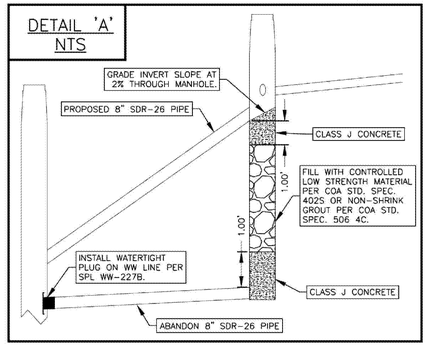
C4 REPLACEMENT SHEET
SP-2018-0138D











LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CO — CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- EXISTING WATER METER
- BFP — PROP. BACKFLOW PREVENTER
- STORM SEWER MANHOLE
- EX./PROP. WASTE MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 — MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 — MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 — MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET

Q_P = ___ GPM — FLOW CAPACITY
P_{WW} = ___ GPM — PEAK WET WEATHER FLOW
P_{DW} = ___ GPM — PEAK DRY WEATHER FLOW
V_{WW} = ___ FPS — PEAK WET WEATHER VELOCITY
V_{DW} = ___ FPS — PEAK DRY WEATHER VELOCITY
D_{WW} = ___ IN — PEAK WET WEATHER DEPTH
D_{DW} = ___ IN — PEAK DRY WEATHER DEPTH

NOTE:

1. PRIVATE WASTEWATER CLEANOUTS SHALL BE INSTALLED IN BETWEEN ANY RUNS THAT EXCEED 300' BETWEEN MANHOLES.

I, REESE HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ON THIS SHEET ASSOCIATED WITH CORRECTION #4 CHANGES DESCRIBED IN THE REVISION/CORRECTION BLOCK OF THIS SHEET. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C4

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

CITY OF AUSTIN APPROVED Date 01/02/2025 FOUNDED 1839

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
PUBLIC AND PRIVATE WASTEWATER
PLAN & PROFILE - WWL - B-D
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
4	REVISIONS PER CORRECTION #4	DSM	12/17/2024

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: WW01

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 12/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
TBPE-F-1386

JOB NUMBER: A379-0401

WW01

SHEET NO. 22
OF 66 C4 SHEETS

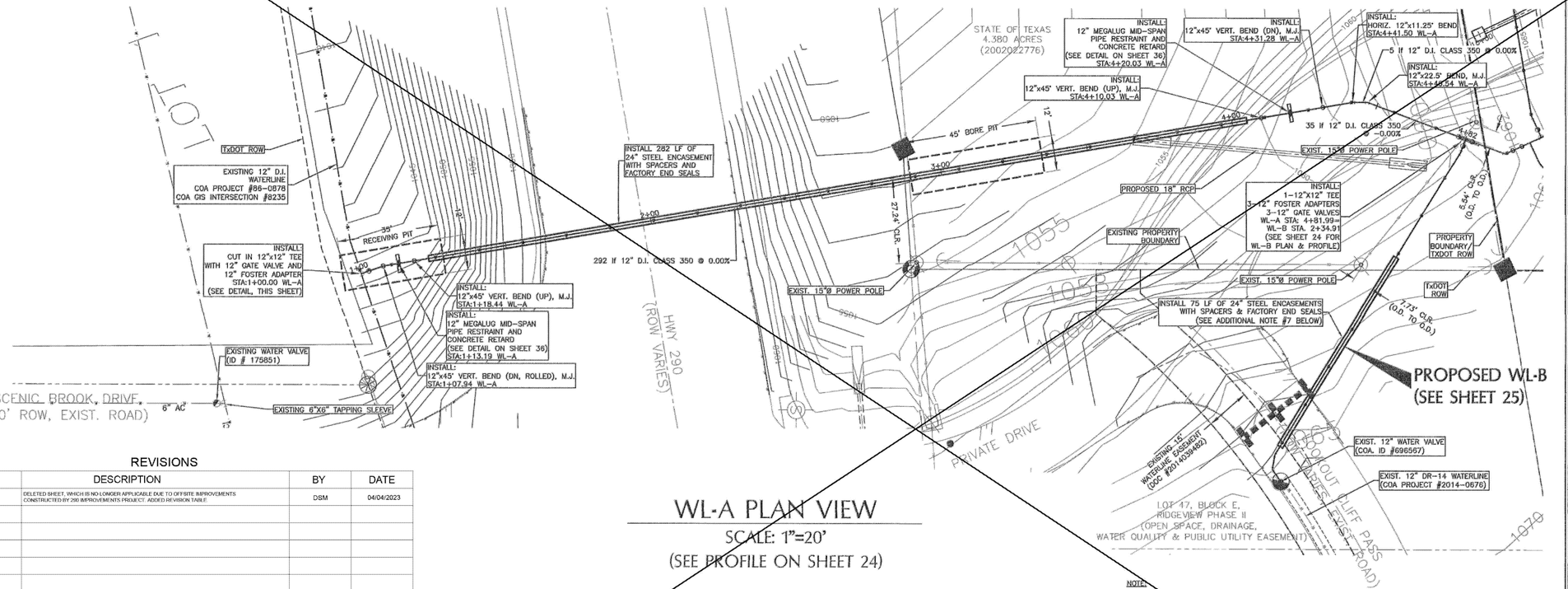
C4 REPLACEMENT SHEET

SP-2018-0138D

ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN METHODS OF FLANG OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANG OR SWIVEL TEES WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.

REVIEWED
MAR 2 9 2019
Austin Water Utility

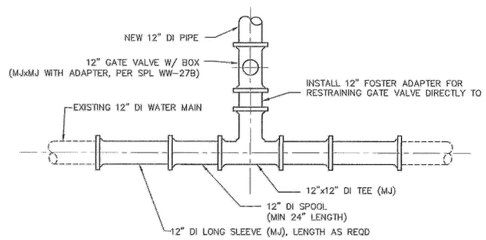
Inspection Notice: Please call Development Services Department, Site and Subdivision Inspection Division at 974-6360 for arrangements for payment of inspection fees and job assignment for inspection of the public utilities to this site. Inspection fees must be paid before any Pre-construction meeting can be held.



WL-A PLAN VIEW

SCALE: 1"=20'

(SEE PROFILE ON SHEET 24)



NOTE:

1. ALL JOINTS ALONG THE RUN WITHIN 10 FEET ATLEAST ON EITHER SIDE OF THE BRANCH CONNECTION MUST BE MECHANICALLY RESTRAINED.
2. ALL JOINTS ALONG THE BRANCH MUST BE MECHANICALLY RESTRAINED, STA. 1+00 TO STA. 3+92
3. COORDINATION OF WATER MAINS CONNECTION WITH AUSTIN WATER UTILITY WILL BE REQUIRED.

12"x12" CUT IN TEE DETAIL

NTS

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2	DELETED SHEET, WHICH IS NO LONGER APPLICABLE DUE TO OFFSITE IMPROVEMENTS CONSTRUCTED BY 290 IMPROVEMENTS PROJECT. ADDED REVISION TABLE	DSM	04/04/2023

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED
PROFESSIONAL ENGINEER

FOR C2 ONLY 04/04/2023

Replacement Sheet
REVIEWED
June 05, 2023
Austin Water
C2
Remove sheet - not needed due to completion of Oak Hill Extension

CITY OF AUSTIN
APPROVED
Date 06/06/2023
FOUNDED 1839

NOTE:

1. INSTALLATION OF WATER LINE BY BORING & OPEN CUT ENCASEMENT:

A) 12" WATER LINE SHALL BE BORED UNDERNEATH THE PAVEMENT SECTION OF TXDOT HWY 290 BETWEEN BORE PITS AS SHOWN. OTHER SECTIONS OF STEEL ENCASEMENT MAY BE INSTALLED BY OPEN CUT METHOD. BOTH METHODS SHALL INCLUDE THE FOLLOWING.
B) STEEL CASING PIPE OF 24" SHALL BE USED WITH 304 STAINLESS STEEL SPACERS AT A WIDTH SPECIFIED BY THE CITY OF AUSTIN SPL NO. WW-575. SEE DETAIL SHEET 37.
C) CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE VICINITY OF NEW UTILITY CONSTRUCTION PRIOR TO START OF PIT EXCAVATIONS AND PIPE INSTALLATION.
D) EXCAVATION OF PITS SHALL BE SUCH AS TO ENSURE THE SAFETY OF THE PUBLIC, EXISTING UTILITIES, ADJACENT PROPERTY, AND IMPROVEMENTS.

2. DUCTILE IRON WATER PIPE, EXCEPT FLANGED PIPE, TO 12" DIAMETER SHALL BE CLASS 350 AS DEFINED BY AWWA C150; SIZES 16 INCH AND LARGER SHALL BE CLASS 250 MINIMUM. FLANGED D.I. PIPE SHALL BE SPECIAL THICKNESS CLASS 53 MEETING AWWA C115, AND SHALL COMPLY WITH REQUIREMENTS OF SPL WW-27E.

3. MATERIALS SHALL MEET APPLICABLE SPECIFICATION REQUIREMENTS. ACCEPTABLE SIZES FOR POTABLE AND RECLAIMED WATER PIPES ARE 4", 6", 8", 12", 16", 24", 30" AND MULTIPLES OF 6" IN LARGER SIZES. 14", 18", AND 20" ARE ACCEPTABLE FOR REPAIR ONLY.

4. ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT DEFLECTION. P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% OF THE MAXIMUM.

5. ALL PROPOSED D.I. PIPE AND APPURTENANCES SHALL BE MECHANICALLY RESTRAINED THROUGHOUT STA. 1+00 TO STA. 4+10 FOR LINE A AND STA. 1+00 TO STA. 1+85 FOR LINE B.

6. WARNING TAPE SHALL BE PLACED ON TOP OF THE PIPE FOR THE FULL LENGTH OF RESTRAINED JOINT PIPE. THE WARNING TAPE SHALL BE YELLOW AND SHALL HAVE BLACK LETTERING AT LEAST 2 INCHES HIGH THAT STATES "RESTRAINED JOINT / JUNTA DE RESTRICCION" AT INTERVALS NOT EXCEEDING 24 INCHES. THE WARNING TAPE SHALL BE POLYPROPYLENE HAVING A MINIMUM THICKNESS OF 2 MILS, A MINIMUM WIDTH OF 3 INCHES, AND ADHESIVE BACKING ON THE SIDE OPPOSITE THE LETTERING.

7. THE INSTALLATION, CONSTRUCTION, OPERATION, USE, MAINTENANCE, REPAIR, MODIFICATION, UPGRADE, AND REPLACEMENT OF ANY STRUCTURE, BUILDING, RETAINING WALL, DETENTION OR WATER QUALITY CONTROL, RAINWATER HARVESTING SYSTEM, TREE, OT OTHER SIMILAR IMPROVEMENTS IN THE EASEMENT TRACT (LOT 47, RIDGEVIEW PHASE II) WITHIN TEN (10) LINEAR FEET EACH SIDE OF THE CENTER LINE OF THE 12" WATERLINE PIPE IS STRICTLY PROHIBITED.

NOTE FOR ALL PUBLIC DUCTILE IRON WATERLINES:

ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT DEFLECTION. P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% MAXIMUM.

City of Austin
Reviewed for General Compliance
APR 09 2019

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- EXISTING WATER METER
- PROP. BACKFLOW PREVENTER
- STORM SEWER MANHOLE
- EX./PROP. WASTE MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET
- 1/2" REBAR FOUND (OR AS NOTED)
- 1/2" REBAR WITH "CHAPARRAL" CAP SET
- 1/2" IRON PIPE FOUND
- TxDOT TYPE II DISK FOUND
- CONC. HIGHWAY MON. FOUND
- CONTROL POINT/BENCHMARK LOCATION

EXISTING SURVEY LEGEND

- WATER VALVE
- VENT PIPE
- UTILITY POLE
- GUY WIRE
- OVERHEAD UTILITIES
- ELECTRIC UTILITY
- TRAFFIC SIGNAL POLE
- SIGNAL BOX
- UNDERGROUND TELEPHONE MARKER
- TELEPHONE MANHOLE
- UNDERGROUND GAS MARKER
- STORMSEWER MANHOLE
- BOLLARD
- EDGE OF PAVEMENT
- BARB WIRE FENCE
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- WOOD FENCE
- GUARDRAIL
- P.O.B. POINT-OF-BEGINNING
- ( ) RECORD INFORMATION

JOINT RESTRAINT TABLE

PIPE SIZE	CONNECTION TYPE	MIN. JOINT RESTRAINT LENGTH (LF)
4"	22.5° BEND	5
	45° BEND	8
	DEAD END**	45
6"	22.5° BEND	6
	45° BEND	10
	DEAD END**	60
8"	11.25° BEND	6
	22.5° BEND	8
	45° BEND	15
	TEE x 4" BRANCH*	4
	TEE x 6" BRANCH*	8
	TEE x 8" BRANCH*	38
	DEAD END**	80

* – RESTRAINED LENGTH ALONG RUN SHALL BE RESTRAINED MINIMALLY 8' EACH SIDE OF TEE

** – EXCLUDING FIRE HYDRANT LATERALS, WHICH SHALL BE RESTRAINED ENTIRELY & ON EACH SIDE OF WATER VALVES

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W. Suite 160
Austin, Texas 78735. Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 5937

PUBLIC OFFSITE WATERLINE PLAN - WL-A

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET
23
OF 53

Project No: 1490-001

C2 SEE REPLACEMENT SHEET

SP-2018-0138D

Drawing File: P:\1490-001\dwg\working_drawings\submittal_files\D3\1490-001-C01-LYT-W2.dwg
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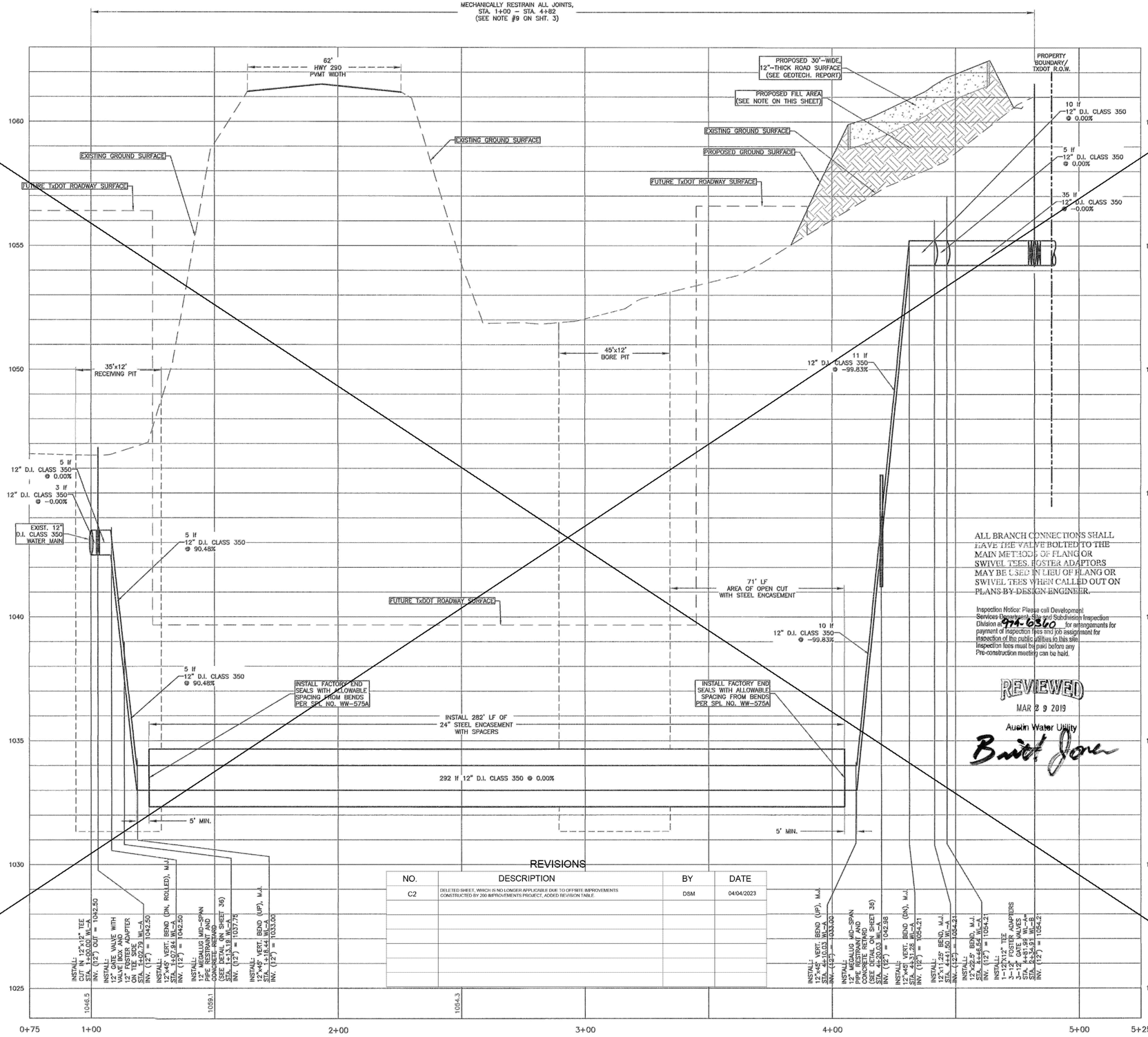
Last Saved: Mar 27, 19 - 18:03
Plot Date/Time: Mar 27, 19 - 18:14:38



WL-A PROFILE VIEW

SCALE: HORIZ. 1"=20', VERT. 1"=4'

FILL AREA NOTE:

ALL FILL AREAS OVER PROPOSED UTILITIES SHALL BE COMPACTED TO 95% PROCTOR DENSITY PRIOR TO UTILITY INSTALLATION.

ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN METHOD OF FLANGE OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANGE OR SWIVEL TEES WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.

Inspection Notice: Please call Development Services Department, Site and Subdivision Inspection Division at 974-6360 for arrangements for payment of inspection fees and job assignment for inspection of the public utilities in this site. Inspection fees must be paid before any Pre-construction meeting can be held.

REVIEWED
MAR 29 2019
Austin Water Utility

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2	DELETED SHEET, WHICH IS NO LONGER APPLICABLE DUE TO OFFSITE IMPROVEMENTS CONSTRUCTED BY 290 IMPROVEMENTS PROJECT. ADDED REVISION TABLE.	DSM	04/04/2023

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2	DELETED SHEET, WHICH IS NO LONGER APPLICABLE DUE TO OFFSITE IMPROVEMENTS CONSTRUCTED BY 290 IMPROVEMENTS PROJECT. ADDED REVISION TABLE.	DSM	04/04/2023

REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
FOR C2 ONLY 04/04/2023

APPROVED
Date 06/06/2023

Replacement Sheet
REVIEWED
June 05, 2023
C2
Remove sheet - not needed due to completion of Oak Hill Extension

SUMITA KADARIYA
120590
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
03/28/2019

City of Austin
Reviewed for General Compliance
APR 09 2019

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W. Suite 160
Austin, Texas 78735. Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

PUBLIC OFFSITE WATERLINE
PROFILE - WL-A

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

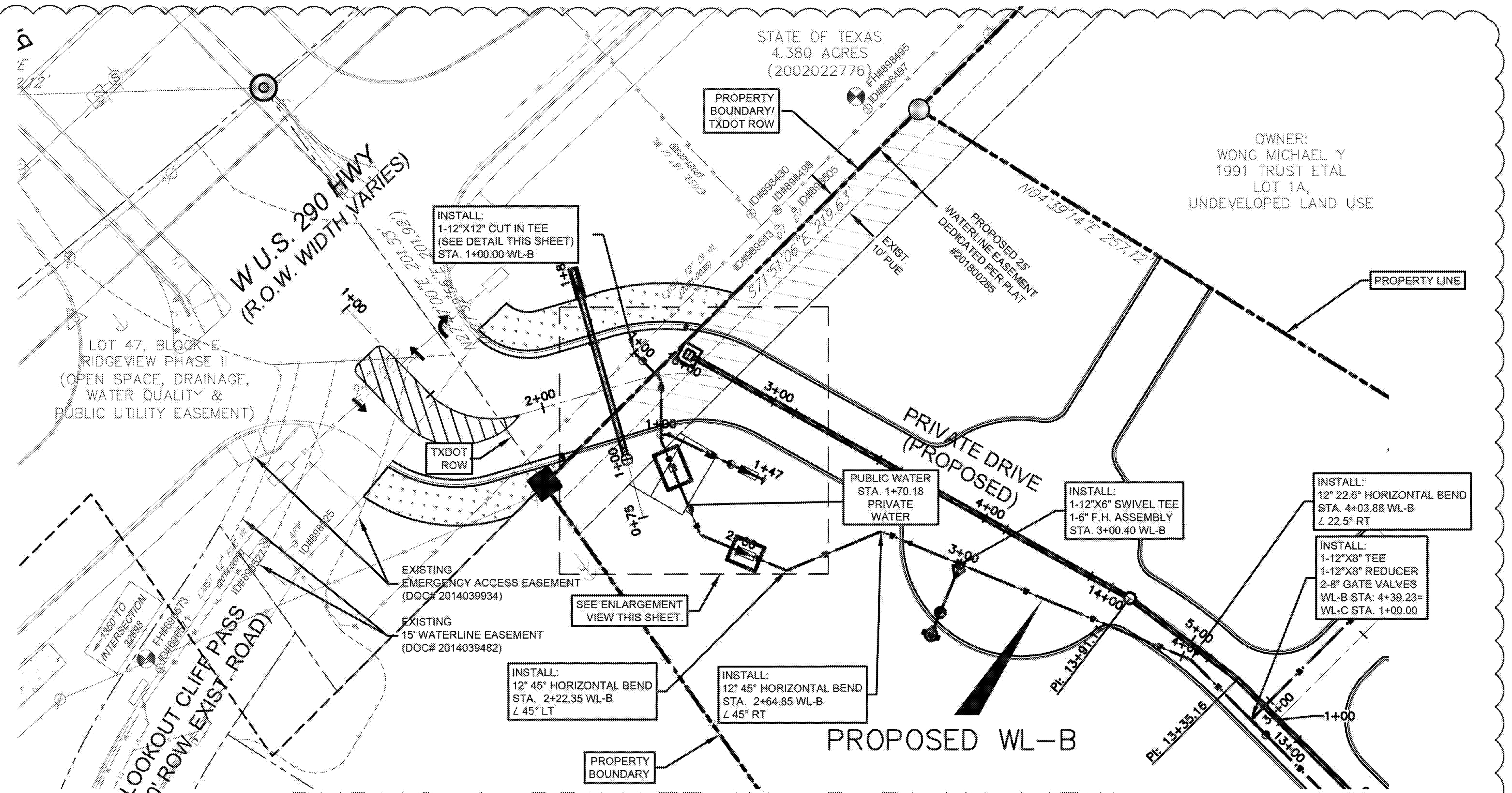
SHEET
24
OF 53

Project No:
1490-001

SP-2018-0138D

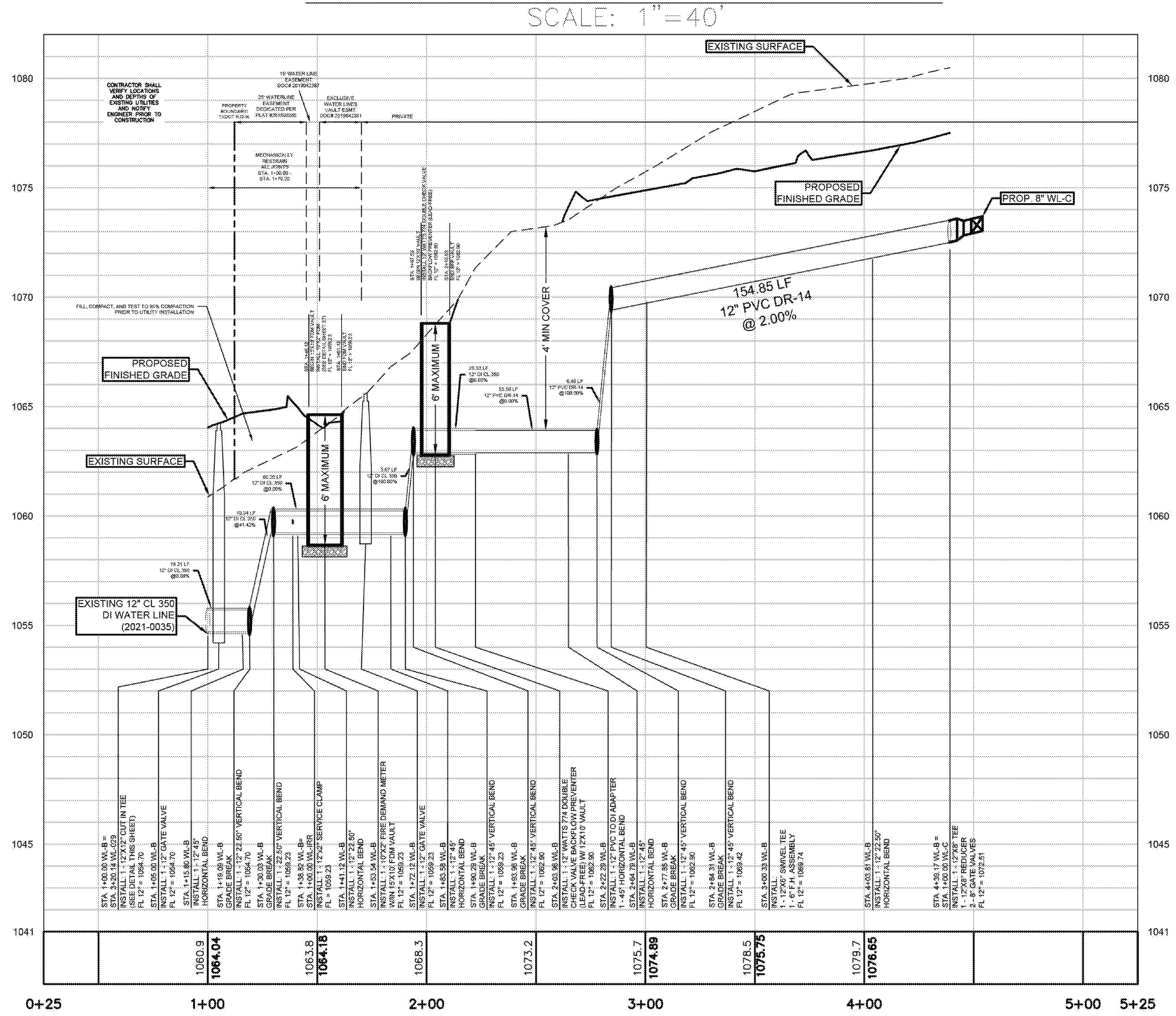
C2 REPLACEMENT SHEET

Drawing: P:\1490-001\dwg\working_drawings\submittal_files\CD\1490-001-CD-UT-W.dwg
User: GAHANSONS
Last Modified: Mar. 27, 19 – 18:05
Last Plotted: Mar. 27, 19 – 18:15:03



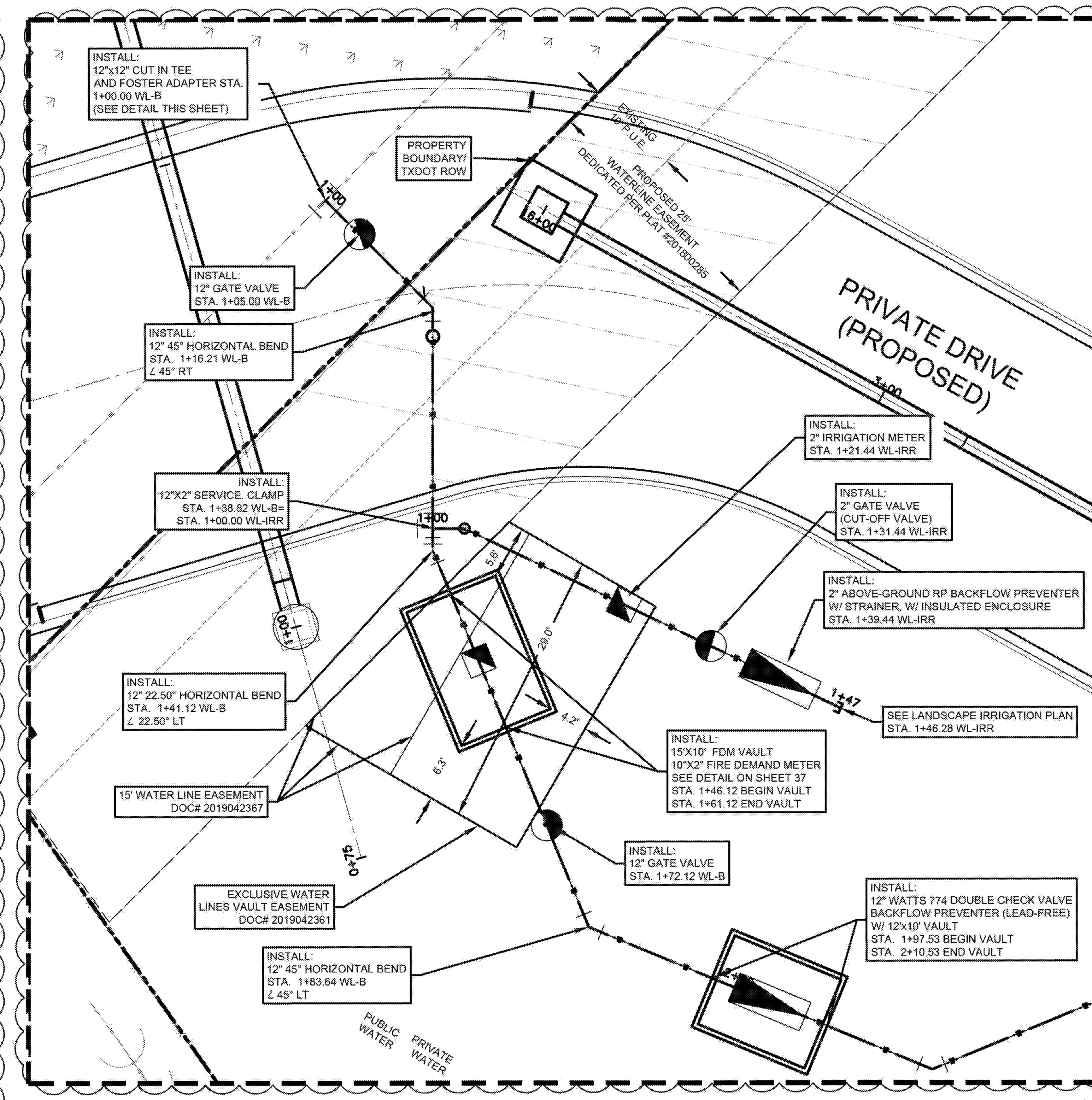
PUBLIC & PRIVATE WL-B PLAN VIEW

SCALE: 1"=40'



PUBLIC & PRIVATE WL-B PROFILE VIEW

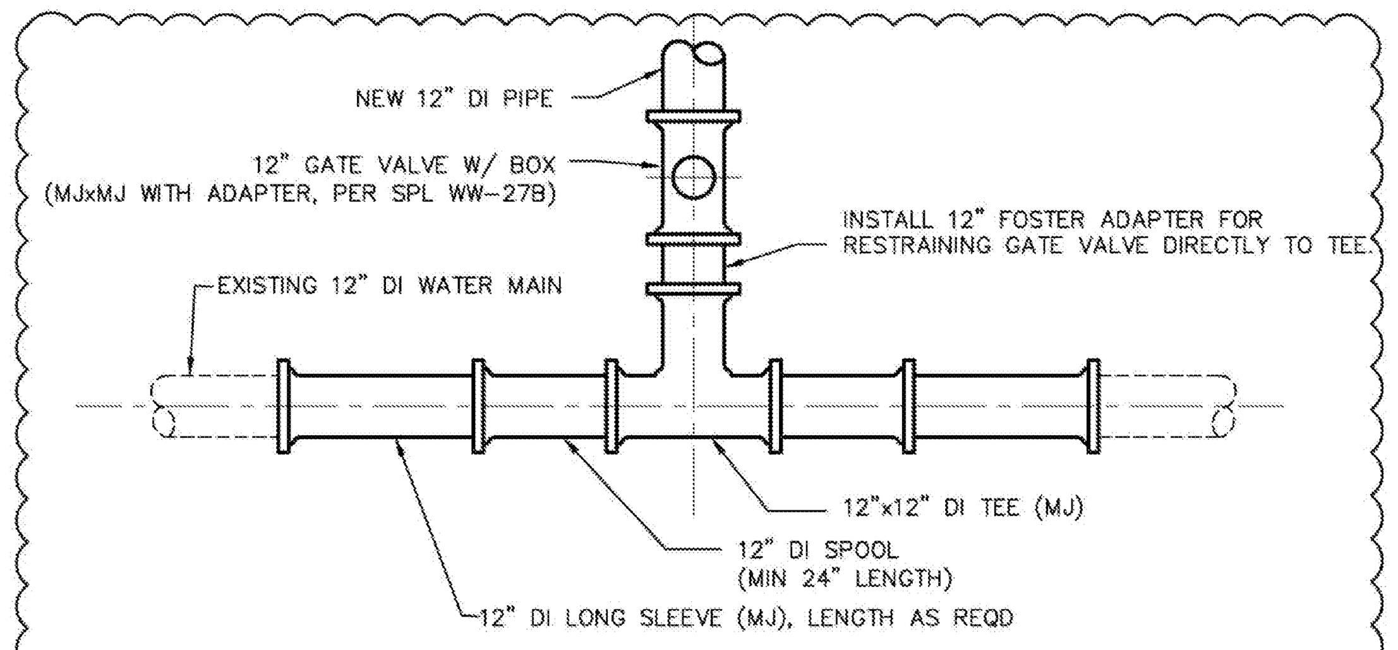
SCALE: HORIZ. 1"=40', VERT. 1"=4'



PUBLIC & PRIVATE WL-B ENLARGEMENT VIEW

SCALE: 1"=10'

NOTES:
1. ALL VALVES, TEE'S, HORIZONTAL & VERTICAL BENDS MUST BE MECHANICALLY RESTRAINED DIRECTLY TO THE TEE PER SPL WW-27A.
2. IRRIGATION SERVICE MUST BE 2" COPPER TUBING.



NOTE:
1. ALL JOINTS ALONG THE RUN WITHIN 10 FEET ATLEAST ON EITHER SIDE OF THE BRANCH CONNECTION MUST BE MECHANICALLY RESTRAINED.
2. ALL JOINTS ALONG THE BRANCH MUST BE MECHANICALLY RESTRAINED, STA. 1+00 TO STA. 4+65
3. COORDINATION OF WATER MAINS CONNECTION WITH AUSTIN WATER UTILITY WILL BE REQUIRED.

12"x12" CUT IN TEE DETAIL

NTS

LEGEND

- PROPERTY LINE
- EXISTING PROPERTY LINES
- EXISTING EASEMENTS
- 871 CONTOUR LINE
- EDGE OF ASPHALT
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- CO CLEAN OUT
- WASTEWATER MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- SERVICE POLE
- POWER POLE
- DOWN GUY
- ELECTRIC METER
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- STORM SEWER MANHOLE
- STORM SEWER AREA INLET
- OU OVERHEAD UTILITY
- W WATER LINE

GRAPHIC SCALE 1"=40'

JOINT RESTRAINT TABLE

PIPE SIZE	CONNECTION TYPE	MIN. JOINT RESTRAINT LENGTH (LF)
4"	22.5° BEND	5
	45° BEND	8
	DEAD END**	45
6"	22.5° BEND	6
	45° BEND	10
	DEAD END**	60
8"	11.25° BEND	6
	22.5° BEND	8
	45° BEND	15
	TEE x 4" BRANCH*	4
	TEE x 6" BRANCH*	8
	TEE x 8" BRANCH*	38
	DEAD END**	80

* — RESTRAINED LENGTH ALONG RUN SHALL BE RESTRAINED MINIMALLY 8' EACH SIDE OF TEE

** — EXCLUDING FIRE HYDRANT LATERALS, WHICH SHALL BE RESTRAINED ENTIRELY & ON EACH SIDE OF WATER VALVES

NOTES FOR PRIVATE PVC DR-14 WATERLINES:

1. MATERIAL MUST COMPLY WITH REQUIREMENT OF DESCRIPTION SPECIFIED ON CITY OF AUSTIN SPL # WW-308 FOR PVC WATER PIPE AND BE RATED ABOVE DESIGN PRESSURE. ACCEPTABLE SIZES ARE 4", 6", 8" AND 12".
2. AWWA C900 WATER PIPE SHALL NOT BE USED IN EASEMENTS ON PRIVATE PROPERTY AND SHALL NOT BE USED FOR WASTEWATER FORCE MAINS OR TO CONVEY ANYTHING BUT POTABLE WATER.
3. CHANGES IN DIRECTION OF PVC PIPE SHALL ONLY BE BY USE OF FITTINGS OR BY DEFLECTING STRAIGHT PIPE SECTIONS AT JOINTS.
4. LONGITUDINAL BENDING OF PIPE IS NOT ALLOWED.
5. DEFLECTION OF PIPE AT FITTINGS IS NOT ALLOWED.
6. DEFLECTION OF STRAIGHT PIPE SECTIONS SHALL NOT EXCEED 1 DEGREE AT EACH JOINT, WHICH CORRESPONDS TO THE FOLLOWING OFFSET IN PIPE ALIGNMENT:

LENGTH OF PIPE, FT	OFFSET, INCHES	ALLOWABLE RADIUS OF CURVATURE, FT
20	4 MAXIMUM	1,146 MINIMUM

7. WARNING TAPE SHALL BE PLACED ON TOP OF THE PIPE FOR THE FULL LENGTH OF RESTRAINED JOINT PIPE. THE WARNING TAPE SHALL BE YELLOW AND SHALL HAVE BLACK LETTERING AT LEAST 2 INCHES HIGH THAT STATES "RESTRAINED JOINT / JUNTA DE RESTRICCION" AT INTERVALS NOT EXCEEDING 24 INCHES. THE WARNING TAPE SHALL BE POLYPROPYLENE HAVING A MINIMUM THICKNESS OF 2 MILS, A MINIMUM WIDTH OF 3 INCHES, AND ADHESIVE BACKING ON THE SIDE OPPOSITE THE LETTERING.
8. ALL FILL AREAS OVER PROPOSED UTILITIES SHALL BE COMPACTED TO 95% PROCTOR DENSITY PRIOR TO UTILITY INSTALLATION.
9. THE INSTALLATION, CONSTRUCTION, OPERATION, USE, MAINTENANCE, REPAIR, MODIFICATION, UPGRADE, AND REPLACEMENT OF ANY STRUCTURE, BUILDING, RETAINING WALL, DETENTION OR WATER QUALITY CONTROL, RAINWATER HARVESTING SYSTEM, TREE, OT OTHER SIMILAR IMPROVEMENTS IN THE EASEMENT TRACT (LOT 47, RIDGEVIEW PHASE II) WITHIN TEN (10) LINEAR FEET EACH SIDE OF THE CENTER LINE OF THE 12" WATERLINE PIPE IS STRICTLY PROHIBITED.

NOTE FOR ALL PUBLIC DUCTILE IRON WATERLINES:

ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT DEFLECTION. P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% MAXIMUM.

Replacement Sheet
REVIEWED June 05, 2023
Revise alignment of water service connection and meter due to field conditions related to Oak Hill Extension project

CITY OF AUSTIN APPROVED Date 06/06/2023

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
PUBLIC & PRIVATE OFFSITE WATERLINE PLAN & PROFILE WL-B
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
2		DSM	04/04/2023

JOB NUMBER: A379-0401
DATE: 02/06/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH

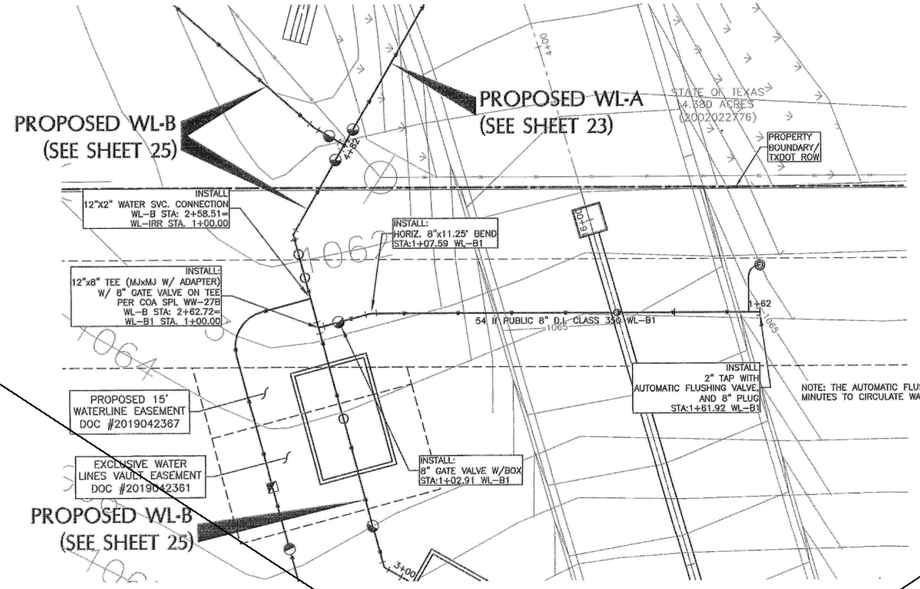
REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C2 ONLY 05/05/2023

LJA Engineering, Inc.
7500 Rialto Boulevard Building II, Suite 100 Austin, Texas 78735
Phone 512.439.4700 Fax 512.439.4716 FRN-F-1386

JOB NUMBER: A379-0401
WL01
SHEET NO. 25 OF 63 SHEETS

SP-2018-0138D

C2 REPLACEMENT SHEET

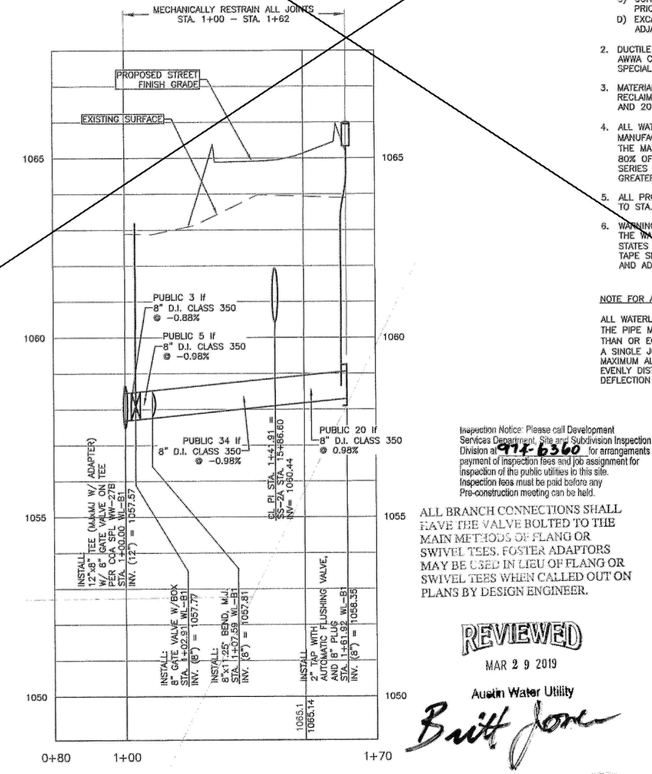


PUBLIC WL-B1 PLAN VIEW

SCALE: 1"=20'

NOTE: THE AUTOMATIC FLUSH VALVE SHALL FLUSH AT THE RATE OF 70 GPM FOR 2 MINUTES TO CIRCULATE WATER IN THIS DEAD END MAIN EVERY 72 HOURS.

NOTES:
1. ALL VALVES, TEE'S, HORIZONTAL & VERTICAL BENDS MUST BE MECHANICALLY RESTRAINED DIRECTLY TO THE TEE PER SPL WW-27A.



PUBLIC WL-B1 PROFILE VIEW

SCALE: HORIZ. 1"=20', VERT. 1"=2'

NOTE:

1. INSTALLATION OF WATER LINE BY BORING:
   A) 12" WATER LINE SHALL BE BORED UNDERNEATH TXDOT HWY 290.
   B) STEEL CASING PIPE OF 24" SHALL BE USED WITH 304 STAINLESS STEEL SPACERS AT A WIDTH SPECIFIED BY THE CITY OF AUSTIN SPL NO. WW-575. SEE DETAIL SHEET 37.
   C) CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE VICINITY OF NEW UTILITY CONSTRUCTION PRIOR TO START OF PIT EXCAVATIONS AND PIPE INSTALLATION.
   D) EXCAVATION OF PITS SHALL BE SUCH AS TO ENSURE THE SAFETY OF THE PUBLIC, EXISTING UTILITIES, ADJACENT PROPERTY, AND IMPROVEMENTS.
2. DUCTILE IRON WATER PIPE, EXCEPT FLANGED PIPE, TO 12" DIAMETER SHALL BE CLASS 350 AS DEFINED BY AWWA C150; SIZES 16 INCH AND LARGER SHALL BE CLASS 250 MINIMUM. FLANGED D.I. PIPE SHALL BE SPECIAL THICKNESS CLASS 53 MEETING AWWA C115, AND SHALL COMPLY WITH REQUIREMENTS OF SPL WW-27E.
3. MATERIALS SHALL MEET APPLICABLE SPECIFICATION REQUIREMENTS. ACCEPTABLE SIZES FOR POTABLE AND RECLAIMED WATER PIPES ARE 4", 6", 8", 12", 16", 24", 30" AND MULTIPLES OF 6" IN LARGER SIZES. 14", 18", AND 20" ARE ACCEPTABLE FOR REPAIR ONLY.
4. ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT DEFLECTION. P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% OF THE MAXIMUM.
5. ALL PROPOSED D.I. PIPE AND APPURTENANCES SHALL BE MECHANICALLY RESTRAINED THROUGHOUT STA. 1+00 TO STA. 3+92.
6. WARNING TAPE SHALL BE PLACED ON TOP OF THE PIPE FOR THE FULL LENGTH OF RESTRAINED JOINT PIPE. THE WARNING TAPE SHALL BE YELLOW AND SHALL HAVE BLACK LETTERING AT LEAST 2 INCHES HIGH THAT STATES 'RESTRAINED JOINT / JUNTA DE RESTRICCION' AT INTERVALS NOT EXCEEDING 24 INCHES. THE WARNING TAPE SHALL BE POLYPROPYLENE HAVING A MINIMUM THICKNESS OF 2 MILS, A MINIMUM WIDTH OF 3 INCHES, AND ADHESIVE BACKING ON THE SIDE OPPOSITE THE LETTERING.

NOTE FOR ALL PUBLIC DUCTILE IRON WATERLINES:

ALL WATERLINE P.I.'S BOTH HORIZONTAL AND VERTICAL, SHALL BE ACHIEVED BASED UPON THE PIPE MANUFACTURER'S SPECIFIED MAXIMUM ALLOWABLE JOINT DEFLECTION. P.I.'S LESS THAN OR EQUAL TO 80% OF THE MANUFACTURER'S MAXIMUM SHALL BE CONSTRUCTED AS A SINGLE JOINT DEFLECTION. P.I.'S IN EXCESS OF 80% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE JOINT DEFLECTION ANGLE SHALL BE CONSTRUCTED AS A SERIES OF EVENLY DISTRIBUTED DEFLECTIONS OVER MULTIPLE JOINTS, SO THAT NO SINGLE DEFLECTION IS GREATER THAN 80% MAXIMUM.

Inspection Notice: Please call Development Services Department, Site and Subdivision Inspection Division at 974-6360 for arrangements for payment of inspection fees and job assignment for inspection of this public utilities in this site. Inspection fees must be paid before any Pre-construction meeting can be held.

ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN METHODS OF FLANG OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANG OR SWIVEL TEES WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.

REVIEWED
MAR 29 2019
Austin Water Utility

Brett Jones

Replacement Sheet
REVIEWED
June 06, 2023
C2
Remove sheet - not needed due to completion of Oak Hill Extension

CITY OF AUSTIN
APPROVED
Date 06/06/2023
FOUNDED 1839

City of Austin
Reviewed for General Compliance
APR 09 2019 DH

REVISIONS

NO.	DESCRIPTION	BY	DATE
C2	DELETED SHEET, WHICH IS NO LONGER APPLICABLE DUE TO OFF-SITE IMPROVEMENTS CONSTRUCTED BY 290 IMPROVEMENTS PROJECT. ADDED REVISION TABLE.	DSM	04/04/2023

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED
PROFESSIONAL ENGINEER
FOR C2 ONLY 04/04/2023

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- EXISTING WATER METER
- PROP. BACKFLOW PREVENTER
- STORM SEWER MANHOLE
- EX./PROP. WASTE MANHOLE
- WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET
- 1/2" REBAR FOUND (OR AS NOTED)
- 1/2" REBAR WITH "CHAPARRAL" CAP SET
- 1/2" IRON PIPE FOUND
- TxDOT TYPE II DISK FOUND
- CONC. HIGHWAY MON. FOUND
- CONTROL POINT/BENCHMARK LOCATION

EXISTING SURVEY LEGEND

- WATER VALVE
- VENT PIPE
- UTILITY POLE
- GUY WIRE
- OVERHEAD UTILITIES
- ELECTRIC UTILITY
- TRAFFIC SIGNAL POLE
- SIGNAL BOX
- UNDERGROUND TELEPHONE MARKER
- TELEPHONE MANHOLE
- UNDERGROUND GAS MARKER
- STORMSEWER MANHOLE
- BOLLARD
- EDGE OF PAVEMENT
- BARB WIRE FENCE
- CHAIN LINK FENCE
- WROUGHT IRON FENCE
- WOOD FENCE
- GUARDRAIL
- P.O.B. POINT-OF-BEGINNING
- ( ) RECORD INFORMATION

JOINT RESTRAINT TABLE

PIPE SIZE	CONNECTION TYPE	MIN. JOINT RESTRAINT LENGTH (LF)
4"	22.5° BEND	5
	45° BEND	8
	DEAD END**	45
6"	22.5° BEND	6
	45° BEND	10
	DEAD END**	60
8"	11.25° BEND	8
	22.5° BEND	8
	45° BEND	15
	TEE x 4" BRANCH*	4
	TEE x 6" BRANCH*	8
	TEE x 8" BRANCH*	38
	DEAD END**	80

* – RESTRAINED LENGTH ALONG RUN SHALL BE RESTRAINED MINIMALLY 8' EACH SIDE OF TEE.

** – EXCLUDING FIRE HYDRANT LATERALS, WHICH SHALL BE RESTRAINED ENTIRELY & ON EACH SIDE OF WATER VALVES

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

PUBLIC OFFSITE WATERLINE PLAN & PROFILE WL-B1

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
121590
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

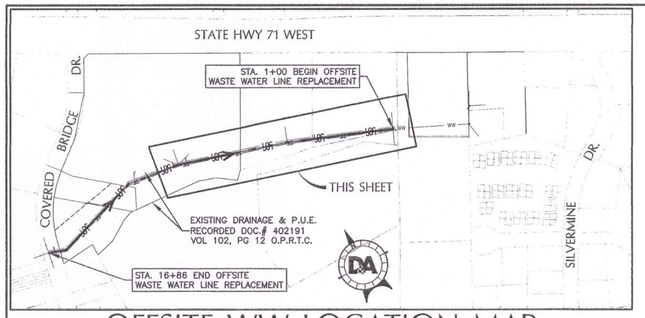
SHEET
26
OF 53

Project No.: 1490-001

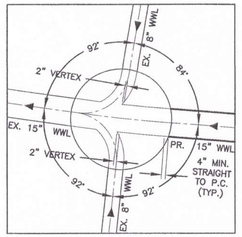
SP-2018-0138D

C2 SEE REPLACEMENT SHEET

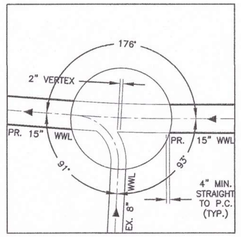
Drawing: C:\1490-001\Eng\working_drawings\submittal\sc_files\C01-1490-001-PD-UT-R0.dwg
Last Modified: Mar. 28, 19 – 09:29
Last Date/Time Plotted: Mar. 28, 19 – 09:40



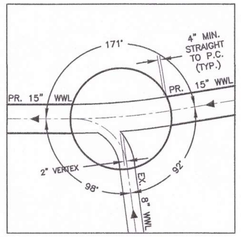
OFFSITE WW LOCATION MAP



STA. 1+00.00 OFFSITE WWL
EX. MH #124875
NOT TO SCALE



STA. 5+45.80 OFFSITE WWL
EX. MH #124873
NOT TO SCALE

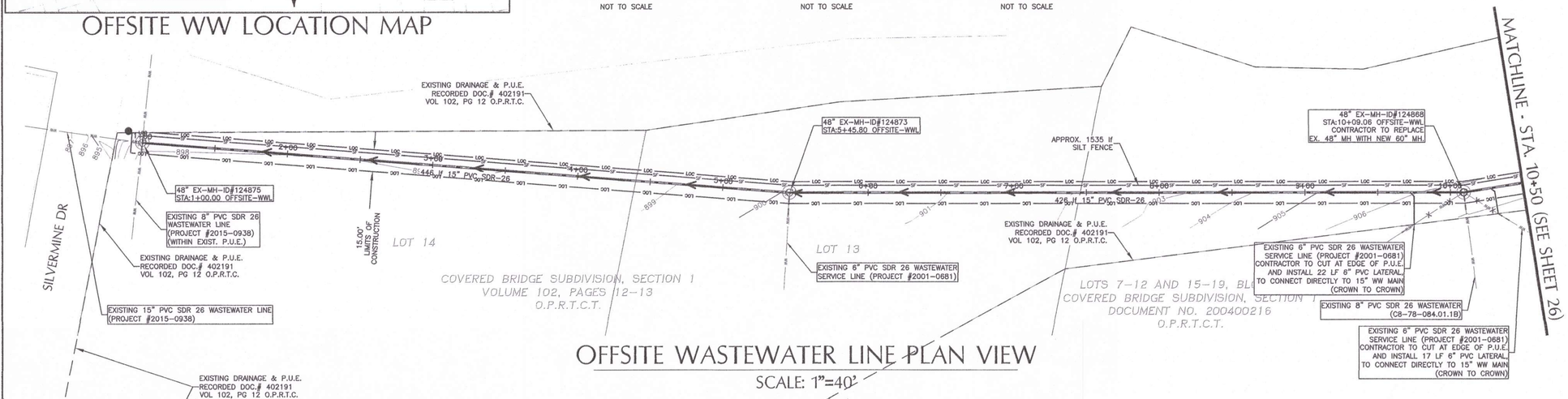


STA. 10+09.06 OFFSITE WWL
EX. MH #124868
NOT TO SCALE

MH #124873 REHAB NOTE:
Core manholes invert from 12 to 15 inches on upstream side. Match existing flowlines. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipe. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Remove and replace the existing eccentric cone section with a concentric cone, with vent and new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2 with ring & cover per detail 503S-SW. All damaged or altered MH interior surface coatings shall be repaired and coated with new coating per SPL WW-511.

MH #124873 REHAB NOTE:
Core manholes invert from 12 to 15 inches. Match existing flowlines. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipes. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Remove and replace the existing eccentric cone section with a concentric cone, with vent along with new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2. All damaged or altered MH interior surface coatings shall be repaired and coated with new coating per SPL WW-511.

MH #124868 REHAB NOTE:
Replace existing 4' Dia. manhole with 6' Dia. Manhole with 15' invert thru MH. Install 8' at 270 degrees. Match existing flowlines thru MH. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be sized to match the sized connecting pipes. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Install with a concentric cone along with new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2. MH interior surface shall be coating per SPL WW-511.



OFFSITE WASTEWATER LINE PLAN VIEW

SCALE: 1"=40'

OFFSITE WASTEWATER LINE PROFILE VIEW

SCALE: HORIZ. 1"=40', VERT. 1"=4'

Inspection Notice: Please call Development Services Department Site and Subdivision Inspection Division at 974-6390 for arrangements for payment of inspection fees and job assignment for inspection of the public utilities to this site. Inspection fees must be paid before any Pre-construction meeting can be held.

REVIEWED
MAR 29 2019
Austin Water Utility
Brett Jones

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CLEAN OUT
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- WWL-AMH1 MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- STORM SEWER AREA INLET

Q_C = ____	GPM	FLOW CAPACITY
P_W = ____	GPM	PEAK WET WEATHER FLOW
P_D = ____	GPM	PEAK DRY WEATHER FLOW
V_W = ____	FPS	PEAK WET WEATHER VELOCITY
V_D = ____	FPS	PEAK DRY WEATHER VELOCITY
D_W = ____	IN	PEAK WET WEATHER DEPTH
D_D = ____	IN	PEAK DRY WEATHER DEPTH

NOTES:

1. EXISTING MANHOLES ARE TO REMAIN, EXCEPT AS SPECIFIED OTHERWISE ON PLANS.
2. ALL EXISTING 12" PVC WASTEWATER LINES BETWEEN EXISTING MH#124870 AND EXISTING MH#124875 ARE TO BE REPLACED WITH 15" PVC WASTEWATER LINES.
3. FLOW CONTROL IS A CONTRACTOR RESPONSIBILITY. IT IS RECOMMENDED THAT ONE LINE AT A TIME BE REPLACED STARTING FROM DOWNSTREAM SIDE. PLUG ALL THE INFLUENTS AT THE EXISTING UPSTREAM MANHOLE WHERE THE PIPES NEED TO BE REPLACED. VACUUM SUCK THE FLOW AND BYPASS IT TO DOWNSTREAM MANHOLE. APPLY THE COATING, LET IT CURE AND UNPLUG THE LINES.
4. CONTRACTOR SHALL SUBMIT A BY-PASS PUMPING PLAN TO AUSTIN WATER UTILITY INSPECTOR. SPECIAL SPECIFICATION SS1540, PROVIDED ON SHEET 27. BY-PASS PUMPING SHALL BE INCLUDED ON BY-PASS PUMPING PLAN.
5. EXISTING MANHOLES SHALL BE REHABILITATED AS IDENTIFIED AT EACH MANHOLE ON THE PLANS.
6. TRENCHING FOR THE WORK SHALL BE AS PER COA STD. ITEM #509S.
7. CONTRACTOR SHALL REVEGETATE THE AREA DISTURBED AFTER THE INSTALLATION OF LINES.
8. CONTRACTOR SHALL VERIFY PROPER INVERT DRAINAGE OF ALL EXISTING MANHOLES. VERTEX OF CHANNELS JOINING WASTEWATER MAIN CHANNEL SHALL HAVE A VERTEX THAT EXTENDS 2" MINIMUM BEYOND ℄ OF PIPE. SEE INVERT DETAIL ON THIS SHEET FOR ILLUSTRATION.
9. CONTRACTOR SHALL RECONNECT ALL EXISTING SERVICE LATERALS AFTER INSTALLATION OF PROPOSED 15" WASTEWATER LINE. ALL SERVICE CONNECTIONS THAT CONNECT DIRECTLY TO WASTEWATER MAIN MUST BE ALIGNED CROWN-TO-CROWN AT POINT OF CONNECTION.

Copy of City of Austin Originals MILLER

City of Austin Reviewed for General Compliance
APR 09 2019 DA

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.douceengineers.com
Firm Registration Number: 3937

OFFSITE WASTEWATER PLAN & PROFILE

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED PROFESSIONAL ENGINEER
03/28/2019

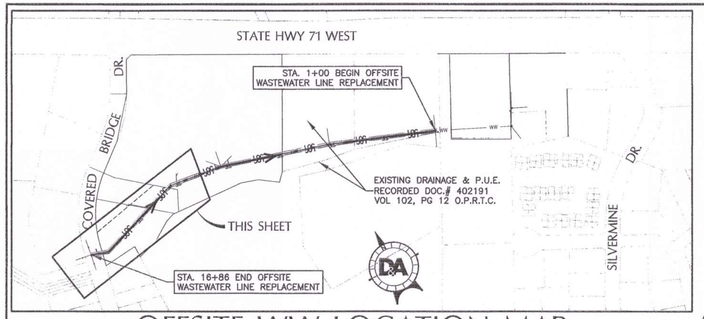
Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET 27 OF 53

Project No.: 1490-001

SP-2018-0138D

Drawing: P:\1490-001\dwg\working_drawings\submitted_files\CD\1490-001-CD-UT.dwg
User: GPARSONS
Last Modified: Mar. 27, 19 - 18:07
Plot Date/Time: Mar. 27, 19 - 18:16:24

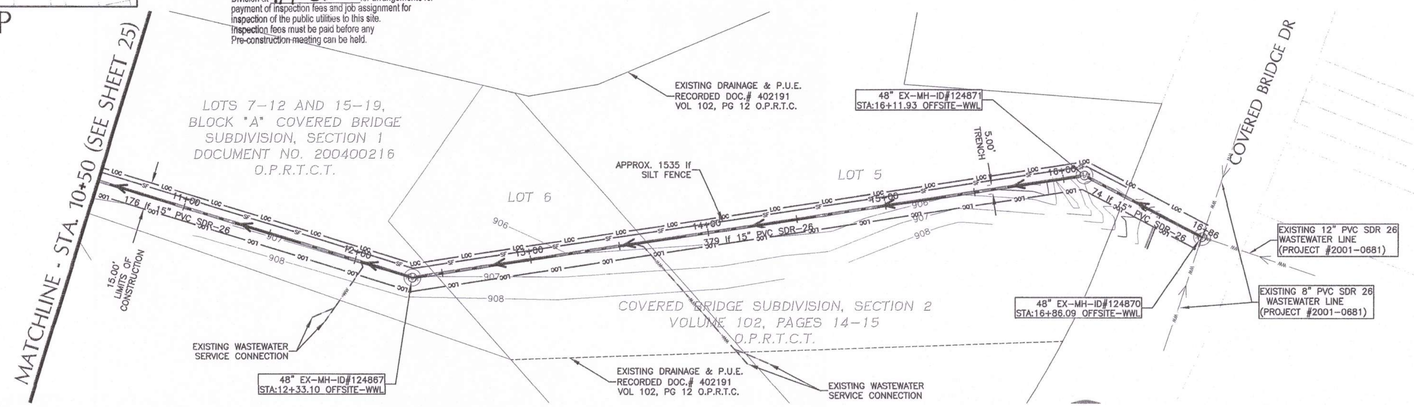


OFFSITE WW LOCATION MAP

REVIEWED
MAR 2 9 2019
Austin Water Utility

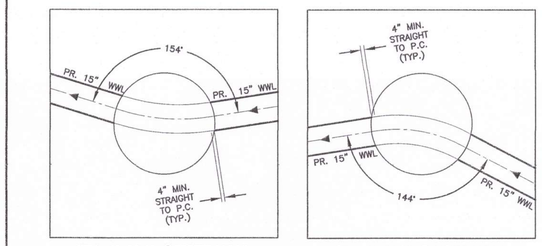
ALL BRANCH CONNECTIONS SHALL HAVE THE VALVE BOLTED TO THE MAIN METHODS OF FLANG OR SWIVEL TEES. FOSTER ADAPTORS MAY BE USED IN LIEU OF FLANG OR SWIVEL TEES WHEN CALLED OUT ON PLANS BY DESIGN ENGINEER.

Inspection Notice: Please call Development Services Department, Site and Subdivision Inspection Division at 972-6302 for arrangements for payment of inspection fees and job assignment for inspection of the public utilities to this site. Inspection fees must be paid before any Pre-construction meeting can be held.



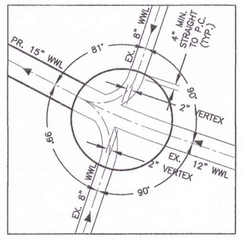
OFFSITE WASTEWATER LINE PLAN VIEW

SCALE: 1"=40'



STA. 12+33.10 OFFSITE WWL
EX. MH #124867
NOT TO SCALE

STA. 16+11.93 OFFSITE WWL
EX. MH #124871
NOT TO SCALE



STA. 16+86.09 OFFSITE WWL
EX. MH #124870
NOT TO SCALE

OFFSITE WASTEWATER LINE PROFILE VIEW

SCALE: HORIZ. 1"=40', VERT. 1"=4'

MH #124867 REHAB NOTE:
Core manholes invert from 12 to 15 inches. Match existing flowlines. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipes. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Remove and replace the existing eccentric cone section with a concentric cone, with vent along with new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2. All damaged or altered MH interior surface coatings shall be repaired and coated with new coating per SPL WW-511.

MH #124871 REHAB NOTE:
Core manholes invert from 12 to 15 inches on upstream side. Match existing flowlines. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipe. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Remove and replace the existing eccentric cone section with a concentric cone, with vent and new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2 with ring & cover per detail 5035-6W. All damaged or altered MH interior surface coatings shall be repaired and coated with new coating per SPL WW-511.

MH #124870 REHAB NOTE:
Core manholes invert from 12 to 15 inches. Match existing flowlines. Install with pipe to manhole seals per SPL WW-146A or SPL WW-146D at wall penetrations. The width of the invert shall be re-sized to match the upsized connecting pipes. Inverts shall be "U" shaped channels. The channel depth at the point where a pipe connects to the manhole wall shall be a minimum of three fourths of the diameter of the pipe, with the top of the channel being a smooth transition between the inlet and outlet pipe connection points. Changes in flow direction in the inverts of manholes shall be made by constructing smooth, long-radius sweeps to minimize splashing, turbulence, and eddies. Remove and replace the existing eccentric cone section with a concentric cone, with vent along with new ring and cover as for areas 'outside pavement' per detail 506S-4 sheet 2. All damaged or altered MH interior surface coatings shall be repaired and coated with new coating per

LEGEND

- PROPERTY LINES
- EXISTING EASEMENTS
- PROPOSED EASEMENTS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED STORM SEWER
- WASTEWATER BORING
- CO — CLEAN OUT
- BOLLARD
- EXIST./PROP. FIRE HYDRANT
- T — TELEPHONE MANHOLE
- TELEPHONE SERVICE BOX
- EXIST./PROP. WATER VALVE
- PROP. WATER METER
- W — EXISTING WATER METER
- BFP — PROP. BACKFLOW PREVENTER
- S — STORM SEWER MANHOLE
- WW — EX./PROP. WASTE MANHOLE
- W — WATER MANHOLE
- SIGN (AS NOTED)
- POWER POLE
- DOWN GUY
- WWL-AMH1 — MANHOLE NO. OF WASTEWATER LINE A
- WWL-BMH1 — MANHOLE NO. OF WASTEWATER LINE B
- WWL-CMH1 — MANHOLE NO. OF WASTEWATER LINE C
- SERVICE POLE
- S — STORM SEWER AREA INLET

Q_C =	GPM	FLOW CAPACITY
P_W =	GPM	PEAK WET WEATHER FLOW
P_b =	GPM	PEAK DRY WEATHER FLOW
V_W =	FPS	PEAK WET WEATHER VELOCITY
V_b =	FPS	PEAK DRY WEATHER VELOCITY
D_W =	IN	PEAK WET WEATHER DEPTH
D_b =	IN	PEAK DRY WEATHER DEPTH

NOTES:

1. EXISTING MANHOLES ARE TO REMAIN, EXCEPT AS SPECIFIED OTHERWISE ON PLANS.
2. ALL EXISTING 12" PVC WASTEWATER LINES BETWEEN EXISTING MH#124870 AND EXISTING MH#124875 ARE TO BE REPLACED WITH 15" PVC WASTEWATER LINES.
3. FLOW CONTROL IS A CONTRACTOR RESPONSIBILITY. IT IS RECOMMENDED THAT ONE LINE AT A TIME BE REPLACED STARTING FROM DOWNSTREAM SIDE. PLUG ALL THE INFLUENTS AT THE EXISTING UPSTREAM MANHOLE WHERE THE PIPES NEED TO BE REPLACED. VACUUM SUCK THE FLOW AND BYPASS IT TO DOWNSTREAM MANHOLE. APPLY THE COATING, LET IT CURE AND UNPLUG THE LINES.
4. CONTRACTOR SHALL SUBMIT A BY-PASS PUMPING PLAN TO AUSTIN WATER UTILITY INSPECTOR. SPECIAL SPECIFICATION SS1540, PROVIDED ON SHEET 27. BY-PASS PUMPING SHALL BE INCLUDED ON BY-PASS PUMPING PLAN.
5. EXISTING MANHOLES SHALL BE REHABILITATED AS IDENTIFIED AT EACH MANHOLE ON THE PLANS.
6. TRENCHING FOR THE WORK SHALL BE AS PER COA STD. ITEM #509S.
7. CONTRACTOR SHALL REVEGETATE THE AREA DISTURBED AFTER THE INSTALLATION OF LINES.
8. CONTRACTOR SHALL VERIFY PROPER INVERT DRAINAGE OF ALL EXISTING MANHOLES. VERTEX OF CHANNELS JOINING WASTEWATER MAIN CHANNEL SHALL HAVE A VERTEX THAT EXTENDS 2" MINIMUM BEYOND ℄ OF PIPE. SEE INVERT DETAIL ON THIS SHEET FOR ILLUSTRATION.
9. CONTRACTOR SHALL RECONNECT ALL EXISTING SERVICE LATERALS AFTER INSTALLATION OF PROPOSED 15" WASTEWATER LINE. ALL SERVICE CONNECTIONS THAT CONNECT DIRECTLY TO WASTEWATER MAIN MUST BE ALIGNED CROWN-TO-CROWN AT POINT OF CONNECTION.

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

OFFSITE WASTEWATER PLAN & PROFILE (CONT.)

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
90590
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET
28
OF 53

Project No:
1490-001

SP-2018-0138D

Drawing: P:\1490-001\dwg\working_drawings\submitted_files\CD\1490-001-CD-U1.dwg
User: GPARSONS
Last Modified: Mar. 27, 19 - 18:02
Last Plotted: Mar. 27, 19 - 18:16:34

SO1540.1 Description

A. This special specification governs by-pass pumping for the flow of wastewater around the section or sections of pipe designated for rehabilitation including active services.

B. The work covered by this speciation consists of furnishing all labor, supervision, tools, equipment, appliances, and materials to perform all operations in connection with pumping of wastewater and wet weather flows around pipe section(s). The purpose of by-pass pumping is to prevent wastewater overflows and provide reliable sewer service at all times. The Contractor shall maintain sewage flow in the construction area in order to prevent back-up and/or overflow into upstream pipe segments and laterals, adjacent ditches, storm sewers, and waterways.

SO1540.2 Definitions

A. By-pass pumping is the installation and operation of bulkheads, plugs, hoses, piping, and pumps to maintain wastewater flow and prevent backup and overflow.

B. By-pass pumping provides continuous wastewater service to the users while maintenance or construction operations are in progress by diverting flow when necessary around the construction location and pumping it to a downstream manhole.

SO1540.3 *Contractor's Responsibility*

A. It is the sole responsibility of the CONTRACTOR to locate and identify all existing sewer lines and services and to provide any and all labor, material, equipment, techniques and methods to bypass pump as necessary for his construction methods and to monitor the effectiveness of this installed system and its effect on adjacent facilities.

B. Operate, maintain and modify the system(s) as required to conform to this specification. Upon completion of the Construction, CONTRACTOR shall remove the system(s).

C. Assume sole responsibility for bypass pumping systems and for all loss or damage resulting from partial or complete failure of protective measures and any spills or resultant damage caused by his operation.

SO1540.4 Materials

A. The pump and by-pass pumping lines shall be of adequate capacity and size to handle peak wet weather flows as shown on the drawings. All piping, joints, and accessories shall be designed to withstand at least twice the maximum system pressure, or a minimum of 50 psi, whichever is greater.

B. Internal and or external by-pass pumping operations shall use 100% leak proof pipe such as PVC (Yelomine) or HDPE. Pipe shall be restrained as necessary to prevent joint separation.

C. Pumps shall be self-priming or submersible electric, in good working order, with a working pressure gauge on the discharge. A back-up pump of the same capacity as the primary pump shall be maintained on site at all times to be used in the event that the primary pump fails. No wastewater shall be allowed to drain or stand in earthen sump pits.

D. Pumping between the hours 9:00 p.m. to 8:00 a.m. shall use sound attenuated pumps as the primary pumps. The back-up pump does not have to be sound attenuated and may be used as the primary pump between the hours of 8:00 a.m. and 9:00 p.m. Sound attenuated pumps shall reduce noise generated by the equipment to a maximum of 70 dBA when measured 30 feet from the pump.

E. Any wastewater back-ups and/or overflows as the result of inadequate equipment are the responsibility of the Contractor.

F. The Contractor shall be required to have all materials, equipment, and labor necessary to complete the pipe rehabilitation work on the job site prior to isolating the wastewater manhole or line segment and beginning by-pass pumping operations.

SO1540.5 Submittals

A. Submittals: Comply with Item 01300 "Submittals."

B. The normal practice will be to setup by-pass pumping at the beginning of each work day and pump around to allow for the day's wastewater construction activities. However, continuous by-pass pumping for longer than one day may be necessary, depending on the Contractor's means and methods. With normal practice, the preferred suction point will be at a manhole upstream of the relay section. In some cases, the suction location may be the existing pipe in the trench. Discharge of bypass must be into a manhole (discharge into a cleanout is not acceptable). At the end of the work day, the new and existing pipe will be reconnected to allow gravity flow until the next work day. Access to driveways must be coordinated with residences / businesses and maintained during by-pass pumping.

C. The Contractor shall provide a written description and plan/sketch for implementation and sequencing of by-pass pumping for review and approval of the Owner prior to installation of the by-pass system. The plan shall include sufficient detail to show the location, number and size of pumps, the number, location, size and type of hoses and/or rigid piping, and the location of the downstream discharge. Show any special features where pipes or hoses cross roadways, such as temporary trenches, support bridges, etc. A plan for each line segment(s) around which flows are being by-passed is required. The plan shall include but not be limited to details of the following:

(a) Project information including the project name, location, and permit number (from plan cover sheet).

(b) Contact information for general contractor/submitting entity shall include the company name, contact person (24hrs/day), phone number(s), and fax number.

(c) Staging areas for pumps including a schematic showing the arrangement and layout of the pumping and bypassing facilities at various stages in the work.

(d) Sewer plugging method and types of plugs.

(e) Calculations for selection of bypass pump and pipe size(s) based on wastewater flows.

(f) Length, size, material, location and method of installation of suction piping.

(g) Length, size, material, location, method of installation and location of discharge piping.

(h) Pump manufacturer model and pump curve.

(i) Calculations of static lift, friction losses, and flow velocity, (pump curves showing pump operating range shall be submitted).

(j) Downstream discharge plan.

(k) Method of protecting discharge manholes or structures from erosion, damage, and unauthorized entry.

(l) Method of noise control for each pump and expected decibel levels.

(m) Any temporary pipe supports and anchoring, if required.

SO1540.6 Construction Methods

C. Maintain sewage flow to prevent backup of sewage in the collection system with the goal of preventing an overflow onto streets, yards and unpaved areas or into buildings, adjacent ditches,

storm sewers, and waterways. Do not divert sewage outside of the sanitary sewer system. The Contractor shall take all necessary steps to prevent flooding of public or private property. Maintaining flow inside the existing pipe during rehabilitation operations is preferred.

D. Any time the by-pass pump(s) are operating, an experienced operator shall be on site to monitor the operation: adjust pump speed, valves, etc.; maintain and make minor repairs to the system; and report problems.

E. Where work requires by-passing beyond working hours, the Contractor shall operate by-pass pumping and man the system for twenty-four (24) hours per day.

F. Contractor shall ensure that no damage will be caused to private property as a result of by-pass pumping operations. Access to adjacent properties shall be maintained at all times including driveways. Ramps, steel plates, or other methods shall be employed by the Contractor to facilitate traffic over surface piping and hose. High traffic commercial properties may require alternate methods to maintain access.

G. Contractor shall complete the Work as quickly as possible and satisfactorily pass all tests, inspections, and repair all deficiencies prior to discontinuing by-pass pumping operations and returning flow to the sewer manhole or line segment.

H. During by-pass pumping, do not allow sewage to be leaked, dumped, or spilled in or onto any area outside of the existing sanitary sewer system.

I. In the event of accidental spill or overflow, immediately stop the discharge and take action to clean up and disinfect the spill. Promptly notify the Owner so that required reporting can be made to the Texas Commission on Environmental Quality (TCEQ) by the Owner.

J. In the event of accidental spill or overflow, the Contractor is responsible for any damages that may have occurred to public or private property including cleaning, disinfection, and other corrections to the satisfaction of the E/A at no cost to the Owner.

K. Contractor shall not intentionally damage, alter, or remove portions of the existing sewer system structures for the purpose of installing a by-pass pumping system without specific approval from the E/A or Inspector. If a structure is damaged, it shall be reconstructed or replaced to the satisfaction of the E/A at no additional cost to the Owner.

L. The Contractor shall be responsible for any and all damage that results directly or indirectly from the interference of storm water runoff to by-passing equipment, piping, and/or appurtenances.

M. When by-pass pumping operations are complete, piping shall be drained into the sanitary sewer prior to disassembly, and all pumps and lines shall be flushed with clean water until all discharge is clear.

SO1540.7 Scheduling

A. The Contractor shall report any by-pass pumping activities not included in the submitted plan to the Engineer prior to proceeding with these activities.

B. The Contractor shall cease by-pass pumping operations when directed by the Engineer.

C. The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer will be given a 24 hour notice prior to testing.

SO1540.8 Measurement

A. Unless included as a separate pay item in the contract documents, no separate payment will be made for installation, operation and maintenance of by-pass pumping system for wastewater lines 6", 8", 10" and 12". This also applied to any lateral service work. The costs for by-pass pumping are considered as subsidiary to the installation or replacement of wastewater line relay, spot repair and lateral service work as indicated in the related contract specifications.

B. When included as a contract pay item, measurement for by-pass pumping shall be on per calendar day basis. Bypass pumping set-up and operation for 15" and larger wastewater line will be a contract pay item. The Contractor will not be paid for bypass pumping when pumps are not in operation.

SO1540.9 Payment

A. The work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid at the unit prices bid, when included as a contract pay item. *Unit prices shall be full compensation for furnishing all labor, equipment, time, materials and* incidentals necessary to complete the work.

B. Payment, when included as a contract pay item, will be made under:

Pay Item No. S01540-BP18	By-Pass Pumping for lines 15" to 18" Diameter.	Per Calendar Day
Pay Item No. S01540-BP24	By-Pass Pumping for lines 20" to 24" Diameter.	Per Calendar Day
Pay Item No. S01540-BP36	By-Pass Pumping for lines 30" to 36" Diameter.	Per Calendar Day
Pay Item No. S01540-BP48	By-Pass Pumping for lines 42" to 48" Diameter.	Per Calendar Day
Pay Item No. S01540-BP54	By-Pass Pumping for lines 54" Diameter.	Per Calendar Day

END

MANHOLE BY-PASS PUMPING

AUSTIN WATER UTILITY SPECIAL SPECIFICATION 1540

REVIEWED
MAR 29 2019
Austin Water Utility

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

MANHOLE BY-PASS PUMPING SPECIFICATION

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
90590
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET
29
OF 53

Project No.:
1490-001

SP-2018-0138D

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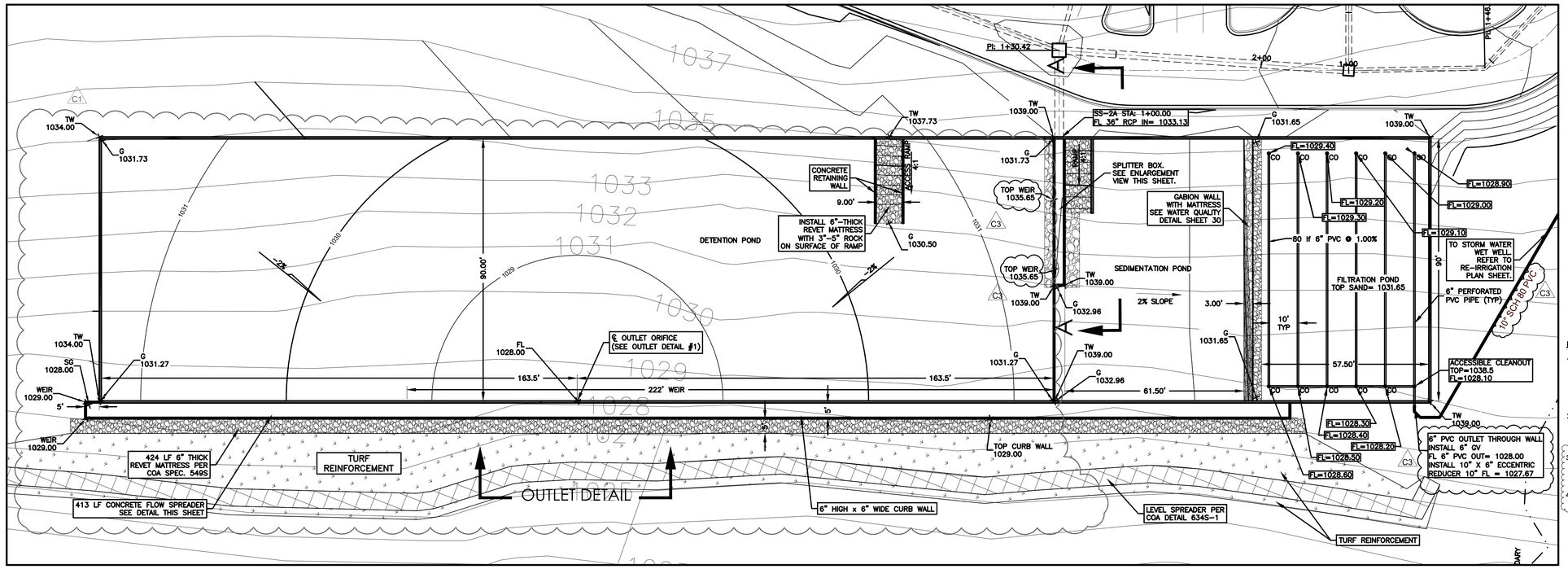
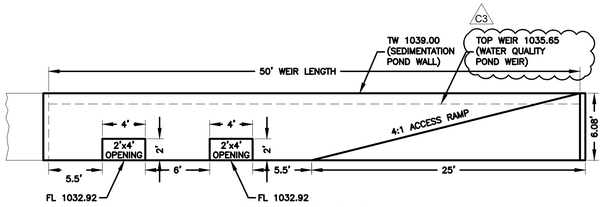
User: JPARKS
Last Modified: Mar. 27, 19 - 18:02
Plot Date/Time: Mar. 27, 19 - 18:16:35



NOTE:
SEDIMENTATION/FILTRATION BASIN SHALL DE DESIGNED AND CONSTRUCTED PER CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL CRITERIA.

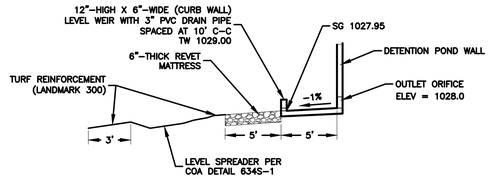
WATER QUALITY POND-1 PLAN VIEW

SCALE: 1"=20'



SECTION A-A

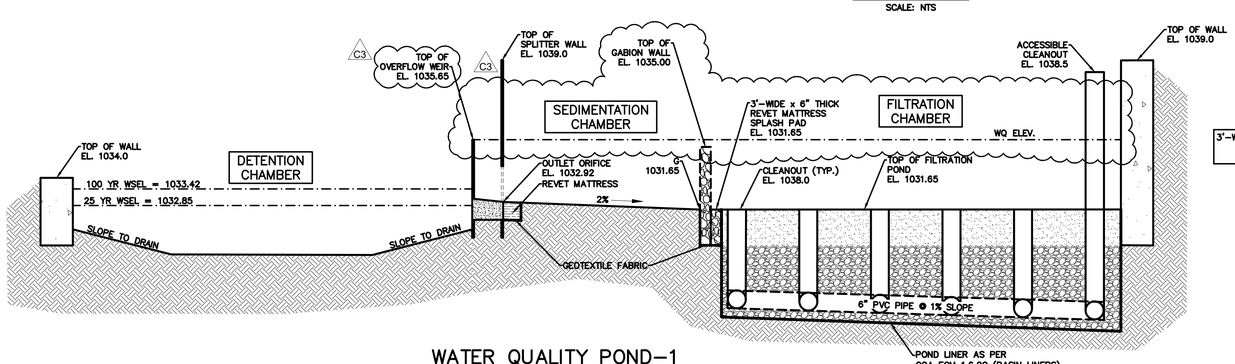
SCALE: NTS



NOTE:
1. ALL CONCRETE IN FLOW SPREADER SHALL BE 6" THICK AND REINFORCED WITH #4 BARS 18"C-C BOTH WAYS.
2. SUBGRADE BELOW CONCRETE TO BE COMPACTED TO MEET EMBANKMENT SPECIFICATION 132S.
3. SEE PLAN VIEW FOR ELEVATIONS.
4. TURF REINFORCEMENT MAT SHALL BE INSTALLED WITHIN AN ANCHOR TRENCH (PER MANUFACTURER'S SPECIFICATIONS) IMMEDIATELY AT REVET MATTRESS, CONTINUE TO OVERLAP LEVEL SPREADER AND ANCHORED 3' MINIMALLY BEYOND CREST OF LEVEL SPREADER.
5. THE TURF REINFORCEMENT MAT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THE MAT SHALL BE PLACED ON MINIMALLY 4" OF TOPSOIL AS PER COA ITEM NUMBER 601S.3A. THE TOPSOIL SHALL BE FERTILIZED PER 606S. SEEDING SHALL INCLUDE TACKIFIER AND CELLULOSE FIBER MULCH, WATERED UNTIL 1½" OR GREATER IN HEIGHT. GRASS TYPE SHALL BE NATIVE GRASS SEED MIX PER COA ITEM 604S.6.
6. FIELD ADJUSTMENTS OF THE EROSION CONTROLS MAY BE REQUIRED DURING CONSTRUCTION UPON THE DIRECTION OF COA INSPECTOR.

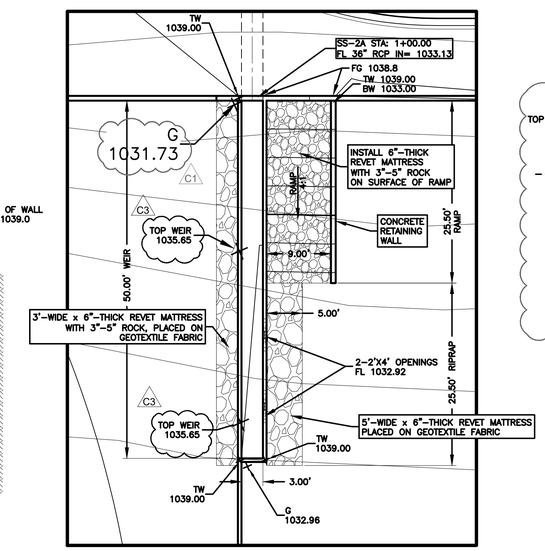
OUTLET DETAIL #2

SCALE: NTS



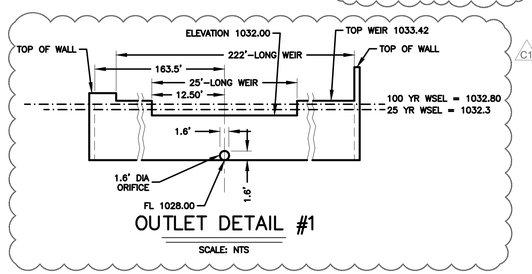
WATER QUALITY POND-1 TYPICAL CROSS SECTION VIEW

SCALE: NTS



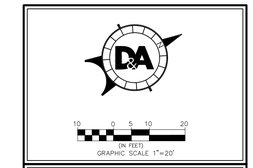
SPLITTER BOX ENLARGEMENT VIEW

SCALE: 1"=10'



OUTLET DETAIL #1

SCALE: NTS



LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- -700- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- SD STORM SEWER MANHOLE
- SIGN (AS NOTED)

SPOT ELEVATION ABBREVIATIONS:

TW	TOP OF WALL
G	GROUND
FL	FLOW LINE
SG	SLAB GRADE

NOTE:

1. 6'-HIGH IRON FENCE BY MASTER-HALCO SHALL BE INSTALLED ON TOP OF WATER QUALITY POND FRONT AND SIDE WALLS, ALONG WITH 2-10' WIDE OPENINGS FOR ACCESS LOCATED AT ACCESS RAMPS. TOTAL LENGTH OF FENCE 515 LF. FENCE DETAIL PROVIDED ON SHEET 30.
2. INSTALL CLEANOUTS WITH REMOVABLE PVC CAP AT EVERY LATERAL AND AT EVERY TEE CONNECTION. THE TOP OF THESE CLEANOUTS SHALL BE FLUSH WITH THE TOP OF SAND BED (EL. 1031.65)
3. A POND LINER IS NOT REQUIRED FOR THIS PROJECT PER COA CODE AND THEREFORE THERE IS NOT AN APPLICABLE QA/QC PLAN OR 3RD PARTY INSPECTOR. THE LINER IS BEING INSTALLED VOLUNTARILY BY THE LANDOWNER.
4. THE POND LINER MUST EXTEND BENEATH BOTH THE SEDIMENTATION AND FILTRATION BASINS.

C3

NOTE:

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C1

NOTE:

I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
POND 1 PLAN
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
	NOTE DETAILS BOX CHANGED, BOX RISE DETENTION POND SIDE, INCREASE TOP OF WALL ELEVATION, ADD 6" PVC OUTLET THROUGH WALL	DSM	12/21/2022
3	LOWER WATER QUALITY WEIR ELEVATION, LARGE AND ADD REDUCER TO WATER QUALITY POND OUTLET PIPE TO WET WELL	DSM	09/14/2023

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: POND 1 PLAN

REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C3 ONLY 09/14/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

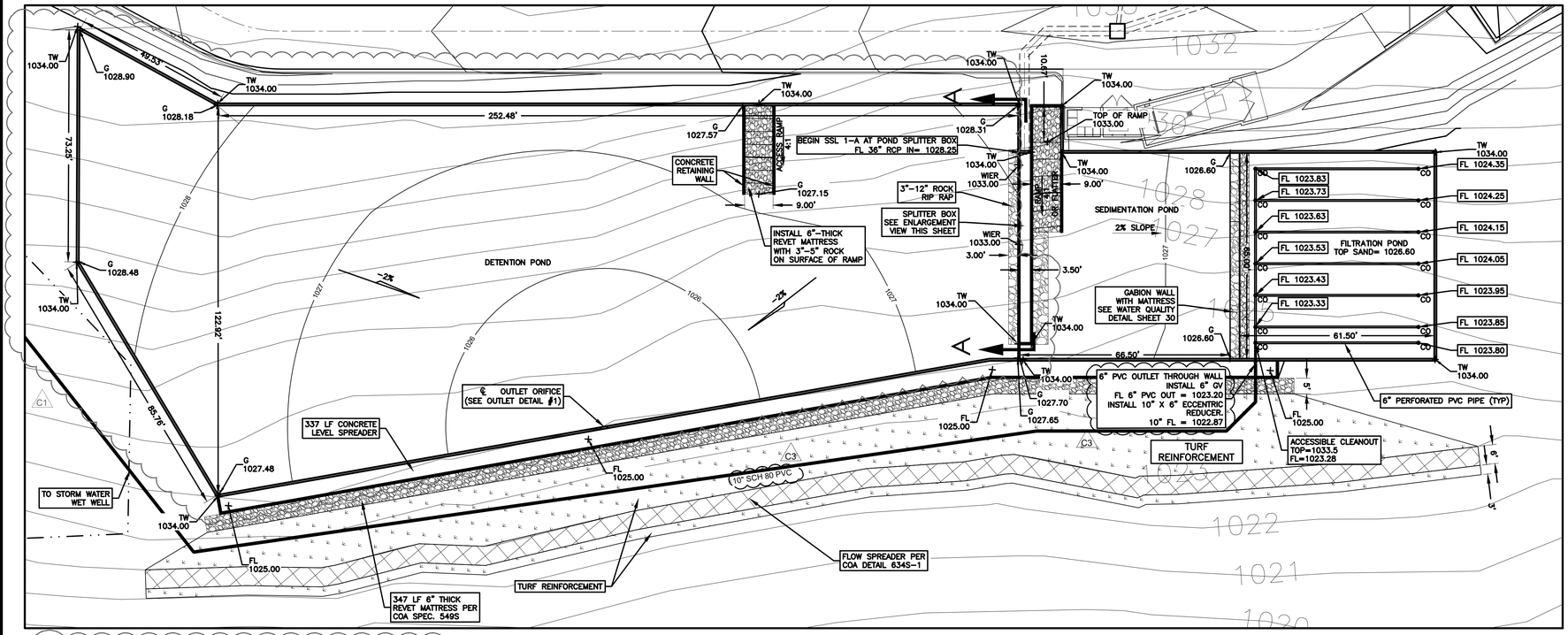
JOB NUMBER: A379-0401

WQ01

SHEET NO. 30 OF 63 SHEETS

C3 C1 REPLACEMENT SHEET

SP-2018-0138D



SPOT ELEVATION ABBREVIATIONS:

TW	TOP OF WALL
G	GROUND
FL	FLOW LINE
SG	SLAB GRADE

NOTE:

1. 6'-HIGH IRON FENCE BY MASTER-HALCO SHALL BE INSTALLED ON TOP OF WATER QUALITY POND FRONT AND SIDE WALLS, ALONG WITH 2-10' WIDE OPENINGS FOR ACCESS LOCATED AT ACCESS RAMPS. TOTAL LENGTH OF FENCE 570 LF. FENCE DETAIL PROVIDED ON SHEET 30.
2. INSTALL CLEANOUTS WITH REMOVABLE PVC CAP AT EVERY LATERAL AND AT EVERY TEE CONNECTION. THE TOP OF THESE CLEANOUTS SHALL BE FLUSH WITH THE TOP OF SAND BED (EL. 1026.60)
3. A POND LINER IS NOT REQUIRED FOR THIS PROJECT PER COA CODE AND THEREFORE THERE IS NOT AN APPLICABLE QA/QC PLAN OR 3RD PARTY INSPECTOR. THE LINER IS BEING INSTALLED VOLUNTARILY BY THE LANDOWNER.
4. THE POND LINER MUST EXTEND BENEATH BOTH THE SEDIMENTATION AND FILTRATION BASINS.

C3

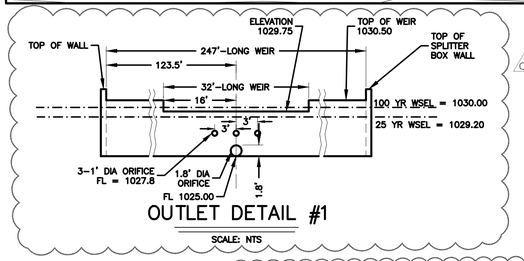
10 0 5 10 20
(IN FEET)
GRAPHIC SCALE 1"=20'

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- -700- EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- STORMSEWER LINE
- SD STORM SEWER MANHOLE
- SIGN (AS NOTED)

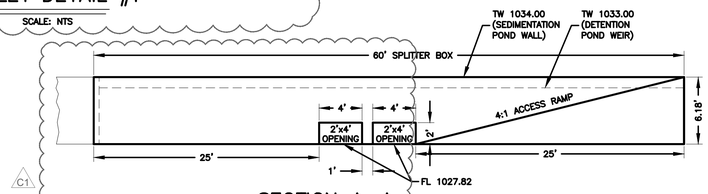
WATER QUALITY POND-2 PLAN VIEW

SCALE: 1"=20'



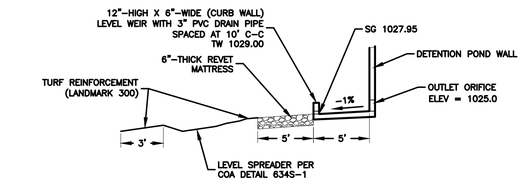
OUTLET DETAIL #1

SCALE: NTS



SECTION A-A

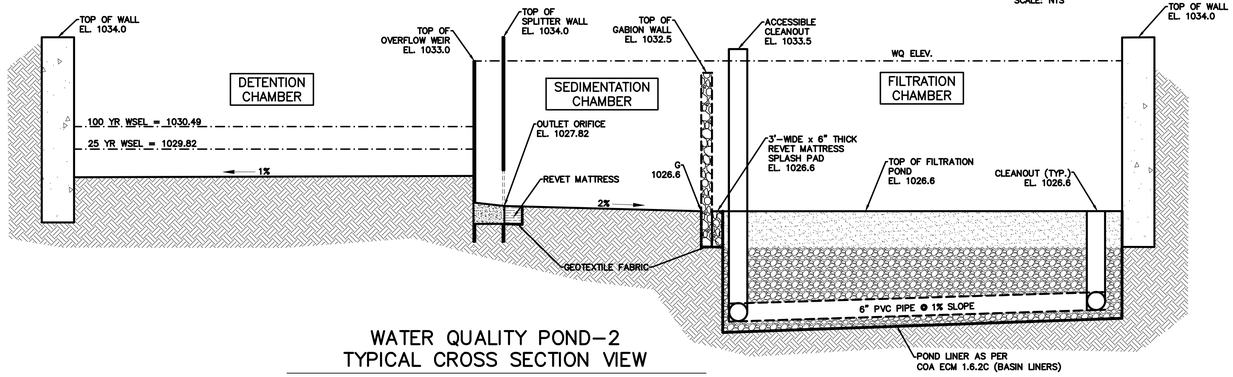
SCALE: NTS



NOTE:
1. ALL CONCRETE IN FLOW SPREADER SHALL BE 6" THICK AND REINFORCED WITH #4 BARS 18"C-C BOTH WAYS.
2. SUBGRADE BELOW CONCRETE TO BE COMPACTED TO MEET EMBANKMENT SPECIFICATION 132S.
3. SEE PLAN VIEW FOR ELEVATIONS.
4. TURF REINFORCEMENT MAT SHALL BE INSTALLED WITHIN AN ANCHOR TRENCH (PER MANUFACTURER'S SPECIFICATIONS) IMMEDIATELY AT REVET MATTRESS, CONTINUE TO OVERLAP LEVEL SPREADER AND ANCHORED 3' MINIMALLY BEYOND CREST OF LEVEL SPREADER.
5. THE TURF REINFORCEMENT MAT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THE MAT SHALL BE PLACED ON MINIMALLY 4" OF TOPSOIL AS PER CoA ITEM NUMBER 601S.3A. THE TOPSOIL SHALL BE FERTILIZED PER 606S. SEEDING SHALL INCLUDE TACKIFIER AND CELLULOSE FIBER MULCH, WATERED UNTIL 1½" OR GREATER IN HEIGHT. GRASS TYPE SHALL BE NATIVE GRASS SEED MIX PER COA ITEM 604S.6.
6. FIELD ADJUSTMENTS OF THE EROSION CONTROLS MAY BE REQUIRED DURING CONSTRUCTION UPON THE DIRECTION OF THE COA INSPECTOR.

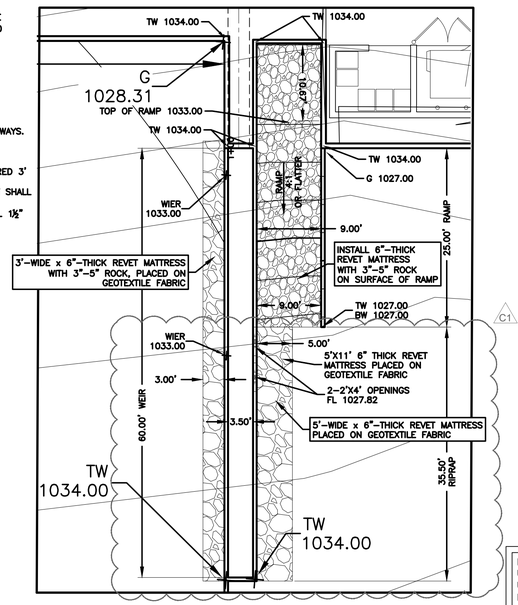
OUTLET DETAIL #2

SCALE: NTS



WATER QUALITY POND-2 TYPICAL CROSS SECTION VIEW

SCALE: NTS



SPLITTER BOX ENLARGEMENT VIEW

SCALE: 1"=10'

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #3 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE WATER QUALITY DESIGN. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C3

NOTE:
I, REESE B. HURLEY, P.E. AM SIGNING/SEALING ALL PLAN CHANGES ASSOCIATED WITH CORRECTION #1 WHICH IS FOR THE SOLE PURPOSE OF UPDATING THE ONSITE DETENTION PONDS TO COMPLY WITH ATLAS-14 DESIGN CRITERIA. ANY UNCHANGED PORTIONS OF THESE PLANS REMAIN THE RESPONSIBILITY OF THE ORIGINAL ENGINEER.

C1

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER

FOR C3 ONLY 09/14/2023

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C3 C1 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
POND 2 PLAN
AUSTIN, TX 78736

REVISIONS

NO.	DESCRIPTION	BY	DATE
	ADDED SHEET NUMBERING, REVISED TITLE BLOCK, ADDED SHEET INDEX & REVISED SHEET LAYOUT	DSM	12/21/2022
3	UPSIZE AND ADD REDUCER TO WATER QUALITY POND OUTLET PIPE TO WET WELL	DSM	09/14/2023

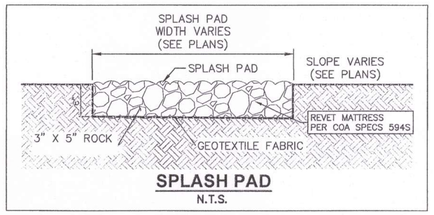
JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: POND 2 PLAN

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

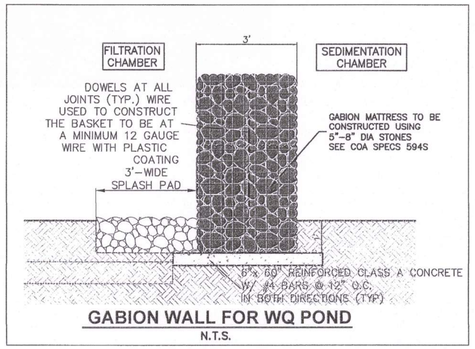
JOB NUMBER: A379-0401

WQ02

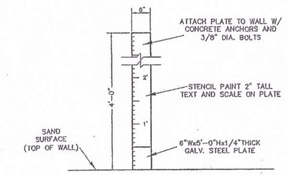
SHEET NO. 31 C3
OF 63 SHEETS



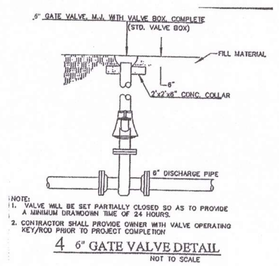
SPLASH PAD
N.T.S.



GABION WALL FOR WQ POND
N.T.S.

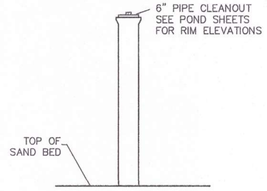


3 SEDIMENT DEPTH MARKER
N.T.S.

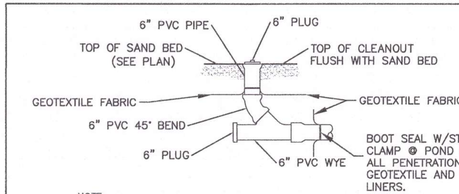


4 6" GATE VALVE DETAIL
NOT TO SCALE

NOTE:
1. CONCRETE WALL OF THE WATER QUALITY POND SHALL BE CONSTRUCTED WITH WATER TIGHT JOINTS. SEE STRUCTURAL PLANS FOR REINFORCING, JOINTS, AND OTHERS DETAILS.
2. ACCESSIBLE CLEANOUT SHALL BE INSTALLED AT SPECIFIED LOCATION ON LATERALS.

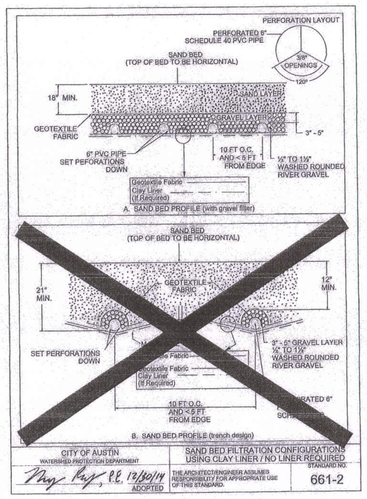


ACCESSIBLE CLEANOUT DETAIL
N.T.S.



NOTE:
1. WHERE A GEOMEMBRANE LINER IS USED IT SHALL HAVE A MINIMUM THICKNESS OF THIRTY (30) MILS HDPE. IT SHALL ALSO BE DOUBLE FUSION WELDED AT ALL SEAMS WITHIN THE LINER. EXTRUSION WELD TO BE KEPT TO A MINIMUM. ALL WELDS ARE TO BE AIR TESTED AS PER MANUFACTURERS RECOMENDATIONS. IF TEST FAILS REWELD SEAM AND TEST AGAIN. GEOTEXTILE FABRIC SHALL BE PLACED ON BOTH SIDES OF GEOMEMBRANE LINER.
2. TOP OF CLEANOUTS TO BE FLUSH WITH THE SAND BED ELEVATION AS PER THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL (ECM 1.6.5.4)
3. INSTALL BOOT SEAL WITH STAINLESS STEEL CLAMP TO PIPE AT ALL PIPE PENTRATIONS THROUGH THE GEOTEXTILE FABRIC AND/OR GEOMEMBRANE LINER.
4. INSTALL FILTRATION POND CLEANOUT AT EACH LATERAL AND MAIL COLLECTOR CONNECTION.

FILTRATION POND CLEANOUT DETAIL
N.T.S.



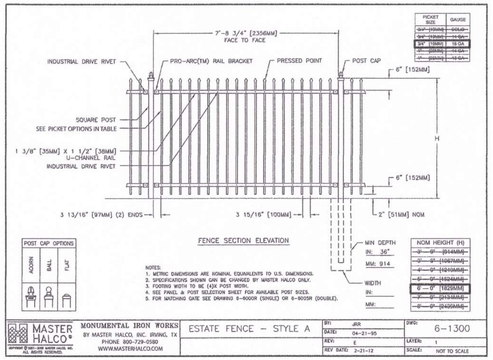


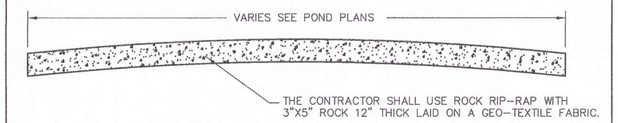
TABLE 1.4.5.P.1 MATERIAL REQUIREMENTS		
PROPERTY	TEST METHOD	ASTM REQUIREMENTS
FABRIC WEIGHT	D3776	> 3.0 OUNCES/SQUARE YARD
ULTRAVIOLET (UV) RADIATION STABILITY	D4355	70% STRENGTH RETAINED MIN., AFTER 500 HOURS IN XENON ARC DEVICE
MULLEN BURST STRENGTH	D3786	> 120 POUND PER SQUARE INCH
WATER FLOW RATE	D4491	> 275 GALLONS/MINUTE/SQUARE FEET

NOTE:

SEE CITY OF AUSTIN STANDARD SPECIFICATION ITEM NO 620S – FLITER FABRIC. THIS GEOTEXTILE FABRIC FOR USE IN PONDS BETWEEN GRAVEL & SAND LAYER

GEOTEXTILE FABRIC SPECIFICATIONS			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
MATERIAL	NONWOVEN GEOTEXTILE FABRIC		
UNIT WEIGHT		Oz/Sq.Yd.	8 (MIN.)
FILTRATION RATE		IN/SEC	0.08 (MIN.)
PUNCTURE STRENGTH	ASTM D-751 (MODIFIED)	LB.	125 (MIN.)
MULLEN BURST STRENGTH	ASTM D-751	PSI	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	200 (MIN.)
EQUIVALENT OPENING SIZE	US STANDARD SIEVE	NO.	80 (MIN)

NOTE:
THIS GEOTEXTILE FABRIC FOR USE UNDER GABIONS, REVET MATTRESS, AND ROCK RIP RAP INSTALLATION.



MAINTENANCE ACCESS RAMP SURFACE
N.T.S.

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

WATER QUALITY DETAILS

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
127990
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET
32
OF 53

Project No.:
1490-001

SP-2018-0138D

Drawing: P:\1490-001\dwg\working_drawings\submitted_files\CD\1490-001-C2-WQ.dwg
User: GPARSONS
Last Modified: Dec. 07, 18 - 11:40
Plot Date/Time: Mar. 27, 19 - 18:17:01

LEGEND

- HUNTER 1-25-06-66-R-10 6' POP UP ROTARY HEAD WITH #10 NOZZLE (10.7 GPM AT 55 PSI)
- RAINBIRD 300-PBES ELECTRIC REMOTE CONTROL VALVE WIOTH PRS-DIAL PRESSURE REGULATOR
- SCH. 80 PVC SOLVENT WELD TYPE MAINLINE PIPE, COLOR PURPLE
- SCH. 80 SOLVENT WELD TYPE PVC PIPE LATERAL PIPE, COLOR PURPLE
- FLUME PIPES FROM PONDS TO WET WELL, 10" SCH. 80 PVC, COLOR PURPLE
- SUBMERSIBLE PUMP STATION INCLUDING WET WELL AND LEVEL CONTROLS AS DETAILED EACH PUMP SHALL PROVIDE 192 GPM AT 10 PSI, 460 v., 3 PHASE.
- PUMP CONTROL PANEL AS PROVIDED BY THE DUDLEY COMPANY IN SAN ANTONIO, TEXAS 210.337.4804
- BERMAD #4415 AIR RELEASE VALVE
- SPEARS 3/4" SCH. 80 PVC BALL VALVE INSTALLER IN 11" x 17" VALVE BOX

C3

60 30 0 60 120
SCALE IN FEET

150 CRITICAL ENVIRONMENTAL FEATURE BUFFER (20150129)

ZONE #1 AREA = 2.46 ACRES
ZONE #2 AREA = 2.46 ACRES
TOTAL AREA = 4.92 ACRES
MAXIMUM SLOPE = 9.5%

RE-IRRIGATION FIELD LIMITS

POND
6" FL OUT = 1028.00
INSTALL 10" X 6" ECCENTRIC REDUCER
10" FL = 1027.67

100' BUFFER

NO RE-IRRIGATION IN SLOPED AREA GREATER THAN 10%

370 LF -10" SCH 80 PVC @ 1.00%

CONTROL PANEL
TOP OF WET WELL ELEV. = 1037.50

720 LF -10" SCH 80 PVC @ 0.54%

POND
6" FL OUT = 1023.20
INSTALL 10" X 6" ECCENTRIC REDUCER
10" FL = 1022.87

SCH 80 PVC

BLDG. #2
39,760 SF
FFE=1059
GFE=1045

BLDG. #1
35,530 SF
FFE=1085
GFE=1071

DECK AREA

BLDG. #3
39,620 SF
FFE=1058
GFE=1039-1043

PARKING AREA

PARKING AREA

RESIDENTIAL

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C3 REPLACEMENT SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
RE-IRRIGATION PLAN
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
3	MOVE WET WELL CONTROL PANEL, ADD REDUCER TO INCREASE WET WELL PIPE, UPDATE WET WELL AND FLOOR LINE ELEVATIONS	DSM	09/14/2023

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: DR
DRAWN BY: DSM
CHECKED BY: DR
DRAWING NAME: RE-IRRIGATION PLAN

STATE OF TEXAS
DANIEL RYAN
89458
LICENSED PROFESSIONAL ENGINEER
FOR C3 ONLY 09/14/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

RI-1

SHEET NO. 33
OF 63 SHEETS

I:\A379\401 - Granada Ridge\Correction 3\Replacement Sheet 3\dgn\A379-0401-RI_sheet 33.dwg
User: dmurray
Last Modified: Sep. 15, 23 - 15:01
Plot Date/Time: Sep. 15, 23 - 15:01

OPERATING & MAINTENANCE GUIDELINES FOR WATER QUALITY SYSTEM

1. THE BANKS, SIDE SLOPES AND THE FLOORS OF THE BASIN SHOULD BE MOWED AT LEAST TWICE A YEAR. VEGETATION GROWING WITHIN THE BASINS MUST NOT BE ALLOWED TO EXCEED 18 INCHES IN HEIGHT.

2. DEBRIS AND LITTER MAY ACCUMULATE AND CONCENTRATE AT THE STORM WATER INTAKE STRUCTURE. THIS DEBRIS SHOULD BE REMOVED EVERY 3 TO 6 MONTHS, OR MORE OFTEN IF NECESSARY DEPENDING UPON THE RATE OF ACCUMULATION.

3. SILT SHOULD BE REMOVED FROM EACH OF THE BASINS WHEN THE ACCUMULATION EXCEEDS 6 INCHES. AFTER HEAVY RAINS, THE INTAKE STRUCTURE SHOULD BE INSPECTED AND ANY SILT THAT HAS ACCUMULATED SHOULD BE RAKED BACK TO THE OUTER EDGE OF THE CONCRETE APRON. SILT ACCUMULATION ON THE FLOOR OF THE INTAKE STRUCTURE SHOULD NOT BE ALLOWED TO EXCEED 4 INCHES IN DEPTH.

A FIXED VETICAL DEPTH MARKER SHOULD BE INSTALLED IN THE RETENTION BASEIN TO INDICATE WHEN SEDIMENT ACCUMULATION EQUALS 20 % OF THE WATER QUALITY VOLUME AND SEDIMENT REMOVAL IS REQUIRED.

4. SILT REMOVED FROM THE BASIN AS A RESULT OF MAINTENANCE SHOULD BE DISPOSED OF ON-SITE IF PROPERLY STABILIZED ACCORDING TO PRACTICES OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL CRITERIA OF THE CITY OF AUSTIN.

5. THE INTAKE STRUCTURE, THE PUMP STRAINER, THE LEVEL SENSER PROBES, THE CONTROL STATION, THE PUMP AND THE ELECTRONIC CONTROLS SHOULD BE INSPECTED PERIODICALLY, AT LEAST EVERY TWO MONTHS, TO INSURE THAT THE SYSTEM IS FUNCTIONING PROPERLY. INSPECT AFTER RAINY WEATHER.

6. THE RETENTION BASIN HAS BEEN DESIGNED TO CAPTURE AND HOLD RUNOFF WITHOUT ALLOWING DISCHARGE, THEREBY PROVIDE A SOURCE OF IRRIGATION WATER FOR NATURAL OR LANDSCAPED AREAS.

7. THE IRRIGATION CONTROLS FOR THE RETENTION BASINS HAVE BEEN DESIGNED TO EMPTY THE BASINS WITHIN APPROXIMATELY 72 HOURS AFTER THE RAINFALL EVENT. THE SYSTEMS WILL REPEAT ALTERNATING ONE HOUR CYCLES OF ONE HALF OF THE AREA ON WHILE THE OTHER HALF OF THE AREA IS OFF UNTIL THE BASINS ARE EMPTY.

8. THE PUMP CONTROLS SHALL INCLUDE A CUSTOM CONTROL PANEL, A PUMP START RELAY, A PROBE TYPE LEVEL SENSOR, A 12-HOUR DELAY RELAY, A TIMING MECHANISM TO ENERGIZE TWO SEPARATE 24-VOLT SOLENOID VALVES ON ALTERNATING ONE-HOUR CYCLES, AND A RAIN SENSOR OVER-RIDE DEVICE AS MANUFACTURED BY MINI-CLIK.

TWELVE HOURS AFTER THE LEVEL SENSING SWITCH DETECTS WATER ENTERING THE PONDS (UNLESS FURTHER DELAYED BY THE AUTOMATIC RAIN SENSOR SHUT-OFF DEVICE), PUMPING WILL BE ENABLED, ACTIVATING THE RE-IRRIGATION SCHEDULE. ONE PUMP WILL RUN CONTINUOUSLY AS THE TWO ZONES ALTERNATE A ONE HOUR ON / OFF CYCLE. ONLY ONE PUMP SHALL OPERATE AT A TIME, ALTERNATING WITH EVERY RAIN / RE-IRRIGATION EVENT.

THE LEVEL SENSING SWIGTH SHALL BE SET TO ACTIVATE THE PUMP WHEN WATER ENTERS THE POND (AFTER 12 HOUR DELAY), AND SHUT OFF THE PUMP AFTER THE POND IS EMPTY BUT BEFORE WATER IN THE WET WELL IS BELOW THE PUMP MOTOR.

9. THE CONTROLS SHALL INCLUDE A MANUAL START TO BYPASS THE LEVEL SENSING SWITCH.

10. AFTER SYSTEM IS COMPLETED AND CONSTRUCTED AND WHEN POWER IS AVAILABLE, POND SHOULD BE FILLED TO AT LEAST 1/2 CAPACITY TO TEST ALL SYSTEM FUNCTIONS.

11. HEADS CLOSEST TO THE RE-IRRIGATION LIMITS SHALL BE ADJUSTED TO MINIMIZE ANY OVERSPRAY BEYOND LIMIT LINE.

12. TREE PRESERVATION:
ALL PIPING AND HEAD LOCATIONS TO BE APPROVED BY ENGINEER & LANDSCAPE ARCHITECT BEFORE ANY CONSTRUCTION.
ALL HEAD LOCATIONS TO BE A MINIMUM OF 10' FROM ANY TREE.
TRENCHING SHOULD BE DONE WITH A ROCK SAW OR OTHER CLEAN-CUTTING INSTRUMENT TO PREVENT 'PULLING' OF ROOT SYSTEMS OF EXISTING TREES.
NOTIFY LANDSCAPE ARCHITECT OF ANY TREE 12" OR OVER WITH 20' OF TRENCH (PIPING) OR HEAD LOCATION.

PLACEMENT OF HEADS IN FIELD SHOULD BE ADJUSTED AS NECESSARY TO CREATE MINIMUM IMPACT TO EXISTING VEGETATION. DISRUPTION OF NATIVE VEGETATION SHOULD BE KEPT TO THE VERY MINIMUM. THIS INCLUDES DELICATE UNDERSTORY AND GROUNDCOVERS.

SYSTEM FAULT DETECTION

THE SYSTEM SHALL PROVIDE FAULT DETECTION BY THE USE OF AN AMP DRAW SENSOR. THE SENSOR SHALL DETECT BAD BEARINGS, PUMP BIND-UP, A LOCKED ROTOR, ETC. SUCH CONDITIONS SHALL ACTIVATE A RED FLASHING LIGHT WHICH CAN BE VIEWED FROM THE ACCESS ROAD. WHEN THE LIGHT IS TURNED ON, A PHONE DIAL UP SYSTEM ALSO NEEDS TO BE INITIATED. THE PHONE SYSTEM SHALL BE CAPABLE OF DIALING UP TO FIVE DIFFERENT NUMBERS ON A ROTATING BASIS UNTIL A RESPONSE OCCURS, AND BE CAPABLE OF SENDING AN OUTGOING NUMBER (RETURN NUMBER IF PASING IS DESIRED). A FLASHING GREEN LIGHT VIEWABLE FROM THE ACCESS ROAD SHALL INDICATE THAT THE PUMP AND MOTOR ARE RUNNING PROPERLY. THE PUMP MOTOR SHALL BE THERMALLY PROTECTED TO SHUT DOWN IF "DEAD HEAD" OR DRY PUMPING OCCURS, ACTIVATING THE WARNING LIGHT / PHONE DIAL UP SEQUENCE. MAINLINE "BLOWOUT" LEAKS SHALL BE DETECTED BY A PRESSURE SENSOR, SHUTTING DOWN THE PUMP AND ACTIVATING WARNINGS AS NOTED ABOVE.
IN ADDITION TO STANDARD THERMAL PROTECTION, THE AMP DRAW SENSOR MUST BE CAPABLE OF DETECTING SLIGHT CHANGES IN AMP DRAW TO PROTECT THE PUMP FROM IMPENDING FAILURE.
A RED "FAILURE" LIGHT SHALL BE LOCATED FIVE FEET ABOVE GRADE AT THE WET WELL.

EXCAVATION / BACKFILL

1. THE CONTRACTOR SHALL INSURE THAT OSHA SAFETY GUIDLINES ARE OBSERVED, INCLUDING SHORING, DURING EXCAVATION.
2. TRENCH BACKFILL SHALL INCLUDE SELECT MATERIAL FROM EXCAVATION, REMOVING ROCKS 2" AND LARGER FROM THE FIRST 4" OF BACKFILL. WET WELL BACKFILL SHALL INCLUDE MATERIALS EXCAVATED, MECHANICALLY TAMPED IN 12" LAYERS SUFFICIENT TO PREVENT AFTER-SETTLING.
3. THE CONTRACTOR SHALL REMOVE FROM THE SITE ANY EXCAVATED SURPLUS OR MATERIAL NOT SUITED FOR BACKFILL

FLOW CALCULATIONS C3

1. REQUIRED WATER QUALITY CAPTURE VOLUME;
1 CU. FT. = 7.48 GALLONS
POND "A" = 39,182 CU. FT. = 293,644 GALLONS
POND "B" = 50,265 CU. FT. = 376,008 GALLONS
PROVIDED WATER QUALITY CAPTURE VOLUME
POND "A" = 41,674 CU. FT. = 311,743 GALLONS
POND "B" = 50,704 CU. FT. = 379,292 GALLONS
2. RE-IRRIGATION FLOW RATE = WQV (691,035 GAL.) / ALLOWABLE PUMPING HOURS (60) = 192 GPM
3. FLUME PIPE FLOW;
1 GPM = .0022280 CF FT / SECOND
POND "A"; 311,743 GALS. / 60 HOURS = 86.6 GPM = 0.23 CFS
POND "B"; 379,292 GALS. / 60 HOURS = 105.4 GPM = 0.28 CFS
GRAVITY FLOW AT MINIMUM VELOCITY (1 FPS) FOR 10 DIAMETER PIPE = 243.6 gpm
MAXIMUM FLOW OUT OF WET WELL = 192 GPM

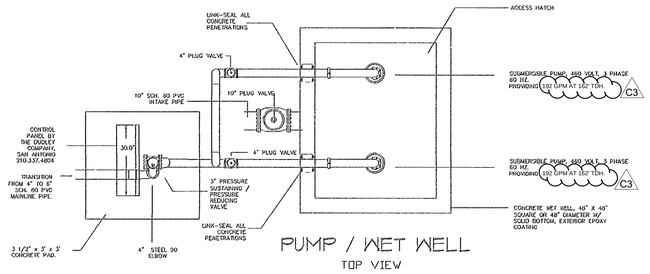
RE-IRRIGATION AREA CALCULATIONS

WQ Vol. = (92,378) C3 cu. ft.

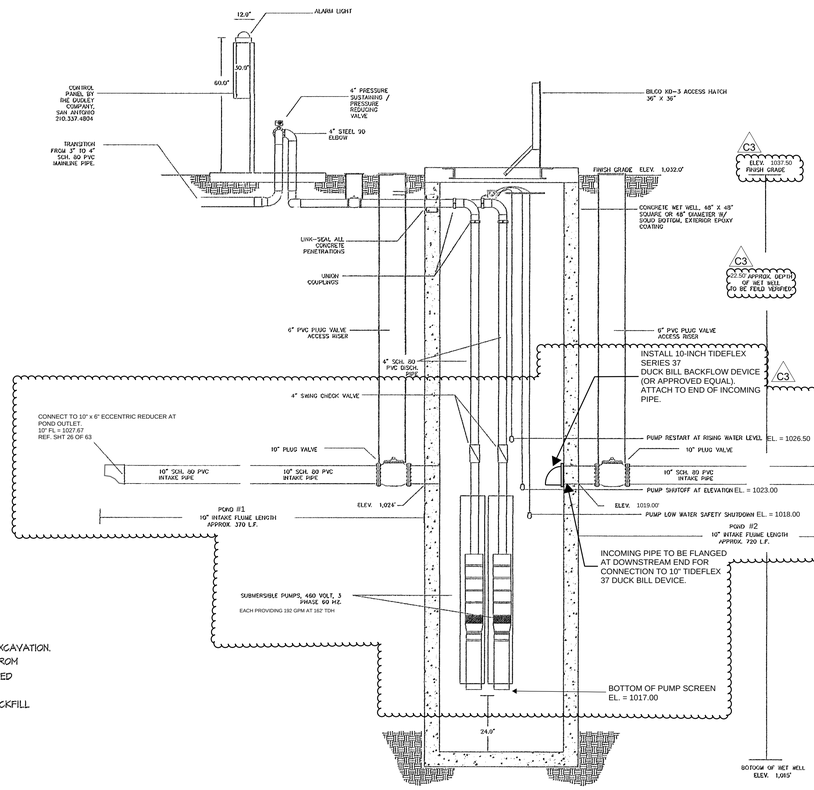
Reirrigation Area (sf) = WQ Vol. / IR x T where; IR = Infiltration Rate
= 0.2 inches per hour = .01666 feet per hour
T = Pump time in hours
= 30 hours*
* – the pump cycles "on" one hour and "off" one hour for a total of 60 hours elapsed time to empty the WQ pond.

Required Reirrigation Area = (184,830) C3 S.F. = (4.24) C3 Acres
Provided Reirrigation Area = 214,315 S.F. = 4.92 Acres

Maximum slope shall not exceed 10%.



PUMP / WET WELL
TOP VIEW



PUMP / WET WELL
SIDE VIEW

REVISIONS

NO.	DESCRIPTION	BY	DATE
C3	UPDATE RE-IRRIGATION AREA AND FLOW CALCULATIONS. UPDATE WET WELL AND FLOW LINE ELEVATIONS. ADD REDUCER AND BACKFLOW DEVICE TO INCOMING WET WELL PIPE. UPDATE PUMP INFORMATION.	DSM	09/14/2023

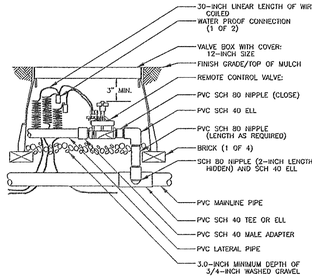
FOR C3 ONLY 09/14/2023

INSTALLATION NOTES

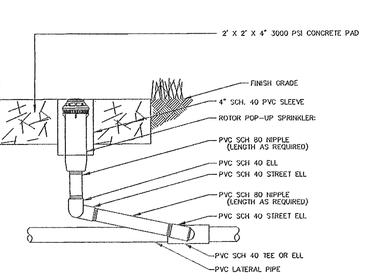
1. THE IRRIGATION CONTRACTOR WILL SECURE ALL REQUIRED PERMITS AND PAY ALL ASSOCIATED FEES UNLESS OTHERWISE NOTED. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES HEREIN.
2. LATERAL PIPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 12 INCHES. MAINLINE PIPE AND WIRES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 18 INCHES.
3. IRRIGATION CONTRACTOR SHALL PROVIDE FINAL ELECTRIC HARD-WIRE TO CONTROL PANEL. GENERAL CONTRACTOR SHALL PROVIDE 460v., 3 PHASE ELECTRIC POWER WITHIN 5 FEET OF CONTROL PANEL LOCATION.
4. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF #14 GAUGE, U.F. APPROVED FOR DIRECT BURIAL, SINGLE CONDUCTOR "IRRIGATION WIRE". WIRE SPLICES SHALL BE ENCASED IN A WATERPROOF COMPOUND OR GEL. ALL FIELD SPLICES SHALL BE LOCATED IN A ROUND VALVE BOX OF SUFFICIENT SIZE TO ALLOW INSPECTION.
5. VALVE BOXES SHALL BE INSTALLED FLUSH WITH GRADE, SUPPORTED BY BRICKS IF NEEDED, WITH 3 INCHES OF CLEAN PEA GRAVEL LOCATED BELOW THE VALVE. USE 10" ROUND VALVE BOXES FOR ELECTRIC VALVES AS MANUFACTURED BY BROOKS OR AMETEC
6. USE LASCO O-RING SWING JOINT ASSEMBLIES TO CONNECT ALL ROTARY HEADS
7. CONTRACTOR IS TO CONTACT APPROPRITE AUTHORITIES AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
8. THE RAIN SENSOR SHUT OFF DEVICE, WHEN ACTIVATED, SHALL INTERUPT THE PUMP START RELAY.
9. L.I.C. SHALL PROVIDE PUMP EQUIPMENT SUBMITTALS FOR APPROVAL BEFORE WORK BEGINS. PUMPS SHALL OPERATE WITHIN 20% OF OPTIMAL EFFICIENCY.

LEGEND

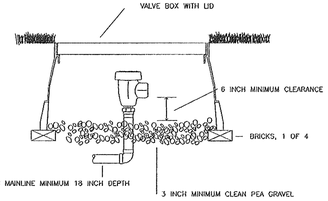
- O HUNTER I-25-06-66-R-10 6" POP UP ROTARY HEAD WITH #10 NOZZLE (10.7 GPM AT 55 PSI)
- RAINBIRD 300-PBES ELECTRIC REMOTE CONTROL VALVE WITH PRS-DIAL PRESSURE REGULATOR
- SCH. 80 P.V.C. SOLVENT WELD TYPE MAINLINE PIPE, COLOR PURPLE
- SCH. 80 SOLVENT WELD TYPE PVC PIPE LATERAL PIPE, COLOR PURPLE
- FLUME PIPES FROM PONDS TO WET WELL 10" SCH. 80 PVC, COLOR PURPLE C3
- SUBMERSIBLE PUMP STATION INCLUDING WET WELL AND LEVEL CONTROLS AS DETAILED
  EACH PUMP SHALL PROVIDE 182 GPM AT 70 PSI, 460 v., 3 PHASE
- PUMP CONTROL PANEL AS PROVIDED BY THE DUDLEY COMPANY IN SAN ANTONIO, TEXAS 210.337.4804
- BERMAD #4415 AIR RELEASE VALVE
- SPEARS 3/4" SCH. 80 PVC BALL VALVE INSTALLER IN 11" x 17" VALVE BOX



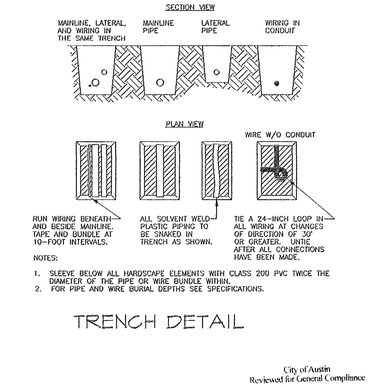
ELECTRIC VALVE



ROTOR POP-UP SPRINKLER



AIR RELIEF VALVE



TRENCH DETAIL

City of Austin
Reviewed for General Compliance
APR 09 2019

LJA ENGINEERING, INC. HAS REVISED THESE CONSTRUCTION PLANS AS SHOWN IN CORRECTION 3, AND BY DOING SO, IS RESPONSIBLE ONLY FOR THE WORK IDENTIFIED AS SUCH.

09/15/2023
LICENSED PROFESSIONAL ENGINEER DATE

STATE OF TEXAS
DANIEL RYAN
89458
LICENSED PROFESSIONAL ENGINEER

James Pole
IRRIGATION CONSULTANTS
IRRIGATION DESIGN, CONSULTING, AND LANDSCAPE WATER MANAGEMENT
TEXAS L.I.C. #658
100 N. LOCUST ST., SUITE B
DENTON, TEXAS 76201
PHONE: 940.243.2364
FAX: 940.382.2475
jamespolelrrigation.com

DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

RE-IRRIGATION NOTES & DETAILS

STATE OF TEXAS
JAMES POLE
658
LICENSED IRRIGATOR
01 / 18 / 2018

Designed:	JP
Drawn:	JP
Reviewed:	JP
Date:	JANUARY 2018

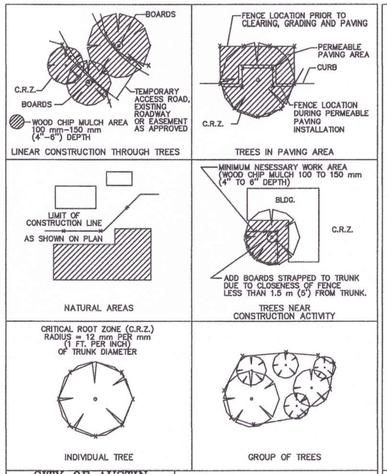
SHEET
RI-2 C3
34 of 63

Project No.:
1490-001

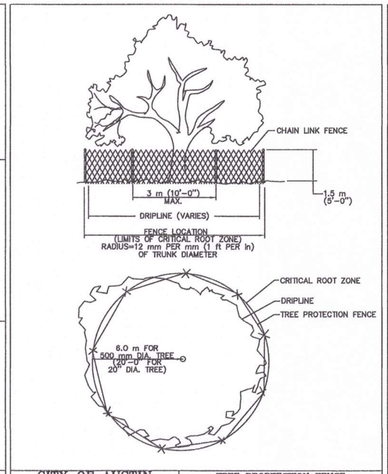
SP-2018-0138D

C3 REPLACEMENT SHEET

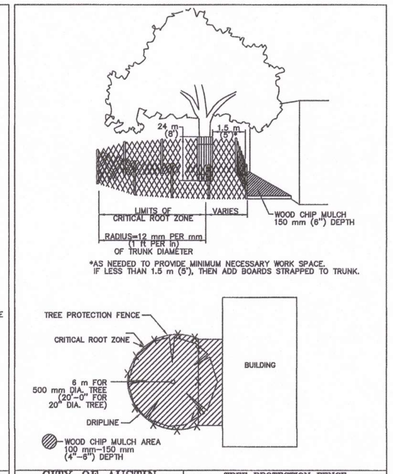
C:\Irrigation\Coleman&Assoc\GranadaRidge\1490-001-CD-RE01818.dwg



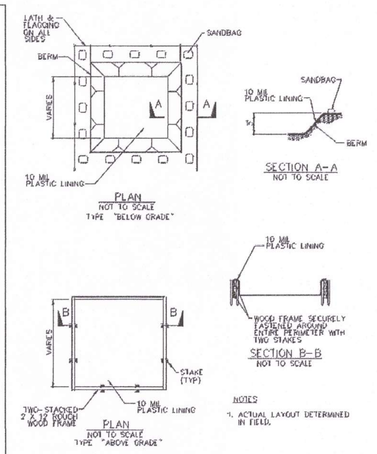
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE LOCATIONS	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/16/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S–1



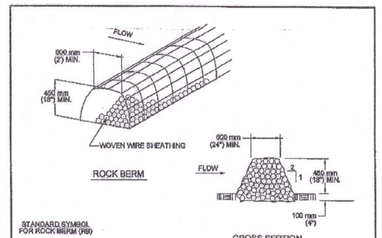
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROPTECTION FENCE TYPE A – CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/16/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S–2



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	TREE PROTECTION FENCE MODIFIED TYPE A – CHAIN LINK	
RECORD COPY SIGNED BY J. PATRICK MURPHY 11/16/99 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 610S–4

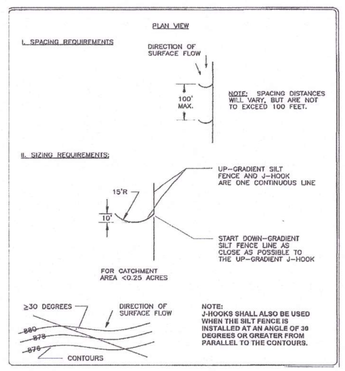


SCHEMATICS OF CONCRETE WASHOUT AREAS



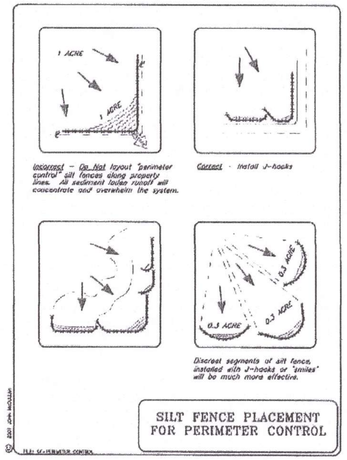
NOTES:
1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 9") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 38 mm (1½") OPENING AND MINIMUM WIRE DIAMETER OF 12.5 mm (20 GAUGE).
3. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE–WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE–THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
Morgan S. Byers P.E. 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S–1



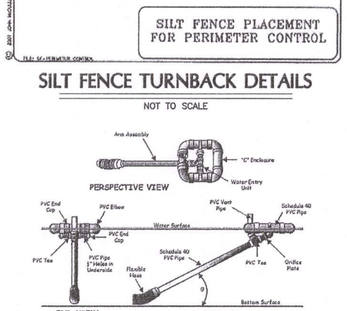
J-HOOK DETAILS

NOT TO SCALE



SILT FENCE TURNBACK DETAILS

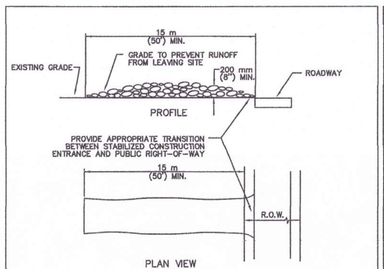
NOT TO SCALE



NOTES:
1. THE MAXIMUM DRAINAGE AREA TO THE SEDIMENTATION BASIN IS 10.04 ACRES.
2. THE CALCULATED VOLUME OF THE STORMWATER ENTERING THE SEDIMENTATION BASIN IS 18,072 CFS (1,800 CFS/ACRE).
3. ACCORDING TO ECM FIGURE 6.6b, FOR 18,072 CFS, A DEWATERING SKIMMER ORIFICE WITH A 2" DIAMETER WILL PROVIDE A DEWATERING TIME GREATER THAN 48 HOURS.
4. THE DEWATERING SKIMMER IS TO BE CONSTRUCTED AS PER THE COA ECM 1.4.5.K.

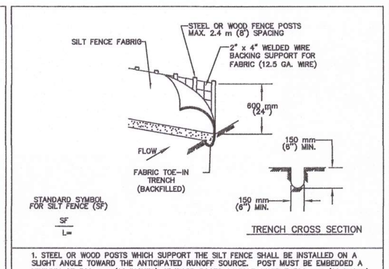
DEWATERING SKIMMER DETAIL

NOT TO SCALE



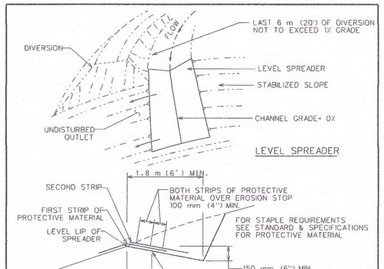
NOTES:
1. STONE SIZE: 75–125 mm (3–5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STABILIZED CONSTRUCTION ENTRANCE	
RECORD COPY SIGNED BY J. PATRICK MURPHY 6/23/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 641S–1



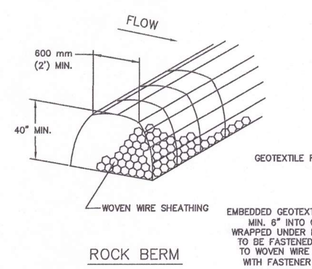
1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 Inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 Inches) DEEP AND 150 mm (6 Inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 Inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS 09/01/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S–1



GENERAL NOTES:
1. LEVEL SPREADERS SHALL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE ENGINEER.
2. CONSTRUCT LEVEL LIP ON ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF SEDIMENT–FREE RUNOFF (CONVERTING CHANNEL FLOW TO SHEET FLOW).
3. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT ON FILL).
4. A MATTING EROSION STOP SHALL BE PLACED VERTICALLY AND AT LEAST 150 mm (6") DEEP IN A SLIT TRENCH 0.3 m (1') BACK OF AND PARALLEL WITH THE LIP. THIS EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP AND SHALL BE TRIMMED AFTER BACKFILLING WITH TAMPED SOIL, SO THAT THE UPPER EDGE IS FLUSH WITH THE SOIL SURFACE.
5. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING 2 STRIPS OF JUTE, EXCELSIOR OR OTHER APPROVED PROTECTIVE MATERIAL AS SHOWN ABOVE.
6. THE ENTRANCE CHANNEL SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 6 m (20') BEFORE ENTERING SPREADER.
7. STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREAS. WATER SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
8. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PROVIDED.

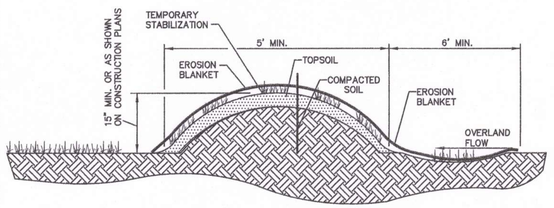
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	LEVEL SPREADER	
RECORD COPY SIGNED BY J. PATRICK MURPHY 3/27/00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 634S–1



NOTES:
1. USE OPEN GRADED ROCK 3 to 5" DIAMETER FOR ROCK BERM.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 3.25" X 4.5" OPENING AND MINIMUM WIRE DIAMETER OF 10 GAUGE.
3. THE ROCK BERM AND GEOTEXTILE FABRIC SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE GEOTEXTILE FABRIC AND ROCK BERM STONE AND/OR FABRIC CORE–WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE–SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 150 mm (6").
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

ROCK BERM WITH FILTER FABRIC

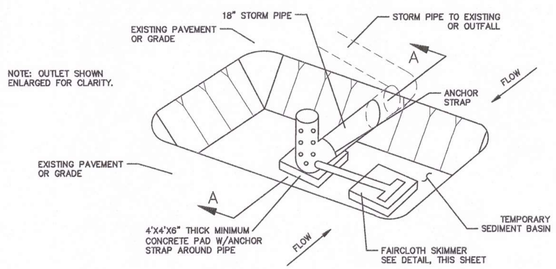
NOT TO SCALE

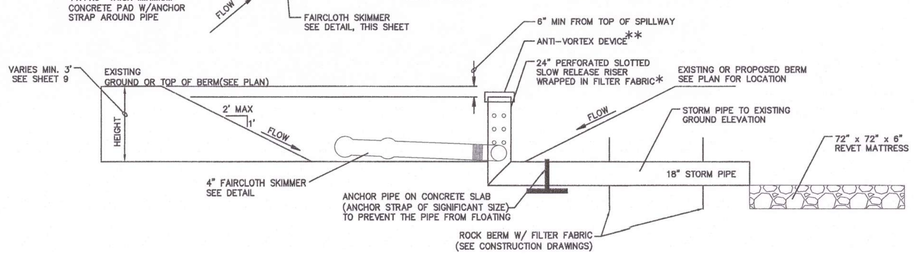


NOTES:
1. REMOVE ANY EXISTING VEGETATION AND SCARIFY OR BENCH ADJACENT SOILS PRIOR TO PLACING BERM.
2. BERM MATERIALS MUST BE ADEQUATELY COMPACTED AND STABILIZED WITH EROSION BLANKET TYPE C AND VEGETATION INCLUDING ADJACENT DIVERSION CHANNEL.
3. REFER TO SWPPP FOR TEMPORARY AND/OR FINAL STABILIZATION MEASURES.
4. BERM SHALL NOT BE CONSTRUCTED OF TOPSOIL, BUT SHALL HAVE 4" UPPER LAYER OF TOP SOIL FOR VEGETATION GROWTH.
5. CHANNEL AREA IN FRONT OF BERM SHALL BE GRADED TO MAINTAIN POSITIVE FLOW. CHANNEL SIDES AND BOTTOM SHALL BE STABILIZED WITH EROSION BLANKET AND VEGETATION.

TEMPORARY DIVERSION DYKE

NOT TO SCALE





GENERAL NOTES:
1. PIPE MATERIAL – CORRUGATED METAL PIPE, PVC, OR OTHER DUCTILE IRON MATERIAL.
2. FILTER FABRIC – 8 OZ. NON–WOVEN FILTER FABRIC
3. DIMENSIONS – SEE SHEET 9.
4. RISER PERFORATION – HOLES TO BE 1" SPACED 6" O.C.E.W.
5. ALL PIPE CONNECTION SHALL BE WATERTIGHT.
6. FILL MATERIAL AROUND PIPE SHALL 3–5" ROCK FACED WITH GEOTEXTILE FABRIC OR SOIL TO BE COMPACTED IN 4 INCHES LIFTS. A MINIMUM OF 2 FEET OF COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE BEFORE CROSSING IT WITH CONSTRUCTION TRAFFIC.
7. PONDING OF SEDIMENT LADEN RUNOFF IN SEDIMENT BASIN ACCOMPLISHED BY EMBANKMENT OR EXCAVATION DEPENDING ON TERRAIN.
8. SIDE SLOPES SHALL BE 3:1 OR FLATTER.

* WRAP ¾"X¾" HARDWARE CLOTH FIRST AGAINST PIPE, THEN WRAP NON–WOVEN FILTER FABRIC AROUND THE HARDWARE CLOTH AND SECURE TO PIPE.

** FRAME AND GRATE NEENAH R–5901–C FOR 18" RISER OR NEENAH R–5901–E FOR 24" RISER (OR APPROVED EQUAL) OR STEEL PLATE WITH 1" HOLES 3" ON CENTER EACH WAY WITHOUT FABRIC.

SEDIMENT BASIN WITH PIPE OUTLET AND SKIMMER

NOT TO SCALE

City of Austin
Reviewed for General Compliance
APR 09 2019

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

EROSION & SEDIMENTATION DETAILS

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED
PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET 35 OF 53

Project No: 1490-001

SP-2018-0138D

Drawing: P:\1490-001\dwg\working_drawings\submitted_files\201\1490-001-02-07.dwg
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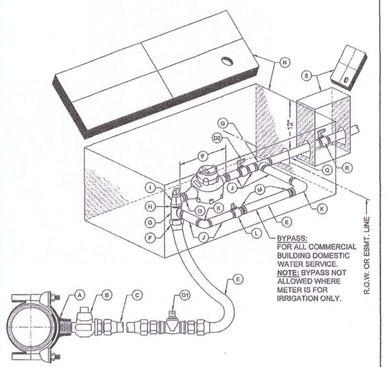


CITY OF AUSTIN AUSTIN WATER	1 ½" - 2" METER INSTALLATION SHOWING OPTIONAL BYPASS	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-04 1 OF 2

MATERIALS LIST:

A. 2" SERVICE CLAMP
B. 2" CORPORATION STOP MALE THREAD INLET BY COMPRESSION OUTLET
C. 2" COPPER WATER SERVICE TUBING EXTENDED BEYOND PAVEMENT
D1. 2" BALL VALVE, SPL WW-275
D2. 2" BALL VALVE, SPL WW-275
E. 2" COPPER SERVICE TUBING
F. 2" BRASS COUPLING - COMPRESSION TO MALE IPT
G. 2" BRASS TEE
H. 2" BRASS CLOSE-NIPPLE
I. 2" ANGLE METER STOP; SERVICE TUBING INLET x FLANGED OUTLET
J. 2" BRASS NIPPLE
K. 2" BRASS ELBOW
L. 2" LOCKABLE CURB STOP - FEMALE IPT INLET BY COMPRESSION OUTLET
M. 2" BRASS COUPLING - SERVICE TUBING TO MALE IPT
N. RECTANGULAR METER BOX AND COVER, SPL WW-146A
O. BRASS ADAPTER (2" x 1 ½") FOR 1 ½" METER ONLY
P. WATER METER, LENGTH 13", (PURCHASED FROM AUSTIN WATER)
Q. 2" COPPER SERVICE TUBING (PRIVATE PLUMBING PER CODE)
R. CUSTOMER CUT-OFF VALVE
S. CUSTOMER VALVE BOX AND LID

NOTES:

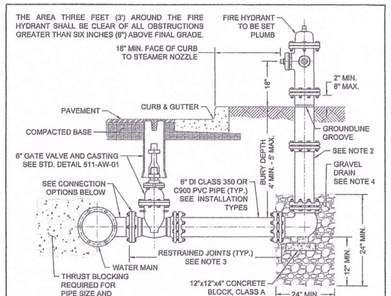
1. SERVICE CLAMP SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM.
2. BRANCH CONNECTIONS AND ALL ANGLE METER STOPS MUST BE INSTALLED PRIOR TO ANY METER INSTALLATION.
3. TOP OF BOXES SHOULD BE 1" ABOVE GROUND.
4. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (23).
5. BOX MUST BE BEHIND CURB NEXT TO PROPERTY LINE OR EASEMENT AND OUT OF VEHICULAR TRAFFIC AREA AND SIDEWALK.
6. BALL VALVE "D1" SHALL NOT BE LOCATED UNDER SIDEWALK, CURB, OR PAVEMENT, AND NOT BE LOCATED MORE THAN 24" HORIZONTALLY FROM METER BOX OR 36" BELOW FINAL GRADE.
7. COPPER SERVICE SHALL BE COPPER TUBING SIZE ANNEALED SEAMLESS TYPE "K" MEETING ASTM B88 WITH NO SWEAT OR SOLDERED JOINTS.

RECLAIMED WATER:

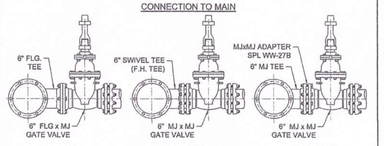
FOR RECLAIMED WATER SERVICES AND METERS, ALL RECLAIMED TUBING SHALL BE MANUFACTURED PURPLE TUBING. ALL OTHER TUBING AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL TUBING AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-27D. ALL COVERS SHALL HAVE "RECLAIMED WATER" CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER	1 ½" - 2" METER INSTALLATION SHOWING OPTIONAL BYPASS	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-04 2 OF 2

THE AREA THREE FEET (3') AROUND THE FIRE HYDRANT SHALL BE CLEAR OF ALL OBSTRUCTIONS GREATER THAN SIX INCHES (6") ABOVE FINAL GRADE.

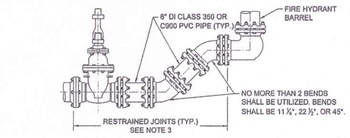


CONNECTION TO MAIN

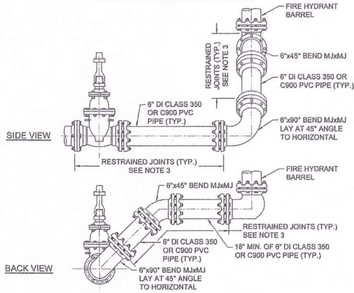


OPTION 1 OPTION 2 OPTION 3

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 1 OF 3

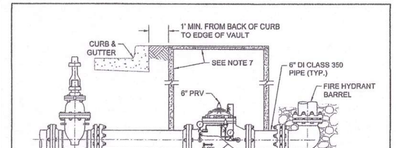


INSTALLATION ON DEEP WATER MAIN



INSTALLATION ON DEEP WATER MAIN WITH 90° BEND

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 2 OF 3

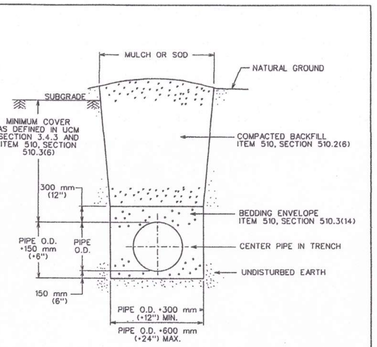


INSTALLATION ON WATER MAIN WITH PRESSURE REDUCING VALVE (PRV)

NOTES: APPLICABLE TO ALL INSTALLATION TYPES.

1. NO PART OF A HYDRANT OR ITS NOZZLE CAPS SHALL BE WITHIN 8" OF ANY SIDEWALK OR PEDESTRIAN RAMP. ANY FIRE HYDRANT PLACED NEAR A STREET CORNER SHALL BE LOCATED OUTSIDE THE CURVE RADIUS AND A MINIMUM OF 4' FROM RAMPS.
2. ONE BARREL EXTENSION NOT EXCEEDING 3' LENGTH MAY BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT IN ORDER TO MEET THE REQUIRED BURY DEPTH OF 4' - 5'. BREAK AWAY BOLTS (SHOE TYPES) SHALL BE PROPERLY SPACED AND PLACED.
3. FIRE LINE SHALL HAVE ALL JOINTS RESTRAINED FROM MAIN TO FIRE HYDRANT. JOINTS SHOWN MAY VARY. SEE SPL WW-27, WW-27A, AND WW-27B FOR RESTRAINT OPTIONS.
4. BELOW EACH HYDRANT, A DRAINAGE PIT 24" IN DIAMETER AND 12" DEEP SHALL BE EXCAVATED AND FILLED WITH COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND UNDER AND AROUND THE BOWL OF THE HYDRANT, AND TO A LEVEL 12" ABOVE THE HYDRANT DRAIN OPENING (SEE STD. SPEC. 510). THE HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL BE COVERED WITH FILTER FABRIC PER STD. SPEC. 620S. FOR PRV, GRAVEL SHALL EXTEND UNDER THE PRV VAULT 12" MIN. DEPTH UNDER THE VAULT AND 6" MIN. BEYOND VAULT.
5. FOR FIRE HYDRANT LEADS AT A MAIN OUTLET LARGER THAN 6" DIAMETER, OUTLET SHALL BE FLANGED AND A FLG x FLG REDUCER SHALL BE INSTALLED DIRECTLY ON THE OUTLET.
6. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
7. FOR HYDRANTS WITH PRV: CLASS III RCP VAULT 60" MIN. I.D. WITH REINFORCED PRECAST CONCRETE LID (AASHTO H-20 LOADING) WITH COA FRAME AND 32" COVER WITH LETTERING MODIFIED FOR WATER.

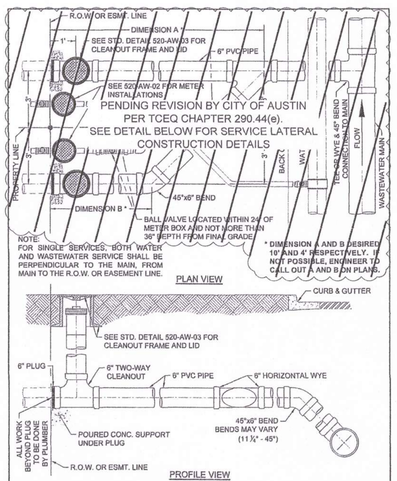
CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 3 OF 3



REFERENCES:

1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510:
   SECTION 510.2(6), "SELECT BACKFILL OR BORROW";
   SECTION 510.3(6), "TRENCH DEPTH AND DEPTH OF COVER";
   SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL TRENCH DETAIL WITH UNFINISHED SURFACE	
Bill Burden 3/13/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 510S-5



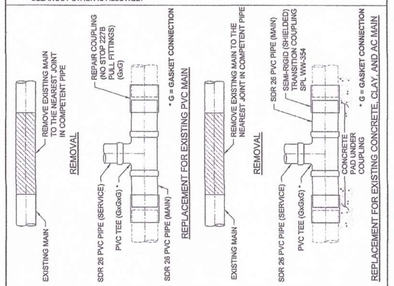
PLAN VIEW

PROFILE VIEW

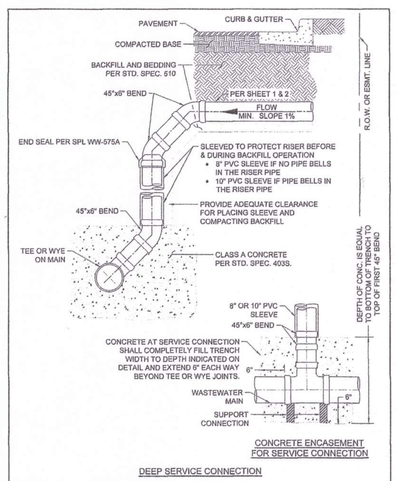
CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & WASTEWATER SERVICE CONNECTION	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01 1 OF 4

NOTES:

1. DURING SUBDIVISION CONSTRUCTION UTILITY CONTRACTOR INSTALLS WASTEWATER CONNECTION TO MAIN, 6" STUB, HORIZONTAL WYE FOR DOUBLE SERVICES, 6" SERVICE BRANCH WITH 2-WAY-CLEANOUT(S) AND RISER, FRAME, AND COVER CLEANOUT(S) PLUGGED AT PROPERTY LINE OR EASEMENT LINE END. ALL WASTEWATER PIPING SHALL HAVE ELASTOMERIC GASKET TYPE JOINTS AND SLOPE DOWNWARD TO MAIN 1% MIN. TO 45° MAX. DEPTH OF SERVICE AT PROPERTY LINE WILL BE SHOWN ON PLANS BY ENGINEER IF GREATER THAN 4', OTHERWISE THE INSTALLED DEPTH WILL BE 4' MIN. AND 6' MAX. AT PROPERTY LINE. IF WASTEWATER SERVICE LINE TO MAIN REQUIRES DEFLECTION EXCEEDING 45°, SEE SHEET 3 OF 4. UTILITY CONTRACTOR ALSO INSTALLS WATER CONNECTION TO MAIN WATER PIPE, FITTINGS AND VALVES INCLUDING STOP VALVE. REFER TO DETAIL 520-AW-02.
2. PIPING AND TUBING IN STREET RIGHT-OF-WAY AND IN EASEMENT AREA SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY CITY OF AUSTIN STANDARD SPECIFICATION 510.3 (14); MATERIALS SHALL BE AS SPECIFIED IN 510.2 (2)(A) AND (3)(B); BACKFILL ABOVE THE GRANULAR BEDDING SHALL BE AS REQUIRED BY SECTION 510.3 (25). SERVICE LINES IN THESE AREAS SHALL HAVE A MIN. COVER BELOW FINAL STREET GRADE OF 42".
3. NO METER BOX, BALL VALVE OR CLEAN-OUT SHALL BE SET IN SIDEWALK OR DRIVEWAY AREA AND SHALL BE A MINIMUM OF 6" FROM ALL PAVED AREAS.
4. PLUMBER SHALL REMOVE PLUG AND CONNECT TO 2-WAY CLEANOUT. NO CONNECTION TO CLEANOUT STACK IS ALLOWED.



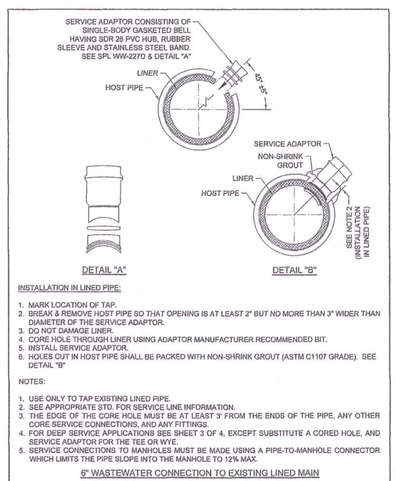
CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & WASTEWATER SERVICE CONNECTION	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01 2 OF 4



CONCRETE ENCASEMENT FOR SERVICE CONNECTION

DEEP SERVICE CONNECTION

CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & WASTEWATER SERVICE CONNECTION	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01 3 OF 4



INSTALLATION IN LINED PIPE:

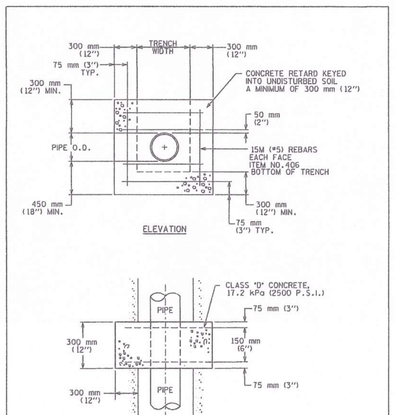
1. MARK LOCATION OF TAP.
2. BREAK & REMOVE HOST PIPE SO THAT OPENING IS AT LEAST 2" BUT NO MORE THAN 3" WIDER THAN DIAMETER OF THE SERVICE ADAPTOR.
3. DO NOT DAMAGE LINER.
4. CORE HOLE THROUGH LINER USING ADAPTOR MANUFACTURER RECOMMENDED BIT.
5. INSTALL SERVICE ADAPTOR.
6. HOLES CUT IN HOST PIPE SHALL BE PACKED WITH NON-SHRINK GROUT (ASTM C1107 GRADE). SEE DETAIL "B"

NOTES:

1. USE ONLY TO TAP EXISTING LINED PIPE.
2. SEE APPROPRIATE STD. FOR SERVICE LINE INFORMATION.
3. THE EDGE OF THE CORE HOLE MUST BE AT LEAST 3" FROM THE ENDS OF THE PIPE, ANY OTHER CORE SERVICE CONNECTIONS, AND ANY FITTINGS.
4. FOR DEEP SERVICE APPLICATIONS SEE SHEET 3 OF 4, EXCEPT SUBSTITUTE A CORED HOLE, AND SERVICE ADAPTOR FOR THE TEE OR WYE.
5. SERVICE CONNECTIONS TO MANHOLES MUST BE MADE USING A PIPE-TO-MANHOLE CONNECTOR WHICH LIMITS THE PIPE SLOPE INTO THE MANHOLE TO 12% MAX.

6" WASTEWATER CONNECTION TO EXISTING LINED MAIN

CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & WASTEWATER SERVICE CONNECTION	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01 4 OF 4

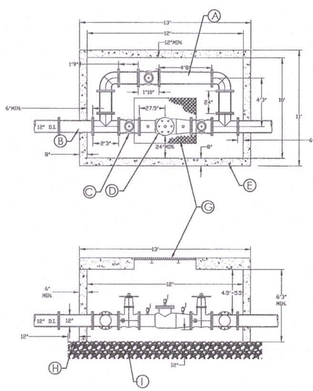


CITY OF AUSTIN WATER AND WASTEWATER UTILITY	CONCRETE RETARD	
Kathi L. Flowers 2-21-01 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 593S-1

NOTES:

1. VAULT PER SPL WW-29B OR APPROVED EQUAL. VAULT SHALL INCLUDE THRUST COLLAR WALL PIPES IF CAST IN PLACE. ALL PIPE SHALL BE RESTRAINED REGARDLESS IF VAULT PRE-CAST OR CAST IN PLACE, RESTRAINED BOTH WAYS. H20 LOADING REQUIRED FOR ALL VAULTS.
2. METER VAULT SHALL BE BEHIND CURB AND/OR WALK, AND NOT IN VEHICULAR TRAFFIC AREA.
3. MAIN LINE AND BYPASS GATE VALVES WILL BE RESILIENT SEAT TYPE WITH CORROSION RESISTANT FUSION BONDED EPOXY COATING INSIDE AND OUTSIDE, NON-RISING STEM. MAIN LINE VALVES SHALL HAVE HAND-WHEELS. BYPASS VALVES SHALL HAVE HAND-WHEELS.
4. ACCESS LID SHALL BE 1.2 m x 1.8 m (4'x6') DOUBLE LEAF PER SPL WW-614 (H2O LOADING REQUIRED) WITH SLAM LOCK BY HALLIDAY PRODUCTS OR APPROVED EQUAL. LOCK TO INCLUDE SECURITY OPERATOR.
5. ALL BURIED PIPE SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY CITY OF AUSTIN STANDARD SPECIFICATIONS 510.3 (14); BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY 510.3 (25). ALL BURIED PIPE SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT PER SPL WW-27D.
6. FITTINGS IN VAULT SHALL BE FLANGED WITH EXCEPTION OF ONE RESTRAINED MJ ON MAIN AND BYPASS LINE EACH PER SPL WW-27A.
7. VOIDS AT PIPE WALL HOLES SHALL BE FILLED WITH NON-SHRINK GROUT, OR OTHER SEAL OR SEALANT PER SPL WW-146A.
8. THE TOP OF THE METER VAULT SHALL BE AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT.
9. BYPASS AND MAIN PIPE SHALL BE SAME DIAMETER. ALL PIPE FROM CITY MAIN TO CUSTOMERS VALVE SHALL BE D.I.
10. ALL EQUIPMENT IN VAULT SHALL BE REMOVABLE WITHOUT ADDITIONAL RESTRAINT OR SUPPORT OF PIPE.
11. LOCATION OF ACCESS DOORS ARE SHOWN TO INDICATE POSSIBLE LOCATION. CONTRACTOR SHALL COORDINATE WITH THE VALVE/METER SUPPLIER FOR THE REQUIRED PRECISE LOCATION.

MINIMUM CLEARANCE REQUIRED	
7'-9"	-FLOOR TO ANY PART OF FIRELINE METER ASSEMBLY -INTERIOR WALL TO FLANGE.
12"	-INTERIOR WALL TO PARALLEL PIPE, VALVE OR METER. -ALL AROUND FIRELINE METER ASSEMBLY
4.5'-5.5'	-TOP OF PIPE TO INTERIOR TOP OF VAULT



PRIVATE BACKFLOW PREVENTER VAULT DETAIL

N.T.S.

(A) BYPASS SEE NOTES
(B) DUCTILE IRON PIPE 12" DIA. MIN. FROM 12" LINE TO CHECK VALVE.
(C) 12" GATE VALVE
(D) 12" WATTS SERIES 774 LEAD-FREE DOUBLE CHECK VALVE ASS'Y.
(E) 8" THICK CONCRETE VAULT BOX WALL.
(F) 12" THICK CONCRETE COVER. COVER TO BE PLACED AFTER INSTALLATION OF METER AND PIPING. JOINT MUST PERMIT REMOVAL OF ENTIRE COVER.
(G) ACCESS LID MIN. 30" IN LEAST DIMENSION SEE NOTE #5.
(H) GRAVEL SHALL EXTEND 12" OUTSIDE OF VAULT WALL IN ALL DIRECTIONS.
(I) 18" THICK LAYER OF GRAVEL AT VAULT BASE PER SPECIFICATION 510.2(23)(a).

NOTES:

1. ALL BACKFLOW PREVENTION ASSEMBLIES SHALL HAVE LAB AND FIELD APPROVAL FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH.
2. ALL TEST PORTS SHALL BE DIRECTED UPWARD AND PLUGGED. TEST PORTS ARE LOCATED ON SERVICE SIDE. PLUGS SHALL BE NON-FERROUS.
3. BACKFLOW PREVENTION ASSEMBLIES SHALL BE INSTALLED IN THE HORIZONTAL POSITION, UNLESS OTHERWISE APPROVED. BACKFLOW PREVENTION ASSEMBLIES SHALL NOT BE ROTATED ON THEIR AXIS.
4. CLEARANCE SHALL BE AS INDICATED, AND IN THE STANDARD CROSS CONNECTION ORDINANCES AND UCM.
5. ACCESS OPENING MUST BE LARGE ENOUGH TO REMOVE LARGEST PORTION OF BACKFLOW PREVENTER BUT NOT LESS THAN 4' X 6' IN LEAST DIMENSION. OPENING SHALL BE DOUBLE LEAF PER SPL-WW-614 WITH SLAMLOCK BY HALLIDAY PRODUCTS.
6. VAULT SHALL NOT BE INSTALLED IN TRAFFIC AREA.
7. HAND WHEELS SHALL BE HORIZONTALLY LOCATED WITHIN 300mm (12") OF ACCESS OPENING.
8. FOR ACCESS DOORS SEE SPL WW-614 OR APPROVED EQUAL (H20 LOADING REQUIRED).
9. FOR VAULT SEE SPL WW-29B OR APPROVED EQUAL (H20 LOADING REQUIRED).
10. VAULT PIPE WALL VOIDS SHALL BE SEALED WITH NON-SHRINK GROUT OR SEALANT PER SPL WW-146A OR APPROVED EQUAL.
11. THE TOP OF THE VAULT SHALL BE AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT.ADDITIONAL DRAINAGE CONSIDERATION SUCH AS CONNECTION OF VAULT TO STORM SEWER, LATERAL DRAIN LINES FROM GRAVEL BED OR OTHER MEANS SHALL BE REQUIRED IF CONDITIONS CAUSE WATER TO COLLECT IN VAULT.

REVIEWED
MAR 29 2019
Austin Water Utility

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W, Suite 160
Austin, Texas 78735, Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

UTILITY DETAILS

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED PROFESSIONAL ENGINEER
03/28/2019

Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

SHEET
36
OF 53

Project No:
1490-001

SP-2018-0138D

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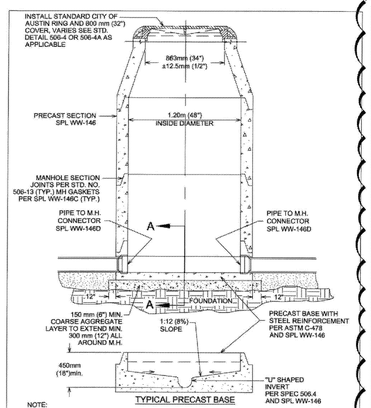
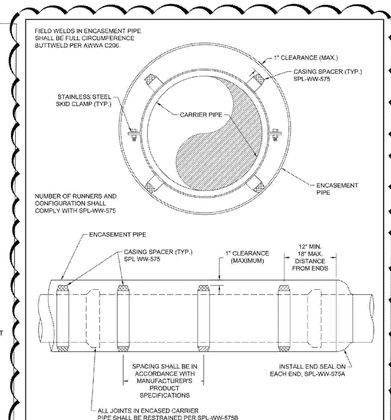
User: GPARSONS
Last Modified: Mar. 28, 19 - 09:35
Plot Date/Time: Mar. 28, 19 - 09:40:12

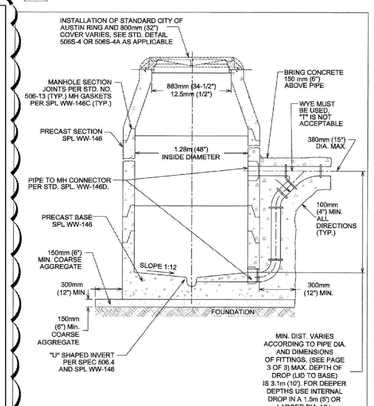


CITY OF AUSTIN AUSTIN WATER UTILITY	WASTEWATER MANHOLE ON PRECAST BASE	
Kathi K Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-10

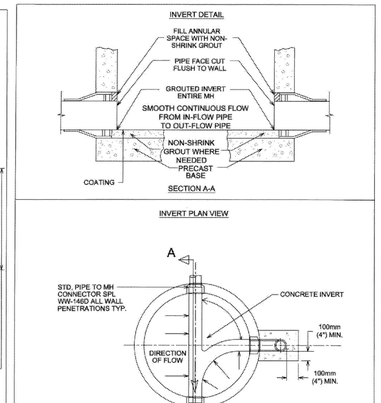


CITY OF AUSTIN	ENCASEMENT PIPE DETAIL WITH CASING SPACERS	
JEFF A. KYLE 02/22/2021 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 501-AW-01 1 OF 1

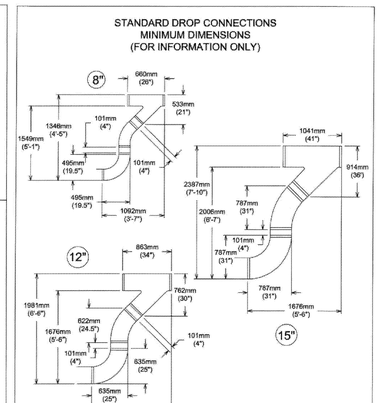
C2



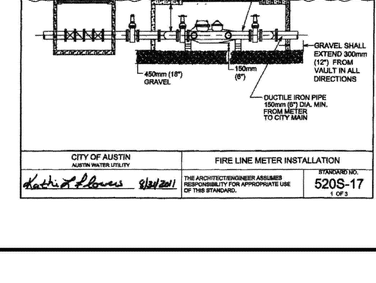
CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 1 OF 3



CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 2 OF 3

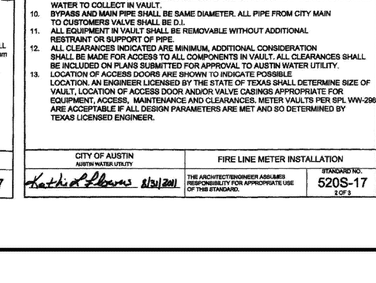


CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 3 OF 3



MATERIALS:	REINFORCING STEEL DRAWING	DESIGNED FOR:
CONCRETE f'c = 4,500 Psi	TOP SLAB 10.0' X 15.0' METER VAULT	HS-20 LIVE LOAD
STEEL fy = 60,000 Psi		TOP SLAB 0' TO 2.6' BELOW GRADE

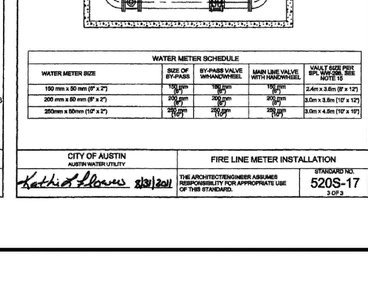
GARY K. MUNKELT & ASSOC Structural Engineers Fax: (215) 703-0992



MATERIALS:	REINFORCING STEEL DRAWING	DESIGNED FOR:
CONCRETE f'c = 4,500 Psi	RISER SECTION 10.0' X 15.0' METER VAULT	HS-20 LIVE LOAD
STEEL fy = 60,000 Psi		BOTTOM OF RISER 6" TAPT MAXIMUM BELOW GRADE

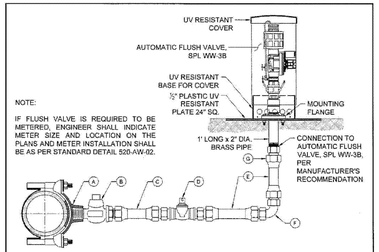
GARY K. MUNKELT & ASSOC Structural Engineers Fax: (215) 703-0992

For 10" X 2" Fire Demand Meter



Hughes Concrete Products Division	CITY OF AUSTIN 10' X 15' METER VAULT
American Industrial Pre-Cast 501 East Baxter Street Seguin, Texas 78155 830-401-0555	


APPROVED A-2
LAY FLOOR PLATE WITH LIFTING HOOK
SLAMLOK PLUG
SLAMLOK KEY
5'-5" HORIZONTAL CONCRETE POUR
5'-5" AUSTIN WATER APPROVED SLAM
BOXES: CONCRETE, REINFORCED OF CAST IRON CONSTRUCTION AS SHOWN ON DETAILS. BOXES SHALL BE CAPABLE OF SUPPORTING AN AASHTO H-20 WHEEL LOAD. APPROXIMATE WEIGHT 475 LBS.
CITY OF AUSTIN
18.3 TON CAPACITY
HEAVY DUTY
MODEL CB-1824
HINGED AND SLAM LOCKED
AASHTO H20 18" X 24" ALUMINUM MANHOLE COVER
FLUSH CAST ALUM. SNAP HANDLE
5'-5" RE-ROUND CONCRETE
5'-5" RE-ROUND CONCRETE
SLAMLOCK
SLAMLOCK
5'-5" HANDLE
5'-5" HANDLE
SLAMLOCK
SLAMLOCK
PLUG
PLUG
PLUG



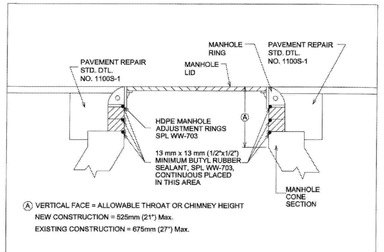
NOTE:

IF FLUSH VALVE IS REQUIRED TO BE METERED, ENGINEER SHALL INDICATE METER SIZE AND LOCATION ON THE PLANS AND METER INSTALLATION SHALL BE AS PER STANDARD DETAIL 520-AW-02.

A. 2" SERVICE CLAMP
B. 2" CORPORATION STOP MALE THREAD INLET BY COMPRESSION OUTLET
C. 2" COPPER WATER SERVICE TUBING EXTENDED BEYOND PAVEMENT
D. BALL VALVE, SPL WW-275 (SIZE EQUAL TO "E")
E. 2" COPPER TUBING PER SPL WW-613 OR 2" HDPE PER SPL WW-65 FOR POTABLE AND PER SPL WW-65A FOR RECLAIMED
F. 2" BRASS 90° BEND, COMPRESSION x COMPRESSION OR HDPE WITH STIFFENERS PER SPL WW-65B AT ALL CONNECTIONS
G. 2" BRASS COUPLING, COMPRESSION x FIP

NOTES:
1. AUTOMATIC FLUSH VALVE MAY ALSO BE USED ON TAPPED PLUGS AND CAPS.
2. THE CONTRACTOR SHALL PROVIDE THE FLUSH VALVE ACCESS KEY TO AUSTIN WATER UPON FLUSH VALVE ACCEPTANCE.
3. VALVE "D" SHALL NOT BE LOCATED MORE THAN 36" BELOW FLUSH VALVE OR MORE THAN 24" HORIZONTALLY FROM FLUSH VALVE. VALVE "D" SHALL NOT BE LOCATED IN A SIDEWALK OR DRIVEWAY.
4. METER BOX (IF REQUIRED) AND FLUSH VALVE SHALL NOT BE LOCATED IN A SIDEWALK, DRIVEWAY, PEDESTRIAN WAY OR TRAFFIC WAY. TEMPORARY FLUSH VALVES SHALL BE LOCATED AS SHOWN ON APPROVED PLANS.
5. A DRAINAGE WAY, CONTAINED WITHIN THE R.O.W. OR AN EASEMENT, SHALL BE PROVIDED FROM FLUSH VALVE TO STORM SEWER SYSTEM OR PUBLIC DRAINAGE WAY.
6. DESIGN ENGINEER SHALL PROVIDE CALCULATIONS WITH PLANS AT THE TIME OF REVIEW INCLUDING FREQUENCY AND FLUSH RATE REQUIRED TO CIRCULATE WATER IN DEAD END MAIN EVERY 72 HOURS.

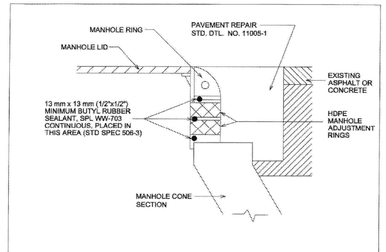
CITY OF AUSTIN AUSTIN WATER	AUTOMATIC FLUSH VALVE	
Kathi L Flowers 05/18/2018 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-05 1 OF 1



Ⓐ VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
NEW CONSTRUCTION = 525mm (21") Max.
EXISTING CONSTRUCTION = 675mm (27") Max.

NOTE:
1. HDPE RINGS ONLY IN PAVED AREAS

CITY OF AUSTIN AUSTIN WATER UTILITY	MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
Kathi L Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 1 OF 3

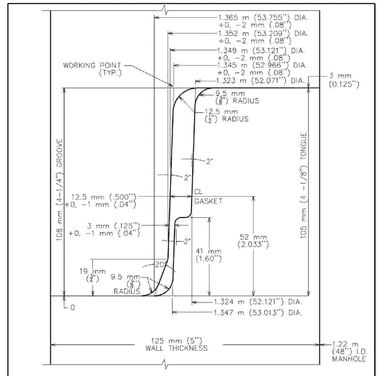


CITY OF AUSTIN AUSTIN WATER UTILITY	MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
Kathi L Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 2 OF 3

INSTALLATION INSTRUCTIONS
HDPE MANHOLE ADJUSTMENT RINGS
(FOR NEW CONSTRUCTION AND REHABILITATION)

1. REMOVE EXISTING CASTING AND RINGS OR COVER PLATE TO EXPOSE CONCRETE. MANHOLE SURFACE MUST BE CLEAN AND LEVEL ±6 mm (1/4"). NOTE: IF TOP OF CONCRETE STRUCTURE IS IN VERY POOR CONDITION OR IRREGULAR, THE FIRST RING CAN BE PRESSED FULLY INTO A HEAVY BED OF MORTAR ALLOWING IT AND SUBSEQUENT RINGS TO BE POSITIONED WITHOUT WOBBLE OR POINT-LOADING.
2. POSITION STRAIGHT AND LEVEL TO DETERMINE HEIGHT ADJUSTMENT REQUIRED. CONFIRM BEFORE PLACING RINGS.
3. COMBINE VARIOUS RING HEIGHTS, IN BOTH FLAT AND SLOPE, TO REACH DESIRED ADJUSTMENT. PLACE RINGS WITH INNER POCKET OPENING UP (OUTER POCKET OPENING WITH HOLES DOWN). THE INTERLOCKING LIP (MALE TONGUE) EXTENDS DOWN INTO THE STRUCTURE OF LOWER RING. MULTIPLE SLOPE RINGS CAN BE ADDED AND ROTATED TO ACHIEVE DESIRED GRADE MATCH WITHIN 6 mm (1/4"). NOTE: SLOPE RINGS ARE TAPERED TO PROVIDE 2% GRADE COMPENSATION. IF REQUIRED, HDPE SHIMS (MAX. 6 mm (1/2") PER RING MAY BE USED TO MATCH GRADE EXACTLY.
4. DRY STACK RINGS WITHOUT SEALANT TO ACHIEVE DESIRED VERTICAL AND SLOPE ADJUSTMENT. IF SLOPE RINGS ARE USED, MARK INNER FACE OF STOCK WITH PAINT OR MARKER TO MAINTAIN ALIGNMENT WHEN RE-STACKING.
5. REMOVE THE RINGS AND PLACE NEARBY IN UPSIDE-DOWN ORDER (THIS ALLOWS FOR EASY RE-ASSEMBLY IN THE CORRECT ORDER). APPLY A CONTINUOUS BEAD OF APPROVED RUBBER BUTYL SEALANT (SPL WW-703) TO THE FLAT SURFACE OF THE FIRST RING ON THE SIDE OF THE MALE TONGUE THAT WILL REST AGAINST THE CONE OPENING (MALE TONGUE DOWN). APPLY SEALANT TO AFFECT A SEAL BETWEEN THE INTERLOCKING LIP AND THE CONCRETE SURFACE IT RESTS ON.
6. APPLY 13 mm (1/2") CONTINUOUS BEAD OF APPROVED BUTYL RUBBER SEALANT (SPL WW-703) TO THE NEXT RING. THE SEALANT MUST BE APPLIED DIRECTLY INTO THE INTERLOCKING LIP (MALE TONGUE) AND THE BOTTOM OF THE RING, FAVORING THE SIDE OF THE LIP TO ASSURE A SEAL. PLACE THIS RING WITH THE INTERLOCKING LIP (MALE TONGUE) FACING DOWN ON TOP OF THE LOWER RING PREVIOUSLY INSTALLED. PRESS THE RING IN PLACE TO SET AND DISPERSE SEALANT. REMEMBER TO RE-ASSEMBLE THE RINGS USING ALIGNMENT MARKS TO POSITION SLOPE RING(S) CORRECTLY.
7. REPEAT #6 ON ALL PRE-ASSEMBLED RINGS TO REACH DESIRED HEIGHT AND SLOPE ADJUSTMENT.
8. APPLY 13 mm (1/2") CONTINUOUS BEAD OF APPROVED BUTYL RUBBER SEALANT (SPL WW-703), TO THE TOP OF THE UPPER RING.
9. POSITION CASTING ON RING(S). PRESS THE CASTING FRAME IN PLACE TO SET AND DISPERSE SEALANT.
10. BACKFILL TO RESTORE TO STD. DETAIL 1100S-1.
11. RING MANUFACTURER MUST BE LISTED ON SPL WW-703.
12. FOR USE IN PAVED AREAS ONLY.

CITY OF AUSTIN AUSTIN WATER UTILITY	MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
Kathi L Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 3 OF 3



NOTES:
1. DRAWING NOT TO SCALE FOR CLARIFICATION OF DIMENSIONS.
2. GASKET STRETCH: MIN. 10, MAX. 15%.

CITY OF AUSTIN AUSTIN WATER UTILITY	WEDGE – SEAL JOINT DETAIL PRECAST MANHOLE SECTION	
RECORD COPY, SIGNED BY KATHI L FLOWERS 06/01/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S–13

NOTES:
1. MANUFACTURER'S LOGO, COUNTRY OF ORIGIN, LID WEIGHT (IN LBS.) AND DATE OF CASTING SHALL BE CAST IN RING AND COVER AS DESCRIBED BY 503S-5W.
2. SEE SPL WW-219 FOR ADDITIONAL INFORMATION.

CITY OF AUSTIN AUSTIN WATER UTILITY	WATERTIGHT MANHOLE RING AND 813 mm 32" COVER	
Kathi L Flowers 6/01/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-6W 1 OF 2

CITY OF AUSTIN AUSTIN WATER UTILITY	WATERTIGHT MANHOLE RING AND 813 mm 32" COVER	
Kathi L Flowers 6/01/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-6W 2 OF 2

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506.

CITY OF AUSTIN AUSTIN WATER UTILITY	MANHOLE RING AND 813 mm (32") COVER	
Kathi L Flowers 9/23/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 1 OF 3

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506.

CITY OF AUSTIN AUSTIN WATER UTILITY	MANHOLE RING AND 813 mm (32") COVER	
Kathi L Flowers 9/23/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 2 OF 3

NOTES:
① ALL CORNERS AND EDGES SHALL HAVE A 1.5mm (1/16") MINIMUM RADIUS.
② LIDS SHALL BE CAST WITH TWO 25mm (1") DIA. STEEL PICK BARS.
LID WEIGHTS SHALL BE 779 N (175 LBS.) FOR DUCTILE IRON.
WEIGHT SHALL BE CAST ON BOTH TOP & BOTTOM OF LID.
③ MANUFACTURER SHALL PROVIDE INDEPENDENT TESTING LABORATORY REPORT ON 40,000 LB. PROOF LOAD TEST CONDUCTED ACCORDING TO AASHTO M-308.
④ FILLETS SHALL BE 6mm (1/4") RADIUS UNLESS OTHERWISE SPECIFIED.
⑤ MANUFACTURER SHALL REMOVE EXCESS IRON AND MACHINE FINISH SEATING SURFACES TO NOTED DIMENSIONS.

NOTE: ALL MANHOLES NOT LOCATED IN PAVED AREAS SHALL HAVE BOLTED COVERS AS PER SPEC. 506.

CITY OF AUSTIN AUSTIN WATER UTILITY	MANHOLE RING AND 813 mm (32") COVER	
Kathi L Flowers 9/23/10 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-4W 3 OF 3

Ⓐ VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
= NEW CONSTRUCTION = 525mm = (21") Max.
= EXISTING CONSTRUCTION = 675mm (27") Max.

NOTES:
1. NON-SHRINK GROUT SHALL NOT EXCEED 25 mm (1") IN ANY DIMENSION.
2. SUB-GRADE AND BASE MATERIALS SHALL BE COMPACTED ACCORDING TO ITEMS 2018 AND 2105, RESPECTIVELY, OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. REFER TO STANDARD 1100S-1 FOR REPAIRS AROUND MANHOLES.
4. SEE STANDARD 506S-4A FOR HDPE RING INSTALLATION (FOR USE IN PAVED AREAS ONLY).

CITY OF AUSTIN AUSTIN WATER UTILITY	MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
Kathi L Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4 1 OF 2

NOTES:
1. FOR USE IN UNPAVED AREAS ONLY.
2. WHEN USED WITHIN 100-YEAR FLOODPLAIN, SEE DTL. 506S-6 FOR ADDITIONAL M.H. REQUIREMENTS.
3. DIMENSION B=150-300 mm (6"-12") FOR M.H. LOCATED IN 100-YR FLOOD PLAN. =50-300 mm (2"-12") FOR M.H. OUTSIDE 100-YR FLOOD PLAN.

CITY OF AUSTIN AUSTIN WATER UTILITY	MINOR MANHOLE ADJUSTMENT & NEW MANHOLE CONSTRUCTION	
Kathi L Flowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4 2 OF 2

NOTE:
1. WASTEWATER CLEANOUT FRAME AND LID SHALL NOT BE PLACED IN PAVED AREAS, INCLUDING SIDEWALKS, DRIVEWAYS, OR PARKING LOTS, AND MUST BE LOCATED A MINIMUM OF 6' FROM ALL PAVED AREAS.

CITY OF AUSTIN AUSTIN WATER	WASTEWATER CLEANOUT FRAME AND LID	
JEFF A. KYLE 08/16/2019 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-03 1 OF 1

CITY OF AUSTIN AUSTIN WATER	WASTEWATER CLEAN-OUT FRAME AND LID	
Kathi L Flowers 05/18/2016 DATE	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-03 2 OF 2

CITY OF AUSTIN APPROVED Date 05/06/2023 FOUNDED 1839

Replacement Sheet
REVIEWED June 05, 2023
C2
Updated to current wastewater service detail 520-AW-03

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
UTILITY DETAILS (3)
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
REVISIONS			
C2	UPDATED DETAILS, CHANGED TO LJA TITLE BLOCK, ADDED REVISION TABLE	DSM	04/04/2023

JOB NUMBER:	A379-0401
DATE:	02/08/2023
DESIGNED BY:	RBH
DRAWN BY:	DSM
CHECKED BY:	RBH
DRAWING NAME:	

REESE B HURLEY 98211 LICENSED PROFESSIONAL ENGINEER
FOR C2 ONLY 04/04/2023

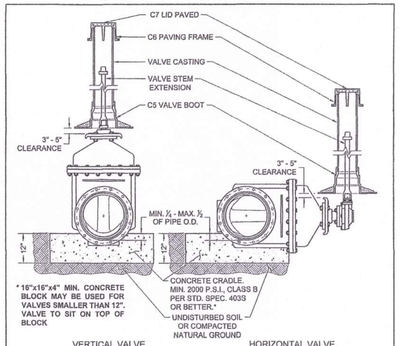
LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

SHEET NO. 38 OF 63 C2 SHEETS

C2 REPLACEMENT SHEET SP-2018-0138D

J:\A379-0401 - Granada Ridge\Correction 2\Replacement Sheet #s\A379-0401-S1-Sheet 35-42.dwg
User: dmurray
Last Modified: Apr. 05, 23 - 16:15
Plot Date/Time: Apr. 05, 23 - 16:52



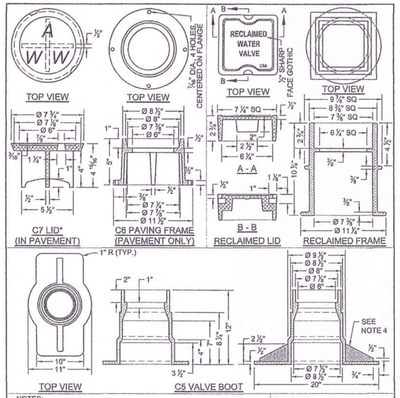
VERTICAL VALVE

HORIZONTAL VALVE
ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:
1. WELD SOCKET 2⅜" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATINGNUT, [SCH. 80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-27D. ALL COVERS SHALL HAVE "RECLAIMED WATER" CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 1 OF 4

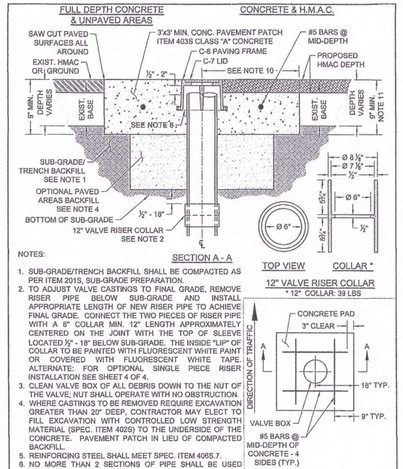


NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING FINISH BY MANUFACTURER SHALL INCLUDE REMOVAL OF FINS AND FLASHING, AND PAINT WITH BLACK ASPHALT COATING.

WEIGHTS:
C7 LID: 13 LBS
RECLAIMED LID: 15 LBS
C6 FRAME: 23 LBS
RECLAIMED FRAME: 33 LBS
C5 BASE: 78 LBS

* LETTERING SHALL BE 1 ½"
2 PICK BAR SLOTS REQUIRED

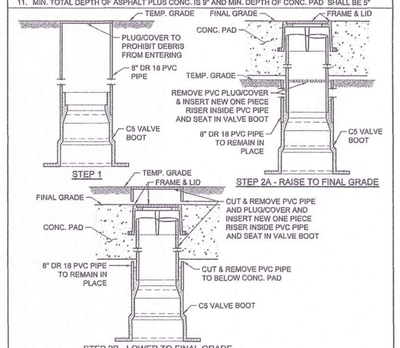
CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 2 OF 4



NOTES:
1. SUB-GRADE/TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 201S, SUB-GRADE PREPARATION.
2. TO ADJUST VALVE CASTINGS TO FINAL GRADE, REMOVE RISER PIPE BELOW SUB-GRADE AND INSTALL APPROPRIATE LENGTH OF NEW RISER PIPE TO ACHIEVE FINAL GRADE. CONNECT THE TWO PIECES OF RISER PIPE WITH A 8" COLLAR MIN. 12" LENGTH APPROXIMATELY CENTERED ON THE JOINT WITH THE TOP OF SLEEVE LOCATED ½" - 18" BELOW SUB-GRADE. THE INSIDE "LIP" OF COLLAR TO BE PAINTED WITH FLUORESCENT WHITE PAINT OR COVERED WITH FLUORESCENT WHITE TAPE. ALTERNATE: FOR OPTIONAL SINGLE PIECE RISER INSTALLATION SEE SHEET 4 OF 4.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE NUT OF THE VALVE; NUT SHALL OPERATE WITH NO OBSTRUCTION.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 402S) TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 440S.7.
6. NO MORE THAN 2 SECTIONS OF PIPE SHALL BE USED FROM VALVE TO FINAL GRADE.
7. BELL AND SPIGOT IS ACCEPTABLE FOR DEPTH OVER 18'.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 3 OF 4

NOTES (CONT):
8. PAVING FRAME SHALL BE FLUSH WITH THE CONC. PAD AND PLACED ½" - 2" ABOVE RISER PIPE (FRAME SHALL NOT REST ON RISER.)
9. IN UNPAVED AREAS, INSTALL ONE DELINEATOR STAKE IMMEDIATELY ADJACENT TO THE EDGE OF THE CONCRETE PAD. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND PURPLE FOR RECLAIMED WATER AND SHALL EXTEND AT LEAST 90° ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES.
10. VALVE SHALL TYPICALLY BE CENTERED IN CONCRETE DIAMOND BUT MAY BE OFFSET WITH A MIN. OF 12" FROM CENTER OF VALVE LID TO EDGE OF CONCRETE IN ALL DIRECTIONS.
11. MIN. TOTAL DEPTH OF ASPHALT PLUS CONC. IS 9" AND MIN. DEPTH OF CONC. PAD SHALL BE 5"



OPTIONAL ONE PIECE VALVE CASTING INSTALLATION

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
Kathi L. Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 4 OF 4

REVIEWED
MAR 29 2019
Austin Water Utility

Copy of City of Austin Originals MILLER

City of Austin
Reviewed for General Compliance
APR 09 2019

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W. Suite 160
Austin, Texas 78735. Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

UTILITY DETAILS (4)

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

STATE OF TEXAS
SUMITA KADARIYA
120590
LICENSED PROFESSIONAL ENGINEER
03/28/2019

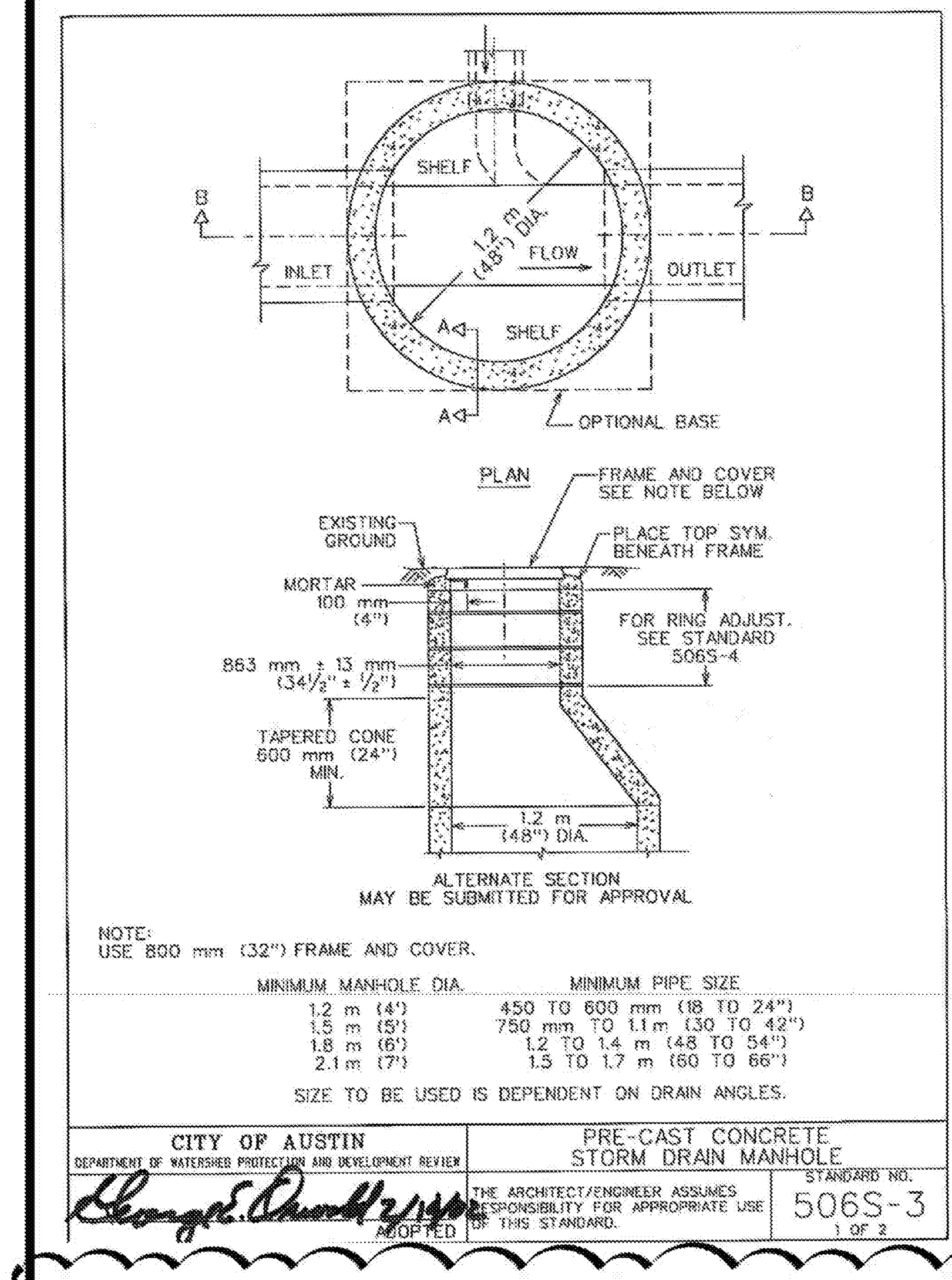
Designed:	SK, LC, DS
Drawn:	BC, DM
Reviewed:	DS
Date:	MARCH 2019

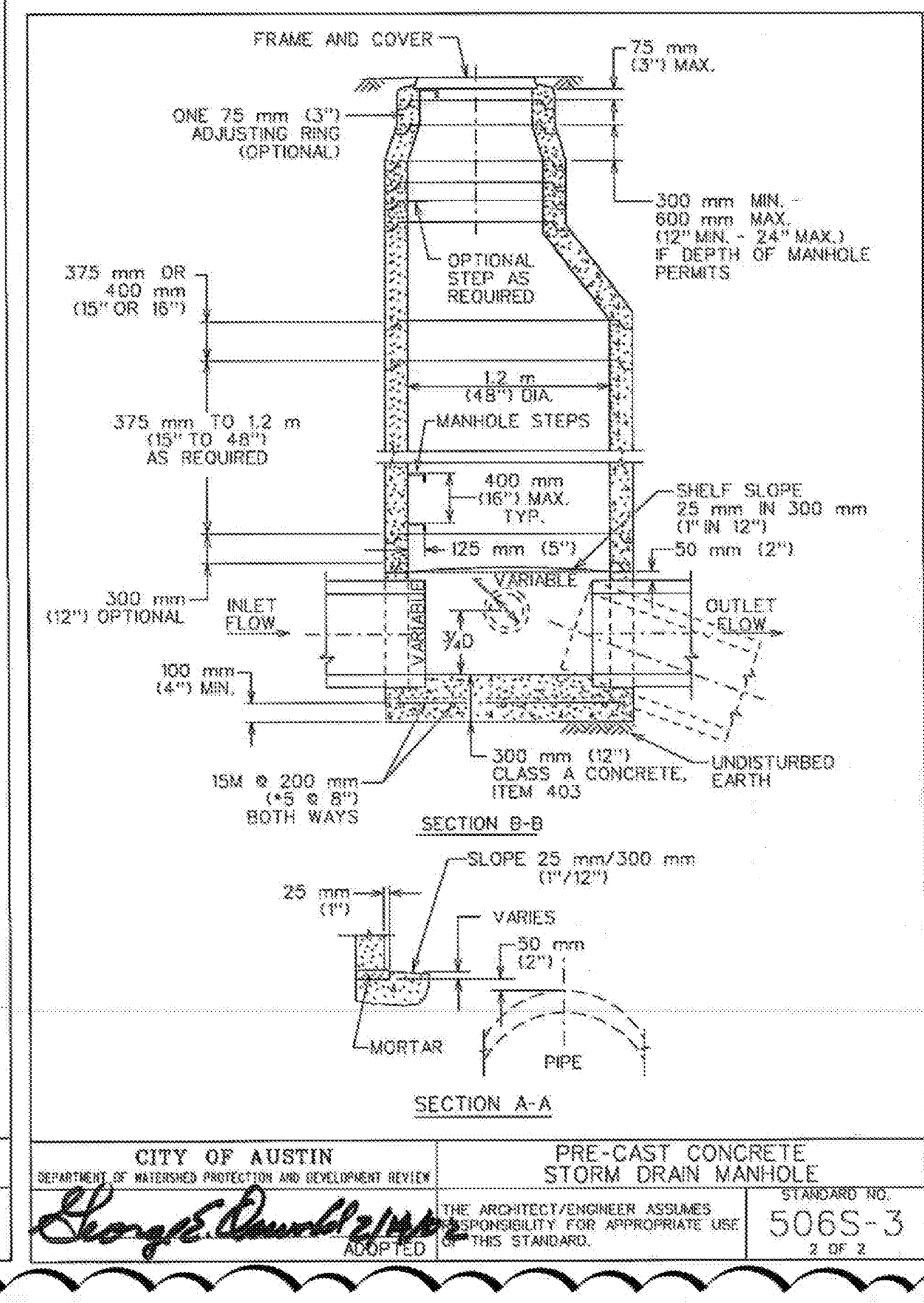
SHEET
39
OF 53

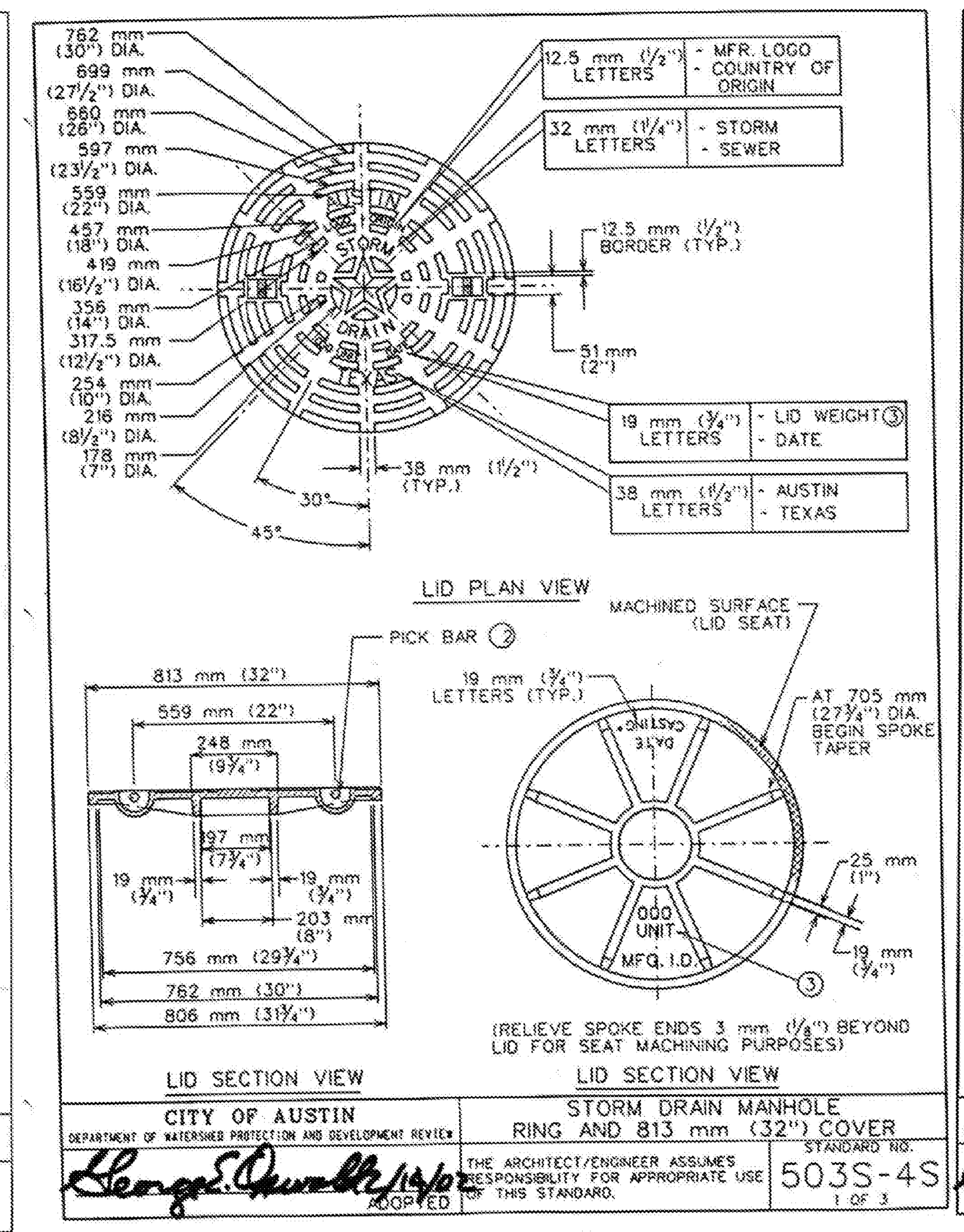
Project No:
1490-001

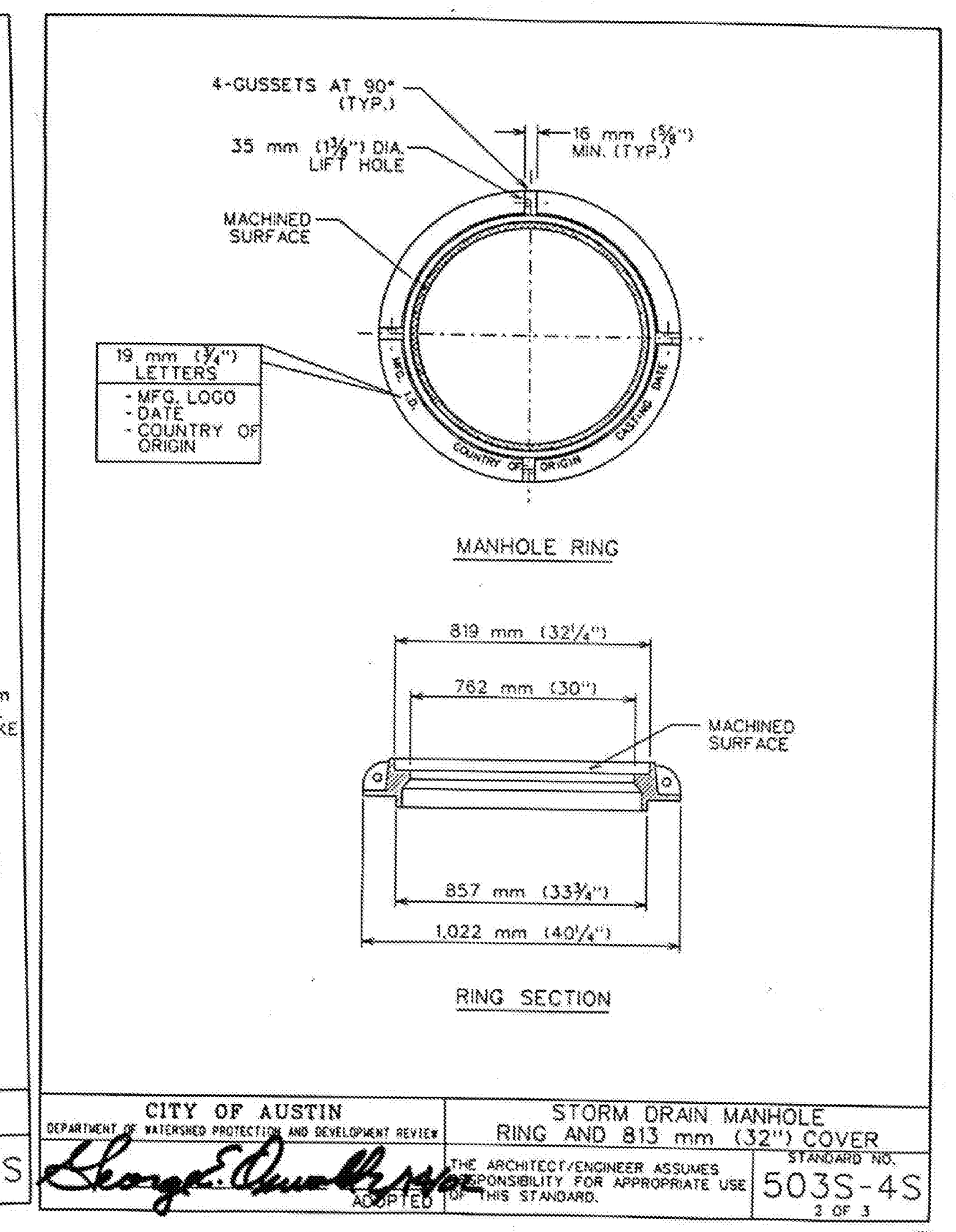
SP-2018-0138D

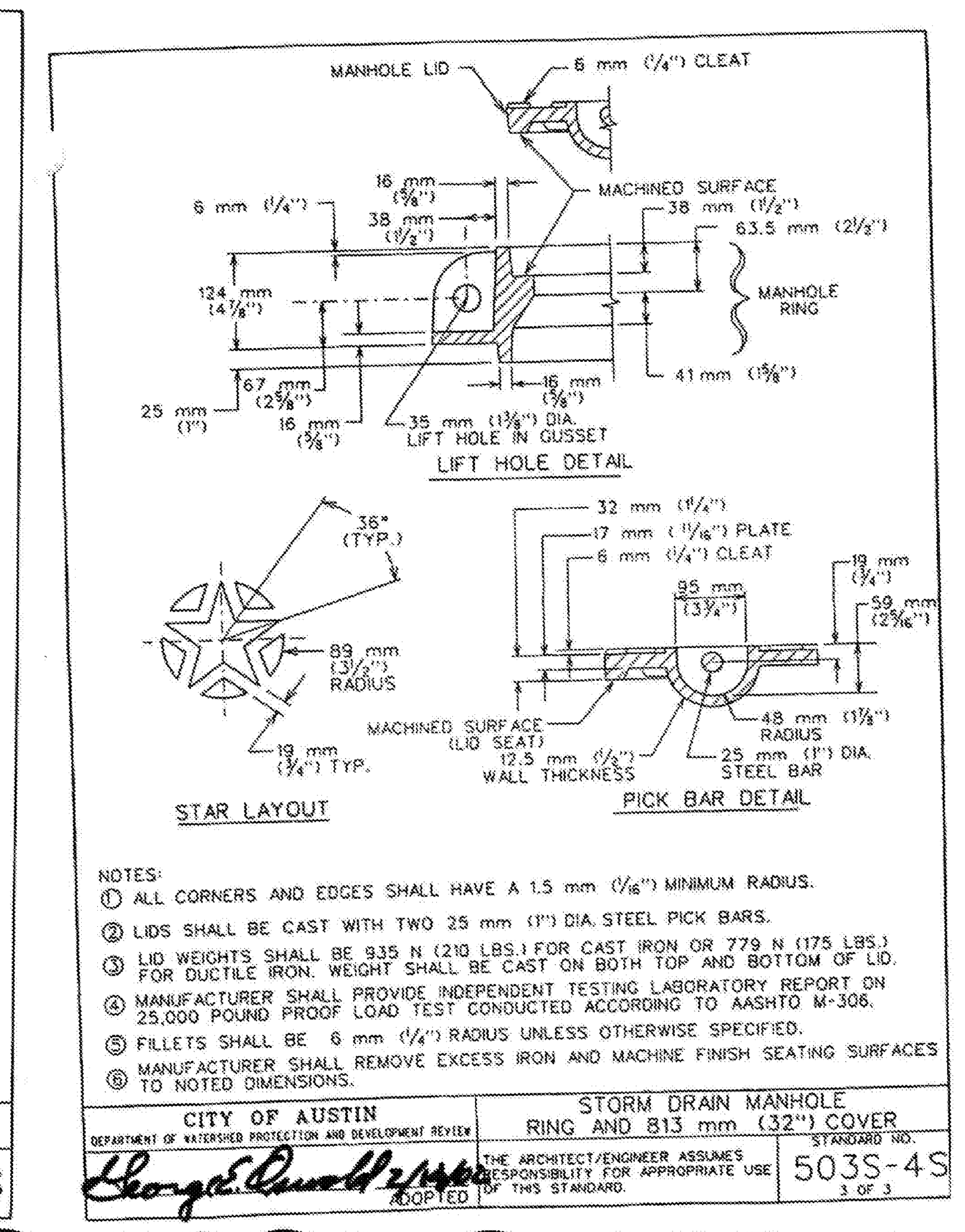
Drawing: P:\1490-001\Eng\working_drawings\submitted_Plat\CD\1490-001-CD-07.dwg
User: GPARSONS
Last Modified: Jan. 23, 19 - 15:10
Plot Date/Time: Mar. 27, 19 - 18:17:52

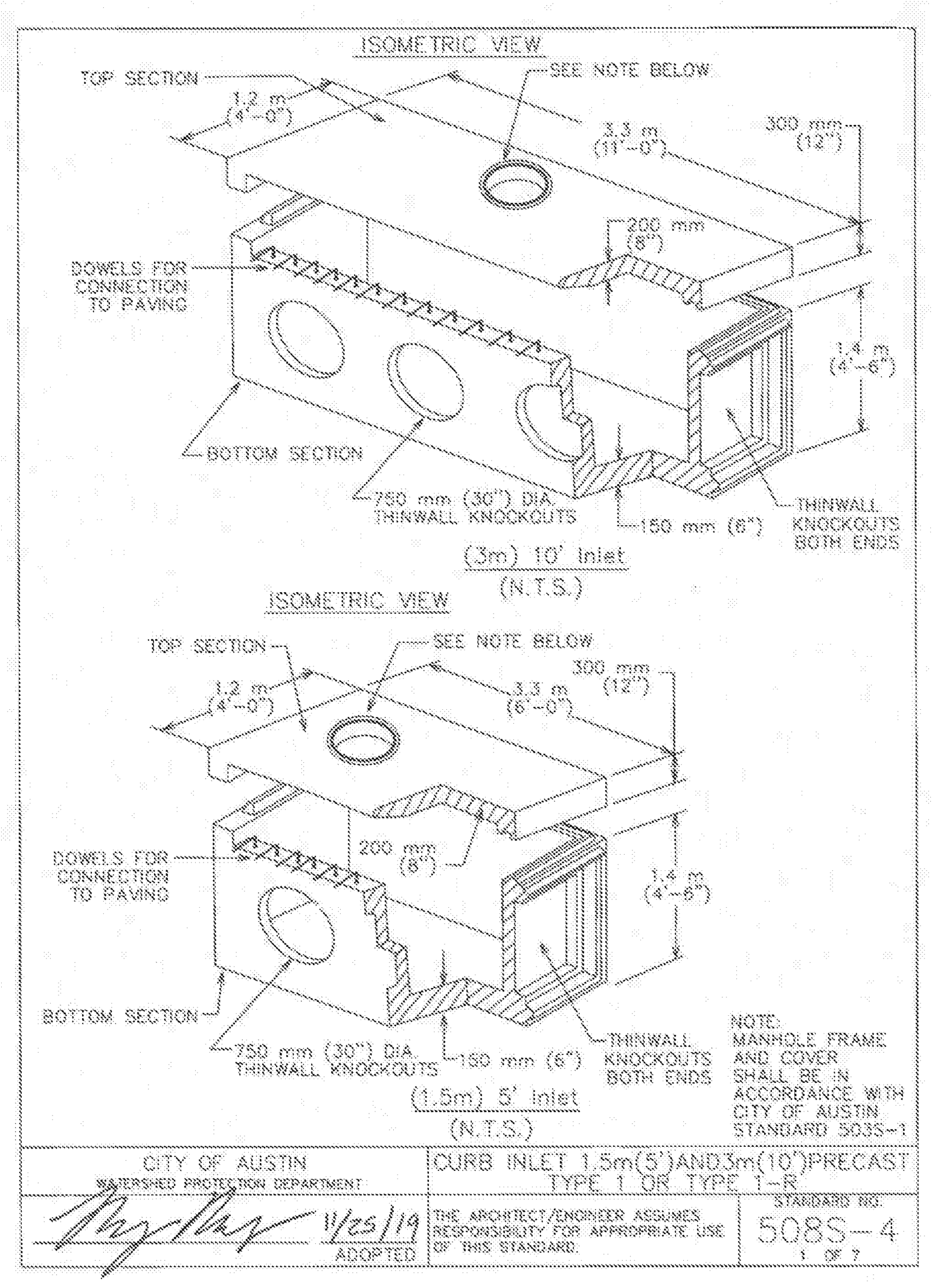

CITY OF AUSTIN — PRE-CAST CONCRETE STORM DRAIN MANHOLE — STANDARD NO. 506S-3 (1 OF 2)

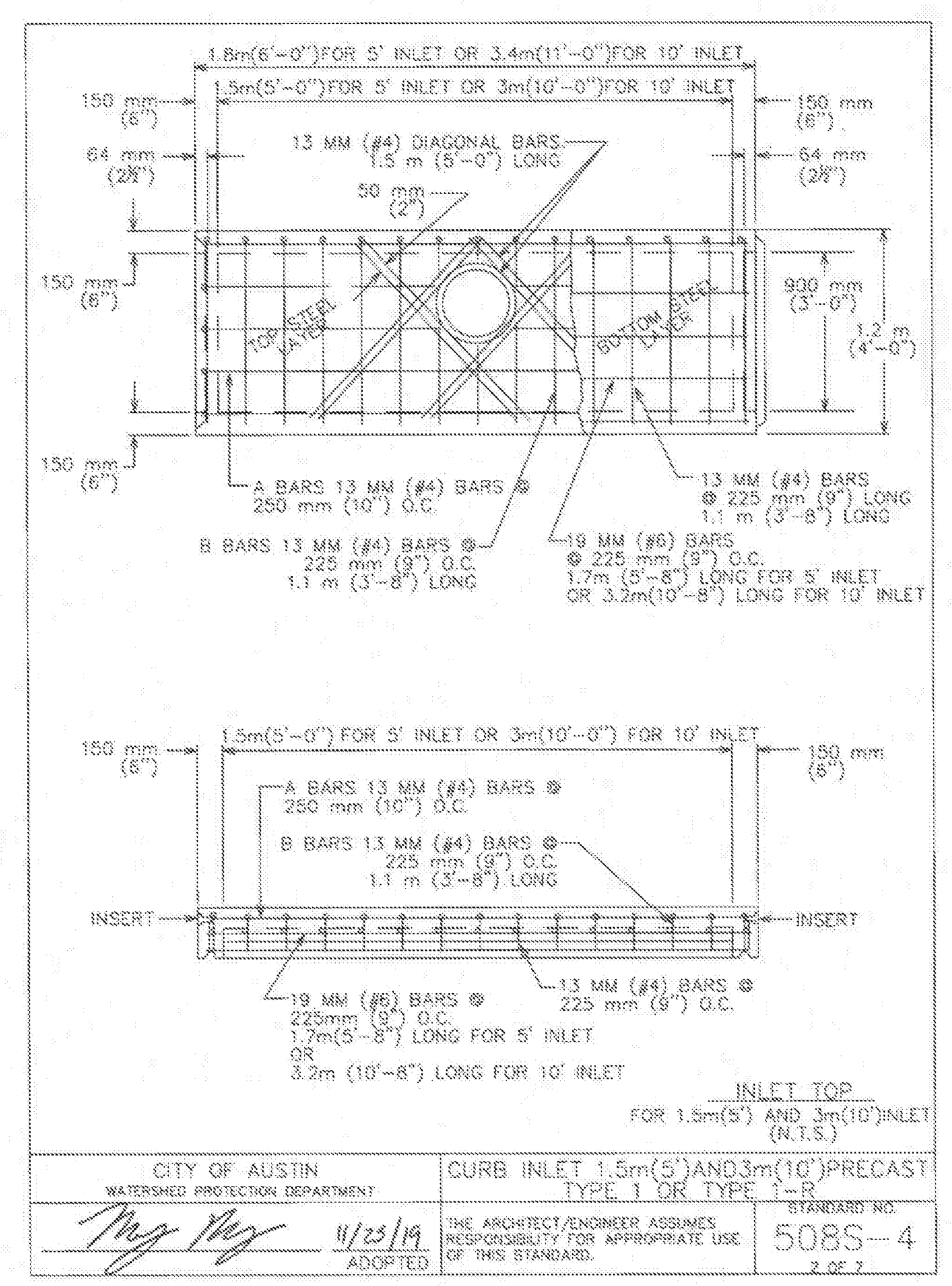

CITY OF AUSTIN — PRE-CAST CONCRETE STORM DRAIN MANHOLE — STANDARD NO. 506S-3 (2 OF 2)

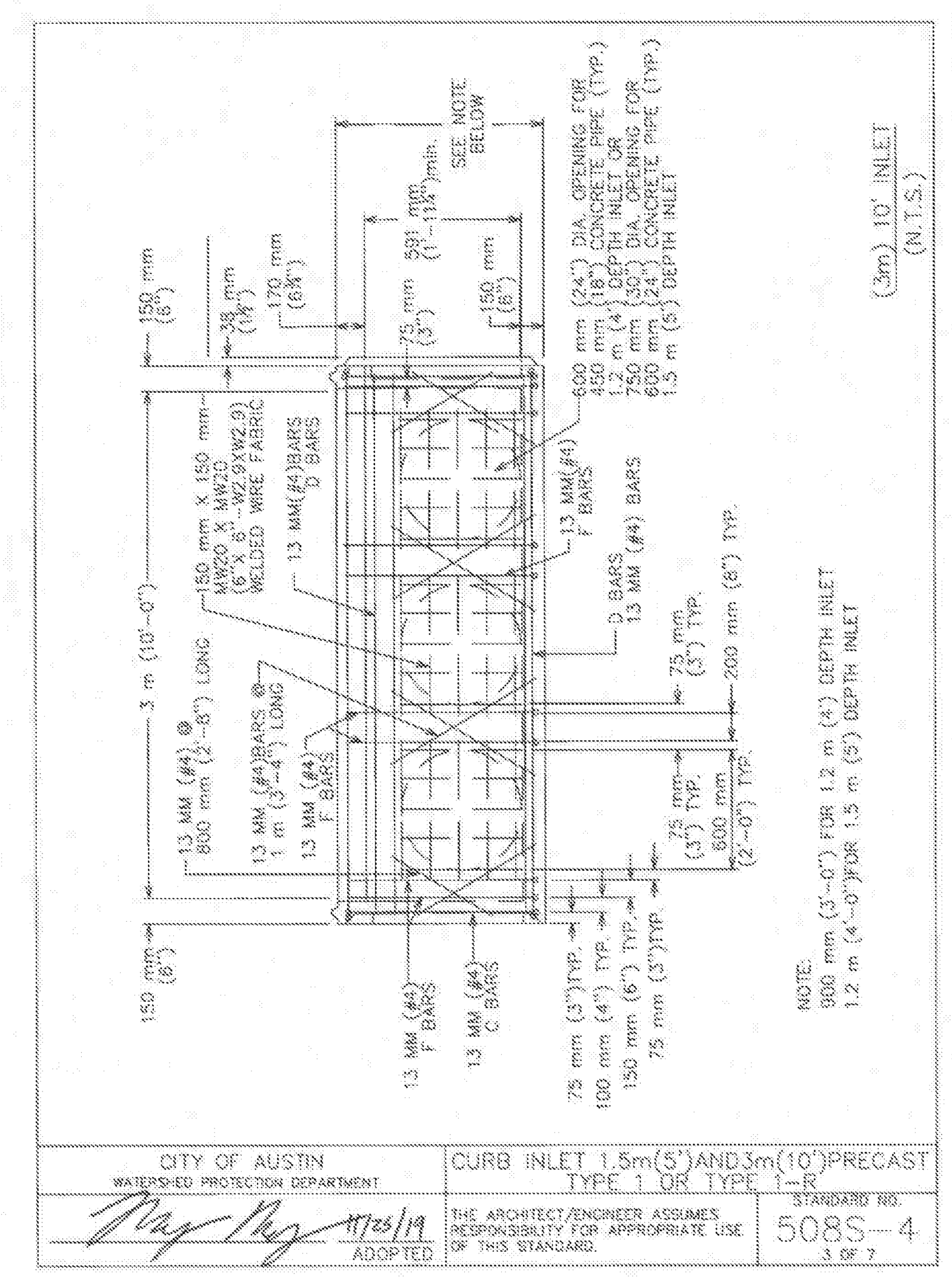

CITY OF AUSTIN — STORM DRAIN MANHOLE RING AND 813 mm (32") COVER — STANDARD NO. 503S-4S (1 OF 3)

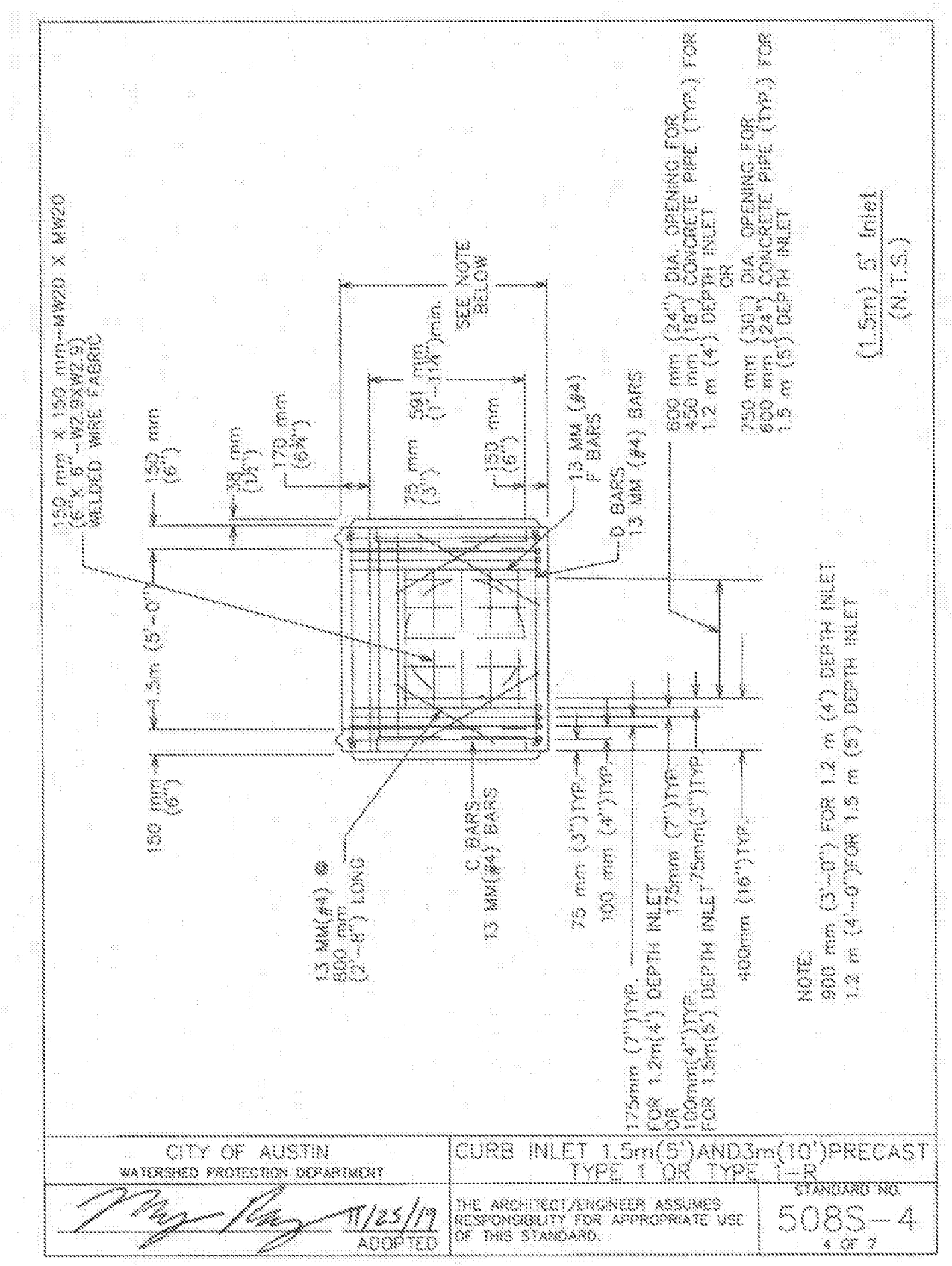

CITY OF AUSTIN — STORM DRAIN MANHOLE RING AND 813 mm (32") COVER — STANDARD NO. 503S-4S (2 OF 3)

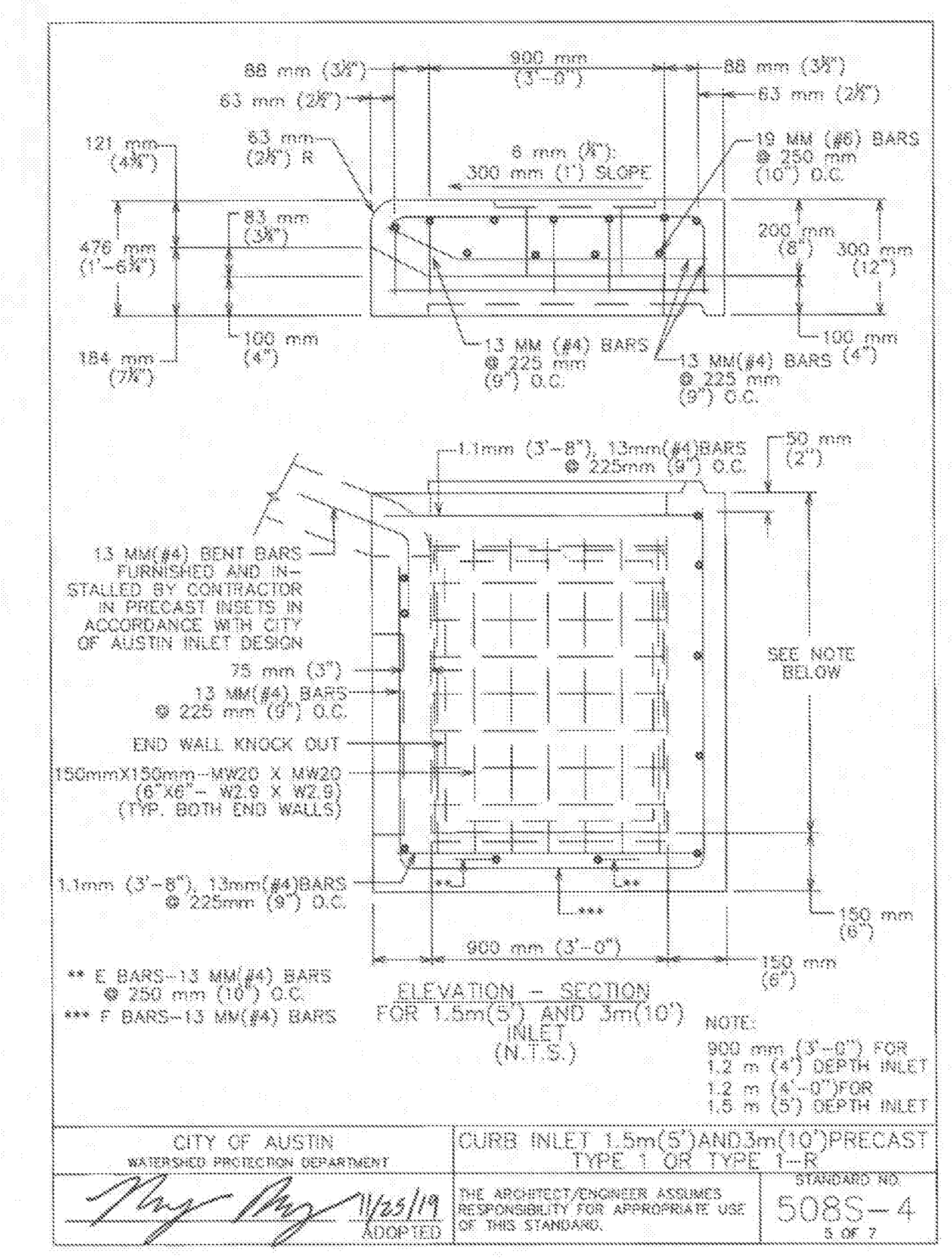

CITY OF AUSTIN — STORM DRAIN MANHOLE RING AND 813 mm (32") COVER — STANDARD NO. 503S-4S (3 OF 3)

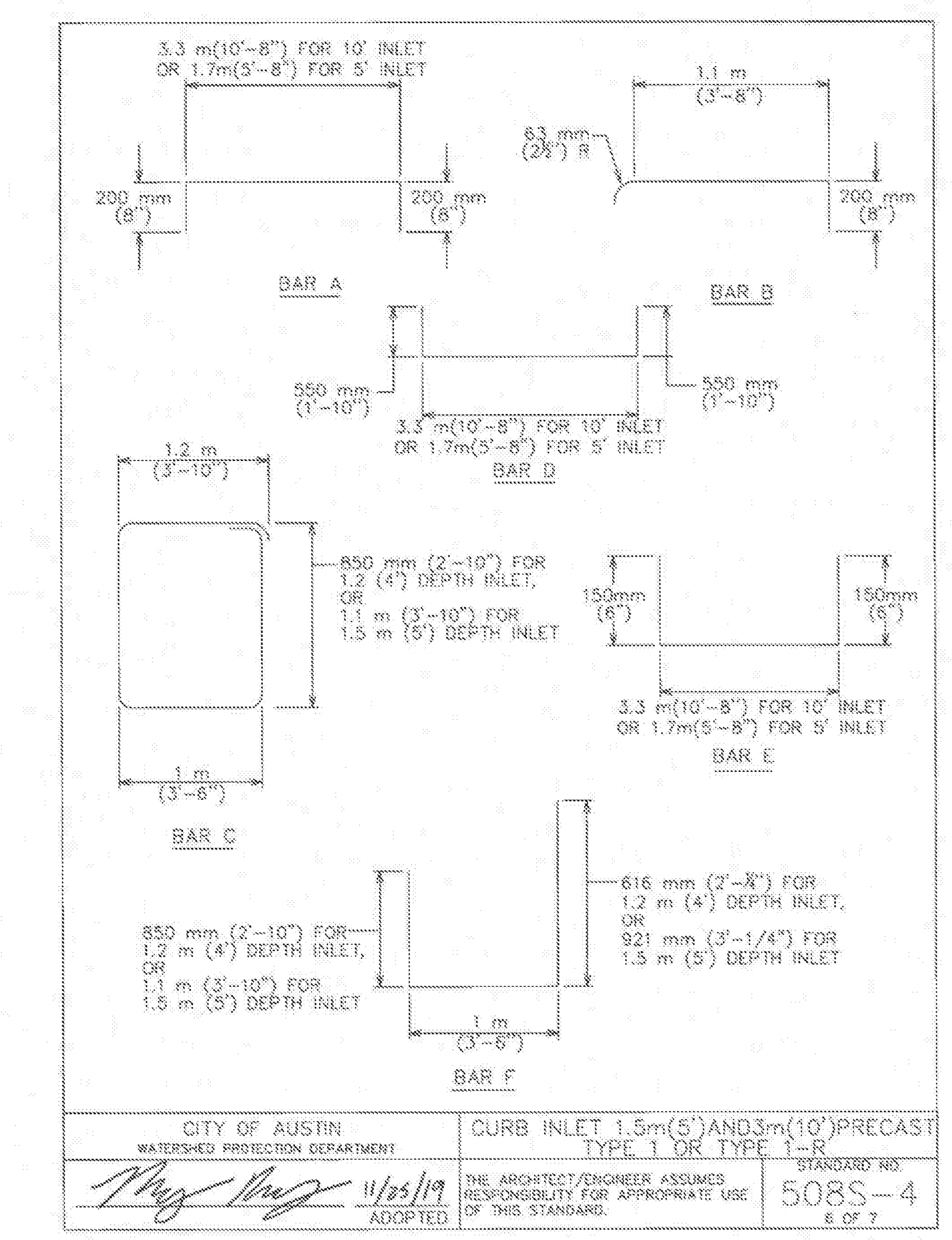

CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (1 OF 7)


CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (2 OF 7)


CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (3 OF 7)

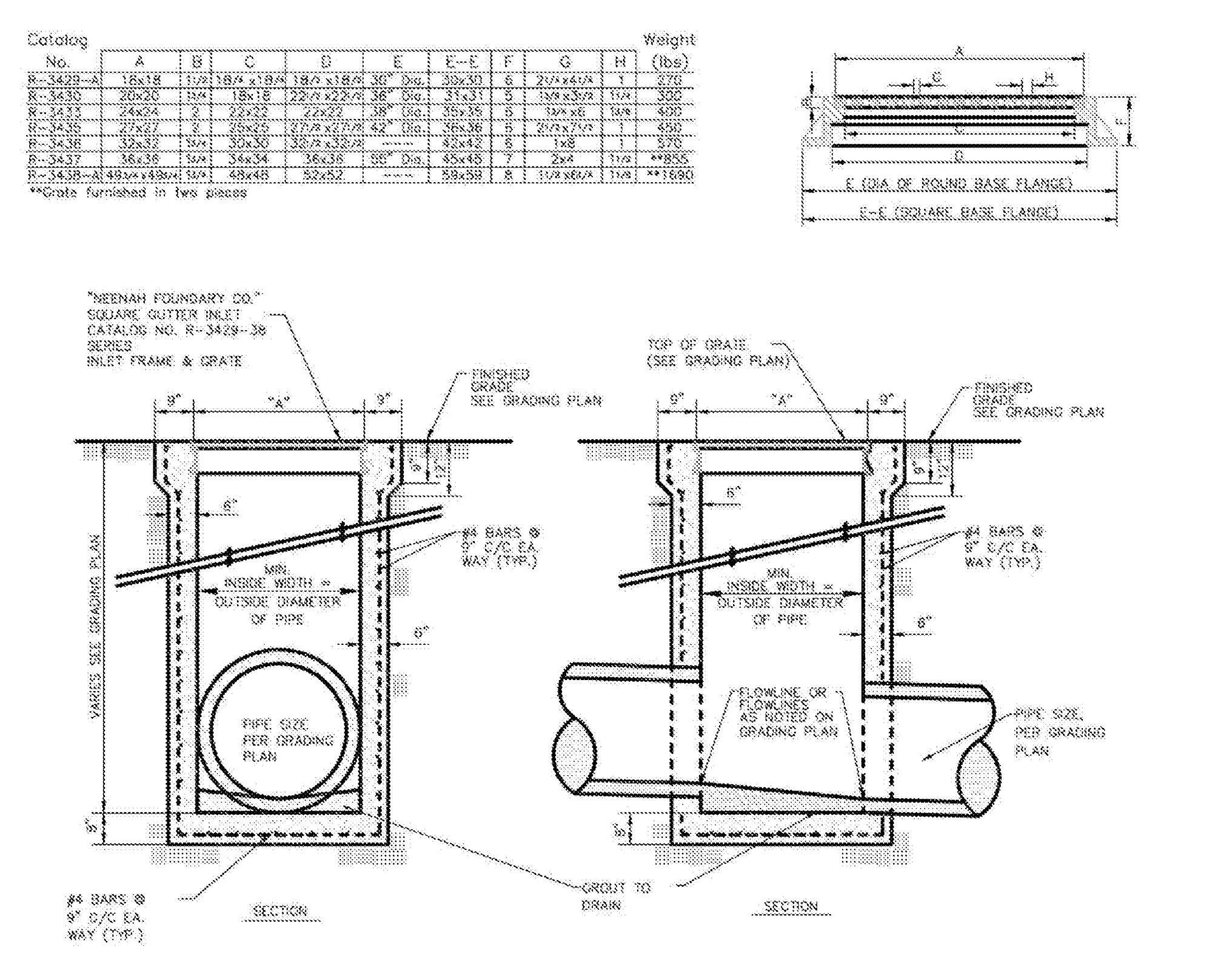

CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (4 OF 7)


CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (5 OF 7)

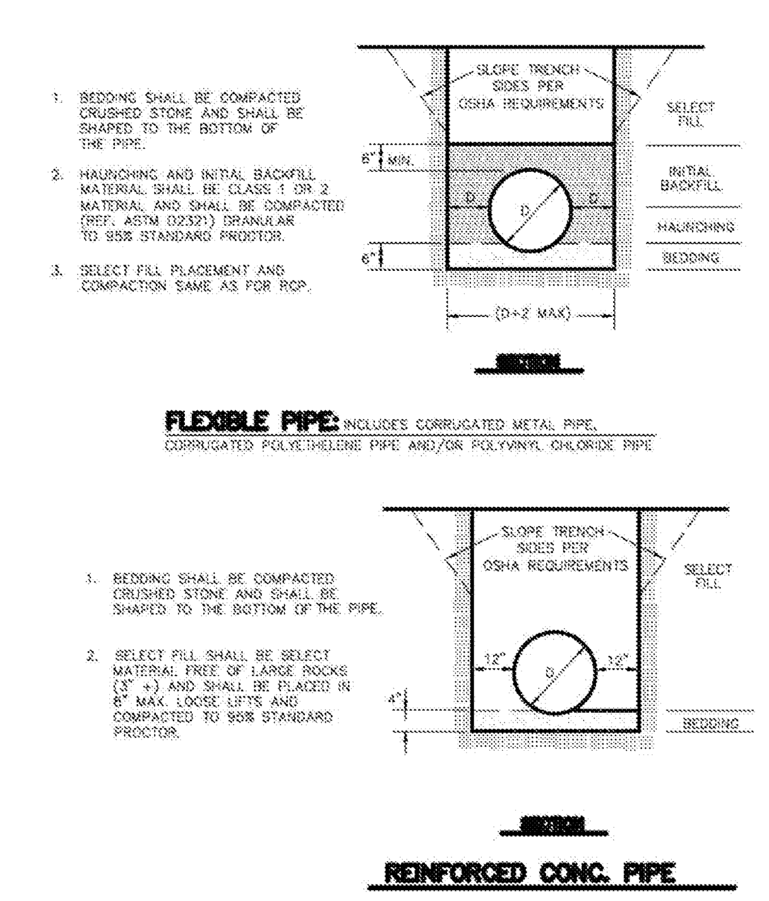

CITY OF AUSTIN — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — STANDARD NO. 508S-4 (6 OF 7)

NOTES:
1. ALL CONCRETE SHALL BE CLASS "A" AS PER ITEM 403S.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
5. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB, IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
6. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION.
7. THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
8. WHEN PLACING PRECAST INLETS IN SERIES TO CREATE A 15'-0" OR 20'-0" CURB INLET, THE CONNECTION BETWEEN INLET BOXES SHALL BE SOIL TIGHT AND FULLY CONVEY THE PEAK DESIGN FLOW FROM THE UPSTREAM INLET(S). THE 1:20 INVERT SLOPE DESCRIBED IN NOTE 6 OF THIS DETAIL SHALL EXTEND FROM THE MOST DOWNSTREAM POINT TO THE MOST UPSTREAM OF THE CONNECTED INLET BOXES. AT NO TIME CAN MORE THAN 20-LF OF CURB OPENING BE CONNECTED TO A MAIN STORM DRAIN LINE WITH ONE LATERAL STORM DRAIN CONNECTION.

CITY OF AUSTIN, WATERSHED PROTECTION DEPARTMENT — CURB INLET 1.5m(5') AND 3m(10') PRECAST TYPE 1 OR TYPE 1-R — 11/25/19 ADOPTED — THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. — STANDARD NO. 508S-4 (7 OF 7)


1 GRATE INLET DETAIL — SCALE: NONE

SOURCE: COA 642-1


DRAINAGE PIPE BEDDING DETAIL — NOT TO SCALE

CITY OF AUSTIN APPROVED Date 06/06/2023

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY

DRAINAGE DETAILS

AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
C2	UPDATED DETAILS, CHANGED TO LJA TITLE BLOCK, ADDED REVISION TABLE	DSM	04/04/2023

JOB NUMBER: A379-0401
DATE: 02/08/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME:

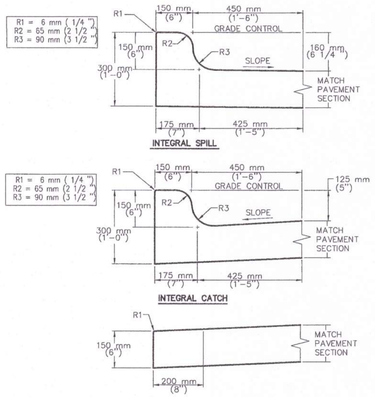
REESE B HURLEY 89211 LICENSED PROFESSIONAL ENGINEER — FOR C2 ONLY 04/04/2023

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

SHEET NO. 40 OF 63 SHEETS

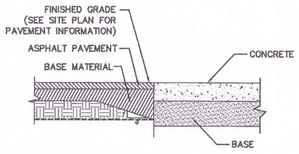
C2 REPLACEMENT SHEET — SP-2018-0138D



NOTE:
SEE GRADING PLAN FOR DIRECTION OF SLOPE BASED ON ELEVATIONS FOR LOCATION OF SPILL OR CATCH CURB.

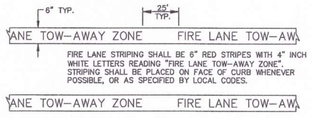
CURB SECTION

NOT TO SCALE



ASPHALT/CONCRETE JOINT DETAIL

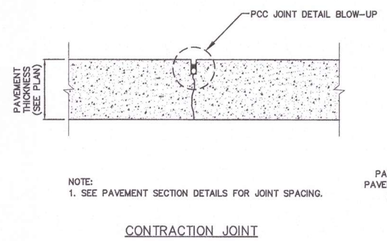
NOT TO SCALE



NOTE:
STRIPE CURB ONLY WHEN POSSIBLE, STRIPE ON PAVEMENT SURFACE ONLY IF NO CURB IS PRESENT.

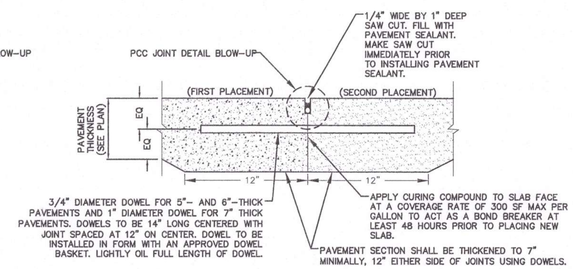
FIRE LANE MARKING DETAIL

NOT TO SCALE

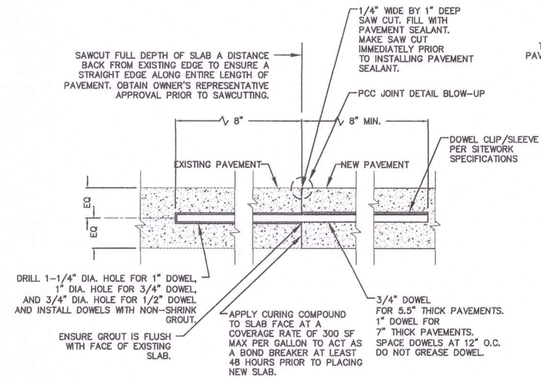


NOTE:
1. SEE PAVEMENT SECTION DETAILS FOR JOINT SPACING.

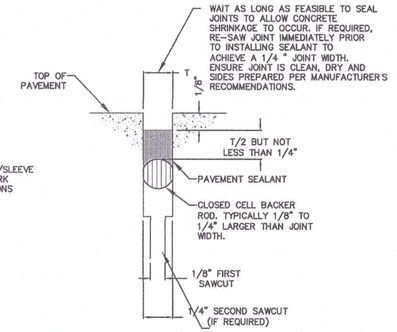
CONTRACTION JOINT



CONSTRUCTION JOINT



CONSTRUCTION JOINT TO EXISTING PAVEMENT

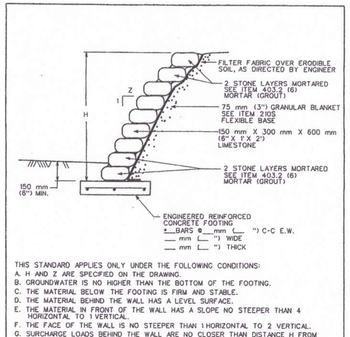


NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
3. INSTALL BACKER TOD AT CONSISTENT AND UNIFORM DEPTH.
4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

PCC JOINT DETAIL BLOW-UP (TYP.)

CONCRETE JOINT DETAILS

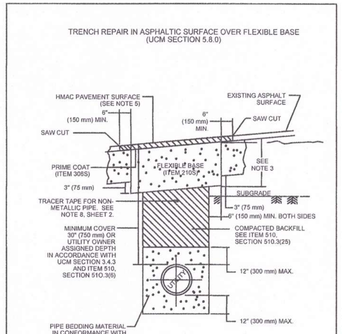
NOT TO SCALE



THIS STANDARD APPLIES ONLY UNDER THE FOLLOWING CONDITIONS:
A. H AND Z ARE SPECIFIED ON THE DRAWING.
B. GROUNDWATER IS NO HIGHER THAN THE BOTTOM OF THE FOOTING.
C. THE MATERIAL BELOW THE FOOTING IS FIRM AND STABLE.
D. THE MATERIAL BEHIND THE WALL HAS A LEVEL SURFACE.
E. THE MATERIAL IN FRONT OF THE WALL HAS A SLOPE NO STEEPER THAN 4 HORIZONTAL TO 1 VERTICAL.
F. THE FACE OF THE WALL IS NO STEEPER THAN 1 HORIZONTAL TO 2 VERTICAL.
G. SURCHARGE LOADS BEHIND THE WALL ARE NO CLOSER THAN DISTANCE H FROM THE TOP OF WALL.

NOTES:
1. DESIGN AND CONSTRUCTION OF ROCK WALL SHALL CONFORM TO THE REQUIREMENTS OF CITY CODE 16-7-2, PLACEMENT OF FENCES IN STREET CORNER AREAS, AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL, FOR MINIMUM SIGHT DISTANCE.
2. CONCRETE SHALL CONFORM TO ITEM 403S, "CONCRETE FOR STRUCTURES".

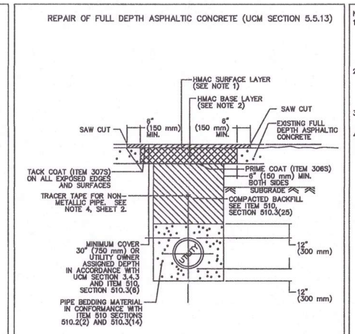
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	DRY STACK ROCK WALL FOR SLOPE PROTECTION
Joe Abraham 3/1/06 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. STANDARD NO. 623S-1



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT
RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. STANDARD NO. 1100S-2 1 OF 2

NOTES:
1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 12" (300 mm) WIDER THAN UNDISTURBED SIDES OF THE TRENCH AND SYMMETRICAL ABOUT THE CENTERLINE OF THE EXCAVATION.
2. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAC. TEMPORARY MIX SHALL BE PLACED OVER FLEXIBLE BASE.
3. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS PLUS 3" (75 mm), BUT IN NO CASE LESS THAN 12" (300 mm).
4. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE THICKNESS OF 10" (250 mm) OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER.
5. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
   a) MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
   b) MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS.
   SEE ITEM 340S, SECTION 340S.4.
6. CLASS "J" PC CONCRETE (ITEM 403S) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED IN THESE REPAIRS FOR THE FLEXIBLE BASE AND COMPACTED BACKFILL. PC CONCRETE GREATER THAN A 2 SACK MIX WILL NOT BE ALLOWED.
7. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).
8. AS PER CITY OF AUSTIN STANDARD SPECIFICATION 510, SECTION 510.2(8)(K)5, FOR ALL NON-METALLIC PIPE, DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND A MINIMUM OF 12" (300 mm) BELOW THE SUBGRADE, OR A MINIMUM OF 18" (450 mm) BELOW FINISHED GRADE ON AREAS OUTSIDE THE LIMITS OF PAVEMENT, SHALL BE PLACED INDUCTIVE TRACER TAPE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT
RECORD COPY SIGNED BY KERI JUAREZ 01/04/11 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. STANDARD NO. 1100S-2 2 OF 2



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FULL DEPTH ASPHALTIC CONCRETE PAVEMENT TRENCH REPAIR
RECORD COPY SIGNED BY BILL GARDNER 9/14/05 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. STANDARD NO. 1100S-5 1 OF 2

NOTES:
1. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
   a) MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
   b) MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS.
   SEE ITEM 340S, SECTION 340S.4.
2. THE COMBINED THICKNESS OF THE REPLACEMENT AC SURFACE AND BASE LAYERS SHALL MATCH THE THICKNESS OF EXISTING FULL DEPTH AC LAYER. HOWEVER, THE REPLACEMENT AC BASE LAYER SHALL BE A MINIMUM THICKNESS OF 8" (150 mm) OF TYPE A OR B HMA. A BASE LAYER TYPE THAT MATCHES THE NEW HMA SURFACE LAYER (SEE NOTE 1) MAY BE USED, IF THE TOTAL REPAIR AREA IS LESS THAN 300 SQUARE YARDS (250 SQUARE METERS).
3. CLASS "J" PC CONCRETE (ITEM 403S) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED IN THESE REPAIRS FOR THE FLEXIBLE BASE AND COMPACTED BACKFILL. PC CONCRETE GREATER THAN A 2 SACK MIX WILL NOT BE ALLOWED.
4. AS PER CITY OF AUSTIN STANDARD SPECIFICATION 510, SECTION 510.2(8)(K)5, FOR ALL NON-METALLIC PIPE, DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND A MINIMUM OF 12" (300 mm) BELOW THE SUBGRADE, OR A MINIMUM OF 18" (450 mm) BELOW FINISHED GRADE ON AREAS OUTSIDE THE LIMITS OF PAVEMENT, SHALL BE PLACED INDUCTIVE TRACER TAPE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FULL DEPTH ASPHALTIC CONCRETE PAVEMENT TRENCH REPAIR
RECORD COPY SIGNED BY BILL GARDNER 9/14/05 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. STANDARD NO. 1100S-5 2 OF 2

City of Austin
Reviewed for General Compliance
APR 09 2019

D&A DOUCET & ASSOCIATES
Civil Engineering - Entitlements - Surveying/Mapping
7401 B. Highway 71 W. Suite 160
Austin, Texas 78735. Phone: (512)-583-2600
www.doucetengineers.com
Firm Registration Number: 3937

SITE DETAILS

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX 78736

Designed: SK, LC, DS
Drawn: BC, DM
Reviewed: DS
Date: MARCH 2019

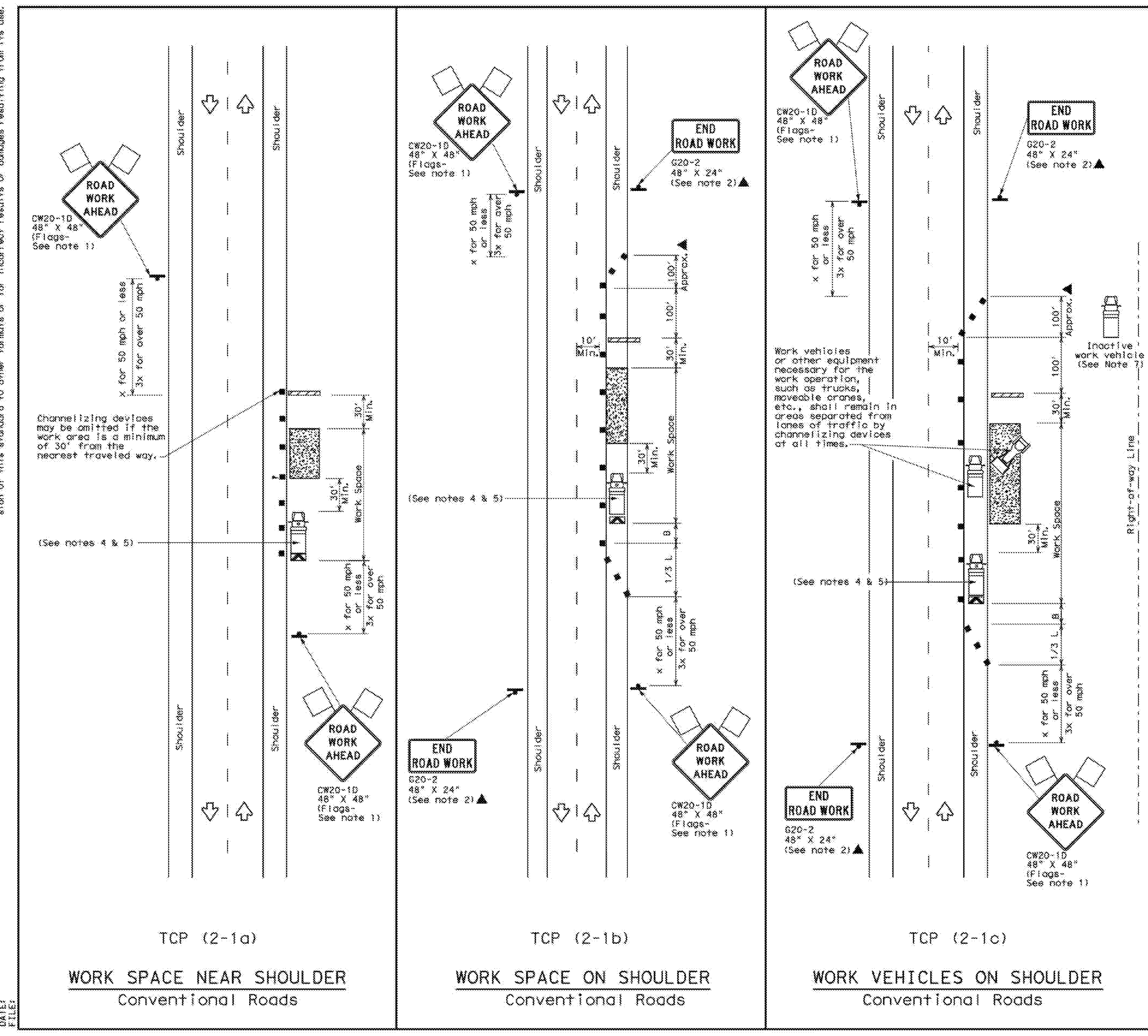
SHEET
41
OF 53

Project No.:
1490-001

SP-2018-0138D

Drawing: P:\1490-001\eng\working_drawing\submitted_files\01\1490-001-03-07.dwg
User Name: DSOUSA
Last Modified: Jan. 23, 19 - 15:10
Plot Date/Time: Mar. 27, 19 - 18:18:02

TRAFFIC CONTROL PLAN – CONVENTIONAL ROAD SHOULDER WORK



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

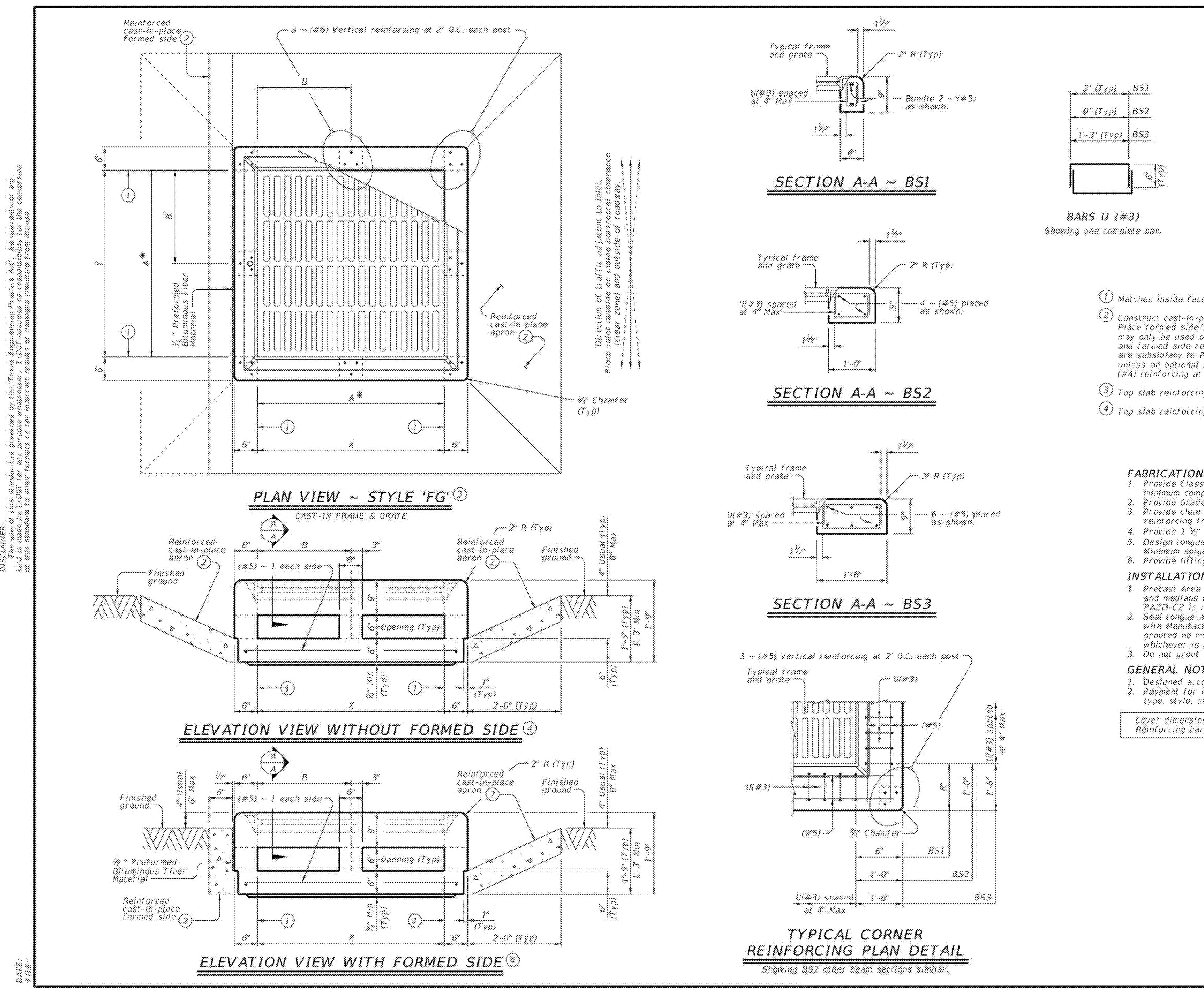
For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP(2-1)-12

PRECAST AREA ZONE DRAIN WITHIN CLEAR ZONE



Style	Size (X x Y)	A x A *	B x B	Beam Section
FG	2'x2'	2'x2'	1.5'x1.5'	BS1
FG	4'x4'	3'x3'	2'x2'	BS2
FG	4'x4'	4'x4'	2'x2'	BS1
FG	5'x5'	3'x3'	2.5'x2.5'	BS3
FG	5'x5'	4'x4'	2.5'x2.5'	BS2

* Nominal frame/grate size.

(1) Matches inside face of wall of precast base or riser below inlet.

(2) Construct cast-in-place reinforced concrete with or without formed side. Place formed side/sides as directed elsewhere in the plans. Formed sides may only be used on sides parallel to traffic. Use Class "C" concrete. Apron and formed side reinforcing not shown for clarity. Apron and formed side are subsidiary to PAZD-CZ. Apron is 2'-0" width around precast zone drain, unless an optional formed side is used. For apron and formed side, provide (#4) reinforcing at 12" O.C.

(3) Top slab reinforcing not shown for clarity.

(4) Top slab reinforcing and post reinforcing not shown for clarity.

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide clear cover of ¾" to reinforcing from bottom of slab and 2" to reinforcing from top of slab for structural reinforcement.
4. Provide 1 ½" end cover on (#5) reinforcing.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:

1. Precast Area Zone Drain within Clear Zone (PAZD-CZ) is for use in ditches and medians outside and inside of the horizontal clearance (clear zone). PAZD-CZ is never placed in the roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

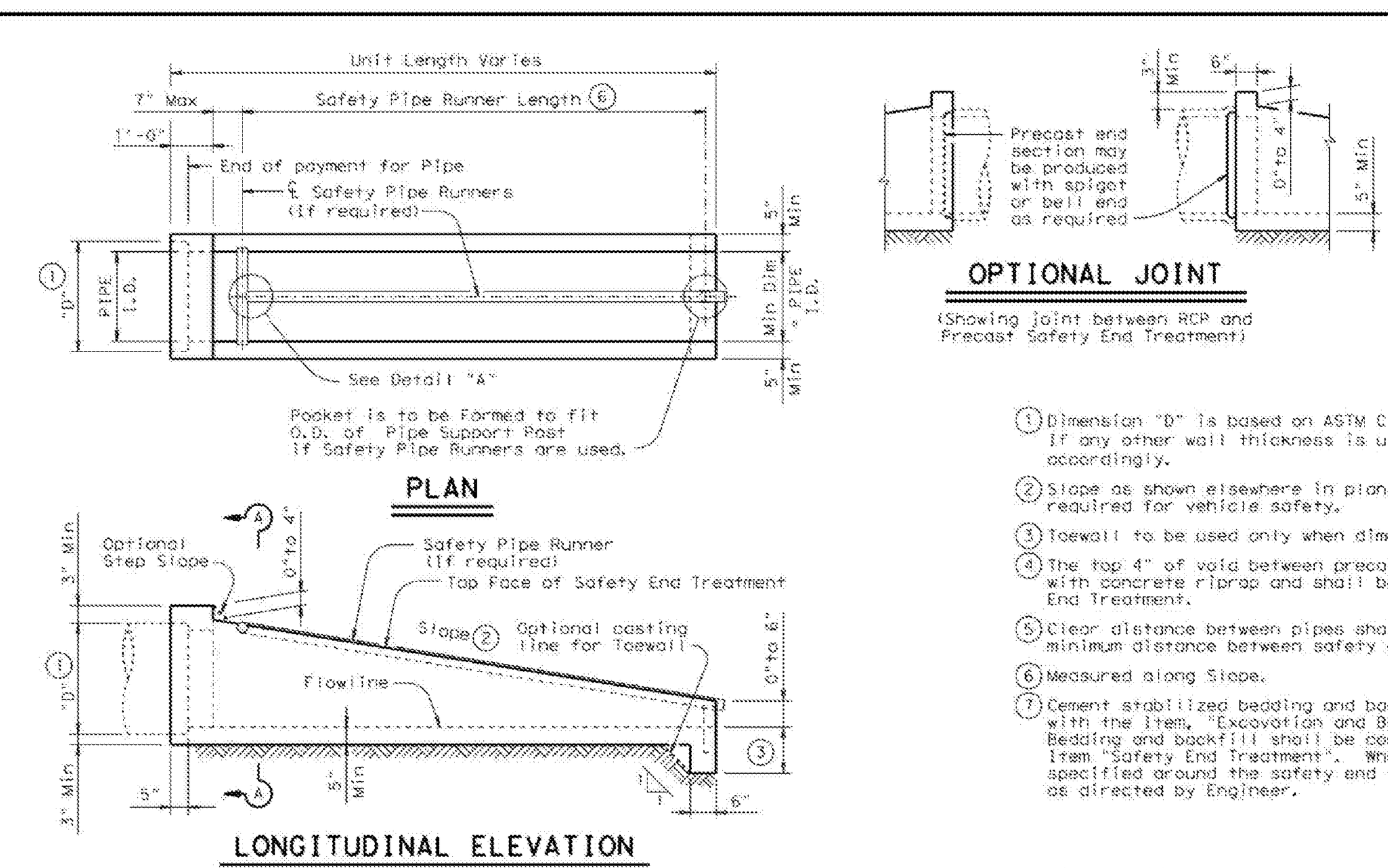
PRECAST AREA
ZONE DRAIN
WITHIN CLEAR ZONE

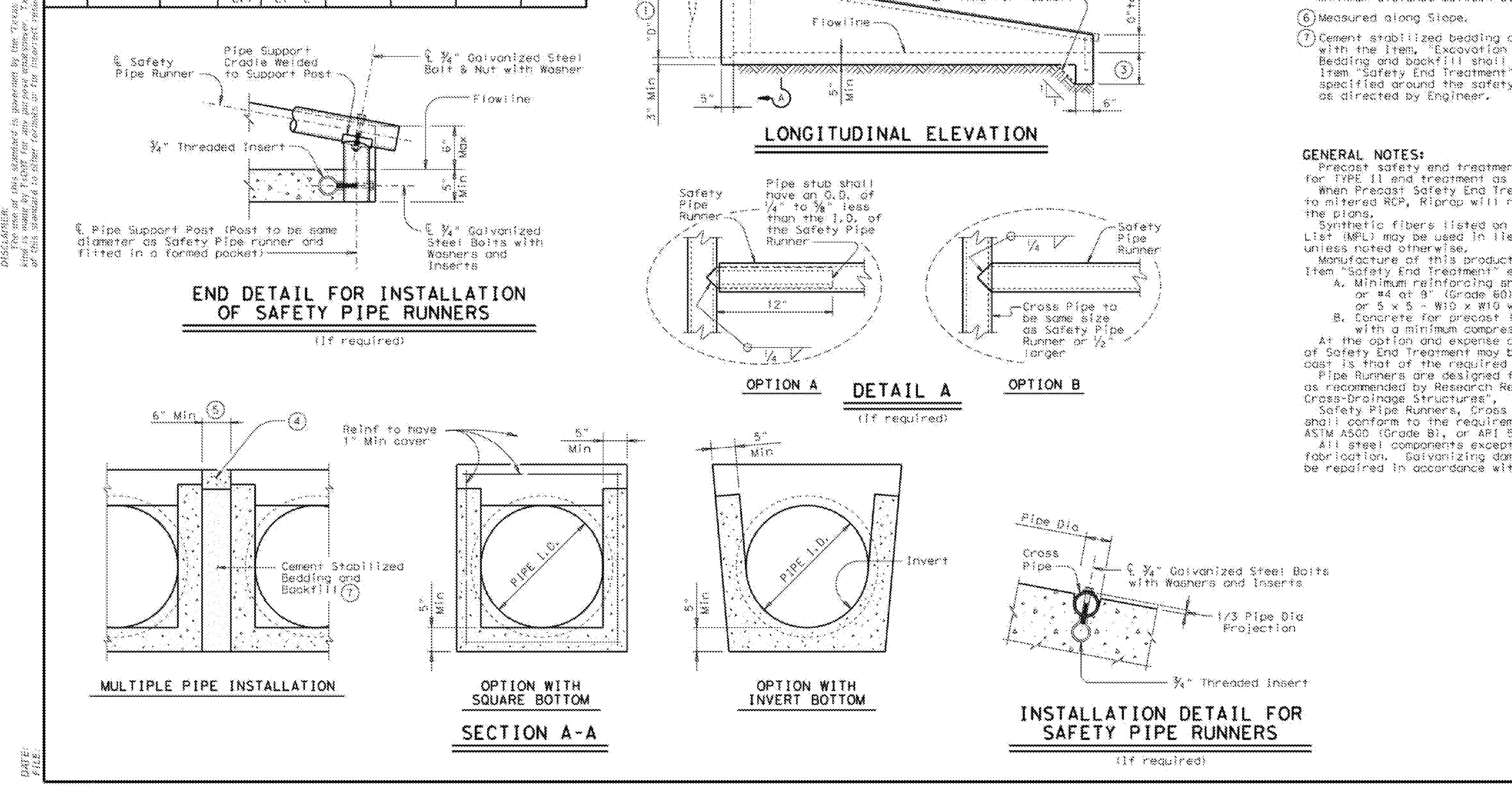
PAZD-CZ

PRECAST SAFETY END TREATMENT

PIPE I.D.	PIPE WALL "B" THICKNESS	"D" (1)	SLOPE	MINIMUM LENGTH OF UNIT	SINGLE PIPE SKEW	SINGLE PIPE RUNNERS REQUIRED	MULTIPLE PIPE SKEW	MULTIPLE PIPE RUNNERS REQUIRED
12"	2"	17"	3:1	2'-11"	<=45 deg	No	<=45 deg	No
			4:1	3'-6"				
			6:1	4'-9"				
15"	2 ¼"	20 ½"	3:1	3'-8"	<=45 deg	No	<=45 deg	No
			4:1	4'-7"				
			6:1	6'-5"				
18"	2 ½"	24"	3:1	4'-6"	<=45 deg	No	<=45 deg	No
			4:1	5'-6"				
			6:1	8'-0"				
24"	3"	31"	3:1	6'-2"	<=45 deg	No	<=30 deg	No
			4:1	7'-10"			>30 deg	Yes
			6:1	11'-3"				
30"	3 ½"	38 ½"	3:1	7'-10"	<=15 deg	No	<=15 deg	No
			4:1	10'-1"	>15 deg	Yes	>15 deg	Yes
			6:1	14'-8"				
36"	4"	45 ½"	3:1	9'-5"	=0 deg	No	=>0 deg	Yes
			4:1	12'-3"	>0 deg	Yes		
			6:1	17'-11"				
42"	4 ½"	52 ½"	3:1	11'-1"	=>0 deg	Yes	=>0 deg	Yes
			4:1	14'-5"				
			6:1	21'-2"				

Maximum Safety Pipe Runner Length	Required Pipe Runner Size: Pipe Size	Pipe O.D.	Pipe I.D.
11'- 2"	3" STD	3.500"	3.068"
15'- 6"	3 ½" STD	4.000"	3.548"
20'-10"	4" STD	4.500"	4.026"
35'- 4"	5" STD	5.563"	5.047"





(1) Dimension "D" is based on ASTM C-76, Class III, Wall thickness "B". If any other wall thickness is used, dimension "D" must be adjusted accordingly.

(2) Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) The top 4" of void between precast end treatments shall be filled with concrete riprap and shall be considered subsidiary to Safety End Treatment.

(5) Clear distance between pipes shall be adjusted to provide for the minimum distance between safety end treatments.

(6) Measured along Slope.

(7) Cement stabilized bedding and backfill shall be in accordance with the Item, "Excavation and Backfill for Structures". Bedding and backfill shall be considered subsidiary to the Item "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill shall be as directed by Engineer.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When Precast Safety End Treatment is used as a Contractor's alternate to mitered RCP, Riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture of this product shall conform to requirements of Item "Safety End Treatment" except as noted below :

A. Minimum reinforcing shall be #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6 x 6 - W12 x W12 or 5 x 5 - W10 x W10 welded wire fabric.

B. Concrete for precast (steel formed) sections shall be Class "C" with a minimum compressive strength of 3600 psi.

At the option and expense of the Contractor the next larger size of Safety End Treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe Runners are designed for a traversing load of 1,800 Lbs of yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety Pipe Runners, Cross Pipes, Pipe Support Posts, and Pipe Stubs shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

All steel components except reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

Texas Department of Transportation — Bridge Division Standard

PRECAST SAFETY END
TREATMENT
TYPE II ~ CROSS DRAINAGE

PSET-SC

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

CITY OF AUSTIN APPROVED Date 06/06/2023

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
TXDOT DETAILS
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
C2	ADDED TXDOT DETAIL PAZD-CZ & PSET-SC. CHANGED TO LA TITLE BLOCK. ADDED REVISION TABLE	DSM	04/04/2023

JOB NUMBER: A379-0401
DATE: 02/06/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH

REESE B HURLEY 93211 LICENSED PROFESSIONAL ENGINEER
FOR C2 ONLY 04/04/2023

LJA Engineering, Inc.
7500 Rialto Boulevard, Building II, Suite 100, Austin, Texas 78735
Phone 512.439.4700 Fax 512.439.4716 FRN-F-1386

JOB NUMBER: A379-0401
TXDOT DTLS
SHEET NO. 42 OF 63 SHEETS

C2 REPLACEMENT SHEET

SP-2018-0138D

PLAN SYMBOLS

- CONDUIT RUN UNDERGROUND OR IN FLOOR SLAB
- EXPOSED CONDUIT
- 3#10(P), 1#10(G), 3/4" C. — CONDUIT & WIRE DESIGNATION E.G., 3 # 10 POWER 1 # 10 (G) IN 3/4" CONDUIT
  - (P) = POWER
  - (G) = GROUND
  - (SH) = SPACE HEATER
  - (SP) = SPARE WIRES
  - (C) = CONTROL
  - (A) = ALARM
  - (I) = INSTRUMENTATION
  - (EC) = EMPTY CONDUIT
- HOMERUN TO PANEL CIRCUIT, MEMBERS INDICATED, SHORT HASH MARKS INDICATE PHASE WIRES, LONG HASH MARK INDICATES NEUTRAL WIRE, ↑ MARK INDICATES EQUIPMENT GROUND WIRE.
- GROUND WIRE. BARE COPPER UNDERGROUND
- CONDUIT TURNING DOWN
- CONDUIT GOING DOWN
- CONDUIT TURNING UP
- CONDUIT GOING UP
- P1 — CONDUIT TAG
- XXX-LSP-1 — EQUIPMENT TAG
- 1 — KEYNOTE SYMBOL AND KEYNOTE NUMBER
- M — SERVICE METER
- DUPLEX OUTLET
- SIMPLEX OUTLET
- 50 / M-P-1 — MOTOR — NUMBER DENOTES HP SIZE; MOTOR TAG
- GFCI — GFCI RECEPTACLE IN A WEATHER PROOF ENCLOSURE

DRAWING LIST

01	E0.01	ELECTRICAL LEGEND
02	E1.00	ELECTRICAL SITE PLAN – EXISTING

ONE LINE DIAGRAM SYMBOLS

- CIRCUIT BREAKER
- COMBINATION MOTOR STARTER
- NORMALLY OPEN RELAY CONTACT
- NORMALLY CLOSED RELAY CONTACT
- R — PILOT LIGHT, COLOR INDICATED
- POWER TRANSFORMER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- RESET — MOMENTARY CONTACT PUSHBUTTON, NORMALLY CLOSED
- FUSE
- 50 — MOTOR. HP INDICATED
- ETM — ELAPSED TIME METER
- GROUND
- GROUND ROD
- NORMALLY OPEN SWITCH
- V — VOLTMETER
- OVERLOAD
- PMR — POWER MONITOR RELAY
- POWER RECEPTACLE–PIN & SLEEVE TYPE
- H O A — HAND–OFF–AUTOMATIC SWITCH
- S S — START STOP SELECTOR SWITCH
- 50 A 100 A — FUSE DISCONNECT SWITCH –100 A SWITCH, 50 A FUSE
- USER TELEPHONE JACK, TYPE RJ–11
- MCP — MOTOR CIRCUIT PROTECTOR
- P1 — CONDUIT TAG
- XXX–LSP–1 — EQUIPMENT TAG
- MM — MOTOR METERING UNIT
- SOLID STATE REDUCED VOLTAGE STARTER
- CAS — PUMP MOISTURE/TEMPERATURE MONITOR FINISHED BY PUMP MANUFACTURER
- IC — ISOLATING CONTACTOR FOR VFD
- PSM — KSB PUMP SAFE MODULE

SCHEMATIC DIAGRAM SYMBOLS

- CIRCUIT BREAKER
- NORMALLY OPEN RELAY CONTACT
- NORMALLY CLOSED RELAY CONTACT
- R — PILOT LIGHT, COLOR INDICATED
- RESET — MOMENTARY CONTACT PUSHBUTTON, NORMALLY CLOSED
- FUSE
- TERMINAL BLOCK LOCATED IN MOTOR CONTROL CENTER
- SSM — SOLID STATE METERING
- CURRENT TRANSFORMER
- LEVEL SWITCH, NORMALLY OPEN
- TERMINAL BLOCK LOCATED IN MOTOR CONTROL CENTER
- 10 — MOTOR. HP INDICATED
- H O A; X00; 0X0; 00X — HAND–OFF–AUTOMATIC SWITCH
- ELECTRODE
- TS — TEMPERATURE SWITCH
- PANEL INTERIOR LIGHT W/SW 25W FLUORESCENT LAMP
- FLASHER
- SNI — SYSTEM NETWORK INTERFACE –CUSTOMER TELEPHONE J–BOX BY SOUTHWESTERN BELL TELEPHONE CO.
- USER TELEPHONE JACK, TYPE RJ–11
- SWITCH SPST, 20A, 125V
- BEACON/HORN ACK.
- CRL1 — CONTROL RELAY, TAG ID "CRL1"
- DUPLEX RECEPTACLE
- UPS — UNITERUPTIBLE POWER SUPPLY
- MCP — MOTOR CIRCUIT PROTECTOR
- SOLID–STATE MOTOR STARTER CONTACTOR
- OVERLOAD
- GROUND GRID

P & ID SYMBOLS

- YL — GREEN OFF INDICATOR
- LAL — LEVEL ALARM LOW
- LAH — LEVEL ALARM HIGH
- TAH — TEMP. ALARM HIGH
- YL — RED RUN INDICATOR
- MAH — MOISTURE ALARM HIGH
- HS / HOA — HAND SWITCH
- KQI — ELAPSED TIME METER
- UI — MULTIVARIABLE INDICATOR (AUTO DIALER)
- YI — PUMP FAIL TO START ALARM
- LSL — LOW LEVEL ALARM SWITCH
- LSO — PUMPS OFF LEVEL SWITCH
- LS1 — LEAD PUMP START LEVEL SWITCH
- LS2 — LAG PUMP START LEVEL SWITCH
- LSH — HIGH LEVEL ALARM SWITCH
- LT — LEVEL SIGNAL CONVERTER/TRANSMITTER
- LE — SUBMERSIBLE LEVEL TRANSDUCER
- TSH — MOTOR HIGH TEMPERATURE SWITCH
- M — MOTOR
- LI — LEVEL INDICATOR
- FQIT — ULTRASONIC FLOW INDICATING TRANSMITTER WITH TOTALIZER
- MS / ALT — ALTERNATOR/PUMP CONTROL SELECTOR SWITCH
- LST — ULTRASONIC FLOW TRANSDUCER
- YS — GENERATOR AUXILIARY RUN CONTACTS
- ZS
- HMS — PUSHBUTTON SWITCH
- UA — GENERATOR GLOBAL ALARM CONTACT
- XAH — AUDIBLE ALARM HORN AND BEACON

REVIEWED
MAR 2 9 2019
Austin Water Utility

Copy of City of Austin Originals MILLER

APPROVED AUSTIN WATER & WASTEWATER UTILITY
FACILITIES ENGINEERING DIVISION

City of Austin
Reviewed for General Compliance
APR 09 2019

RIDGEVIEW LIFT STATION #173
ELECTRICAL DESIGN

8501 EVELINA TRAIL — AUSTIN TEXAS 78736

STATE OF TEXAS — STEVE L. KANETZKY — 84696 — LICENSED PROFESSIONAL ENGINEER — 9-10-18

S. Kanetzky Engineering, LLC.
5920 W. William Cannon
Bldg. 7, Suite 200
Austin, Texas 78749
(512) 329-5774.
www.skaneng.com
TBPE Firm No. F-2356
SKE PROJECT #3340117.1

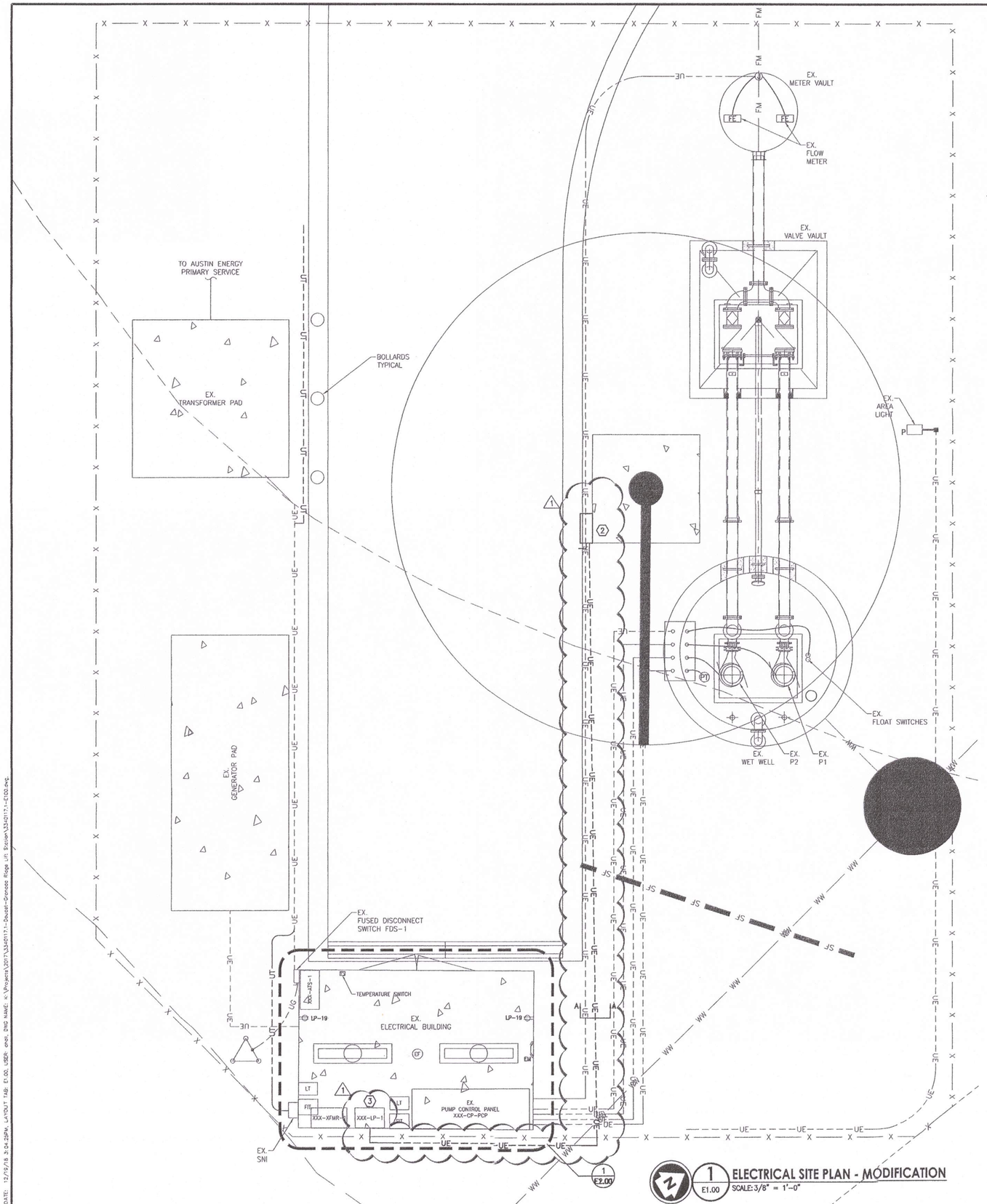
Filename:
Scale: AS NOTED
Drawn By: GWB/AH
Checked By: SLK
Date: 08/15/2018
DWG Number:

Title: **ELECTRICAL LEGEND**

Sheet: **43 of 53**

E0.01

SP–2018–01380



1 E1.00 **ELECTRICAL SITE PLAN - MODIFICATION**
SCALE: 3/8" = 1'-0"

REFERENCE NOTES

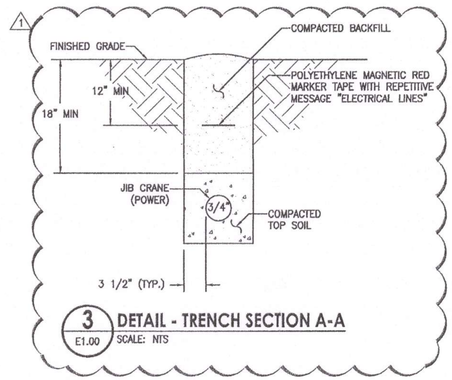
1. CONTRACTOR SHALL DISCONNECT AND REPLACE THE EXISTING PUMP MODULE FOR OVER TEMPERATURE AND SEAL FAIL IN THE EXISTING PUMP CONTROL PANEL TO MATCH AND BE COMPATIBLE WITH THE NEW PUMPS TO BE PROVIDED AND INSTALLED IN THE EXISTING WET WELL. COORDINATE EXACT REQUIREMENTS WITH THE PUMP MANUFACTURER AND AUSTIN WATER AS REQUIRED.
2. PROVIDE AND INSTALL 30A/2P/NF/N4XSS/600V DISCONNECT SWITCH TYPE SQUARED OR EQUAL FOR NEW JIB CRANE.
3. CONTRACTOR SHALL USE EXISTING 20A/1P BREAKER IN PANEL LP FOR JIB CRANE POWER.

MODIFIED PANEL LP

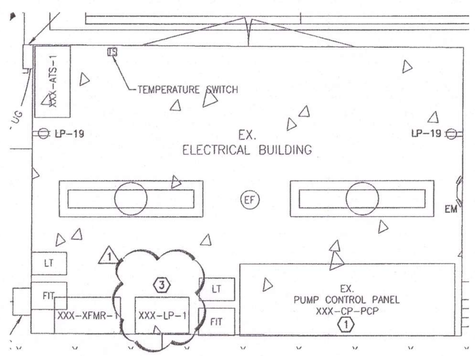
AMPS: 80A MCB — PHASE: 1 — MOUNTING: ENCLOSED
VOLTAGE: 240/120V — WIRE: 3 — MINIMUM AIC RATING: 10KAIC
LOCATION: MOTOR CONTROL CENTER — BUSSING: COPPER
FED FROM: TRANSFORMER — NEMA: 1

CKT. NO.	SERVICE DESCRIPTION	WIRE	BKR	POLES	KVA	A	B	KVA	POLES	BKR	WIRE	SERVICE DESCRIPTION	CKT. NO.
1	SPARE		50	2		0.5		0.5	2	20	12	AREA LIGHT	2
3	|						0.5	0.5				|	4
5	SPD		20	2		0.0			2	20		SPARE	6
7	|						0.0					|	8
9	FLOW METER		15	1	0.5	1.0		0.5	1	20	12	CONTROL PANEL POWER	10
11	ANNUNCIATOR		20	1	0.5		1.0	0.5	1	20	12	CONTROL PANEL LIGHT	12
13	BATTERY CHARGER		20	1	0.5	1.0		0.5	1	20	12	UPS	14
15	LIGHTS AND FAN		20	1	0.5		1.5	1.0	1	20	12	JIB CRANE	16
17	GENERATOR SPARE		20	1	0.5	0.5			1	20		SPARE	18
19	RECEPTACLE		20	1	0.5		0.5		1	20		SPARE	20
21	GENERATOR SPARE		20	1	0.5	0.5			1	20		SPARE	22
23	SPACE						0.0					SPACE	24
25	SPACE					0.0						SPACE	26
27	SPACE						0.0					SPACE	28
29	SPACE					0.0						SPACE	30
31	SPACE						0.0					SPACE	32
33	SPACE					0.0						SPACE	34
35	SPACE						0.0					SPACE	36
37	SPACE					0.0						SPACE	38
39	SPACE						0.0					SPACE	40
41	SPACE					0.0						SPACE	42
				PHASE LOAD IN KVA:		3.5	3.5						
				PHASE LOAD IN AMPS:		29	29						

NOTE: SQUARE D NQ OR EQUAL



3 E1.00 **DETAIL - TRENCH SECTION A-A**
SCALE: NTS



2 E1.00 **ELECTRICAL SITE PLAN - MODIFICATION**
SCALE: 1/2" = 1'-0"

1 12/14/2018 REVISION 1

E1.00

REVIEWED
MAR 29 2019
Austin Water Utility

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4-1-2019
APPROVED AUSTIN WATER & WASTEWATER UTILITY FACILITIES ENGINEERING DIVISION

City of Austin
Reviewed for General Compliance
APR 09 2019

RIDGEVIEW LIFT STATION #173
ELECTRICAL DESIGN

8501 EVELINA TRAIL — AUSTIN TEXAS 78736

STATE OF TEXAS — STEVE L. KANETZKY — 84696 — LICENSED PROFESSIONAL ENGINEER — 4-10-19

SKE
S. Kanetzky Engineering, LLC.
5920 W. William Cannon
Bldg. 7, Suite 200
Austin, Texas 78749
(512) 329-5774.
www.skaneng.com
TBPE Firm No. F-2356
SKE PROJECT #3340117.1

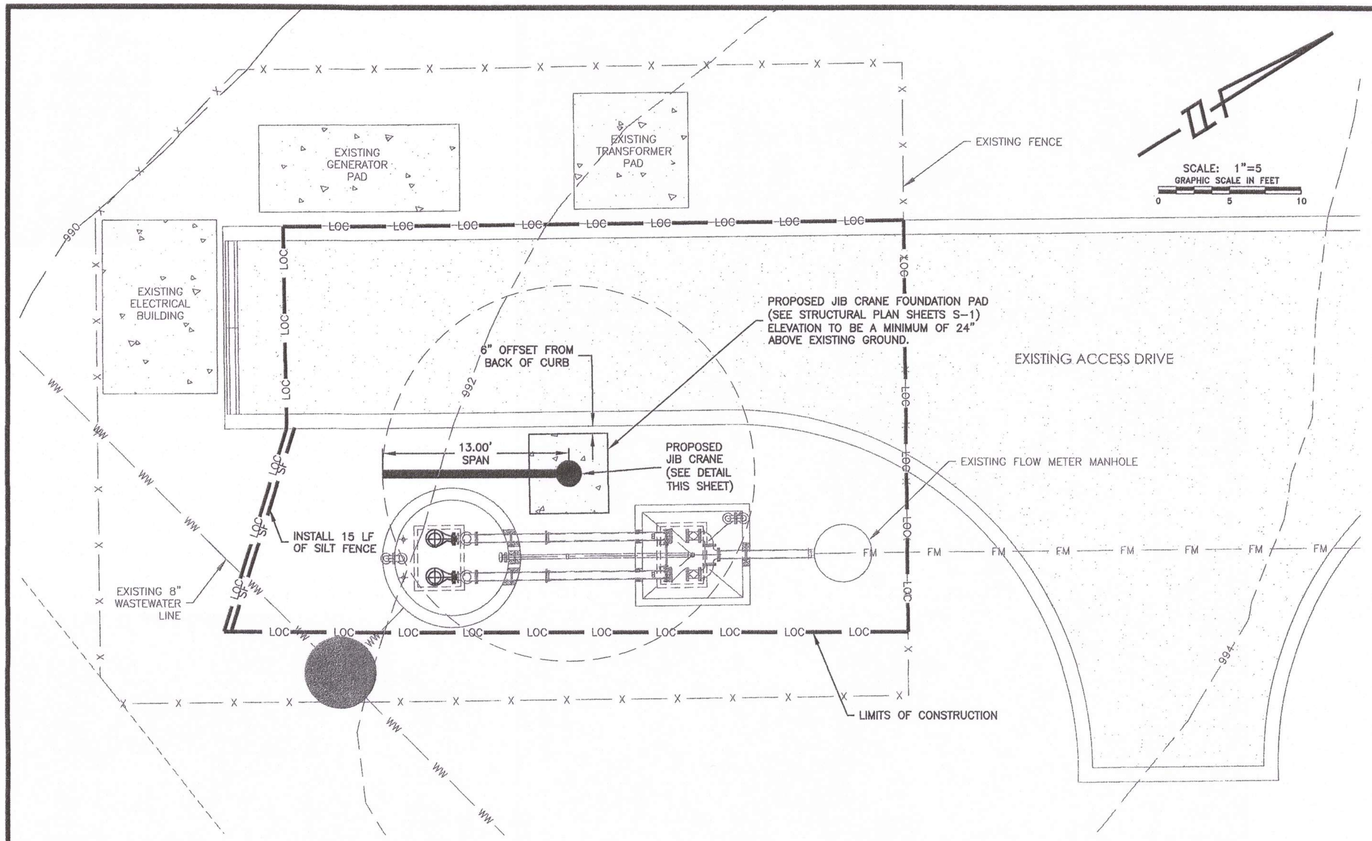
Filename:
Scale: AS NOTED
Drawn By: GWB/AH
Checked By: SLK
Date: 08/15/2018
DWG Number:

Title: ELECTRICAL SITE PLAN DEMOLITION

Sheet: 44 of 53

SP-2018-0138D

PLOT DATE: 12/19/18, 3:34:29PM, LAYOUT TAB: E1.00, USER: ahall, DWG NAME: X:\Projects\2017\3340117-Bastrop-Grandes Ridge Lift Station\3340117-E1.00.dwg



CORRIDOR
EQUIPMENT COMPANY, INC.

Garry West
PO BOX 700553
SAN ANTONIO, TX, USA 78270-0553
Phone: 210-545-5681 Fax: 210-545-5614

FLYGT PUMP

Phil Weynand
2918 Meadow Thrush
San Antonio, TX 78231
Phone: 210-850-5749

GARWES00469 **Quote # 38013R p2** **February 08, 2018**

HOIST

Powered By: CRANE BRAIN

Model Number:	94501 GECH-1/2-S-16-DSP-115-30-2-C	**[Quantity:**	1]
Price:	$2,756.00		
		Typical Ship Date:	5- 10 working days from order
Total Weight:	83.88 Lbs	**Current Ship Date:**	45- 50 working days from order

Hoist Details

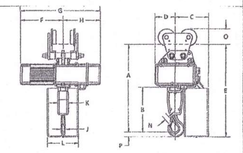
Manufacturer:	Gorbel	**Model:**	020/01
Capacity:	0.5 tons	**Lift:**	30 ft
Lift Speed:	16 fpm	**Power (Phase/Hz):**	115v (1 / 60)
Headroom:	17.875 in	**Max. On Time:**	15 min/hr
Motor Insulation:	F	**Motor HP:**	0.48
PB Nema Rating:	4X	**Gearcase Lube:**	Oil
Power Cable Length:	2 Feet	**Environmental Rating:**	4X
Chain Style:	Standard	**Warranty:**	2 years
UL Rated:	No	**Suspension:**	Dual Hole Plate

ASME Duty Rating: H3 - General machine shop fabricating, assembly, storage, and warehousing; loads and utilization randomly distributed. Total running time not over 25% of work period.

HOIST FEATURES

Chain Container:	Canvas	**Pendant Drop:**	15 ft	**Quick Disconnect:**	Included
Limit Switch Type:	Upper and Lower	**Motor Cooling:**	Fan	**Pendant:**	2 button
Brake Qty:	Single	**Falls:**	2	**Wheel Pocket Qty:**	5
Trolley:	Manual				

Hoist Dimensions



A:	17.875"	**B:**	9.1875"
C:	6.75"	**D:**	3.5"
E:	18.8125"	**F:**	8.6875"
G:	16.25"	**H:**	7.5625"
I:	N/A	**J:**	0.875"
K:	2.125"	**L:**	6.3125"
M:	N/A	**N:**	0.875"
O:	3.125"	**P:**	0.9375"
Q:	9.5625"	**R:**	12.625"
Note:		Dimensions in inches	

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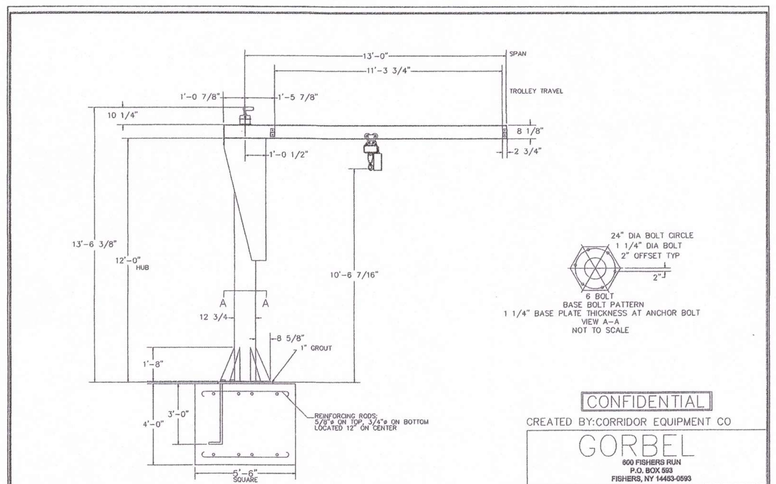


1) JIB CRANE FOUNDATION REQUIREMENTS ARE BASED ON A SOIL PRESSURE OF 2500 LBS PER SQUARE FOOT. CONCRETE RECOMMENDED FOR JIB CRANE FOUNDATION IS 3000 LBS PER SQUARE INCH OF COMPRESSIVE FORCE.
2) DO NOT SCALE FROM THIS DRAWING.
3) OVERALL HEIGHT = 13.592 FT

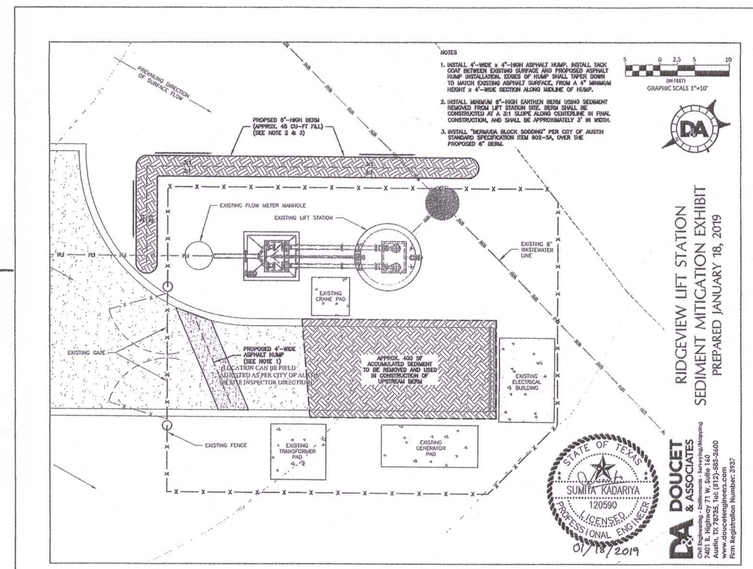
W8 @ 18 #/FT

CONFIDENTIAL
CREATED BY:CORRIDOR EQUIPMENT CO

GORBEL
600 FISHERS RUN
P.O. BOX 593
FISHERS, NY 14453-0593

MODEL NO:FS300-12-W8
CAPACITY: 0.5 TONS
SPAN: 13 FT
H.U.B.: 12 FT
QUANTITY: 1
SHIPPING WT.: 1062 LBS
DRAWN: DATE: 2/8/2018
C.O.#: GARWES00469 P/N: GARWES00469.1A

REVIEWED
MAR 29 2019
Austin Water Utility
4/1/19



City of Austin
Reviewed for General Compliance
APR 09 2019

NO.	DESCRIPTION	INITIALS	DATE

LAUREN BARZILLA 130485 LICENSED PROFESSIONAL ENGINEER
1-22-20

CMA ENGINEERING, INC.
235 LEDGE STONE DRIVE
AUSTIN, TEXAS 78737 (512) 432-1000
Registration # F-3053

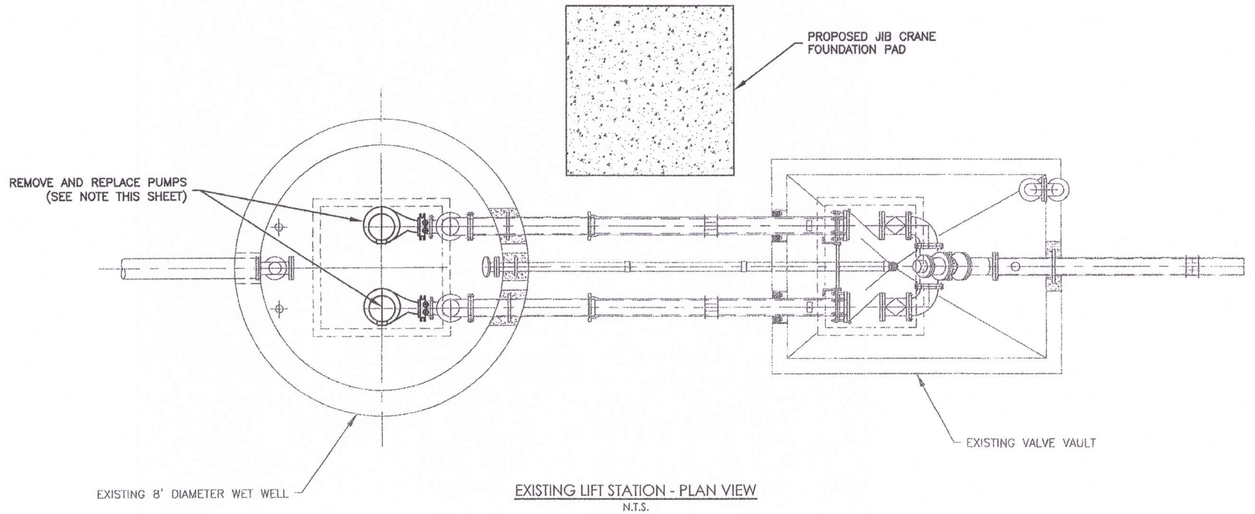
RIDGEVIEW
LIFT STATION #173 IMPROVEMENTS
8501 EVELINA TRAIL
EXISTING SITE AND JIB CRANE PLAN

DESIGNED:	JB, AL
DRAWN BY:	JB, AL
APPROVED:	
FILE:	1841-LS PLAN AND ELEVATION
JOB NO.:	1841-001
DATE:	1/14/19

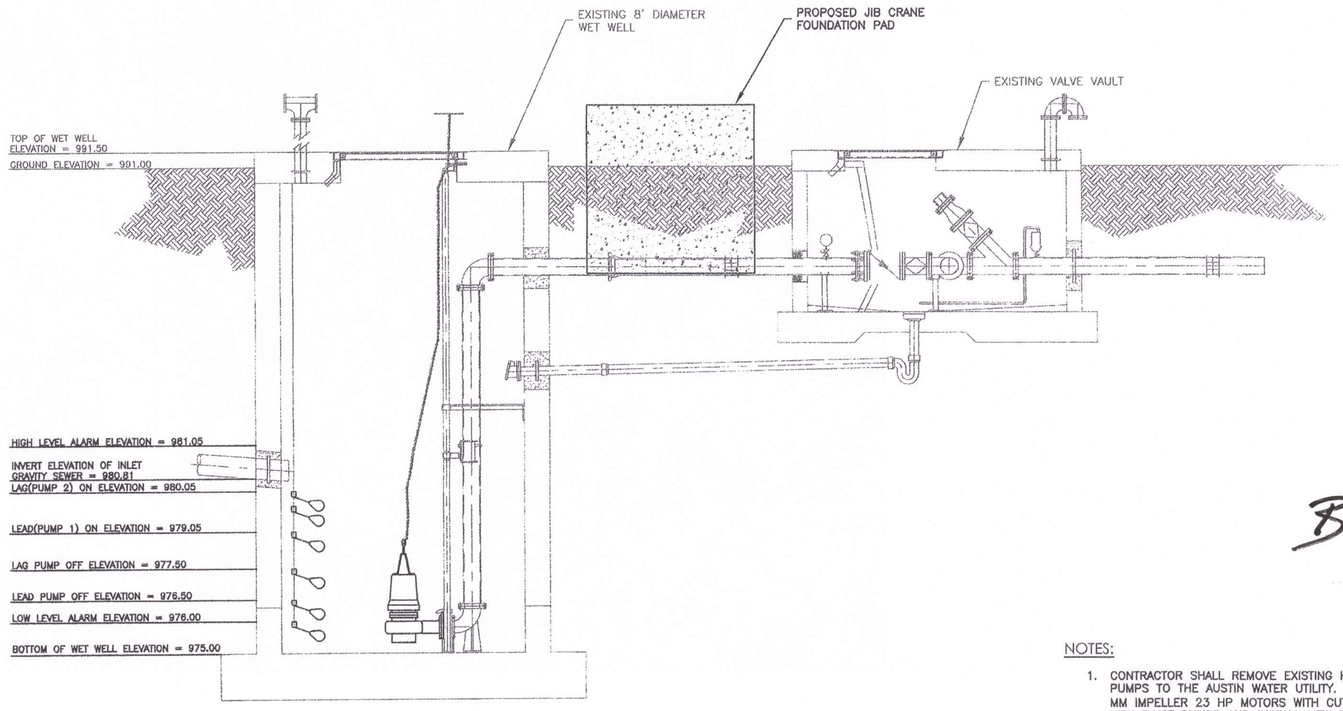
45 of 53

SP-2018-0138D

jbarrego - Jan 22, 2019 - 9:34am - File: M:\DWG\1841-GRANADA LIFT STATION\CAD\SHEETS\1841-LS PLAN AND ELEVATION.dwg



EXISTING LIFT STATION - PLAN VIEW
N.T.S.



EXISTING LIFT STATION - ELEVATION VIEW
N.T.S.

REVIEWED
MAR 2 9 2019
Austin Water Utility
4/1/2019

Copy of City of Austin Originals MILLER

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING KSB PUMPS AND REMOVE THE KSB GUIDE RAIL BRACKET AND DELIVER PUMPS TO THE AUSTIN WATER UTILITY. PROVIDE NEW FLYGT MODEL NUMBER NP 3153 SH 3~274 WITH 176 MM IMPELLER 23 HP MOTORS WITH CUTTER/CHOPPER IMPELLER AND INSTALL KSB GUIDE RAIL BRACKET TO NEW FLYGT PUMPS AND INSTALL NEW PUMPS IN WET WELL. PUMP CAPACITY IS 380 GPM @ 130 PEAK TDH. WORK SHALL BE PERFORMED ON ONE PUMP AT A TIME SO THAT THE LIFT STATION REMAINS IN SERVICE AT ALL TIMES. SEE ELECTRICAL SHEETS FOR MCC AND CONTROLS.
2. PUMP LEVELS CAN BE MODIFIED AS NECESSARY BY THE CITY OF AUSTIN.

City of Austin
Reviewed for General Compliance
APR 09 2019

NO.	DESCRIPTION	INITIALS	DATE

LAUREN BARZILLA 108483 REGISTERED PROFESSIONAL ENGINEER

14-4299

CMA ENGINEERING, INC.
235 LEDGE STONE DRIVE
AUSTIN, TEXAS 78737 (512) 432-1000
Registration # F-3053

RIDGEVIEW
LIFT STATION #173 IMPROVEMENTS
8501 EVELINA TRAIL
EXISTING LIST STATION PUMP REPLACEMENT

DESIGNED:	JB, AL
DRAWN BY:	JB, AL
APPROVED:	
FILE:	1841-LS PLAN AND ELEVATION
JOB NO.:	1841-001
DATE:	1/14/19

SP-2018-0138D

jborrego – Jan 14, 2019 – 3:14pm – File: M:\DWG\1841-GRANADA LIFT STATION\CAD\SHEETS\1841-LS PLAN AND ELEVATION.dwg

2351: SUBGRADE PREPARATION AND FOOTING FOUNDATION NOTES.

1] THE FOUNDATION DESIGN IS BASED ON INFORMATION NOTED IN THE SOIL REPORT PREPARED BY RABA KISTNER (PROJECT AAA16-004-00 DATED MARCH 9, 2016.

2] THE ALLOWABLE BEARING PRESSURE IS 3,000 POUNDS PER SQUARE FOOT FOR 5,200 POUNDS PER SQUARE FOOT ON LIMESTONE.

3] THE GRADE BEAM EXCAVATION SHALL BE FREE OF LOOSE MATERIAL AND WATER PRIOR TO PLACING THE CONCRETE.

4] ALL VEGETATION TOPSOIL AND DARK CLAYS SHALL BE REMOVED BELOW THE FOOTINGS. THE EXPOSED SUBGRADE SHALL BE SCARIFIED, WATERED AS REQUIRED, AND RECOMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY PER ASTM D 698 AT A MOISTURE CONTENT BETWEEN THE OPTIMUM MOISTURE VALUE AND 5% ABOVE OPTIMUM. ANY "SOFT-SPOTS" SHALL BE REMOVED AND REPLACED WITH APPROVED FILL MATERIAL.

5] ANY FILL MATERIAL REQUIRED TO REPLACE "SOFT-SPOTS" OR TO ELEVATE THE SLAB SHALL CONSIST OF A LOW PI MATERIAL [PI'S 10 TO 20]. THE FILL SHALL BE PLACED IN 8" LIFTS AND COMPACTED AT 93% TO 105% OF MAXIMUM DENSITY PER ASTM D 698 AT A MOISTURE CONTENT BETWEEN OPTIMUM AND 5% ABOVE OPTIMUM MOISTURE CONTENT.

6] DO NOT USE SAND, GRAVEL, GRANULAR MATERIAL BELOW FOOTINGS.

7] THE DENSITIES OF THE MATERIAL BELOW THE SLAB SHALL BE CONFIRMED TO CONFORM TO THE ABOVE REQUIREMENTS BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE CONCRETE.

3000: CONCRETE MIX GUIDELINES

1] ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND A MINIMUM CEMENTITOUS CONTENT OF 5.5 SACKS PER CUBIC YARD (CEMENT AND FLY ASH). AGGREGATE SHALL CONFORM TO ASTM C 33.

2] WORKABILITY ADMIXTURES MAY BE UTILIZED, PROVIDED THAT BATCH PROPORTIONS ARE DETERMINED PER THE MANUFACTURER AND APPROVED BY THE ENGINEER.

3] DO NOT PROVIDE AIR ENTRAINMENT ADMIXTURE IN CONCRETE PERMANENTLY EXPOSED TO THE WEATHER.

4] THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED.

5] CEMENT SHALL BE TYPE I OR III PER ASTM C 150.

6] CONCRETE SLUMP SHALL BE DETERMINED BY MIX DESIGN. THE DESIGN SLUMP SHALL BE SHOWN ON THE READY-MIX TICKET. THIS SPECIFIED SLUMP MAY BE USED AS QUALITY CONTROL CHECK ON THE CONCRETE AT THE SITE.

7] THE CONTRACTOR SHALL INCLUDE THE FOLLOWING FOR EACH SUBMITTED MIX DESIGN:

A] WEIGHT OF INDIVIDUAL ELEMENTS PER CUBIC YARD OF CONCRETE INCLUDING, CEMENT, SAND, AGGREGATE, WATER, AND EACH ADDITIVE.

B] THE MAXIMUM AGGREGATE SIZE.

C] 30 CONSECUTIVE TESTS (ACT 301/318)

OR

D] 5-28 DAY CYLINDER BREAKS (ACI 301)

3200: CONCRETE REINFORCEMENT

1] REINFORCING STEEL SHALL BE NEW DEFORMED BILLET STEEL CONFORMING TO ASTM A615 GRADE 60.

2] DETAIL REINFORCING BARS AND PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH THE ACI DETAILING MANUAL.

3] ALL VERTICAL BARS SHOWN TO BE CONTINUOUS SHALL NOT BE SPLICED. SPLICES SHALL BE 40 BAR DIAMETERS UNLESS NOTED OTHERWISE.

4] PROVIDE CORNER BARS FOR EACH BAR AT THE OUTSIDE FACES OF INTERSECTING BEAMS. THE CORNER BARS SHALL BE EQUAL IN SIZE (MAXIMUM SIZE #5) TO THE INTERSECTING HORIZONTAL BARS AND SHALL LAP 24" EACH LEG.

5] REINFORCING STEEL FOR SLABS AND BEAMS SHALL BE ELEVATED ON PREFABRICATED PLASTIC CHAIRS, METAL CHAIRS, OR SOLID CONCRETE OR BRICK BLOCKS TO ELEVATE THE SLAB REINFORCEMENT.

3300: CAST-IN-PLACE CONCRETE

1] ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI STANDARD "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318-2018.

2] ALL GRADE BEAMS BELOW GRADE SHALL BE FORMED STRAIGHT AND TO THE LINES AT GRADE DETAILED.

3] SEE ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION OF ALL CAST-IN-PLACE BOLTS, INSERTS, ANCHORS, ETC. AND FOR SLAB LEAVE-OUTS, SLOPES, DEPRESSIONS, ETC..

4] THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

CAST AGAINST EARTH [ALL BARS] .....3"

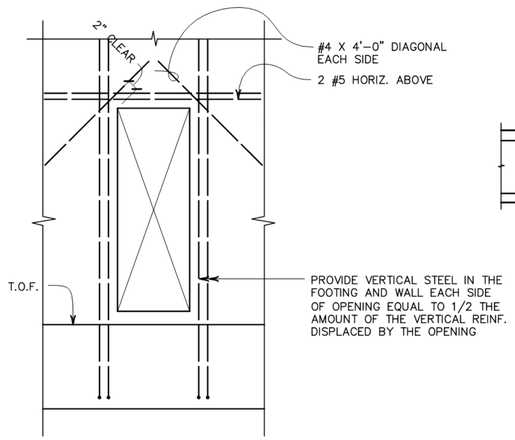
EXPOSED AGAINST EARTH OR WEATHER ..... 2"

THE MAXIMUM COVER AT A FORMED OR FINISHED SURFACE SHALL NOT BE 1" GREATER THAN THE MINIMUM COVER LISTED.

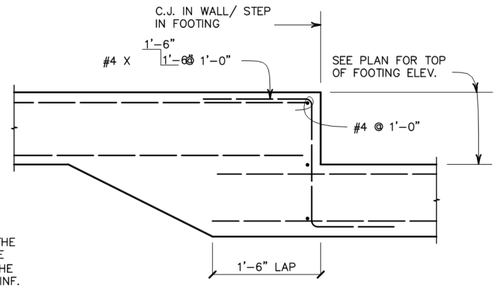
5] AT ALL EXPANSION JOINTS, PROVIDE A PLASTIC SLEEVE AT EACH SMOOTH ROD/DOWEL SPECIFIED. THE SLEEVES SHALL BE MANUFACTURED BY GREENSTREAK CONCRETE ACCESSORIES, INC. OR EQUAL (GREENSTREAK PHONE # 1-636-225-9400).

6] CONTRACTOR SHALL REJECT ANY CONCRETE THAT IS OLDER THAN 75 MINUTES (BETWEEN BATCHING AND MIXING) WITH AIR TEMPERATURES 90° OR HIGHER UNLESS ICE IS USED IN THE MIX.

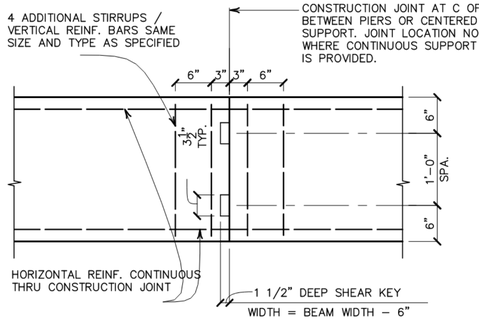
7] CONTRACTOR SHALL NOT USE A COMPANY WHICH DOES NOT BATCH THE CONCRETE IT DELIVERS.



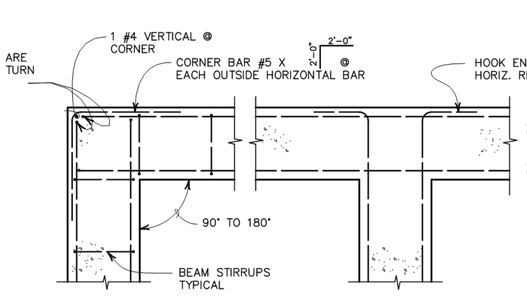
1 TYP. REINF. @ RECTANGULAR OPENING AT CANTILEVER WALL N.T.S.



2 CONCRETE FOOTING STEP DETAIL 1" ≈ 1'-0"

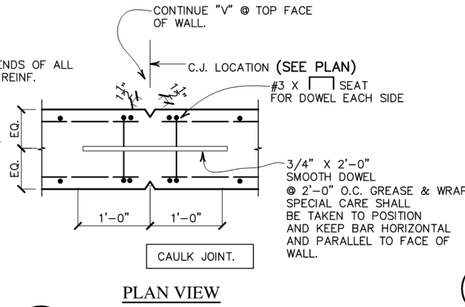


3 WALL CONSTRUCTION JOINT DETAIL (TYPICAL) N.T.S.



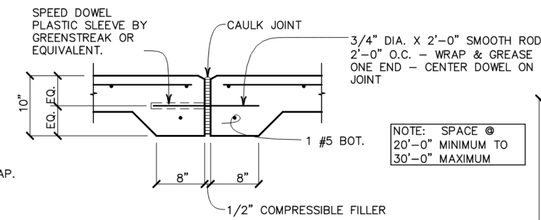
PLAN VIEW

4 WALL REBAR DETAIL N.T.S.

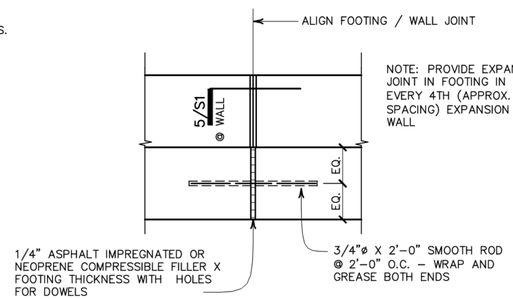


PLAN VIEW

5 CONTROL JOINT DETAIL 1" = 1'-0"

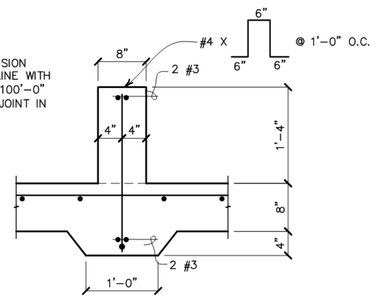


6 EXTERIOR SLAB EXPANSION JOINT DETAIL N.T.S.

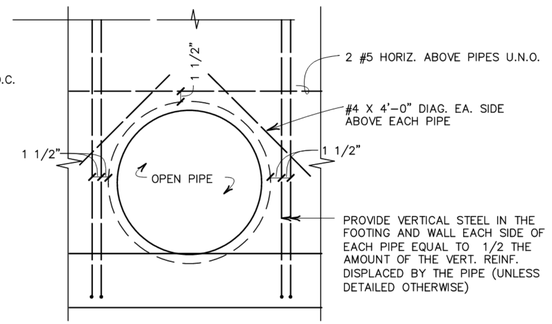


SIDE VIEW

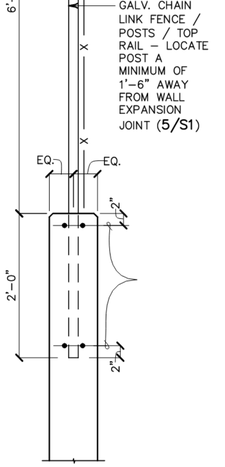
7 CONCRETE FOOTING EXPANSION JOINT DETAIL N.T.S.



8 1" = 1'-0"



9 TYP. REINF. @ PIPE OPENING N.T.S.



10 1" = 1'-0"

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

STATE OF TEXAS
THOMAS W. KAM
41821
REGISTERED
PROFESSIONAL ENGINEER
1-23-23
TK# 23003

TK CONSULTING ENGINEERS
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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

TK # 18047

#SP-2018-0138D

S1

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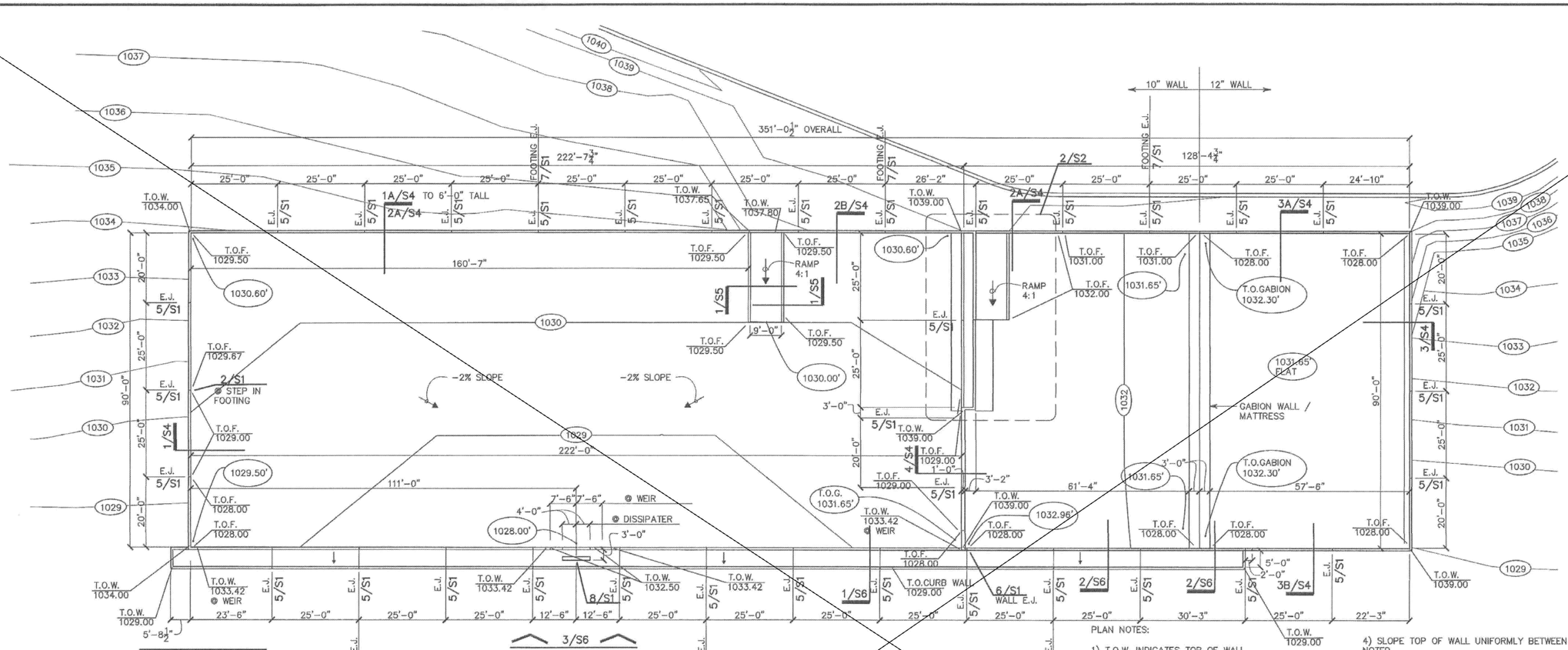
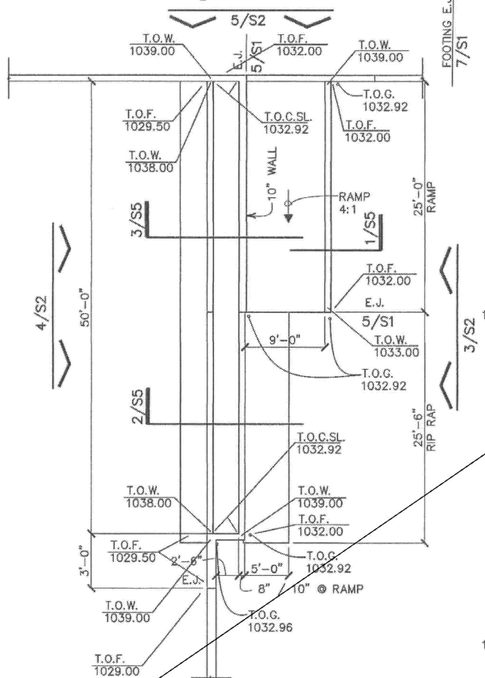
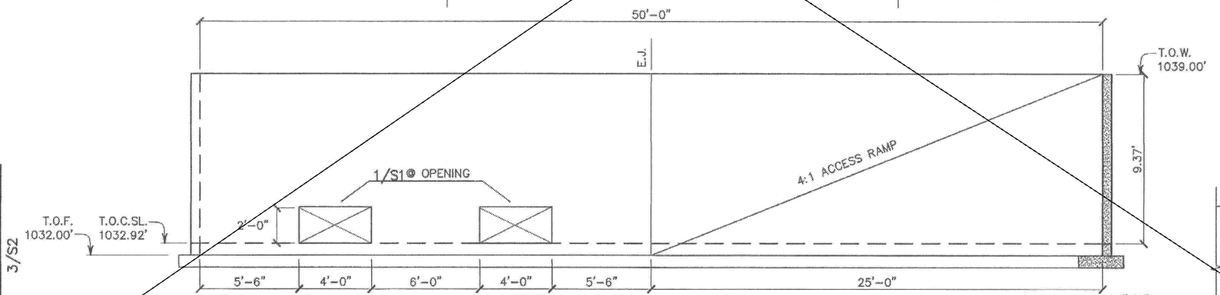
C1 REPLACEMENT SHEET



1 WATER QUALITY POND "1" PLAN
1/16" = 1'-0"

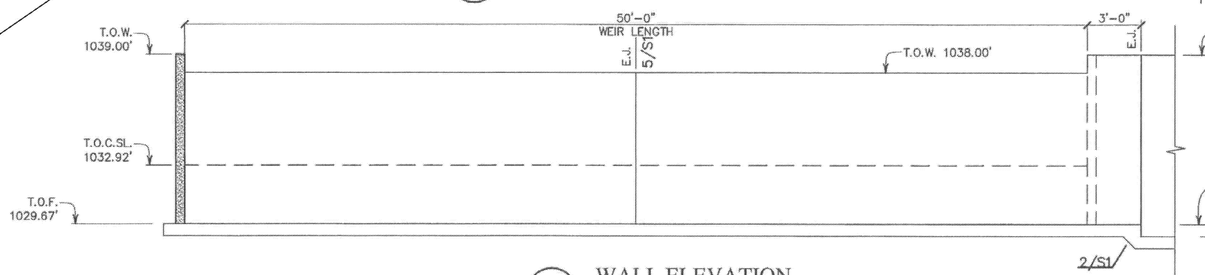


2 SPLITTER BOX ENLARGEMENT VIEW
1/8" = 1'-0"

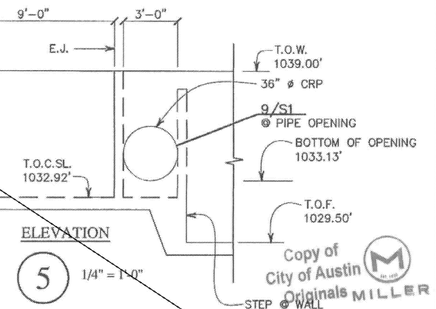


3 WALL ELEVATION
1/4" = 1'-0"

ELEVATION NOTES:
1) CONFIRM ALL ELEVATIONS WITH CIVIL



4 WALL ELEVATION
1/4" = 1'-0"



5 ELEVATION
1/4" = 1'-0"

City of Austin
Reviewed for General Compliance
APR 09 2019

CITY OF AUSTIN
APPROVED
Date 03/13/2023
FOUNDED 1839

#SP-2018-0138D

SEE NEW SHEETS 54 AND 55

THOMAS W. KAM
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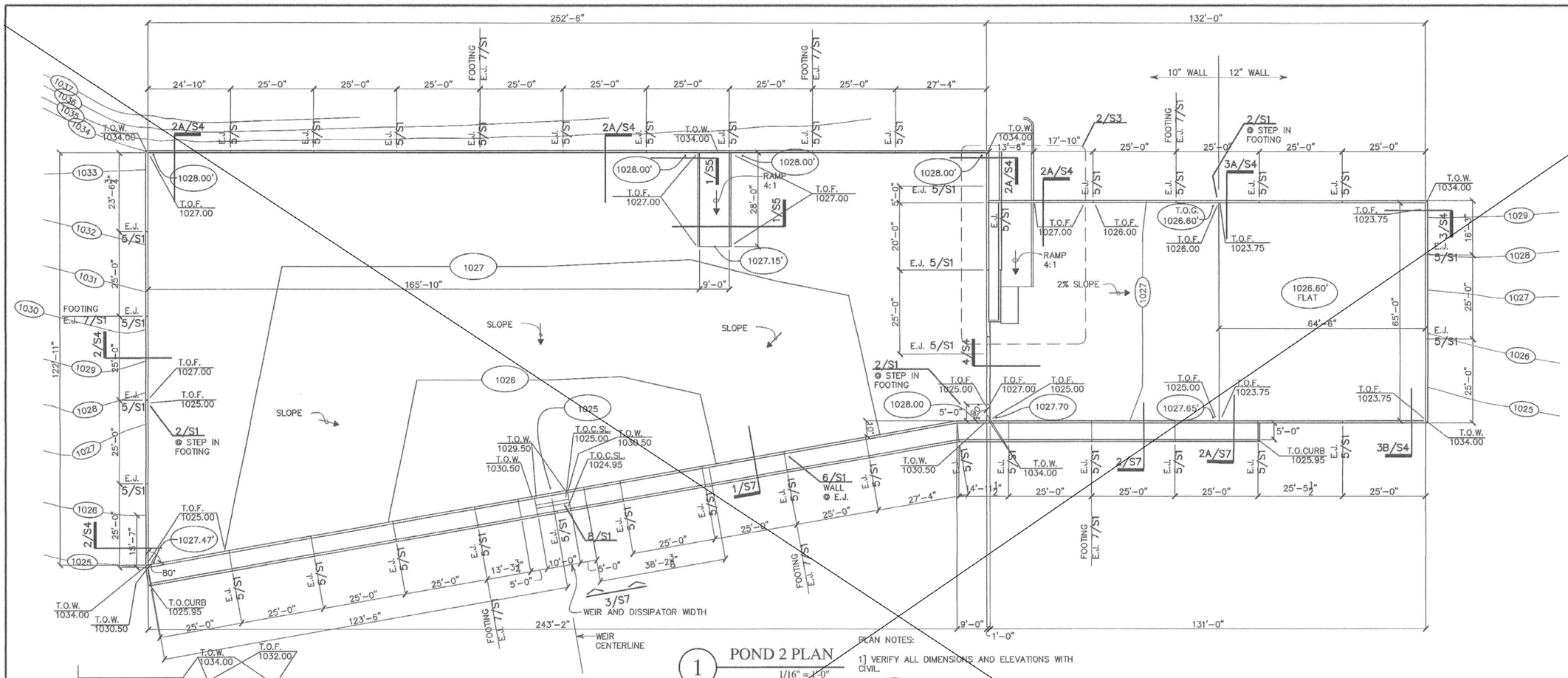
GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

S2
48 of 53

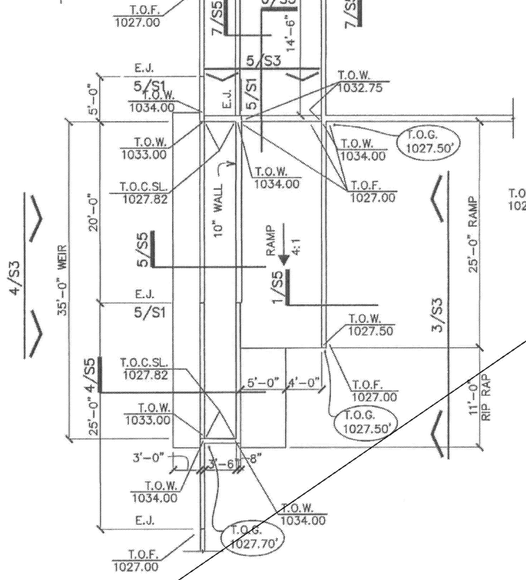


1 POND 2 PLAN
1/16" = 1'-0"

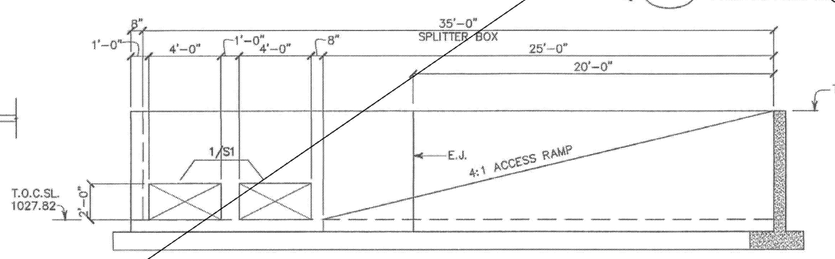
PLAN NOTES:

1] VERIFY ALL DIMENSIONS AND ELEVATIONS WITH CIVIL.

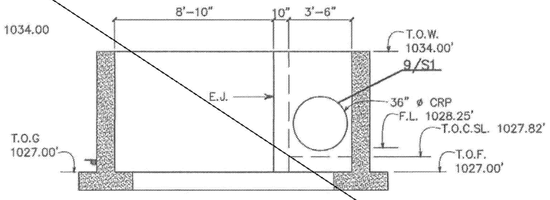
2] (1027) INDICATES FINAL GRADE.



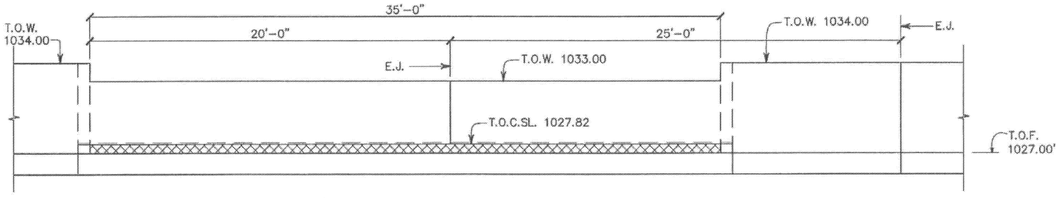
2 SPLITTER BOX ENLARGEMENT VIEW
1/4" = 1'-0"



3 WALL ELEVATION
1/4" = 1'-0"



5 WALL ELEVATION
1/4" = 1'-0"



4 WALL ELEVATION
1/4" = 1'-0"

City of Austin
Reviewed for General Compliance
APR 09 2019

CITY OF AUSTIN APPROVED Date 03/13/2023

#SP-2018-0138D

STATE OF TEXAS
THOMAS W. KAM
41821
REGISTERED
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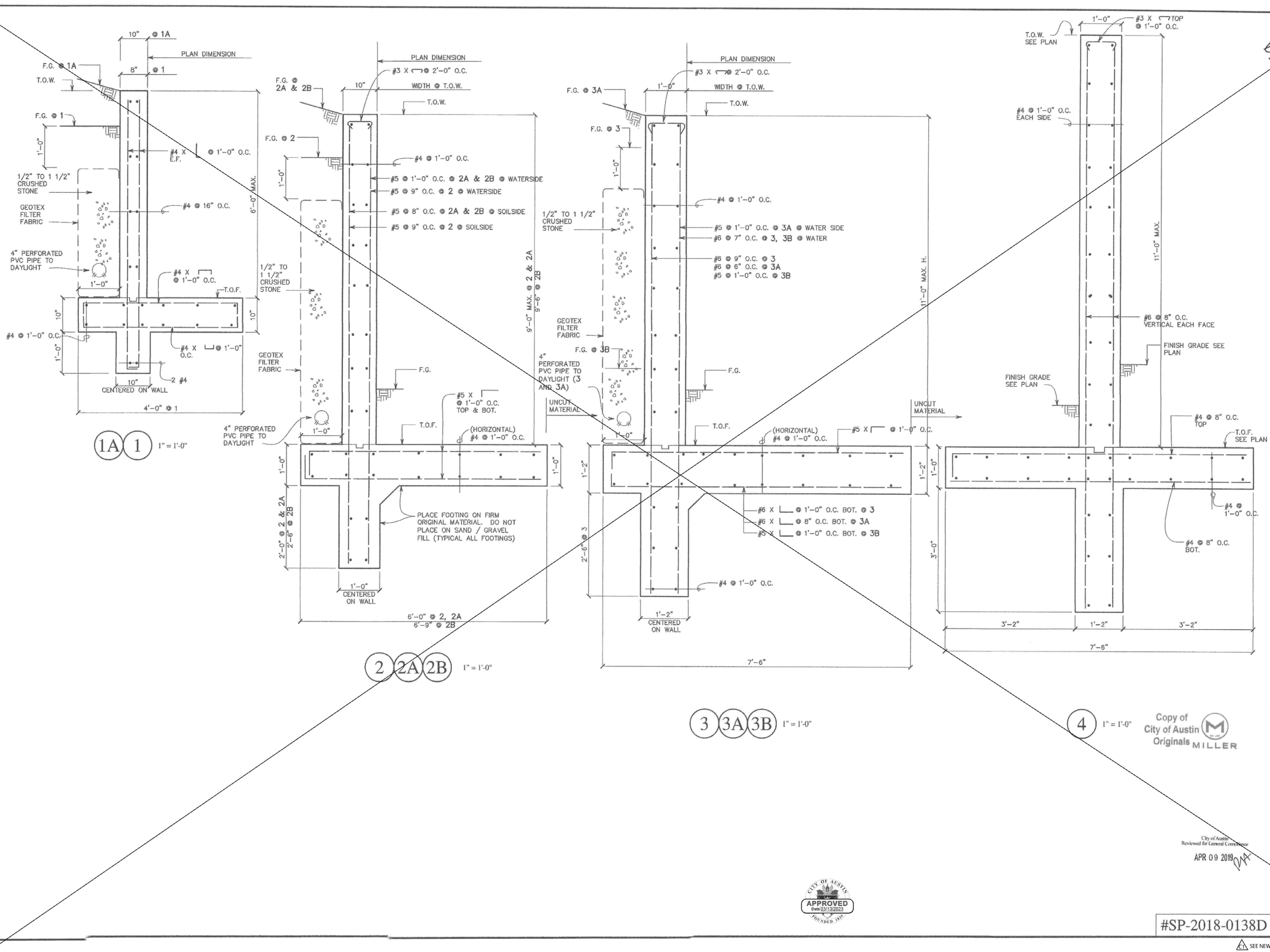
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

S3
49 of 53

SEE NEW SHEETS S7 & S8



City of Austin
Reviewed for General Correctness
APR 09 2019

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

#SP-2018-0138D

SEE NEW SHEETS 60 - 63

STATE OF TEXAS
THOMAS V. KAM
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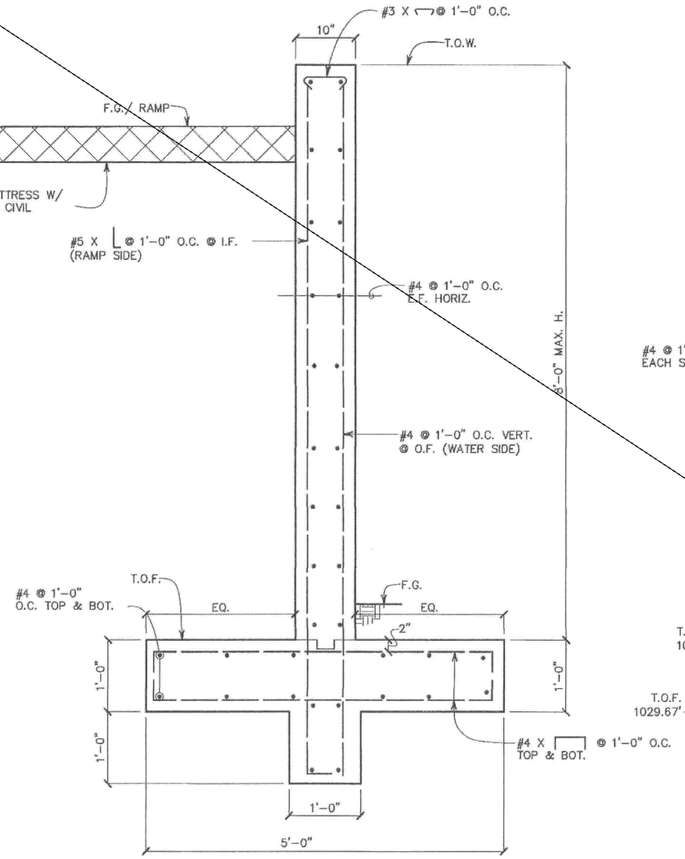
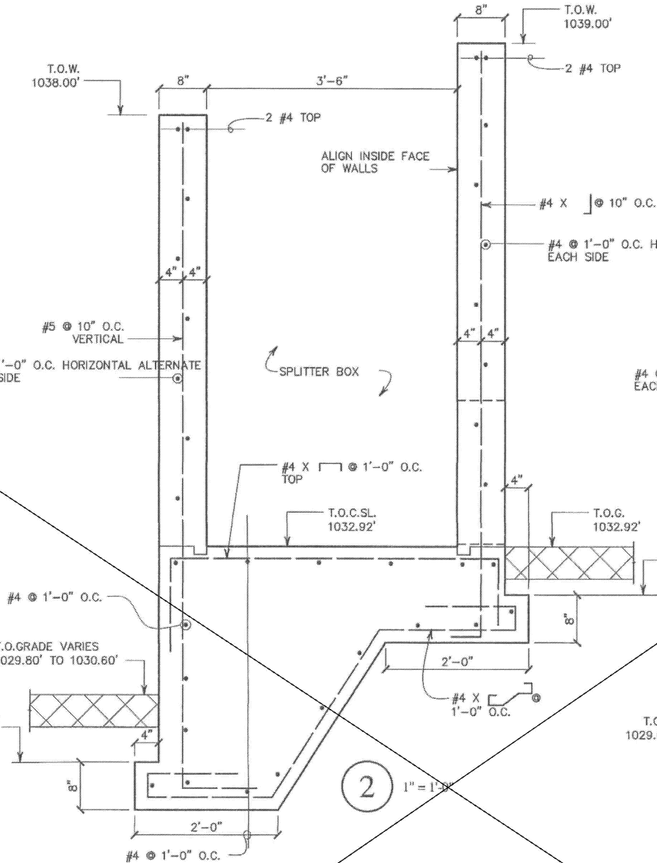
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

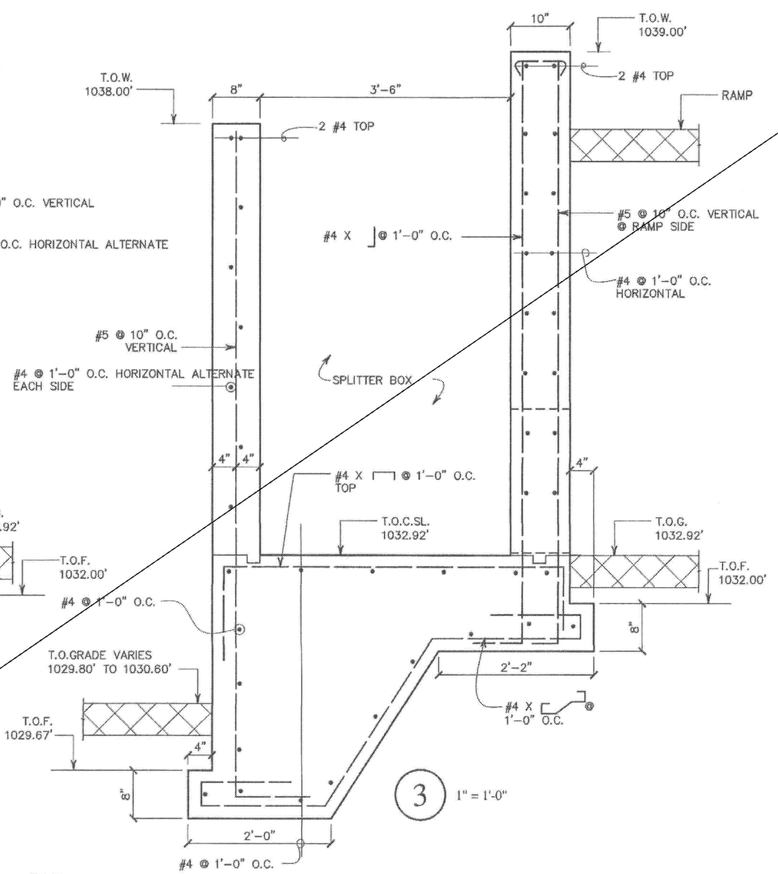
S4
50 of 53



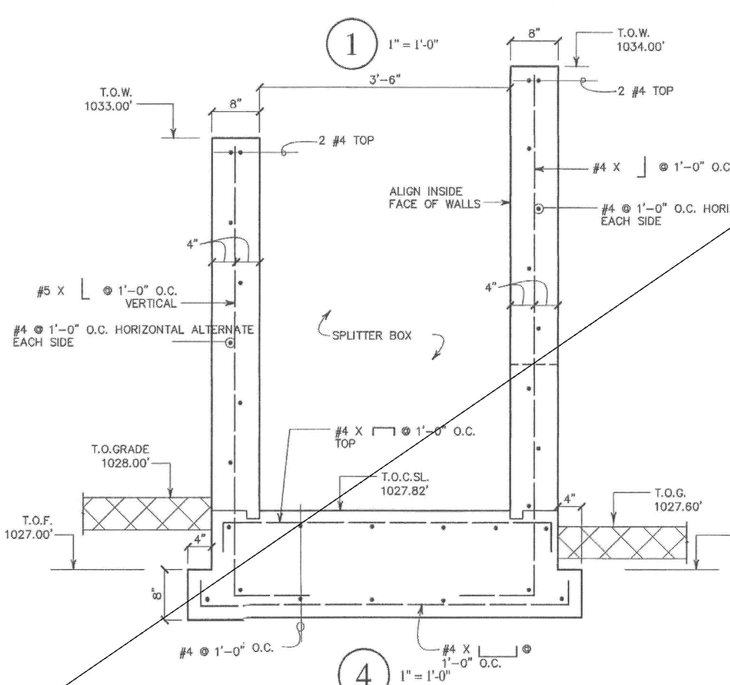
1 1" = 1'-0"



2 1" = 1'-0"



3 1" = 1'-0"



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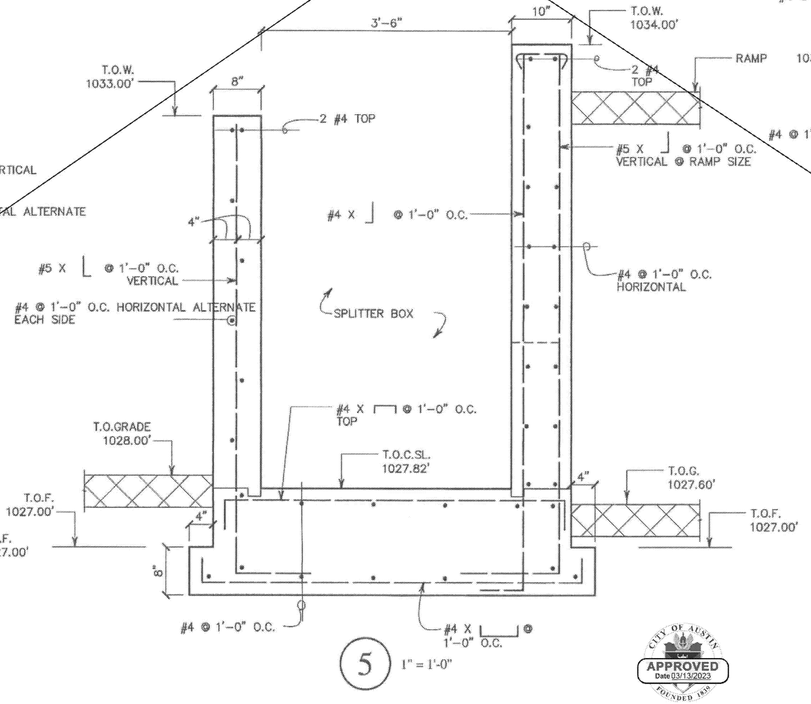
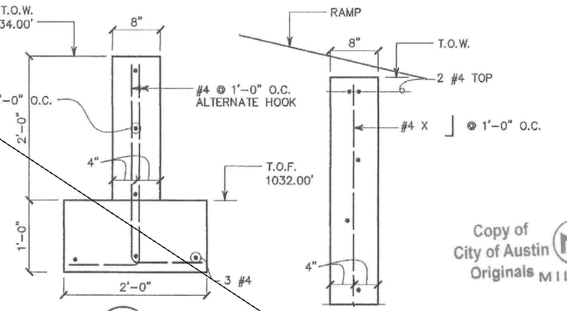


5 1" = 1'-0"



6 1" = 1'-0"

7 1" = 1'-0"

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

City of Austin Reviewed for General Compliance APR 09 2019

#SP-2018-0138D

STATE OF TEXAS
THOMAS W. KAM
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8/15/18
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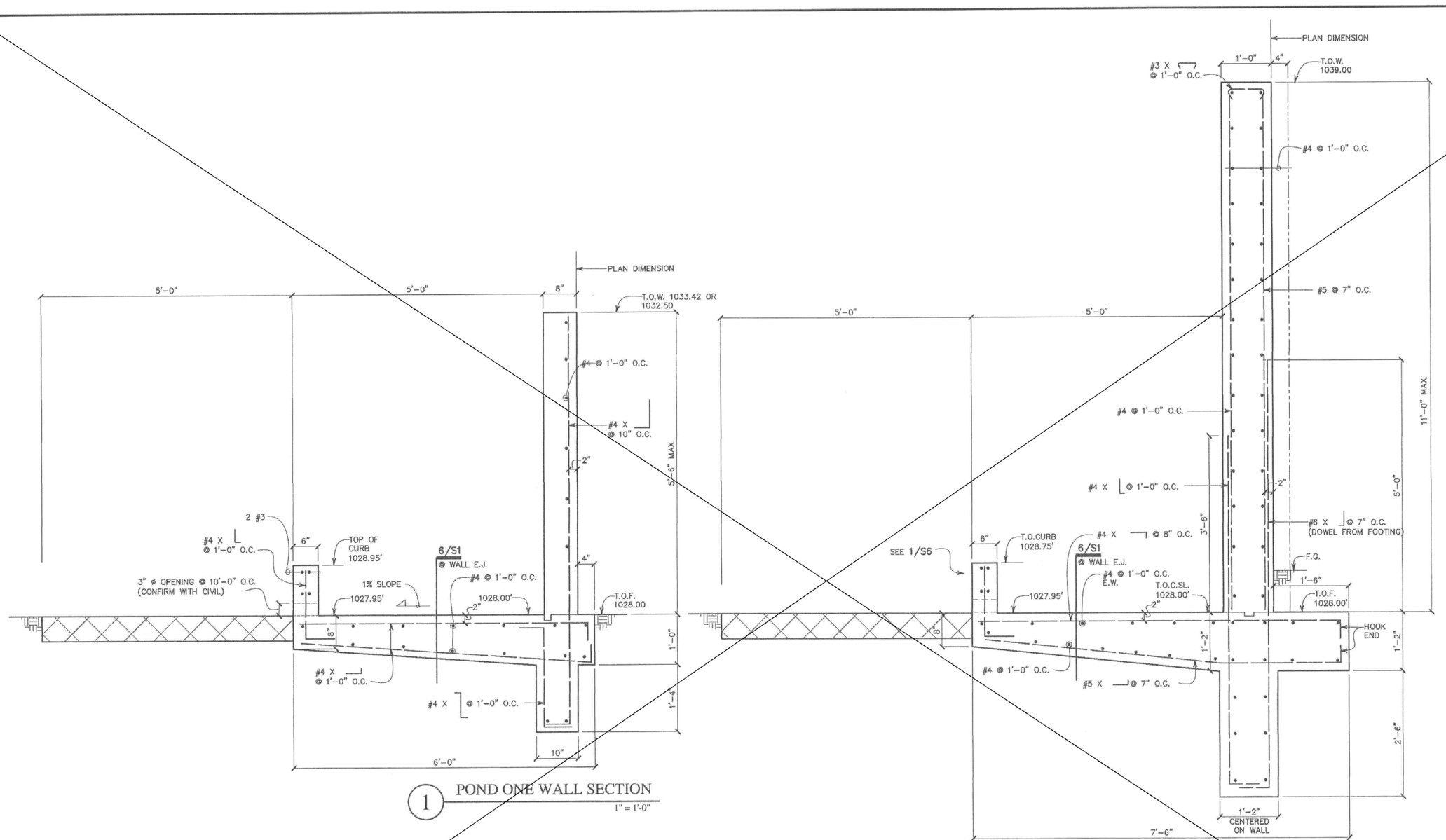
GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

S5
51 of 53

SEE NEW SHEETS 60 - 63



1 POND ONE WALL SECTION
1" = 1'-0"

2 POND ONE WALL SECTION
1" = 1'-0"

3 WALL ELEVATION (POND ONE)
1/4" = 1'-0"

STATE OF TEXAS
THOMAS W. KAN
41821
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04-05-18
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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

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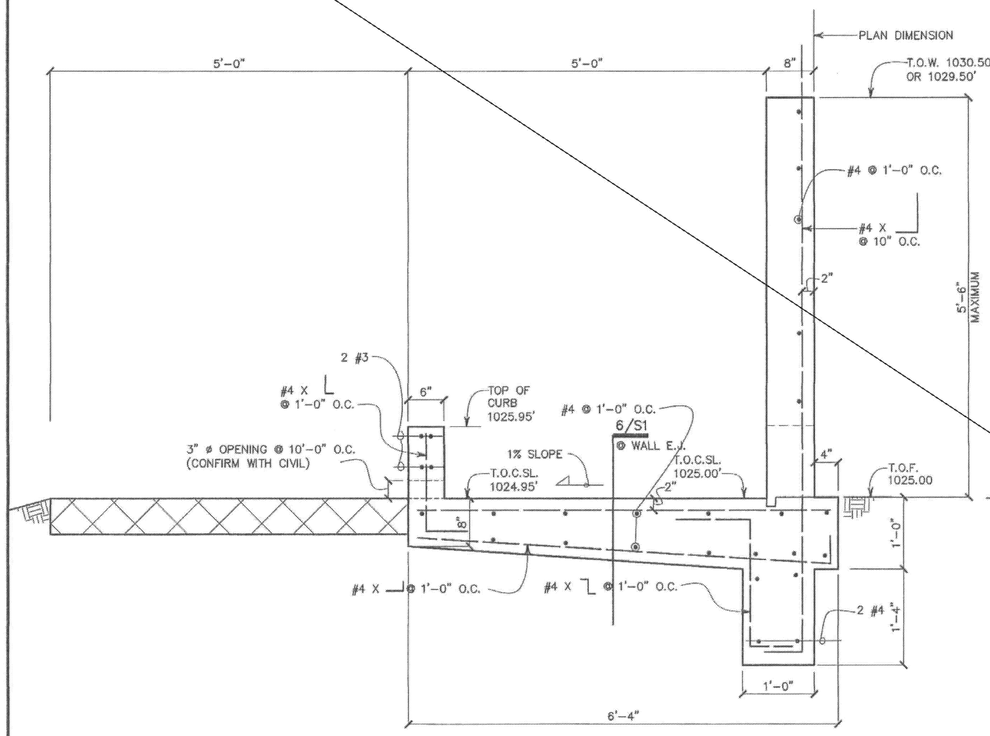
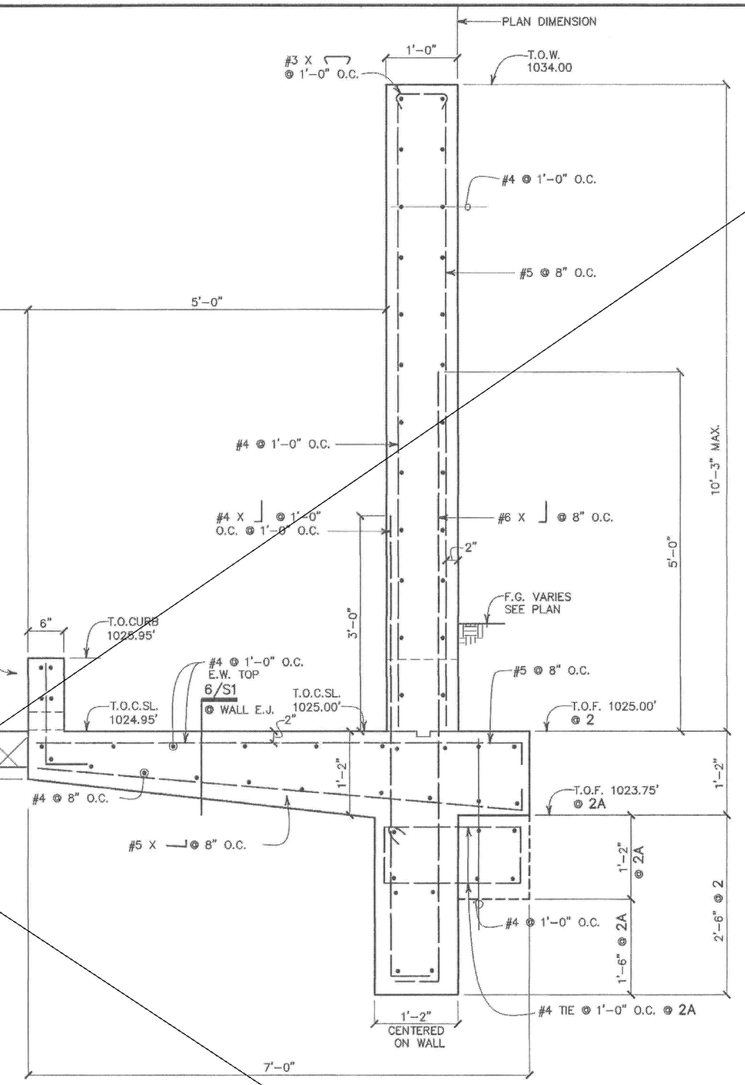
#SP-2018-0138D

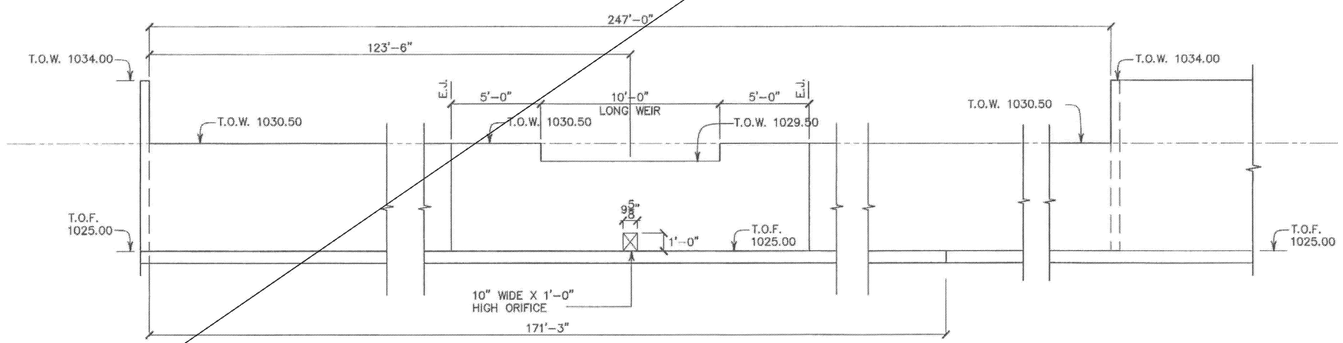
SEE NEW SHEET 56



1 POND TWO WALL SECTION
1" = 1'-0"



2 2A POND TWO WALL SECTION
1" = 1'-0"



3 WALL ELEVATION (POND TWO)
1/4" = 1'-0"

City of Austin
Reviewed for General Compliance
APR 09 2019

APPROVED
Date 03/13/2023

THOMAS W. KAM
41821
REGISTERED
PROFESSIONAL ENGINEER
8-15-18
TK# 18047

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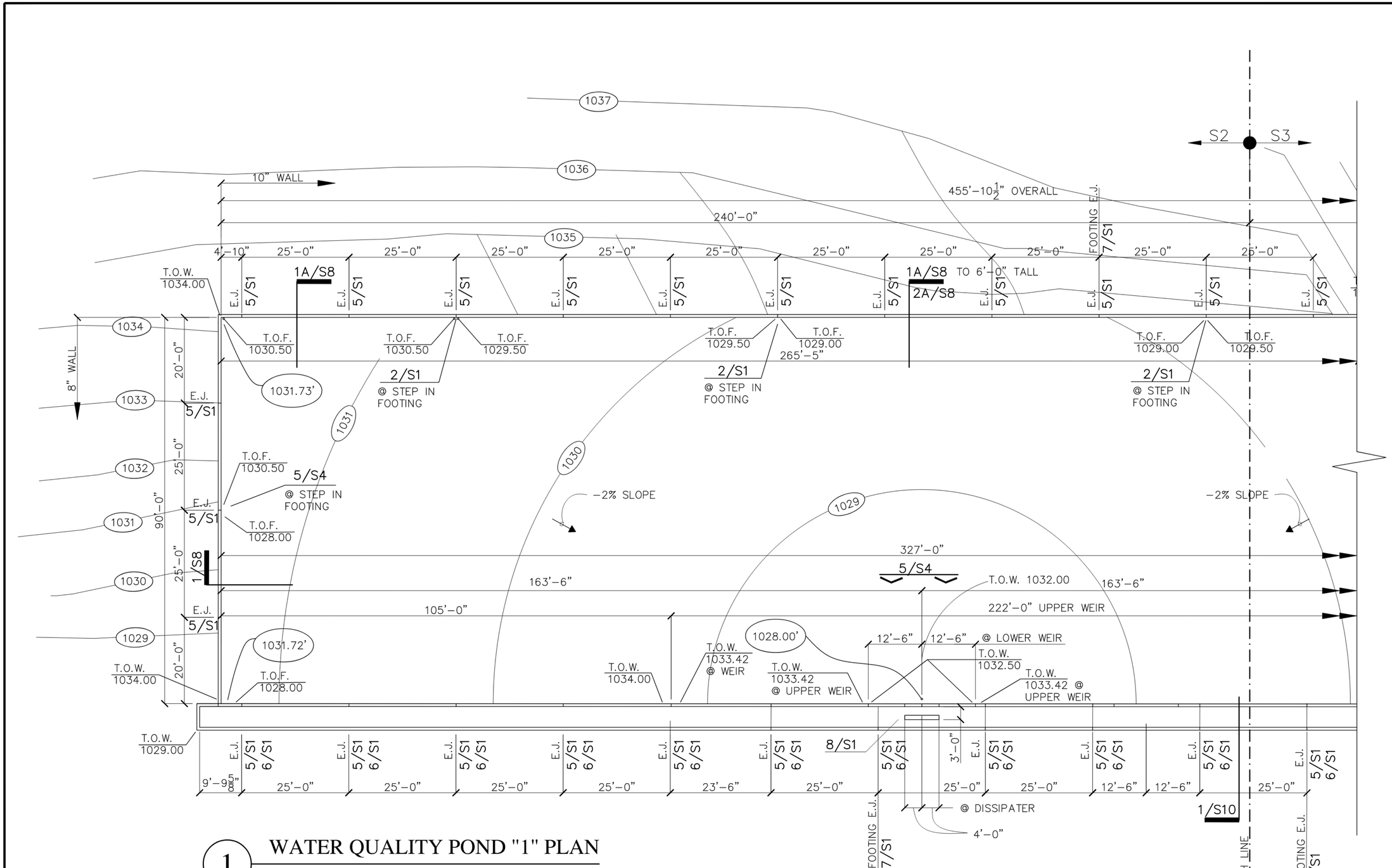
GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: AUG. 13, 2018

#SP-2018-0138D

S7
53 of 53

SEE NEW SHEET 59



1 WATER QUALITY POND "1" PLAN

3/32 = 1'-0" @ 22 X 34
3/64" = 1'-0" @ 11 X 17

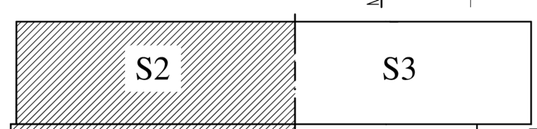
PLAN NOTES:

1) T.O.W. INDICATES TOP OF WALL.

2) T.O.F. INDICATES TOP OF FOOTING.

3) ⬭ INDICATES FINAL GRADE.

4) SLOPE TOP OF WALL AND GRADES UNIFORMLY BETWEEN ELEVATIONS NOTED.



POND 1 KEY PLAN

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

TK# 23003

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 1-23-23

TK CONSULTING ENGINEERS
FIRM #: F-1836
7621 SPICEWOOD SPRINGS ROAD
AUSTIN, TEXAS 78759
(512) 219-1574
TOM@TKAUSTIN.COM

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

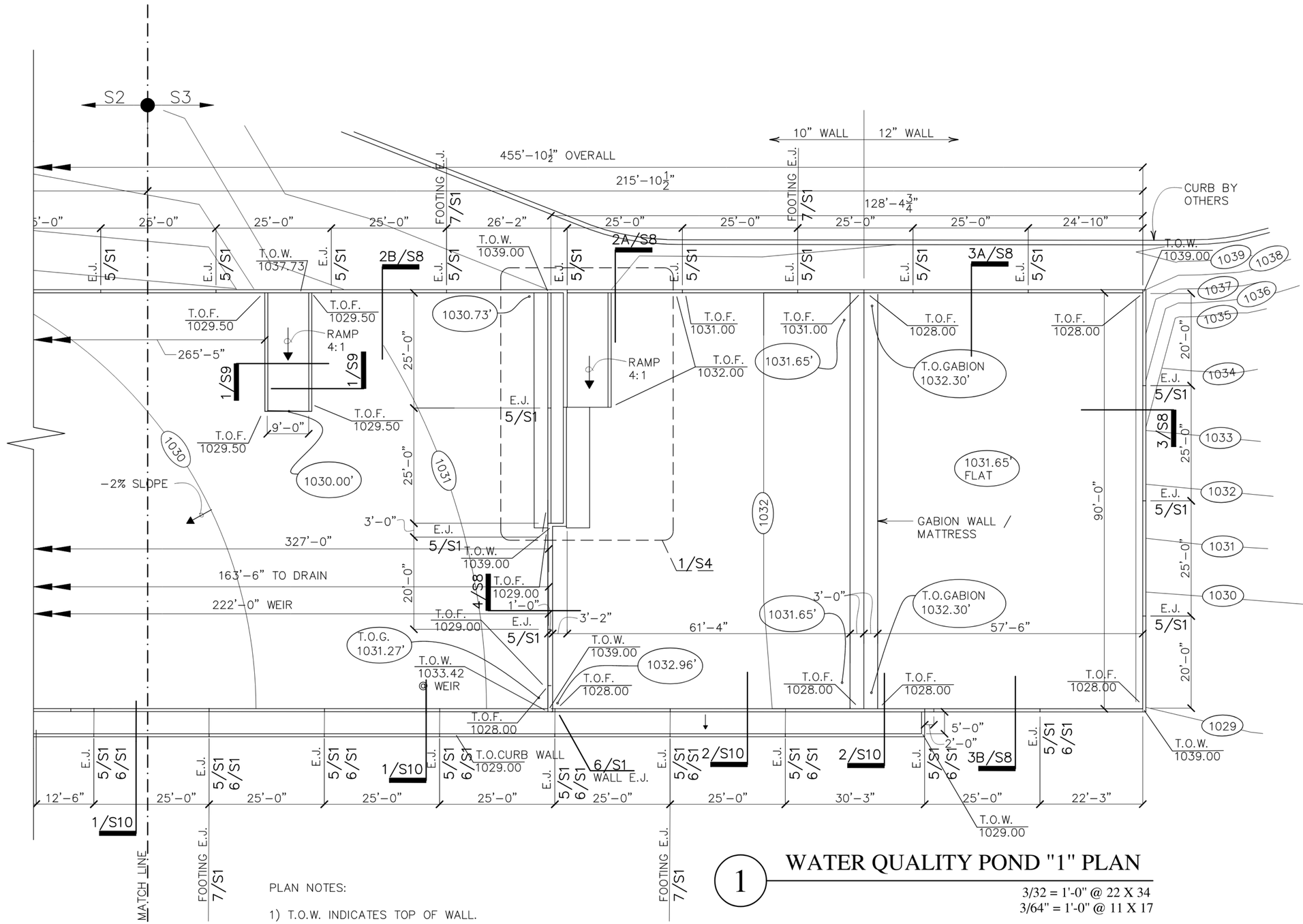
TK # 18047

#SP-2018-0138D

S2

54 OF 63

C1 NEW SHEET



PLAN NOTES:

1) T.O.W. INDICATES TOP OF WALL.

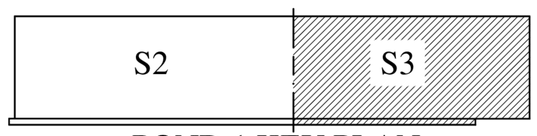
2) T.O.F. INDICATES TOP OF FOOTING.

3) ⬭ INDICATES FINAL GRADE.

4) SLOPE TOP OF WALL UNIFORMLY BETWEEN ELEVATIONS NOTED.

1 WATER QUALITY POND "1" PLAN

3/32 = 1'-0" @ 22 X 34
3/64" = 1'-0" @ 11 X 17



POND 1 KEY PLAN

CITY OF AUSTIN APPROVED Date: 03/13/2023 FOUNDED 1839

C1 NEW SHEET

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 1-23-23

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GRANADA RIDGE DEVELOPMENT
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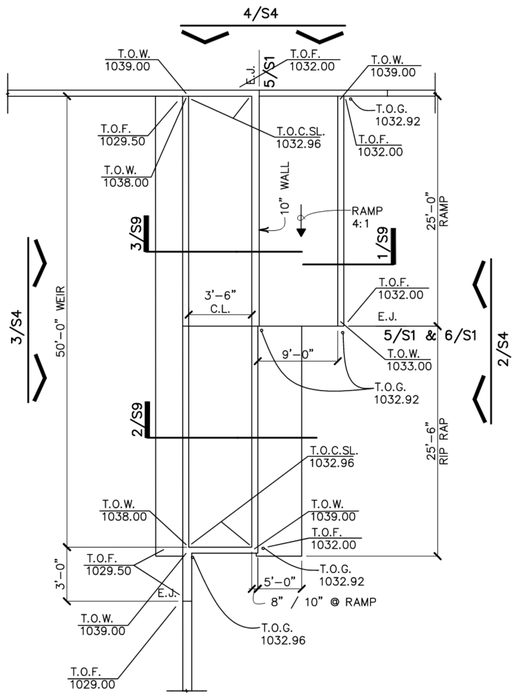
DATE: JAN. 23, 2023

TK # 18047

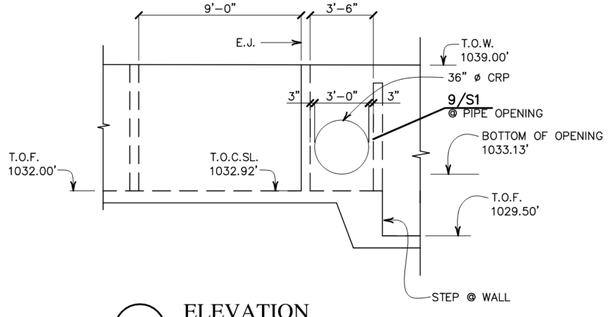
#SP-2018-0138D

S3



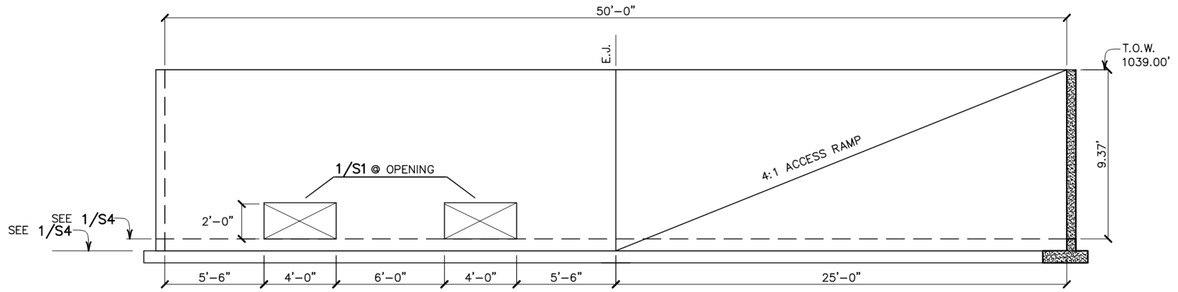
1 SPLITTER BOX ENLARGEMENT VIEW

1/8" = 1'-0" @ 22 X 34
1/16" = 1'-0" @ 11 X 17



4 ELEVATION

1/4 = 1'-0" @ 22 X 34
1/8" = 1'-0" @ 11 X 17

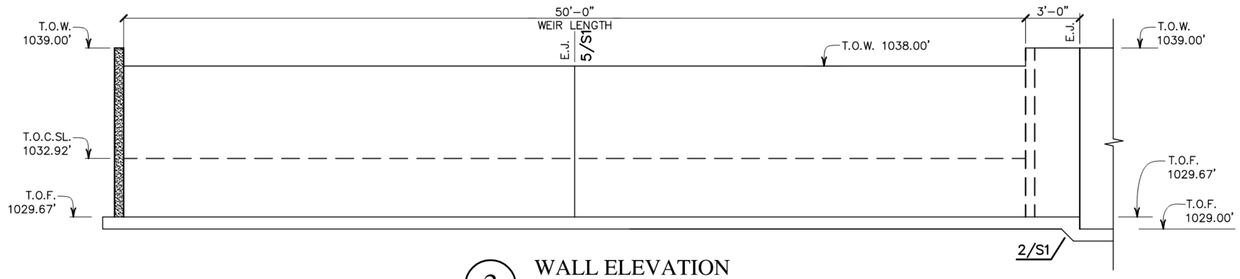


2 WALL ELEVATION

1/4 = 1'-0" @ 22 X 34
1/8" = 1'-0" @ 11 X 17

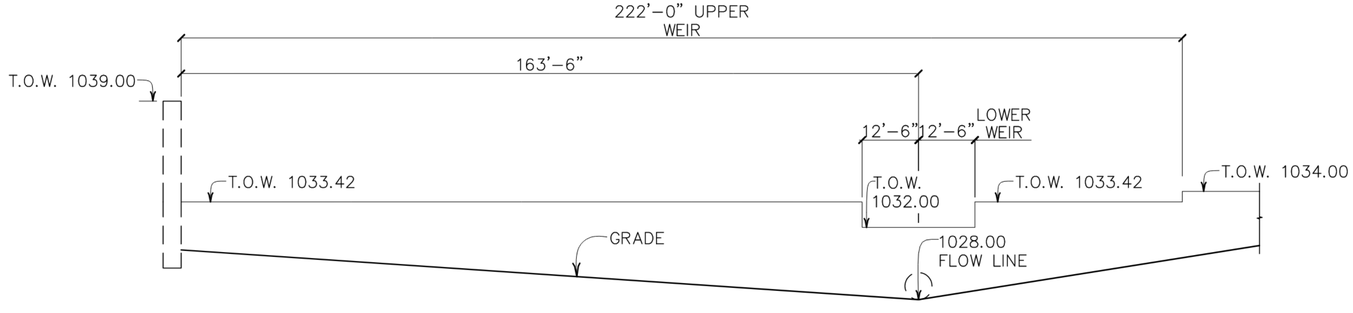
ELEVATION NOTES:

1) CONFIRM ALL ELEVATIONS WITH CIVIL



3 WALL ELEVATION

1/4 = 1'-0" @ 22 X 34
1/8" = 1'-0" @ 11 X 17



5 WEIR ELEVATION (POND 1)

1/8 = 1'-0" @ 22 X 34 (HORIZ. SCALE)
1/16 = 1'-0" @ 11 X 17 (HORIZ. SCALE)
N.T.S. (VERTICAL)

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

C1 NEW SHEET

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 1-23-23

TK# 23003

TK CONSULTING ENGINEERS
FIRM #: F-1836
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TOM@TKAUSTIN.COM

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

TK # 18047

#SP-2018-0138D

S4

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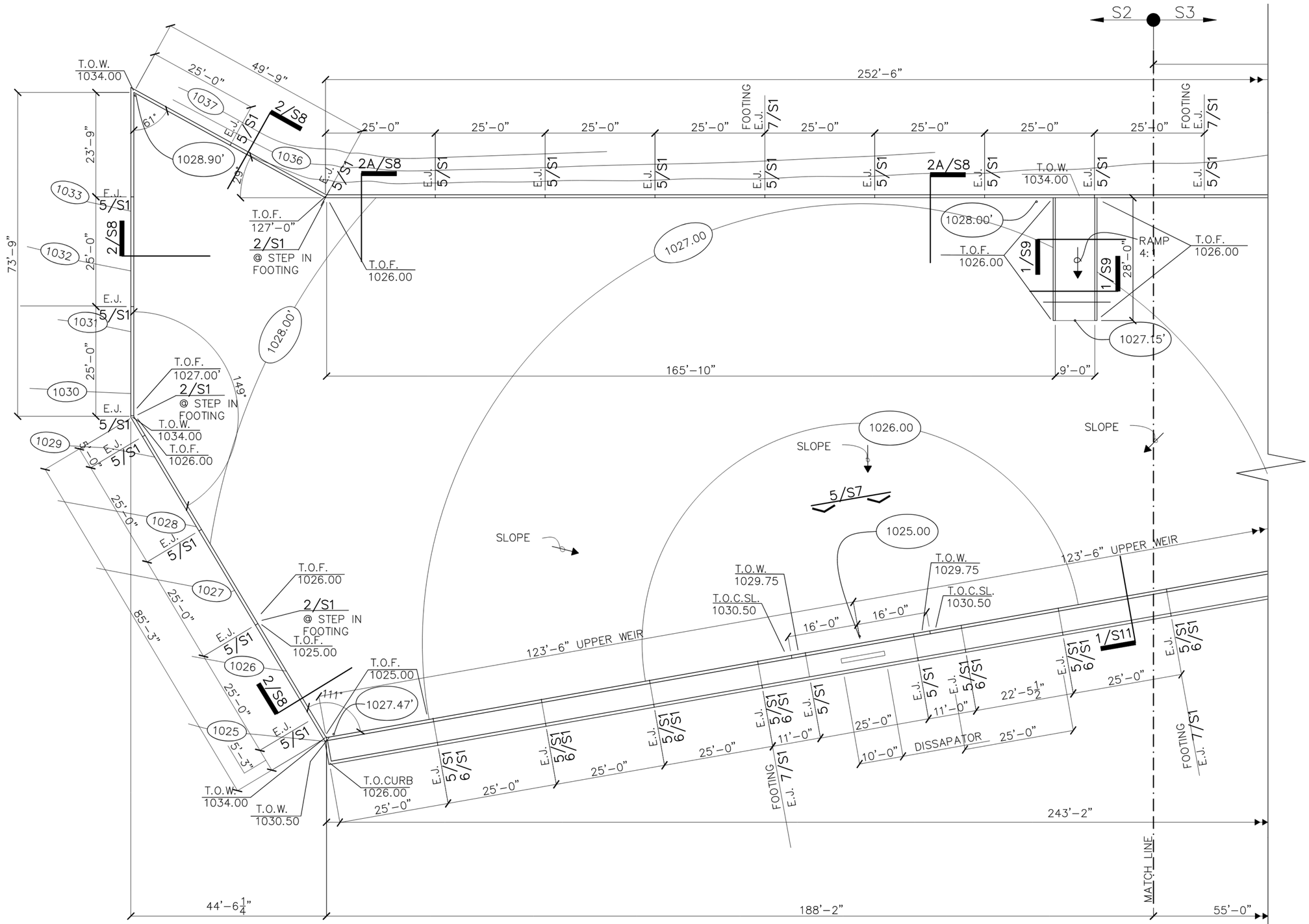
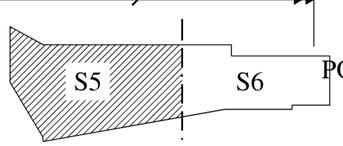


1 POND 2 PLAN

3/32" = 1'-0"



POND 2 KEY PLAN

CITY OF AUSTIN APPROVED Date 03/13/2023

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 1-23-23

TK# 23003

TK CONSULTING ENGINEERS
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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

TK # 18047

#SP-2018-0138D

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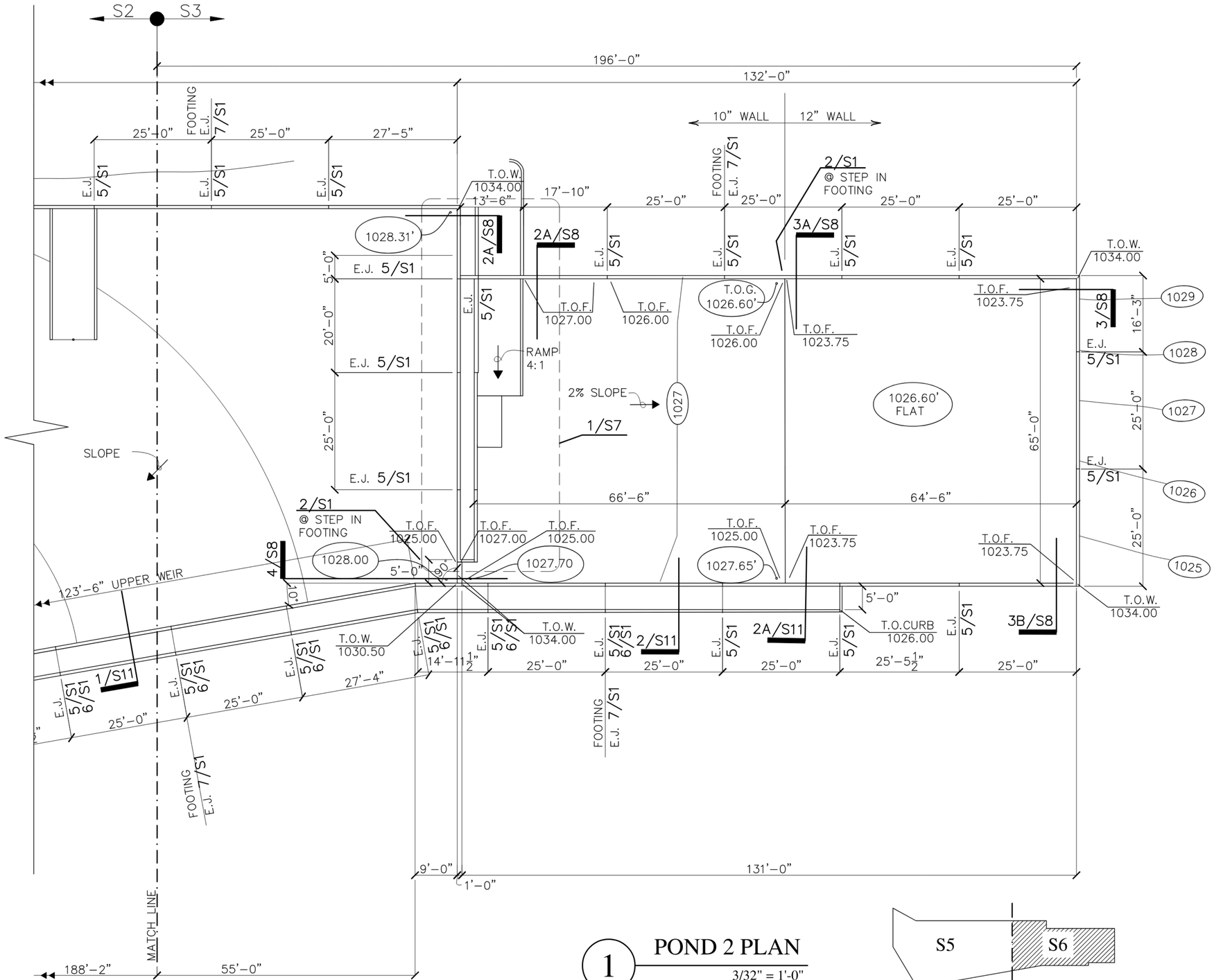
C1 NEW SHEET



1 POND 2 PLAN

3/32" = 1'-0"

POND 2 KEY PLAN

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 1-23-23

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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

TK # 18047

#SP-2018-0138D

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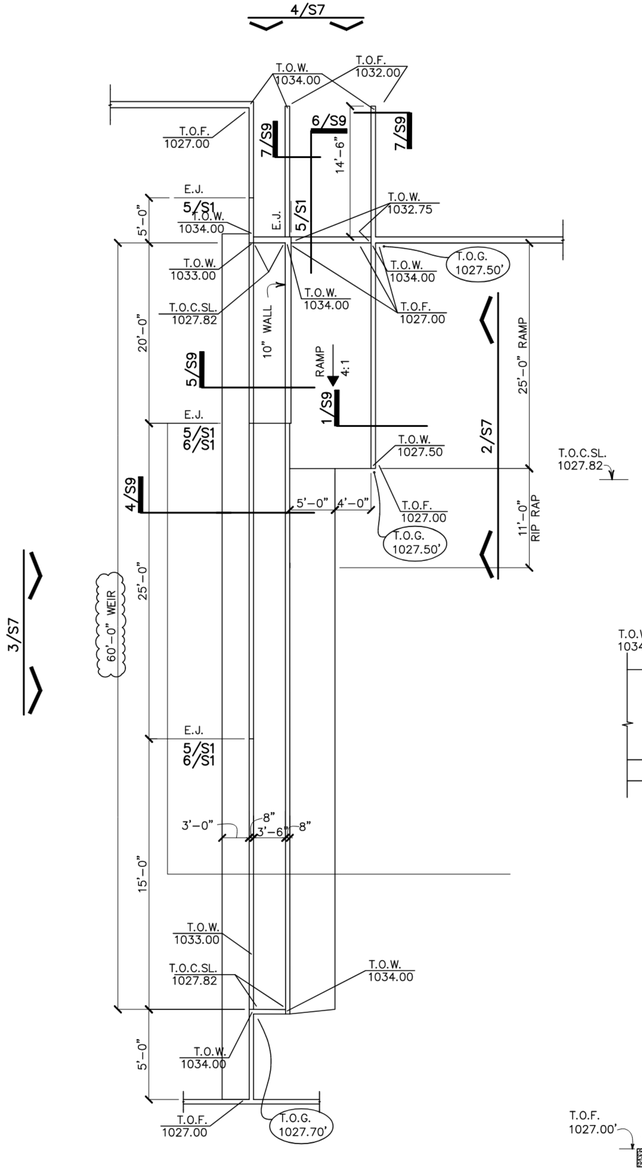
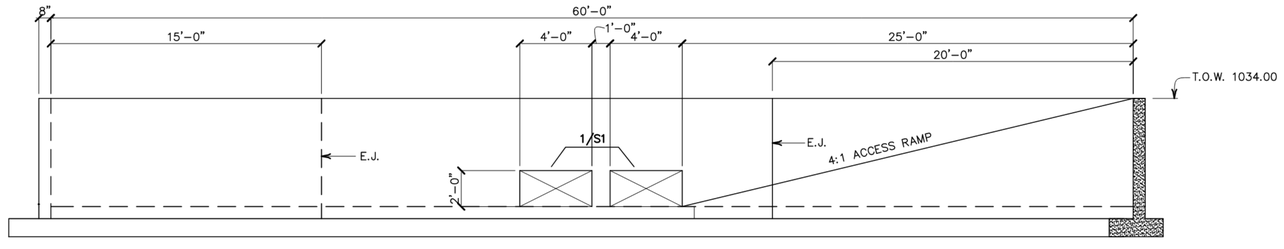
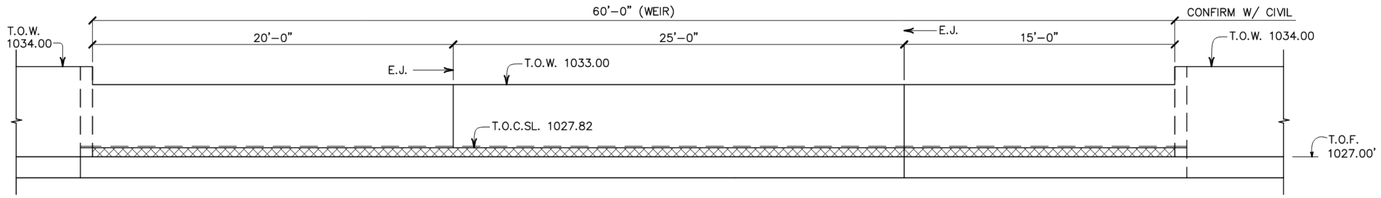
C1 NEW SHEET



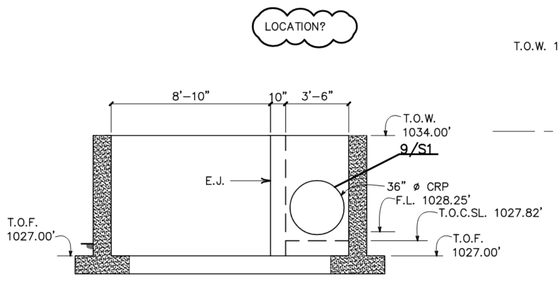
1 SPLITTER BOX ENLARGEMENT VIEW
1/4" = 1'-0"



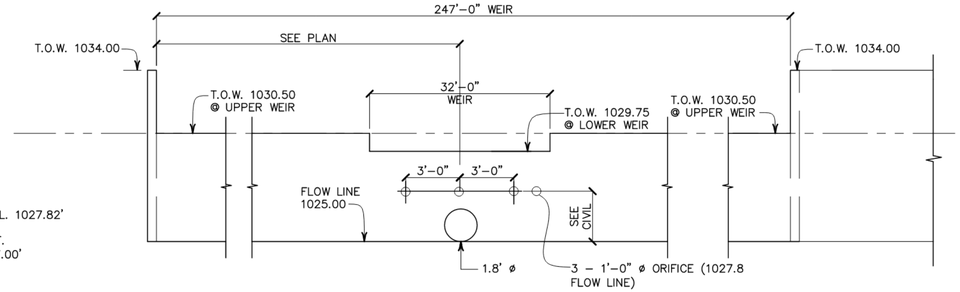
2 WALL ELEVATION
1/4" = 1'-0"



3 WALL ELEVATION
1/4" = 1'-0"



4 WALL ELEVATION
1/4" = 1'-0"



5 WALL ELEVATION (POND TWO)
1/4" = 1'-0"

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

THOMAS W. KAM 41821 REGISTERED PROFESSIONAL ENGINEER 2-13-23

TK# 23003

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TOM@TKAUSTIN.COM

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

FEB. 23, 2023

DATE: FEB. 13, 2023

TK # 18047

#SP-2018-0138D

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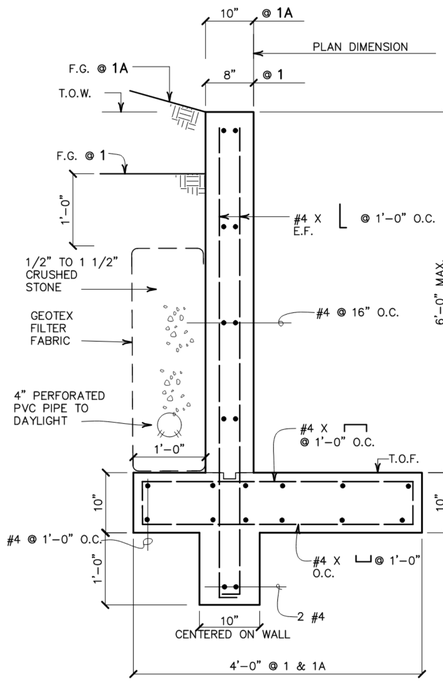
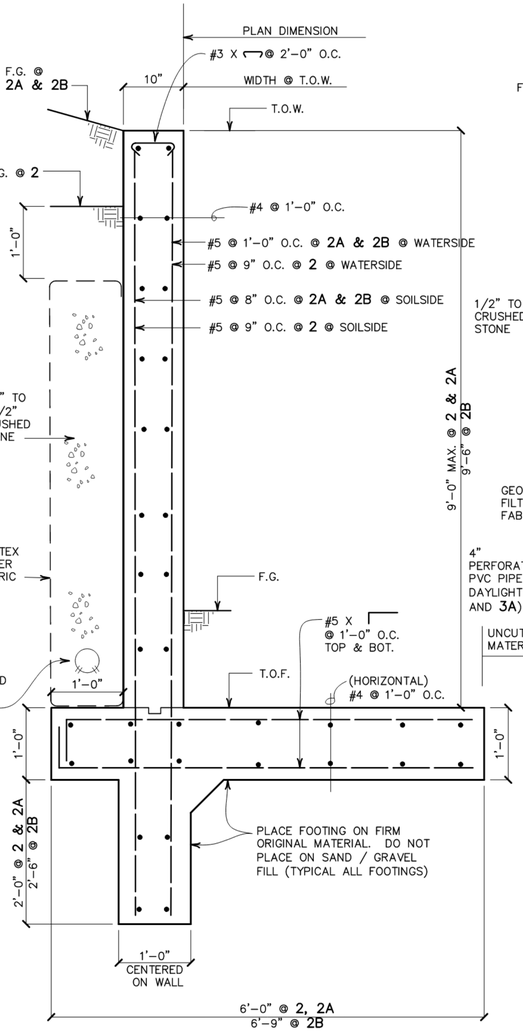
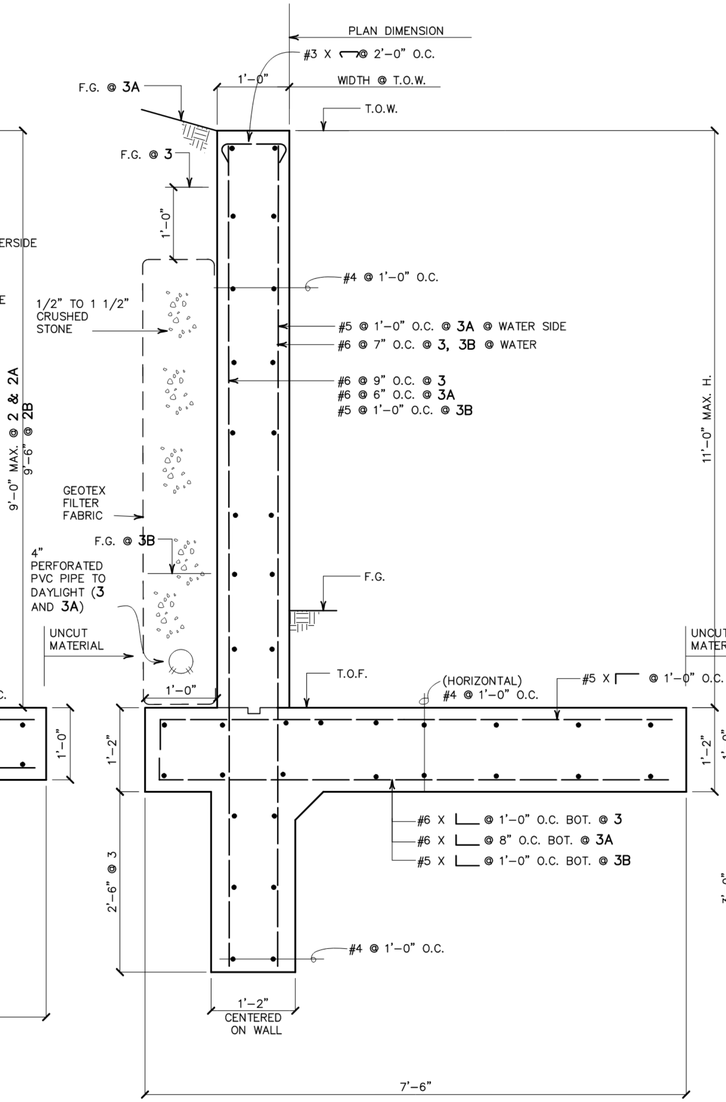
C1 NEW SHEET



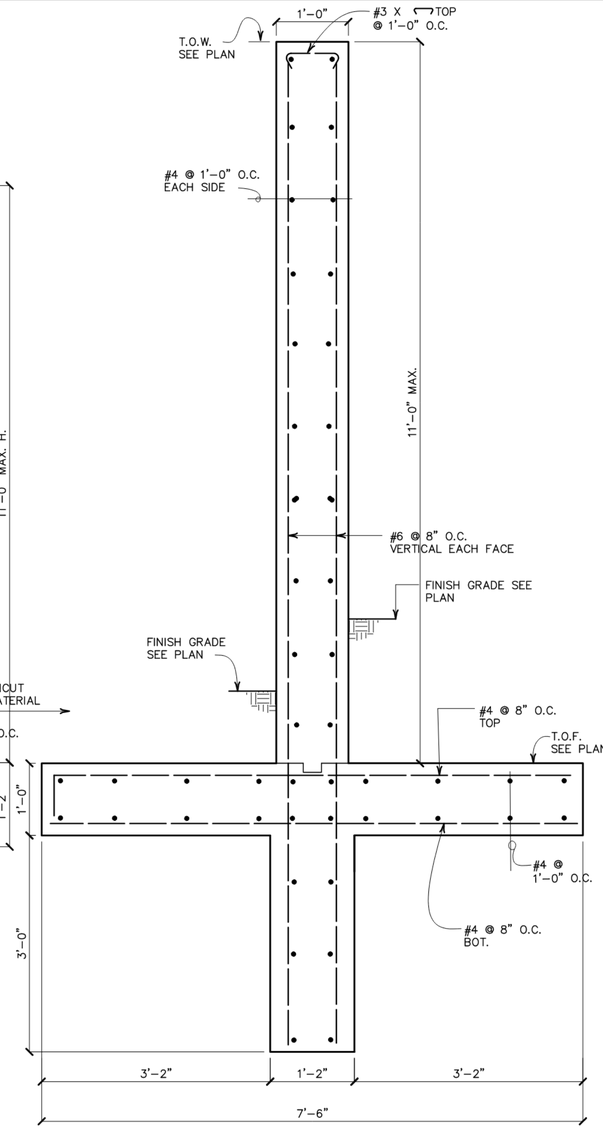
1A 1 1" = 1'-0"



2 2A 2B 1" = 1'-0"



3 3A 3B 1" = 1'-0"



4 1" = 1'-0"

TK# 23003

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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
AUSTIN, TX. 78736

DATE: JAN. 23, 2023

S8

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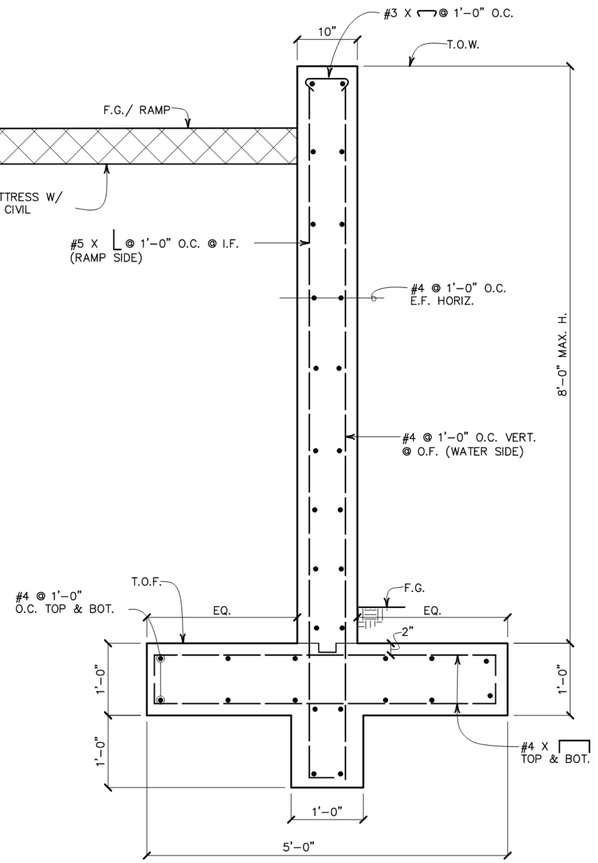
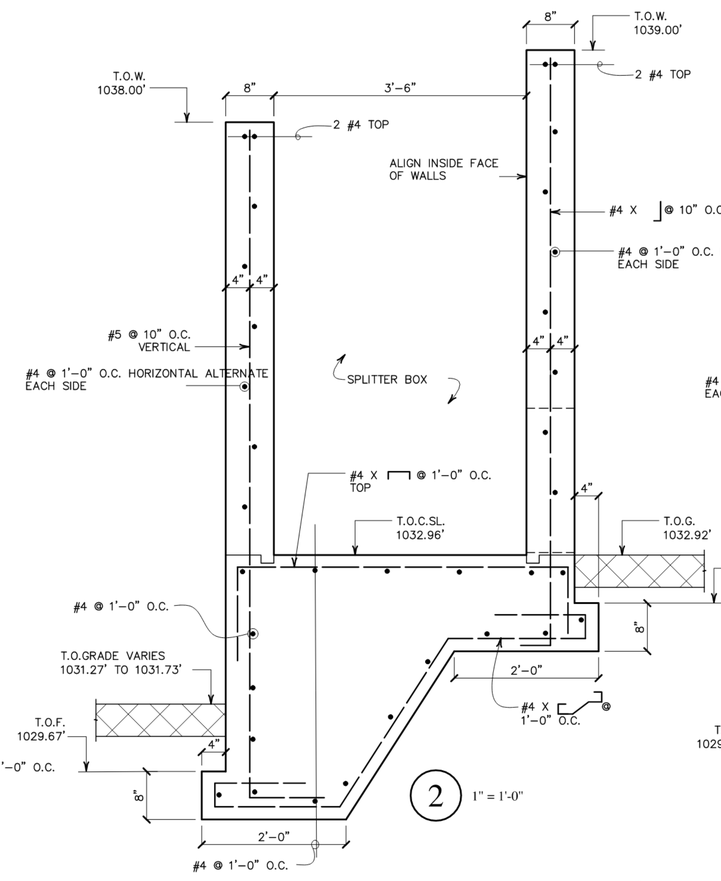
TK # 18047

#SP-2018-0138D

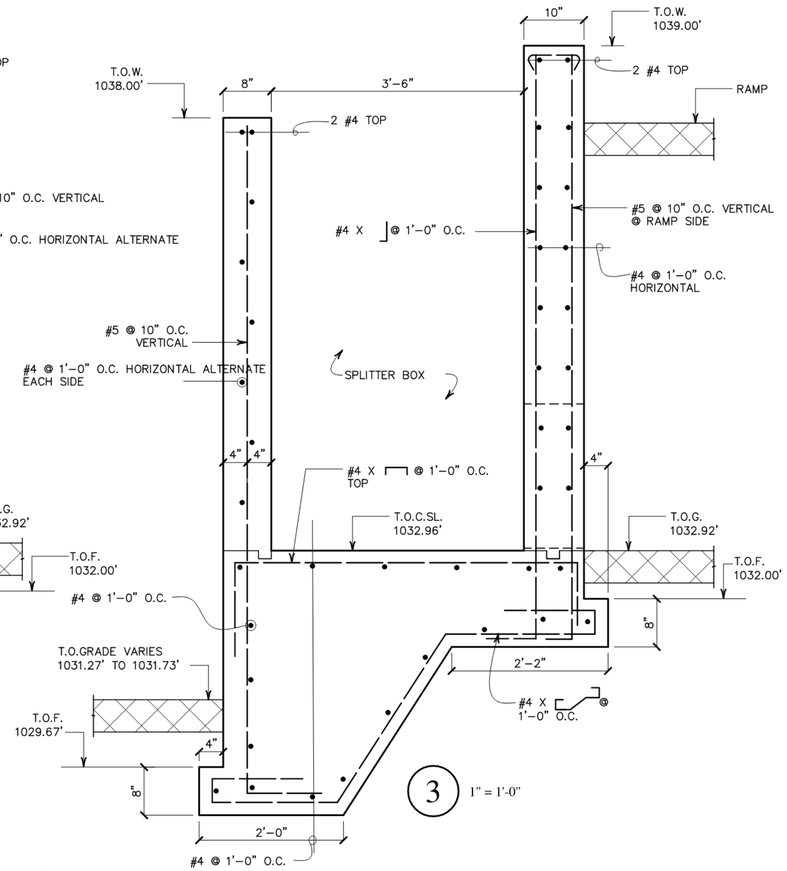
C1 NEW SHEET



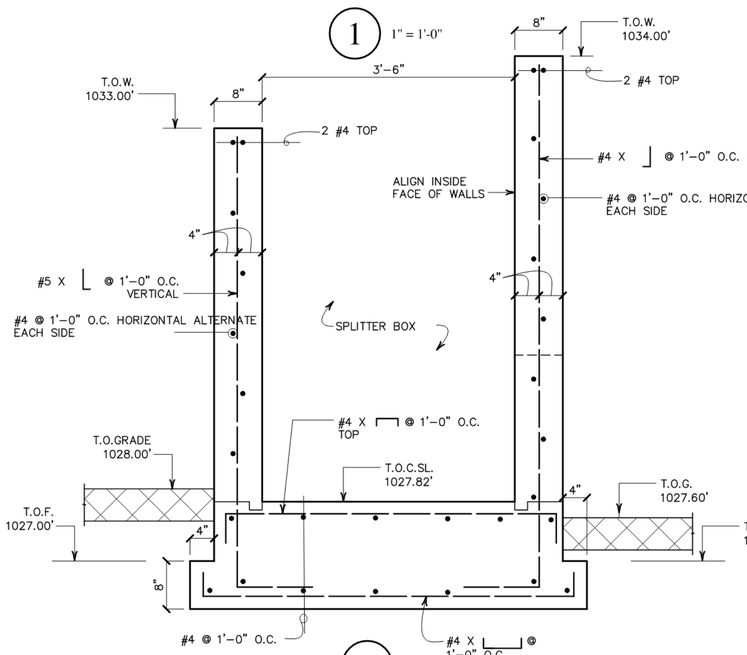
1 1" = 1'-0"



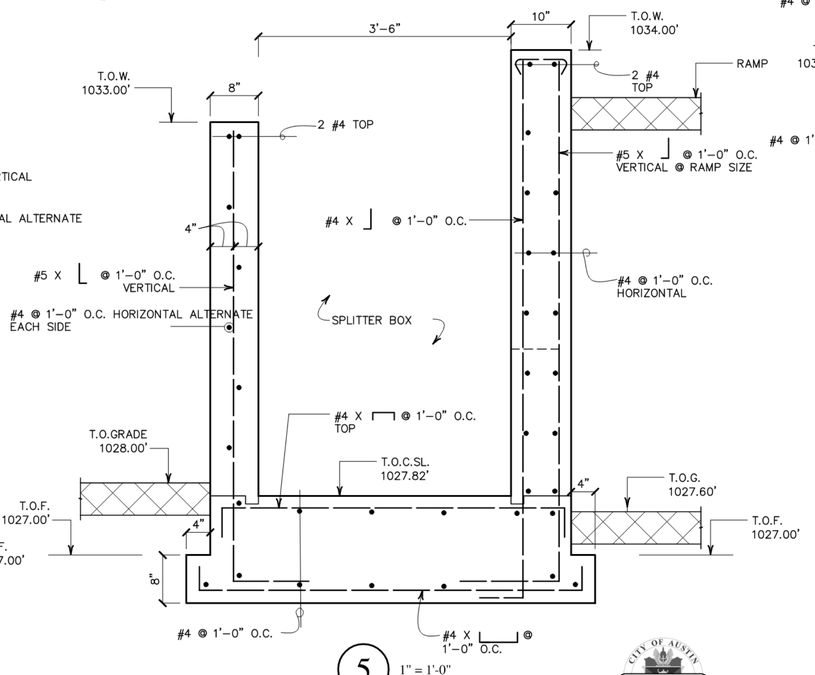
2 1" = 1'-0"



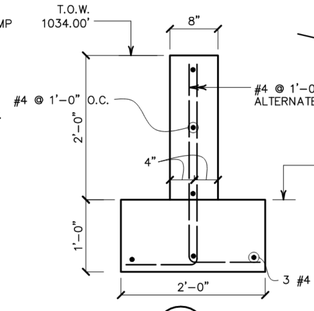
3 1" = 1'-0"



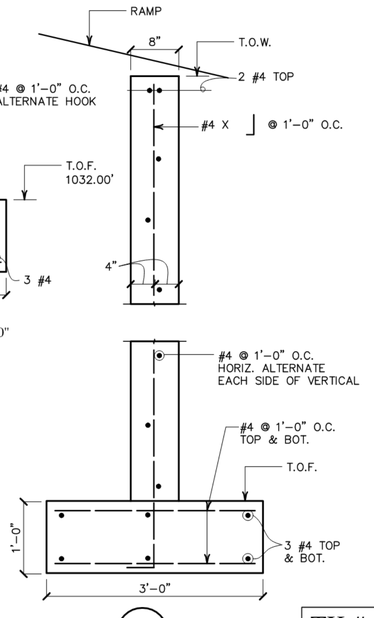
4 1" = 1'-0"



5 1" = 1'-0"



6 1" = 1'-0"



7 1" = 1'-0"

CITY OF AUSTIN APPROVED Date 03/13/2023 FOUNDED 1839

TK # 18047

#SP-2018-0138D

C1 NEW SHEET

STATE OF TEXAS
THOMAS W. KAM
41821
REGISTERED
PROFESSIONAL ENGINEER
1-23-23

TK# 23003

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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
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DATE: JAN. 23, 2023

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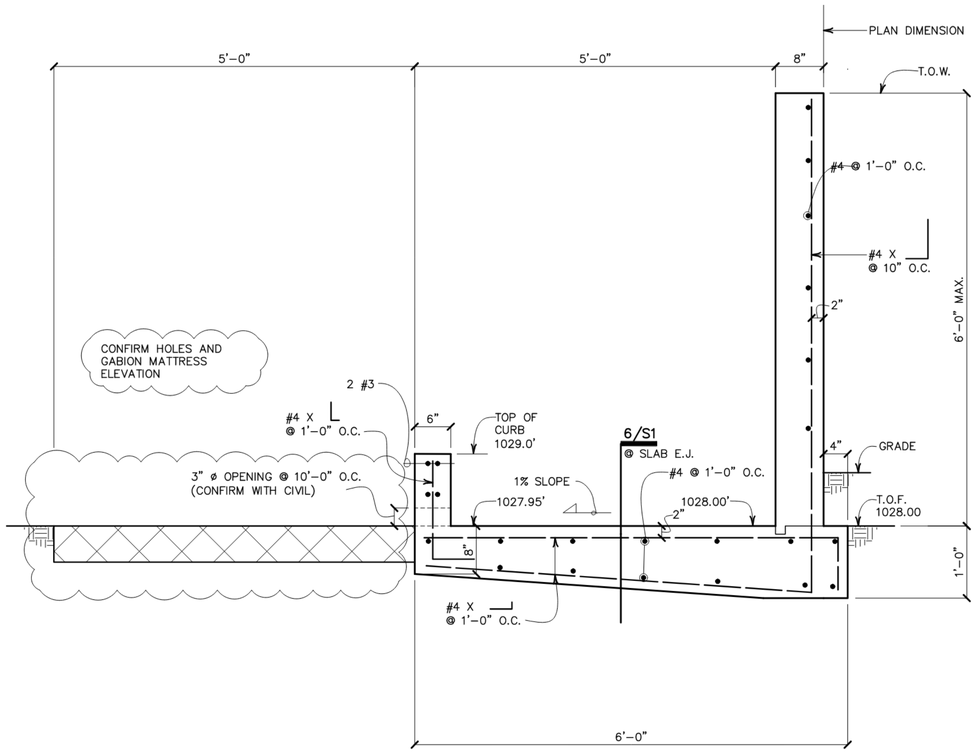
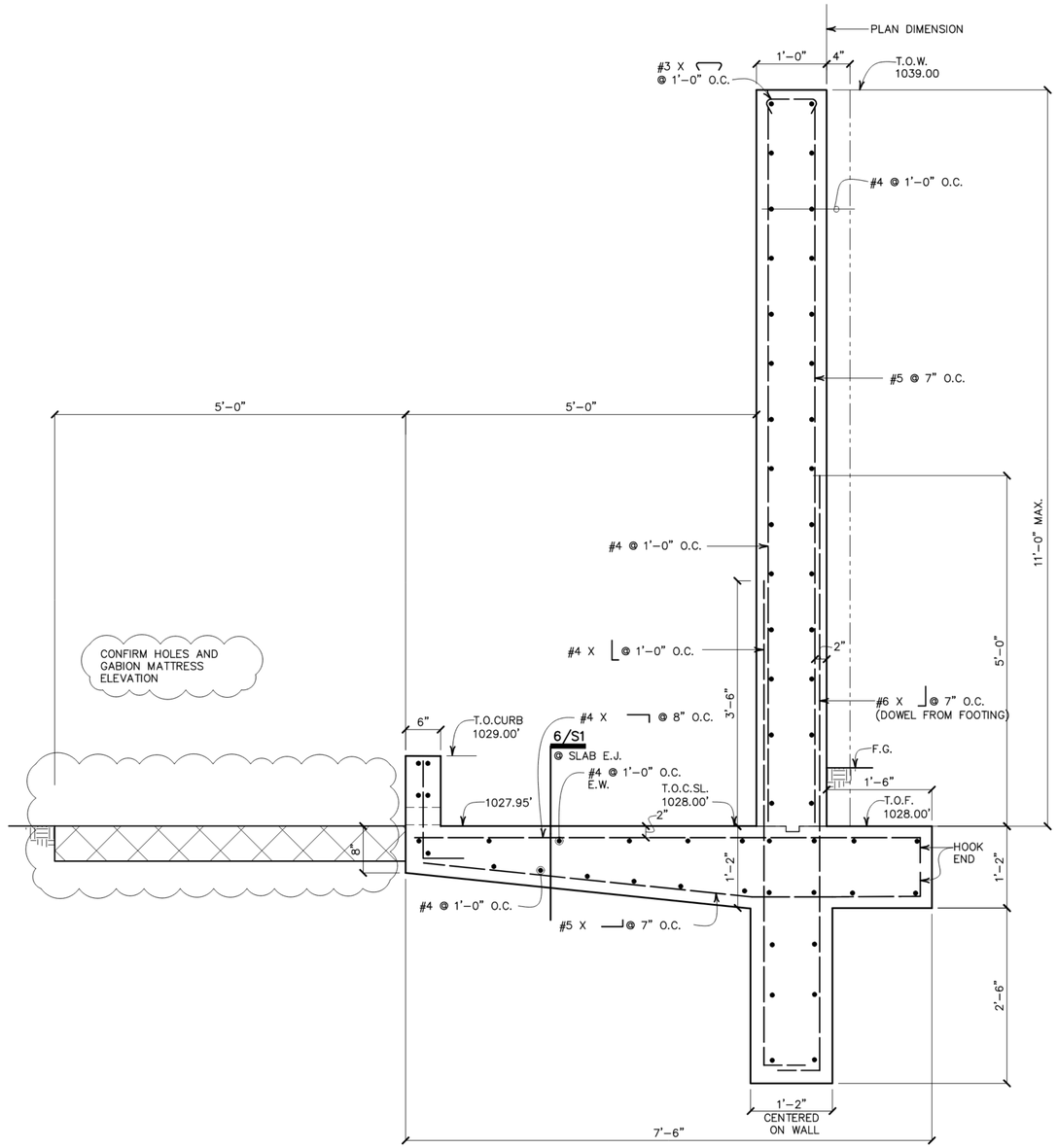


1 POND ONE WALL SECTION

1" = 1'-0"



2 POND ONE WALL SECTION

1" = 1'-0"

THOMAS W. KAM
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REGISTERED
PROFESSIONAL ENGINEER
STATE OF TEXAS
1-23-23

TK# 23003

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GRANADA RIDGE DEVELOPMENT
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DATE: JAN. 23, 2023

CITY OF AUSTIN
APPROVED
Date 03/13/2023
FOUNDED 1839

TK # 18047

#SP-2018-0138D

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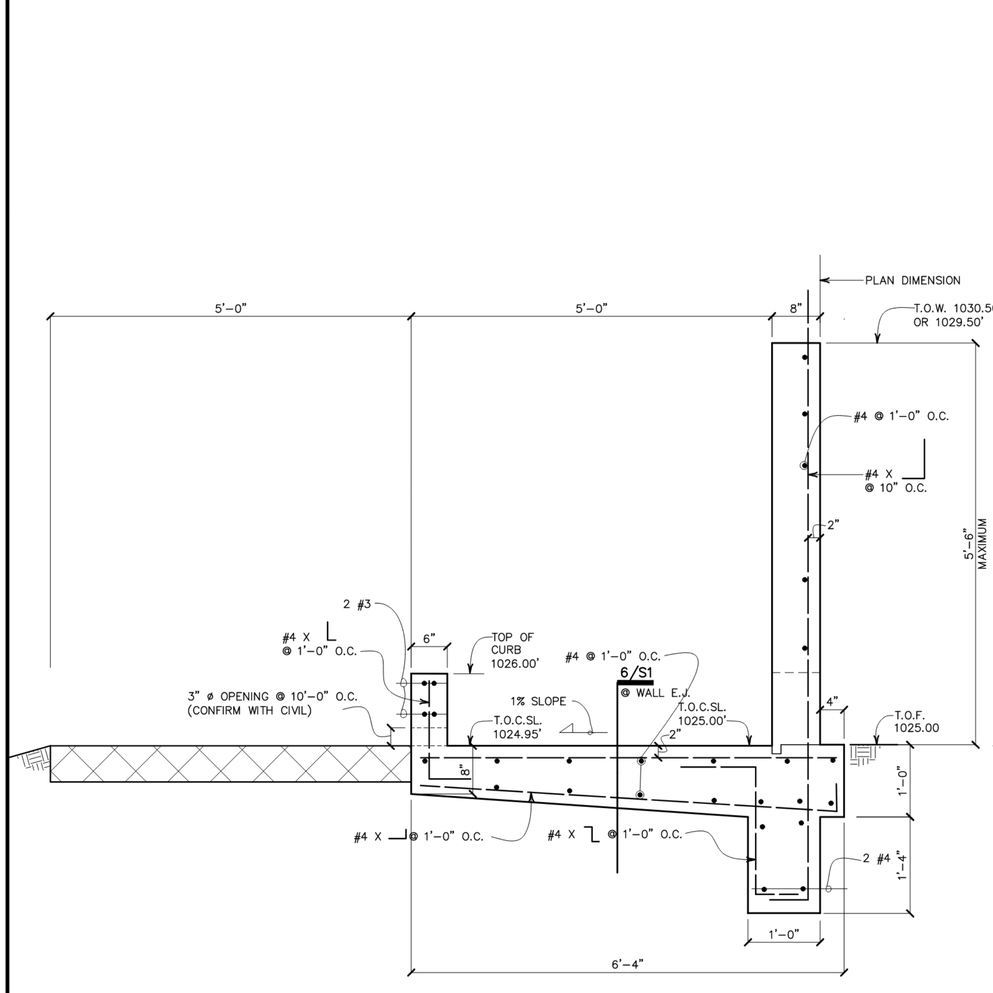
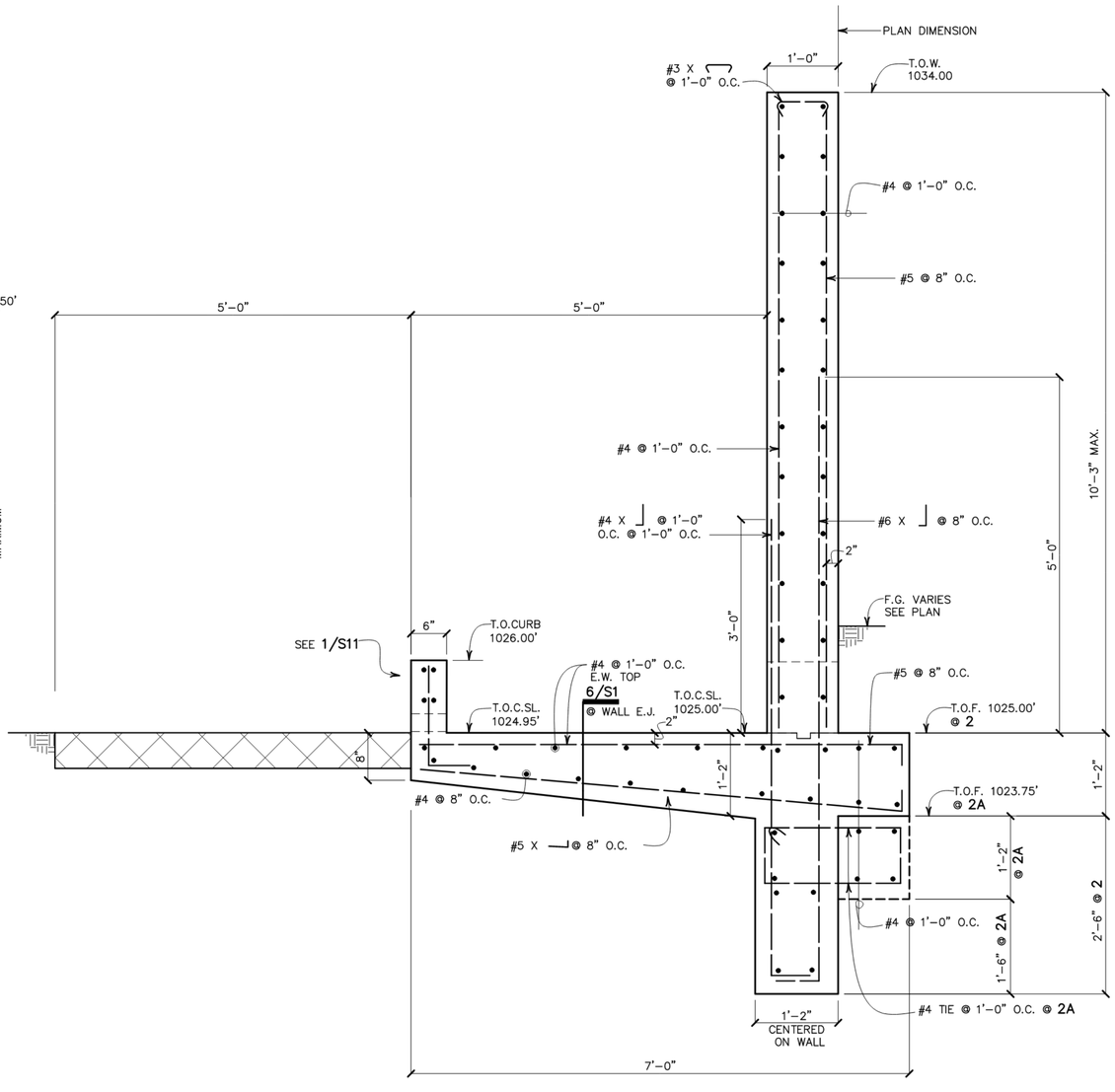
C1 NEW SHEET



1 POND TWO WALL SECTION

1" = 1'-0"



2 2A POND TWO WALL SECTION

1" = 1'-0"

CITY OF AUSTIN
APPROVED
Date 03/13/2023
FOUNDED 1839

TK # 18047

#SP-2018-0138D

C1 NEW SHEET

STATE OF TEXAS
THOMAS W. KAM
41821
REGISTERED
PROFESSIONAL ENGINEER
1-23-23

TK# 23003

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GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
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DATE: JAN. 23, 2023

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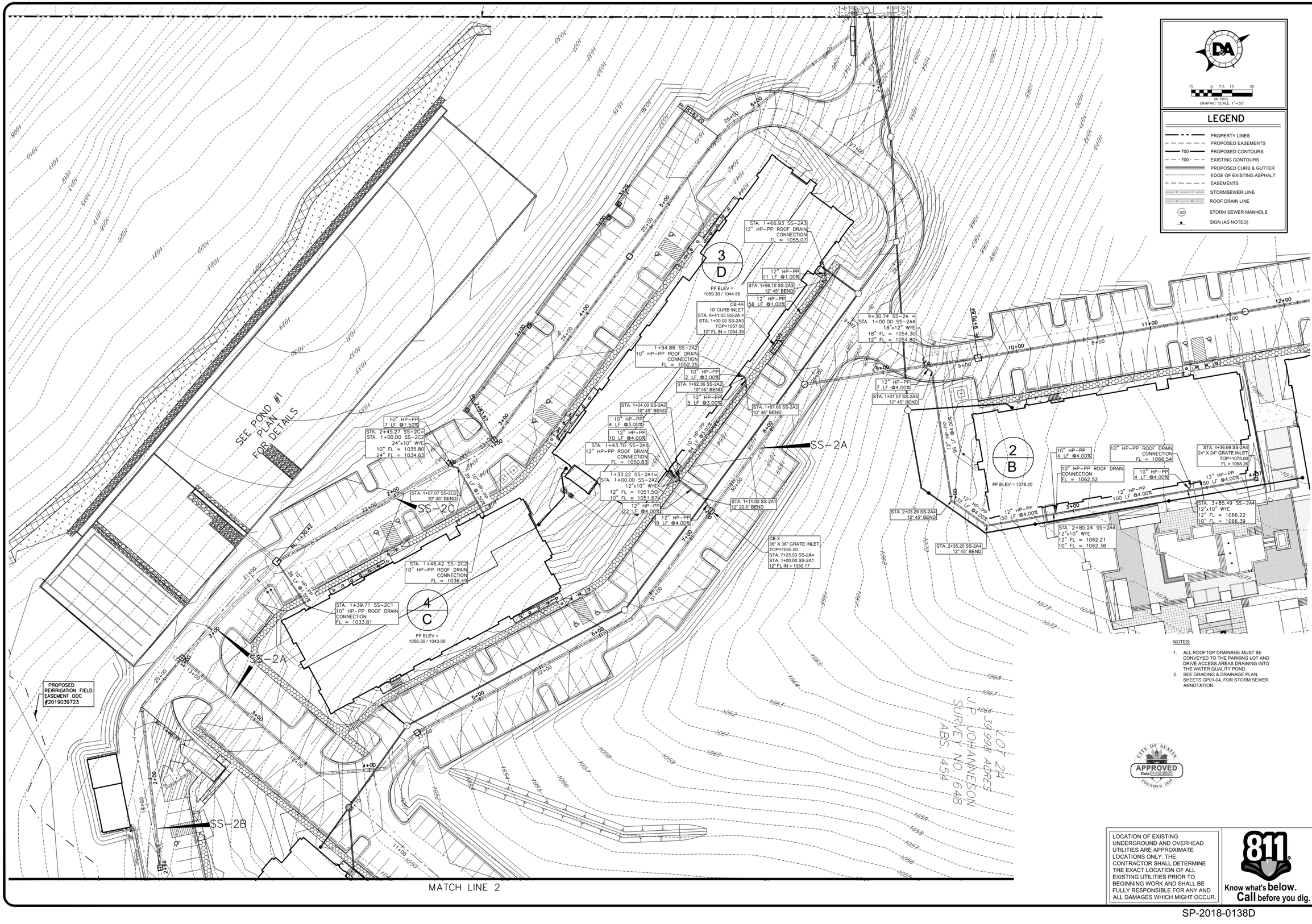
63 OF 63



NOTES:

1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN, SHEETS GP01-04, FOR STORM SEWER ANNOTATION.

CITY OF AUSTIN
APPROVED
Date 01/02/2025
FOUNDED 1839

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C4 NEW SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
ROOF DRAIN PLAN 01
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ROOF DRAIN PLAN 01

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

SHEET NO. RD01

64 OF 66 SHEETS

I:\A379\ANN - Granada Ridge\Correction A\Replacement Sheet DWGs\A379-ANN-GP-SIRM_sheet 14-19,64,65.dwg
User: dhurley
Last Modified: Oct 09, 24 - 10:17
Plot Date/Time: Oct 09, 24 - 10:57:45

MATCH LINE 1

10" HP-PP
4 LF @1.50%

STA. 5+90.06 SS-1A1
10" HP-PP ROOF DRAIN
CONNECTION
FL = 1037.27

10" 45° BEND

10" 45° BEND

10" HP-PP
3 LF @1.50%

10" HP-PP
129 LF @1.50%

5
C

FF ELEV =
1051.80 / 1040.80

STA. 4+53.30 SS-1A1
REDUCE PIPE SIZE
10" FL IN = 1035.13
12" FL OUT = 1034.96

12" HP-PP
7 LF @1.50%

STA. 4+46.34 SS-1A1
12" 45° BEND

10" HP-PP ROOF DRAIN
CONNECTION
FL OUT = 1034.93

10" HP-PP
7 LF @1.50%

10" 45° BEND

10" HP-PP
5 LF @1.50%

12" HP-PP
5 LF @1.50%

STA. 4+41.73 SS-1A1
12" 45° BEND

12" HP-PP
9 LF @1.50%

STA. 4+32.58 SS-1A1
12"x10" WYE
12" FL = 1034.65
10" FL = 1034.82

6
D

FF ELEV =
1048.80 / 1037.80

10" HP-PP ROOF DRAIN
CONNECTION
FL OUT = 1033.14

10" HP-PP
4 LF @1.50%

10" HP-PP
3 LF @1.50%

10" 45° BEND

STA. 3+23.98 SS-1A1
12"x10" WYE
12" FL = 1032.86
10" FL = 1033.03

STA. 3+90.77 SS-1A1
12" 22.5° BEND

12" HP-PP
67 LF @1.50%

12" HP-PP
102 LF @1.50%

10" HP-PP ROOF DRAIN
CONNECTION
FL OUT = 1031.38

10" HP-PP
4 LF @1.50%

STA. 4+12.49 SS-2A
10"x15" WYE
10" FL = 1031.29
15" FL = 1030.87

10" HP-PP
2 LF @1.50%

10" 45° BEND

24" CL III RCP
20 LF @0.20%

15" HP-PP
20 LF @1.00%

15" HP-PP
45 LF @1.00%

24" CL III RCP
7 LF @0.20%

10" HP-PP
14 LF @1.50%

STA. 1+14.14 SS-1A2
10" 45° BEND

10" HP-PP
22 LF @1.50%

STA. 1+42.34 SS-1A2
10" HP-PP ROOF DRAIN
CONNECTION
FL OUT = 1031.41

10" HP-PP
2 LF @1.50%

STA. 1+40.05 SS-1A2
10" 45° BEND

STA. 1+36.57 SS-1A1
24" 45° BEND

STA. 1+29.50 SS-1A1
24" 45° BEND

STA. 1+24.50 SS-1A1 =
STA. 1+00.00 SS-1A2
24"x10" WYE
24" FL = 1029.61
10" FL = 1030.78

24" CL IV RCP
28 LF @0.20%

STA. 1+36.08 SS-1A2
10" 45° BEND

10" HP-PP
4 LF @1.50%

Pt: 1+31.43

CB-9
48" X 48" GRATE INLET
STA. 1+63.73 SS-1A +
STA. 1+00.00 SS-1A1
RIM= 1032.83

Pt: 1+05.82

FENCE ON

NOTES:

1. ALL ROOFTOP DRAINAGE MUST BE CONVEYED TO THE PARKING LOT AND DRIVE ACCESS AREAS DRAINING INTO THE WATER QUALITY POND.
2. SEE GRADING & DRAINAGE PLAN, SHEETS GP01-04, FOR STORM SEWER ANNOTATION.

10 0 5 10 20
(IN FEET)
GRAPHIC SCALE 1"=20'

LEGEND

- PROPERTY LINES
- PROPOSED EASEMENTS
- 700 PROPOSED CONTOURS
- 700 EXISTING CONTOURS
- PROPOSED CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- EASEMENTS
- ST ST STORMSEWER LINE
- RD RD ROOF DRAIN LINE
- SD STORM SEWER MANHOLE
- SIGN (AS NOTED)

APPROVED
Date 01/02/2025
CITY OF AUSTIN TEXAS

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

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

SP-2018-0138D

C4 NEW SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
ROOF DRAIN PLAN 02
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

JOB NUMBER: A379-0401
DATE: 09/13/2023
DESIGNED BY: RBH
DRAWN BY: DSM
CHECKED BY: RBH
DRAWING NAME: ROOF DRAIN PLAN 02

STATE OF TEXAS
REESE B HURLEY
98211
LICENSED PROFESSIONAL ENGINEER
FOR C4 ONLY 06/17/2024

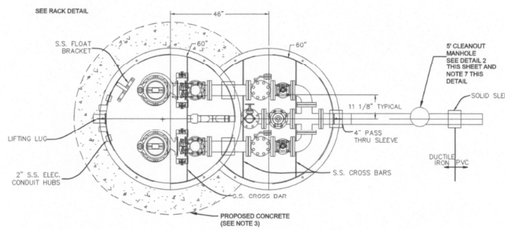
LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

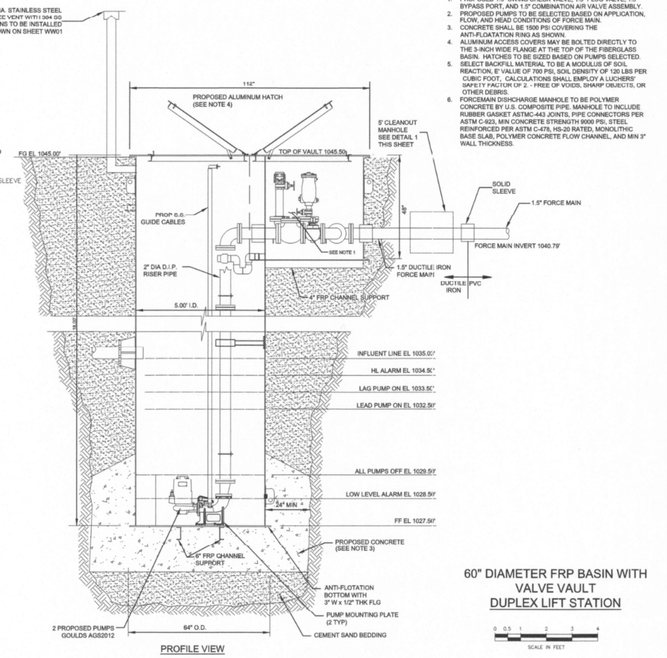
RD02

SHEET NO. 65
OF 66 SHEETS

GRINDER PUMP 1



PLAN VIEW



PROFILE VIEW

NOTES:

1. PROPOSED 1.5" SWING CHECK VALVE, 1.5" PLUG VALVE, 1.5" BYPASS PORT, AND 1.5" COMBINATION AIR VALVE ASSEMBLY.
2. PROPOSED PUMPS TO BE SELECTED BASED ON APPLICATION, FLOW, AND HEAD CONDITIONS OF FORCE MAIN.
3. CONCRETE SHALL BE 1500 PSI COVERING THE ANTI-FLOATATION RING AS SHOWN.
4. ALUMINUM ACCESS COVERS MAY BE BOLTED DIRECTLY TO THE 3-INCH WIDE FLANGE AT THE TOP OF THE FIBERGLASS BASIN. HATCHES TO BE SIZED BASED ON PUMPS SELECTED.
5. SELECT BACKFILL MATERIAL TO BE A MODULUS OF SOIL REACTION, E' VALUE OF 700 PSI, SOIL DENSITY OF 120 LBS PER CUBIC FOOT. CALCULATIONS SHALL EMPLOY A LUCHERS' SAFETY FACTOR OF 2. - FREE OF VOIDS, SHARP OBJECTS, OR OTHER DEBRIS.
6. FORCEMAIN DISHCHARGE MANHOLE TO BE POLYMER CONCRETE BY U.S. COMPOSITE PIPE. MANHOLE TO INCLUDE RUBBER GASKET ASTMC-443 JOINTS, PIPE CONNECTORS PER ASTM C-923, MIN CONCRETE STRENGTH 9000 PSI, STEEL REINFORCED PER ASTM C-478, HS-20 RATED, MONOLITHIC BASE SLAB, POLYMER CONCRETE FLOW CHANNEL, AND MIN 3" WALL THICKNESS.

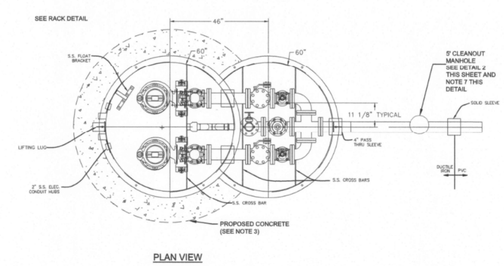
PUMP LEVEL SETTINGS	
PIPE INVERT	1040.79
HIGH WATER ALARM	1034.50
LAG PUMP ON	1033.50
LEAD PUMP ON	1032.50
TOP OF PUMP	1029.50
ALL PUMPS OFF	1029.50
LOW LEVEL ALARM	1028.50
BOTTOM OF PUMP	1028.00
ADJUSTED WET WELL FLOOR	1027.50

PUMP PERFORMANCE DATA	
PUMP SELECTION	GOULDS MODEL AGS2012
NUMBER OF PUMPS	2
MOTOR HORSE POWER	2 HP
IMPELLER DIA.	1 1/4 IN
PUMP MOTOR VOLTAGE	3 Phase, 208-230 VOLTS
FLOW @ OPERATING POINT	14 GPM
TOTAL HEAD @ OPERATING POINT	22' TDH

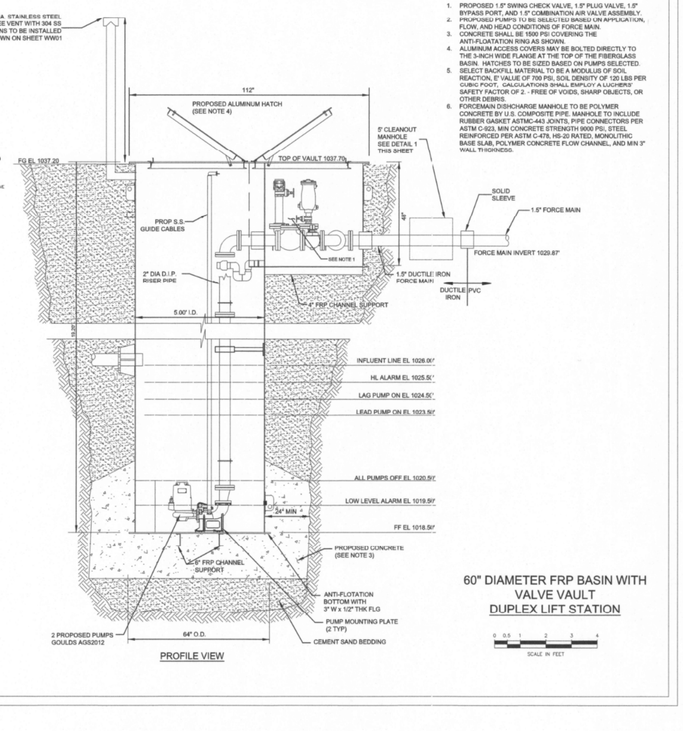
60" DIAMETER FRP BASIN WITH VALVE VAULT
DUPLEX LIFT STATION

SCALE IN FEET

GRINDER PUMP 2



PLAN VIEW



PROFILE VIEW

NOTES:

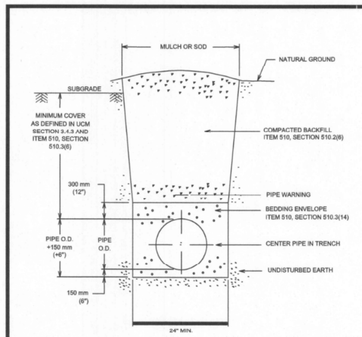
1. PROPOSED 1.5" SWING CHECK VALVE, 1.5" PLUG VALVE, 1.5" BYPASS PORT, AND 1.5" COMBINATION AIR VALVE ASSEMBLY.
2. PROPOSED PUMPS TO BE SELECTED BASED ON APPLICATION, FLOW, AND HEAD CONDITIONS OF FORCE MAIN.
3. CONCRETE SHALL BE 1500 PSI COVERING THE ANTI-FLOATATION RING AS SHOWN.
4. ALUMINUM ACCESS COVERS MAY BE BOLTED DIRECTLY TO THE 3-INCH WIDE FLANGE AT THE TOP OF THE FIBERGLASS BASIN. HATCHES TO BE SIZED BASED ON PUMPS SELECTED.
5. SELECT BACKFILL MATERIAL TO BE A MODULUS OF SOIL REACTION, E' VALUE OF 700 PSI, SOIL DENSITY OF 120 LBS PER CUBIC FOOT. CALCULATIONS SHALL EMPLOY A LUCHERS' SAFETY FACTOR OF 2. - FREE OF VOIDS, SHARP OBJECTS, OR OTHER DEBRIS.
6. FORCEMAIN DISHCHARGE MANHOLE TO BE POLYMER CONCRETE BY U.S. COMPOSITE PIPE. MANHOLE TO INCLUDE RUBBER GASKET ASTMC-443 JOINTS, PIPE CONNECTORS PER ASTM C-923, MIN CONCRETE STRENGTH 9000 PSI, STEEL REINFORCED PER ASTM C-478, HS-20 RATED, MONOLITHIC BASE SLAB, POLYMER CONCRETE FLOW CHANNEL, AND MIN 3" WALL THICKNESS.

PUMP LEVEL SETTINGS	
PIPE INVERT	1029.87
HIGH WATER ALARM	1025.50
LAG PUMP ON	1024.50
LEAD PUMP ON	1023.50
TOP OF PUMP	1020.50
ALL PUMPS OFF	1020.50
LOW LEVEL ALARM	1019.50
BOTTOM OF PUMP	1019.00
ADJUSTED WET WELL FLOOR	1018.50

PUMP PERFORMANCE DATA	
PUMP SELECTION	GOULDS AGS 2012
NUMBER OF PUMPS	2
MOTOR HORSE POWER	2 HP
IMPELLER DIA.	1 1/4 IN
PUMP MOTOR VOLTAGE	3 Phase, 208-230 Volts
FLOW @ OPERATING POINT	17 GPM
TOTAL HEAD @ OPERATING POINT	22' TDH

60" DIAMETER FRP BASIN WITH VALVE VAULT
DUPLEX LIFT STATION

SCALE IN FEET



REFERENCES:

1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510, SECTION 510.2(6), "SELECT BACKFILL OR BORROW"; SECTION 510.3(6), "TRENCH DETAIL AND DEPTH OF COVER"; SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

TYPICAL TRENCH DETAIL
WITH UNFINISHED SURFACE
FORCE MAIN
N.T.S.

Lift Station Wastewater Flow Calculations		
Assumptions		
Flow per LUE =	245	gpd
LUEs	18	
Average Daily Flow	4,410	gpd
	3.06	gpm
Dry Peak Flow Factor	4.39	
Dry Peak Flow	13.15	gpm
Total Peak Flow Assumed	13.67	gpm
Minimum Flow Factor	0.11	
Minimum Flow	0.33	gpm

Wet Well Calculations		
Max Well Elevation	1045.50	ft
Min Well Elevation	1032.27	ft
High Point in Force Main	1050.60	ft
Equiv. Length of Line	382	ft
Force Main Diameter	1.5	in
Roughness Coefficient (C)	150	
Area of Pipe	0.012	ft^2
Wetted Perimeter (full)	0.393	ft
Hydraulic Radius (full)	0.031	ft
Wet Well Diameter	5	ft
Volume per Foot Depth	146.87	gallons
Pump Control Elevations		
Ground Elevation	1045.50	
Inflow Pipe Flowline	1035.00	
Top of Pump casing	1035.00	
Bottom of Wet Well	1032.27	
Firm Capacity	14	gpm
Total Wet Well Capacity	401	gallons

Nominal Pipe Diameter	1.5	in
I.D.	1.455	in
Force Main Equivalent Length	382	ft
Pump Off	1032.27	ft
Max Liquid	1035.00	ft
Operating Volume	401	gallons
High Point Elevation	1050.6	ft
Min Static Head	16	ft
Max Static Head	18	ft
Hydraulic Radius	0.03	ft
Pipe Area	0.01	sf

Two (2) Submersible Pumps; XYLEM C1GD R1

Lift Station Calculations	
Velocity (Actual Capacity)	2.48 fps
Max Flow Rate	14 gpm
Max Dry Flow Rate	13 gpm
Average Dry Flow Rate	3 gpm
Min Dry Flow Rate	0 gpm
Reqd Wet Well Volume 2 hour Detention Time	49.1 ft^3
Min Static Head	15 ft
High Level Alarm	1035.00 ft
Max Static Head	18 ft
Minimum Wet Well Depth	2.5 ft
Proposed Wet Well Depth	13.23 ft

GRINDER PUMP 1 CALCULATIONS

Lift Station Wastewater Flow Calculations		
Assumptions		
Flow per LUE =	245	gpd
LUEs	22.8	
Average Daily Flow	5,586	gpd
	3.88	gpm
Dry Peak Flow Factor	4.27	
Dry Peak Flow	16.56	gpm
Total Peak Flow Assumed	17.08	gpm
Minimum Flow Factor	0.11	
Minimum Flow	0.44	gpm

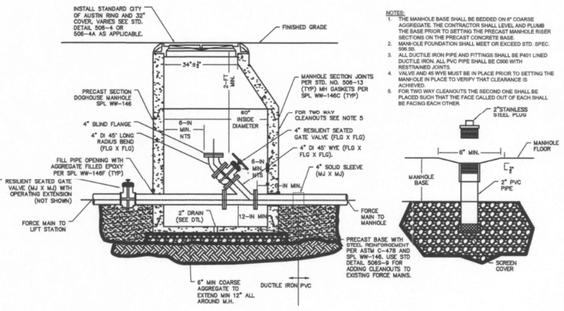
Wet Well Calculations		
Max Well Elevation	1037.70	ft
Min Well Elevation	1023.27	ft
High Point in Force Main	1044.18	ft
Equiv. Length of Line	150	ft
Force Main Diameter	1.5	in
Roughness Coefficient (C)	150	
Area of Pipe	0.012	ft^2
Wetted Perimeter (full)	0.393	ft
Hydraulic Radius (full)	0.031	ft
Wet Well Diameter	5	ft
Volume per Foot Depth	146.87	gallons
Pump Control Elevations		
Ground Elevation	1037.70	
Inflow Pipe Flowline	1026.00	
Top of Pump casing	1026.00	
Bottom of Wet Well	1023.27	
Firm Capacity	17	gpm
Total Wet Well Capacity	401	gallons

Nominal Pipe Diameter	1.5	in
I.D.	1.455	in
Force Main Equivalent Length	150	ft
Pump Off	1023.27	ft
Max Liquid	1026.00	ft
Operating Volume	401	gallons
High Point Elevation	1044	ft
Min Static Head	18	ft
Max Static Head	21	ft
Hydraulic Radius	0.03	ft
Pipe Area	0.01	sf

Two (2) Submersible Pumps; XYLEM C1GD R1

Lift Station Calculations	
Velocity (Actual Capacity)	3.10 fps
Max Flow Rate	17 gpm
Max Dry Flow Rate	16 gpm
Average Dry Flow Rate	3 gpm
Min Dry Flow Rate	0 gpm
Reqd Wet Well Volume 2 hour Detention Time	49.1 ft^3
Min Static Head	16 ft
High Level Alarm	1026.00 ft
Max Static Head	21 ft
Minimum Wet Well Depth	2.5 ft
Proposed Wet Well Depth	14.43 ft

GRINDER PUMP 2 CALCULATIONS



1 CLEANOUT DETAIL
SCALE: N.T.S.

NOTES:

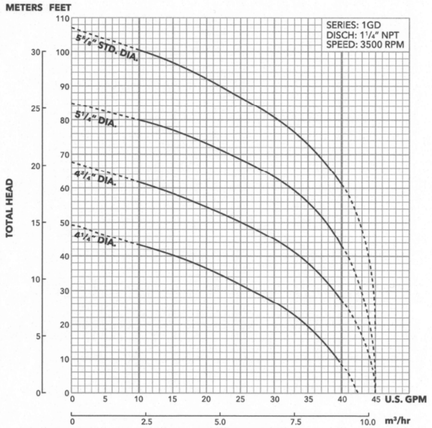
1. THE MANHOLE BASE SHALL BE BEDDED ON 6" COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MANHOLE FOUNDATION SHALL MEET OR EXCEED STD. SPEC. 506.
3. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE PW01 LINED DUCTILE IRON. ALL PVC PIPE SHALL BE C900 WITH RESTRAINED JOINTS.
4. VALVE AND 45 WYE MUST BE IN PLACE PRIOR TO SETTING THE MANHOLE IN PLACE TO VERIFY THAT CLEARANCE IS ACHIEVED.
5. FOR TWO WAY CLEANOUTS THE SECOND ONE SHALL BE PLACED SUCH THAT THE FACE CALLED OUT OF EACH SHALL BE FACING EACH OTHER.
6. 2" STAINLESS STEEL PLUG

GOULDS WATER TECHNOLOGY
a xylem brand

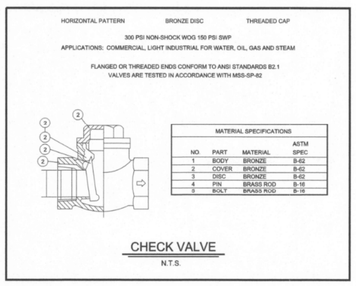
PERFORMANCE CURVES
C1GD R1

1GD Submersible Grinder Pump

BUILT IN THE USA ENGINEERED, ASSEMBLED & TESTED



= A 1¼" minimum discharge pipe requires a minimum flow of 10 gpm to maintain a 2 ft./sec. scouring velocity. Flows less than 10 gpm will allow solids to settle in the pipe.



CHECK VALVE
N.T.S.

CITY OF AUSTIN APPROVED Date 01/02/2025 FOUNDED 1839

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

SP-2018-0138D

C4 NEW SHEET

GRANADA RIDGE DEVELOPMENT
8327 W. US 290 HWY
GRINDER PUMP DETAILS
AUSTIN, TX 78736

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

JOB NUMBER: A379-0401
DATE:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING NAME: GRINDER PUMP DETAILS

LAUREN CRONE 128018 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
FOR C4 ONLY 11/15/2024

LJA Engineering, Inc.
7500 Rialto Boulevard
Building II, Suite 100
Austin, Texas 78735
Phone 512.439.4700
Fax 512.439.4716
FRN-F-1386

JOB NUMBER: A379-0401

SHEET NO. GD01

SHEET 66 OF 66 SHEETS