TCEQ CZP APPLICATION

For

Palmera Bluff Sections 7 & 8
Leander, Texas

Prepared for:

Palmera Bluff Development, Inc.
Blake J. Magee
1011 N. Lamar Blvd.
Austin, Texas 78703
Phone: (512) 836-4793

Prepared by:

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April 2023

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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: Palmera Bluff Sections 7 & 8					**2. Regulated Entity No.:**				
3. Customer Name: Palmera Bluff Development, Inc.					**4. Customer No.:**				
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):**		55.72 ac	
9. Application Fee:	$8,000.00		**10. Permanent BMP(s):**					Ex. Wet Pond, Batch Detention Pond, VFS, Jellyfish	
11. SCS (Linear Ft.):	NA		**12. AST/UST (No. Tanks):**					NA	
13. County:	Williamson		**14. Watershed:**					South San Gabriel River	

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.)	___	___	___
County(ies)	___	___	___
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence ___Georgetown ___Jerrell _X_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.
T. Walter Hoysa, P.E.
Print Name of Customer/Authorized Agent
Signature of Customer/Authorized Agent — Date: 4/11/23

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):	

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.

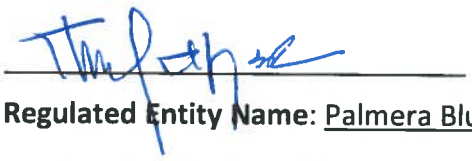
Signature

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: T. Walter Hoysa, P.E.

Date: 4/11/23

Signature of Customer/Agent:



Regulated Entity Name: Palmera Bluff Sections 7 & 8

Project Information

1. County: Williamson
2. Stream Basin: South San Gabriel River
3. Groundwater Conservation District (if applicable): NA
4. Customer (Applicant):

   Contact Person: Blake J. Magee
   Entity: Palmera Bluff Development, Inc.
   Mailing Address: 1011 N. Lamar Blvd.
   City, State: Austin, Texas Zip: 78703
   Telephone: (512) 836-4793 Fax: _____
   Email Address: Blake@blakemageeco.com

5. Agent/Representative (If any):

   Contact Person: T. Walter Hoysa, P.E.
   Entity: LJA Engineering, Inc.
   Mailing Address: 2700 La Frontera Blvd Ste 150
   City, State: Round Rock Zip: 78681
   Telephone: 512-507-1732 Fax: _____
   Email Address: whoysa@lja.com

6. Project Location:

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

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.

   Logan Del Way at San Gabriel Parkway, east of Ronald Reagan Blvd.

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: _____

12. The type of project is:

☒ Residential: # of Lots: 83
☐ Residential: # of Living Unit Equivalents: _____
☐ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 55.72 Acres

Total disturbed area: 50.00 Acres

14. Estimated projected population: 249

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	283,500	÷ 43,560 =	6.51
Parking	0	÷ 43,560 =	0
Other paved surfaces	207,200	÷ 43,560 =	4.76
Total Impervious Cover	490,700	÷ 43,560 =	11.26

Total Impervious Cover 11.26 **÷ Total Acreage** 55.72 **X 100 =** 20.22**% 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 Brushy Creek Regional WW Authority (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" = 20'.

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): FIRM #48491C0455F eff. 12/10/2019.

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.

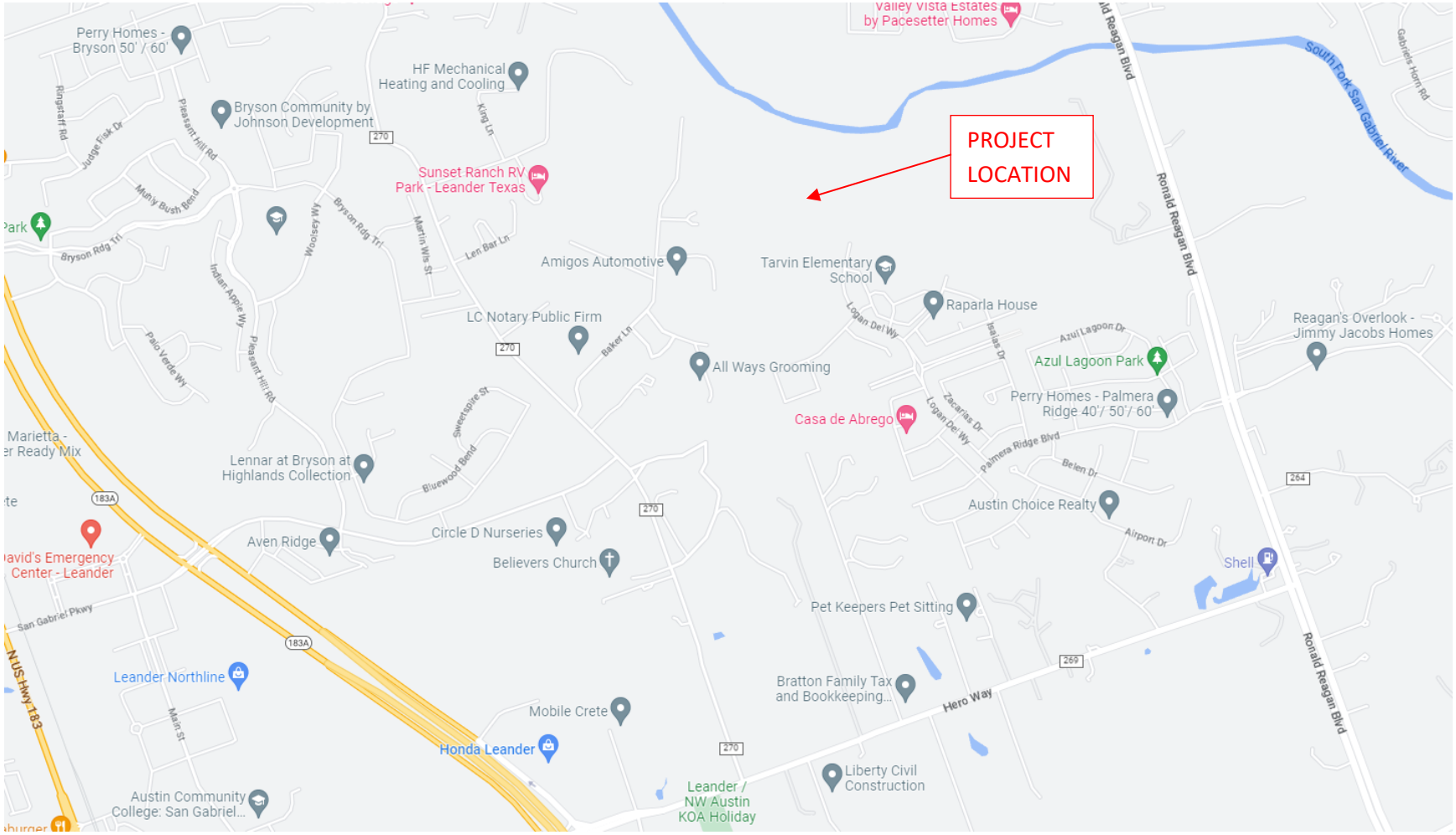
☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

TCEQ CZP Application

ATTACHMENT A

Palmera Bluff Sections 7 & 8
Leander, Texas

Road Map


PROJECT LOCATION
Valley Vista Estates by Pacesetter Homes
Perry Homes - Bryson 50' / 60'
HF Mechanical Heating and Cooling
Bryson Community by Johnson Development
Sunset Ranch RV Park - Leander Texas
Amigos Automotive
Tarvin Elementary School
Raparla House
LC Notary Public Firm
All Ways Grooming
Reagan's Overlook - Jimmy Jacobs Homes
Azul Lagoon Park
Perry Homes - Palmera Ridge 40'/ 50'/ 60'
Casa de Abrego
Lennar at Bryson at Highlands Collection
Austin Choice Realty
Aven Ridge
Circle D Nurseries
Believers Church
Shell
Pet Keepers Pet Sitting
Leander Northline
Bratton Family Tax and Bookkeeping...
Mobile Crete
Honda Leander
Liberty Civil Construction
Austin Community College: San Gabriel...
Leander / NW Austin KOA Holiday
Ronald Reagan Blvd
South Fork San Gabriel River
Hero Way
San Gabriel Pkwy
US Hwy 183
Bryson Rdg Trl
Pleasant Hill Rd
Palo Verde Wy
Indian Apple Wy
Woolsey Wy
Martin Wls St
Len Bar Ln
Baker Ln
Logan Del Wy
Isaias Dr
Azul Lagoon Dr
Zacarias Dr
Palmera Ridge Blvd
Belen Dr
Airport Dr
Sweetspire St
Bluewood Bend
Main St
270
183A
264
269

TCEQ CZP Application

ATTACHMENT B

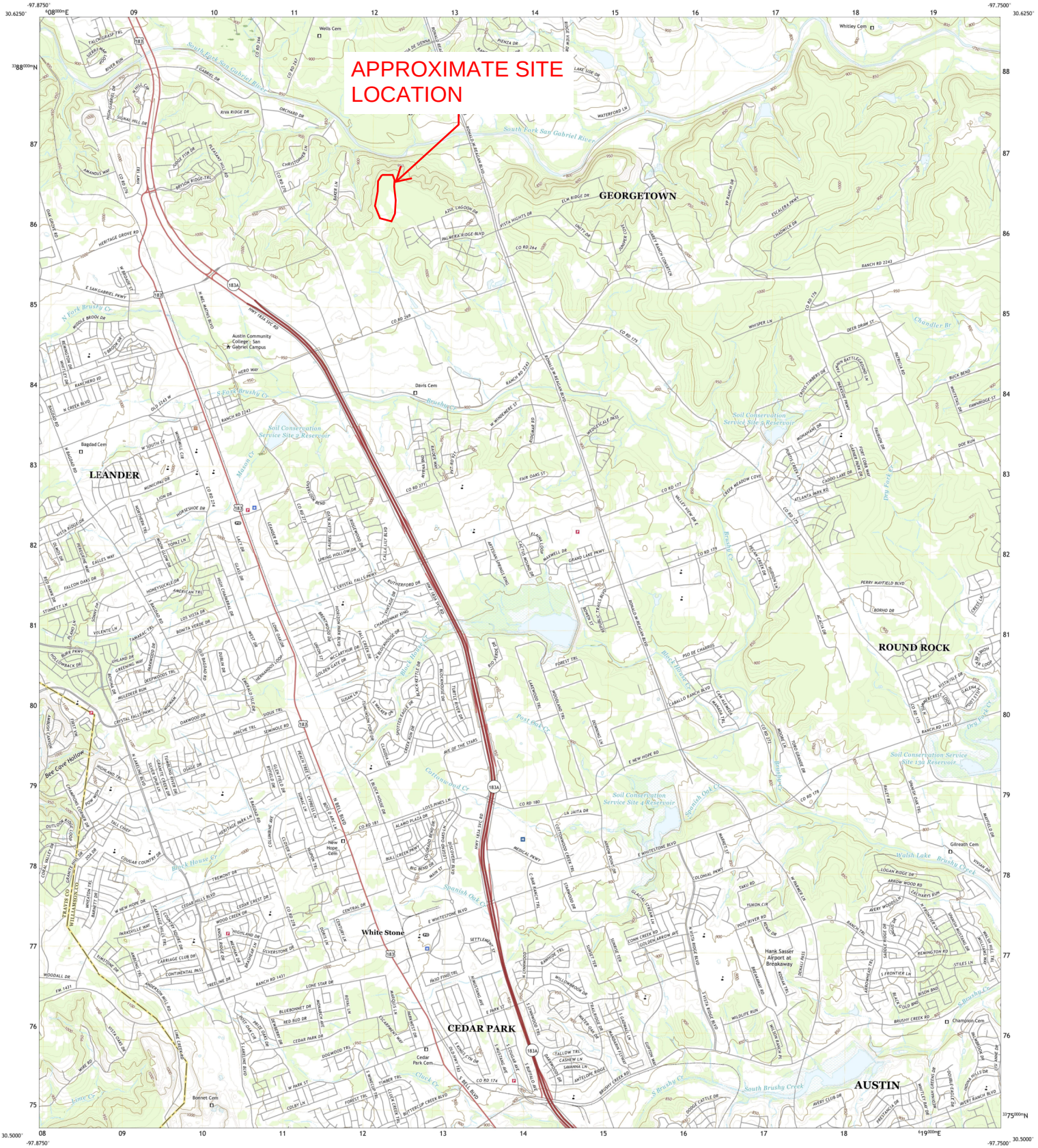
Palmera Bluff Sections 7 & 8
Leander, Texas

USGS Quadrangle Map

USGS science for a changing world
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

LEANDER 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
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, September 2016 - November 2016
Roads.....U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2002 - 2020
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021

Wetlands.....FWS National Wetlands Inventory Not Available

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
MN
GN
3°46'
67 MILS
0°36'
11 MILS
U.S. National Grid
100,000-m Square ID
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.

TEXAS
QUADRANGLE LOCATION

1 2 3
4 5
6 7 8
ADJOINING QUADRANGLES
1 Liberty Hill
2 Leander NE
3 Georgetown
4 Nameless
5 Round Rock
6 Mansfield Dam
7 Jollyville
8 Pflugerville West

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

LEANDER, TX
2022

TCEQ CZP Application

ATTACHMENT C

Palmera Bluff Sections 7 & 8

Leander, Texas

Project Narrative

This project is a total of 55.72 acres made up of Sections 7 and 8 of the Palmera Bluff Preliminary Plat Revision #4. The site is located off Logan Del Way at San Gabriel Parkway, west of Ronald Regan Blvd.

Existing conditions are mostly undisturbed and undeveloped, with trees and grass cover. A proposed road has been cut to subgrade, with a wastewater installed to connect existing sections to the existing lift station that is within Section 8. The proposed development of this tract will include 83 single family lots with associated street, drainage, water, and wastewater improvements. All improvements are designed to meet or exceed the standard of the City Leander, Williamson County, and the TCEQ as applicable.

This site generates a required removal of 17,834 pounds of TSS removal as shown in the TSS removal calculations attached, per the overall drainage basin. 8 BMPs are utilized to treat this site. Two existing ponds, Pond 6 and Pond 2 provide 3,072 pounds and 9,038 pounds of removal respectively and were previously approved with the TCEQ Application for Palmera Bluff Section 6. The proposed BMPs include a batch detention pond, Pond 7, a Jellyfish Filter System, and 4 separate Vegetated Filter Strips, which combined remove a total of 6,706 pounds. The total removal provided is 18,816 pounds of TSS removal. The calculations and details are in the site plan provided.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = 17834 lbs.

Number of drainage basins / outfalls areas leaving the plan area = 8

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

Drainage Basin/Outfall Area No. = 1 (WQ Pond 2)

Total drainage basin/outfall area =	25.04	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	8.52	acres
Post-development impervious fraction within drainage basin/outfall area =	0.34	
$L_{M\ THIS\ BASIN}$ =	7416	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Wet Basin

Removal efficiency = 93 percent

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

A_C =	25.04	acres
A_I =	8.52	acres
A_P =	16.52	acres
L_R =	9038	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 9038 lbs. (+1,622 lbs for untreated)

F = 1.00

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.28	
On-site Water Quality Volume =	101,146	cubic feet
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 =	20229	
Total Capture Volume (required water quality volume(s) x 1.20) =	121376	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.

11. Wet Basins

Required capacity of Permanent Pool =	121376	cubic feet	(128,833 PP Proivded)
Required capacity at WQV Elevation =	222522	cubic feet	(232,305 WQV Proivded)

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = **2** (WQ Pond 6)

Total drainage basin/outfall area =	9.17	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.00	acres
Post-development impervious fraction within drainage basin/outfall area =	0.33	
$L_{M\ THIS\ BASIN}$ =	2611	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention** (Batch Detention Pond 6)

Removal efficiency = **91** percent

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

A_C =	9.17	acres
A_I =	3.00	acres
A_P =	6.17	acres
L_R =	3120	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **3072** lbs. **(+461 lbs for untreated)**

F = **0.98**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	3.33	inches
Post Development Runoff Coefficient =	0.27	
On-site Water Quality Volume =	30,125	cubic feet
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 =	6025	
Total Capture Volume (required water quality volume(s) x 1.20) =	36150	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.

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

Required Water Quality Volume for extended detention basin = **36150** cubic feet **(38,811 WQV Proivded)**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009 **Project Name:** **Palmera Bluff**

Date Prepared: **5/24/2021**

Note these calculations are using the updated preliminary plan Sept 24, 2015 and calculating impervious cover by lot sizes and centerline lenghts of streets which differes from the approved method where we assumed a percentage of impervious cover based on lots sizes for overall sections.
\\rr-data01\eng\LAND1200-1249\1248-900-146\Docs\1248-900-146 TCEQ calculation_template_04-20-09.xls

1. The Required Load Reduction for the total project:

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

where:

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

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

County =	**Williamson**	
Total project area included in plan * =	**84.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**20.49**	acres
Total post-development impervious cover fraction * =	**0.24**	
P =	**32**	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = **3** (WQ Pond 7)

Total drainage basin/outfall area =	**14.66**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**3.65**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.25**	
$L_{M\ THIS\ BASIN}$ =	**3177**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention** (Batch Detention Pond 7)
Removal efficiency = **91** percent

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

A_C =	**14.66**	acres
A_I =	**3.65**	acres
A_P =	**11.01**	acres
L_R =	**3851**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **3407** lbs. **(+230 lbs from untreated)**

F = **0.88**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	**1.50**	inches
Post Development Runoff Coefficient =	**0.23**	
On-site Water Quality Volume =	**18,413**	cubic feet
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 =	**3683**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**22095**	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.

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

Required Water Quality Volume for extended detention basin = **22095** cubic feet **(22,150 WQV Proivded)**

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = **4** (VFS 1)

Total drainage basin/outfall area =	0.77	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.28	acres
Post-development impervious fraction within drainage basin/outfall area =	0.36	
$L_{M\ THIS\ BASIN}$ =	244	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Vegetated Filter Strips**

Removal efficiency = **85** percent

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

A_C =	0.77	acres
A_I =	0.28	acres
A_P =	0.49	acres
L_R =	271	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **271** lbs.

F = **1.00**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.29	
On-site Water Quality Volume =	3,237	cubic feet
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 =	647	
Total Capture Volume (required water quality volume(s) x 1.20) =	3884	cubic feet

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

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = 5 (VFS 2)

Total drainage basin/outfall area =	0.83	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.24	acres
Post-development impervious fraction within drainage basin/outfall area =	0.29	
$L_{M\ THIS\ BASIN}$ =	209	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	0.83	acres
A_I =	0.24	acres
A_P =	0.59	acres
L_R =	235	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 235 lbs.

F = **1.00**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	3,043	cubic feet
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 =	609	
Total Capture Volume (required water quality volume(s) x 1.20) =	3652	cubic feet

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

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = 6 (VFS 3)

Total drainage basin/outfall area =	1.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.47	acres
Post-development impervious fraction within drainage basin/outfall area =	0.44	
$L_{M\ THIS\ BASIN}$ =	409	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	1.07	acres
A_I =	0.47	acres
A_P =	0.60	acres
L_R =	451	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 451 lbs.

F = **1.00**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.33	
On-site Water Quality Volume =	5,064	cubic feet
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 =	1013	
Total Capture Volume (required water quality volume(s) x 1.20) =	6077	cubic feet

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

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches

$L_{M\ TOTAL\ PROJECT}$ = **17834** lbs.

Number of drainage basins / outfalls areas leaving the plan area = **8**

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

Drainage Basin/Outfall Area No. = 7 (VFS 4)

Total drainage basin/outfall area =	2.02	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.57	acres
Post-development impervious fraction within drainage basin/outfall area =	0.28	
$L_{M\ THIS\ BASIN}$ =	496	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	2.02	acres
A_I =	0.57	acres
A_P =	1.45	acres
L_R =	558	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 558 lbs.

F = **1.00**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.25	
On-site Water Quality Volume =	7,299	cubic feet
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 =	1460	
Total Capture Volume (required water quality volume(s) x 1.20) =	8759	cubic feet

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

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

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

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

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: **Palmera Bluff Subdivision**
Date Prepared: **1/30/2023**

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: $L_M = 27.2(A_N \times P)$

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

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

County =	**Williamson**	
Total project area included in plan * =	**57.94**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**11.53**	acres
Total post-development impervious cover fraction * =	**0.20**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**10036**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**5**	

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

Drainage Basin/Outfall Area No. =	**1**	
Total drainage basin/outfall area =	**4.00**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.84**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.46**	
$L_{M\ THIS\ BASIN}$ =	**1602**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**86**	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:
$LR = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 =	**4.00**	acres
A_I =	**1.84**	acres
A_P =	**2.16**	acres
L_R =	**1784**	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	**1602**	lbs.
F =	**0.90**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres

Calculations from RG-348
Pages Section 3.2.22

Rainfall Intensity =	**1.10**	inches per hour
Effective Area =	**1.72**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**1.91**	cubic feet per second

7. Jellyfish

Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	**JFPD0806-10-2**	
Jellyfish Treatment Flow Rate =	**1.96**	cfs

TCEQ CZP Application

ATTACHMENT D

Palmera Bluff Sections 7 & 8

Leander, Texas

Factors Affecting Surface Water Quality

Adjacent development including streets, parking, and other buildings are treated within the areas of existing infrastructure and will not impact this site's surface water quality.

TCEQ CZP Application

ATTACHMENT E

Palmera Bluff Sections 7 & 8

Leander, Texas

Volume and Character of Stormwater

Stormwater runoff calculations have been completed and are provided within the site plan attached to this application. Stormwater will be typical runoff associated with a single-family development for a homes and street infrastructure.

TCEQ CZP Application

ATTACHMENT J

Palmera Bluff Sections 7 & 8

Leander, Texas

BMPs for Upgradient Stormwater

Stormwater originating upstream from this site is mostly taken care of with development associated with the upstream areas. A small section of single-family lots from Section 6 is included with the treatment calculations for this application within the basin for Pond 7 with pretreatment from an engineering VFS.

TCEQ CZP Application

ATTACHMENT K

Palmera Bluff Sections 7 & 8

Leander, Texas

BMPs for On-site Stormwater

On-site stormwater for this site is captured and treated on-site via a batch detention pond, engineered vegetative filter strips, a jellyfish filter system, and an existing wet pond. Details and calculations are provided within the site plan provided.

TCEQ CZP Application

ATTACHMENT L

Palmera Bluff Sections 7 & 8

Leander, Texas

BMPs for Surface Streams

This site is surrounded by an unnamed tributary on the east which drains to the South San Gabriel River that forms the northern border of the project. Typical temporary erosion control measures, such as silt fence and rock berms, will be used during construction to prevent sediment runoff from traveling offsite. After construction, a system of swales, curb and gutter, and storm drains will convey storm runoff to the permanent controls prior to discharge into surface streams.

TCEQ CZP Application

ATTACHMENT M

Palmera Bluff Sections 7 & 8

Leander, Texas

Construction Plans

Construction plans for this development are attached with this application.

TCEQ CZP Application

ATTACHMENT N

Palmera Bluff Sections 7 & 8

Leander, Texas

Inspection, Maintenance, Repair and Retrofit Plan

Temporary BMP's:

Best Management Practices (BMP's) installed during construction will be maintained in accordance with the requirements of the EPA's NPDES stormwater pollution prevention program. The construction superintendent will inspect temporary erosion controls on a regular basis and adjust the controls and/or remove any sediment buildup in accordance with the erosion/sedimentation control notes and as otherwise directed by the Owner or his designated representative. The following maintenance procedures shall be followed until permanent stabilization occurs.

Silt Fence

a. Inspect weekly or after each rainfall event and repair or replacement shall be made promptly as needed.
b. Silt fence shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.
c. Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

Rock Berm

a. Inspect weekly 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 silt accumulation among the rocks, washout, construction traffic damage, etc. event and repair or replacement shall be made promptly as needed.
b. When silt reaches a depth equal to one-third the height of the berm or 6", whichever is less, the silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
c. Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
d. Severe service rock berms shall be inspected daily. Silt shall be removed when it reaches a depth of 6"
e. Rock berms shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.

Stabilized Construction Entrance

a. 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 devices used to trap sediment.
b. Entrance must be properly graded to incorporate a drain swale or a similar measure to prevent runoff from leaving the construction site.

Inlet Protection

a. Inspection shall be made weekly or after each rainfall event and replacement or repair shall be made promptly as needed.
b. Accumulated silt shall be removed when it reaches a depth of 6 inches. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.
c. The dyke shall be removed when the site is completely stabilized so as to not block or impede storm flow or drainage.

Following inspection of the BMP's, deficiencies shall be noted and corrected by the contractor.

Permanent BMP's:

3.5.8 Vegetative Filter Strips

Once a vegetated area is well established, little additional maintenance is generally necessary. The key to establishing a viable vegetated feature is the care and maintenance it receives in the first few months after it is plant ed. Once established, all vegetated BMPs require some basic maintenance to insure the health of the plants including:

- *Pest Management.* An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.
- *Seasonal Mowing and Lawn Care.* If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.
- *Inspection.* Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any

problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and 3-92 restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.

- *Debris and Litter Removal.* Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.
- *Sediment Removal.* Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.
- *Grass Reseeding and Mulching.* A healthy dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Grass damaged during the sediment removal process should be promptly replaced using the same seed mix used during filter strip establishment. If possible, flow should be diverted from the damaged areas until the grass is firmly established. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Corrective maintenance, such as weeding or replanting should be done more frequently in the first two to three years after installation to ensure stabilization. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.

Section 3.5.20 Maintenance Guidelines for Batch Detention Basins

Batch detention basins may have somewhat higher maintenance requirements than an extended detention basin since they are active stormwater controls. The maintenance activities are identical to those of extended detention basins with the addition of maintenance and inspections of the automatic controller and the valve at the outlet.

- *Inspections.* Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed.

During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

- *Mowing.* The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.
- *Litter and Debris Removal.* Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.
- *Erosion control.* The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.
- *Nuisance Control.* Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).
- *Structural Repairs and Replacement.* With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.
- *Sediment Removal.* A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.
- *Logic Controller.* The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage

from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

3.5.25 Jellyfish® Filter Inspection and Maintenance

Jellyfish cartridges are passively backwashed automatically after each storm event, which removes accumulated sediment from the membranes and significantly extends the service life of the cartridges and the maintenance interval. If required, the cartridges can be easily manually backwashed without removing the cartridges. Additionally, the lightweight cartridges can be removed by hand and externally rinsed, and rinsed cartridges then re-installed. These simple maintenance options allow for cartridge regeneration, thereby minimizing cartridge replacement costs and life-cycle treatment costs while ensuring long-term treatment performance.

Regular inspection and maintenance are proven, cost-effective ways to maximize water resource protection for all stormwater pollution control practices, and are required to insure proper functioning of the Jellyfish® Filter. Inspection of the Jellyfish® Filter is performed from the surface, while proper maintenance requires a combination of procedures conducted from the surface and with worker entry into the structure.

Please refer to the following information and guidelines before conducting inspection and maintenance activities:

- When is inspection needed? Post-construction inspection is required prior to putting the Jellyfish Filter into service. Routine inspections are recommended quarterly during the first year of operation to accurately assess the sediment and floatable pollutant accumulation, and to ensure that the automatic backwash feature is functioning properly. Inspection frequency in subsequent years is based on the maintenance plan developed in the first year, but must occur annually at a minimum. Inspections should also be performed immediately after oil, fuel or other chemical spill.
- When is maintenance service needed? The unit must be cleaned annually. This cleaning includes removal and appropriate disposal of all water, sediment, oil and grease, and debris that has accumulated within the unit. The Jellyfish Filter is inspected and maintained by professional vacuum c l e a n i n g service providers with experience in the maintenance of underground tanks, sewers and catch basins. Since some of the maintenance procedures require manned entry into the Jellyfish structure, only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Service provider companies typically have personnel who are trained and certified in confined space entry procedures according to local, state, and federal standards. Filter cartridges should be tested for adequate flow rate, every 12 months and cleaned and re-commissioned, or replaced if necessary. A manual backflush must be performed on a single draindown cartridge using a Jellyfish Cartridge Backflush Pipe (described in the Jellyfish® Filter Owner's Manual). If the time required to drain 14 gallons of backflush water from the Backflush Pipe (from top of pipe to the top of the open flapper valve) exceeds 15 seconds, it is recommended to

perform a manual backflush on each of the cartridges. After the manual backflush, the draindown test should be repeated on a single cartridge to determine if the cartridge can drain 14 gallons of water in 15 seconds. If the cartridge still does not achieve the design flow rate, it must be replaced. The unit should be cleaned out immediately after an oil, fuel or chemical spill.

- External Rinsing This cartridge cleaning procedure is performed by removing the cartridge from the cartridge deck and externally rinsing the filtration tentacles using a low-pressure water sprayer, as described in the Jellyfish® Filter Owner's Manual. If this procedure is performed within the structure, the cartridge or individual filtration tentacles should be rinsed while safely suspended over the maintenance access wall opening in the cartridge deck, such that rinsate flows into the lower chamber of the Jellyfish® Filter. If the rinsing procedure is performed outside the structure, the cartridge or individual filtration tentacles should be rinsed in a suitable basin such as a plastic barrel or tub, and rinsate subsequently poured into the maintenance access wall opening in the cartridge deck. Sediment is subsequently removed from the lower chamber by standard vacuum service.

Acknowledged by: 

Palmera Bluff Development, Inc.

TCEQ CZP Application

ATTACHMENT P

Palmera Bluff Sections 7 & 8

Leander, Texas

Measures for Minimizing Surface Stream Contamination

Surface streams that border the project boundary will be protected from surface contamination by standard erosion control measures. Silt fence will be utilized through various phases of construction along with the existing wet pond. The proposed batch detention pond will be constructed first to mitigate any direct runoff into the unnamed tributary and the South San Gabriel River.

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

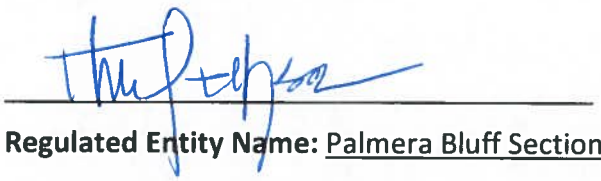
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: T. Walter Hoysa, P.E.

Date: 4/11/23

Signature of Customer/Agent:



Regulated Entity Name: Palmera Bluff Sections 7 & 8

Project Information

Potential Sources of Contamination

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

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

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

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

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

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

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

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

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

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

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

Sequence of Construction

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

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

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

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

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☒ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

TCEQ TSS Application

ATTACHMENT A

Palmera Bluff Sections 7 & 8

Leander, Texas

Spill Response Actions

No spills of hydrocarbons or hazardous substances are expected. However, in the event such an incidence does occur, the contractor should carefully follow the following TCEQ guidelines at https://www.tceq.texas.gov/response/spills/spill_rq.html.

Cleanup:

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

Minor Spills:

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

Semi-Significant Spills:

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

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

If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

TCEQ TSS Application

ATTACHMENT B

Palmera Bluff Sections 7 & 8

Leander, Texas

Potential Sources of Contamination

No particular activity or process during construction is anticipated to present a significant risk of being a potential source of contamination. However, during regular construction operations, several common and minor risks of contamination are anticipated. Should the unforeseeable mishap occur during construction or regular operation of the facility, the contractor shall follow the guidelines set forth in "Attachment 2A – Spill Response Plan."

Potential sources of sediment to stormwater runoff:

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

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

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

Potential Onsite Pollutants:

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

TCEQ TSS Application

ATTACHMENT C

Palmera Bluff Sections 7 & 8

Leander, Texas

SEQUENCE of MAJOR ACTIVITIES:

1) Written construction notification should be provided to the appropriate TCEQ regional office no later than 48 hours prior to commencement of the regulated activity. Call the One Call Center at 512-472-2822 and the Texas Underground Facility Notification Corporation for utility locations and obtain permit for any work within the right of way. Prior to beginning construction, the owner or his authorized representative shall convene a Pre-Construction Conference between the TCEQ, Travis County, consulting engineer, contractor, and any other affected parties.

2) Install temporary erosion control measures, stabilized construction entrance, and tree protection according to the plans and specifications prior to any clearing and grubbing, grading, excavating, etc. Notify Construction Inspection Division when installed.

3) Establish spoils area.

4) Rough grade streets. Install all utilities to be located under proposed pavement.

5) Regrade streets to subgrade.

6) Ensure that all underground utility crossings are completed. Lay first course base material on all streets.

7) Lay first course base material.

8) Install curb and gutter.

9) Lay final base course on all streets.

10) Lay asphalt.

11) Install all traffic control signing, striping, and pavement markers.

12) Complete all underground installations within the R.O.W.

13) Complete final grading of single family lots.

14) Complete permanent erosion control and restoration of site vegetation.

15) Remove and dispose of temporary erosion controls and accumulated sediment after approval of Construction Inspection Division.

Clearing and grubbing under a development permit, solely for the purpose of surveying and soil exploration, shall be a hand cutting or blade-up operation.

TCEQ TSS Application

ATTACHMENT D

Palmera Bluff Sections 7 & 8

Leander, Texas

Temporary Best Management Practices and Measures

Install temporary erosion control measures, stabilized construction entrance, concrete washout area, inlet protection, and tree protection according to the plans and specifications prior to any clearing and grubbing, grading, excavating, etc.

Stormwater flows crossing disturbed areas within the site will be filtered utilizing standard Best Management Practices such as rock berms and silt fences prior to leaving the site. The silt fences will be placed along down gradient areas of the site to prevent any sediment from entering storm sewers or surface streams. There are no upgradient flows crossing this site. No geologic features are located on this site.

TCEQ TSS Application

ATTACHMENT F

Palmera Bluff Sections 7 & 8

Leander, Texas

Structural Practices

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

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

TCEQ TSS Application

ATTACHMENT G

Palmera Bluff Sections 7 & 8

Leander, Texas

Drainage Area Map

Drainage area maps are provided within the site plan set provided.

TCEQ TSS Application

ATTACHMENT H

Palmera Bluff Sections 7 & 8

Leander, Texas

Temporary Sediment Pond Plans and Calculations

No temporary sediment pond is proposed.

TCEQ TSS Application

ATTACHMENT I

Palmera Bluff Sections 7 & 8

Leander, Texas

Inspection and Maintenance for Best Management Practices

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

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

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

A) An inspection shall occur weekly and after any rain event. This inspection should include an inspection of the temporary concrete washout area.
B) The authorized party shall inspect all disturbed areas of the site, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site.
C) Disturbed areas and areas used for storage of materials that are exposed to precipitation or within limits of the 1% annual chance (100 year) floodplain must be inspected for evidence of, or the potential for, pollutants entering the runoff from the site. Erosion and sediment control measures identified in the plan must be observed to ensure that they are operating correctly. Observations can be made during wet or dry weather conditions. Where discharge locations or points are accessible, they must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. This can be done by inspecting receiving waters to see whether any signs or erosion or sediment are associated with the discharge location. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking.
D) Based on the results of the inspection, the site description and the pollution prevention measures identified in the plan must be revised as soon as possible after an inspection that reveals inadequacies. The inspection and plan review process must provide for timely implementation of any changes to the plan with 7 calendar days following the inspection.

E) An inspection report that summarizes the scope of the inspection, name(s) and qualifications of personnel conducting the inspection, the dates of the inspection, major observations relating to the implementation of the SWP3. Major observations shall include as a minimum location of discharges of sediment or other pollutants from the site, location of BMPs that need to be maintained, location of BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where BMPs are needed. Actions taken as a result of the inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and the TPDES general permit. The report must be signed by the authorized representative delegated by the operators in accordance with TAC 305.128.

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

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

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

A) Inspect all fencing weekly, and after any rainfall.
B) Remove sediment when buildup reaches 6 inches.
C) Replace any torn fabric or install a second line of fencing parallel to the torn section.

D) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
E) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

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

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

Stabilized Construction Entrance

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

Concrete Washout Area

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

temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions, or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

TCEQ TSS Application

ATTACHMENT J

Palmera Bluff Sections 7 & 8

Leander, Texas

Schedule of Interim and Permanent Soil Stabilization Practices

Soil Stabilization for all disturbed areas shall be accomplished by hydraulic planting. Following is an outline to accomplish the required stabilization.

1. Preparing Seed Bed. After the designated areas have been rough graded to the lines, grades and typical sections indicated in the Drawings or as provided for in other items of this contract and for any other soil area disturbed by the construction, a suitable seedbed shall be prepared. The seedbed shall consist of a minimum of either 4 inches (100 millimeters) of approved topsoil or 4 inches (100 millimeters) of approved salvaged topsoil, cultivated and rolled sufficiently to enhance the soil to a state of good health, when the soil particles on the surface are small enough and lie closely enough together to prevent the seed from being covered too deeply for optimum germination. The optimum depth for seeding shall be 1/4 inch (6 millimeters). Water shall be gently applied as required to prepare the seedbed prior to the planting operation either by broadcast seeding or hydraulic planting. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days. Seeding shall be performed in accordance with the requirements hereinafter described.

2. Watering. All watering shall comply with The Subdivision Rules and Regulations. Broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed and in the manner and quantity as directed by the Engineer or designated representative. Hydraulic seeded areas and native grass seeded areas shall be watered commencing after the tackifier has dried with a minimum of 5 gallons of water per square yard (22.5 liters of water per square meter) or as needed to keep the seedbed in a wet condition favorable for the growth of grass.

Watering applications shall constantly maintain the seedbed in a wet condition favorable for the growth of grass. Watering shall continue until the grass is uniformly 1 1/2 inches (40 mm) in height and accepted by the Engineer or designated representative. Watering can be postponed immediately after a 1/2 inch (12.5 mm) or greater rainfall on the site but shall be resumed before the soil dries out.

3. Hydraulic Planting. The seedbed shall be prepared as specified above and hydraulic planting equipment, which is capable of placing all materials in a single operation, shall be used.

March 1 to September 15

Hydraulic planting mixture and minimum rate of application pounds per 1000 square feet (kilograms per 100 square meters):

Planting Mixture			
Hulled Bermuda Seed (PLS=0.83)	Fiber Mulch		Soil Tackifier
	Cellulose	Wood	
1 Lbs/1000 ft2 (0.5 kgs/100 m2))	45.9 Lbs/1000 ft2 (22.5 kgs/100 m2))		1.4 Lbs/1000 ft2 (0.7 kgs/100 m2))
		57.4 Lbs/1000 ft2 (28.01 kgs/100 m2))	1.5 Lbs/1000 ft2 (0.75 kgs/100 m2))

September 15 to March 1

Add 1.5 pounds per 1000 square feet (0.75 kilograms per 100 square meters) of cool season cover crop (see Table 1) to above mixture. The fertilizer shall conform to City of Austin Standard Specification Item No. 606S, "Fertilizer".

Table 1: Cool Season Cover Crop

Common Name	Botanical Name	Application rates	
		Lbs/1000 feet^2	kg/ 100 meter^2
Wheat	Triticum aestivum	0.5	0.25
Oats	Avena sativa	0.5	0.25
Cereal Rye Grain	Secale cereale	0.5	0.25
Total Cool Season Cover Crop Seeding Rate		1.5	0.75
Total Cool Season Seeding Rate (Grass, Wildflowers, & Cover Crop)		4.5	2.25

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

I Blake J. Magee,
Print Name

Owner,
Title - Owner/President/Other

of Palmera Bluff Development, Inc.,
Corporation/Partnership/Entity Name

have authorized T. Walter Hoysa, 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:

Applicant's Signature

4/11/23
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Blake J. Magee 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 April, 2023.

Holly H. Fullerton
NOTARY PUBLIC

Holly H. Fullerton
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5-29-2024

HOLLY H. FULLERTON
Notary Public, State of Texas
Comm. Expires 05-29-2024
Notary ID 132499027

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Palmera Bluff Sections 7 & 8
Regulated Entity Location: Leander, TX
Name of Customer: Palmera Bluff Development, Inc.
Contact Person: Blake J. Magee Phone: 512-836-4793
Customer Reference Number (if issued):CN 605228949
Regulated Entity Reference Number (if issued):RN _____

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	55.72 Acres	$ 8,000.00
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: _____

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 Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of 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 605228949		RN

SECTION II: Customer Information

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

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

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

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

Palmera Bluff Development

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

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ 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 ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

1011 N. Lamar Blvd

City	Austin	State	TX	ZIP	78703	ZIP + 4	

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*)
(512) 836-4793		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☒ 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 Agency 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.*)

Palmera Bluff Sections 7 & 8

23. Street Address of the Regulated Entity: *(No PO Boxes)*							
	City		State		ZIP		ZIP + 4	
24. County							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	Logan Del Way at San Gabrial Blvd, East of Ronald Regan Blvd				
26. Nearest City			State	Nearest ZIP Code	
Leander			TX	78641	
27. Latitude (N) In Decimal:	30.606570		28. Longitude (W) In Decimal:	-97.831902	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	36	23.7	97	49	54.9

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

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

34. Mailing Address:							
	City		State		ZIP		ZIP + 4	
35. E-Mail Address:							

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

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

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

SECTION IV: Preparer Information

40. Name:	T. Walter Hoysa, P.E.	41. Title:	Senior Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 767-7351		( ) -	whoysa@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:	LJA Engineering, inc.	Job Title:	Senior Project Manager
Name *(In Print)*:	T. Walter Hoysa, P.E.	Phone:	(512) 767- 7351
Signature:		Date:	4/11/23

PALMERA BLUFF

SECTIONS 7 & 8

Public Improvement Construction Plan

SUBMITTED FOR APPROVAL BY:
LJA ENGINEERING, INC.

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
PROFESSIONAL ENGINEER

4/13/23
LJA ENGINEERING, INC. — DATE
T.W. HOYSA, P.E. #100072

REVIEWED BY:

DEVELOPMENT SERVICES DEPARTMENT — DATE

SITE PLAN/DEVELOPMENT PERMIT NUMBER

SUBDIVISION FILE NUMBER

INDUSTRIAL WASTE — DATE

AUSTIN WATER UTILITY — DATE

CITY OF AUSTIN FIRE DEPARTMENT — DATE

WATERSHED STATUS

THIS SITE IS LOCATED WITHIN THE SOUTH SAN GABRIEL WATERSHED

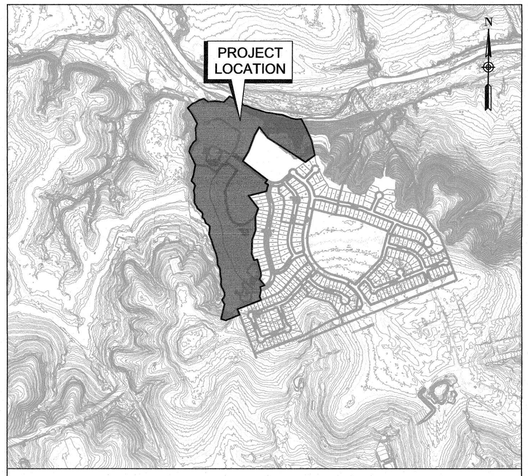
FLOODPLAIN INFORMATION

THE TRACT SHOWN IS ENCUMBERED BY ZONE X ACCORDING TO FIRM PANEL 48491C0455F, DATED 12/10/2019.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR THE STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR, OR ENGINEER.

LEGAL DESCRIPTION

XXXXXX FINAL PLAT
DOC. # _____



PALMERA BLUFF

LOCATION MAP
SCALE: N.T.S.

SUBMITTAL DATE: _____

OWNER:
PALMERA BLUFF DEVELOPMENT, INC.
1011 N. LAMAR BLVD
AUSTIN TX, 78703
PHONE: (512) 481-0303

ENGINEER:
LJA ENGINEERING INC.
FRN # F-1386
2700 LA FRONTERA BLVD, SUITE 150
ROUND ROCK, TX 78681
CONTACT PERSON: WALTER HOYSA, P.E.
PHONE: (512)439-4700

SURVEYOR:
LANDPOINT, LLC
2900 JAZZ STREET
ROUND ROCK, TX 78664
PHONE: (800)348-5254

Watershed: SOUTH SAN GABRIEL

FEMA Map: 48491C0455F DATED 12/10/2019

Zoning: PUD ORD 16-021-00

TCEQ Recharge Zone: CONTRIBUTING ZONE

DISTURBED ACREAGE: 45.60 AC

NOTES:

1. LOTS WITH 65 PSI OR GREATER REQUIRE A PRV TO BE INSTALLED ON THE PROPERTY OWNERS SIDE OF THE DOMESTIC WATER METER.
2. MINIMUM FIRE FLOW IS REDUCED FIRE FLOW PER 75% FIRE SPRINKLER REDUCTION (25% OF REQUIRED FIRE FLOW) OR 1,500 GALLONS PER MINUTE, WHICHEVER IS GREATER.
3. DOMESTIC WATER METER SIZE WITH AN ASTERISK (*) DENOTES THE NEED FOR TWO (2) METERS OF THE SAME SIZE.

REVISIONS / CORRECTIONS					
Number	Revision Description	Revise (R) Add (A) Void (V) Sheet No.'s	NET Change Imp. Cover (SF)	Total Site Imp. Cover (%)	COA Approval Date

Sheet No.		Description
01	CV 1	COVER SHEET
03	GN 1	GENERAL NOTES
04	EC1	EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN
05	EC2	EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN
06	EC3	EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN
07	DM 1	EXISTING DRAINAGE AREA MAP
08	DM 2	DEVELOPED DRAINAGE AREA MAP
09-10	DM 3 - DM 4	INTERNAL DRAINAGE AREA MAP
11	DM 5	DRAINAGE AREA CALCULATIONS
12	ST 1	JOLIE ROSE BEND, PLAN & PROFILE, STA. 1+00 TO 10+00
13	ST 2	JOLIE ROSE BEND, PLAN & PROFILE, STA. 10+00 TO 20+00
14	ST 3	JOLIE ROSE BEND, PLAN & PROFILE, STA. 20+00 TO 27+31.17
15	ST 4	HOSANA GRANDE WAY, PLAN & PROFILE, STA. 27+31.17 TO 31+82.63
16	ST 5	STARRY NIGHT LANE, PLAN & PROFILE, STA. 31+82.63 TO 34+62.35
17	ST 6	LILLY GRACE BEND, PLAN & PROFILE, STA. 34.62.35 TO 41+00
18	ST 7	LILLY GRACE BEND, PLAN & PROFILE, STA. 41+00 TO END
19	ST8	TREASURE MAP VIEW, PLAN & PROFILE, STA. 1+00 TO END
20-22	GP 1 - GP3	GRADING PLAN
23	WQ 1	WATER QUALITY POND 7
24	WQ 2	WATER QUALITY POND 7 SECTIONS & CALCULATIONS
25	WQ 3	WATER QUALITY POND DETAILS
26	WQ 4	WATER QUALITY POND DETAILS
27	WQ 5	WATER QUALITY JELLYFISH FILTER
28	WQ 6	WATER QUALITY VEGETATIVE FILTER STRIPS
29	WQ 7	WATER QUALITY VEGETATIVE FILTER STRIPS CALCULATIONS
30	SS 1	STORM SEWER LINE A, PLAN & PROFILE, STA. 1+00 TO 8+00
31	SS 2	STORM SEWER LINE A, PLAN & PROFILE, STA. 8+00 TO 13+00
32	SS 3	STORM SEWER LINE A, PLAN & PROFILE, STA. 13+00 TO END
33	SS 4	STORM SEWER LINE A2-A10 PROFILES
34	SS 5	STORM SEWER LINE B, PLAN & PROFILE, STA. 1+00 TO 8+00
35	SS 6	STORM SEWER LINE B, PLAN & PROFILE, STA. 8+00 TO END
36	SS 7	STORM SEWER LINE B5, PLAN & PROFILE, STA. 1+00 TO END
37	SS 8	STORM SEWER LINE B2-B4 & B6-B8 PROFILES
38	SS 9	STORM SEWER LINE C PLAN & PROFILE STA. 1+00 TO 5+00
39	SS 10	STORM SEWER LINE C, PLAN & PROFILE, STA. 5+00 TO END
40	SS 11	STORM SEWER LINE C5, PLAN & PROFILE, STA. 1+00 TO END
41	SS 12	STORM SEWER LINE C2-C4 PROFILES
42	SS 13	STORM SEWER LINE D PLAN & PROFILES STA 1+00 TO END
43	SS 14	STORM SEWER LINE D2-D6 PROFILES
44	SS 15	CHANNEL A PLAN & PROFILE
45	WL 1	WATER LINE A PLAN & PROFILE STA. 1+00 TO 5+00
46	WL 2	WATER LINE A PLAN & PROFILE STA.5+00 TO 10+00
47	WL 3	WATER LINE A PLAN & PROFILE STA. 10+00 TO 20+00
48	WL 4	WATER LINE A PLAN & PROFILE STA. 20+00 TO 28+25
49	WL 5	WATER LINE A PLAN & PROFILE STA. 28+00 TO 33+00
50	WL 6	WATER LINE A PLAN AND PROFILE STA. 33+00 TO 38+00
51	WL 7	WATER LINE A PLAN AND PROFILE STA. 38+00 TO END
52	WL 8	WATER LINE B PLAN & PROFILE STA. 1+00 TO END
53	WW 1	WASTEWATER LINE A, PLAN & PROFILE, STA. 1+00 TO 6+00
54	WW 2	WASTEWATER LINE A, PLAN & PROFILE, STA. 6+00 TO 14+00
55	WW 3	WASTEWATER LINE A, PLAN & PROFILE, STA. 14+00 TO 22+00
56	WW 4	WASTEWATER LINE A, PLAN & PROFILE, STA. 22+00 TO 27+00
57	WW 5	WASTEWATER LINE A, PLAN & PROFILE, STA. 27+00 TO END
58	WW 6	WASTEWATER LINE A1, PLAN & PROFILE, STA. 1+00 TO END
59	WW 7	WASTEWATER LINE A2, PLAN & PROFILE, STA. 1+00 TO END
60	WW 8	WASTEWATER LINE A3, PLAN & PROFILE, STA. 1+00 TO END
61	WW 9	WASTEWATER FORCEMAIN A, PLAN & PROFILE STA 1+00 TO END
62-69	DT 1 - DT 8	GENERAL DETAILS
70-75	E1- E6	ELECTRICAL SITE PLAN & DETAILS

PALMERA BLUFF
SECTIONS 7 & 8
A311-0415B/C

NOTES

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF LEANDER MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
2. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, REGULATORY COMPLIANCE, AND ADEQUACY OF THESE PLANS OR SPECIFICATIONS, WHETHER OR NOT THE PLANS AND/OR SPECIFICATIONS WERE REVIEWED BY CITY ENGINEER(S).
3. EXISTING UTILITIES ARE SHOWN PER RECORD. CONTRACTOR SHALL VERIFY LOCATIONS & ELEVATIONS OF EXISTING UTILITIES PRIOR TO INSTALLATION OF ANY PIPE AND SHALL NOTIFY ENGINEER OF ANY CONFLICTS.
4. THIS SITE IS LOCATED OVER THE EDWARDS AQUIFER CONTRIBUTING ZONE.
5. SURVEY DATA PROVIDED BY: RJ SURVERYING, INC. DATED OCTOBER 2020 TO MAY 2021.
6. WATER QUALITY AND DETENTION FACILITIES SHALL BE COMPLETE AND ACCEPTED BY CITY OF LEANDER PRIOR TO ISSUANCE OF CERTIFICATES OF OCCUPANCY.
7. WATER, WASTEWATER, STORM DRAIN, STREETS, STREET LIGHTS, ROW, SIDEWALKS, AND PARK TRAILS SHALL BE MAINTAINED BY THE CITY OF LEANDER.
8. ANY STRUCTURAL STABILIZATION WITH SLOPES STEEPER THAN 3:1 SHALL BE LIMITED TO USE OF NATIVE STONE (EXCEPT FOR OUTLET STRUCTURES WHICH CAN BE CONCRETE) AND SHALL BE LIMITED TO NO MORE THAN THIRTY (30%) PERCENT OF THE PERIMETER OF THE POND. SUCH PONDS SHALL BE SEAMLESSLY INTEGRATED WITH THE LANDSCAPING. ALL EXPOSED CONCRETE THAT IS VISIBLE IS REQUIRED TO BE MADE OF STONE OR CLAD IN STONE INCLUDING BUT NOT LIMITED TO LEDGESTONE, FIELDSTONE, CAST STONE, OR OTHER DECORATIVE MATERIALS SUCH AS STAMPED AND TINTED CONCRETE THAT RESEMBLES STONE OR BRICK AS APPROVED BY THE DIRECTOR OF PLANNING. ALL OTHER EXPOSED CONCRETE IS REQUIRED TO BE MADE OF STONE OR CLAD IN STONE AS LISTED ABOVE OR TEXTURED AND TINTED IN EARTHERN COLORS.

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2700 La Frontera Blvd
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Round Rock, TX 78681
Phone 512.439.4700
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FRN - F-1386

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.

DateTime: Wed, 12 Apr 2023 - 2:58pm
FileName: S:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 CV1.dwg
User Name - ejlopez

Date\Time : Wed, 05 Apr 2023 - 10:48am User Name : ejlopez
Path\Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 GN1.dwg

GENERAL NOTES

APPLICABLE TO ALL LINE AND SITE WORK

REVISED JUNE 22, 2022

ANY CHANGES TO THESE NOTES SHOULD BE CLOUDED ON THE PLAN SET.

CITY CONTACTS:

ENGINEERING MAIN LINE:	512-528-2766
PLANNING DEPARTMENT:	512-528-2750
PUBLIC WORKS MAIN LINE:	512-259-2640
STORMWATER INSPECTIONS:	512-285-0055
UTILITIES MAIN LINE:	512-259-1142
UTILITIES ON-CALL:	512-690-4760
UTILITY LOCATE REQUESTS	LOCATES@LEANDERTX.GOV

1. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.
2. THE CONTRACTOR SHALL CONTACT THE TEXAS EXCAVATION SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES THAT ARE TO BE EXTENDED, TIED TO, CROSSED, OR ALTERED; OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS.
3. CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT FOR EXISTING WATER AND WASTEWATER LOCATIONS 48 HOURS PRIOR TO CONSTRUCTION.
   A. LOCATE REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. THE CITY OF LEANDER IS ALLOWED UP TO 48 HOURS TO COMPLY WITH YOUR REQUEST, EXCLUDING WEEKENDS AND DESIGNATED CITY HOLIDAYS.
   B. **REFRESH ALL LOCATES *BEFORE* 14 DAYS** – LOCATE REFRESH REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. SUBMIT ALL REQUESTS TO LOCATES@LEANDERTX.GOV. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION MARKERS ARE NO LONGER VISIBLE.
   C. **REPORT PIPELINE DAMAGE IMMEDIATELY** – IF YOU WITNESS OR EXPERIENCE PIPELINE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER BY PHONE AT 512-259-2640.
4. ANY CHANGES OR REVISIONS TO THESE PLANS MUST FIRST BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION OF THE REVISION.
5. A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO ANY PARTIAL OR COMPLETE ROADWAY CLOSURES. TRAFFIC CONTROL PLANS SHALL BE SITE SPECIFIC AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. LANE CLOSURES ON ARTERIALS AND ANY FULL ROAD CLOSURES REQUIRE MESSAGE BOARDS NOTIFYING THE PUBLIC ONE WEEK PRIOR TO THE CLOSURE.
6. NO WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M. THE CITY INSPECTOR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER ALL WORK PERFORMED WITHOUT INSPECTION FURTHER, THERE IS A NOISE ORDINANCE IN EFFECT FOR CONSTRUCTION ACTIVITY BETWEEN THE HOURS OF 9:00 PM AND 7:00 AM. REQUESTS FOR EXCEPTIONS TO THE ORDINANCE MUST BE MADE TO LEANDER CITY COUNCIL.
7. CONTACT THE CITY INSPECTOR 4 DAYS PRIOR TO WORK TO SCHEDULE ANY INSPECTIONS ON WEEKENDS OR CITY HOLIDAYS.
8. NO STREET LIGHTS OR SIGNS OF ANY KIND ARE TO BE PLACED WITHIN ANY SIDEWALKS.
9. NO BLASTING IS ALLOWED.
10. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
11. THE CONTRACTOR SHALL GIVE THE CITY OF LEANDER 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. CONTACT ASSIGNED CITY INSPECTOR.
12. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND THE CITY OF LEANDER REPRESENTATIVES PRIOR TO INSTALLATION OF EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES AND PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PLANNING DEPARTMENT PLANNING COORDINATOR AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.
13. THE CONTRACTOR AND ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LEANDER ACCURATE "RECORD DRAWINGS" FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THESE "RECORD DRAWINGS" SHALL MEET THE SATISFACTION OF THE ENGINEERING DEPARTMENTS PRIOR TO FINAL ACCEPTANCE
14. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER.
15. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO OWNER.
16. THE CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. IN THE EVENT THAT A FENCE MUST BE REMOVED, THE CONTRACTOR SHALL REPLACE SAID FENCE OR PORTION THEREOF WITH THE SAME TYPE OF FENCING TO A QUALITY OF EQUAL OR BETTER THAN THE ORIGINAL FENCE.
17. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DR. SUITE 375, AUSTIN, TEXAS 78752-3832.
18. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL CITY OF LEANDER DETAILS AND CITY OF AUSTIN STANDARD SPECIFICATIONS.
19. PROJECT SPECIFICATIONS TAKE PRECEDENCE OVER PLANS AND SPECIAL CONDITIONS GOVERN OVER TECHNICAL SPECIFICATIONS.
20. HOT MIX ASPHALTIC CONCRETE PAVEMENT SHALL BE MINIMUM THICKNESS OF 2 INCHES WITH NO RECYCLED ASPHALT SHINGLES CONTENT.
21. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY RISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR THE CONSTRUCTION OF THIS PROJECT.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION BETWEEN HIMSELF AND OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THE PROJECT. THIS INCLUDES GAS, WATER, WASTEWATER, ELECTRICAL, TELEPHONE, CABLE TV AND STREET DRAINAGE WORK. ONCE THE CONTRACTOR BECOMES AWARE OF A POSSIBLE CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER WITHIN TWENTY-FOUR (24) HOURS.
24. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
25. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS AND DRIVES ADJACENT TO AND NEAR THE SITE FREE FROM SOIL, SEDIMENT AND DEBRIS. CONTRACTOR WILL NOT REMOVE SOIL, SEDIMENT OR DEBRIS FROM ANY AREA OR VEHICLE BY MEANS OF WATER. ONLY SHOVELING AND SWEEPING WILL BE ALLOWED. CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL FROM THE SITE.
26. THE CITY OF LEANDER SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
27. AN ENGINEER'S CONCURRENCE LETTER AND RECORD DRAWINGS SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT PRIOR TO THE ISSUANCE OF CERTIFICATE OF COMPLETION OR SUBDIVISION ACCEPTANCE. THE ENGINEER AND CONTRACTOR SHALL VERIFY THAT ALL FINAL REVISIONS AND CHANGES HAVE BEEN MADE TO THE DIGITAL COPY PRIOR TO CITY SUBMITTAL. RECORD CONSTRUCTION DRAWINGS, INCLUDING ROADWAY AND ALL UTILITIES SHALL BE PROVIDED TO THE CITY IN DIGITAL FORMAT AS AUTOCAD ".DWG" FILES, MICROSTATION ".DGN" FILES OR ESRI ".SHP" FILES ON CD ROM. LINE WEIGHTS, LINE TYPES AND TEXT SIZE SHALL BE SUCH THAT IF HALF-SIZE PRINTS (11"X17") WERE PRODUCED, THE PLANS WOULD STILL BE LEGIBLE. ALL REQUIRED DIGITAL FILES SHALL CONTAIN A MINIMUM OF TWO CONTROL POINTS REFERENCED TO THE STATE PLANE GRID COORDINATE SYSTEM – TEXAS CENTRAL ZONE (4203), IN US SURVEY FEET AND SHALL INCLUDE ROTATION INFORMATION AND SCALE FACTOR REQUIRED TO REDUCE SURFACE COORDINATES TO GRID COORDINATES IN US SURVEY FEET
28. TREES IN EXISTING ROW SHOULD BE PROTECTED OR NOTED IN THE PLANS TO BE REMOVED.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTIVE FENCING PRIOR TO ANY WORK (CLEARING, GRUBBING OR EXCAVATION). CONTACT STORMWATER INSPECTOR FOR ON SITE INSPECTION PRIOR TO BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
3. THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP.
4. ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS SPECIFICALLY SHOWN ON THE PLANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY AREA.
5. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST.
6. SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164--WC001 SEEDING FOR EROSION CONTROL). RESEEDING VARIETIES OF BERMUDA SHALL NOT BE USED.
7. STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD.
8. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.
9. IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.

WATER AND WASTEWATER NOTES

1. PRESSURE TAPS SHALL BE IN ACCORDANCE WITH CITY OF LEANDER STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, ETC. AND SHALL FURNISH, INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF LEANDER INSPECTOR MUST BE PRESENT WHEN THE CONTRACTOR MAKES A TAP, AND/OR ASSOCIATED TESTS. A MINIMUM OF TWO (2) WORKING DAYS NOTICE IS REQUIRED. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED UNLESS MADE BY THE USE OF AN APPROVED FULL-CIRCLE GASKETED TAPPING SLEEVE. CONCRETE BLOCKING SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES A MINIMUM OF 24 HOURS PRIOR TO THE BRANCH BEING PLACED INTO SERVICE. BLOCKING SHALL BE INSPECTED PRIOR TO BACKFILL.
2. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A BLACK POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP SHALL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED INTO SERVICE.
3. CURVILINEAR WASTEWATER DESIGN LAYOUT IS NOT PERMITTED.
4. THRUST BLOCKING OR RESTRAINTS SHALL BE IN ACCORDANCE WITH THE CITY OF LEANDER STANDARD SPECIFICATIONS AND REQUIRED AT ALL FITTINGS PER DETAIL OR MANUFACTURER'S RECOMMENDATION. ALL FITTINGS SHALL HAVE BOTH THRUST BLOCKING AND RESTRAINTS.
5. MANDREL TESTING WILL BE REQUIRED ON ALL WASTEWATER PIPE. PER TCEQ, THIS TEST MUST BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
6. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AND ORGANIZATION ACCREDITED BY ANSI
7. DURING PERIODS OF EXTENDED DRY WEATHER, TRENCH BACKFILL MUST BE COMPACTED BY FLOODING THE TRENCHES AS DIRECTED BY THE CITY ENGINEER.
8. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY STAMPED AS FOLLOWS:

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

9. TOOLS FOR STAMPING THE CURBS SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF STAMPING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF STAMPING SHALL BE SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LEANDER
10. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 200 PSI.
11. NO PIPE OR FITTING WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY.
12. TYPICAL DEPTH OF COVER FOR ALL WASTEWATER LINES SHALL BE 48" MINIMUM, WATER LINES SHALL BE 36" MINIMUM UNDER BOTH PAVEMENT AND NATURAL GROUND. STORM SEWER SHALL BE 24" MINIMUM UNDER NATURAL GROUND.
13. THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY AWWA FORMULAS.
14. ALL WATER MAINS, DISTRIBUTION LINES AND SERVICE LINES SHALL BE INSTALLED IN ENCASEMENT PIPE UNDERNEATH EXISTING STREETS AND OTHER PAVED SURFACES UNLESS APPROVED WITH PLANS.
15. ALL MECHANICAL RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
16. ALL DEAD-END WATER MAINS SHALL HAVE THRUST RESTRAINTS INSTALLED ON THE LAST THREE PIPE-LENGTHS (STANDARD 20' LAYING LENGTH), AT MINIMUM, AND THRUST BLOCKS INSTALLED ON THE PLUG. ADDITIONAL THRUST RESTRAINTS MAY BE REQUIRED BASED UPON THE MANUFACTURER'S RECOMMENDATIONS AND/OR CALCULATIONS BY THE ENGINEER OF RECORD.
17. WHERE WATER LINES CROSS WASTEWATER LINES AND THERE IS LESS THAN 9 FEET CLEARANCE BETWEEN LINES, THE WASTEWATER LINE SHALL BE PLACED SO THAT THE WASTEWATER PIPE SECTION IS CENTERED ON THE WATER LINE AND CONSTRUCTED IN ACCORDANCE WITH TCEQ CHAPTERS 217.53(B) AND 290.44(E).
18. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C900-16 MIN. 235 PSI PRESSURE RATING). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200PSI, SDR-(9)). DUCTILE IRON PIPE (AWWA C115/C151, MIN. PRESSURE CLASS 250) MAY BE USED FOR WATER MAINS WITH THE EXPRESS APPROVAL OF CITY OF LEANDER ENGINEERING.
19. PIPE FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C900-16), GREEN AND MARKED FOR SEWER. PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241, D3034 MAX. SDR-26 OR PS115 F679) OR FIBERGLASS WITH PIPE STIFFNESS OF 72 PSI PER COA SPL WW-509.
20. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C115/C151 PRESSURE CLASS 350).
21. INTERIOR SURFACES OF ALL DUCTILE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEAL COATED AS REQUIRED BY AWWA C104.
22. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE.
23. THE CONTRACTOR SHALL CONTACT THE ENGINEERING DEPARTMENT INSPECTOR AT 528-2700 AT LEAST 48 HOURS PRIOR TO CONNECTING TO THE EXISTING WATER LINES.
24. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
25. EXISTING MANHOLES MODIFIED BY CONSTRUCTION ACTIVITY SHALL BE TESTED FOR LEAKAGE BY VACUUM. ANY EXISTING MANHOLE WHICH FAILS TO PASS THE VACUUM TEST SHALL BE CLOSELY EXAMINED BY THE INSPECTOR AND THE CONTRACTOR TO DETERMINE IF THE MANHOLE CAN BE REPAIRED. THEREAFTER, THE CONTRACTOR SHALL EITHER REPAIR OR REMOVE AND REPLACE THE MANHOLE AS DIRECTED.
26. PIPE CONNECTIONS TO EXISTING MANHOLES AND JUNCTION BOXES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF AUSTIN SPECIFICATION 506.5.F.
27. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT.
28. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL CONSTRUCTED POTABLE WATER LINES AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF LEANDER PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF LEANDER TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF LEANDER.
29. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTORS' REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LEANDER NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY.
30. TESTING SHALL BE PERFORMED FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED. THE OWNER'S CONTRACTOR SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER ENGINEERING DEPARTMENT NO LESS THAN 48 HOURS PRIOR TO PERFORMING STERILIZATION, QUALITY TESTS, OR PRESSURE TESTS. A CITY OF LEANDER INSPECTOR SHALL BE PRESENT FOR ALL TESTS AND SHALL BE PAID FOR BY THE OWNER/CONTRACTOR. THESE SERVICES ARE PAID FOR AT THE TIME OF CONSTRUCTION PLAN SUBMITTAL.
31. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVE UNLESS AUTHORIZED BY THE CITY OF LEANDER.
32. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
33. ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.
34. ALL WATER METER BOXES SHALL BE:

a.	SINGLE, 1" METER AND BELOW	DFW37F-12-1CA, OR EQUAL
b.	DUAL, 1" METERS AND BELOW	DFW39F-12-1CA, OR EQUAL
c.	1.5" SINGLE METER	DFW65C-14-1CA, OR EQUAL
d.	2" SINGLE METER	DFW1730F-12-1CA, OR EQUAL

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

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

36. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 AM AND 6 AM.
37. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 30 TAC CHAPTER 217, AS APPLICABLE. WHENEVER TCEQ AND CITY OF LEANDER SPECIFICATION CONFLICT, THE MORE STRINGENT SHALL APPLY.
38. MANHOLES SHALL BE COATED PER CITY OF AUSTIN SPL WW-511 (RAVEN 405 OR SPRAYWALL).
39. DENSITY TESTING FOR TRENCH BACKFILL LOCATED WITHIN THE LIMITS OF THE PAVED AREA IS TO BE DONE IN 12" LIFTS EVERY 500' AND AT LEAST ONCE PER LINE SEGMENT
40. ALL GRAVITY WASTEWATER MAINS TO BE TESTED BY CAMERA AND PAID FOR BY THE CONTRACTOR. CAMERA TESTING FOR WASTEWATER LINES IN ROADWAY SHALL OCCUR BEFORE PAVING. CONTRACTOR SHALL PROVIDE THE CITY WITH A DVD COPY OF THE FULL CAMERA INSPECTION.
41. RECLAIMED AND RECYCLED WATER LINE SHALL BE CONSTRUCTED OF "PURPLE PIPE." ALL RECLAIMED AND RECYCLED WATER VALVE COVERS SHALL BE SQUARE AND PAINTED PURPLE.

STREET AND DRAINAGE NOTES

1. ALL SIDEWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT. THE CITY OF LEANDER HAS NOT REVIEWED THESE PLANS FOR COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT, OR ANY OTHER ACCESSIBILITY LEGISLATION, AND DOES NOT WARRANTY OR APPROVE THESE PLANS FOR ANY ACCESSIBILITY STANDARDS.
2. PRIOR TO ACCEPTANCE THE ENGINEER SHALL SUBMIT DOCUMENTATION THAT THE IMPROVEMENTS WERE INSPECTED BY TDLR OR A REGISTERED ACCESSIBLITY SPECIALIST (RAS) AND ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE TABA.
3. CONTRACTOR SHALL PROVIDE QUALITY TESTING FOR ALL INFRASTRUCTURES TO BE ACCEPTED AND MAINTAINED BY THE CITY OF LEANDER AFTER COMPLETION. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER ENGINEERING DEPARTMENT AT 528-2700 NO LESS THAN 48 HOURS PRIOR TO ANY TESTING.
4. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 6" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 6" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE
5. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED BETWEEN THE CURB AND RIGHT-OF-WAY AND IN ALL DRAINAGE CHANNELS EXCEPT CHANNELS CUT IN STABLE ROCK.
6. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC TELEPHONE, CABLE TV, ETC., SHALL BE A MINIMUM OF 36" BELOW SUBGRADE.
7. STREET RIGHT-OF-WAY SHALL BE GRADED AT A SLOPE OF ¼" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT ¼" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT.
8. BARRICADES BUILT TO THE CITY OF LEANDER STANDARDS SHALL BE ERECTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
9. ALL REINFORCED CONCRETE PIPE SHALL BE MINIMUM CLASS III OF TONGUE AND GROOVE OR O-RING JOINT DESIGN.
10. THE CONTRACTOR IS TO NOTIFY THE ENGINEERING INSPECTOR 48 HOURS PRIOR TO THE FOLLOWING TESTING: PROOF ROLLING SUB-GRADE AND EVERY LIFT OF ROADWAY EMBANKMENT, IN-PLACE DENSITY TESTING OF EVERY BASE COURSE, AND ASPHALT CORES. ALL OF THIS TESTING MUST BE WITNESSED BY A CITY OF LEANDER REPRESENTATIVE.
11. THE CONTRACTOR MUST PROVIDE A PNEUMATIC TRUCK PER TXDOT SPEC FOR PROOF ROLLING.
12. AT INTERSECTIONS WHICH HAVE VALLEY DRAINAGE, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.
13. AT THE INTERSECTION OF TWO 44' STREETS OR LARGER, THE CROWNS OF THE INTERSECTING STREETS WILL CULMINATE IN A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS OTHERWISE NOTED.
14. A CURB LAYDOWN IS REQUIRED AT ALL POINTS WHERE THE PROPOSED SIDEWALK INTERSECTS THE CURB.
15. ALL STRIPING, WITH THE EXCEPTION OF STOP BARS, CROSS WALKS, WORDS AND ARROWS, IS TO BE TYPE II (WATER BASED). STOP BARS, CROSS WALKS, WORDS AND ARROWS REQUIRE TYPE I THERMOPLASTIC.
16. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO FINAL PAVEMENT CONSTRUCTION.
17. CONTRACTOR SHALL NOTIFY THE LEANDER ENGINEERING DEPARTMENT AT 528-2700 AT LEAST 48 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
18. A STOP BAR SHALL BE PLACED AT ALL STOP SIGN LOCATIONS.
19. A MINIMUM OF SEVEN DAYS OF CURE TIME IS REQUIRED FOR HMAC PRIOR TO THE INTRODUCTION OF PUBLIC VEHICULAR TRAFFIC TO ANY STREETS.
20. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE CONSTRUCTION PLANS.
21. GEOTECHNICAL INVESTIGATION INFORMATION AND PAVEMENT RECOMMENDATIONS WERE PROVIDED BY MLA GEOTECHNICAL. PAVEMENT RECOMMENDATIONS ARE AS FOLLOWS:

Palmera Bluff Section 7
Engineer's Job No.: 21101123.001

RECOMMENDATIONS - PAVEMENT THICKNESS SECTIONS

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in	Low Plasticity Sub-Base, in	Geogrid
Local Streets	Subgrade PI greater than 20	1.5	15	-	-
	Subgrade PI greater than 20	1.5	10	18	-
	Subgrade PI greater than 20	1.5	10	-	X*
	Subgrade PI less than 20	1.5	8	-	-

Palmera Bluff Section 8
Engineer's Job No.: 20101123.005

RECOMMENDATIONS - PAVEMENT THICKNESS SECTIONS

Street Classification	Subgrade Material	Hot Mix Asphaltic Concrete, in	Crushed Limestone Base, in	Low Plasticity Sub-Base, in	Geogrid
Local Streets	Subgrade PI greater than 20	1.5	15	-	-
	Subgrade PI greater than 20	1.5	10	18	-
	Subgrade PI greater than 20	1.5	10	-	X*
	Subgrade PI less than 20	1.5	8	-	-
Residential Collectors	Subgrade PI greater than 20	2.0	19	-	-
	Subgrade PI greater than 20	2.0	13	18	-
	Subgrade PI greater than 20	2.0	13	-	X*
	Subgrade PI less than 20	2.0	10	-	-
Neighborhood Collectors	Subgrade PI greater than 20	2.0	21	-	-
	Subgrade PI greater than 20	2.0	14	18	-
	Subgrade PI greater than 20	2.0	14	-	X*
	Subgrade PI less than 20	2.0	11	-	-

Notes:
1. * - A single layer of Tensar TX-130S or equivalent to be approved by the Geotechnical Engineer should be placed below the crushed limestone base layer.
2. Any expansive fill (PI > 20) placed in the subgrade shall be considered expansive subgrade.
3. If low PI (PI < 20) soils are available on site, these soils could be utilized in the pavement areas in order to reduce pavement construction cost. The Client and Geotechnical Engineer should be consulted before any low PI soils are hauled off site.
4. **Delineation between these different pavement thickness sections should be completed in the field by observation of open utilities trenches and the pavement subgrade by the Geotechnical Engineer or his designate.** Given the known variability of the surface soils, the geotechnical engineer must verify the subgrade before installation of the pavement system can proceed. Multiple site visits may be required depending upon the construction schedule. Finalized distinction between pavement thickness section options shall be provided as addendums to this report as these observations are completed. Please contact the geotechnical engineer when the utility trenches are open.
5. Any subgrade improvement should be extended 3 feet beyond the back of the curb line.
6. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.
7. The responsibility of assigning street classification to the streets in this project is left to the civil engineer.
8. If pavement designs other than those listed above are desired, please contact MLA Geotechnical.

TRENCH SAFETY NOTES

1. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT ARE DESCRIBED IN ITEM 509S "TRENCH SAFETY SYSTEMS" OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS AND SHALL BE IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATION SAFETY AND HEALTH ADMINISTRATION REGULATIONS.

GRADING NOTES

1. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
2. THE CONTRACTOR SHALL CONSTRUCT EARTHEN EMBANKMENTS WITH SLOPES NO STEEPER THAN 3:1 AND COMPACT SOIL TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS.
3. AREAS OF SOIL DISTURBANCE ARE LIMITED TO GRADING AND IMPROVEMENTS SHOWN. ALL OTHER AREAS WILL NOT BE DISTURBED.

BENCHMARK NOTES

AT THE INTERSECTION OF LOGAN DEL WAY AND CLARISSA LYNN WAY
E3084863.4850'.N10191881.8100'
TRI ON TOC ELEV=1020.31'
AT THE INTERSECTION OF LOGAN DEL WAY AND SIR NATHANIEL LANE
E3084435.2720'.N10192127.1500'
"X" ON TOC ELEV=1020.31'

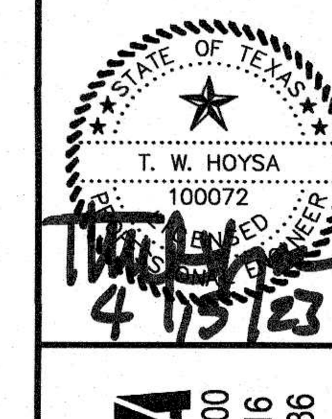
PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

GENERAL NOTES

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 GN1.dwg



LJA Engineering, Inc.
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Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

GN 1

SHEET NO. 03

OF 75 SHEETS

XXXX-XX-XX

N

0 50 100

1" = 50'

LEGEND:

RB	ROCK BERM
IP	INLET PROTECTION
SF	SILT FENCE
LOC	LIMITS OF CONSTRUCTION
LOC/SF	LIMITS OF CONSTRUCTION/SILT FENCE
LOC/CL	LIMITS OF CONSTRUCTION/CHAIN LINK FENCE
LOC/OF	LIMITS OF CONSTRUCTION/ORANGE FENCE
TP TP	TREE PROTECTION FENCE
700	PROPOSED CONTOURS
700	EXISTING CONTOURS
SCE	STABILIZED CONSTRUCTION EXIT
	STAGING & SPOILS SITE
	LOT LINE
1234	TREE TO BE SAVED
1234	TREE TO BE REMOVED
1234	HERITAGE TREE TO BE REMOVED
CONCRETE WASHOUT	CONCRETE WASHOUT

NOTES:

1. IF DISTURBED AREA IS NOT WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION MATTING. (ECM 1.4.4.B.3, SECTION 5, I.).
2. ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN COMPLIANCE WITH THE CITY OF AUSTIN RULES AND REGULATIONS. (LDC 1.4.4.D.4)
3. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER ECM 1.4.5(A), OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
4. THE CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY. (ECM 1.4.4.D.4)
5. LIMITS OF CONSTRUCTION & SILT FENCE SHOWN OFF BOUNDARY LINES FOR CLARITY ONLY. SILT FENCE SHALL BE PLACED WITHIN TRACT BOUNDARIES.
6. NO MORE THAN 2000 LINEAR FEET OF DISTURBANCE FOR UTILITY INSTALLATION SHALL OCCUR AT ANY TIME WITH CLEAN UP AND RESTORATION WORK OCCURING BEFORE PROCEEDING TO THE NEXT SECTION. THE CONTRACTOR IS REQUIRED TO RESTORE ALL DISTURBED AREAS AS THE WORK PROGRESSES.
7. ALL SILT FENCE ALONG EXISTING PAVED R.O.W.S SHALL BE SET AT A MINIMUM OF 3' AWAY FROM BACK OF CURB OR EDGE OF PAVING TO AVOID STANDING WATER ON SUBGRADE SURFACES.
8. SILT FENCE ALONG BACK OF CURB MAY BE TEMPORARILY REMOVED FOR GRADING TO CURB EDGES BUT SHALL BE REINSTALLED DAILY.
9. MID-CONSTRUCTION CONTROLS SHALL BE SET AFTER MAJOR SITE GRADING OPERATIONS ARE COMPLETED TO WITHIN ± 0.1 FEET OF SITE SUBGRADE.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY SEDIMENT TRANSPORTED FROM THE SITE TO THE WATER QUALITY/DETENTION PONDS.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 EC1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
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Round Rock, TX 78681
Phone 512.439.4700
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FRN - F-1386

JOB NUMBER: A311-0415

EC1

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OF 75 SHEETS

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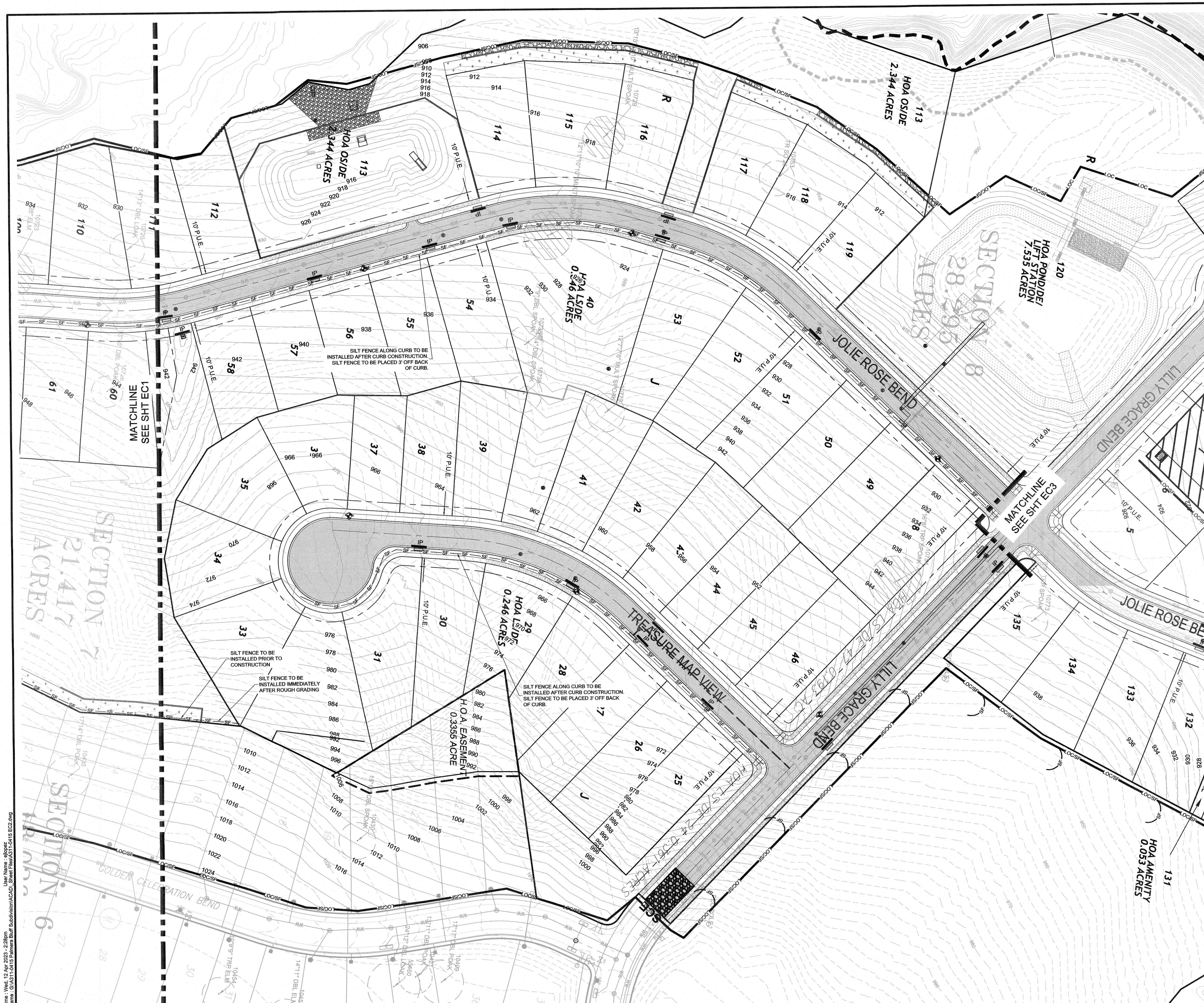

1" = 50'

LEGEND:

Symbol	Description
RB	ROCK BERM
IP	INLET PROTECTION
SF	SILT FENCE
LOC	LIMITS OF CONSTRUCTION
LOC/SF	LIMITS OF CONSTRUCTION/SILT FENCE
LOC/CL	LIMITS OF CONSTRUCTION/CHAIN LINK FENCE
LOC/OF	LIMITS OF CONSTRUCTION/ORANGE FENCE
TP — TP	TREE PROTECTION FENCE
700	PROPOSED CONTOURS
700	EXISTING CONTOURS
SCE	STABILIZED CONSTRUCTION EXIT
	STAGING & SPOILS SITE
	LOT LINE
1234	TREE TO BE SAVED
1234	TREE TO BE REMOVED
1234	HERITAGE TREE TO BE REMOVED
	CONCRETE WASHOUT

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 EC2.dwg

STATE OF TEXAS — T. W. HOYSA — 100072 — LICENSED — 4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
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Phone 512.439.4700
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FRN - F-1386

JOB NUMBER: A311-0415

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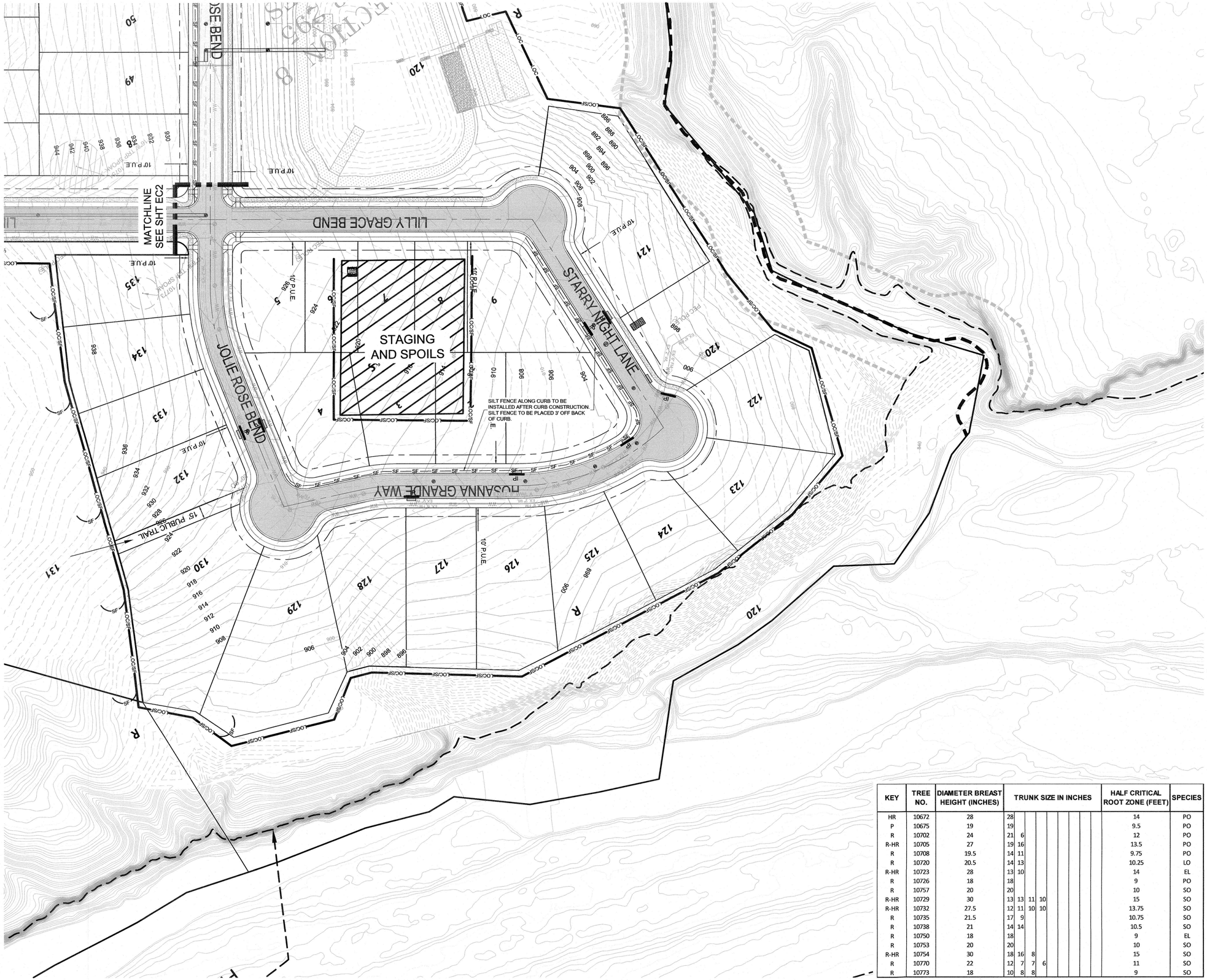

0 50 100
1" = 50'

LEGEND:

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- 700 — EXISTING CONTOURS
- SCE — STABILIZED CONSTRUCTION EXIT
- STAGING & SPOILS SITE
- LOT LINE
- 1234 — TREE TO BE SAVED
- 1234 — TREE TO BE REMOVED
- 1234 — HERITAGE TREE TO BE REMOVED
- CONCRETE WASHOUT

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KEY	TREE NO.	DIAMETER BREAST HEIGHT (INCHES)	TRUNK SIZE IN INCHES	HALF CRITICAL ROOT ZONE (FEET)	SPECIES
HR	10672	28	28	14	PO
P	10675	19	19	9.5	PO
R	10702	24	21 6	12	PO
R-HR	10705	27	19 16	13.5	PO
R	10708	19.5	14 11	9.75	PO
R	10720	20.5	14 13	10.25	LO
R-HR	10723	28	13 10	14	EL
R	10726	18	18	9	PO
R	10757	20	20	10	SO
R-HR	10729	30	13 13 11 10	15	SO
R-HR	10732	27.5	12 11 10 10	13.75	SO
R	10735	21.5	17 9	10.75	SO
R	10738	21	14 14	10.5	SO
R	10750	18	18	9	EL
R	10753	20	20	10	SO
R-HR	10754	30	18 16 8	15	SO
R	10770	22	12 7 7 6	11	SO
R	10773	18	10 8 8	9	SO

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

EROSION/SEDIMENTATION CONTROL & TREE PROTECTION PLAN

NO.	DESCRIPTION	BY	DATE

REVISIONS

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 EC3.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/5/23

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2700 La Frontera Blvd
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Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

EC3

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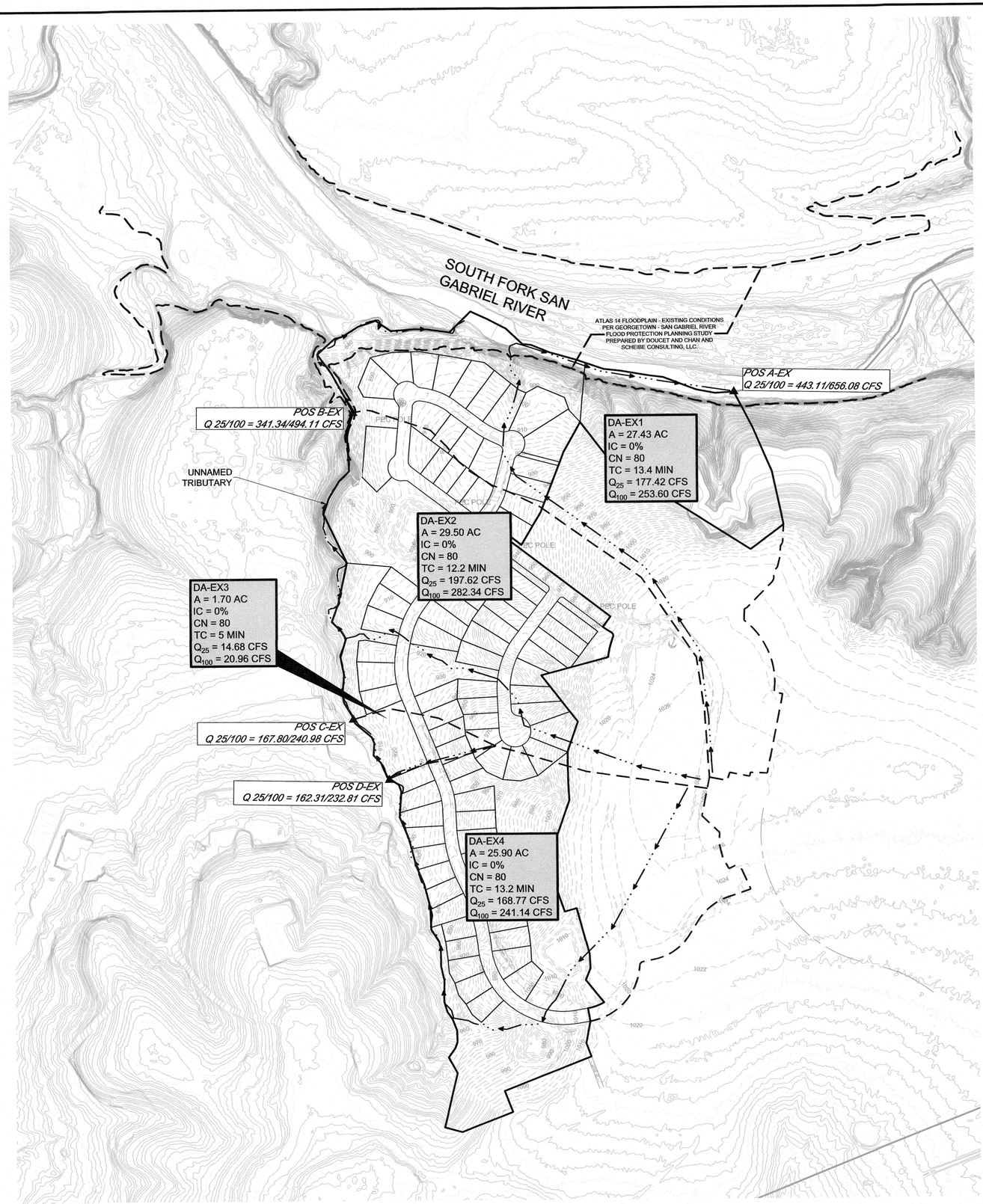


N

0 200 400

1" = 200'

LEGEND:

TRIB 1-A
A = X.XX AC
IC = X%
CN = XX
TC = X.X MIN
Q_{25} = X.X CFS
Q_{100} = X.X CFS

DRAINAGE AREA BASIN

DRAINAGE DIVIDE

FLOW DIRECTION ARROW

TIME AND CONCENTRATION

NOTES:

DRAINAGE CALCULATIONS ASSUME PRE-DEVELOPMENT CONDITIONS. LOT BOUNDARIES SHOWN TO PROVIDE CONTEXT OF DRAINAGE DIVIDES.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

EXISTING DRAINAGE AREA MAP

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 11/1/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DM1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
9/15/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

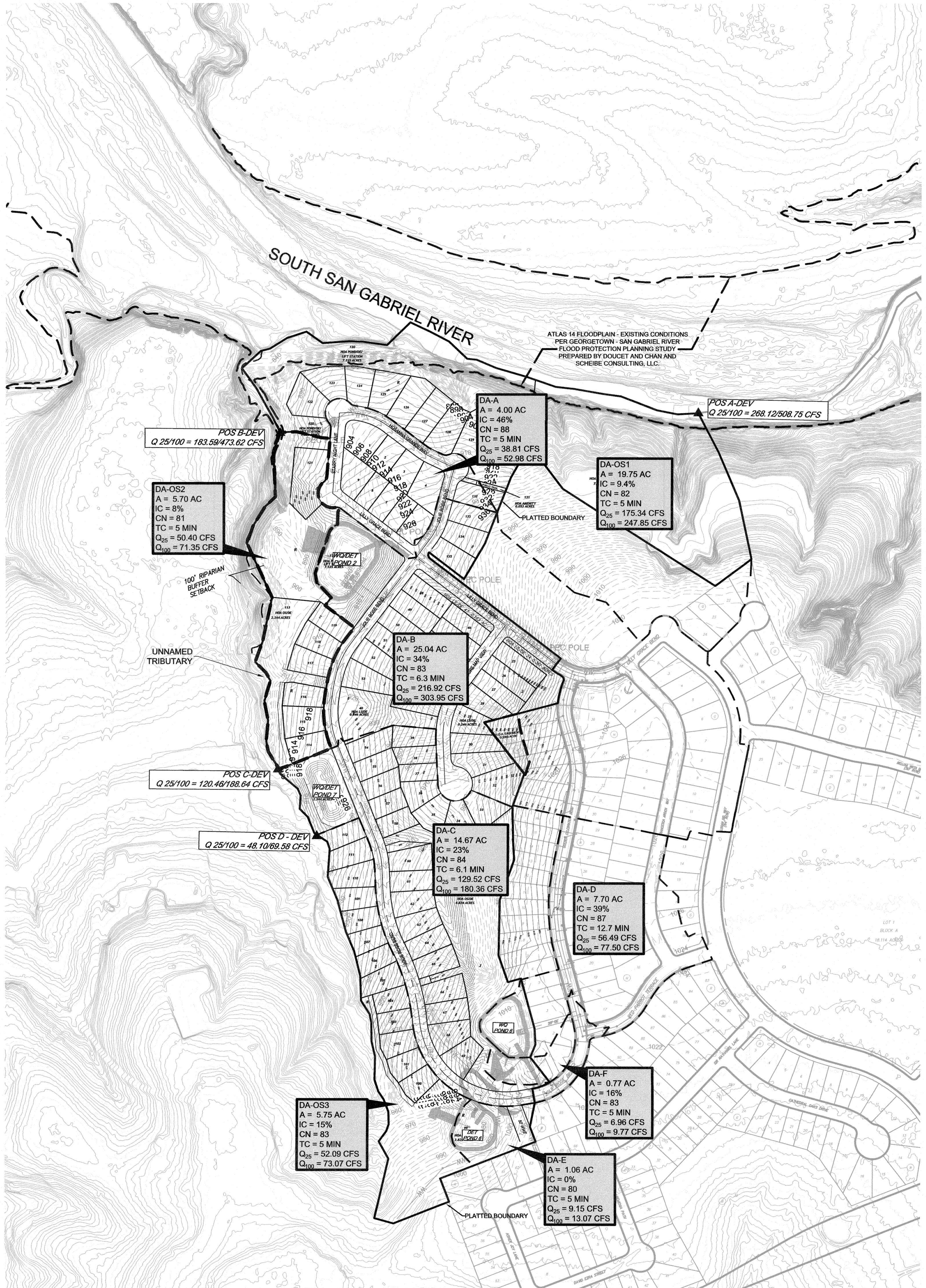
DM 1

SHEET NO. 07

OF 75 SHEETS

XXXX-XX-XX

Date/Time - Wed, 06 Apr 2022 - 10:49am User Name - ejlopez
Path\Name - G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 DM1.dwg



N

0 200 400
1" = 200'

LEGEND:

TRIB 1-A
A = X.XX AC
IC = X%
CN = XX
TC = X.X MIN
Q_{25} = X.X CFS
Q_{100} = X.X CFS

DRAINAGE AREA BASIN

DRAINAGE DIVIDE

FLOW DIRECTION ARROW

TIME AND CONCENTRATION

	Existing				Proposed			
Point Of Study	**2**	**10**	**25**	**100**	**2**	**10**	**25**	**100**
POS A	149.59	320.15	443.11	656.08	94.73	198.44	268.12	508.75
POS B	124.22	251.49	341.34	494.11	80.83	141.45	183.59	473.62
POS C	63.59	124.84	167.8	240.98	59.57	97.79	120.46	188.64
POS D	61.94	120.82	162.31	232.81	19.64	35.93	48.1	69.58

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

DEVELOPED DRAINAGE AREA MAP

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DM2.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DM 2

SHEET NO. 08 OF 75 SHEETS

XXXX-XX-XX

Date\Time : Wed, 12 Apr 2023 - 2:29pm User Name : ejlopez
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Date\Time : Wed, 12 Apr 2023 - 2:30pm User Name : ejlopez
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PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
INTERNAL DRAINAGE AREA MAP

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DM3.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
[illegible]
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

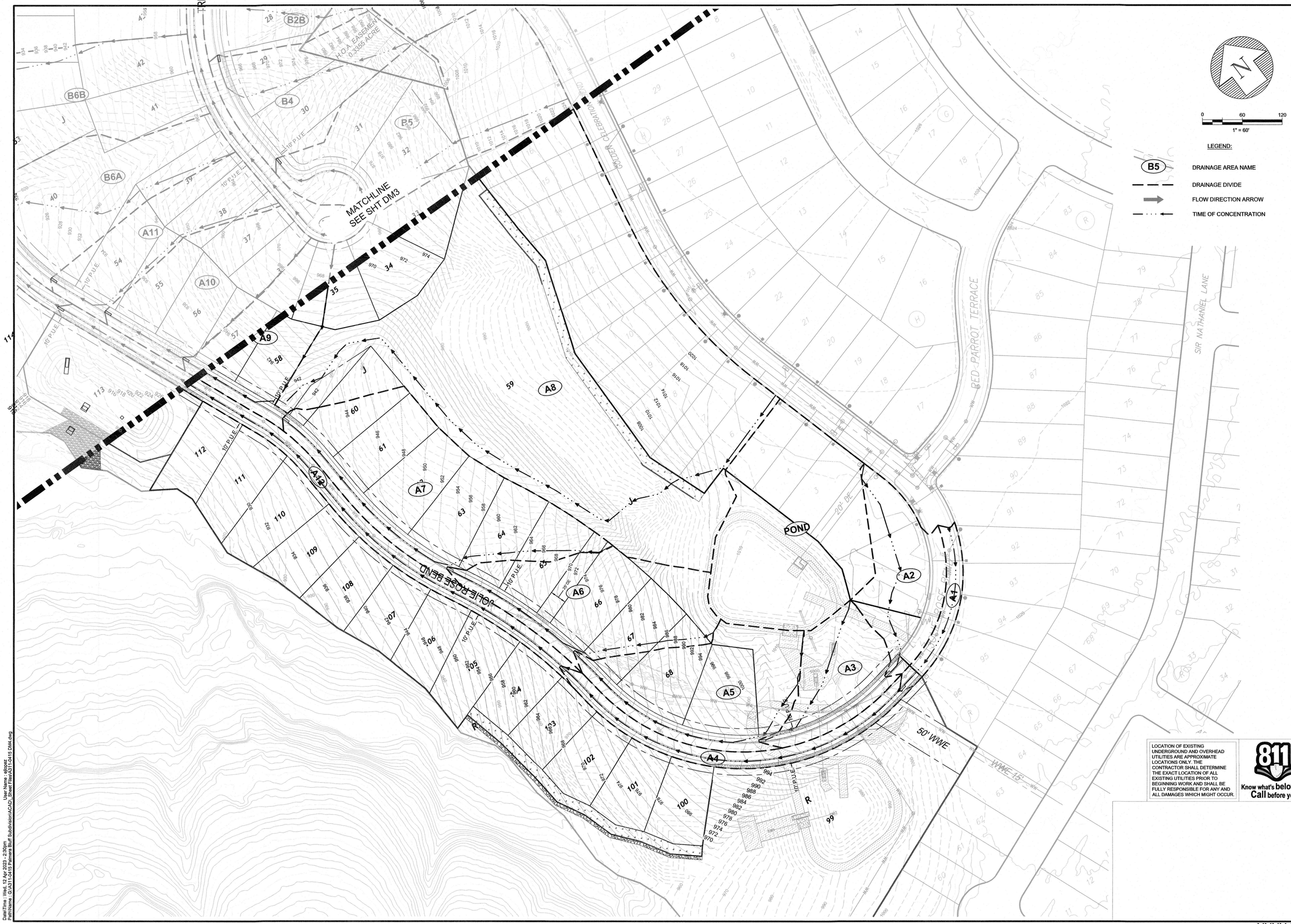
JOB NUMBER:
A311-0415

DM 3

SHEET NO.
09
OF 75 SHEETS

XXXX-XX-XX

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
INTERNAL DRAINAGE AREA MAP



N

0 60 120
1" = 60'

LEGEND:

- B5 — DRAINAGE AREA NAME
- DRAINAGE DIVIDE
- FLOW DIRECTION ARROW
- TIME OF CONCENTRATION

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 11/1/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DM4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
REGISTERED PROFESSIONAL ENGINEER
9/15/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DM 4

SHEET NO. 10
OF 75 SHEETS

Date/Time - Wed, 12 Apr 2023 - 2:39pm
User Name - dposze
File Name - G:\A311\0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 DM4.dwg

XXXX-XX-XX

PROPOSED DRAINAGE CALCULATIONS - RATIONAL METHOD

IDF COEFFICIENTS

	25-YEAR	100-YEAR
a	89	106.00
b	10.16	9.46
c	0.759	0.732

DEVELOPED RUNOFF COEFFICIENTS

	25-YEAR	100-YEAR
SF LOTS	0.61	0.70
ROW	0.73	0.82
OPEN SPACE	0.29	0.36

AREA NO.	AREA (AC)	LOT AREA (AC)	ROW AREA (AC)	OPEN SPACE (AC)	Tc (MIN)	C25 COMP	C100 COMP	I25 (IN/HR)	I100 (IN/HR)	Q25 (CFS)	Q100 (CFS)	INLET TYPE
DA A1	0.15	0.00	0.15	0.00	0.7	0.73	0.82	14.53	19.37	1.6	2.4	ON-GRADE
DA A2	0.59	0.37	0.14	0.09	5.7	0.59	0.67	10.91	14.47	3.8	5.8	ON-GRADE
DA A3	0.51	0.00	0.12	0.38	3.2	0.40	0.47	12.41	16.49	2.5	3.9	ON-GRADE
DA A4	0.33	0.00	0.33	0.00	1.1	0.73	0.82	14.15	18.85	3.5	5.1	ON-GRADE
DA A5	1.00	0.54	0.19	0.27	3.4	0.55	0.63	12.30	16.34	6.7	10.2	ON-GRADE
DA A6	1.02	0.68	0.13	0.21	2.5	0.56	0.64	12.98	17.27	7.4	11.3	ON-GRADE
DA A7	1.52	1.29	0.20	0.03	3.5	0.62	0.71	12.26	16.28	11.6	17.4	ON-GRADE
DA A8	6.13	3.00	0.00	3.12	6.0	0.45	0.52	10.77	14.28	29.6	45.9	SUMP
DA A9	0.66	0.56	0.10	0.00	3.4	0.63	0.71	12.31	16.35	5.1	7.7	ON-GRADE
DA A10	0.85	0.77	0.08	0.00	3.3	0.63	0.71	12.39	16.46	6.6	9.8	ON-GRADE
DA A11	0.68	0.59	0.05	0.04	3.2	0.61	0.69	12.43	16.51	5.1	7.7	ON-GRADE
DA A12	0.54	0.00	0.54	0.00	2.2	0.73	0.82	13.20	17.56	5.3	7.8	ON-GRADE
DA B1	0.56	0.20	0.27	0.09	3.0	0.62	0.70	12.57	16.70	4.4	6.6	ON-GRADE
DA B2A	1.28	0.94	0.07	0.27	2.7	0.55	0.63	12.79	17.01	9.0	13.7	SUMP
DA B2B	0.38	0.30	0.05	0.03	3.2	0.61	0.69	12.46	16.56	2.9	4.3	SUMP
DA B3A	0.11	0.00	0.11	0.00	2.6	0.73	0.82	12.88	17.13	1.1	1.6	SUMP
DA B3B	0.33	0.00	0.33	0.00	2.6	0.73	0.82	12.89	17.14	3.2	4.7	SUMP
DA B4	1.06	0.74	0.11	0.22	3.5	0.56	0.64	12.21	16.22	7.3	11.1	ON-GRADE
DA B5	1.66	1.50	0.16	0.00	3.6	0.63	0.71	12.16	16.15	12.6	18.9	ON-GRADE
DA B6A	1.04	0.15	0.10	0.80	3.4	0.38	0.45	12.33	16.38	4.9	7.7	SUMP
DA B6B	1.35	1.21	0.12	0.02	3.9	0.62	0.70	11.95	15.87	10.0	15.1	SUMP
DA B7A	0.13	0.00	0.13	0.00	0.8	0.73	0.82	14.51	19.35	1.4	2.0	SUMP
DA B7B	0.30	0.00	0.30	0.00	2.4	0.73	0.82	13.02	17.31	2.8	4.2	SUMP
DA B8	1.27	1.19	0.08	0.00	4.2	0.62	0.70	11.80	15.67	9.3	14.0	ON-GRADE
DA C2	0.91	0.00	0.27	0.64	7.3	0.42	0.50	10.17	13.48	3.9	6.1	ON-GRADE
DA C3	0.39	0.00	0.23	0.16	0.8	0.56	0.63	14.51	19.35	3.2	4.8	ON-GRADE
DA C4	1.19	0.00	0.18	1.01	7.4	0.36	0.43	10.12	13.41	4.3	6.9	ON-GRADE
DA C5	2.33	0.71	0.16	1.46	8.2	0.42	0.49	9.79	12.98	9.6	14.9	ON-GRADE
DA C6	0.19	0.07	0.12	0.00	4.0	0.69	0.78	11.92	15.82	1.5	2.3	ON-GRADE
DA C7	0.96	0.80	0.12	0.03	3.6	0.62	0.70	12.18	16.18	7.2	10.8	ON-GRADE
DA D1	1.37	0.39	0.21	0.77	4.3	0.45	0.53	11.74	15.59	7.3	11.3	ON-GRADE
DA D2	0.72	0.52	0.20	0.00	4.3	0.65	0.73	11.72	15.56	5.5	8.2	ON-GRADE
DA D3	0.36	0.28	0.08	0.00	4.7	0.64	0.72	11.49	15.24	2.7	4.0	ON-GRADE
DA D4A	0.48	0.14	0.34	0.00	4.8	0.70	0.78	11.44	15.18	3.8	5.7	SUMP
DA D4B	1.03	0.93	0.10	0.00	5.1	0.63	0.71	11.27	14.95	7.3	10.9	SUMP
DA D5	0.37	0.00	0.37	0.00	1.5	0.73	0.82	13.84	18.43	3.7	5.6	ON-GRADE
DA D6	0.54	0.24	0.29	0.00	3.5	0.68	0.76	12.25	16.28	4.5	6.7	ON-GRADE

STREET GUTTER DEPTH CALCULATIONS FOR 25YR STORM

AREA #	FLOW (CFS)	QBYPASS (CFS)	QTOTAL (CFS)	STREET CAP (CFS)	S (%)	Y (FT)	QX-OVER (CFS)	Q NET (CFS)	FLOW TO	STREET WIDTH (FT)	SPREAD (FT)	ALLOWABLE SPREAD (FT)	INLET TYPE
DA A1	1.6	0.0	1.6	18.8	4.70	0.22	0.0	1.6	NA	28	3.7	14	ON-GRADE
DA A2	3.8	0.0	3.8	18.8	4.70	0.30	0.0	3.8	NA	28	5.3	14	ON-GRADE
DA A3	2.5	0.0	2.5	23.8	7.55	0.24	0.0	2.5	NA	28	4.0	14	ON-GRADE
DA A4	3.5	0.0	3.5	23.8	7.55	0.26	0.0	3.5	NA	28	4.6	14	ON-GRADE
DA A5	6.7	0.0	6.7	23.8	7.55	0.33	0.0	6.7	NA	28	6.1	14	ON-GRADE
DA A6	7.4	0.0	7.4	23.8	7.55	0.34	0.0	7.4	NA	28	6.4	14	ON-GRADE
DA A7	11.6	0.0	11.6	15.2	3.07	0.46	0.0	11.6	NA	28	10.8	14	ON-GRADE
DA A8	29.6	0.0	29.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	SUMP
DA A9	5.1	0.0	5.1	15.2	3.07	0.35	0.0	5.1	NA	28	6.6	14	ON-GRADE
DA A10	6.6	0.0	6.6	15.2	3.07	0.38	0.0	6.6	NA	28	7.5	14	ON-GRADE
DA A11	5.1	0.0	5.1	15.2	3.07	0.35	0.0	5.1	NA	28	6.6	14	ON-GRADE
DA A12	5.3	0.0	5.3	15.2	3.07	0.35	0.0	5.3	NA	28	6.7	14	ON-GRADE
DA B1	4.4	0.0	4.4	19.4	5.00	0.31	0.0	4.4	NA	28	5.5	14	ON-GRADE
DA B2A	9.0	0.0	9.0	12.9	2.20	0.44	0.0	9.0	NA	28	10.1	14	SUMP
DA B2B	2.9	0.0	2.9	6.8	0.61	0.38	0.0	2.9	NA	28	7.4	14	SUMP
DA B3A	1.1	0.0	1.1	12.9	2.20	0.22	0.0	1.1	NA	28	3.7	14	SUMP
DA B3B	3.2	0.5	4.2	13.1	2.30	0.34	0.0	3.7	NA	28	6.5	14	SUMP
DA B4	7.3	0.0	7.3	6.8	0.61	0.51	0.5	6.8	B3B	28	>14	14	ON-GRADE
DA B5	12.6	0.0	12.6	17.3	4.00	0.45	0.0	12.6	NA	28	10.3	14	ON-GRADE
DA B6A	4.9	0.0	4.9	12.6	2.10	0.37	0.0	4.9	NA	28	7.1	14	SUMP
DA B6B	10.0	0.0	10.0	8.9	1.06	0.52	1.1	8.9	B7B	28	>14	14	SUMP
DA B7A	1.4	0.0	1.4	12.4	2.04	0.24	0.0	1.4	NA	28	4.1	14	SUMP
DA B7B	2.8	1.1	3.9	10.0	1.32	0.37	0.0	3.9	NA	28	7.2	14	SUMP
DA B8	9.3	0.0	9.3	10.0	1.32	0.49	0.0	9.3	NA	28	14.0	14	ON-GRADE
DA C2	3.9	0.0	3.9	33.6	15.00	0.25	0.0	3.9	NA	28	4.2	14	ON-GRADE
DA C3	3.2	0.0	3.2	33.6	15.00	0.23	0.0	3.2	NA	28	3.9	14	ON-GRADE
DA C4	4.3	0.0	4.3	33.6	15.00	0.25	0.0	4.3	NA	28	4.4	14	ON-GRADE
DA C5	9.6	0.0	9.6	12.3	2.00	0.46	0.0	9.6	NA	28	11.0	14	ON-GRADE
DA C6	1.5	0.0	1.5	12.3	2.00	0.25	0.0	1.5	NA	28	4.3	14	ON-GRADE
DA C7	7.2	0.0	7.2	10.0	1.34	0.45	0.0	7.2	NA	28	10.2	14	ON-GRADE
DA D1	7.3	0.2	7.5	17.7	4.19	0.38	0.0	7.5	NA	28	7.4	14	ON-GRADE
DA D2	5.5	0.0	5.5	17.7	4.19	0.34	0.0	5.5	NA	28	6.4	14	ON-GRADE
DA D3	2.7	0.0	2.7	10.5	1.46	0.32	0.0	2.7	NA	28	5.8	14	ON-GRADE
DA D4A	3.8	0.0	3.8	13.4	2.40	0.33	0.0	3.8	NA	28	6.1	14	SUMP
DA D4B	7.3	0.2	7.4	10.6	1.50	0.44	0.0	7.4	NA	28	10.0	14	SUMP
DA D5	3.7	0.0	3.7	21.2	6.00	0.28	0.0	3.7	NA	28	5.0	14	ON-GRADE
DA D6	4.5	0.0	4.5	21.2	6.00	0.30	0.0	4.5	NA	28	5.4	14	ON-GRADE

INLET CALCULATIONS FOR 25YR STORM (ALL INLETS ARE TYPE 1 ON GRADE)

INLET #	AREA #	ST WIDTH (FT)	QTOTAL (CFS)	STREET CAP (CFS)	S (%)	Y (FT)	QA/LA (CFS/FT)	LA (FT)	L (FT)	L/LA	A/Y	Q/QA	QIN (CFS)	QBYPASS (CFS)	FLOW TO
A1	DA A1	28	1.6	18.8	4.70	0.22	0.7	2.39	10	4.19	1.88	1.0000	1.6	0.0	NA
A2	DA A2	28	3.8	18.8	4.70	0.30	0.7	5.13	10	1.95	1.41	1.0000	3.8	0.0	NA
A3	DA A3	28	2.5	23.8	7.55	0.24	0.7	3.63	10	2.75	1.75	1.0000	2.5	0.0	NA
A4	DA A4	28	3.5	23.8	7.55	0.26	0.7	4.82	10	2.07	1.58	1.0000	3.5	0.0	NA
A5	DA A5	28	6.7	23.8	7.55	0.33	0.8	8.60	10	1.16	1.26	1.0000	6.7	0.0	NA
A6	DA A6	28	7.4	23.8	7.55	0.34	0.8	9.36	10	1.07	1.22	1.0000	7.4	0.0	NA
A7	DA A7	28	11.6	15.2	3.07	0.46	0.9	12.60	20	1.59	0.91	1.0000	11.6	0.0	NA
A9	DA A9	28	5.1	15.2	3.07	0.35	0.8	6.40	10	1.56	1.19	1.0000	5.1	0.0	NA
A10	DA A10	28	6.6	15.2	3.07	0.38	0.8	7.85	10	1.27	1.10	1.0000	6.6	0.0	NA
A11	DA A11	28	5.1	15.2	3.07	0.35	0.8	6.37	10	1.57	1.19	1.0000	5.1	0.0	NA
A12	DA A12	28	5.3	15.2	3.07	0.35	0.8	6.50	10	1.54	1.18	1.0000	5.3	0.0	NA
B1	DA B1	28	4.4	19.4	5.00	0.31	0.8	5.75	10	1.74	1.36	1.0000	4.4	0.0	NA
B4	DA B4	28	7.3	6.8	0.61	0.51	1.0	7.41	10	1.35	0.81	1.0000	7.3	0.0	NA
B5	DA B5	28	12.6	17.3	4.00	0.45	0.9	13.79	20	1.45	0.93	1.0000	12.6	0.0	NA
B8	DA B8	28	9.3	10.0	1.32	0.49	1.0	9.76	20	2.05	0.85	1.0000	9.3	0.0	NA
C2	DA C2	28	3.9	33.6	15.00	0.25	0.7	5.62	10	1.78	1.69	1.0000	3.9	0.0	NA
C3	DA C3	28	3.2	33.6	15.00	0.23	0.7	4.64	10	2.15	1.82	1.0000	3.2	0.0	NA
C4	DA C4	28	4.3	33.6	15.00	0.25	0.7	6.10	10	1.64	1.64	1.0000	4.3	0.0	NA
C5	DA C5	28	9.6	12.3	2.00	0.46	0.9	10.33	10	0.97	0.90	0.9835	9.4	0.2	D4B
C6	DA C6	28	1.5	12.3	2.00	0.25	0.7	2.17	10	4.60	1.66	1.0000	1.5	0.0	NA
C7	DA C7	28	7.2	10.0	1.34	0.45	0.9	7.90	10	1.27	0.93	1.0000	7.2	0.0	NA
D1	DA D1	28	7.5	17.7	4.19	0.38	0.8	8.99	10	1.11	1.11	1.0000	7.5	0.0	NA
D2	DA D2	28	5.5	17.7	4.19	0.34	0.8	6.90	10	1.45	1.23	1.0000	5.5	0.0	NA
D3	DA D3	28	2.7	10.5	1.46	0.32	0.8	3.44	10	2.91	1.31	1.0000	2.7	0.0	NA
D5	DA D5	28	3.7	21.2	6.00	0.28	0.7	5.08	10	1.97	1.48	1.0000	3.7	0.0	NA
D6	DA D6	28	4.5	21.2	6.00	0.30	0.8	5.97	10	1.67	1.39	1.0000	4.5	0.0	NA

INLET CALCULATIONS FOR 25YR STORM (ALL INLETS ARE TYPE 1 IN SUMP WITH 10% REDUCTION)

INLET #	AREA #	QTOTAL (CFS)	L (FT)	L x 0.90 (FT)	Q/L (CFS/FT)	Yo + 5" (FT)	INLET Yo (FT)	BELOW 0.5 FT
A8	DA A8	29.6	10	9	3.29	1.06	0.64	No
B2	DA B2A & B2B	11.9	10	9	1.32	0.58	0.16	Yes
B3	DA B3A & B3B	5.3	10	9	0.59	0.34	-0.08	Yes
B6	DA B6A & B6B	14.9	10	9	1.65	0.67	0.25	Yes
B7	DA B7A & B7B	5.3	10	9	0.59	0.34	-0.08	Yes
D4	DA D4A & D4B	11.3	10	9	1.25	0.56	0.14	Yes

- Area Inlet - outside ROW

STREET GUTTER DEPTH CALCULATIONS FOR 100YR STORM

AREA #	FLOW (CFS)	QBYPASS (CFS)	QTOTAL (CFS)	STREET CAP (CFS)	S (%)	Y (FT)	QX-OVER (CFS)	Q NET (CFS)	FLOW TO	STREET WIDTH (FT)	SPREAD (FT)	ALLOWABLE SPREAD (FT)	INLET TYPE
DA A1	2.4	0.0	2.4	18.8	4.70	0.25	0.0	2.4	NA	28	4.3	14	ON-GRADE
DA A2	5.8	0.0	5.8	18.8	4.70	0.34	0.0	5.8	NA	28	6.3	14	ON-GRADE
DA A3	3.9	0.0	3.9	23.8	7.55	0.28	0.0	3.9	NA	28	4.8	14	ON-GRADE
DA A4	5.1	0.0	5.1	23.8	7.55	0.30	0.0	5.1	NA	28	5.4	14	ON-GRADE
DA A5	10.2	0.0	10.2	23.8	7.55	0.38	0.0	10.2	NA	28	7.5	14	ON-GRADE
DA A6	11.3	1.2	12.5	23.8	7.55	0.40	0.0	12.5	NA	28	8.3	14	ON-GRADE
DA A7	17.4	2.6	20.0	15.2	3.07	0.55	4.9	15.2	A12	28	>14	14	ON-GRADE
DA A8	45.9	0.0	45.9	NA	NA	NA	NA	NA	NA	NA	N/A	NA	SUMP
DA A9	7.7	0.0	7.7	15.2	3.07	0.40	0.0	7.7	NA	28	8.2	14	ON-GRADE
DA A10	9.8	0.0	9.8	15.2	3.07	0.43	0.0	9.8	NA	28	9.5	14	ON-GRADE
DA A11	7.7	0.5	8.2	15.2	3.07	0.41	0.0	8.2	NA	28	8.5	14	ON-GRADE
DA A12	7.8	4.9	12.7	15.2	3.07	0.47	0.0	12.7	NA	28	11.7	14	ON-GRADE
DA B1	6.6	0.0	6.6	19.4	5.00	0.35	0.0	6.6	NA	28	6.6	14	ON-GRADE
DA B2A	13.7	0.0	13.7	12.9	2.20	0.51	0.9	12.9	B3A	28	>14	14	SUMP
DA B2B	4.3	0.2	4.5	6.8	0.61	0.44	0.0	4.5	NA	28	9.6	14	SUMP
DA B3A	1.6	0.9	2.5	12.9	2.20	0.29	0.0	2.5	NA	28	5.1	14	SUMP
DA B3B	4.7	5.9	10.5	13.1	2.30	0.46	0.0	10.5	NA	28	11.3	14	SUMP
DA B4	11.1	0.0	11.1	6.8	0.61	0.59	4.3	6.8	B3B	28	>14	14	ON-GRADE
DA B5	18.9	0.0	18.9	17.3	4.00	0.51	1.6	17.3	B3B	28	>14	14	ON-GRADE
DA B6A	7.7	0.0	7.7	12.6	2.10	0.43	0.0	7.7	NA	28	9.2	14	SUMP
DA B6B	15.1	0.0	15.1	8.9	1.06	0.59	6.1	8.9	B7B	28	>14	14	SUMP
DA B7A	2.0	7.8	9.8	12.4	2.04	0.46	0.0	9.8	NA	28	11.1	14	SUMP
DA B7B	4.2	11.5	15.7	10.0	1.32	0.58	5.7	10.0	B7A	28	14.0	14	SUMP
DA B8	14.0	0.5	14.5	10.0	1.32	0.57	4.6	10.0	B7B	28	>14	14	ON-GRADE
DA C2	6.1	0.0	6.1	33.6	15.00	0.29	0.0	6.1	NA	28	5.0	14	ON-GRADE
DA C3	4.8	0.0	4.8	33.6	15.00	0.26	0.0	4.8	NA	28	4.6	14	ON-GRADE
DA C4	6.9	0.0	6.9	33.6	15.00	0.30	0.0	6.9	NA	28	5.3	14	ON-GRADE
DA C5	14.9	0.0	14.9	12.3	2.00	0.53	2.7	12.3	C6	28	>14	14	ON-GRADE
DA C6	2.3	2.7	4.9	12.3	2.00	0.37	0.0	4.9	NA	28	7.2	14	ON-GRADE
DA C7	10.8	0.0	10.8	10.0	1.34	0.51	0.8	10.0	B7B	28	>14	14	ON-GRADE
DA D1	11.3	3.0	14.3	17.7	4.19	0.47	0.0	14.3	NA	28	11.3	14	ON-GRADE
DA D2	8.2	0.0	8.2	17.7	4.19	0.39	0.0	8.2	NA	28	7.8	14	ON-GRADE
DA D3	4.0	0.0	4.0	10.5	1.46	0.36	0.0	4.0	NA	28	7.0	14	ON-GRADE
DA D4A	5.7	3.6	9.3	13.4	2.40	0.44	0.0	9.3	NA	28	10.0	14	SUMP
DA D4B	10.9	0.0	10.9	10.6	1.50	0.50	0.3	10.6	D4A	28	>14	14	SUMP
DA D5	5.6	0.0	5.6	21.2	6.00	0.32	0.0	5.6	NA	28	5.9	14	ON-GRADE
DA D6	6.7	0.0	6.7	21.2	6.00	0.34	0.0	6.7	NA	28	6.4	14	ON-GRADE

INLET CALCULATIONS FOR 100YR STORM (ALL INLETS ARE TYPE 1 ON GRADE)

INLET #	AREA #	ST WIDTH (FT)	QTOTAL (CFS)	STREET CAP (CFS)	S (%)	Y (FT)	QA/LA (CFS/FT)	LA (FT)	L (FT)	L/LA	A/Y	Q/QA	QIN (CFS)	QBYPASS (CFS)	FLOW TO
A1	DA A1	28	2.4	18.8	4.70	0.25	0.7	3.40	10	2.95	1.64	1.0000	2.4	0.0	NA
A2	DA A2	28	5.8	18.8	4.70	0.34	0.8	7.29	10	1.37	1.23	1.0000	5.8	0.0	NA
A3	DA A3	28	3.9	23.8	7.55	0.28	0.7	5.42	10	1.85	1.51	1.0000	3.9	0.0	NA
A4	DA A4	28	5.1	23.8	7.55	0.30	0.8	6.81	10	1.47	1.38	1.0000	5.1	0.0	NA
A5	DA A5	28	10.2	23.8	7.55	0.38	0.8	12.26	10	0.82	1.10	0.8826	9.0	1.2	A6
A6	DA A6	28	12.5	23.8	7.55	0.40	0.9	14.48	10	0.69	1.03	0.7914	9.9	2.6	A7
A7	DA A7	28	20.0	15.2	3.07	0.55	1.0	19.57	20	1.02	0.76	1.0000	20.0	0.0	NA
A9	DA A9	28	7.7	15.2	3.07	0.40	0.9	9.00	10	1.11	1.04	1.0000	7.7	0.0	NA
A10	DA A10	28	9.8	15.2	3.07	0.43	0.9	11.00	10	0.91	0.96	0.9487	9.3	0.5	A11
A11	DA A11	28	8.2	15.2	3.07	0.41	0.9	9.47	10	1.06	1.02	1.0000	8.2	0.0	NA
A12	DA A12	28	12.7	15.2	3.07	0.47	0.9	13.51	10	0.74	0.88	0.8391	10.6	2.0	B7A
B1	DA B1	28	6.6	19.4	5.00	0.35	0.8	8.15	10	1.23	1.19	1.0000	6.6	0.0	NA
B4	DA B4	28	11.1	6.8	0.61	0.59	1.1	10.32	10	0.97	0.71	0.9859	10.9	0.2	B2B
B5	DA B5	28	18.9	17.3	4.00	0.51	1.0	19.18	20	1.04	0.81	1.0000	18.9	0.0	NA
B8	DA B8	28	14.5	10.0	1.32	0.57	1.0	13.90	20	1.44	0.74	1.0000	14.5	0.0	NA
C2	DA C2	28	6.1	33.6	15.00	0.29	0.7	8.30	10	1.20	1.46	1.0000	6.1	0.0	NA
C3	DA C3	28	4.8	33.6	15.00	0.26	0.7	6.74	10	1.48	1.58	1.0000	4.8	0.0	NA
C4	DA C4	28	6.9	33.6	15.00	0.30	0.7	9.16	10	1.09	1.41	1.0000	6.9	0.0	NA
C5	DA C5	28	14.9	12.3	2.00	0.53	1.0	14.80	10	0.68	0.78	0.7982	11.9	3.0	D1
C6	DA C6	28	4.9	12.3	2.00	0.37	0.8	5.97	10	1.68	1.13	1.0000	4.9	0.0	NA
C7	DA C7	28	10.8	10.0	1.34	0.51	1.0	11.00	10	0.91	0.81	0.9528	10.3	0.5	B8
D1	DA D1	28	14.3	17.7	4.19	0.47	0.9	15.36	10	0.65	0.89	0.7687	11.0	3.3	D4A
D2	DA D2	28	8.2	17.7	4.19	0.39	0.8	9.70	10	1.03	1.08	1.0000	8.2	0.0	NA
D3	DA D3	28	4.0	10.5	1.46	0.36	0.8	4.85	10	2.06	1.15	1.0000	4.0	0.0	NA
D5	DA D5	28	5.6	21.2	6.00	0.32	0.8	7.16	10	1.40	1.30	1.0000	5.6	0.0	NA
D6	DA D6	28	6.7	21.2	6.00	0.34	0.8	8.42	10	1.19	1.22	1.0000	6.7	0.0	NA

INLET CALCULATIONS FOR 100YR STORM (ALL INLETS ARE TYPE 1 IN SUMP WITH 10% REDUCTION)

INLET #	AREA #	QTOTAL (CFS)	L (FT)	L x 0.90 (FT)	Q/L (CFS/FT)	Yo + 5" (FT)	INLET Yo (FT)	BELOW 0.5 FT
A8	DA A8	45.9	10	9	5.10	1.42	1.00	No
B2	DA B2A & B2B	18.2	10	9	2.02	0.77	0.35	Yes
B3	DA B3A & B3B	13.0	10	9	1.44	0.61	0.19	Yes
B6	DA B6A & B6B	22.8	10	9	2.53	0.89	0.47	Yes
B7	DA B7A & B7B	25.5	10	9	2.83	0.96	0.54	No
D4	DA D4A & D4B	20.2	10	9	2.25	0.82	0.40	Yes

- Area Inlet - outside ROW

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.

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

DRAINAGE AREA CALCULATIONS

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DM5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DM 5

SHEET NO. 11

OF 75 SHEETS

XXXX-XX-XX

Date\Time : Wed, 05 Apr 2023 - 11:16am User Name : ejlopez
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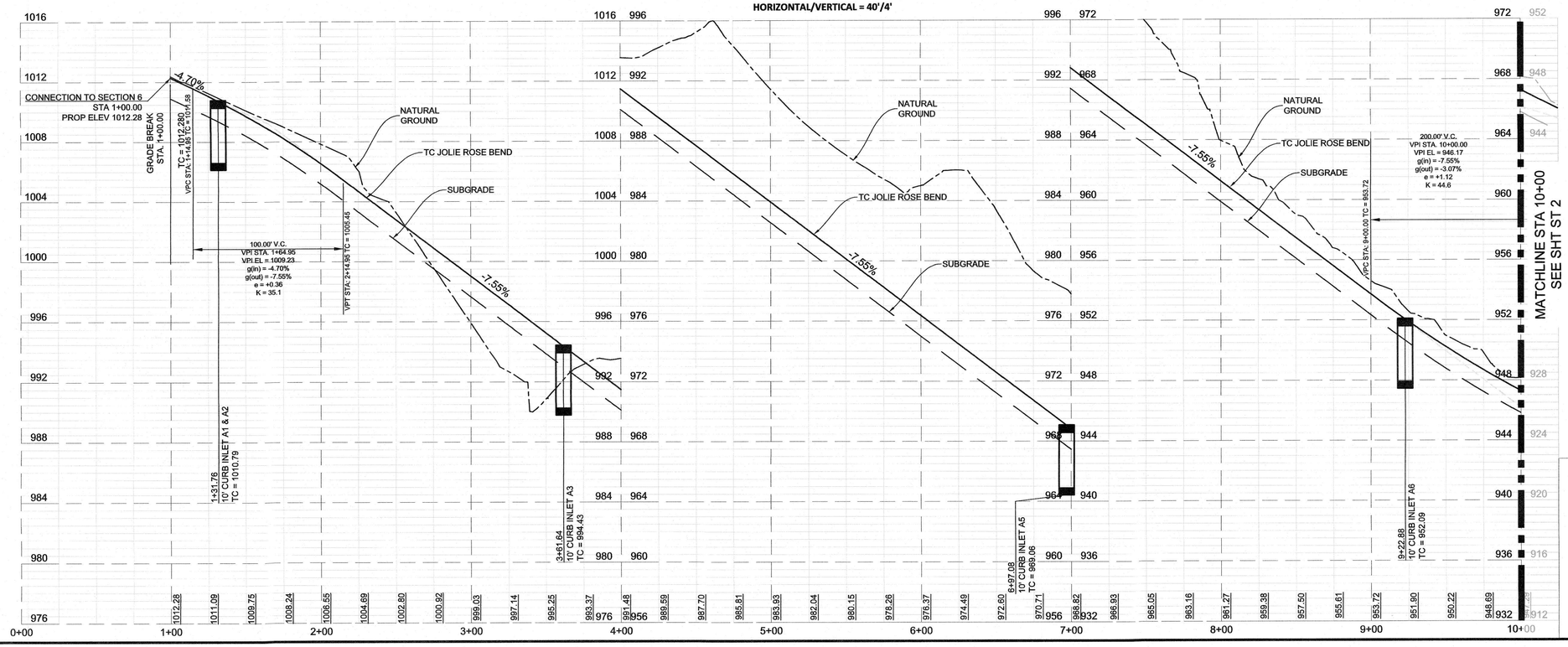
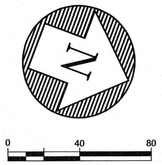
JOLIE ROSE BEND
(50' R.O.W.)
30 MPH DESIGN SPEED
HORIZONTAL/VERTICAL = 40'/4'



Curve Table					
Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C1	314.00	513.84'	093° 45' 41"	S52° 36' 56"E	458.40'
C2	300.00	490.93'	093° 45' 41"	S52° 36' 56"E	437.96'
C3	286.00	468.02'	093° 45' 41"	S52° 36' 56"E	417.52'
C4	706.00	261.60'	021° 13' 50"	N16° 21' 00"W	260.11'
C5	720.00	266.79'	021° 13' 50"	N16° 21' 00"W	265.27'
C6	734.00	271.98'	021° 13' 50"	N16° 21' 00"W	270.42'

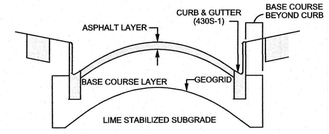


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



	LOCAL STREETS				
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER		15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB		36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

PROFILE LINE LEGEND

- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

JOLIE ROSE BEND, PLAN AND PROFILE
STA. 1+00.00 TO 10+00

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 1.dwg

T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ST 1

SHEET NO. 12 OF 75 SHEETS

Date/Time - Mon, 10 Apr 2023 - 1:48pm
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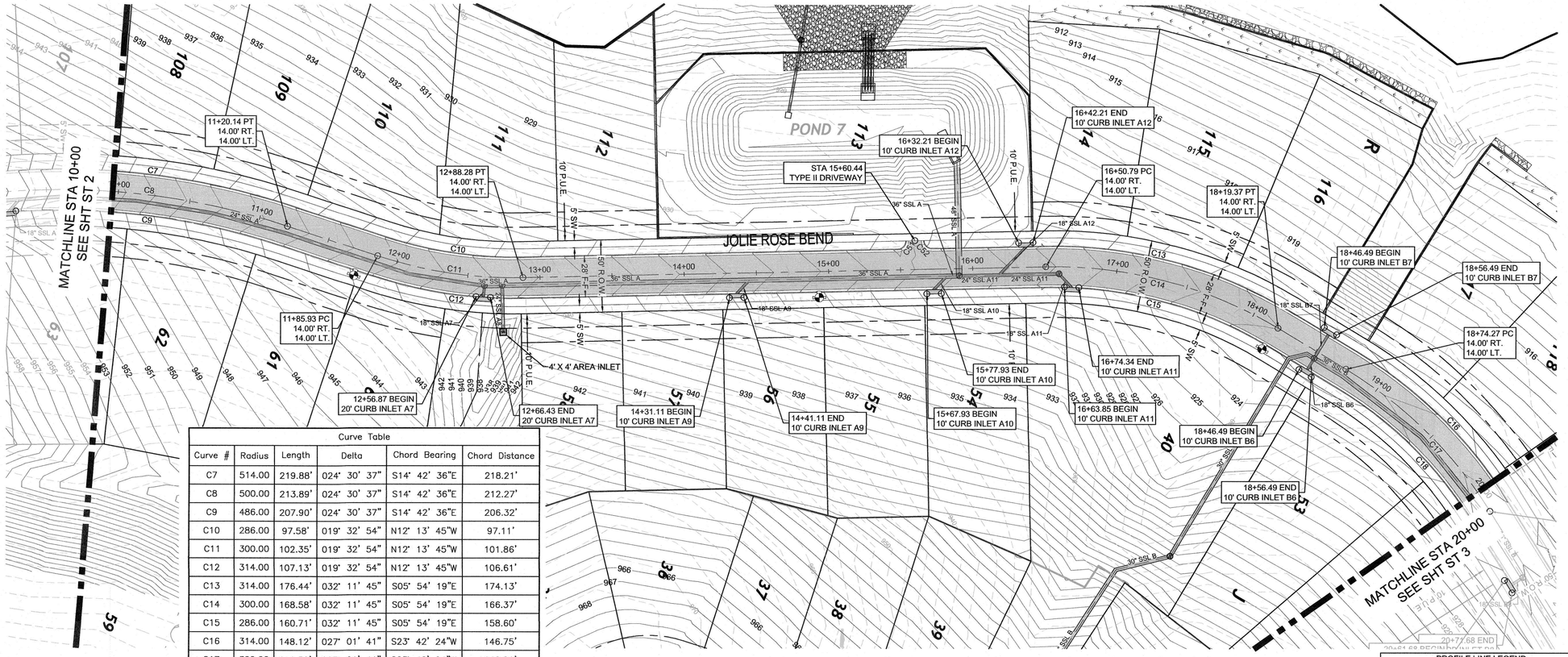


Curve Table					
Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C7	514.00	219.88'	024° 30' 37"	S14° 42' 36"E	218.21'
C8	500.00	213.89'	024° 30' 37"	S14° 42' 36"E	212.27'
C9	486.00	207.90'	024° 30' 37"	S14° 42' 36"E	206.32'
C10	286.00	97.58'	019° 32' 54"	N12° 13' 45"W	97.11'
C11	300.00	102.35'	019° 32' 54"	N12° 13' 45"W	101.86'
C12	314.00	107.13'	019° 32' 54"	N12° 13' 45"W	106.61'
C13	314.00	176.44'	032° 11' 45"	S05° 54' 19"E	174.13'
C14	300.00	168.58'	032° 11' 45"	S05° 54' 19"E	166.37'
C15	286.00	160.71'	032° 11' 45"	S05° 54' 19"E	158.60'
C16	314.00	148.12'	027° 01' 41"	S23° 42' 24"W	146.75'
C17	300.00	141.52'	027° 01' 41"	S23° 42' 24"W	140.21'
C18	286.00	134.91'	027° 01' 41"	S23° 42' 24"W	133.67'
C51	6.00	9.42'	089° 59' 54"	N67° 00' 14"W	8.49'
C52	6.00	9.42'	090° 00' 00"	S22° 59' 48"W	8.49'

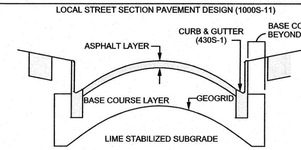
0 40 80
1" = 40'

LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



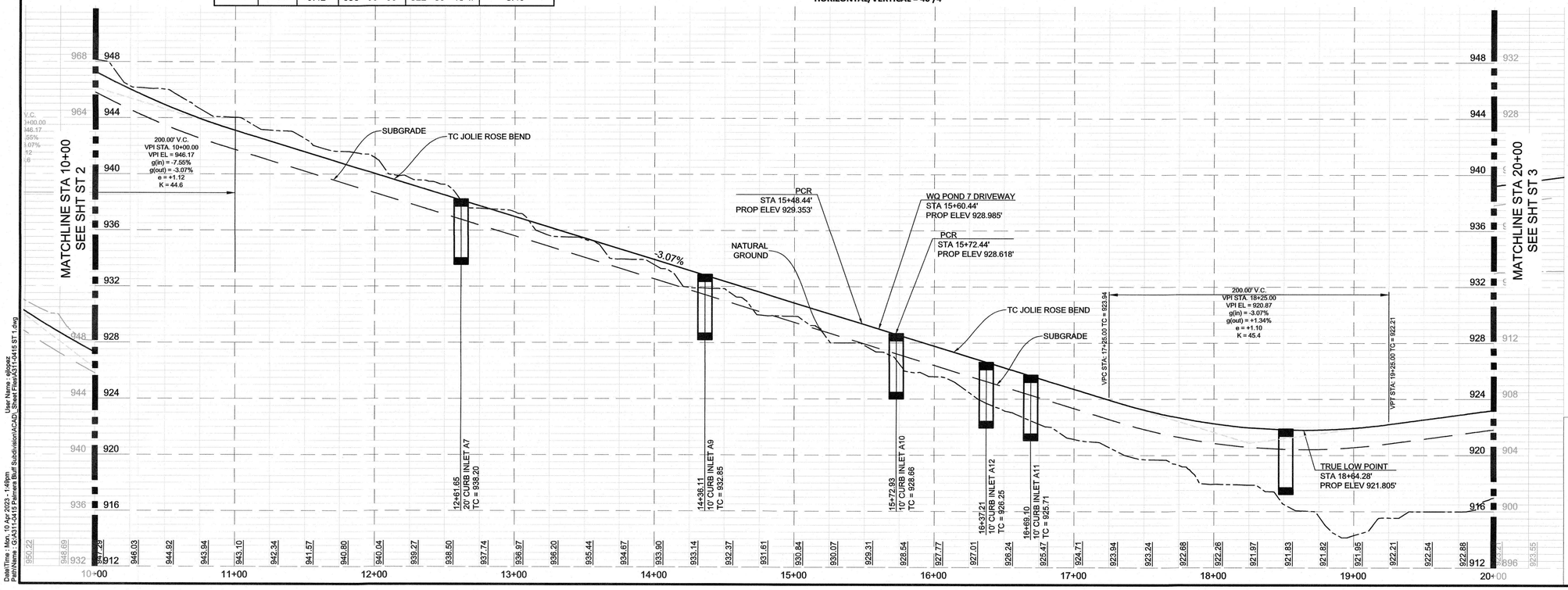
		LOCAL STREETS			
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER	↓	15"			
GEOGRID	↓	-			
LIME STABILIZED SUBGRADE	↓	-			
BASE COURSE BEYOND CURB	↓	36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

JOLIE ROSE BEND
(50' R.O.W.)
30 MPH DESIGN SPEED
HORIZONTAL/VERTICAL = 40'/4'

PROFILE LINE LEGEND
- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB



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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

JOLIE ROSE BEND, PLAN AND PROFILE
STA. 10+00.00 TO 20+00

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/15/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ST 2

SHEET NO. 13

OF 75 SHEETS

Date/Time : Mon, 10 Apr 2023 - 1:49pm User Name : elopez
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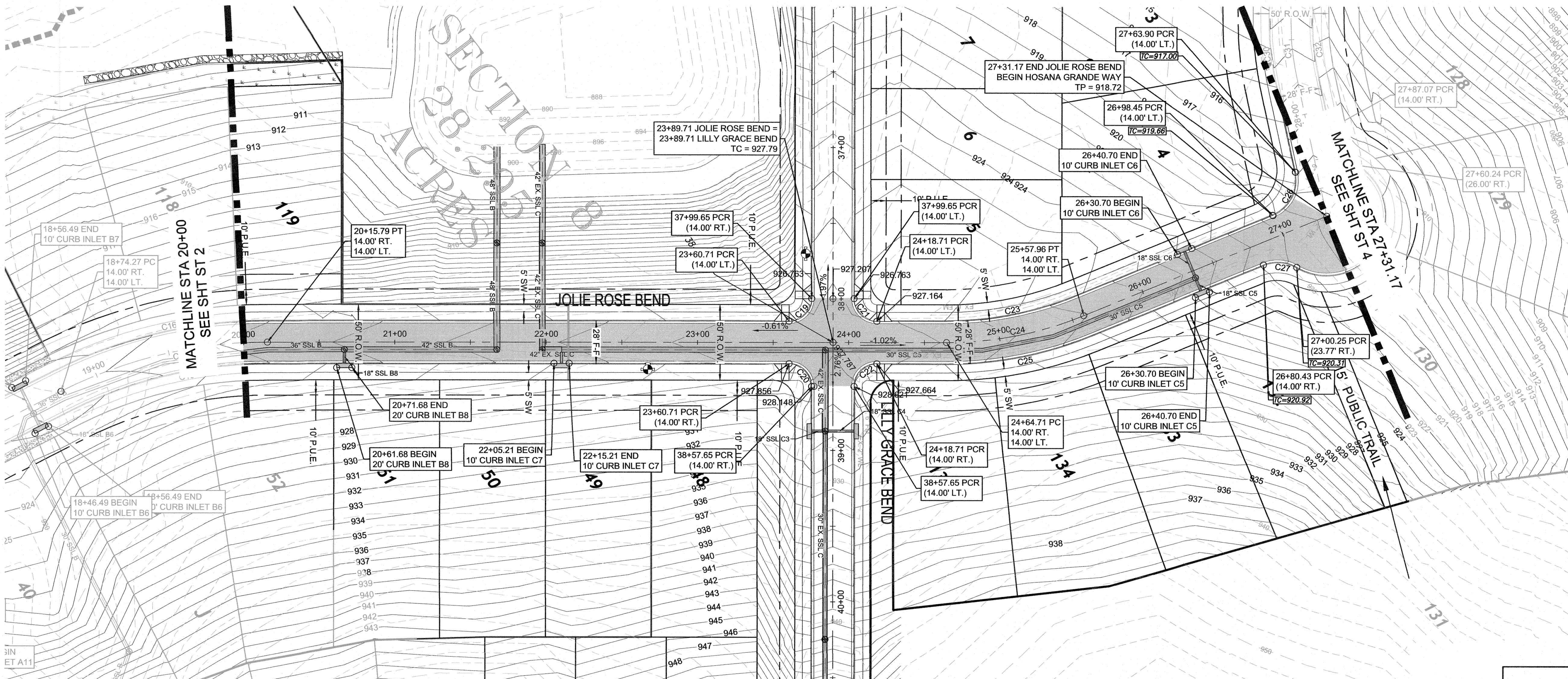
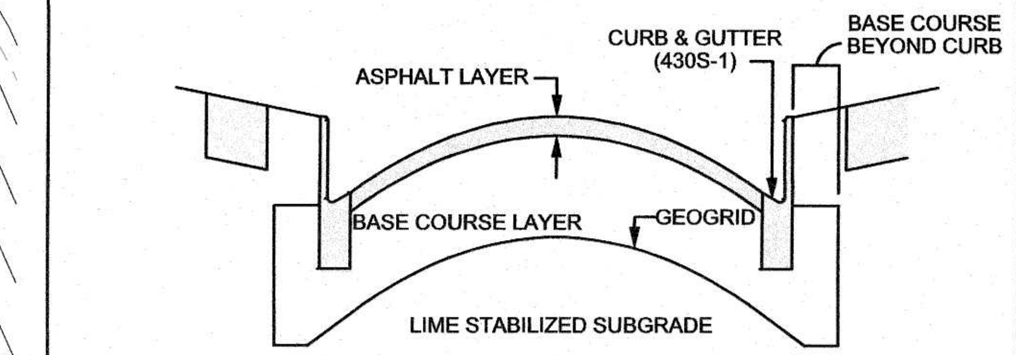


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



	LOCAL STREETS				
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER	↓	15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB	↓	36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

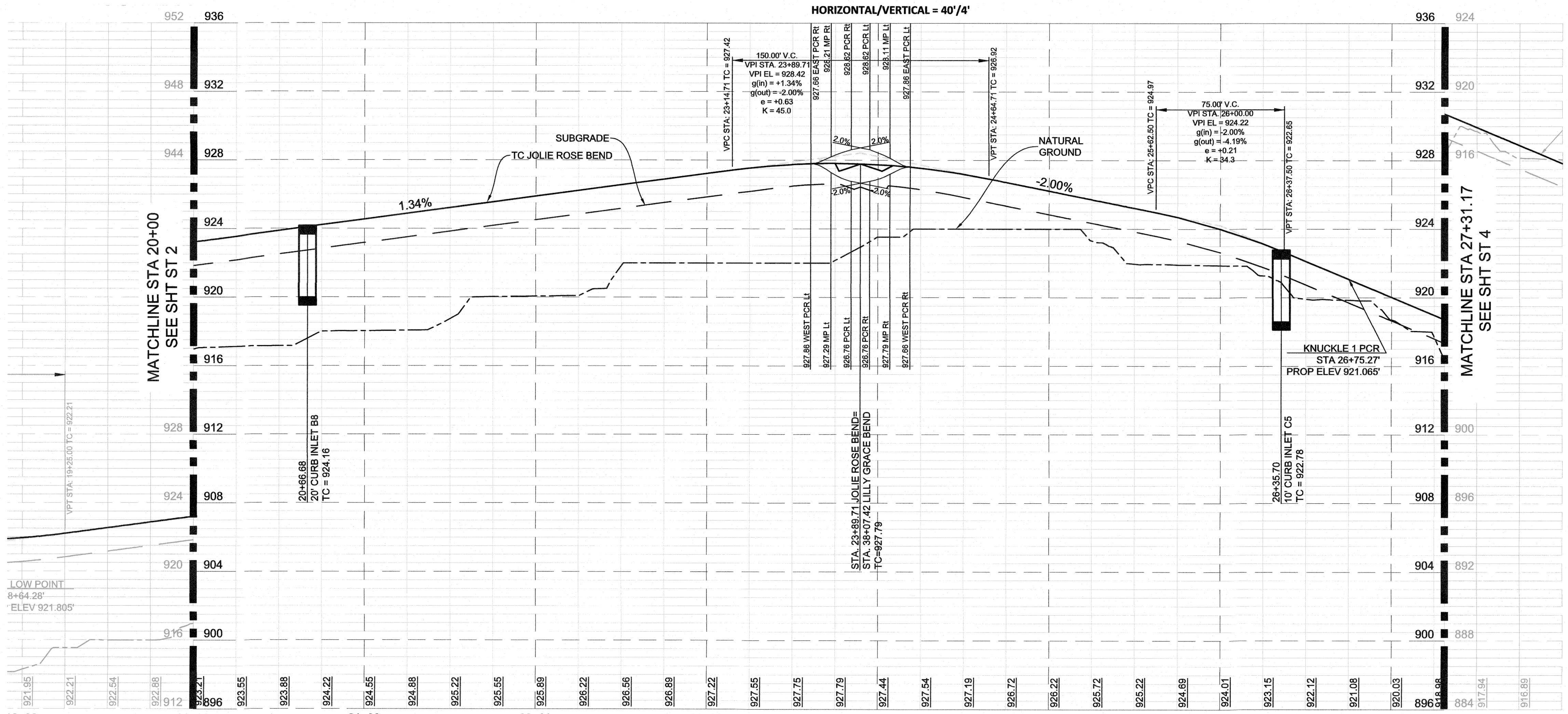
Curve Table

Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C19	15.00	23.56'	090° 00' 00"	N07° 46' 45"W	21.21'
C20	15.00	23.56'	090° 00' 00"	S82° 13' 15"W	21.21'
C21	15.00	23.56'	090° 00' 00"	N82° 13' 15"E	21.21'
C22	15.00	23.56'	090° 00' 00"	S07° 46' 45"E	21.21'
C23	226.00	87.81'	022° 15' 40"	N26° 05' 25"E	87.26'
C24	240.00	93.25'	022° 15' 40"	N26° 05' 25"E	92.66'
C25	254.00	98.69'	022° 15' 40"	N26° 05' 25"E	98.07'
C26	25.00	34.91'	080° 00' 00"	N25° 02' 25"W	32.14'
C27	25.00	22.89'	052° 27' 20"	S41° 11' 15"W	22.10'

JOLIE ROSE BEND
(50' R.O.W.)

30 MPH DESIGN SPEED

HORIZONTAL/VERTICAL = 40'/4'



PROFILE LINE LEGEND

EXIST. GROUND @ CENTERLINE

EXIST. GROUND @ LT. R.O.W.

EXIST. GROUND @ RT. R.O.W.

PROPOSED LEFT AND RIGHT CURB

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

JOLIE ROSE BEND, PLAN AND PROFILE STA. 20+00 TO 27+31.17

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ST 3

SHEET NO. 14 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 10 Apr 2023 - 1:49pm User Name : ellopez
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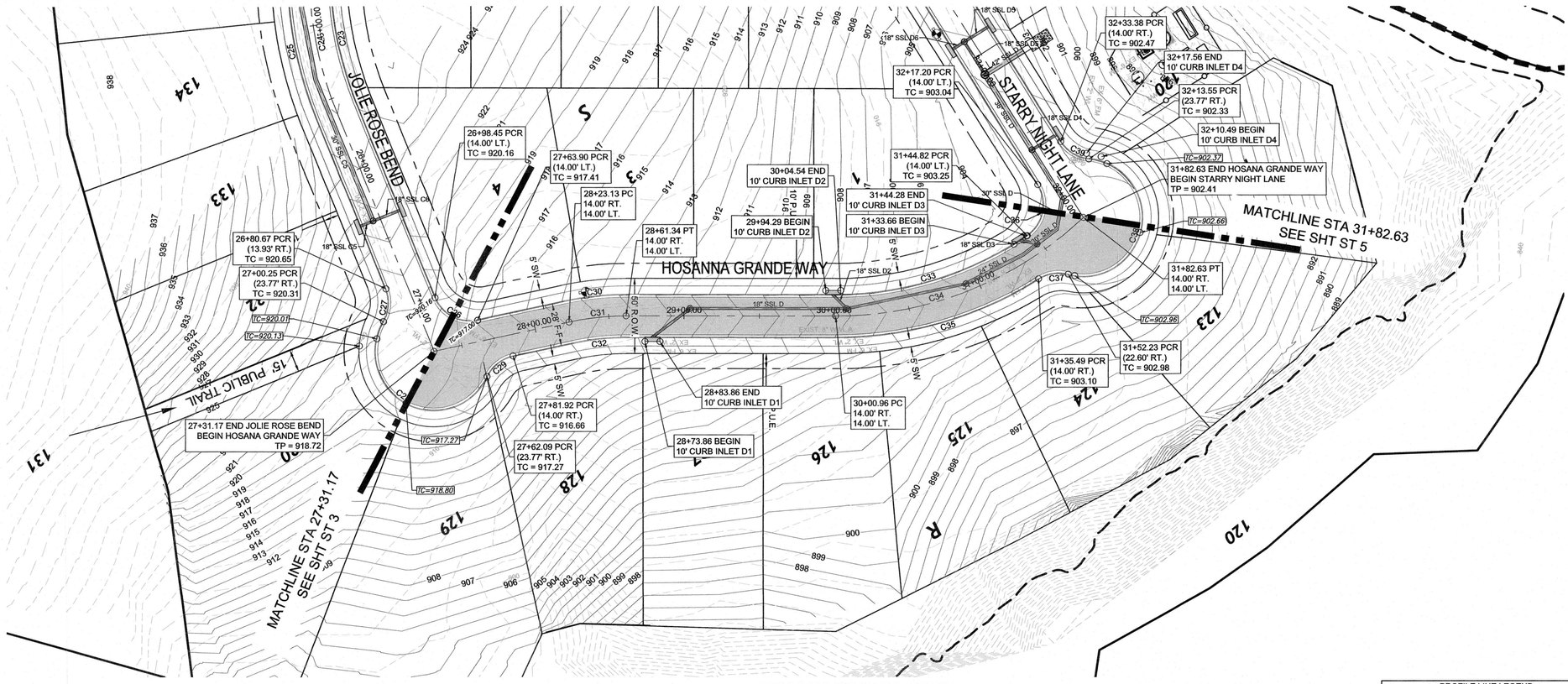
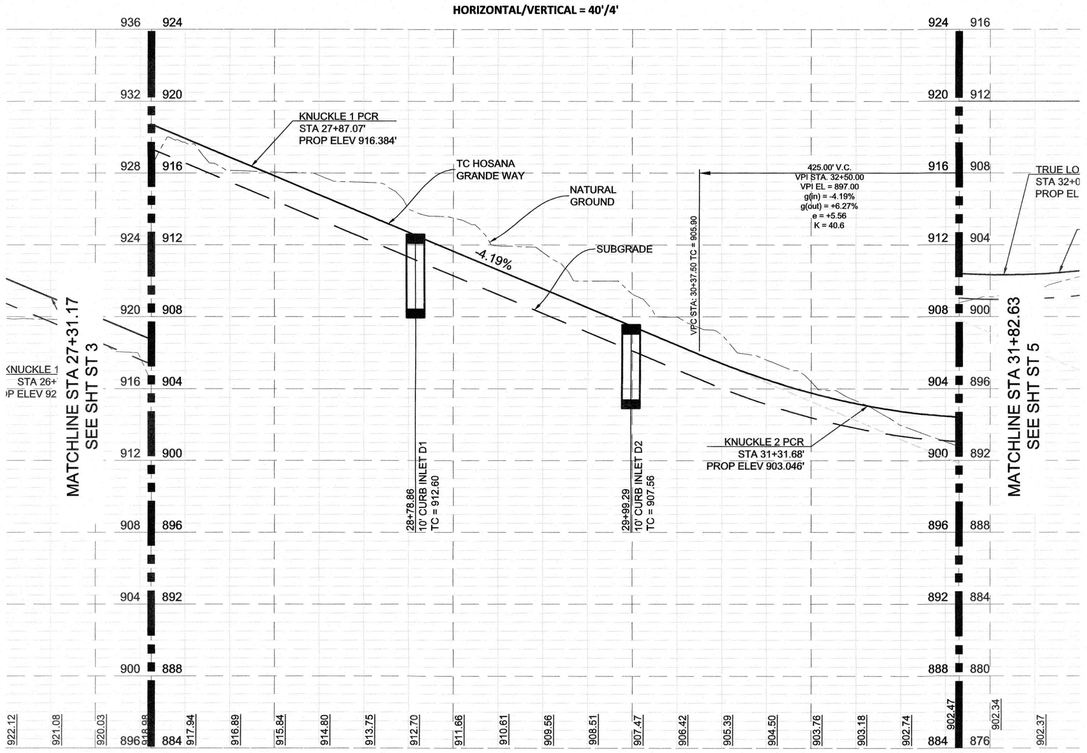
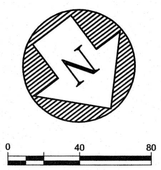


Curve Table					
Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C28	39.00	125.87'	184° 54' 41"	N25° 02' 25"W	77.93'
C29	25.00	22.89'	052° 27' 20"	N88° 43' 55"E	22.10'
C30	194.00	41.19'	012° 09' 54"	S58° 57' 28"E	41.11'
C31	180.00	38.22'	012° 09' 54"	S58° 57' 28"E	38.15'
C32	166.00	35.24'	012° 09' 54"	S58° 57' 28"E	35.18'
C33	226.00	122.88'	031° 09' 11"	N68° 27' 07"W	121.37'
C34	240.00	181.68'	043° 22' 20"	N74° 33' 41"W	177.37'
C35	254.00	142.38'	032° 07' 06"	N68° 56' 04"W	140.53'
C36	25.00	38.32'	087° 49' 17"	S48° 52' 09"W	34.68'
C37	25.00	20.53'	047° 02' 26"	S61° 28' 24"E	19.95'
C38	39.00	129.02'	189° 32' 39"	S47° 16' 30"W	77.73'
C39	25.00	22.89'	052° 27' 20"	N21° 16' 09"W	22.10'

HOSANA GRANDE WAY
(50' R.O.W.)
30 MPH DESIGN SPEED
HORIZONTAL/VERTICAL = 40'/4'



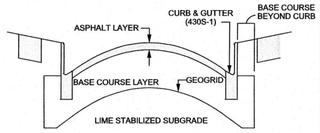


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



		LOCAL STREETS			
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER		15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB		36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

PROFILE LINE LEGEND
- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

HOSANA GRANDE WAY, PLAN AND PROFILE
STA. 27+31.17 TO 31+82.63

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 2.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

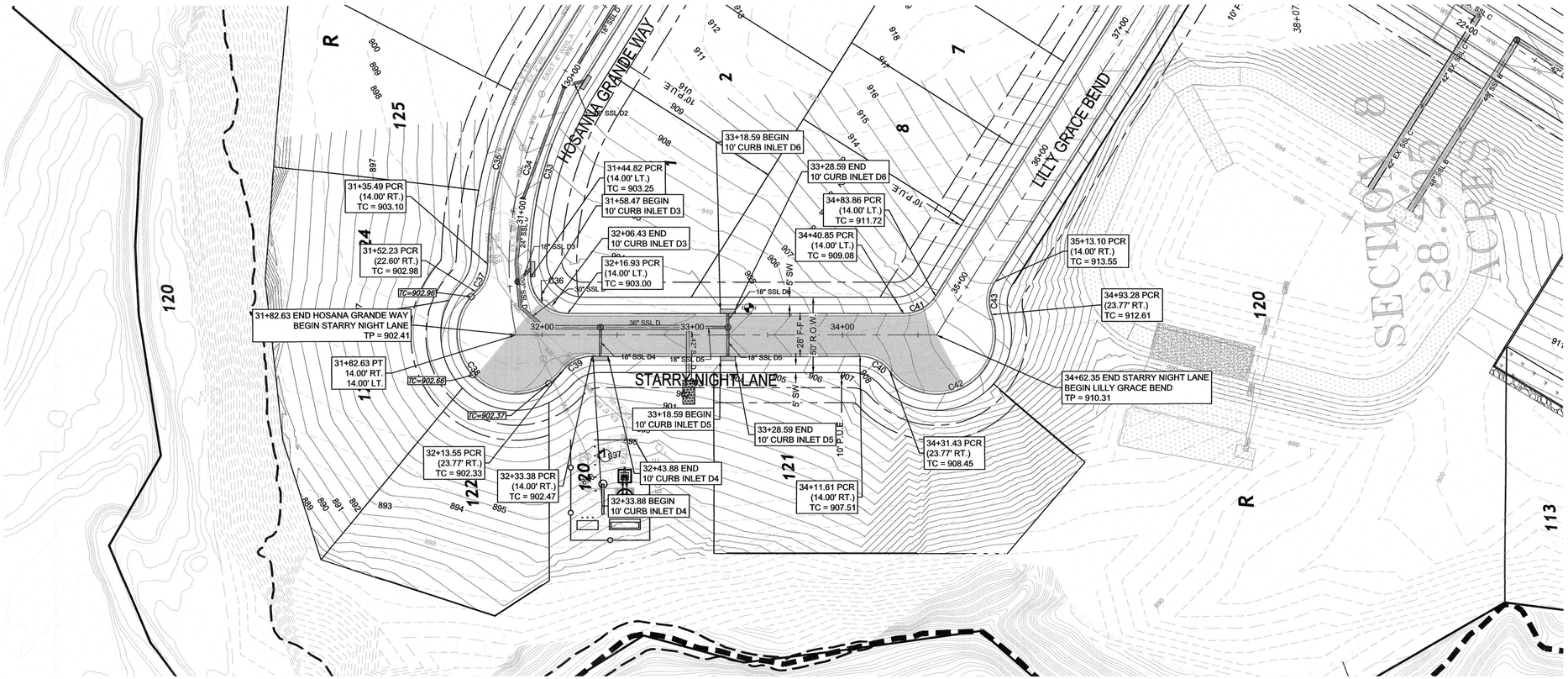
JOB NUMBER: A311-0415

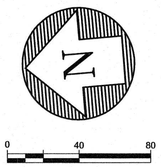
ST 4

SHEET NO. 15 OF 75 SHEETS

Date/Time : Wed, 12 Apr 2023 - 2:31pm
User Name : qlopez
Path/Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD\ Sheet Files\A311-0415 ST 2.dwg

XXXX-XX-XX



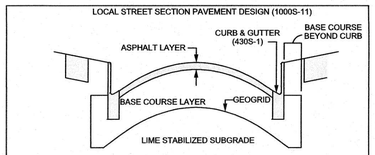


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



		LOCAL STREETS			
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER		15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB		36"			

NOTES:

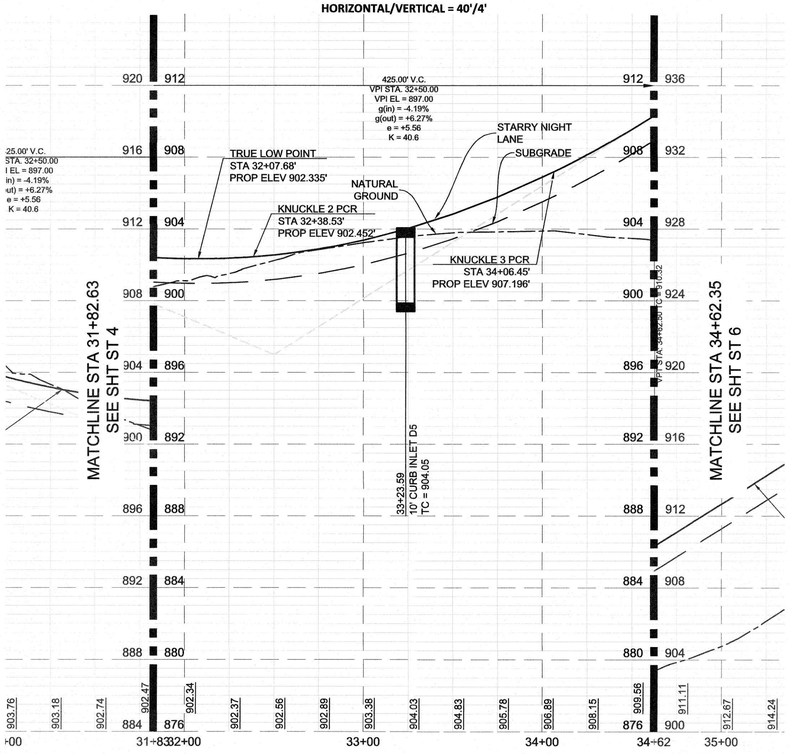
1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

PROFILE LINE LEGEND

- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

Curve Table					
Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C36	25.00	38.32'	087° 49' 17"	S48° 52' 09"W	34.68'
C38	38.00	129.02'	189° 32' 39"	S47° 16' 30"W	77.73'
C39	25.00	22.89'	052° 27' 20"	N21° 16' 09"W	22.10'
C40	25.00	22.89'	052° 27' 20"	N31° 11' 11"E	22.10'
C41	25.00	25.19'	057° 44' 16"	S23° 54' 37"E	24.14'
C42	39.00	110.71'	162° 38' 57"	S23° 54' 37"E	77.11'

STARRY NIGHT LANE
(50' R.O.W.)
30 MPH DESIGN SPEED
HORIZONTAL/VERTICAL = 40'/4'



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.

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

STARRY NIGHT LANE, PLAN AND PROFILE
STA. 31+82.63 TO 34+62.35

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/19/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ST 5

SHEET NO. 16

OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 10 Apr 2023 - 1:50pm User Name : ejlopez
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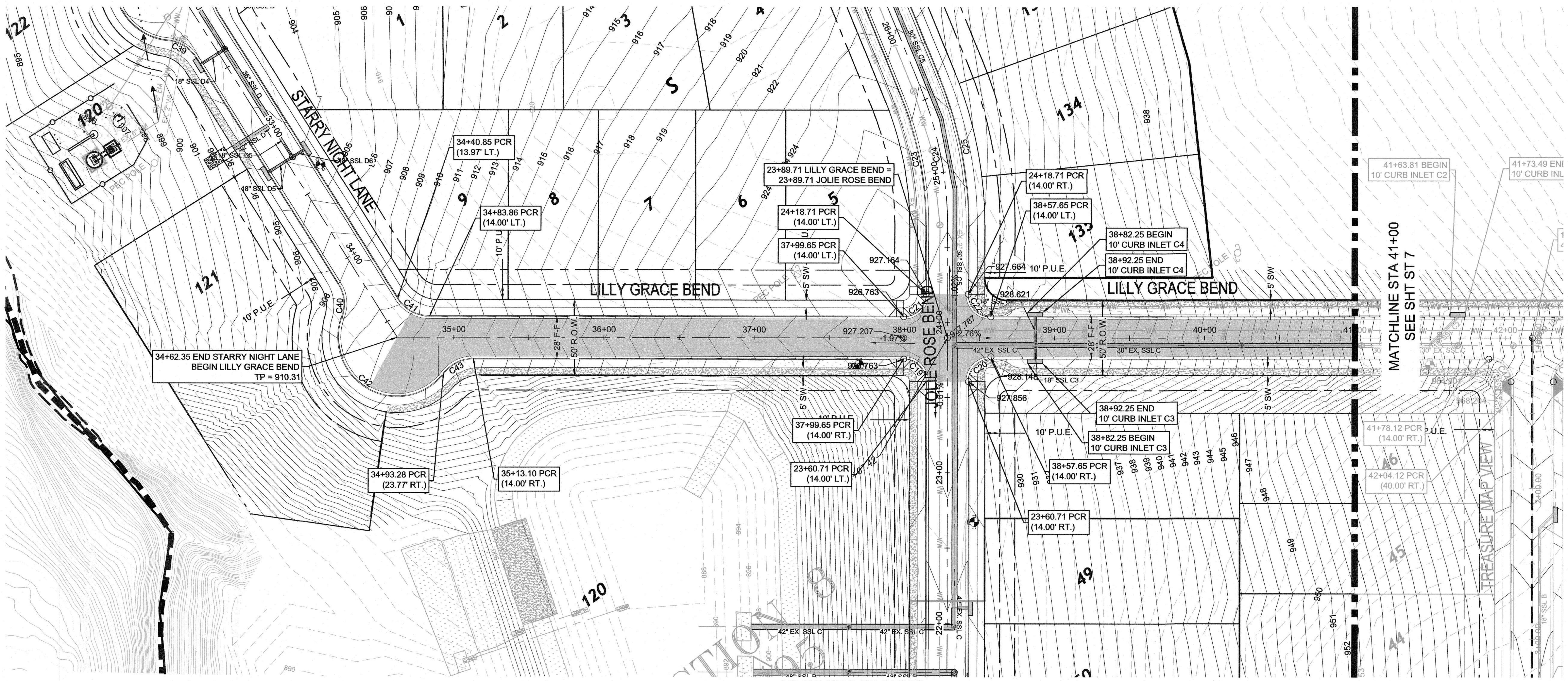
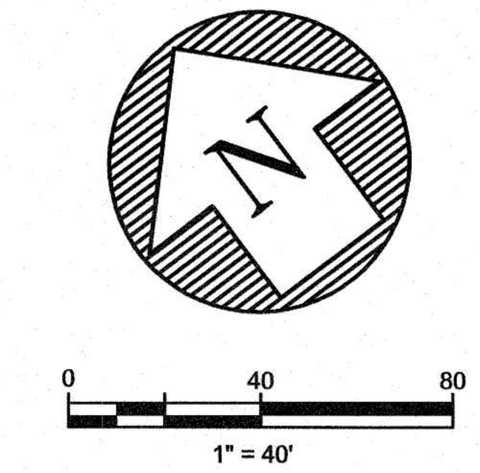


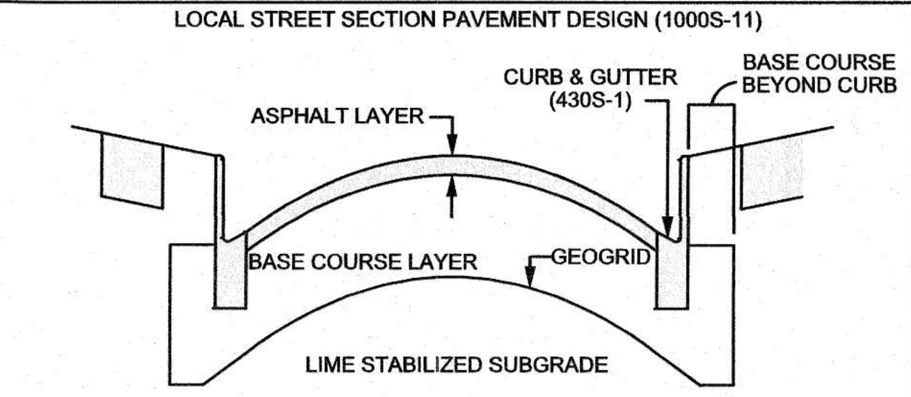


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



	LOCAL STREETS				
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER	↓	15"			
GEOGRID	↓	-			
LIME STABILIZED SUBGRADE	↓	-			
BASE COURSE BEYOND CURB	↓	36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

PROFILE LINE LEGEND

- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

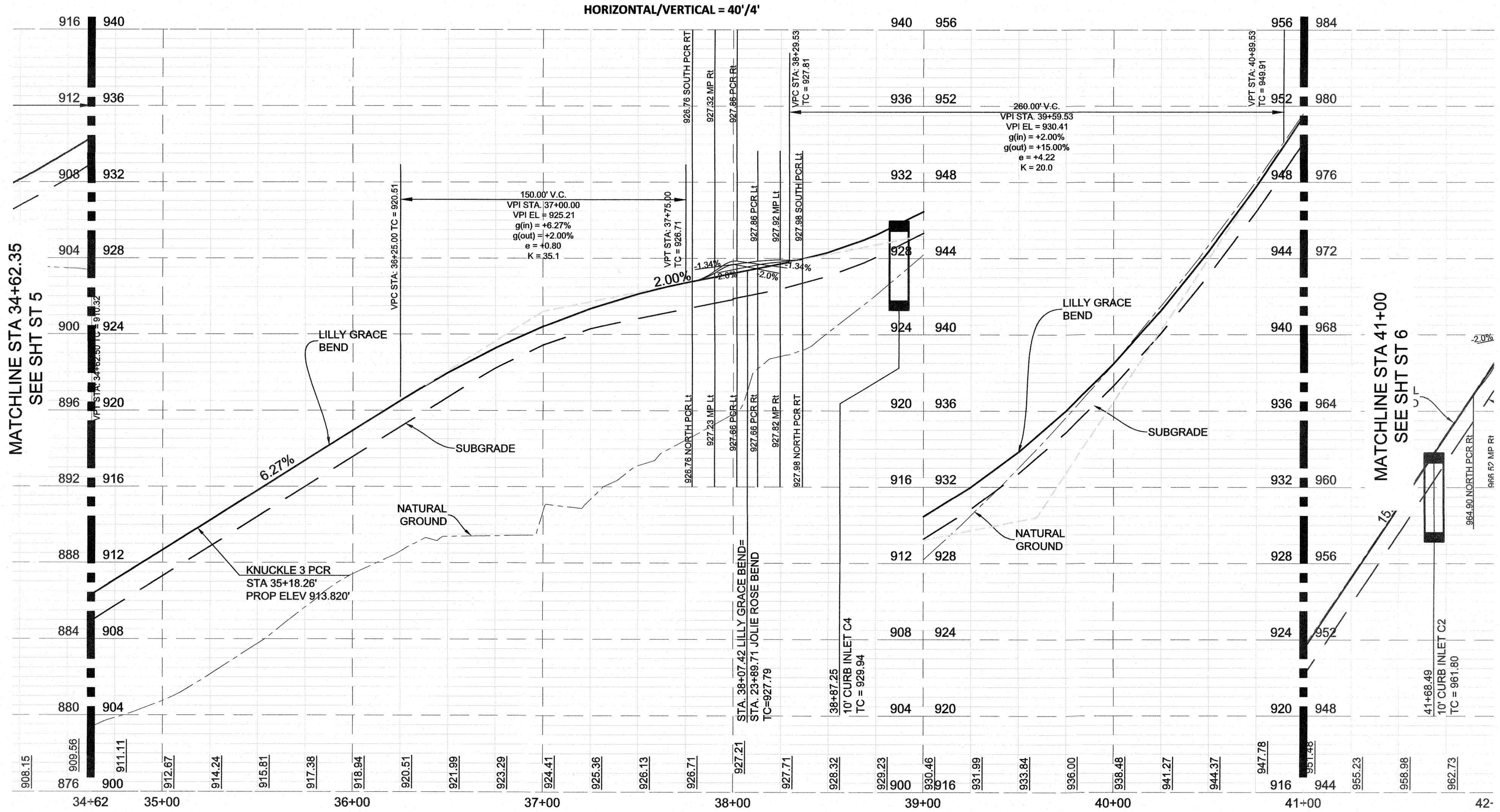
Curve Table

Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C19	15.00	23.56'	090° 00' 00"	N07° 46' 45"W	21.21'
C20	15.00	23.56'	090° 00' 00"	S82° 13' 15"W	21.21'
C21	15.00	23.56'	090° 00' 00"	N82° 13' 15"E	21.21'
C22	15.00	23.56'	090° 00' 00"	S07° 46' 45"E	21.21'
C41	25.00	25.19'	057° 44' 16"	S23° 54' 37"E	24.14'
C42	39.00	110.71'	162° 38' 57"	S23° 54' 37"E	77.11'
C43	25.00	22.89'	052° 27' 20"	N79° 00' 25"W	22.10'

LILLY GRACE BEND
(50' R.O.W.)

30 MPH DESIGN SPEED

HORIZONTAL/VERTICAL = 40'/4'



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

Date/Time : Mon, 10 Apr 2023 - 1:51pm User Name : ejlopez
PathName: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 ST 4.dwg

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

LILLY GRACE BEND, PLAN AND PROFILE
STA. 34+62.35 TO 41+00

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

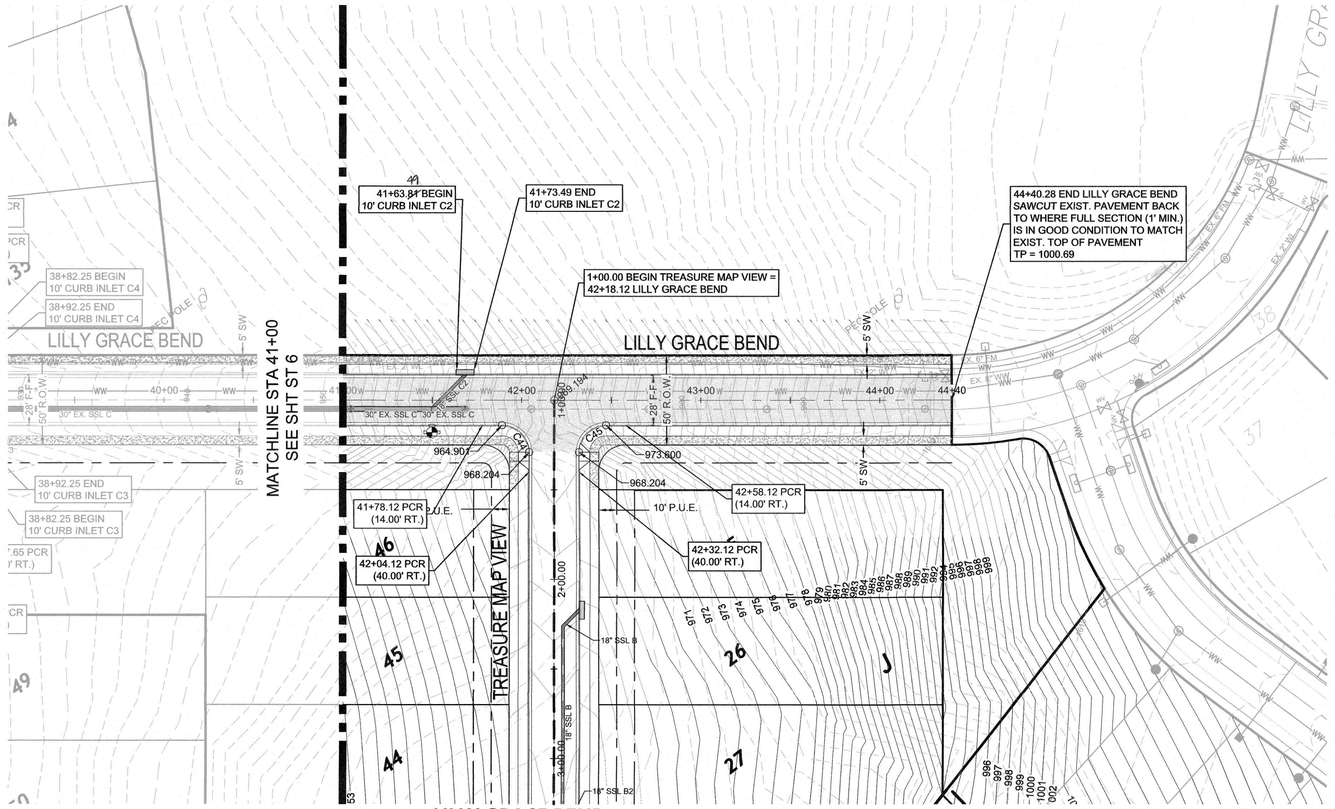
JOB NUMBER:
A311-0415

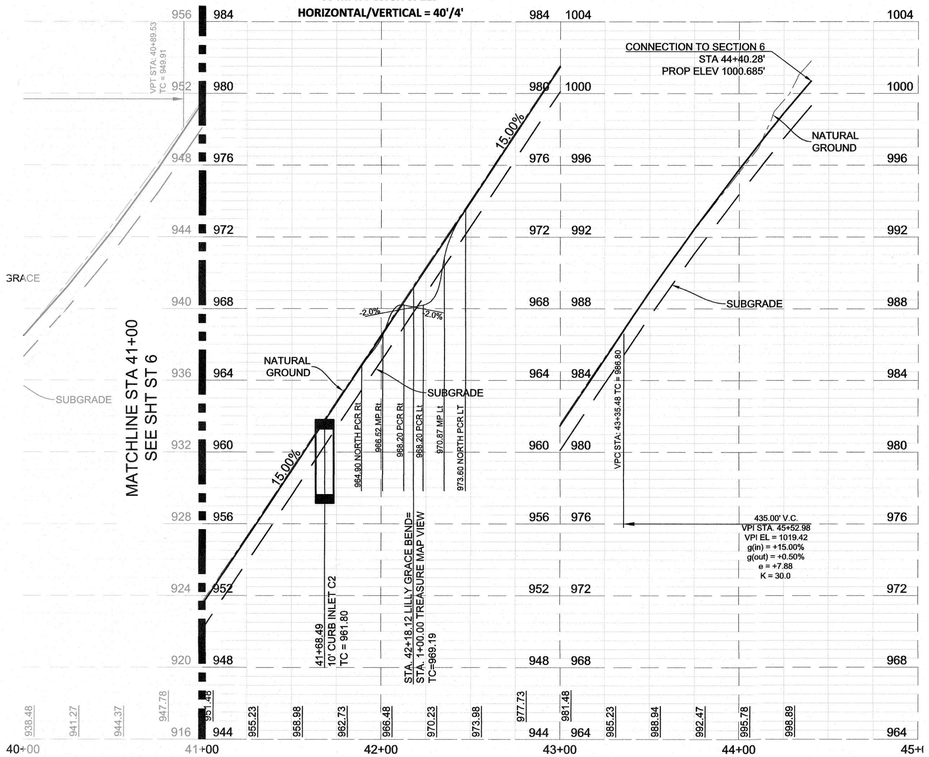
ST 6

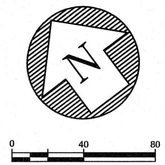
SHEET NO.
17
OF 75 SHEETS

XXXX-XX-XX

Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C44	15.00	23.56'	090° 00' 00"	N07° 46' 45"W	21.21'
C45	15.00	23.56'	090° 00' 00"	S82° 13' 15"W	21.21'





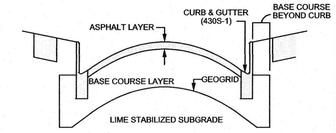


LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



		LOCAL STREETS			
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER		15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB		36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

PROFILE LINE LEGEND

- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

LILLY GRACE BEND, PLAN AND PROFILE
STA. 41+00.00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/15/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ST 7

SHEET NO. 18

OF 75 SHEETS

XXXX-XX-XX

User Name: e6pcpz
Date/Time: Mon, 10 Apr 2023 - 1:52pm
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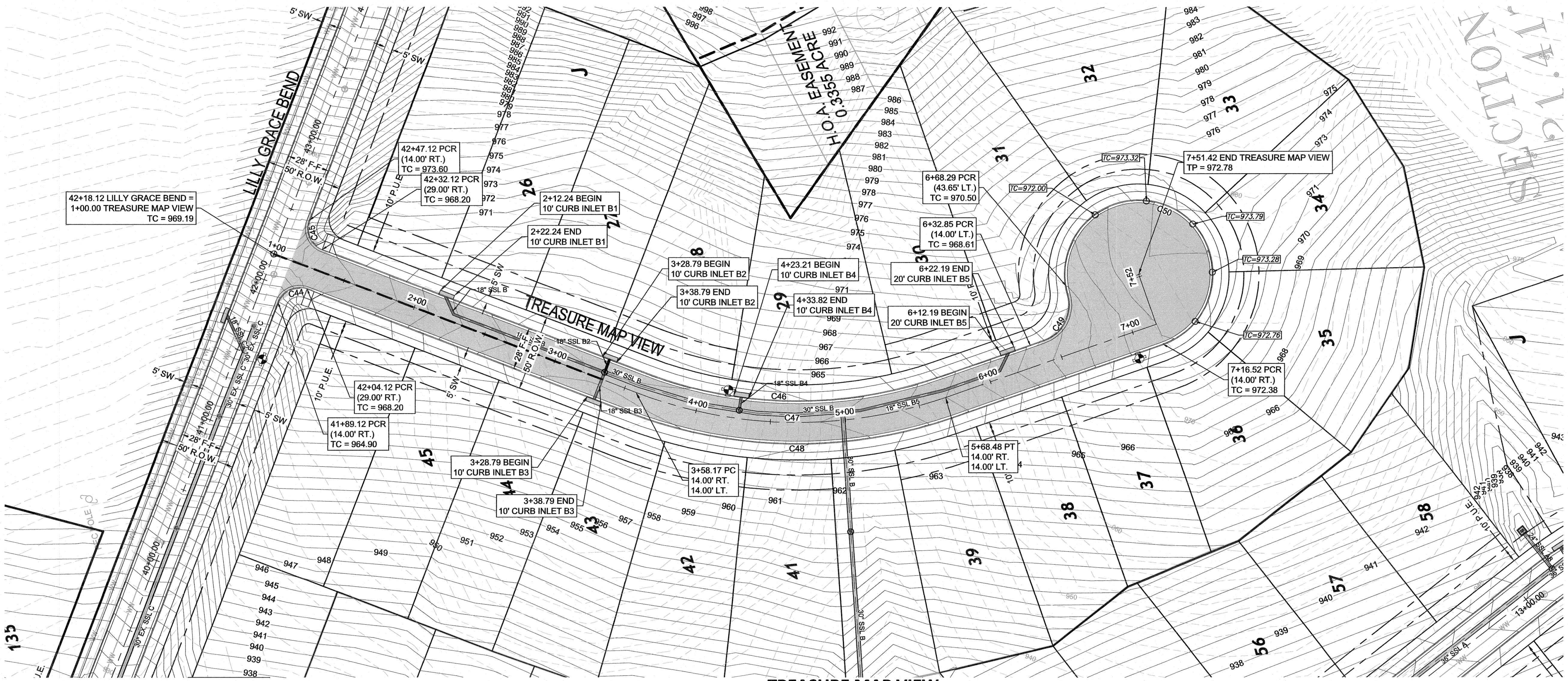


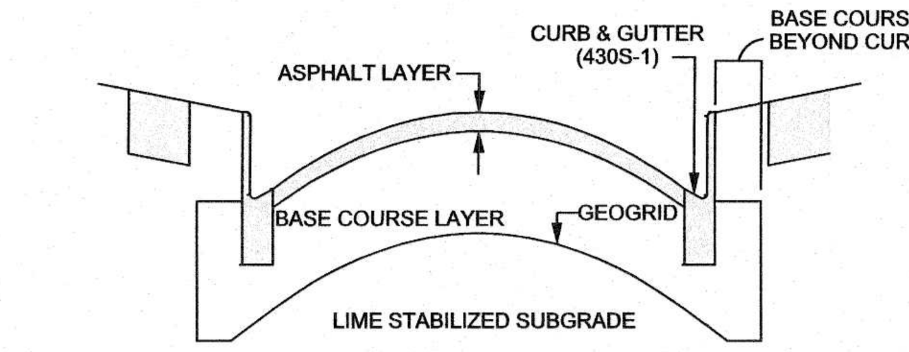
0 40 80
1" = 40'

LEGEND:

SIDEWALK TO BE CONSTRUCTED

WHEELCHAIR ADA RAMP

LOCAL STREET SECTION PAVEMENT DESIGN (1000S-11)



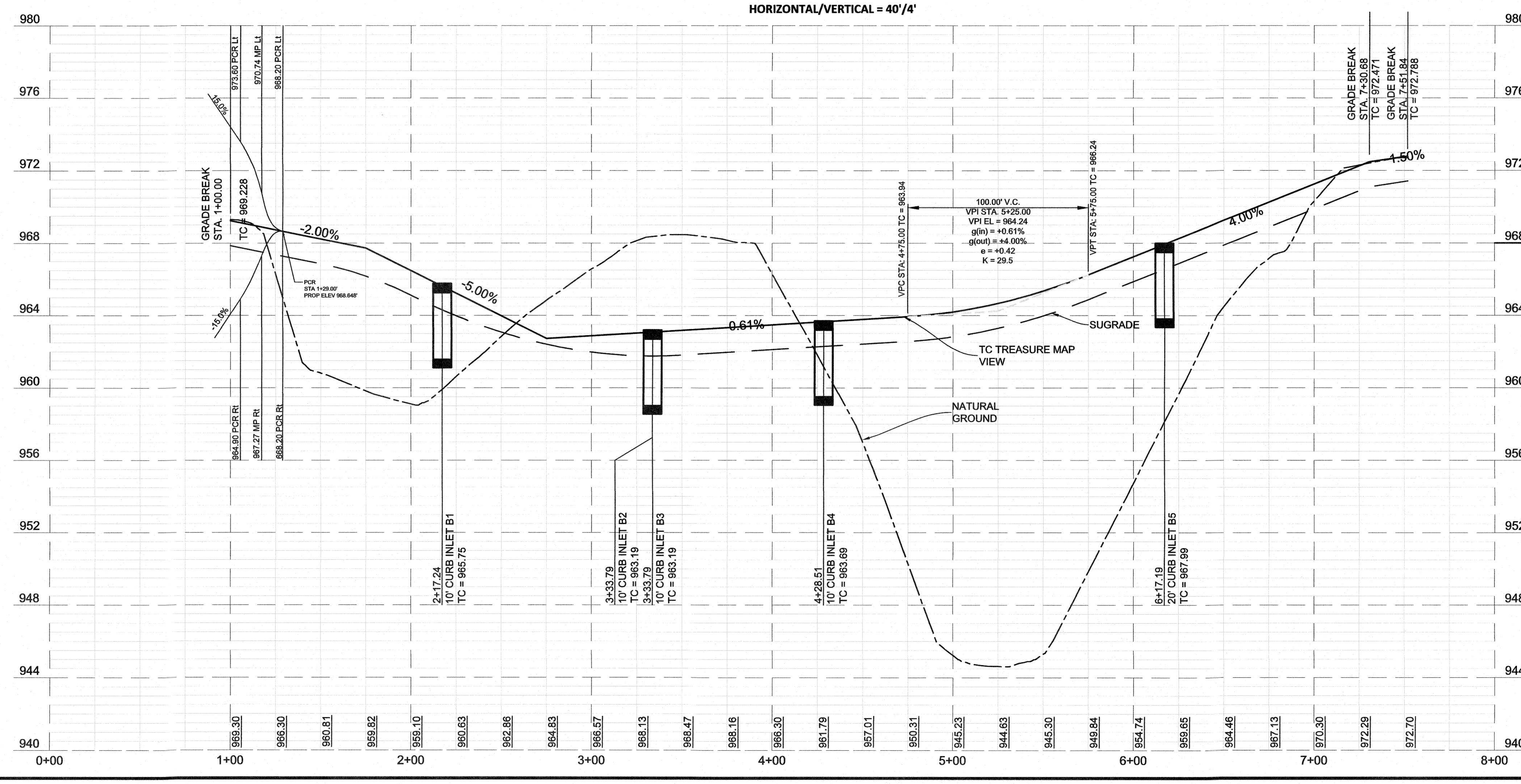
	LOCAL STREETS				
PLASTICITY INDEX	<25	>25			
STRUCTURAL ELEMENT		OPTION 1			
ASPHALT LAYER	N/A	1.5"			
BASE COURSE LAYER	↓	15"			
GEOGRID		-			
LIME STABILIZED SUBGRADE		-			
BASE COURSE BEYOND CURB	▼	36"			

NOTES:

1. REFER TO THE GEOTECHNICAL REPORT BY MLA GEOTECHNICAL FOR PALMERA BLUFF SECTION 7, DATED APRIL 7, 2021 AND FOR SECTION 8 DATED DECEMBER 22, 2020.

TREASURE MAP VIEW
(50 R.O.W.)

30 MPH DESIGN SPEED
HORIZONTAL/VERTICAL = 40'/4'



Curve Table

Curve #	Radius	Length	Delta	Chord Bearing	Chord Distance
C44	15.00	23.56'	090° 00' 00"	N07° 46' 45"W	21.21'
C45	15.00	23.56'	090° 00' 00"	S82° 13' 15"W	21.21'
C46	286.00	200.50'	040° 10' 02"	S17° 08' 14"W	196.42'
C47	300.00	210.32'	040° 10' 02"	S17° 08' 14"W	206.04'
C48	314.00	220.13'	040° 10' 02"	S17° 08' 14"W	215.65'
C49	25.00	37.92'	086° 54' 05"	S46° 23' 50"E	34.39'
C50	49.00	228.26'	266° 54' 05"	N43° 36' 10"E	71.14'

PROFILE LINE LEGEND

- EXIST. GROUND @ CENTERLINE
- EXIST. GROUND @ LT. R.O.W.
- EXIST. GROUND @ RT. R.O.W.
- PROPOSED LEFT AND RIGHT CURB

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

TREASURE MAP VIEW, PLAN AND PROFILE
STA. 1+00.00 TO END

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST 5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
4/13/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

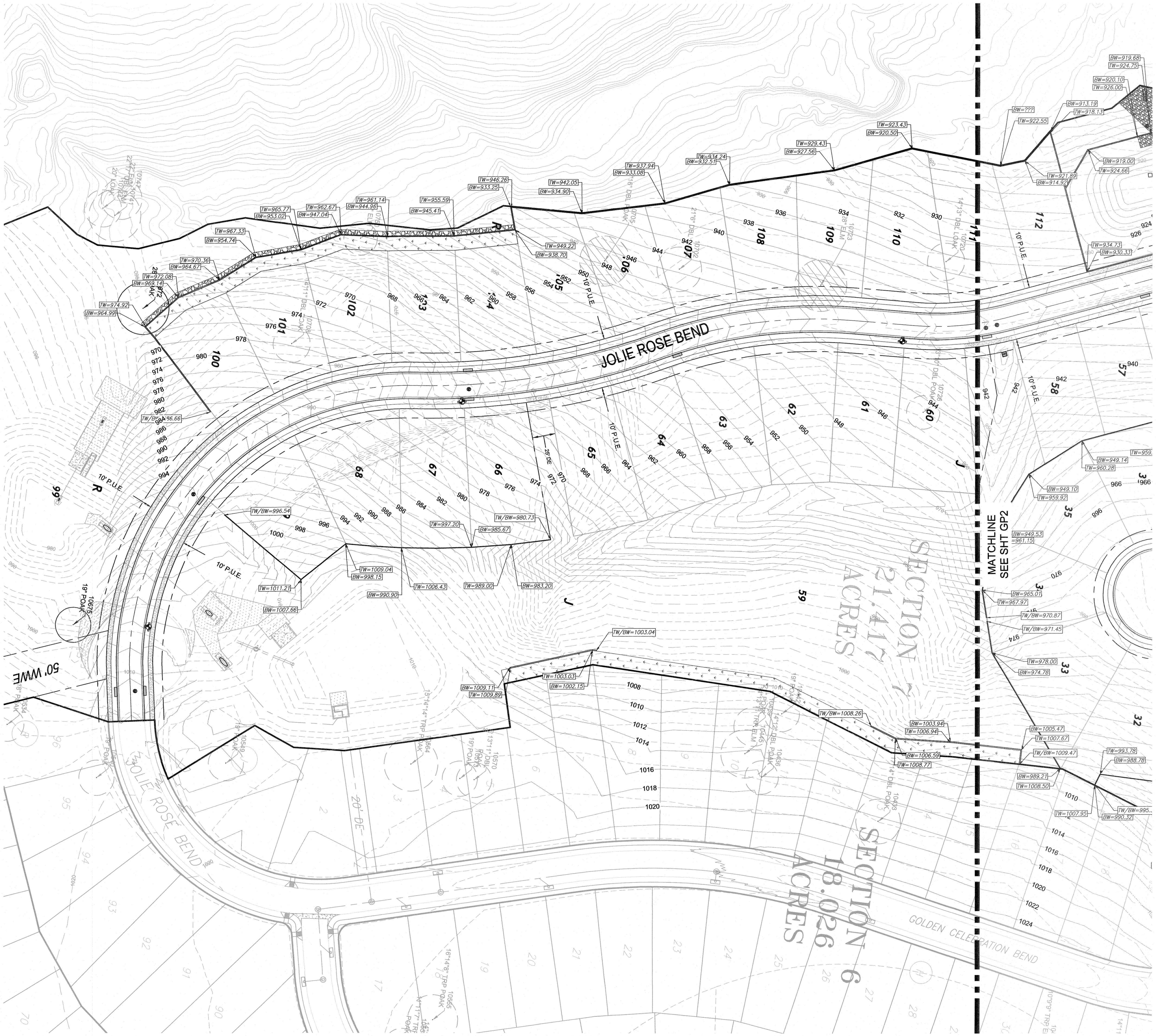
JOB NUMBER: A311-0415

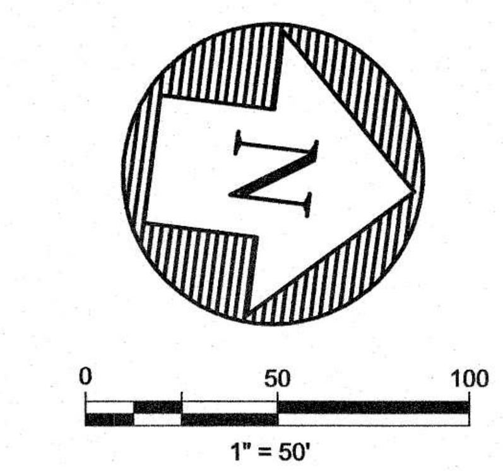
ST8

SHEET NO. 19 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 2:32pm User Name : eilopez
PathName: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 ST 5.dwg





LEGEND:

610	EXISTING CONTOURS
608	PROPOSED CONTOURS
604.00 TP	TOP OF PAVEMENT ELEVATION
604.00 TW	TOP OF WALL ELEVATION
604.00 BW	BOTTOM OF WALL ELEVATION
604.00 TC	TOP OF CURB ELEVATION
604.00 TG	TOP OF GRADE/GRATE ELEVATION
604.00 TLC	TOP OF LAY DOWN CURB ELEVATION
	PROPOSED STORM SEWER LINE
	PROPOSED RETAINING WALL

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

GRADING PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
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CHECKED BY: XXX
DRAWING NAME: A311-0415 GP1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4-11-23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

GP 1

SHEET NO. 20 OF 75 SHEETS

Date/Time : Wed, 12 Apr 2023 - 2:32pm User Name : ellopez
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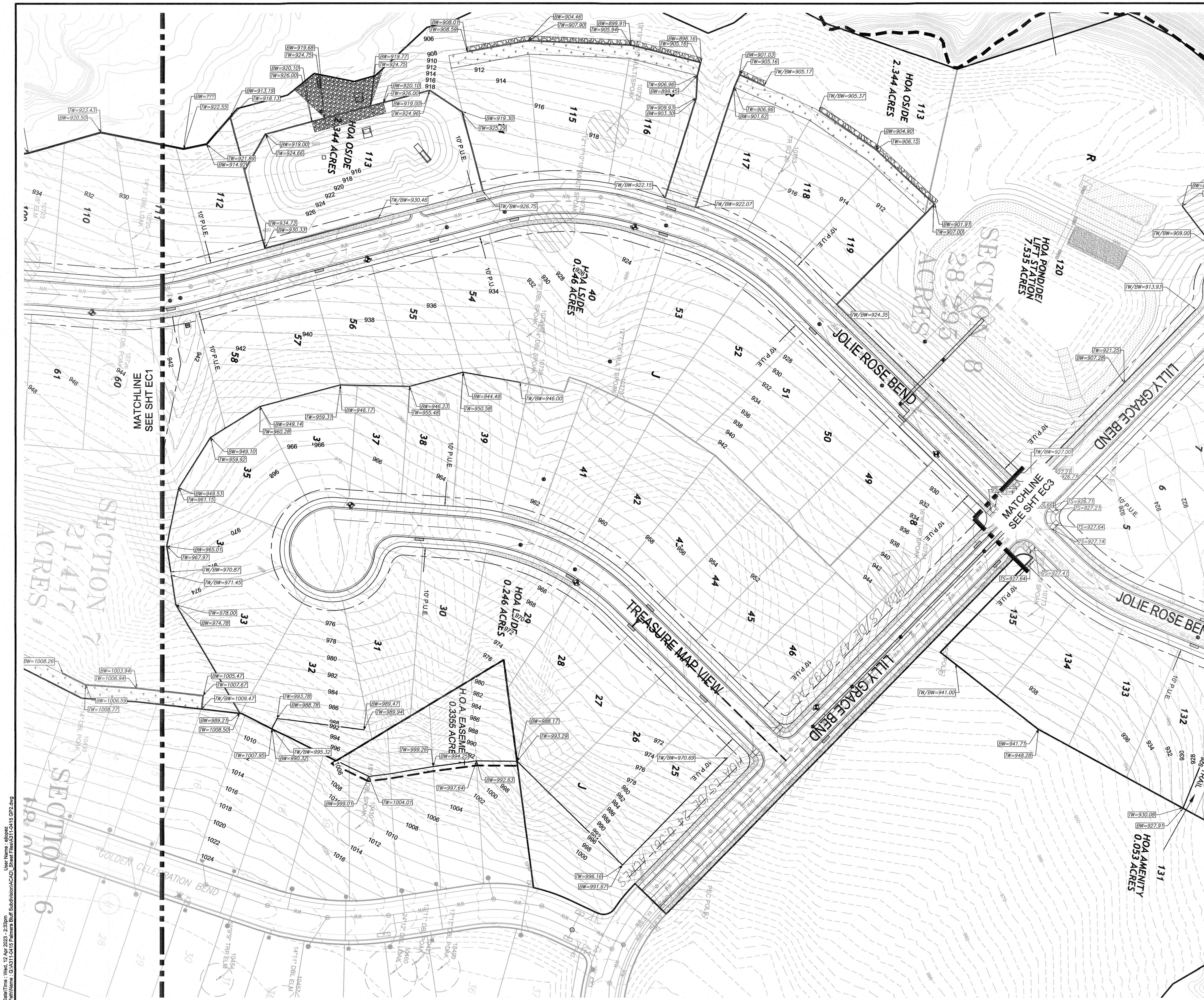
XXXX-XX-XX



LEGEND:

610	EXISTING CONTOURS
608	PROPOSED CONTOURS
604.00 TP	TOP OF PAVEMENT ELEVATION
604.00 TW	TOP OF WALL ELEVATION
604.00 BW	BOTTOM OF WALL ELEVATION
604.00 TC	TOP OF CURB ELEVATION
604.00 TG	TOP OF GRADE/GRATE ELEVATION
604.00 TLC	TOP OF LAY DOWN CURB ELEVATION
	PROPOSED STORM SEWER LINE
	PROPOSED RETAINING WALL

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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GP 2

SHEET NO. 21 OF 75 SHEETS

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Date/Time : Wed, 12 Apr 2023 - 2:33pm
User Name : ellopez
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1" = 50'

0 50 100

LEGEND:

610	EXISTING CONTOURS
608	PROPOSED CONTOURS
604.00 TP	TOP OF PAVEMENT ELEVATION
604.00 TW	TOP OF WALL ELEVATION
604.00 BW	BOTTOM OF WALL ELEVATION
604.00 TC	TOP OF CURB ELEVATION
604.00 TG	TOP OF GRADE/GRATE ELEVATION
604.00 TLC	TOP OF LAY DOWN CURB ELEVATION
	PROPOSED STORM SEWER LINE
	PROPOSED RETAINING WALL

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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DRAWING NAME: A311-0415 GP3.dwg

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LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
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Fax 512.439.4716
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JOB NUMBER:
A311-0415

GP 3

SHEET NO.
22
OF 75 SHEETS

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 2:33pm User Name : ellopez
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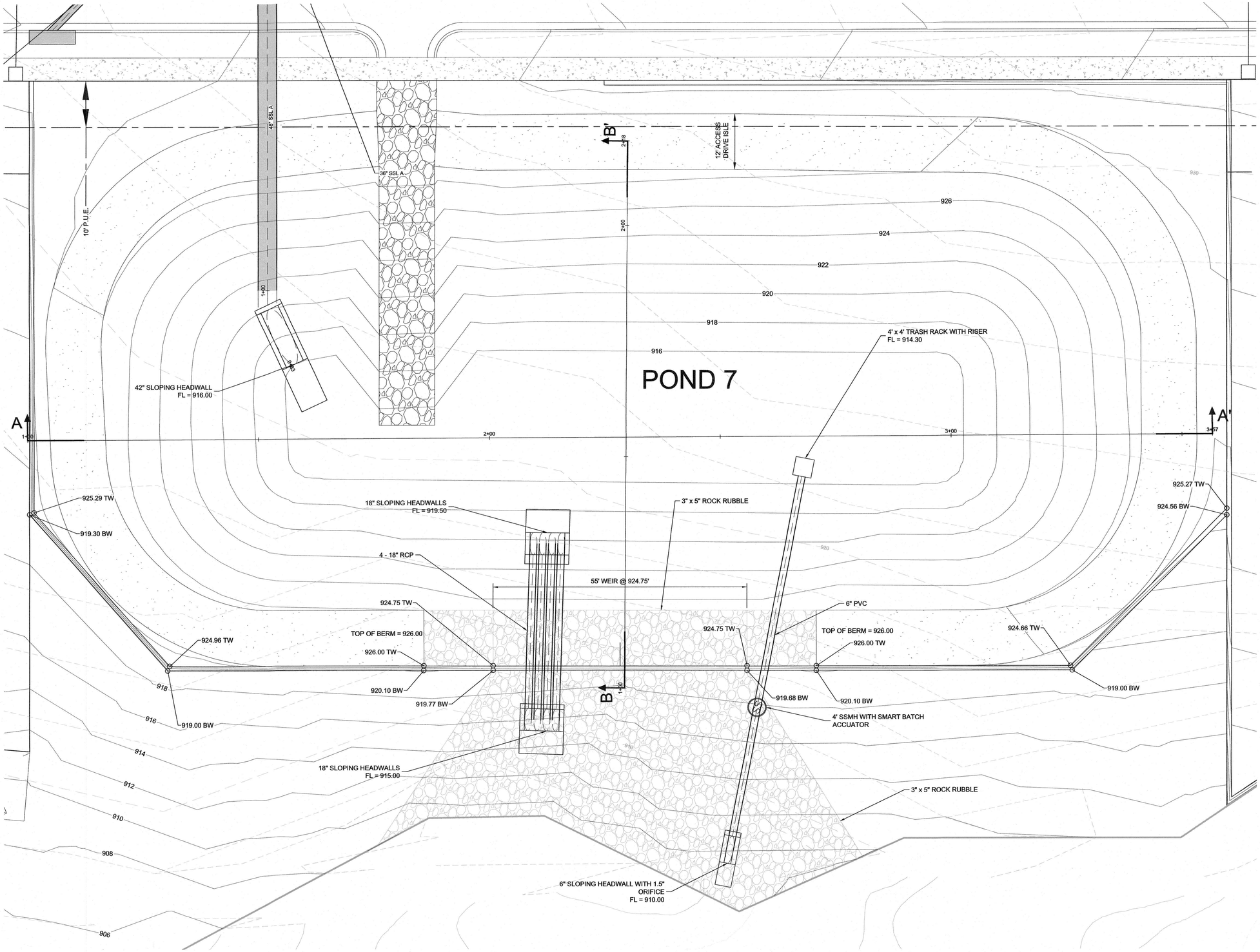

0 10 20
1" = 10'

LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- TOP OF PAVEMENT ELEVATION
- TOP OF WALL ELEVATION
- BOTTOM OF WALL ELEVATION
- TOP OF CURB ELEVATION
- TOP OF GRADE/GRATE ELEVATION
- TOP OF LAY DOWN CURB ELEVATION
- PROPOSED STORM SEWER LINE
- DRY STACK ROCK WALL
- MORTARED ROCK WALL

NOTE:

1. ALL EXPOSED CONCRETE THAT IS VISIBLE IS REQUIRED TO BE MADE OF STONE OR CLAD IN STONE INCLUDING BUT NOT LIMITED TO LEDGESTONE, FIELDSTONE, CAST STONE, OR OTHER DECORATIVE MATERIALS SUCH AS STAMPED AND TINTED CONCRETE THAT RESEMBLES STONE OR BRICK AS APPROVED BY DIRECTOR OF PLANNING ALL OTHER EXPOSED CONCRETE IS REQUIRED TO BE MADE OF STONE OR CLAD IN STONE AS LISTED ABOVE OR TEXTURED AND TINTED IN EARTHEN COLORS.

2. WEIR OUTLET AT 100 YEAR EVENT HAS EXPECTED VELOCITY OF 0.3 FEET PER SECOND. ROCK RUBBLE AT WEIR SHALL BE 3"X5" ROCK RUBBLE.

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER QUALITY POND 7

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WQ1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
REGISTERED ENGINEER
4/11/23

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JOB NUMBER: A311-0415

WQ 1

SHEET NO. 23 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 2:34pm
User Name : ejlopez
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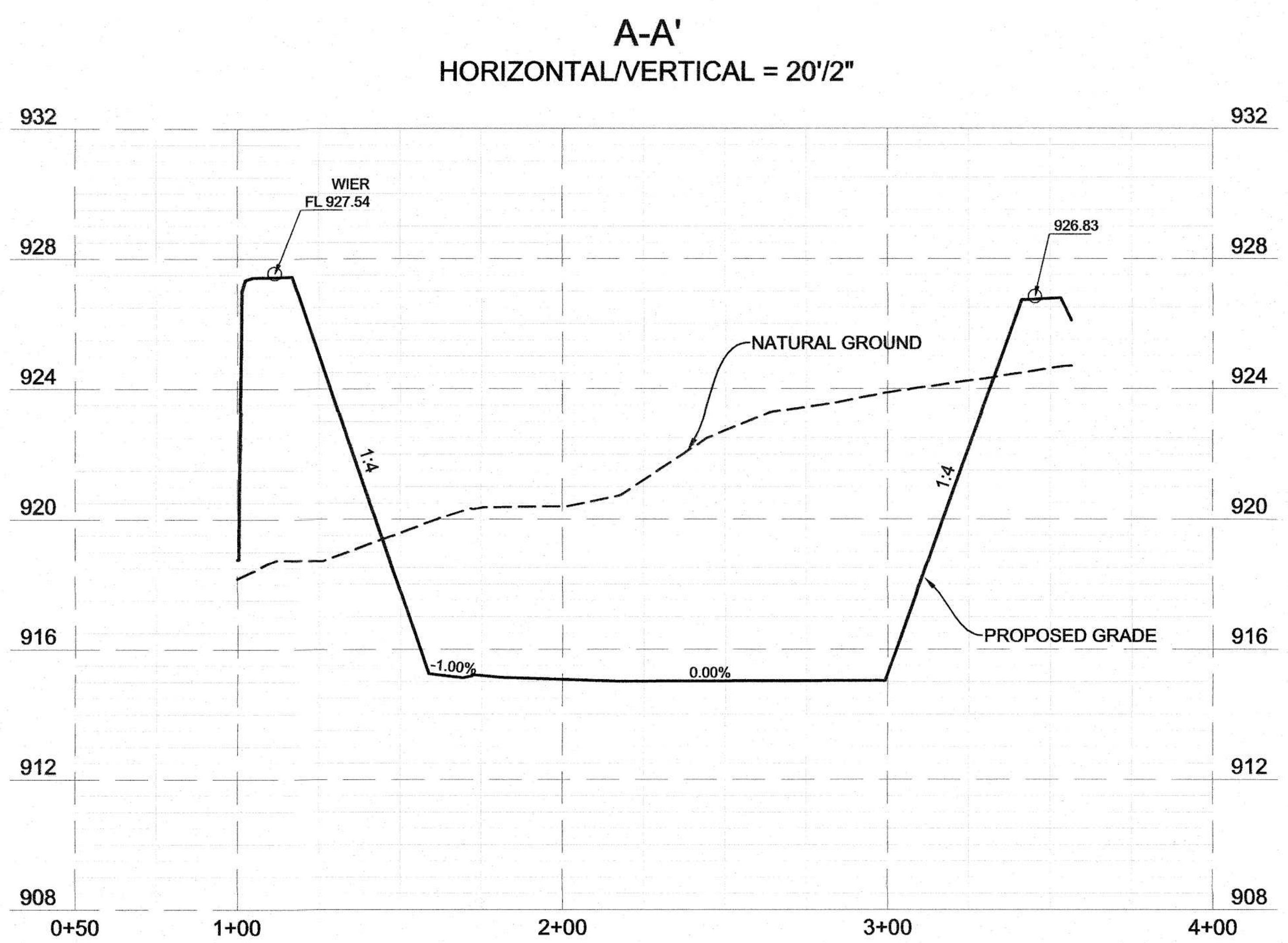
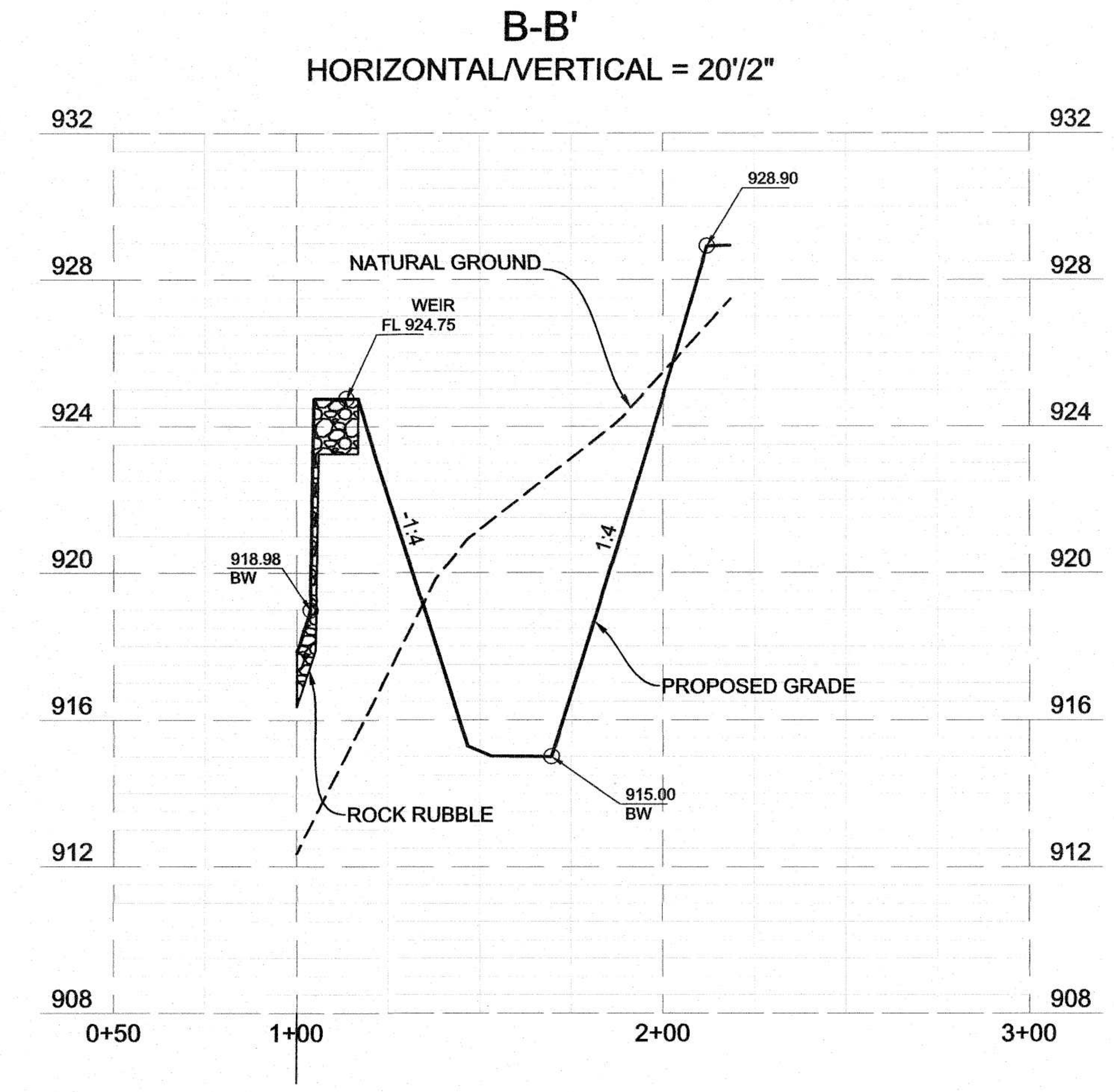




Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009 **Project Name: Palmera Bluff**

Date Prepared: 5/24/2021

Note these calculations are using the updated preliminary plan Sept 24, 2015 and calculating impervious cover by lot sizes and centerline lenghts of streets which differes from the approved method where we assumed a percentage of impervious cover based on lots sizes for overall sections.
\\rr-data01\eng\LAND1200-1249\1248-900-146\Docs\1248-900-146 TCEQ calculation_template_04-20-09.xls

1. The Required Load Reduction for the total project:

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

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

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

County =	**Williamson**	
Total project area included in plan * =	**84.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**20.49**	acres
Total post-development impervious cover fraction * =	**0.24**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**17834**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**8**	

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

Drainage Basin/Outfall Area No. =	**3**	(WQ Pond 7)
Total drainage basin/outfall area =	**14.66**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**3.65**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.25**	
$L_{M\ THIS\ BASIN}$ =	**3177**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Extended Detention** (Batch Detention Pond 7)
Removal efficiency = **91** percent

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

A_C =	**14.66**	acres
A_I =	**3.65**	acres
A_P =	**11.01**	acres
L_R =	**3851**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **3407** lbs. **(+230 lbs from untreated)**

F = **0.88**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Rainfall Depth =	**1.50**	inches
Post Development Runoff Coefficient =	**0.23**	
On-site Water Quality Volume =	**18,413**	cubic feet
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 =	**3683**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**22095**	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.

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 = **22095** cubic feet **(22,150 WQV Proivded)**

WATER QUALITY CONTROL CALCULATIONS

	Required	Provided
25-year Peak Flow Rate	129.5 cfs	
100-year Peak Flow Rate	180.4 cfs	
Water Quality Volume	22,095 cf	22,150 cf
Water Quality Elevation	919.30 ft MSL	919.30 ft MSL
WQV Height Above Pond Bottom	Max 5 ft	5.00 ft

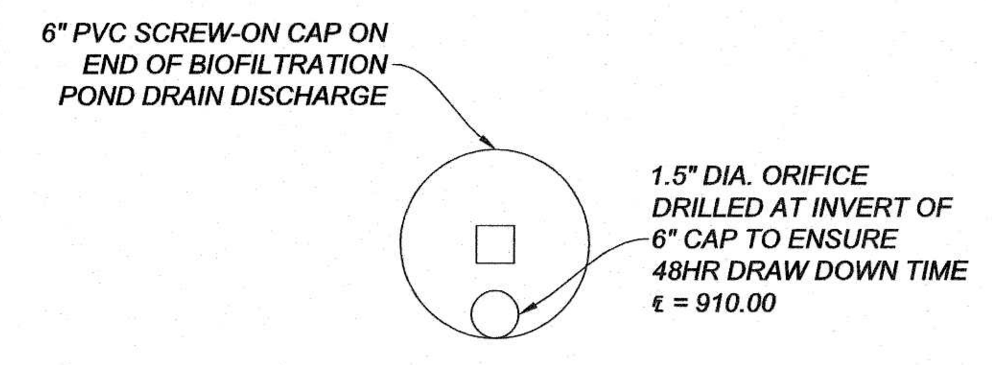
WATER QUALITY STAGE/STORAGE RELATIONSHIPS

BATCH DETENTION POND

	STAGE	AREA (sf)	INC. VOL.	STORAGE (cf)	STORAGE (Ac-Ft)
Orifice FL	914.30	0	0	0	0.00000
Pond Bot	915.00	2,117	494	494	0.01134
	916.00	3,800	2,918	3,411	0.07831
	917.00	4,903	4,340	7,751	0.17794
24 hr DD	918.00	6,068	5,475	13,226	0.30363
	919.00	7,294	6,672	19,898	0.45679
WQV	919.30	7,723	2,252	22,150	0.50849
	920.00	8,582	5,704	27,854	0.63944
	921.00	9,932	9,249	37,103	0.85176
	922.00	11,343	10,630	47,732	1.09579
	923.00	12,816	12,072	59,804	1.37292
	924.00	14,350	13,576	73,380	1.68458
	925.00	15,947	15,142	88,522	2.03218

UNDERDRAIN PIPE ORIFICE OPENING		
Avg Head=	4.65	ft
48 hour=	172,800	sec
Average Flow (WQV/48 Hour)=	0.12818	cfs
Orifice Area (Q/(0.6*(2gh)^0.5))=	0.01235	sf
Orifice Area=	1.78	in^2
Orifice Diameter=	1.50	in
Orifice Diameter Used	1.5	in
Drawdown time =	48.29	hours

DRAWDOWN 24 HOURS (including 12 hr hold time)	
Start WSEL	919.30 msl
Orifice Elev	910.00 msl
Total Head	9.30 ft
Avg Flow Rate	0.18 cfs
Total Flow for 12 hrs	7,781 cf
Total Drawdown	8,924 cf



FILTRATION DRAIN OUTLET ORIFICE CAP
SCALE: 1" = 6"

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PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
WATER QUALITY POND 7 SECTIONS & CALCULATIONS

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
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DRAWING NAME: A311-0415 WQ2.dwg

STATE OF TEXAS T. W. HOYSA 100072 LICENSED PROFESSIONAL ENGINEER 4/7/23

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2700 La Frontera Blvd
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Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WQ 2

SHEET NO. 24 OF 75 SHEETS

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Date/Time : Wed, 05 Apr 2023 - 10:56am User Name : ejlopez
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smartPOND Valve SPECIFICATION

Continuously Monitored Automated Stormwater System with Valve

1. Introduction
The following specifications describe the components, general functions, and applications of a smartPOND Continuously Monitored Automated Stormwater System (C-MASS) with Valve. The system functions as an electronically controlled, solar powered stormwater management device, providing precision management capabilities and real-time data. Using sensors, solar power, an electronic actuator, and an internet-based control interface, the smartPOND valve connects to a specialized perforated riser inside the stormwater impoundment to enable managers to precisely control water retention and detention automatically or in real time.

2. smartPOND Valve Applications in Stormwater Management
The smartPOND valve is a device for active Stormwater management. As opposed to passive devices such as floating skimmers or stationary weirs, active water management dramatically increases the efficiency and effectiveness of a detention or retention pond. Where a passive stormwater detention system allows water to leave immediately upon collection, the smartPOND valve can detain newly caught Stormwater and allow it to settle for a programmed period before automatically dewatering the impoundment completely. For stormwater retention systems, it is possible to manage the treatment volume while maintaining a specified amount of capacity for flood storage or other use.

2.1 Pre-Programmed Control
Many functions can be pre-programmed without any human interactions, leaving the valve to automatically receive commands based on environmental conditions and respond as programmed.

2.1.1 Batch Detention Function for Stormwater Quality
The smartPOND valve meets TCEQ Batch Detention specifications for a 91% Total Suspended Solid removal rate. The function proceeds as follows. With the valve in the closed position and the impoundment dry, the system will stand by and wait for a water collection event. At the first sign of water collection, the unit will begin a 12-hour detention timer. At the end of the 12-hour detention period, the valve will open and release all of the water that has been collected. After the water level drops to 0", the valve will remain open for an additional 2 hours to facilitate final drainage, then return to the closed position to stand by for the next water collection event.

2.1.2 Predevelopment Hydrograph Function for Flood Control
The smartPOND valve predevelopment hydrograph function takes in site specific variables to determine a maximum release rate based on predevelopment conditions. The valve reads water depth in the pond every 15 minutes to determine the maximum release rate desirable to ensure the impoundment neither overtops, nor exceeds its maximum release based on predevelopment flows.

2.1.3 Hazmat Function for Spill Containment
smartPOND when specified for hazmat spill containment can be equipped with pollutant specific sensors that when triggered automatically close the valve until the command is overridden.

2.2 Real Time Monitoring
smartPOND comes standard with telemetry available on each unit and access to the user app available at no additional cost for 1 year. This option allows for real time monitoring of the unit and the data that comes along with it. From the real time monitoring app, a user can:
- Control the valve, either open or close
- See the water level
- See if trash or debris is surrounding the inlet
- Get maintenance alerts (Low Battery, Valve Failure, Etc.)
- Maintain specified water level

3. Components
The smartPOND valve may be implemented either above or below ground, and is comprised of the following components:

3.1 Hardware and Configuration
The standard smartPOND valve features a cast 6" valve. An extended spool and mounting flange on each side of the valve allows it to be attached to the outfall pipe in various configurations. The valve is actuated with an electric motor connected by an extendable drive shaft for underground applications.

For above ground applications, the entire system including all necessary components for operation assemble into one kit and are housed under a single lockable steel enclosure with the solar panel mounted on top. In this configuration, the unit can be installed on a stable, level pad and be bolted onto the back of the outfall pipe with six ¾" bolts and then switched to the "ON" position.

For underground applications, the valve is installed in a vault or concrete encasement as needed. An extended drive shaft connects between the underground valve and the rest of the components, including the motor and all electronics, which are housed in the lockable steel enclosure directly above ground.

3.2 Electronics and Software Specifications
- **Main board** - The main board of the smartPOND valve's electronics box serves as the main connection terminal for all sensors and additional control boards
- **Motor Controller Board -** The motor controller board of the smartPOND valve regulates the connection between the battery and the motor and receives inputs from the main board to control motor direction. It also powers the main board.
- **Motor** - The smartPOND valve's motor operates on 12-volts and has two wires connecting to the motor controller board. It is mounted on a bracket and connects to the directly to the valve with a driveshaft.
- **Battery** - The smartPOND valve is powered by a 12-volt, 30 amp/hour gel battery. Two terminals at the top connect the power wires to the motor controller board and the solar charge controller to the battery.
- **Solar Panel** - The solar panel of the smartPOND valve is 12-volts with 15 watt charging capability. It connects to a solar charge controller which regulates the voltage and current before connecting with two wires to the positive and negative battery terminals.
- **Sensors**
  - *Pressure Transducer* - The water level sensor is a pressure transducer sensor capable of staying submersed in water indefinitely. It mounts on the side of the smartPOND valve's center spool.
  - *Valve position sensor* - A proximity sensor senses the position of the valve's drive shaft in order to control and determine the position of the valve.
- **(Optional)**
  - *Cell data modem* - A cellular data modem will be required for real time control and alert options as well as predevelopment hydrograph functions.
  - *Hydrocarbon Sensor* - This optional sensor may be fitted to the smartPOND valve to perform specific functions based on the presence of hydrocarbon contamination.

4. Real Time Monitoring Interface (optional)
If the real time monitoring option is selected, the smartPOND valve may be monitored in real time through the Autoflow app. Live and historical data from each unit may be viewed in the app, as well as alerts (detailed in section 5).

4.1 Accessing unit data
To access live and historical data in the Autoflow app, select the unit of interest on the home page by clicking on the unit's name. From there, select the "Data" button, and the data page for that unit will be displayed.

4.2 Sending a command
To send a remote-control command to the SmartPOND valve, click the "Send New Command" button on the unit's home page. The unit's current position will be displayed at the top. To change the unit's position, simply select "OPEN" or "CLOSE". Within 1-3 minutes, the unit will move to the new position and update its status in the app.

5. Alerts
The smartPOND valve will indicate the following alerts by illuminating an exteriorly visible red LED light
- Low battery
- Loss of function
- Valve malfunction
- Hydrocarbon contamination (optional)

If the telemetry option is selected, the unit will upload the above alerts to the Autoflow app and notify the operator via text or email.

6. In Case of Failure
To bypass the smartPOND valve's normal automated functions and control the valve position in case of failure:

6.1 Removal of motor and manual direct control
In case of a total electronic or motor failure, the motor and motor bracket can be uninstalled together by removing the two bolts at the bottom of the motor bracket. With the motor and motor bracket removed, the output shaft on the butterfly valve can be manually controlled with a socket wrench, or any other tool that can grip the output shaft.

7. Additional Components List

7.1 Perforated Riser
The smartPOND valve system includes a stackable perforated steel riser which installs on the inlet side of the outfall pipe within the impoundment area. The perforated riser features an 8-inch steel perforated square tube within a 24" round steel mesh tube. At the bottom of the 8-inch square tube, there is a female threaded fitting for a six inch PVC outfall pipe to connect. The steel tube is perforated with 1-inch holes every 4" on center to the height of the impoundment.

7.2 Trash Cage
The trash cage attaches to the perforated riser with a coupling and calder pin. The trash cage will be comprised of steel banding and a 1.5" x 1.5" mesh to prevent floatable's and other contaminants from entering and clogging the perforated riser. The trash cage will sit 0.5" above the bottom of the impoundment to allow the last 0.5" out of the impoundment.

7.3 Valve Stem Extension
The drive shaft/valve stem of the smartPOND system may be extended to any length necessary for instances where the valve will be in an underground vault or manhole. The valve stem will connect the valve to the above ground controls.

8. Maintenance

8.1 Grease
The smartPOND valve includes a grease fitting on the valve itself which should be greased twice per year. It is also recommended that a thick, mildly heat-resistant grease be used to avoid grease melting out of the groove in warmer temperatures.

8.2 Flange Bolts
There are 6 bolts connecting the smartPOND valve's flange to the outfall pipe or fixture. During routine maintenance intervals, these bolts should be checked for tightness. All bolts should be tightened evenly.

8.3 Perforated Riser
Silt, sediment, and debris can build up around the perforated riser with time. An annual inspection of the unit is necessary to ensure that excess debris or sediment has not limited the drainage capacity of the perforated riser. To access the perforated riser for maintenance, lift the trash cage off of the riser, dig out any accumulated sediment, and clear all perforations.

8.4 Trash Cage
As a part of routine maintenance, it is advisable to remove trash and debris that has accumulated on the trash cage and properly dispose.

8.5 Solar Panel
On all inspection visits, it is necessary to confirm that the solar panel is facing south and is well secured. The solar panel is commonly utilized by birds and insects. It is important to keep the surface clean of bird litter, insect nests and debris in order to maintain optimal performance.

8.6 Battery
Over time, battery terminals may corrode. Check annually for corrosion and clean as needed. The battery should be replaced every 4 to 6 years.

8.7 Storage
The smartPOND valve is shipped in a near fully assembled configuration and should be stored likewise. The systems are transported and stored on pallets and must remain secured via straps or steel bands to said pallet at all times. The solar panel is not installed at times of transport or storage and should not be installed until the unit is ready to begin operation. The battery may be stored inside the electronics box and if removed, should never be stored on a concrete surface.

9. Installation
The smartPOND valve can be installed in a near-completely assembled configuration. Only the solar panel should be removed during the installation process. There are several ways to install the smartPOND valve with the key being structured support.

9.1 Structural Support
If the smartPOND valve is mounted to a steel pipe in an above ground/fully assembled configuration, the weight of the unit may be supported by the steel pipe. For plastic or concrete pipes, it is recommended that the weight of the unit be supported by either a concrete pad or steel frame. For below ground installations, the upper unit (electronics and actuator) should be fastened to the surface of the concrete vault. For vault installations, see design details for standard vault design.

10. Important Safety Information and Warnings:
- Always keep hands clear of the valve and motor when unit is in operation.
- Turn the power switch off when doing any electrical work.
- Do not enter the water when the device is actively draining water
- Always use proper PPE and confined space protocol when servicing a valve beneath ground.

11. PRODUCTS
Manufacturer/Supplier/Reseller shall be an established stormwater company that has at least 5 installations of automated stormwater management devices that have been in use and functional for the past 3 or more years.

A. Acceptable smartPOND Valve
"smartBATCH" Automated Batch Detention System
"smartPOND" Automated Detention System

B. Acceptable System Supplier
Convergent Water Technologies, Inc.
(800)711-5428
www.convergentwater.com

C. Authorized Value Added Reseller
Construction Ecoservices
(800)456-1000
www.ecosvs.com

12. Quality Assurance and Performance Specifications
The quality of all system components and all other appurtenances and their assembly process shall be subject to inspection upon delivery of the system to the work site.Installation is to be performed only by skilled work people with satisfactory record of performance on earthworks, pipe, welding, chamber, or pond/landfill construction projects of comparable size and quality.

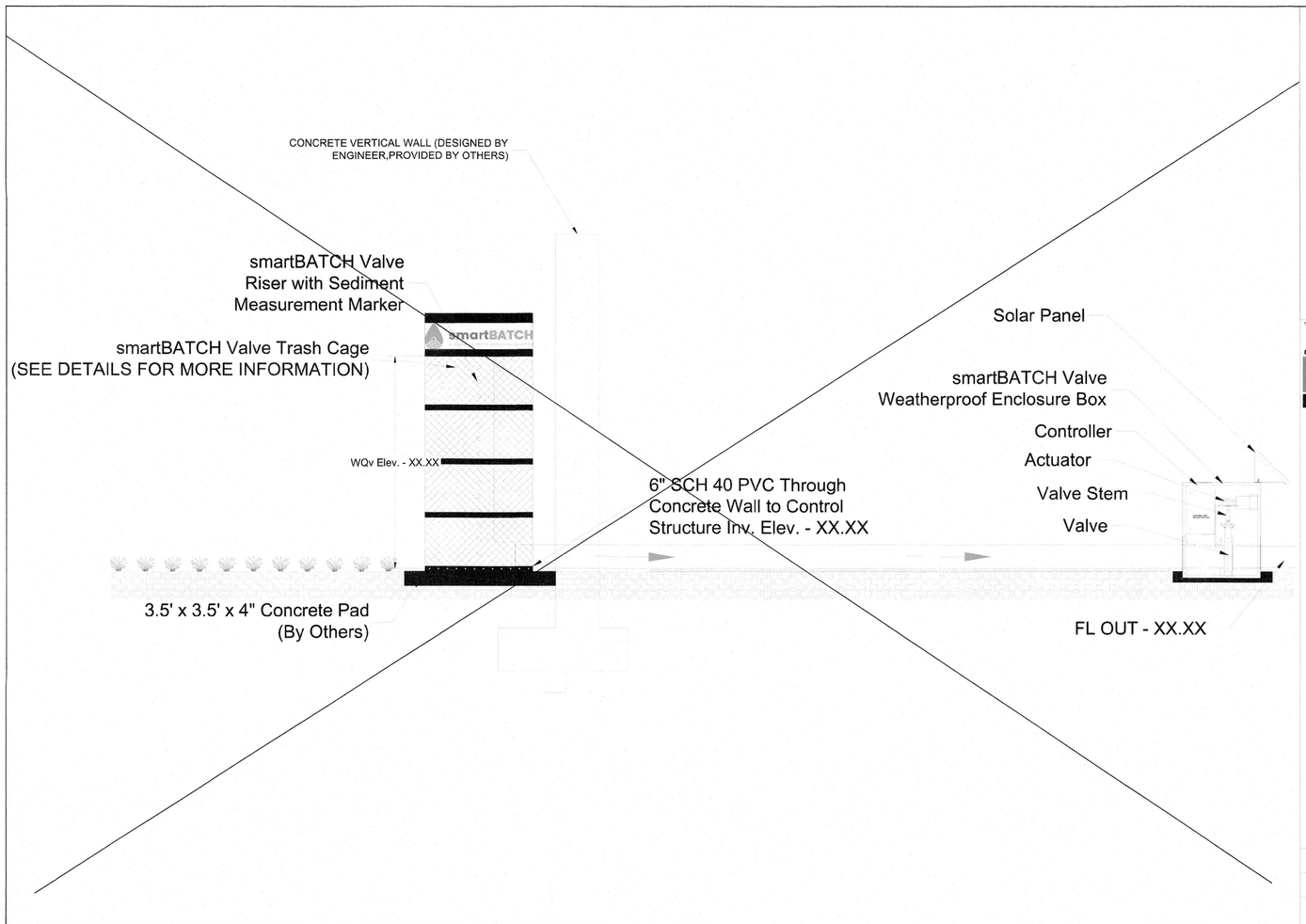
smartPOND Automated Stormwater Control

FOR ADDITIONAL INFORMATION PLEASE CONTACT
CONSTRUCTION ECO SERVICES
832-456-1000
www.ecosvs.com

smartPOND Valve Specifications

REVISION NO. 0
DATE 5/26/2020
SHEET NO.

NOTE: ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.



smartPOND Automated Stormwater Control

FOR ADDITIONAL INFORMATION PLEASE CONTACT
CONSTRUCTION ECO SERVICES
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www.ecosvs.com

CONSTRUCTION ECO SERVICES

smartBATCH Valve with VERTICAL WALL

REVISION NO. 0
DATE 5/29/2020
SHEET NO.

NOTE: ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

XXXX-XX-XX

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415
SHEET NO. WQ 3
25 OF 75 SHEETS

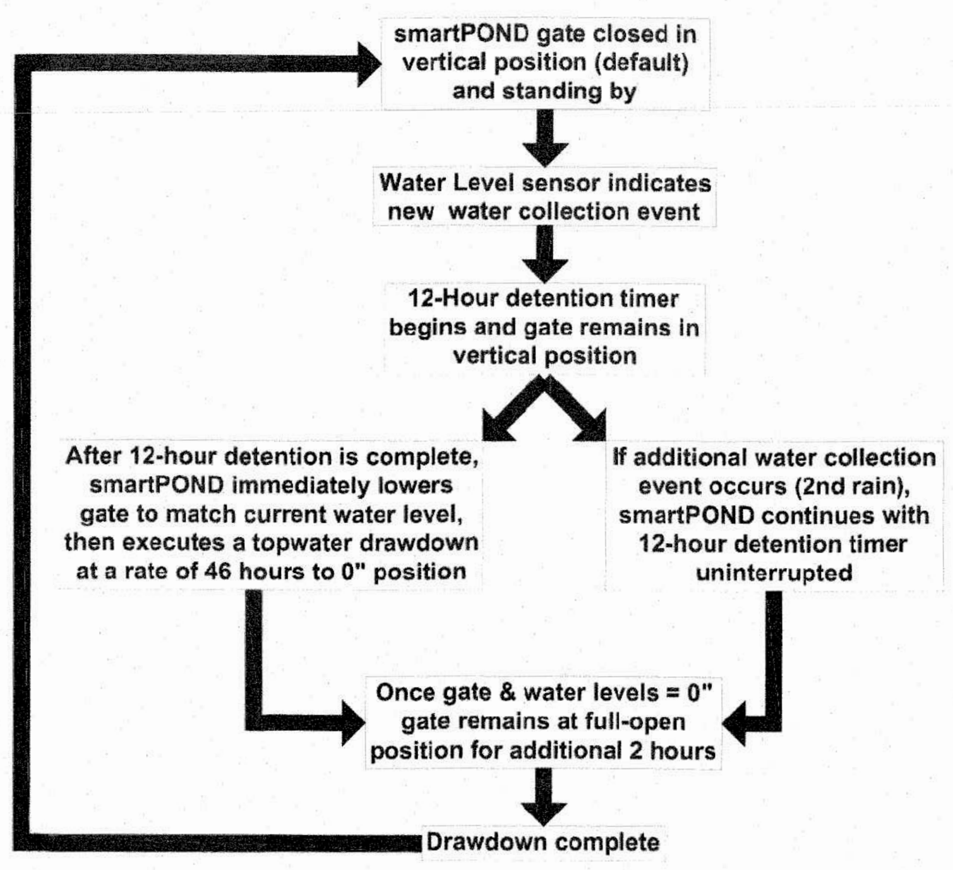
DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WQ3.dwg

REVISIONS			
NO.	DESCRIPTION	BY	DATE

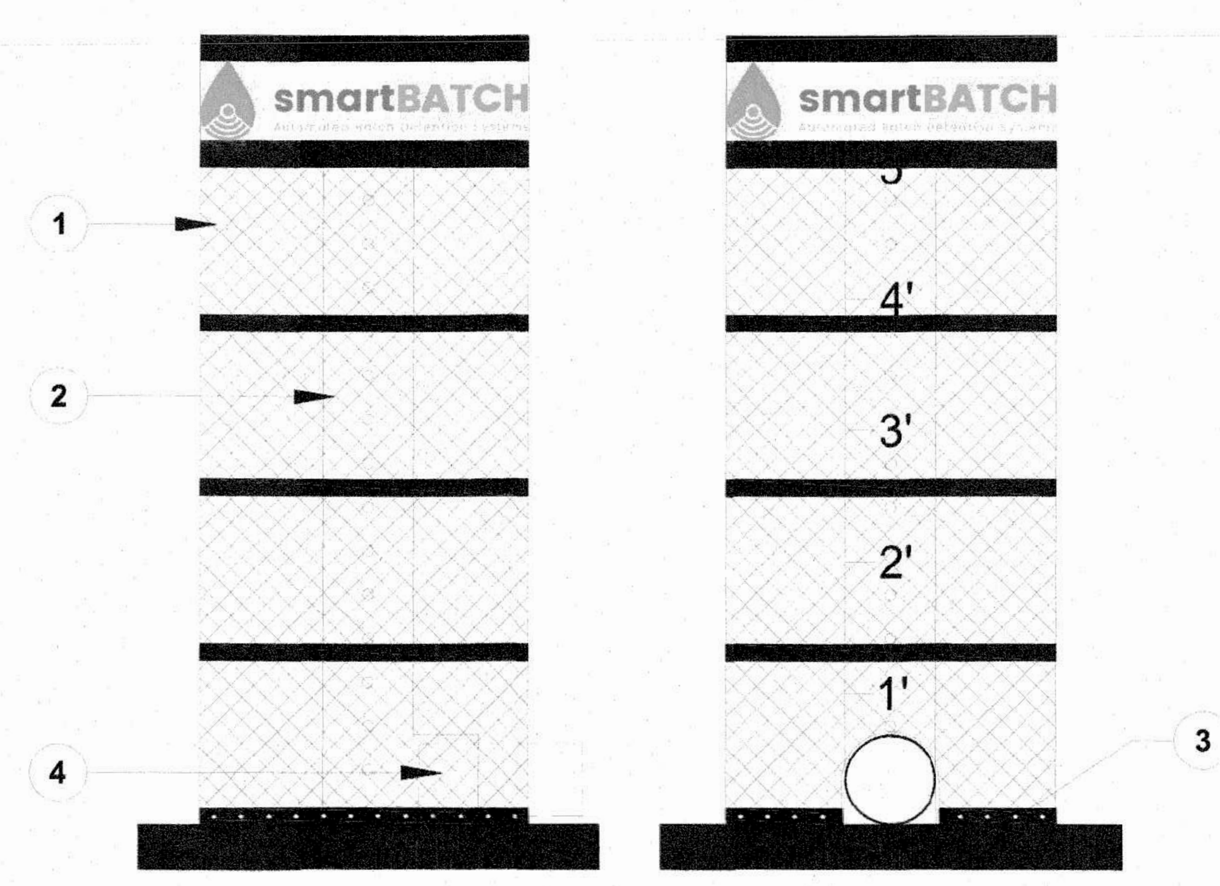
PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

WATER QUALITY POND DETAILS

PROGRAMMABLE LOGIC FLOW CHART

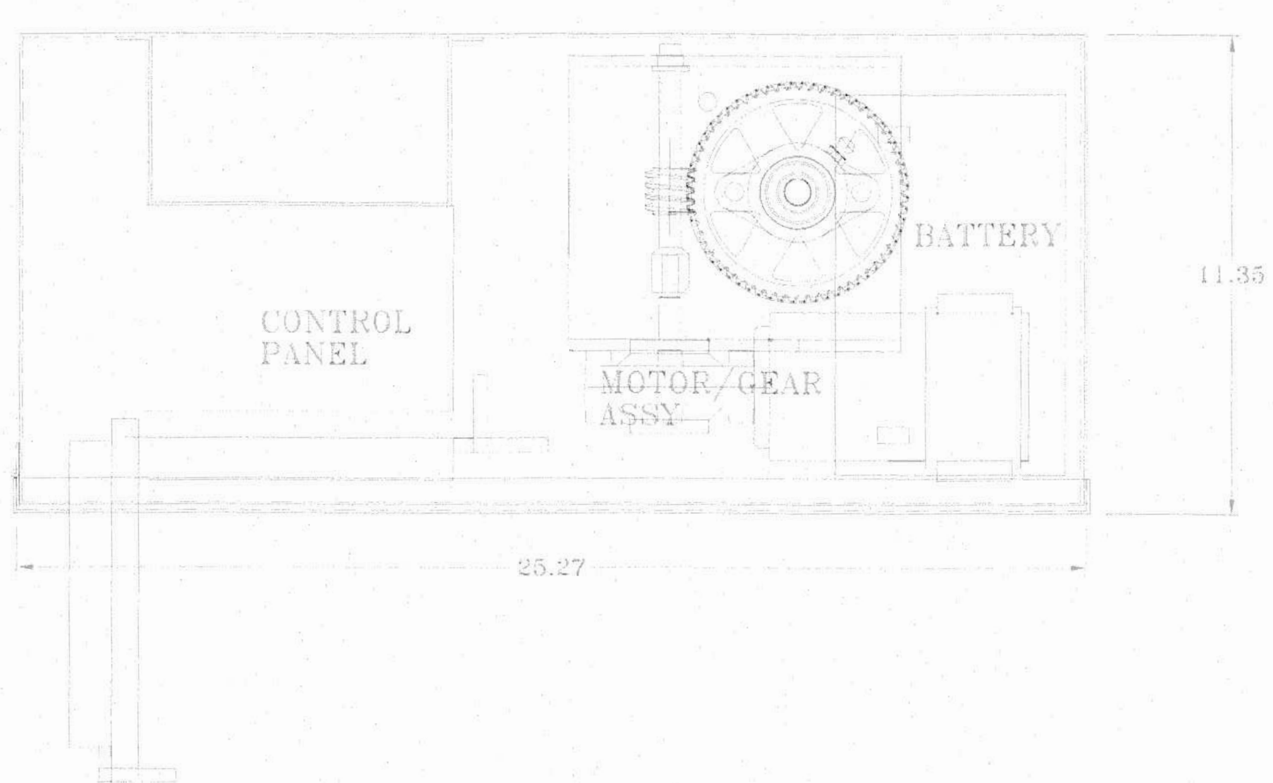


TRASH CAGE WITH PERFORATED RISER PIPE

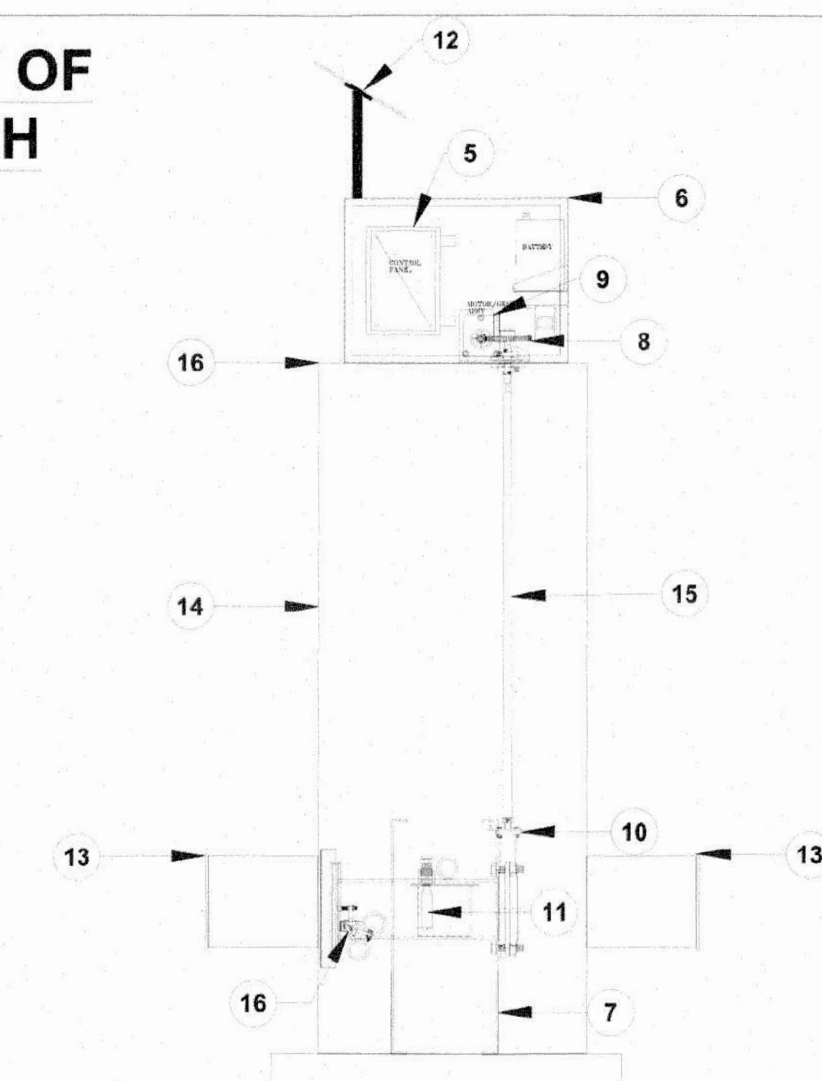


Item	Parts List smartPOND Valve Component
1	30" DIAMETER CAGE WITH $1\frac{1}{2}$" GALVANIZED MESH SCREEN
2	8" SQUARE PERFORATED TUBING WITH 1" PERFORATION, WITH 4" VERTICAL SPACING ON CENTERS WITH WATER DEPTH MARKER
3	$3\frac{1}{2}$' X $3\frac{1}{2}$' X 4" CONCRETE PAD (BY OTHERS)
4	6" PVC OUTFALL PIPE (BY OTHERS)
5	WEATHERPROOF ELECTRONIC BOX
6	CONTROL BOX
7	PEDESTAL
8	ACTUATOR
9	MOTOR
10	6" VALVE
11	LEVEL TRANSDUCER
12	SOLAR PANEL
13	OUTLET PIPE (BY OTHERS)
14	30" DRAIN BASIN
15	VALVE STEM
16	QUICK DISCONNECT VALVE CONNECTION

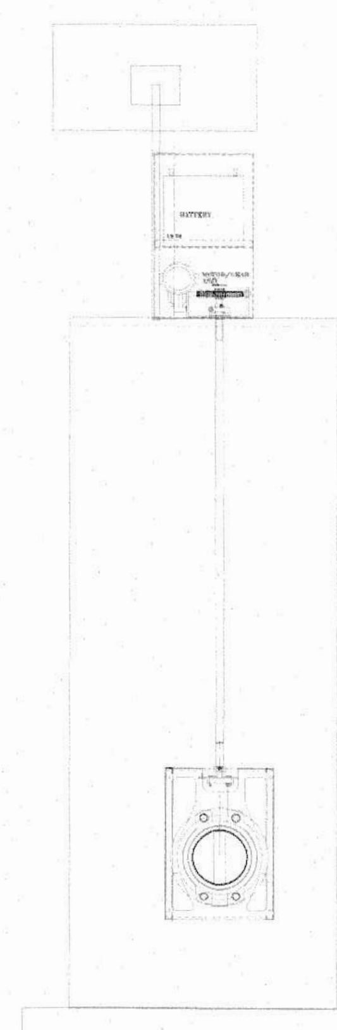
PLAN VIEW OF ENCLOSER



SECTION VIEW OF SMARTBATCH



FRONT VIEW OF SMARTBATCH



smartBATCH
Automated Batch Detention Systems
FOR ADDITIONAL INFORMATION PLEASE CONTACT: CONSTRUCTION ECO SERVICES, 832-456-1000, www.ecosvs.com

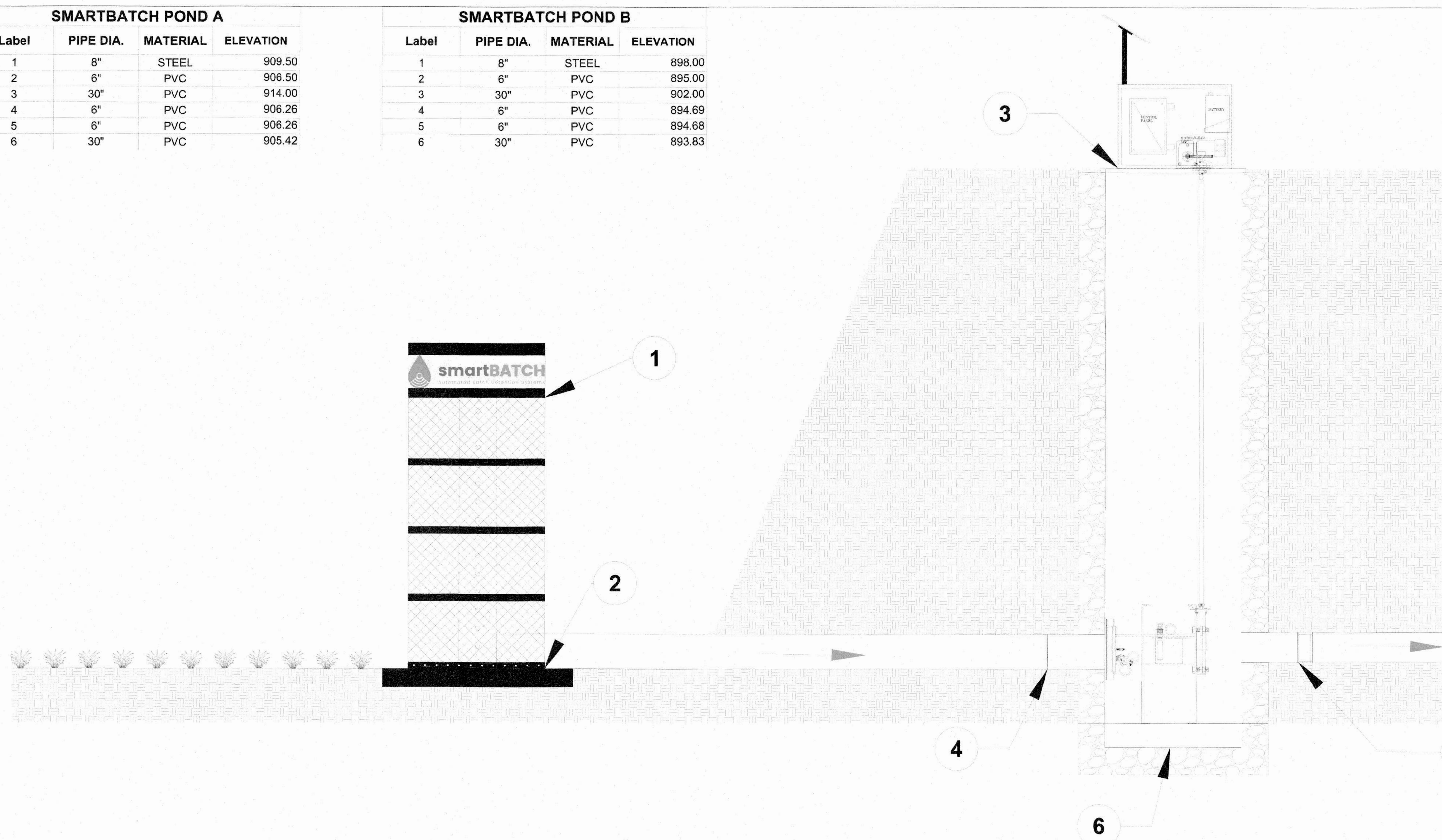
CONVERGENT WATER TECHNOLOGIES

SMARTBATCH POND A

Label	PIPE DIA.	MATERIAL	ELEVATION
1	8"	STEEL	909.50
2	6"	PVC	906.50
3	30"	PVC	914.00
4	6"	PVC	906.26
5	6"	PVC	906.26
6	30"	PVC	905.42

SMARTBATCH POND B

Label	PIPE DIA.	MATERIAL	ELEVATION
1	8"	STEEL	898.00
2	6"	PVC	895.00
3	30"	PVC	902.00
4	6"	PVC	894.69
5	6"	PVC	894.68
6	30"	PVC	893.83



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CONVERGENT WATER TECHNOLOGIES

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

STATE OF TEXAS — T. W. HOYSA — 100072 — LICENSED PROFESSIONAL ENGINEER — 4-17-23

DATE:	1/11/2023
DESIGNED BY:	XXX
DRAWN BY:	XXX
CHECKED BY:	XXX
DRAWING NAME:	A311-0415 WQ4.dwg

REVISIONS

NO.	DESCRIPTION	BY	DATE

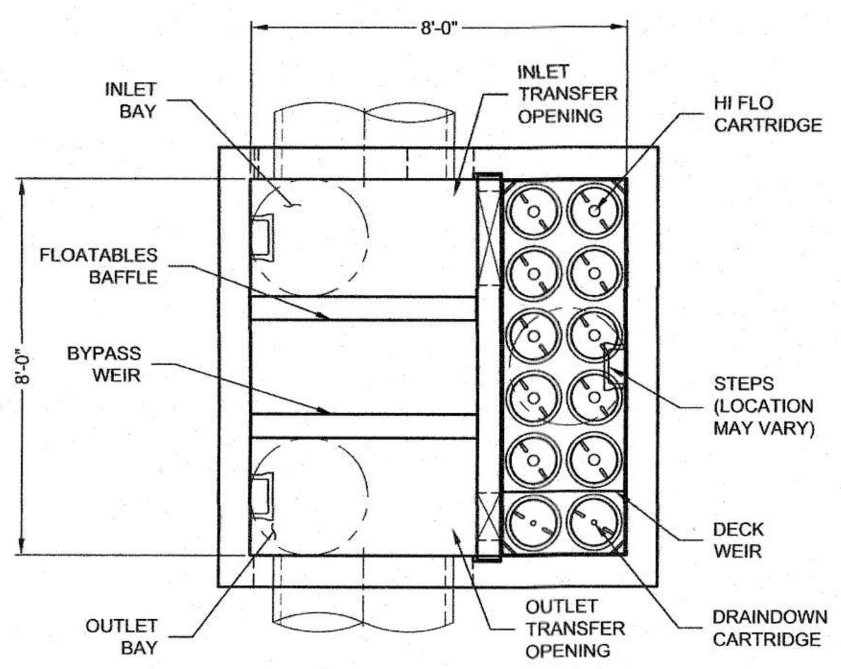
PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

WATER QUALITY POND DETAILS

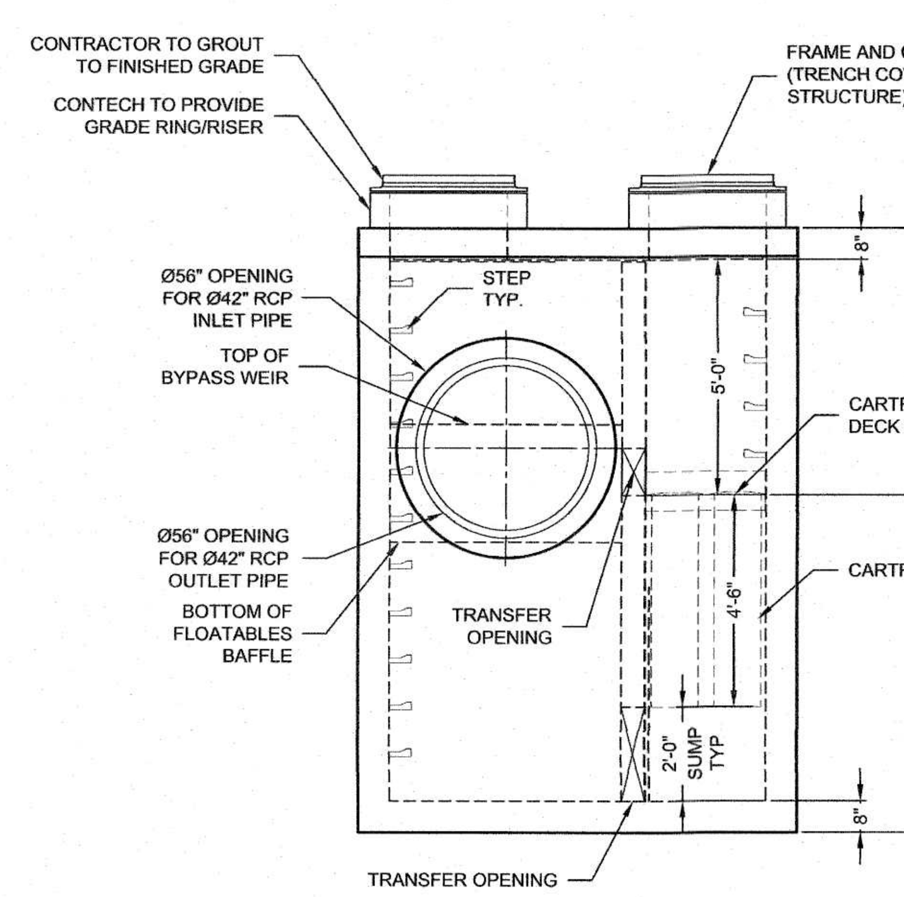
JOB NUMBER: A311-0415

WQ 4

XXXX-XX-XX



PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



RIM
ELEV. = 903.00'

TOP OF STRUCTURE
ELEV. =988.67'

WEIR ELEV. = 984.50'
INLET INV. ELEV. = 983.00'

OUTLET INV. ELEV. = 983.00'

STRUCTURE INV.
ELEV. = 976.50'

BOTTOM OF STRUCTURE
ELEV. = 975.83'

ELEVATION VIEW

Jellyfish® Filter
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

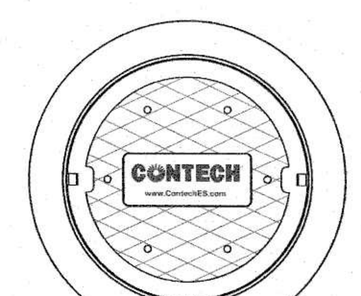
I:\MERLIN\PROJECTACTIVE\727200\727271\727271-10-JELLYFISH\DRAWINGS\PROPOSAL\JFPD0808-PRO.DWG 3/28/2023 3:56 PM

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	2.94
DECK TO INSIDE TOP (MIN) (B)	5.00



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	JFPD0806
WATER QUALITY FLOW RATE (cfs)	1.91
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	10/2
CARTRIDGE LENGTH	54

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	983.00	RCP	42"	*	*
INLET #2	*	*	*	*	*
OUTLET	983.00	RCP	42"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	903.00

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

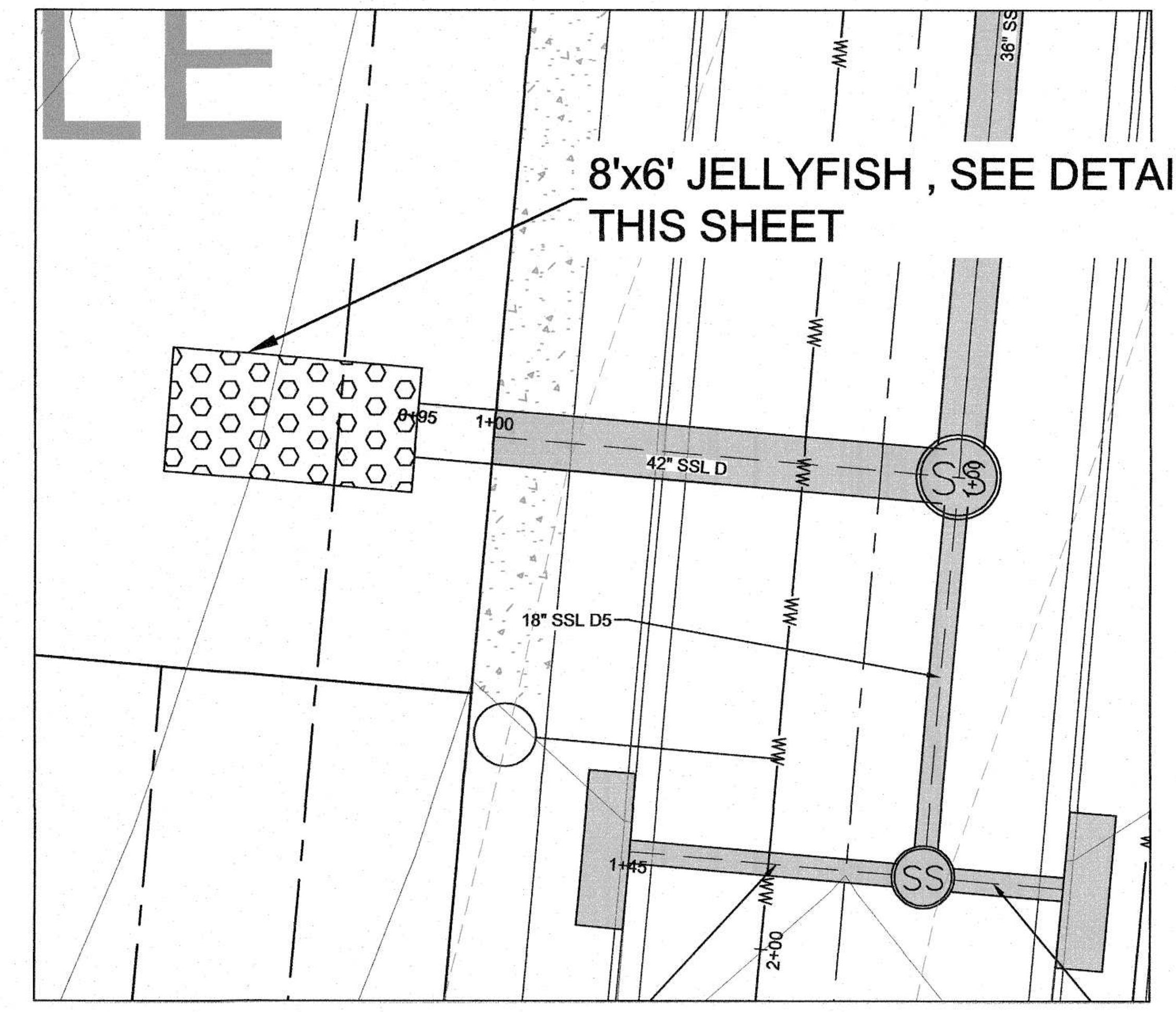
NOTES/SPECIAL REQUIREMENTS:
INLET/OUTLET BAY IS UPSIZED TO ACCOMMODATE 42" RCP. UNIT IS SIZED AS JFPD0806-10-2.
* PER ENGINEER OF RECORD

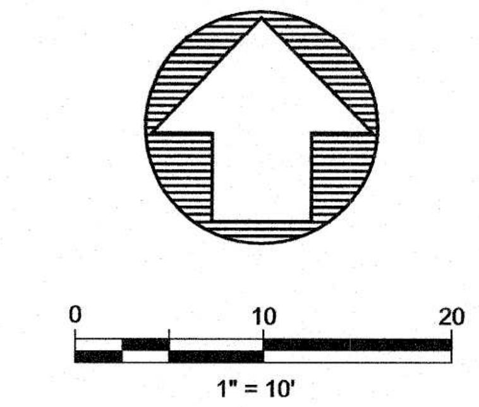
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JFPD0808 - 727271 - 010
PROJECT NAME: PALMERA NEW SECTION
LOCATION: LEANDER, TX
SITE DESIGNATION: JELLYFISH 8X6





LEGEND:

610	EXISTING CONTOURS
608	PROPOSED CONTOURS
604.00 TP	TOP OF PAVEMENT ELEVATION
604.00 TW	TOP OF WALL ELEVATION
604.00 BW	BOTTOM OF WALL ELEVATION
604.00 TC	TOP OF CURB ELEVATION
604.00 TG	TOP OF GRADE/GRATE ELEVATION
604.00 TLC	TOP OF LAY DOWN CURB ELEVATION
	PROPOSED STORM SEWER LINE
	DRY STACK ROCK WALL
	MORTARED ROCK WALL

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Palmera Bluff Subdivision
Date Prepared: 1/30/2023

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: $L_M = 27.2(A_N \times P)$

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

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

County =	Williamson	
Total project area included in plan * =	57.94	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	11.53	acres
Total post-development impervious cover fraction * =	0.20	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	10036	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	5	

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	4.00	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	1.84	acres
Post-development impervious fraction within drainage basin/outfall area =	0.46	
$L_{M\ THIS\ BASIN}$ =	1602	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	JF	abbreviation
Removal efficiency =	86	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:
$LR = (BMP\ efficiency) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

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 =	4.00	acres
A_I =	1.84	acres
A_P =	2.16	acres
L_R =	1784	lbs.

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

Desired $L_{M\ THIS\ BASIN}$ =	1602	lbs.
F =	0.90	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348
Pages Section 3.2.22

Offsite area draining to BMP =	0.00	acres
Offsite impervious cover draining to BMP =	0.00	acres
Rainfall Intensity =	1.10	inches per hour
Effective Area =	1.72	acres
Cartridge Length =	54	inches
Peak Treatment Flow Required =	1.91	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size

Jellyfish Size for Flow-Based Configuration =	JFPD0806-10-2	
Jellyfish Treatment Flow Rate =	1.96	cfs

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8
WATER QUALITY JELLYFISH FILTER

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WQ5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WQ 5

SHEET NO. 27 OF 75 SHEETS

DateTime : Wed, 05 Apr 2023 - 10:57am User Name : ejlopez
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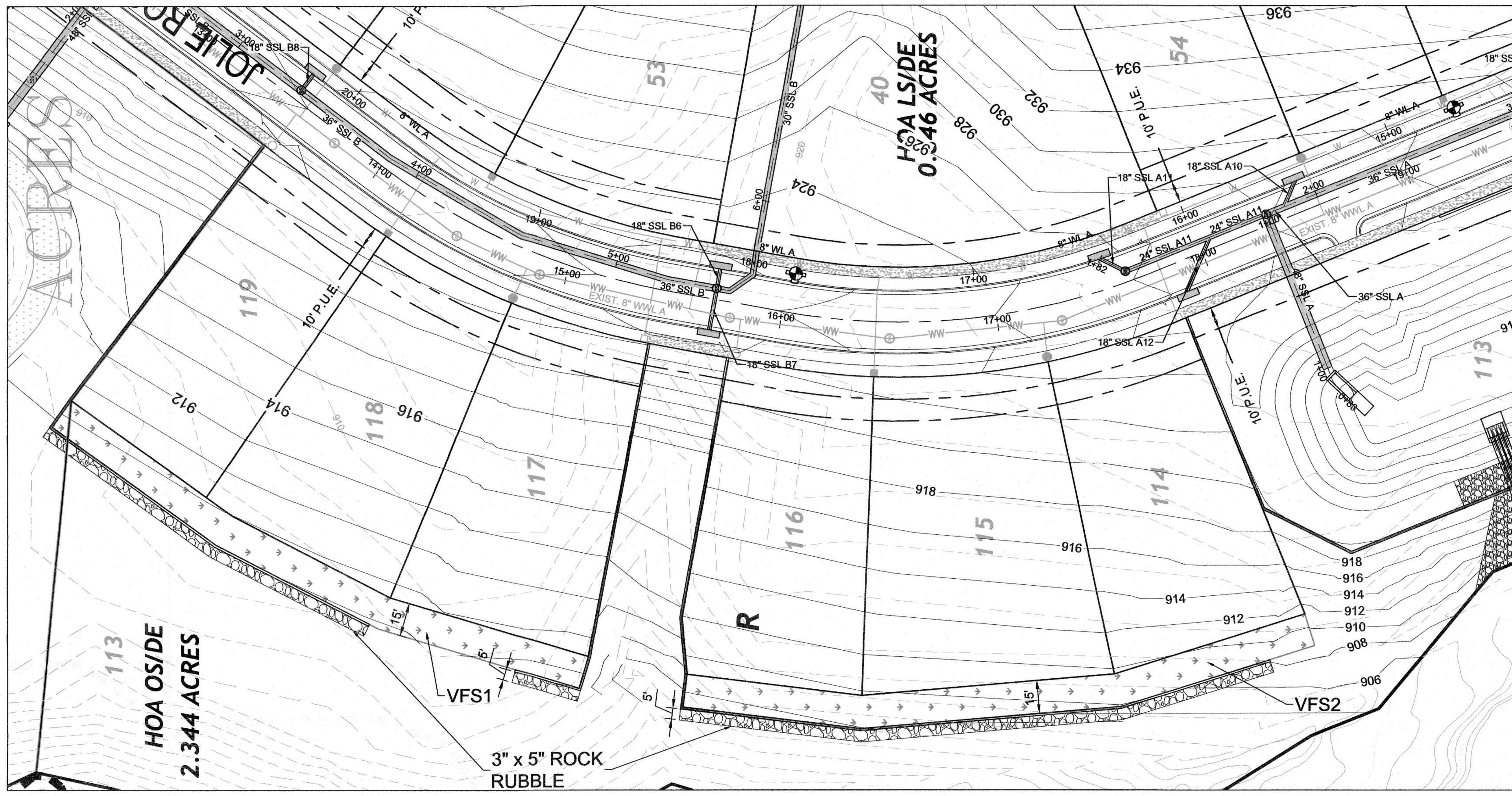
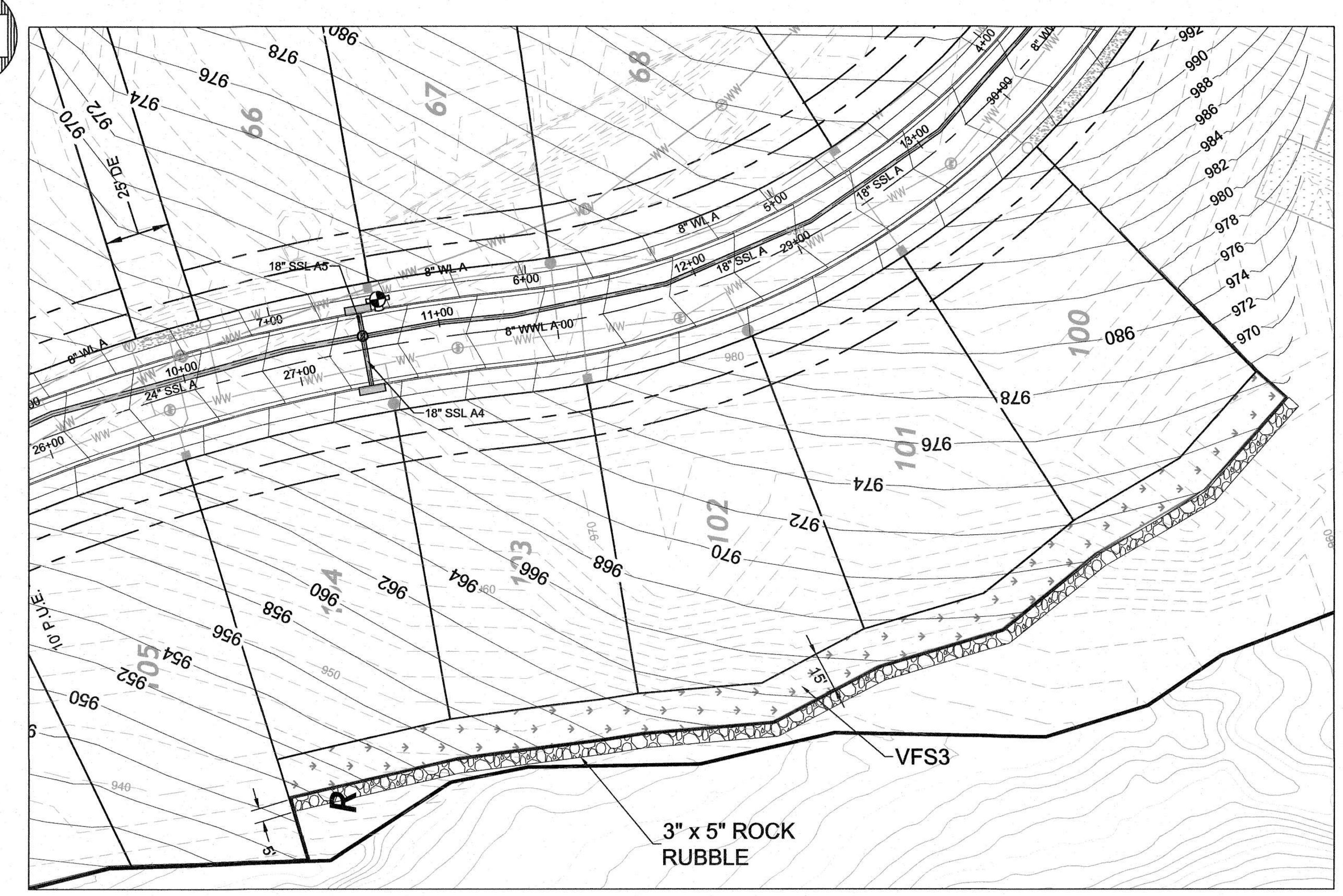
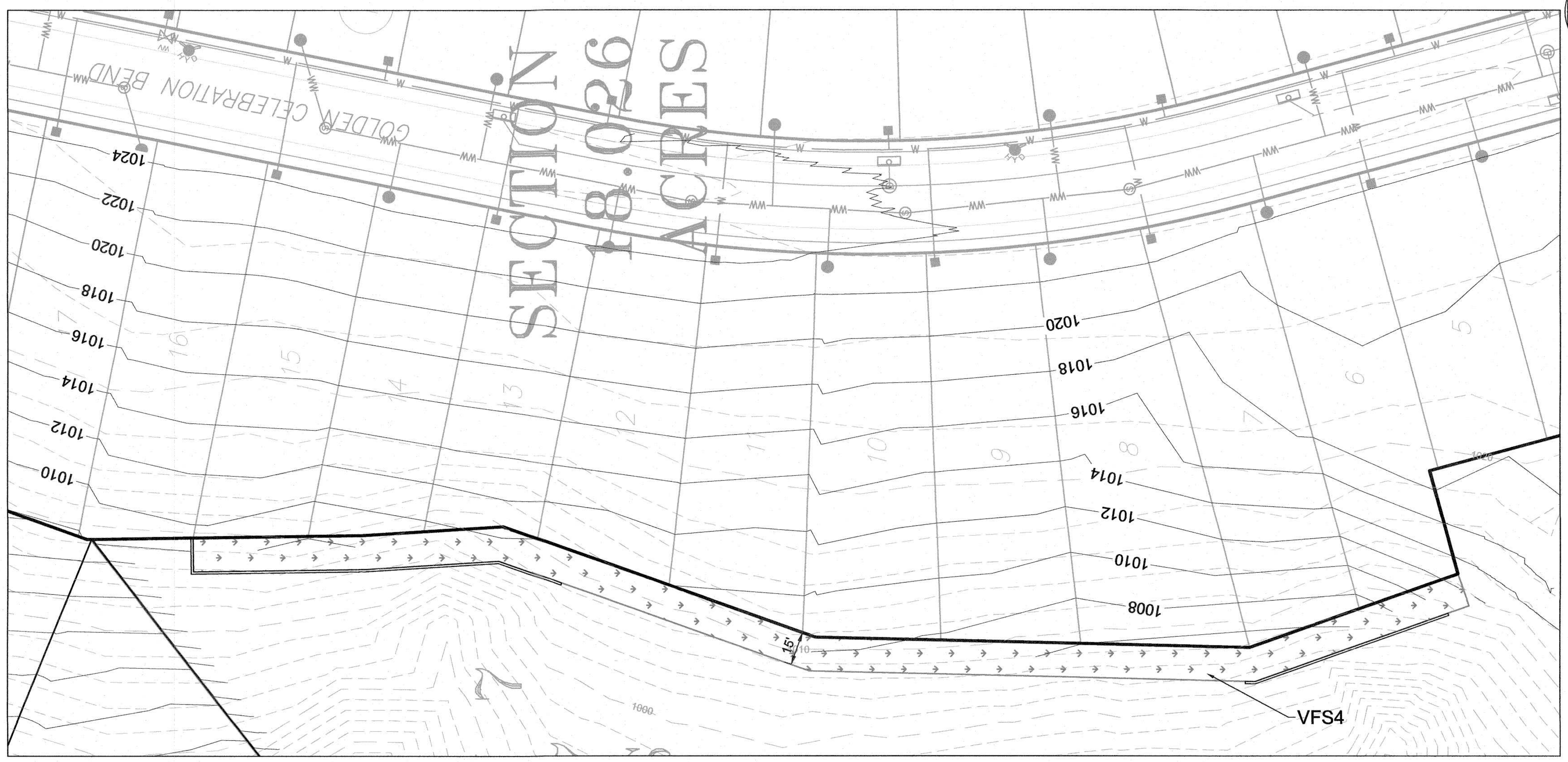
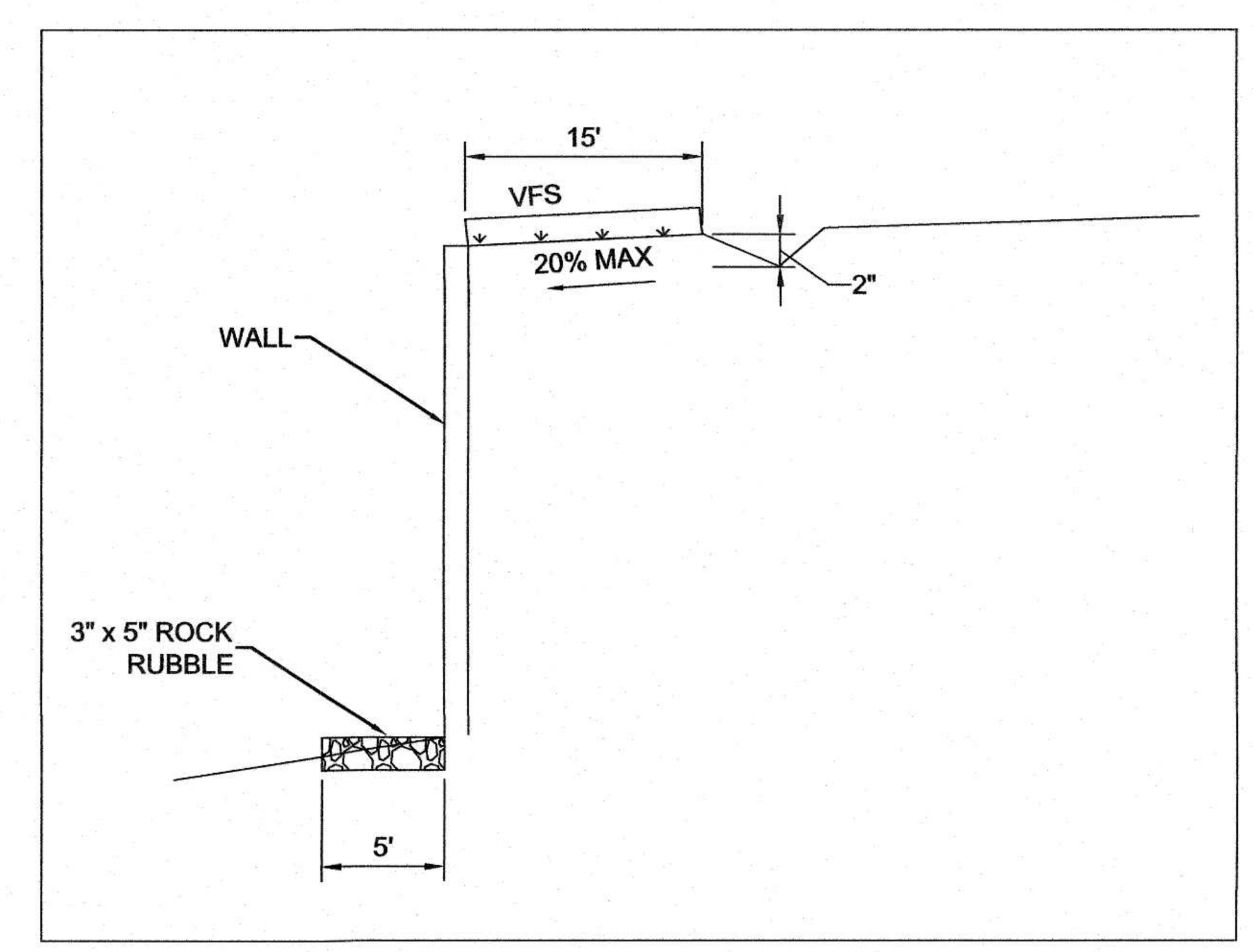
XXXX-XX-XX









TYPICAL CROSS SECTION
N.T.S.

0 40' 80'

LEGEND:

610	EXISTING CONTOURS
608	PROPOSED CONTOURS
604.00 TP	TOP OF PAVEMENT ELEVATION
604.00 TW	TOP OF WALL ELEVATION
604.00 BW	BOTTOM OF WALL ELEVATION
604.00 TC	TOP OF CURB ELEVATION
604.00 TG	TOP OF GRADE/GRATE ELEVATION
604.00 TLC	TOP OF LAY DOWN CURB ELEVATION
	PROPOSED STORM SEWER LINE
	DRY STACK ROCK WALL
	MORTARED ROCK WALL

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

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER QUALITY VEGETATIVE FILTER STRIPS

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WQ6.dwg

STATE OF TEXAS
T. W. HOYSA
100072
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WQ 6

SHEET NO. 28 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 17 Apr 2023 - 12:40pm User Name : ellopez
PathName: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WQ6.dwg

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	17834	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 8

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

Drainage Basin/Outfall Area No. = 4 (VFS 1)

Total drainage basin/outfall area =	0.77	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.28	acres
Post-development impervious fraction within drainage basin/outfall area =	0.36	
$L_{M\ THIS\ BASIN}$ =	244	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	0.77	acres
A_I =	0.28	acres
A_P =	0.49	acres
L_R =	271	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 271 lbs.

F = 1.00

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	17834	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 8

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

Drainage Basin/Outfall Area No. = 5 (VFS 2)

Total drainage basin/outfall area =	0.83	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.24	acres
Post-development impervious fraction within drainage basin/outfall area =	0.29	
$L_{M\ THIS\ BASIN}$ =	209	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	0.83	acres
A_I =	0.24	acres
A_P =	0.59	acres
L_R =	235	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 235 lbs.

F = 1.00

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	17834	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 8

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

Drainage Basin/Outfall Area No. = 6 (VFS 3)

Total drainage basin/outfall area =	1.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.47	acres
Post-development impervious fraction within drainage basin/outfall area =	0.44	
$L_{M\ THIS\ BASIN}$ =	409	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	1.07	acres
A_I =	0.47	acres
A_P =	0.60	acres
L_R =	451	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 451 lbs.

F = 1.00

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

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

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

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Palmera Bluff

Date Prepared: 9/26/2022

1. The Required Load Reduction for the total project:

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

where:

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

A_N = Net increase in impervious area for the project

P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	84.45	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	20.49	acres
Total post-development impervious cover fraction * =	0.24	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	17834	lbs.

Number of drainage basins / outfalls areas leaving the plan area = 8

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

Drainage Basin/Outfall Area No. = 7 (VFS 4)

Total drainage basin/outfall area =	2.02	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.57	acres
Post-development impervious fraction within drainage basin/outfall area =	0.28	
$L_{M\ THIS\ BASIN}$ =	496	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips

Removal efficiency = 85 percent

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

A_C =	2.02	acres
A_I =	0.57	acres
A_P =	1.45	acres
L_R =	558	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 558 lbs.

F = 1.00

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

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

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

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

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER QUALITY VEGETATIVE FILTER STRIPS CALCULATIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WQ7.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

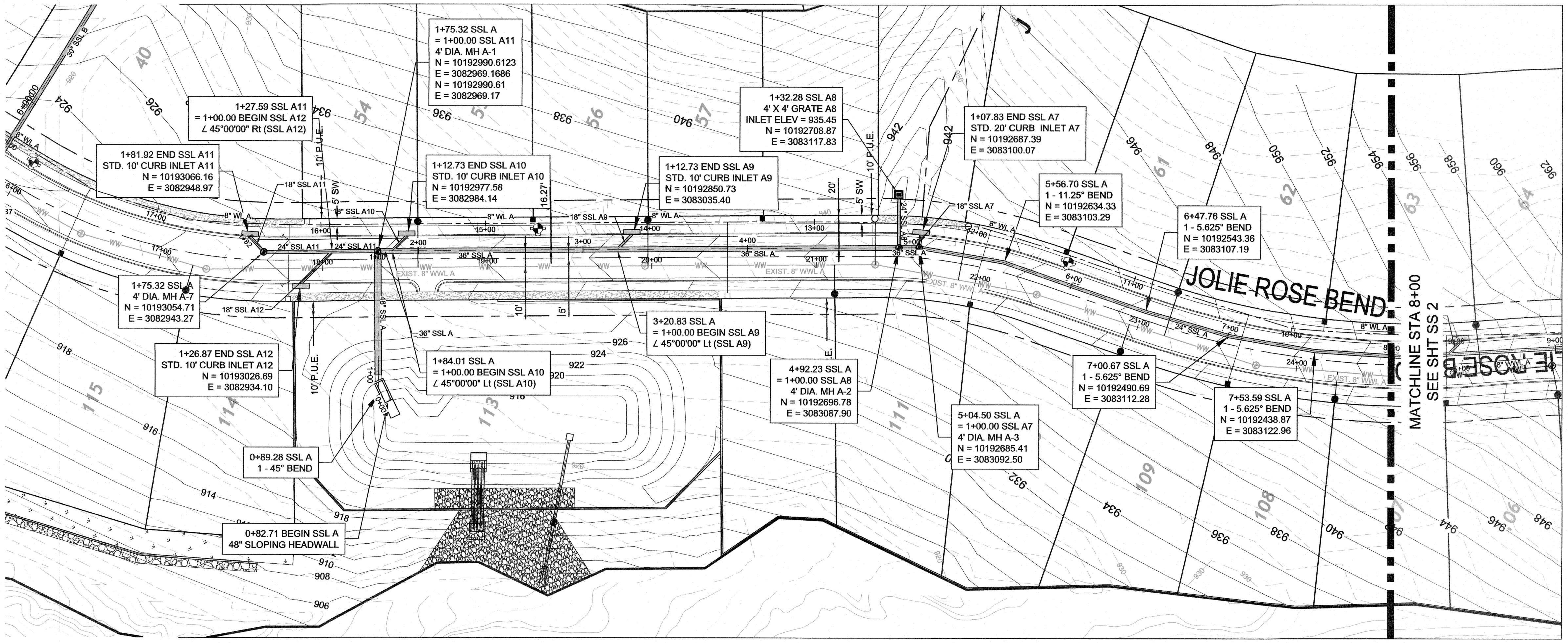
WQ 7

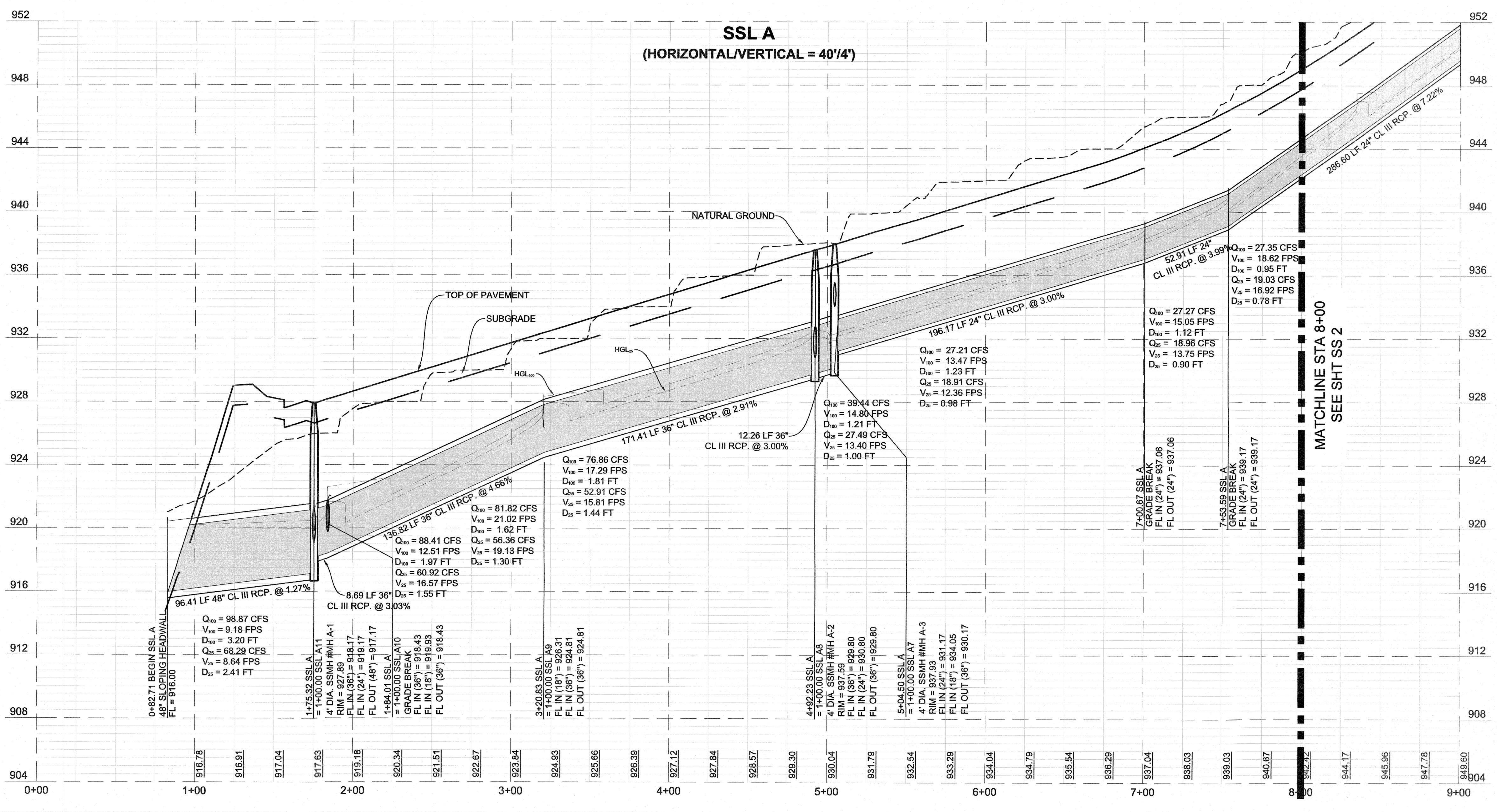
SHEET NO. 29

OF 75 SHEETS

XXXX-XX-XX

Date/Time : Wed, 05 Apr 2023 - 11:56am
User Name : ajlopez
Path/Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD\ Sheet Files\A311-0415 WQ7.dwg





LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE 'A' PLAN AND PROFILE STA. 1+00 TO 8+00

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 1

SHEET NO. 30 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 17 Apr 2023 - 12:14pm User Name : ejlopez
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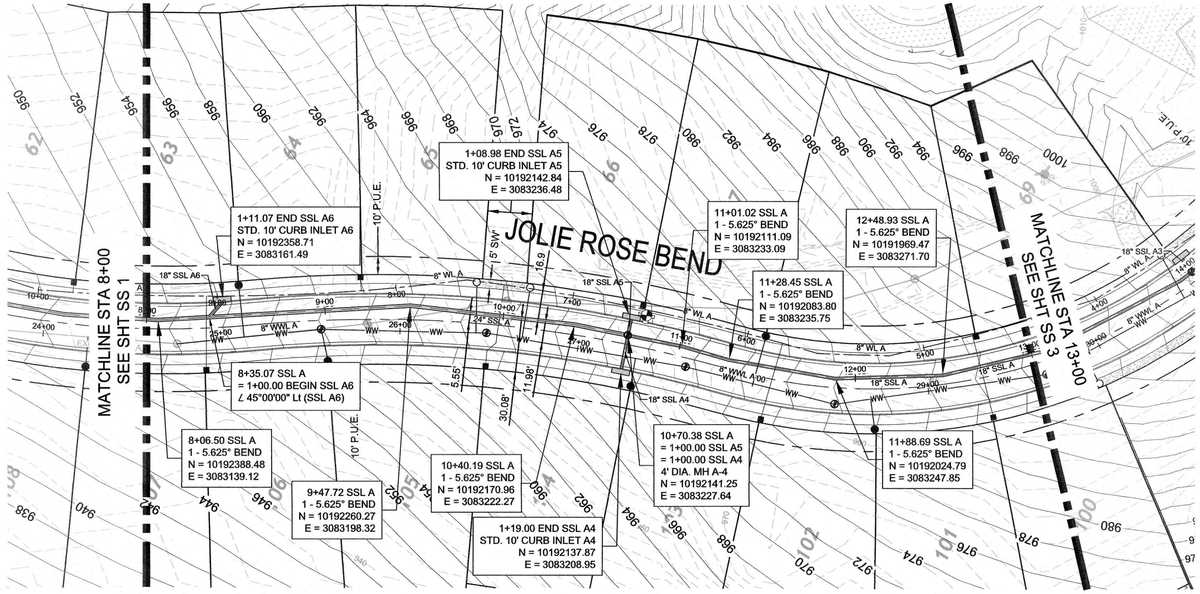

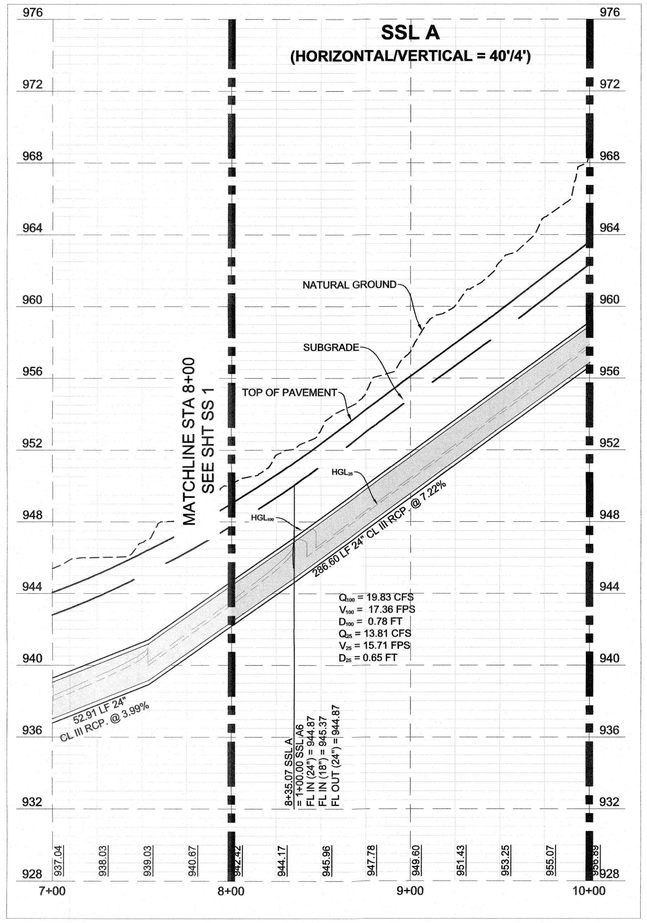

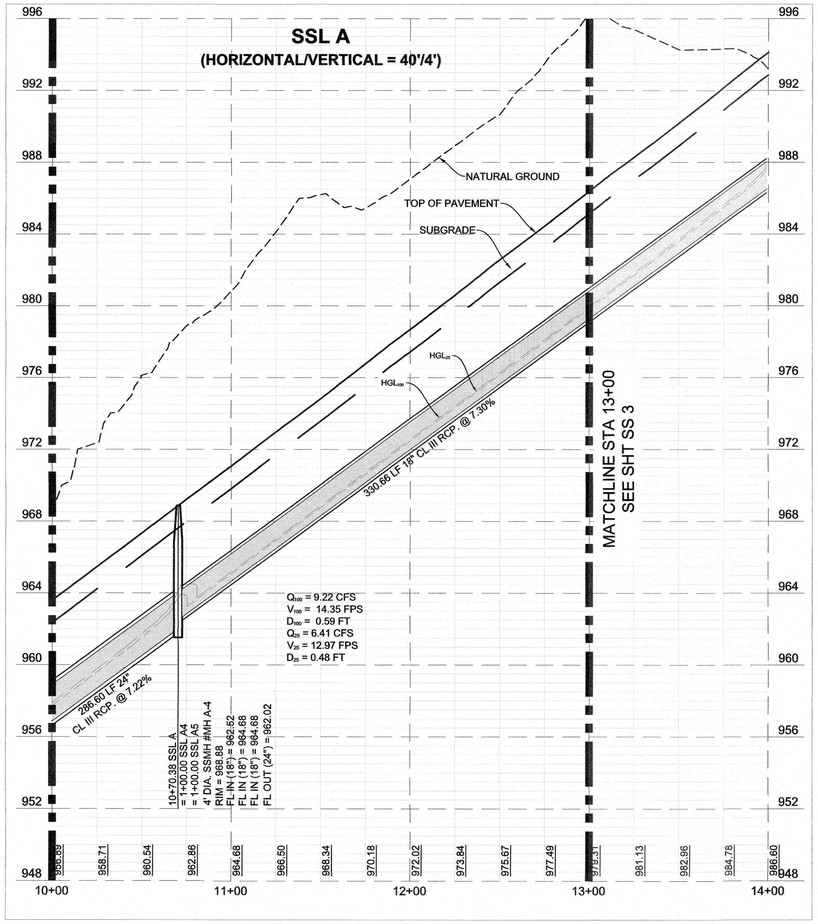

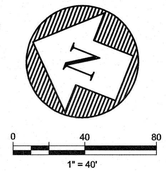

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

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PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE 'A' PLAN AND PROFILE STA. 8+00 TO 13+00

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 2.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 2

SHEET NO. 31 OF 75 SHEETS

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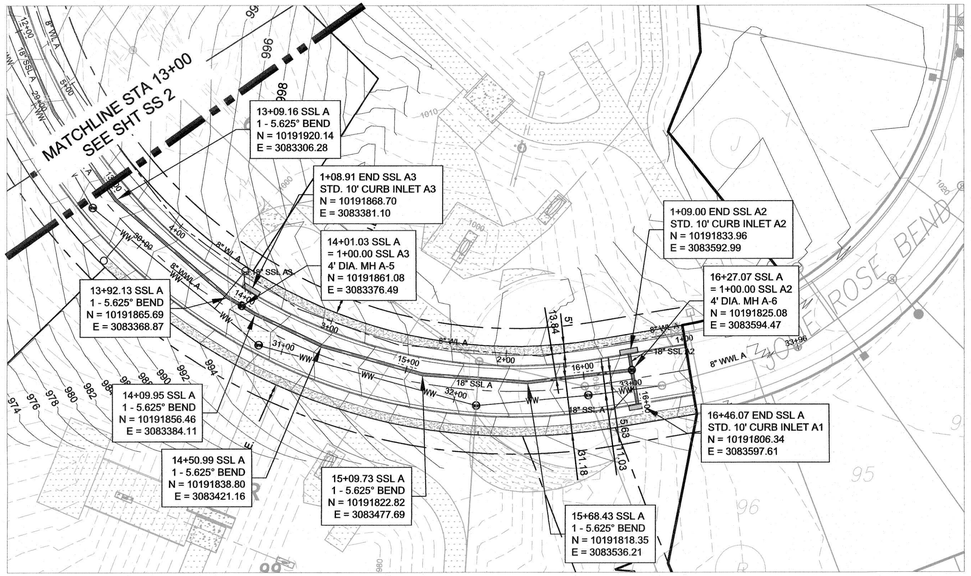

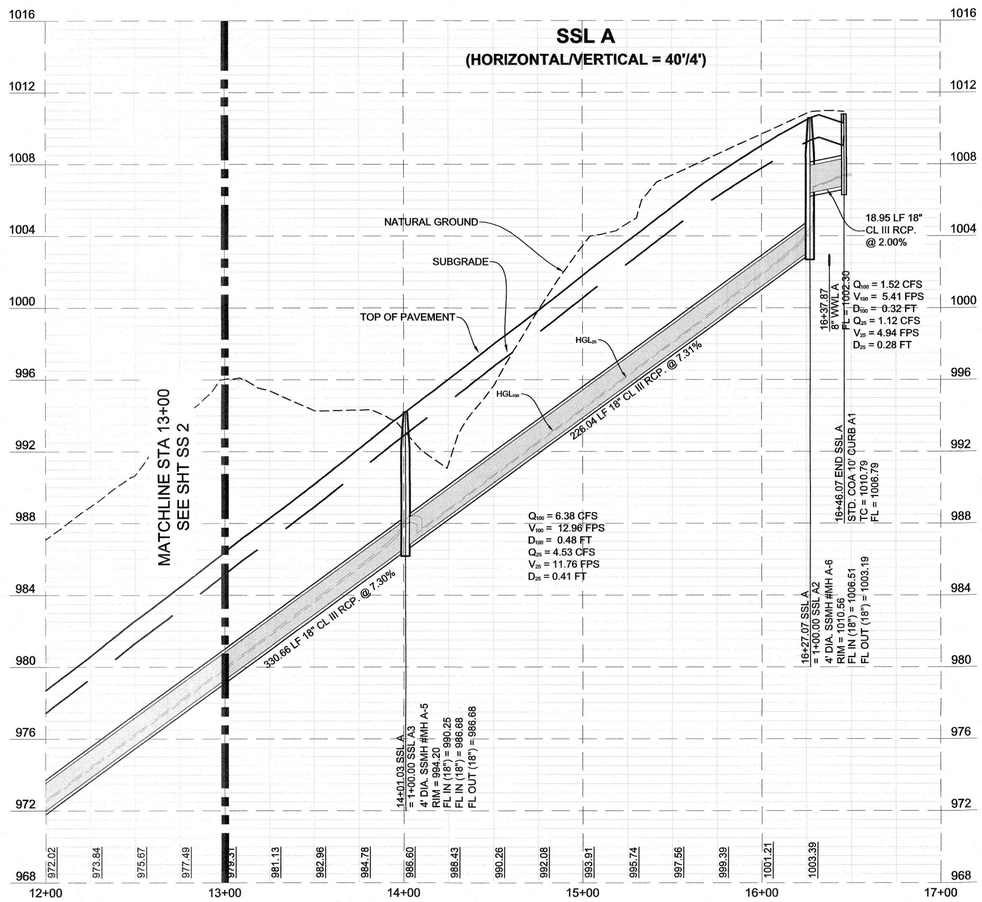

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

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PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
STORM SEWER LINE 'A' PLAN AND PROFILE
STA. 13+00 TO END

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 3.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
9/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 3

SHEET NO. 32

OF 75 SHEETS

XXXX-XX-XX

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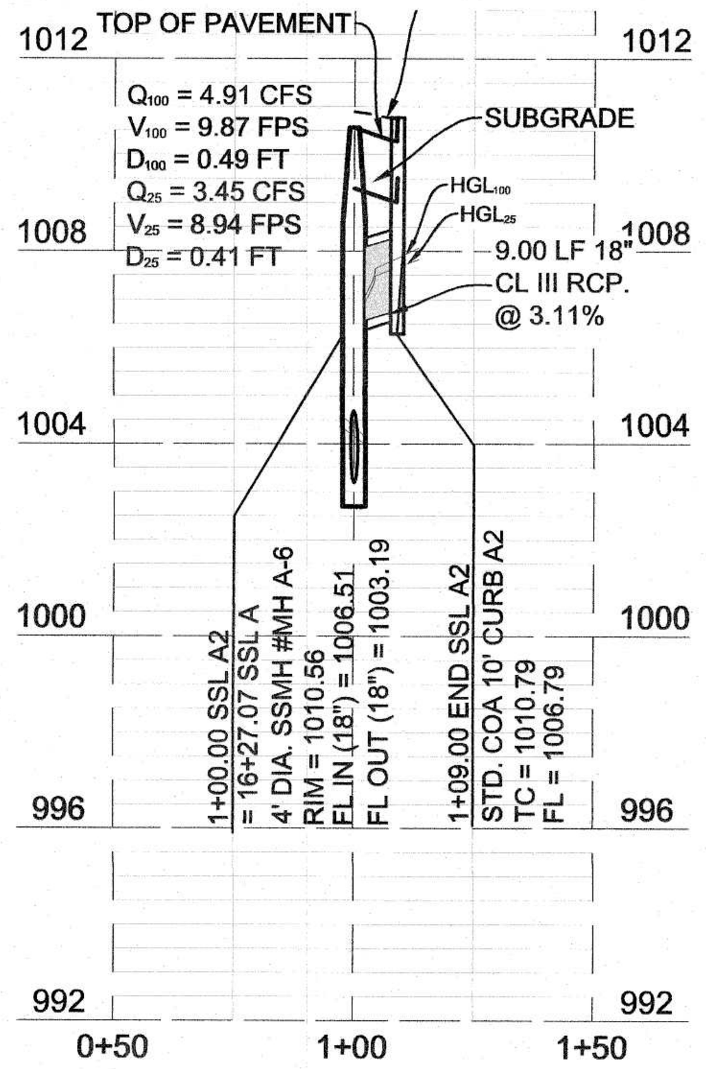

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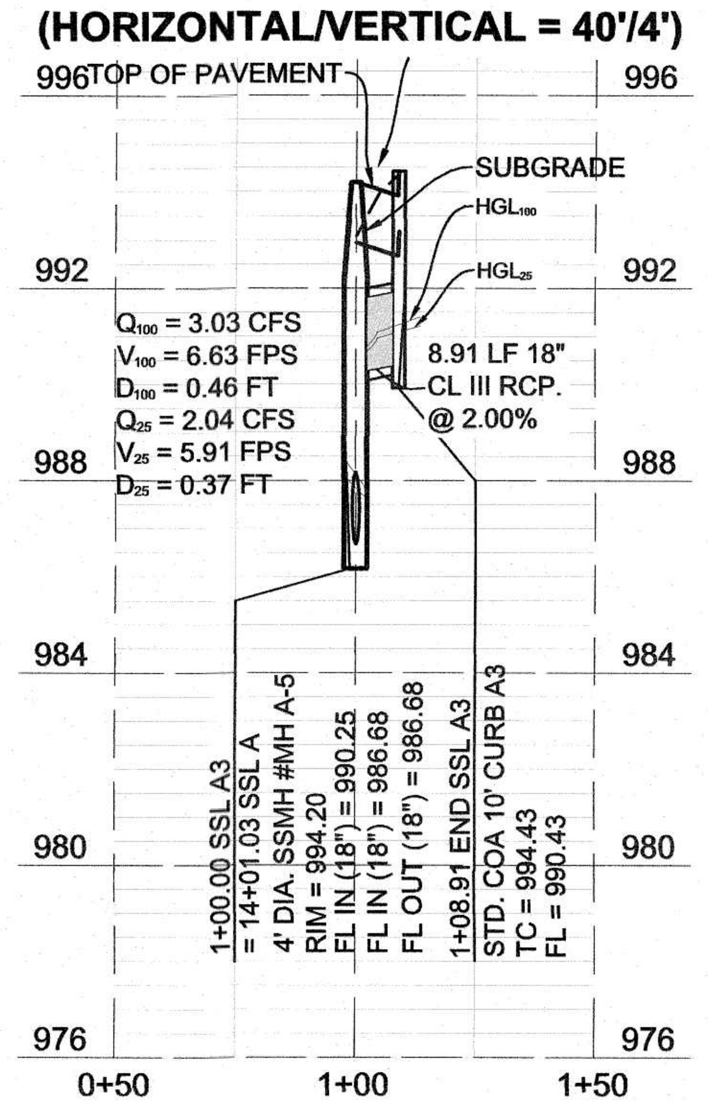

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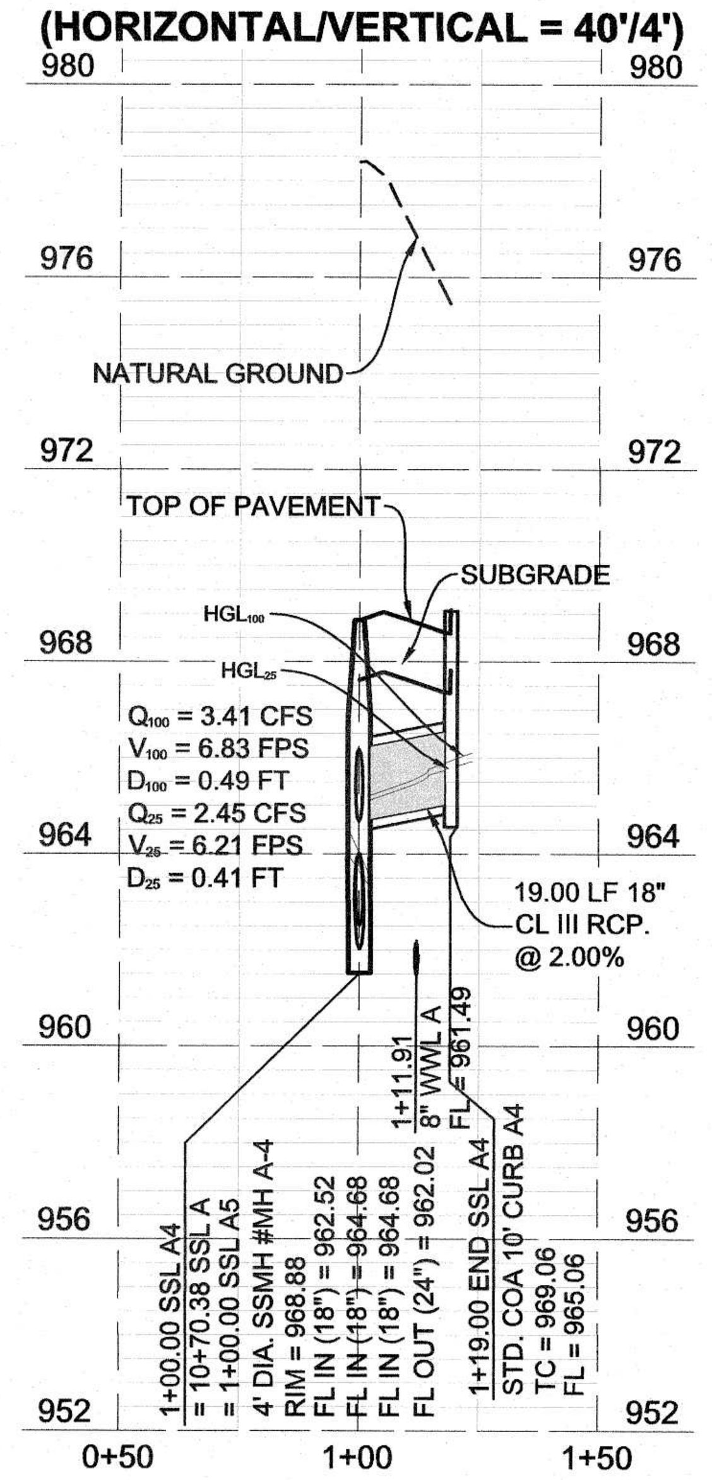

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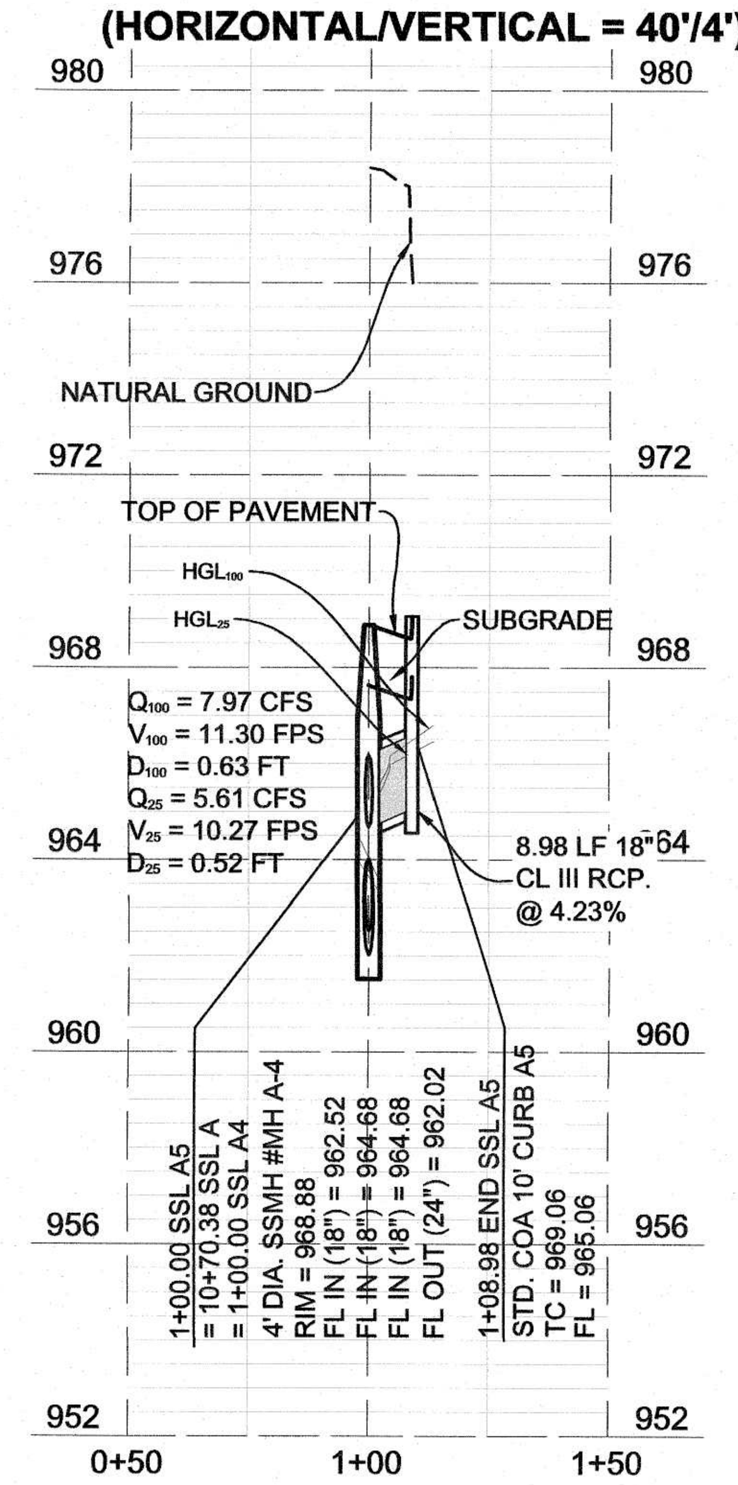

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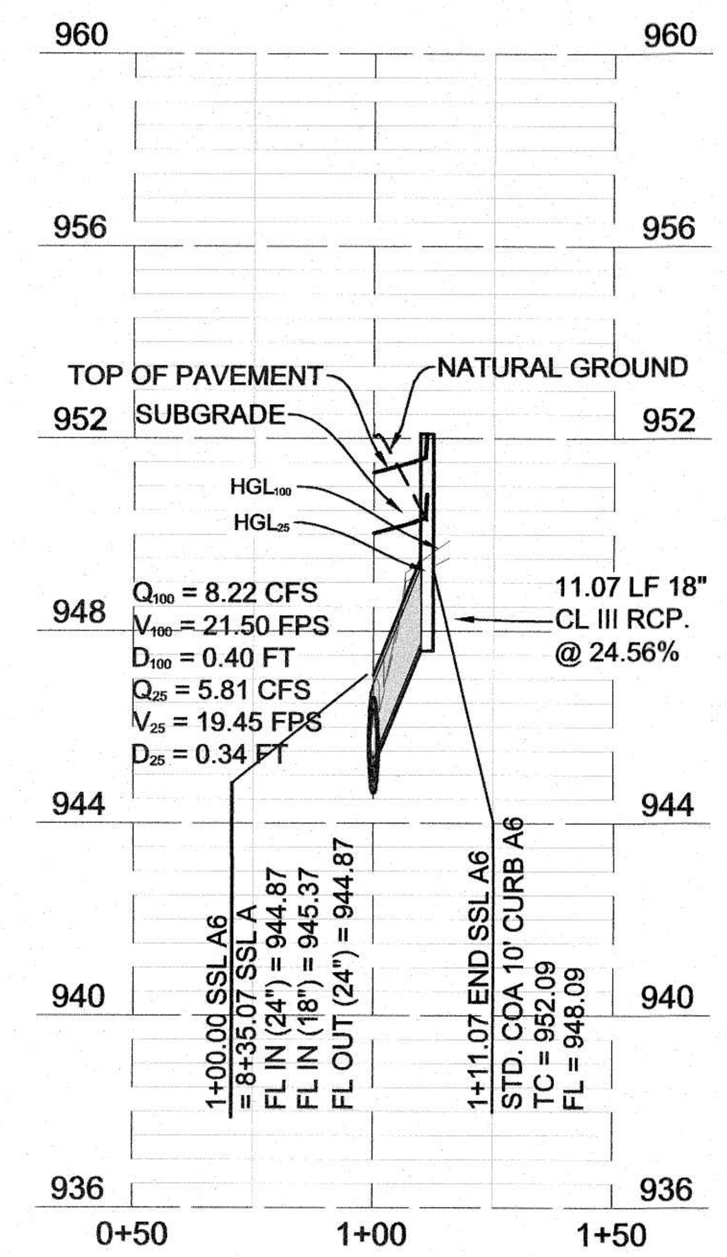

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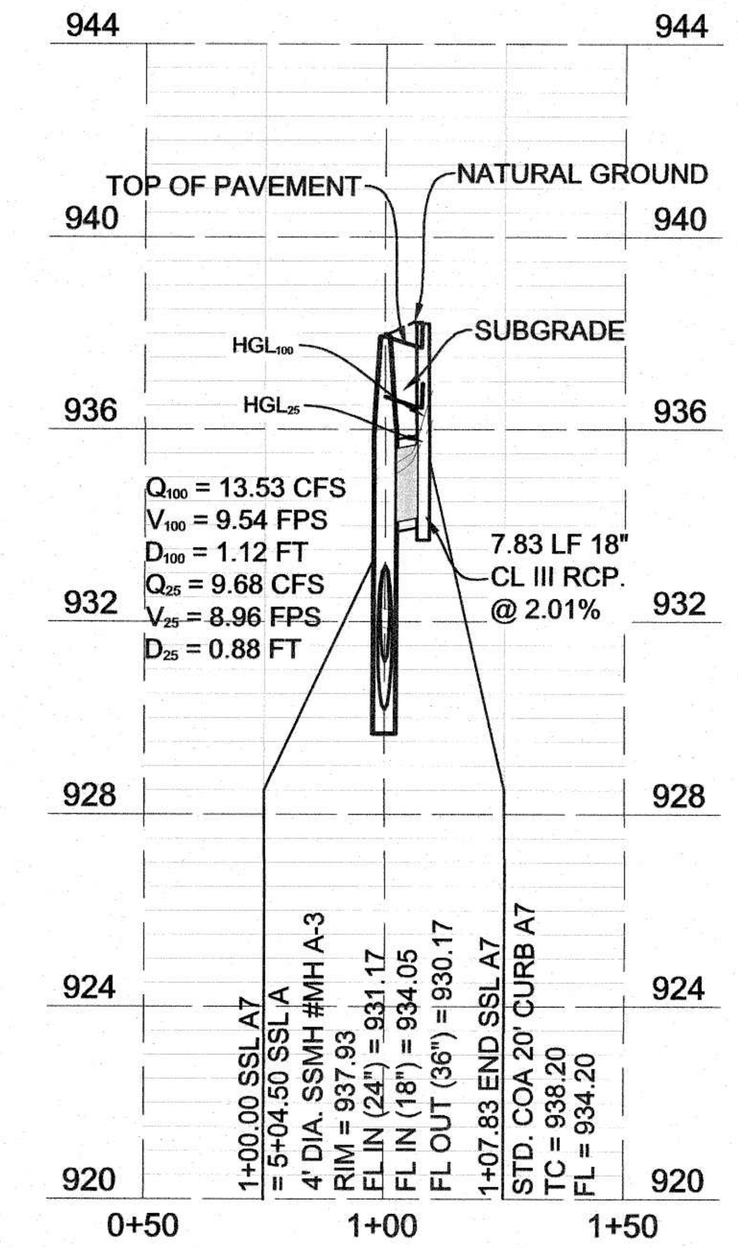

PROFILE LINE LEGEND

— — — —	100-YR HGL
- - - - - -	25-YR HGL
- - - - - -	NATURAL GROUND
———	PROPOSED PAVEMENT

SSL A8
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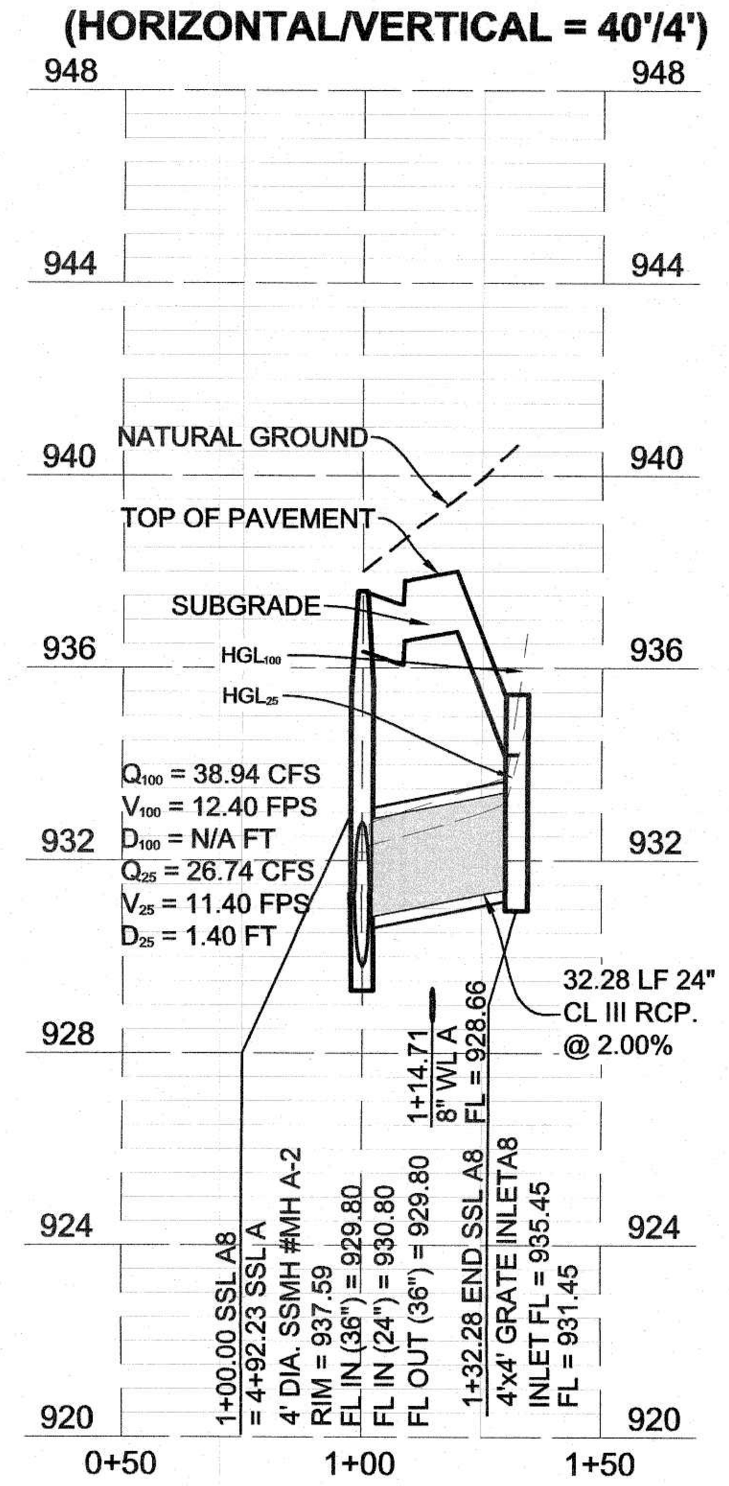

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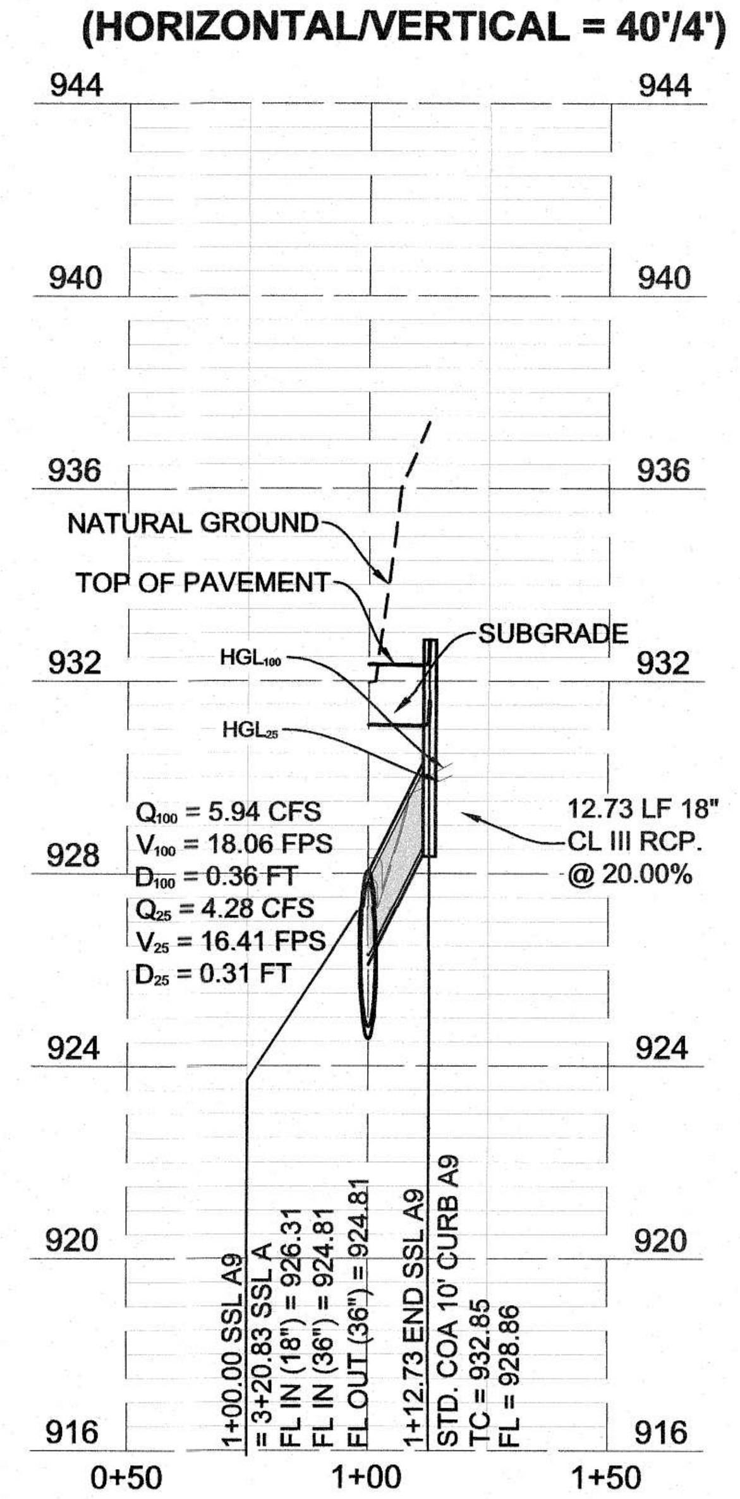

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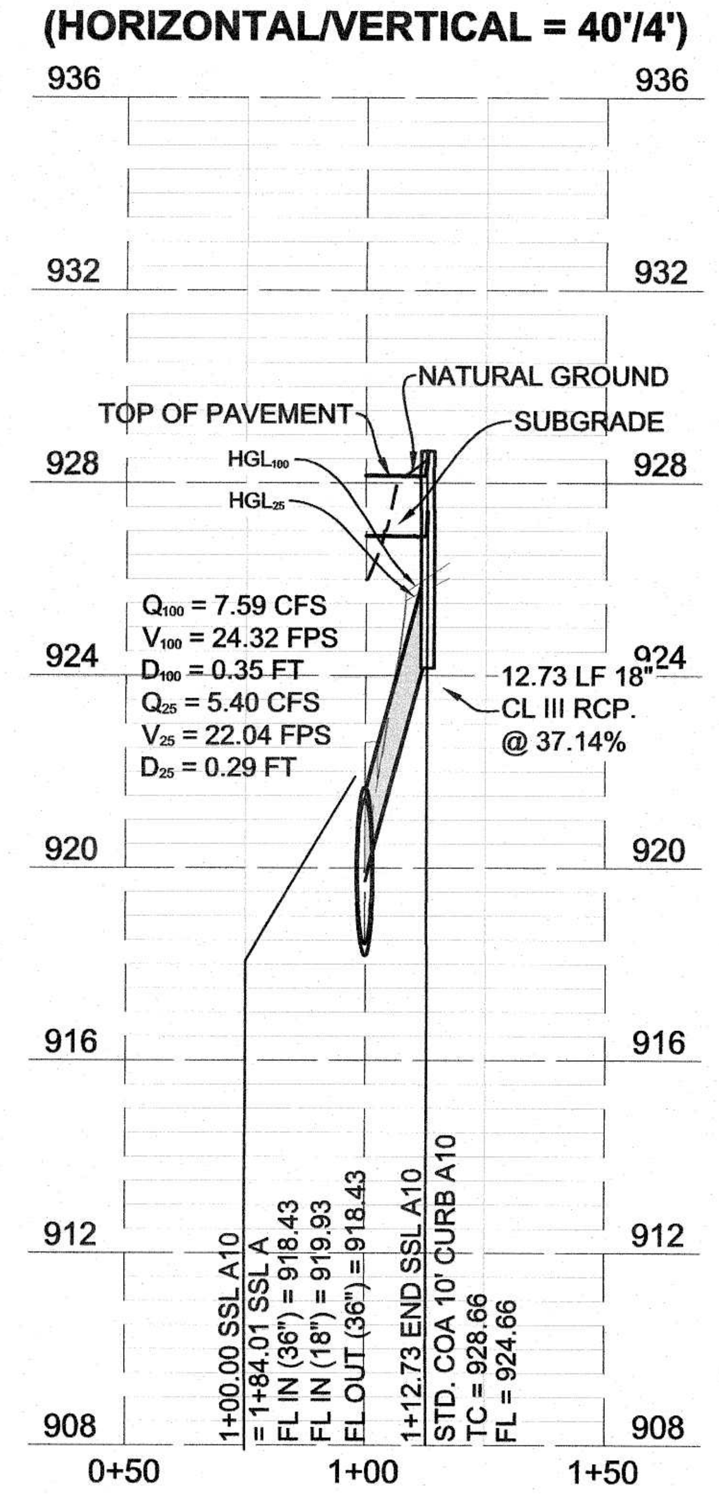

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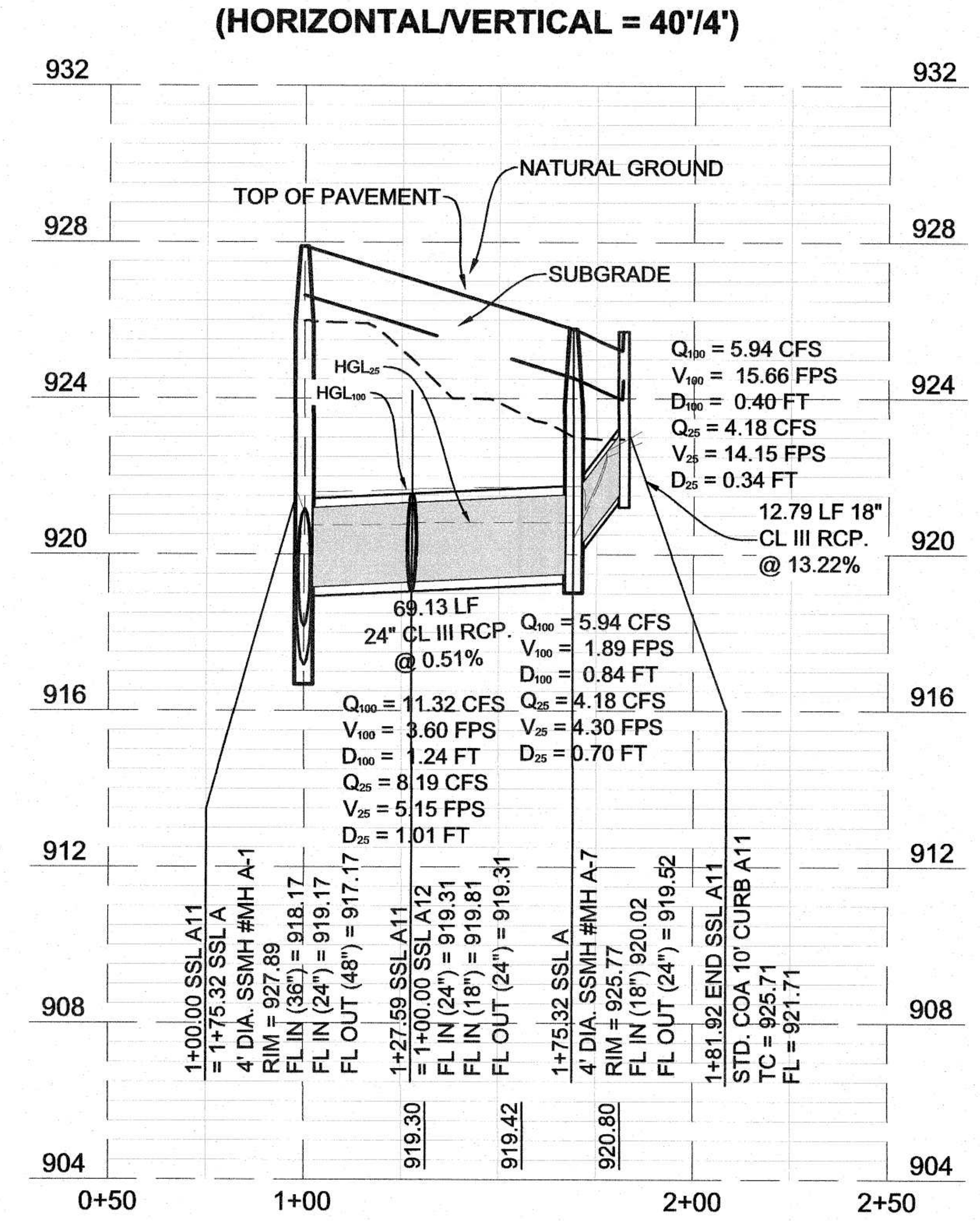

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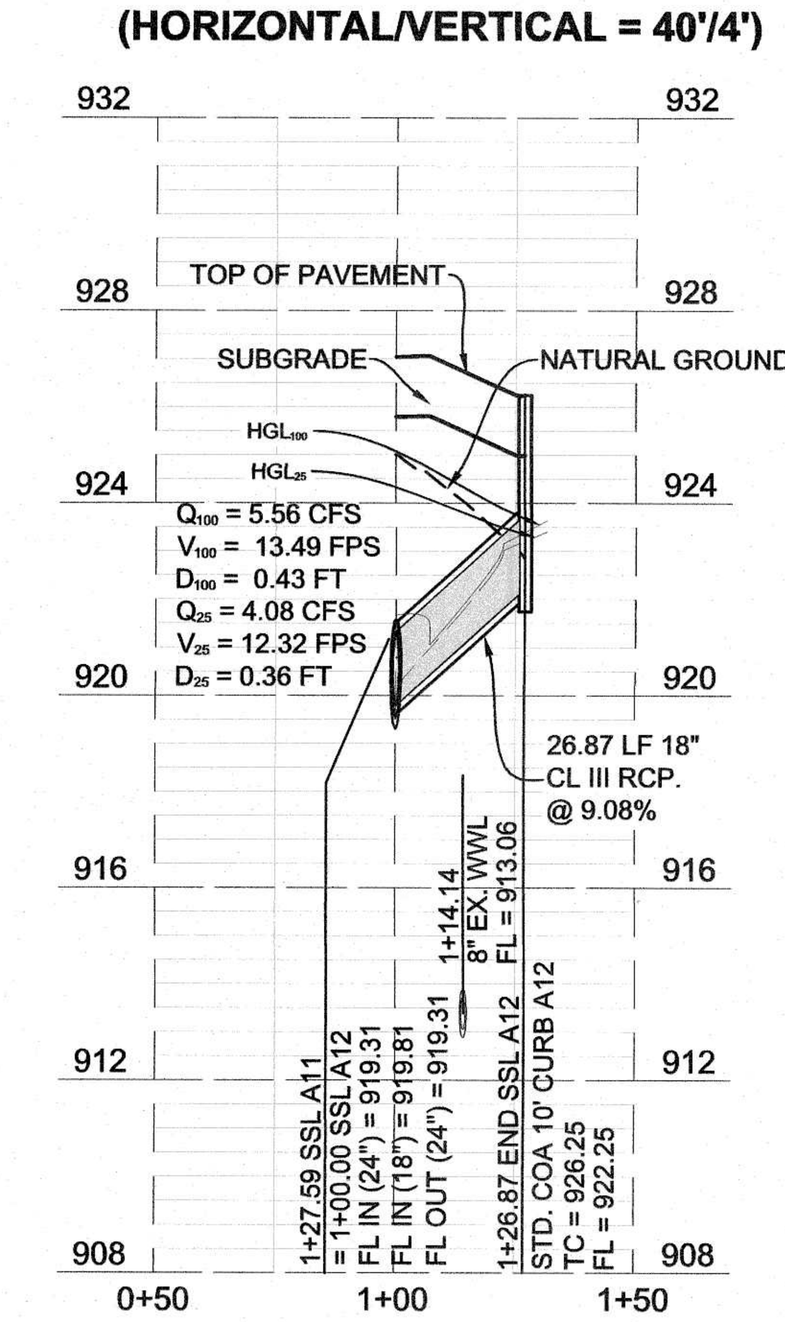

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
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4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE A2-A10 PROFILE

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 4

SHEET NO. 33 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 17 Apr 2023 - 1:02pm User Name : eljopez
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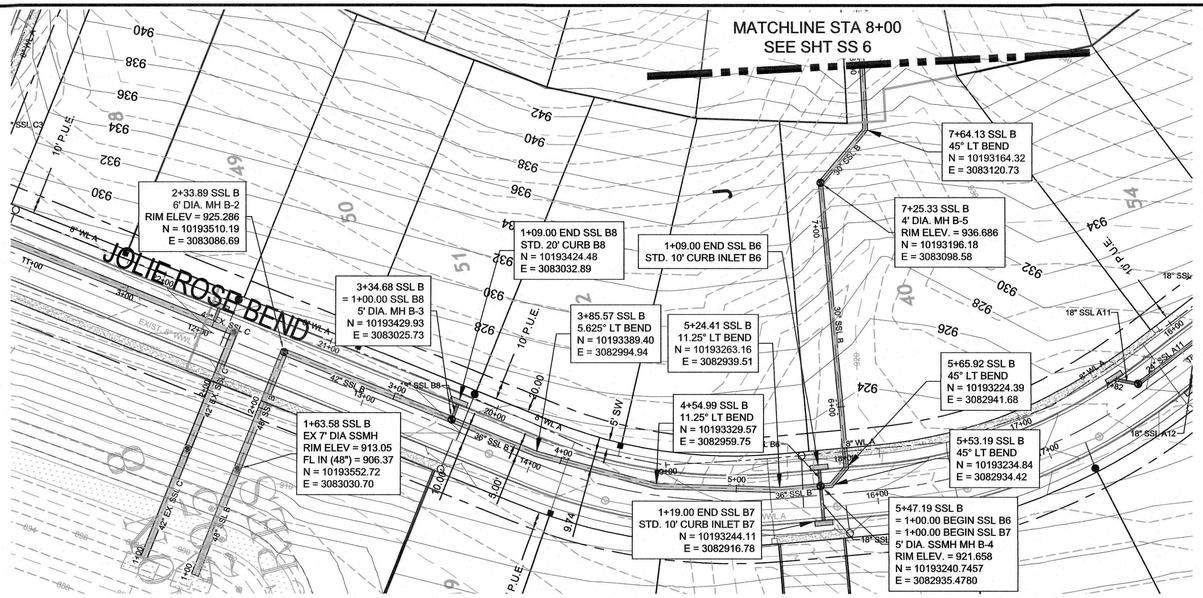

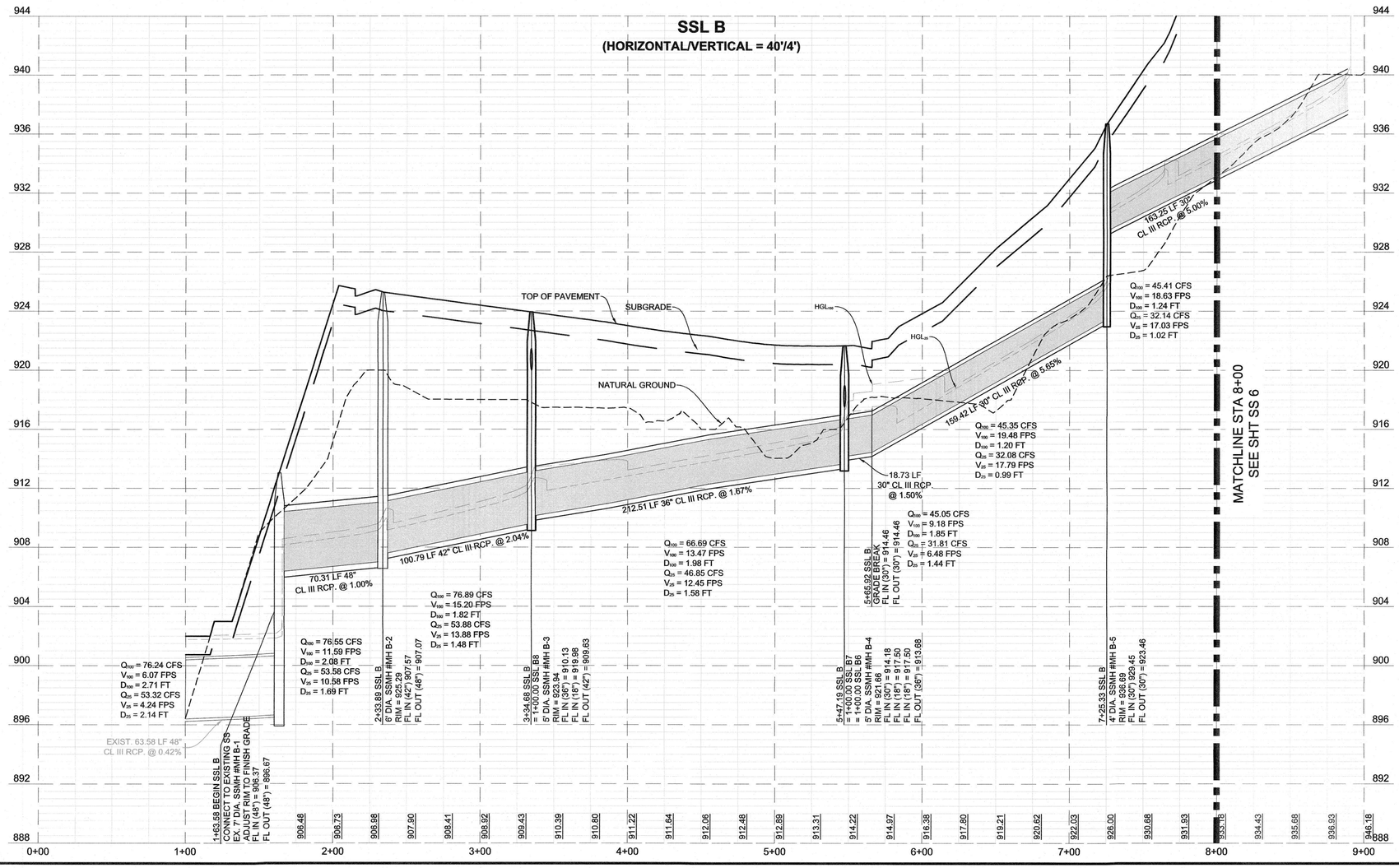

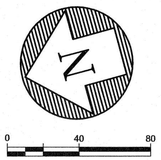

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

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PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
STORM SEWER LINE 'B' PLAN AND PROFILE
STA. 1+00 TO 8+00

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 5

SHEET NO. 34

OF 75 SHEETS

DateTime: Mon, 17 Apr 2023 - 12:18pm
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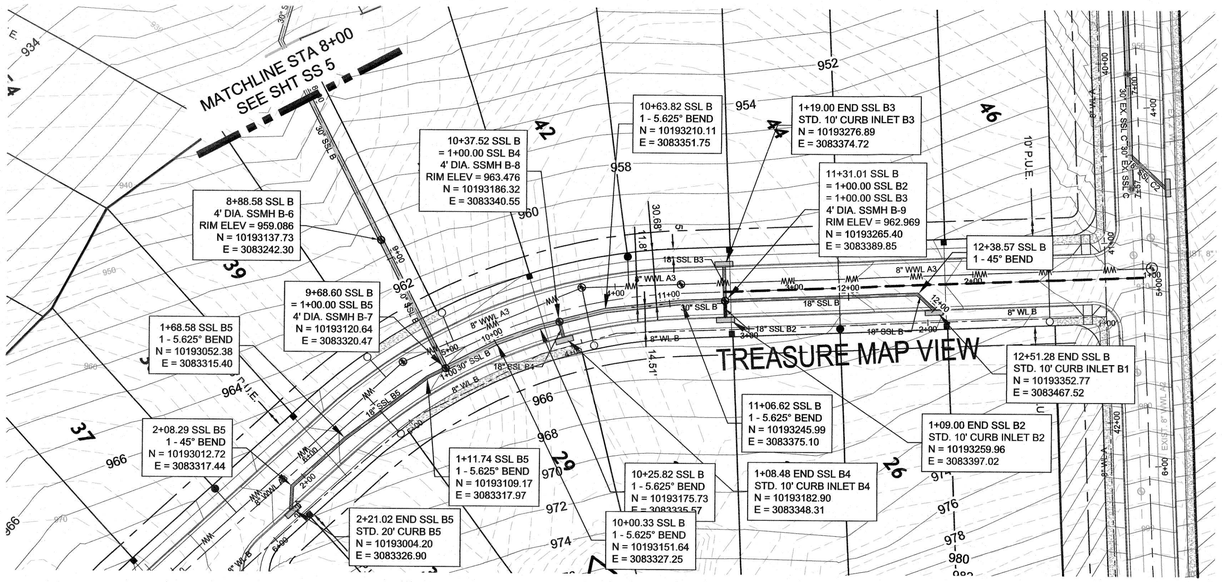

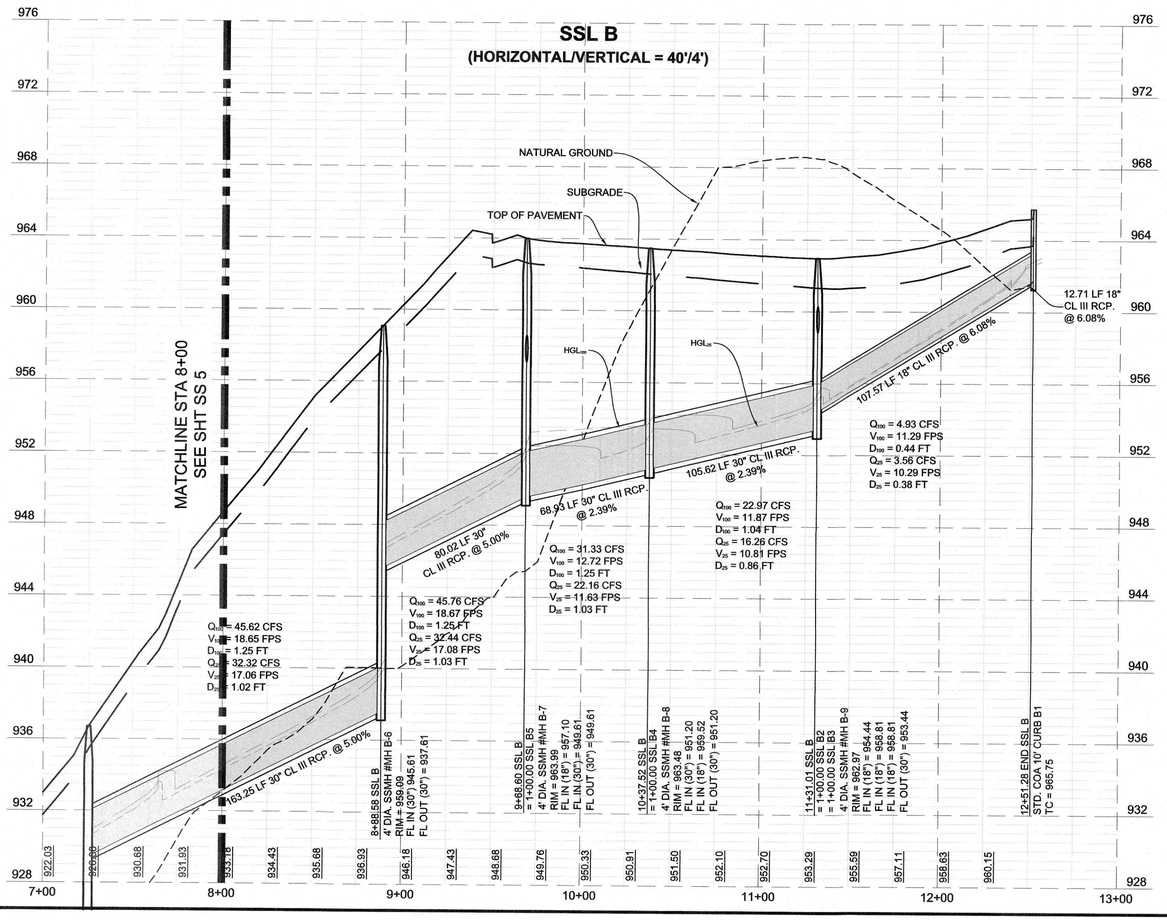

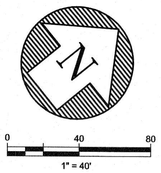

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE 'B' PLAN AND PROFILE STA. 8+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 11/1/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 6.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 6

SHEET NO. 35 OF 75 SHEETS

Date/Time : Mon, 17 Apr 2023 - 12:19pm User Name : ajlopez
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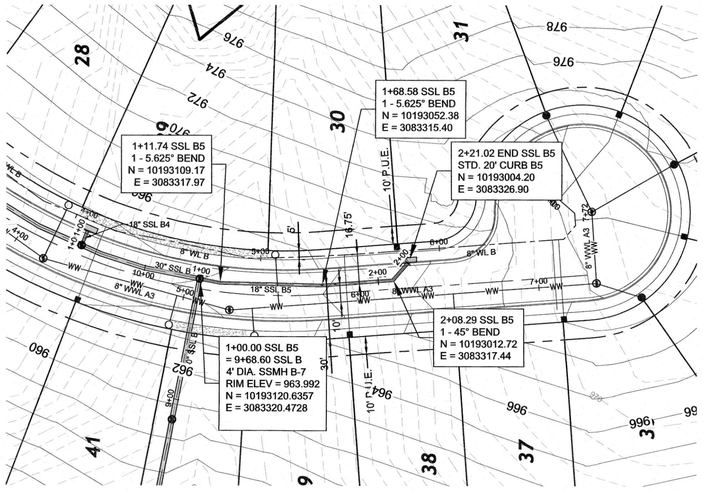

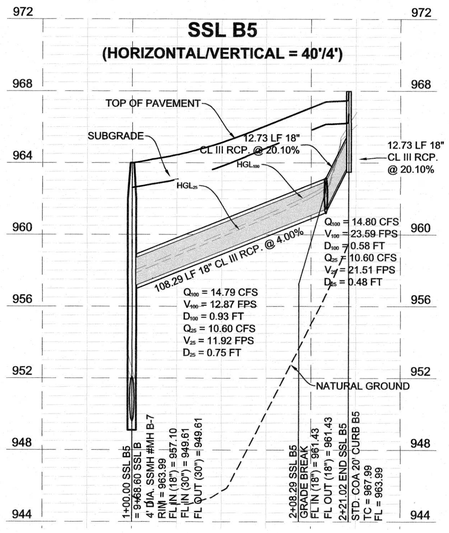

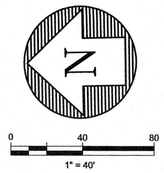

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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.

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
STORM SEWER LINE B5' PLAN AND PROFILE
STA. 1+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 7.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4-17-23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 7

SHEET NO. 36

OF 75 SHEETS

XXXX-XX-XX

DateTime: Mon, 17 Apr 2023 - 12:20pm
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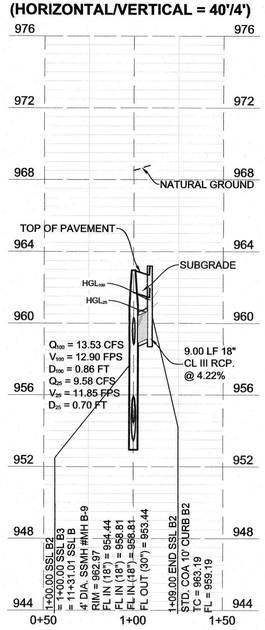

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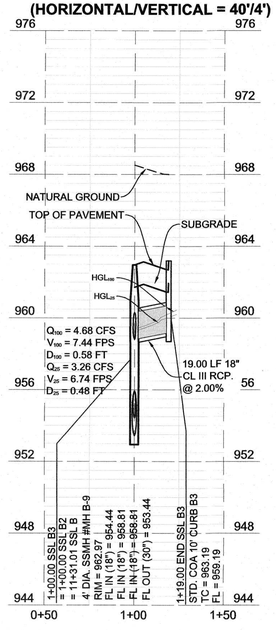

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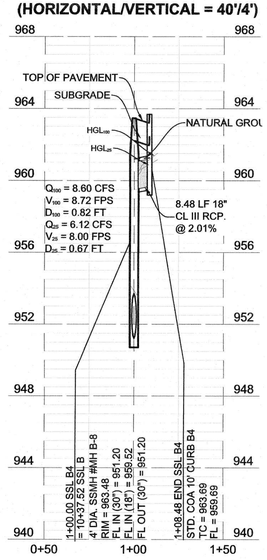

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SSL B7
(HORIZONTAL/VERTICAL = 40'/4')

SSL B8
(HORIZONTAL/VERTICAL = 40'/4')

PROFILE LINE LEGEND
- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
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811 Know what's below. Call before you dig.

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

STORM SEWER LINE B2-B4 & B6-B8 PROFILES

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 8.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
TBPE - F-1386

JOB NUMBER: A311-0415

SS 8

SHEET NO. 37

OF 75 SHEETS

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Date/Time : Mon, 17 Apr 2023 - 12:21pm
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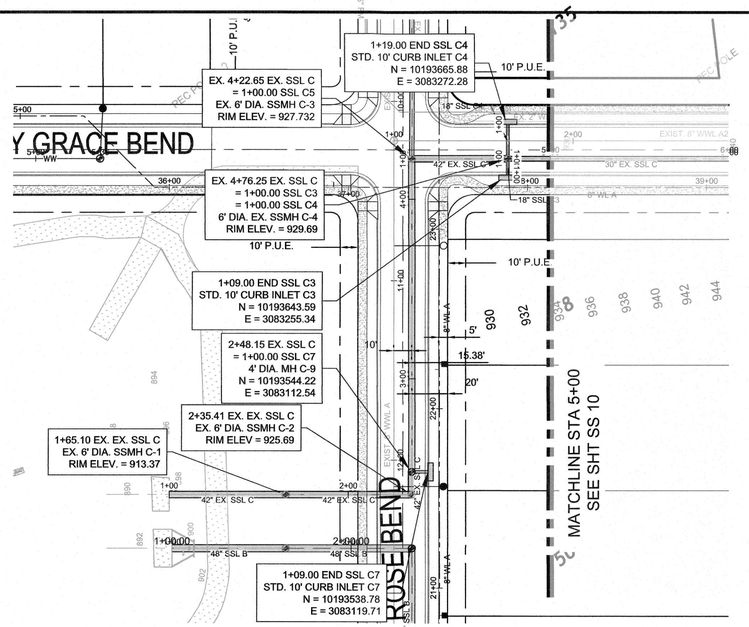

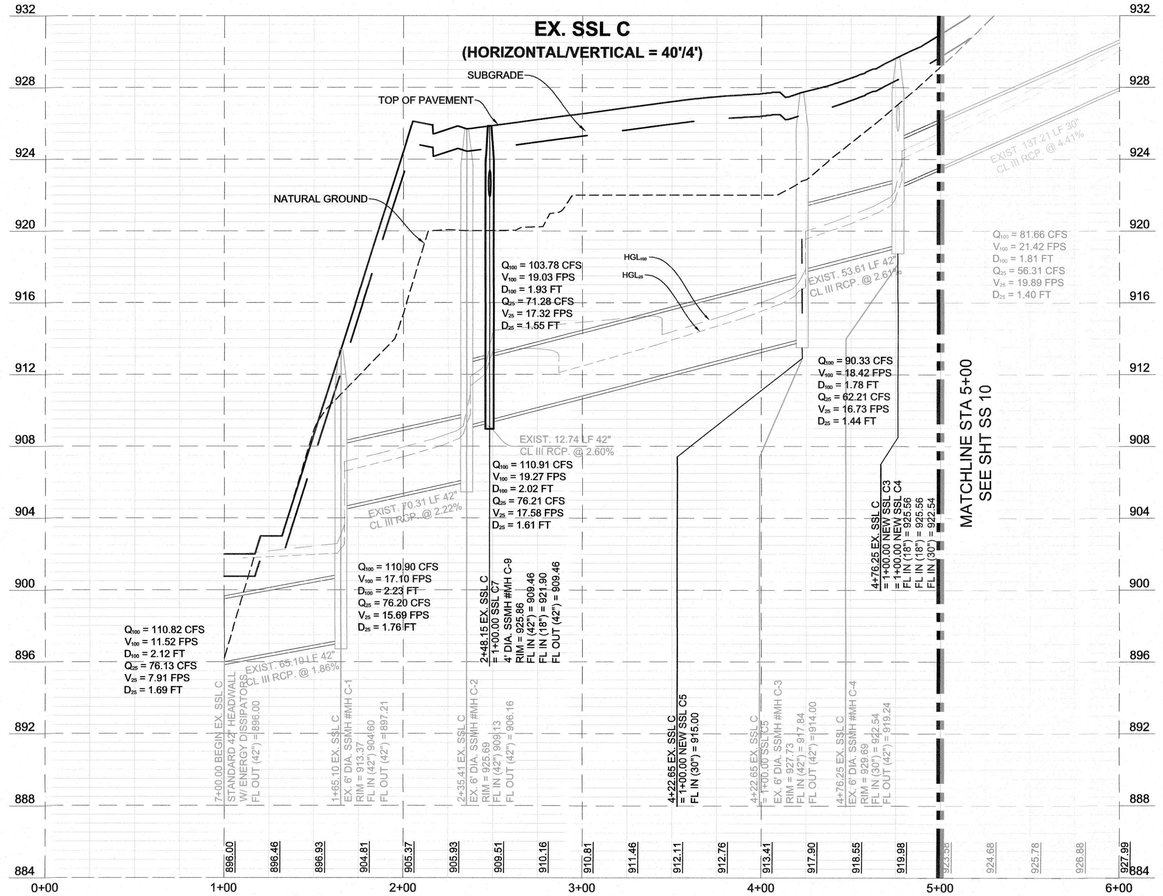

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
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PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE C' PLAN AND PROFILE STA. 1+00 TO 5+00

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 11/1/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 9.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/4/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 9

SHEET NO. 38

OF 75 SHEETS

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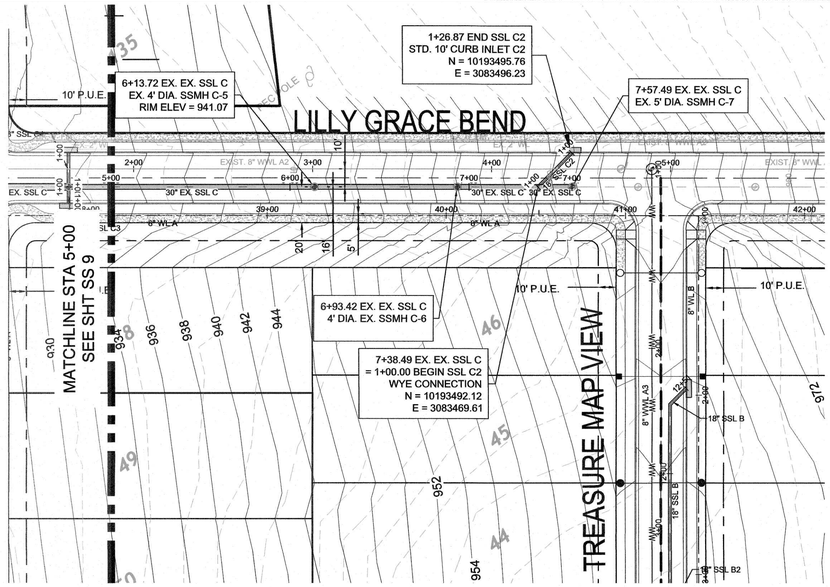

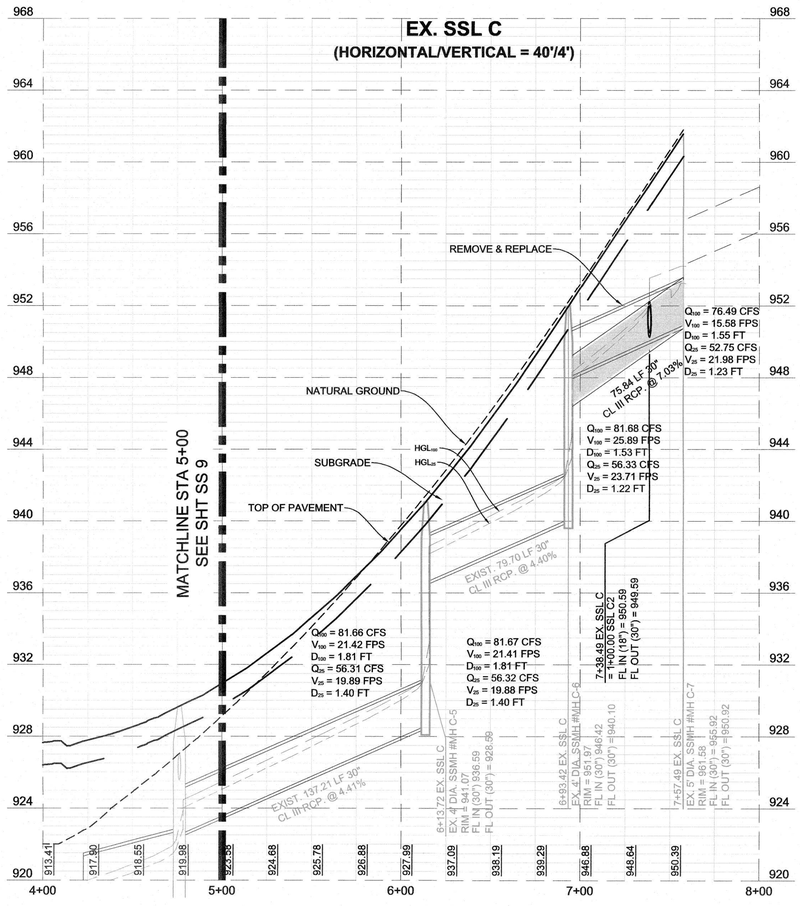

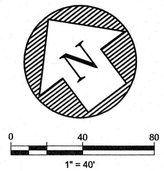

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE C PLAN AND PROFILE STA. 5+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 10.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
1-11-23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 10

SHEET NO. 39

OF 75 SHEETS

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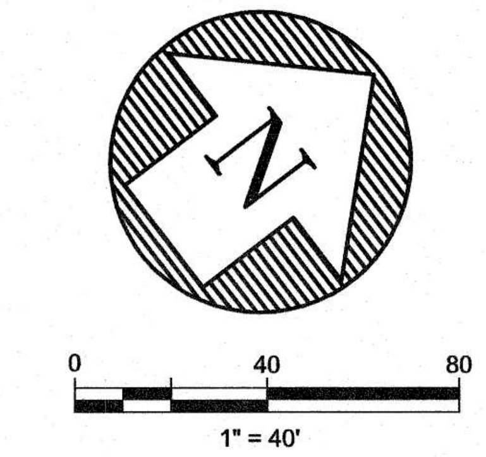

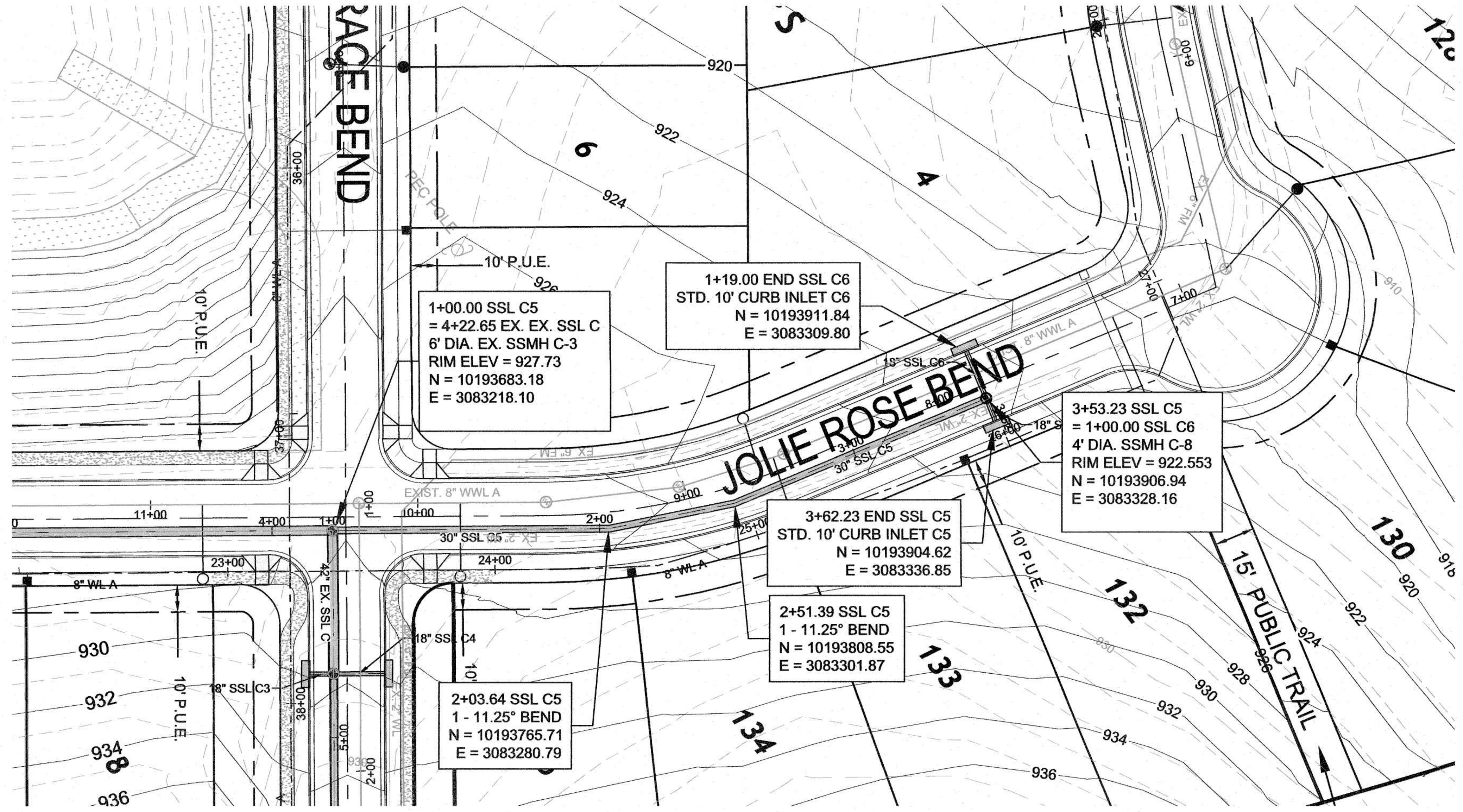

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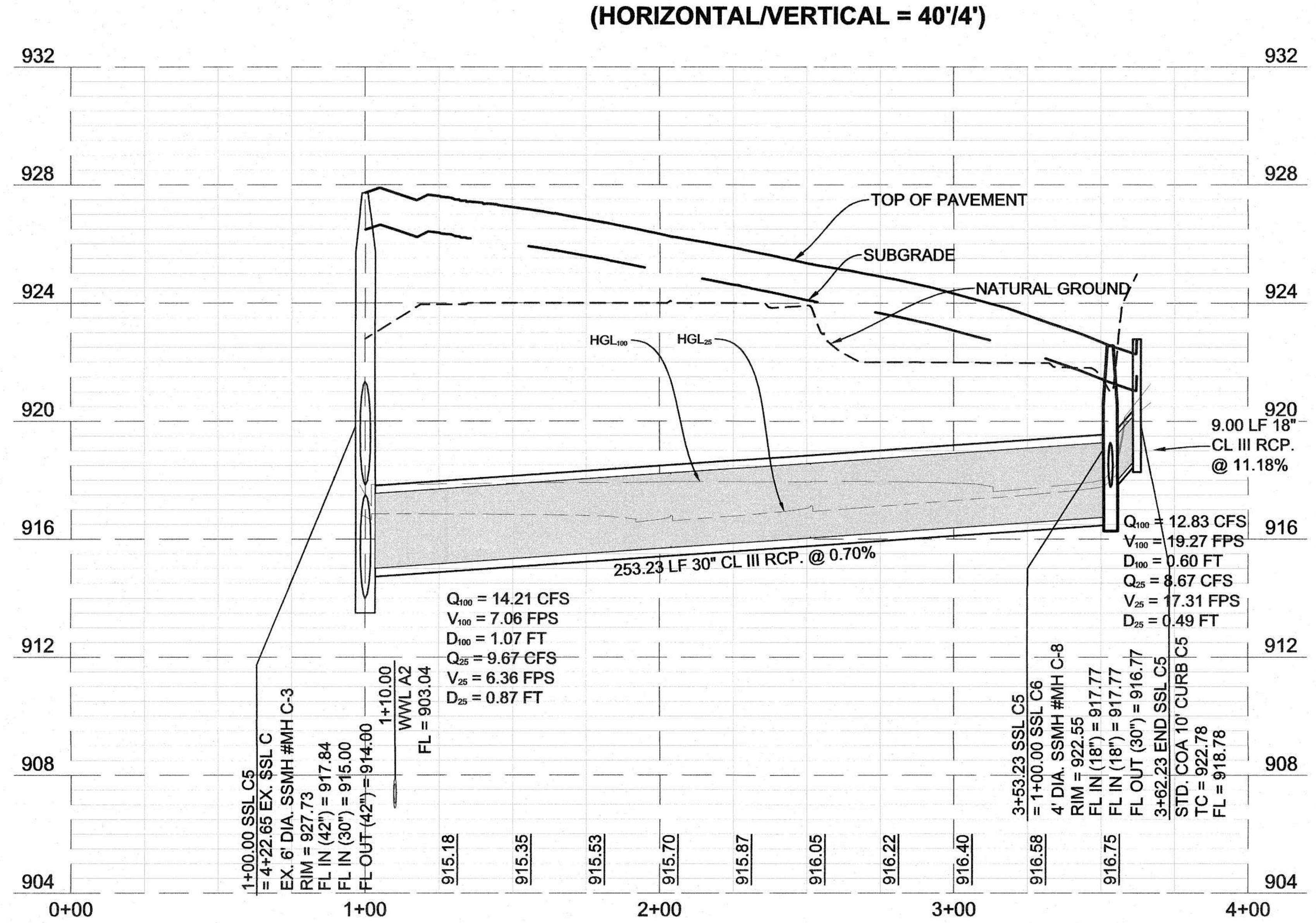

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
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PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE C5 PLAN AND PROFILE STA. 1+00 TO END

NO.	REVISIONS DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 11.dwg

STATE OF TEXAS — T. W. HOYSA — 100072 — PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 11

SHEET NO. 40 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 17 Apr 2023 - 12:23pm User Name : eljopez
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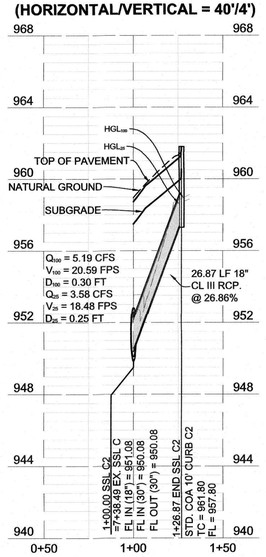

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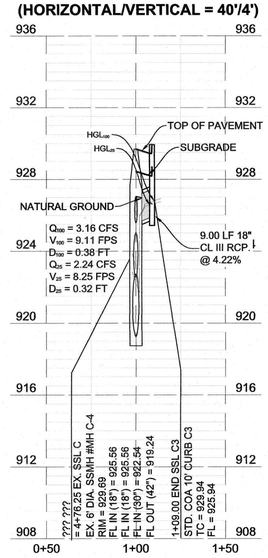

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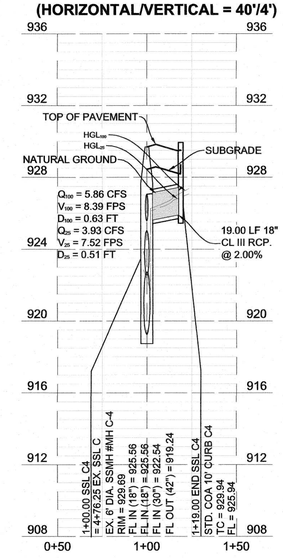
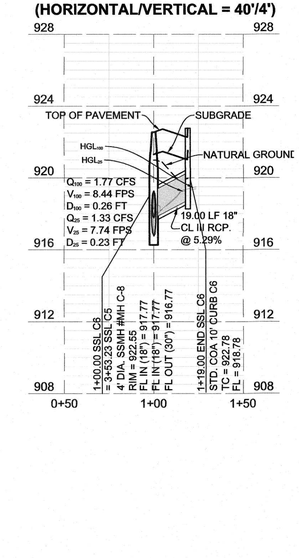


SSL C6
(HORIZONTAL/VERTICAL = 40'/4')



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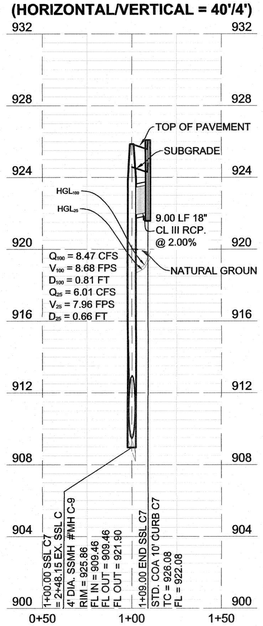
(HORIZONTAL/VERTICAL = 40'/4')



PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE C2-C4 PROFILE

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 12.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

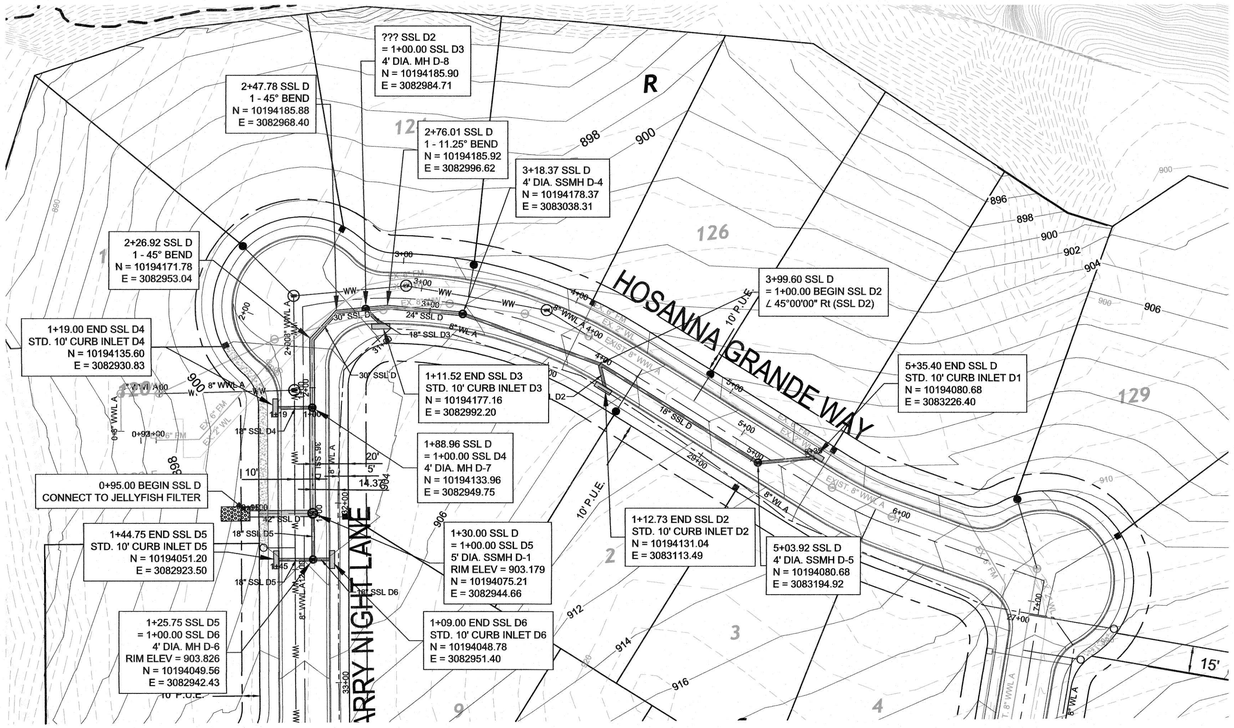
JOB NUMBER: A311-0415

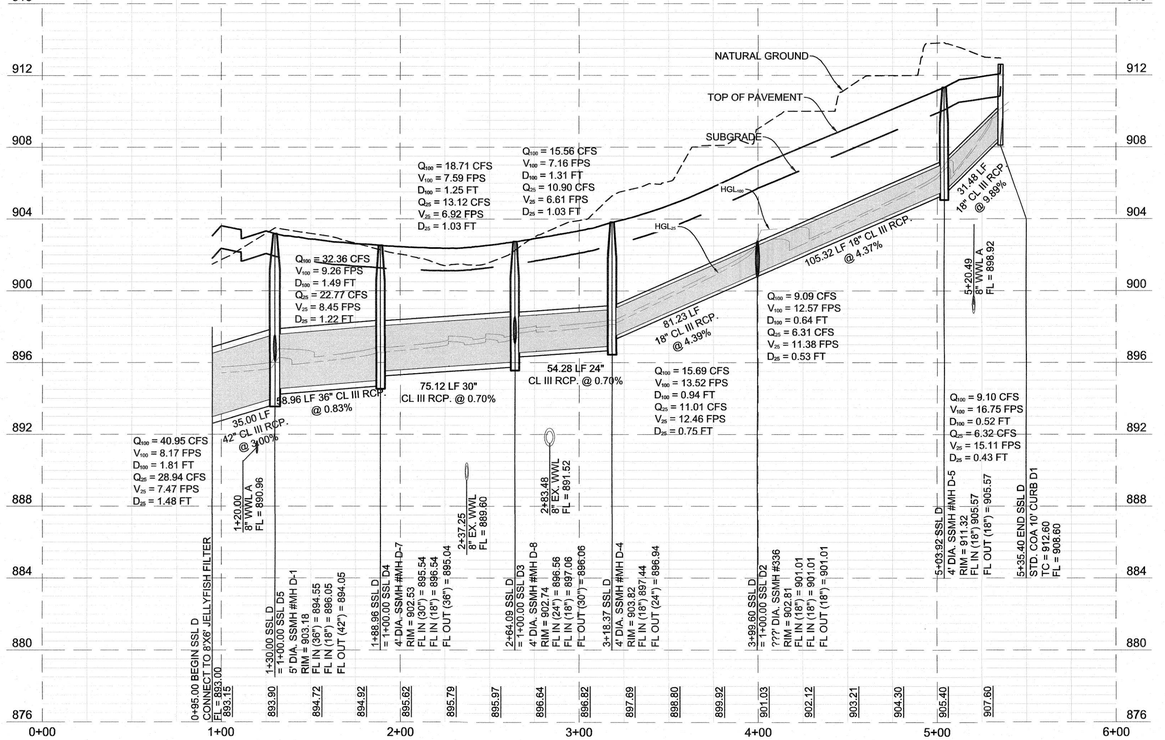
SS 12

SHEET NO. 41

OF 75 SHEETS

Date/Time : Mon, 17 Apr 2023 - 12:24pm
User Name : ejlopez
Path/Name : I:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0416 SS 12.dwg





0 40 80
1" = 40'

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
3. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM CENTER OF MANHOLE TO CENTER OF MANHOLE.
4. INLET CURB TRANSITIONS SHALL BE STANDARD 10' LONG UNLESS OTHERWISE NOTED ON THESE PLANS. THE MINIMUM ALLOWABLE TRANSITION LENGTH SHALL BE 5.0 FEET.

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE 'D' PLAN AND PROFILE STA. 1+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023 | DESIGNED BY: XXX | DRAWN BY: XXX | CHECKED BY: XXX | DRAWING NAME: A311-0415 SS 13.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
PROFESSIONAL ENGINEER
4-11-23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

SS 13

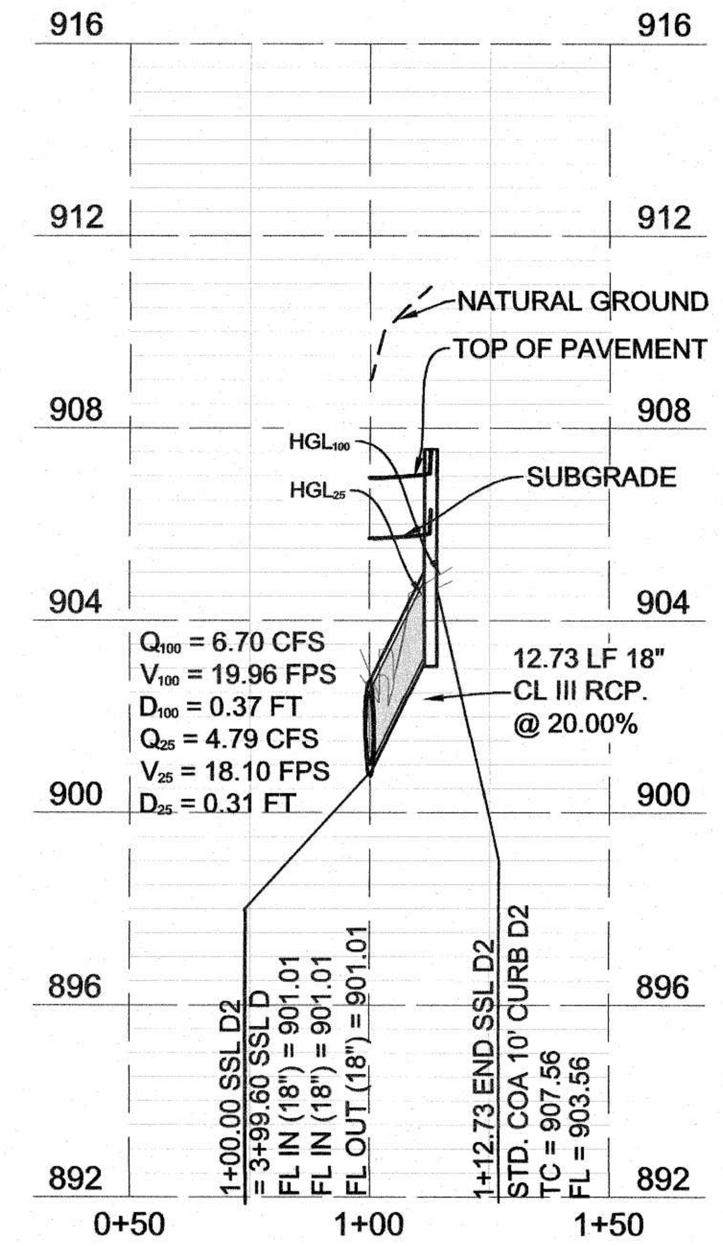
SHEET NO. 42

OF 75 SHEETS

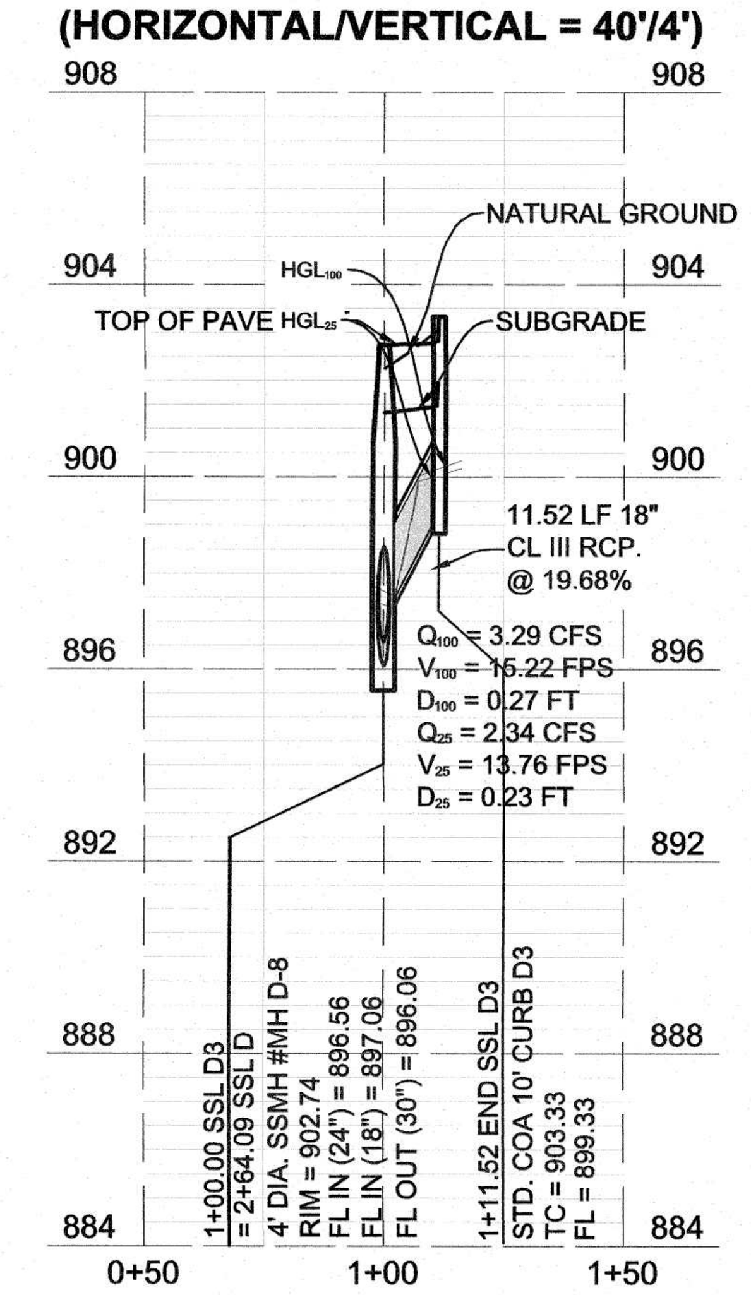
Date/Time - Mon, 17 Apr 2023 - 12:56pm
User Name - dpope
PathName - Q:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 SS 13.dwg

XXXX-XX-XX

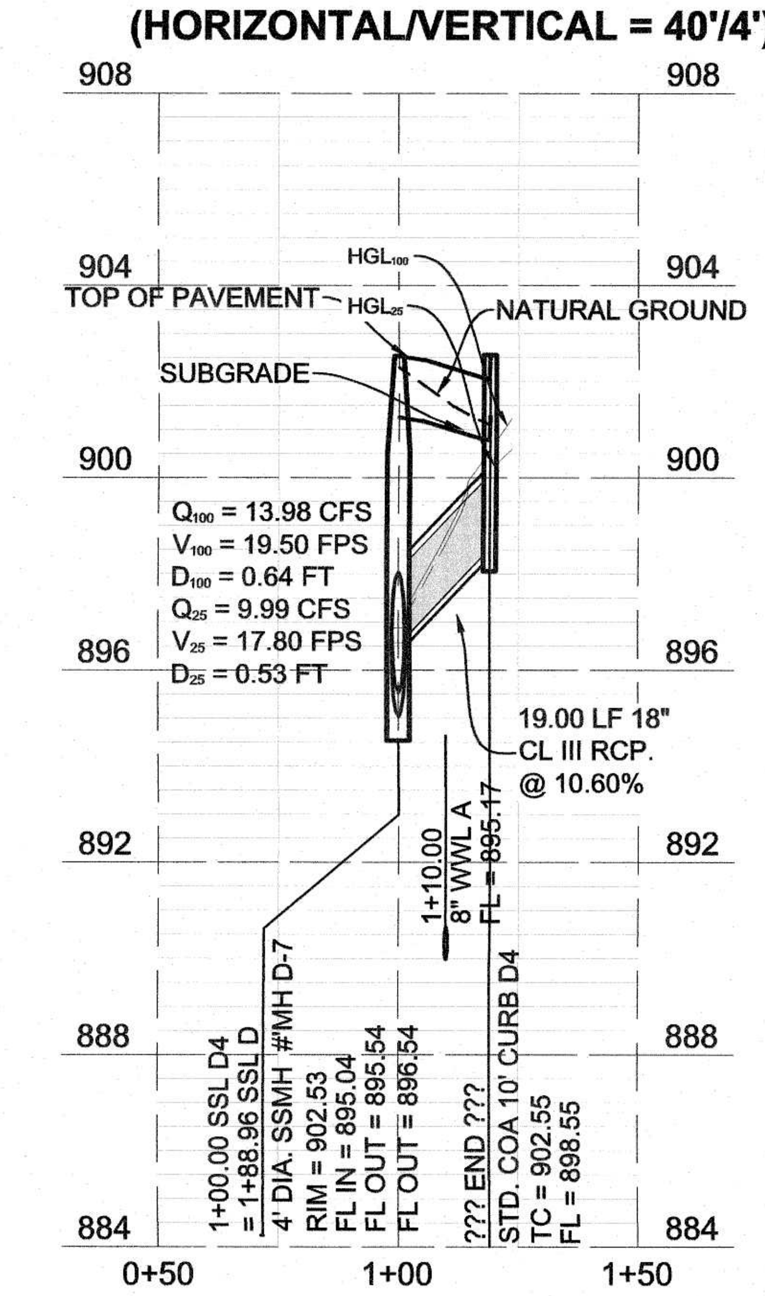
SSL D2
(HORIZONTAL/VERTICAL = 40'/4')



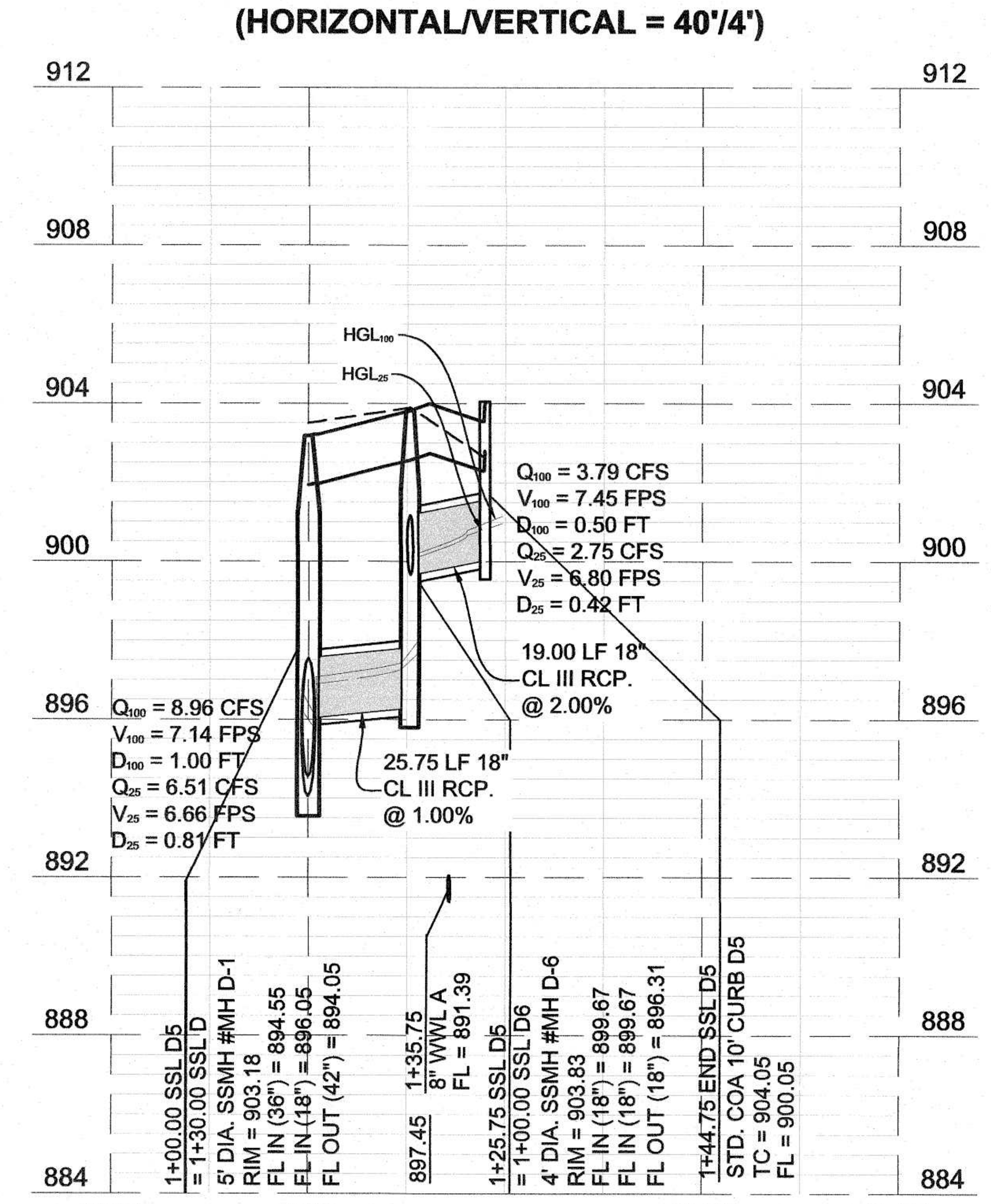
SSL D3
(HORIZONTAL/VERTICAL = 40'/4')



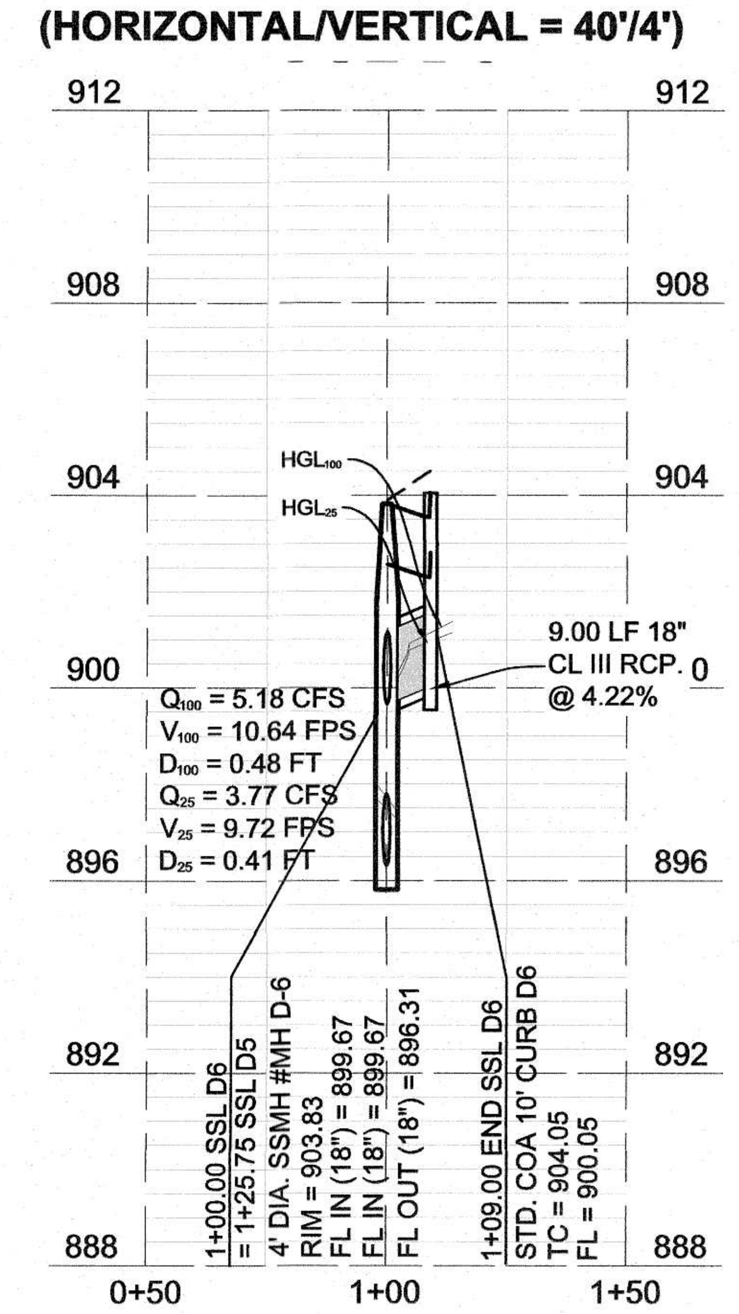
SSL D4
(HORIZONTAL/VERTICAL = 40'/4')



SSL D5
(HORIZONTAL/VERTICAL = 40'/4')



SSL D6
(HORIZONTAL/VERTICAL = 40'/4')



PROFILE LINE LEGEND

— — — —	100-YR HGL
– – – – –	25-YR HGL
- - - - - -	NATURAL GROUND
———	PROPOSED PAVEMENT

NOTES:

1. REFER TO CITY OF LEANDER DETAILS 201-2 FOR INLET CONSTRUCTION.
2. REFER TO DETAILS 506S-5, 506S-7, 506S-8, 506S-9, AND/OR 506S-10 FOR MANHOLE CONSTRUCTION. CONTRACTOR MA SUBSTITUTE JUNCTION BOXES FOR RING MANHOLES WITH APPROVAL OF THE ENGINEER.
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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

STORM SEWER LINE D2-D6 PROFILE

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 14.dwg

STATE OF TEXAS T. W. HOYSA 100072 LICENSED PROFESSIONAL ENGINEER 4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

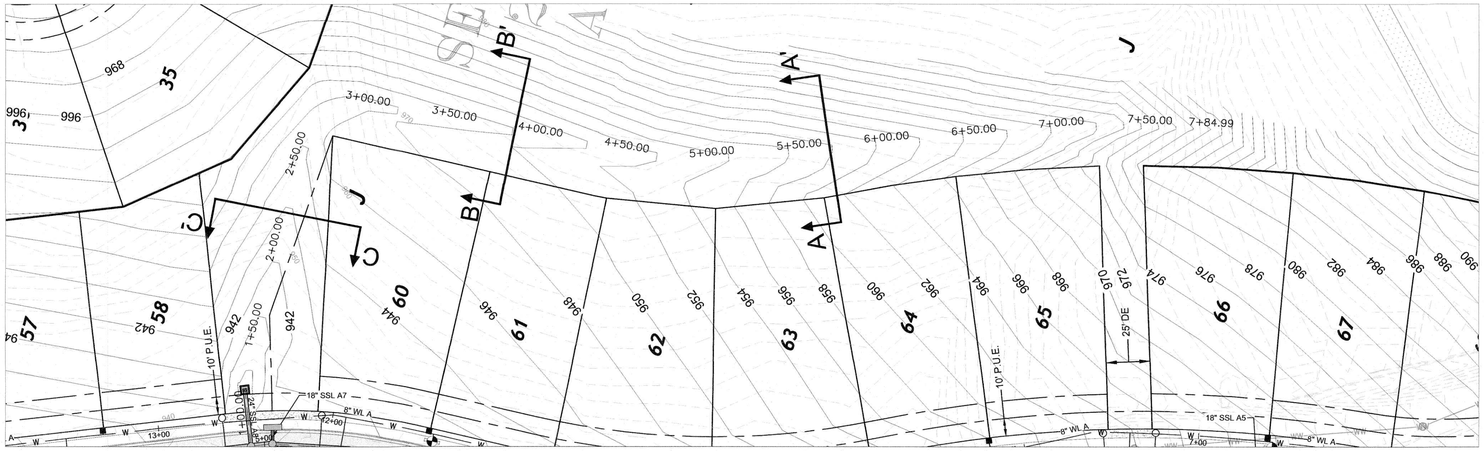
JOB NUMBER: A311-0415

SS 14

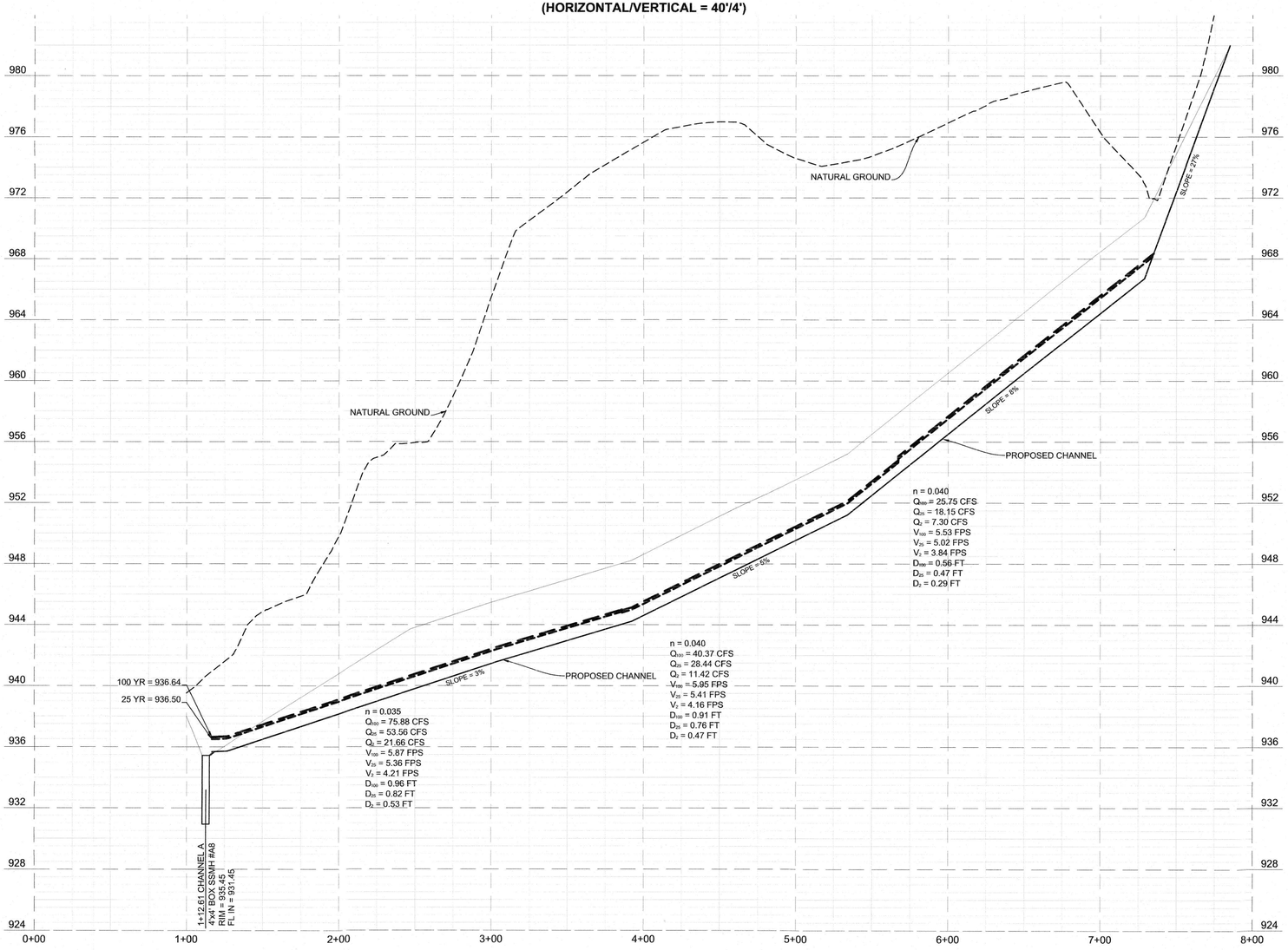
SHEET NO. 43 OF 75 SHEETS

Date/Time : Mon, 17 Apr 2023 - 12:32pm User Name : ellopez
PathName : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 SS 14.dwg

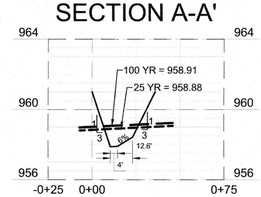
XXXX-XX-XX



CHANNEL A
(HORIZONTAL/VERTICAL = 40'/4')

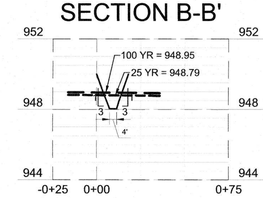


SECTION A-A'



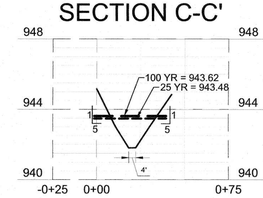
PROPOSED CHANNEL A
(HORIZONTAL/VERTICAL = 40'/4')

SECTION B-B'

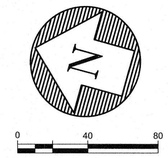


PROPOSED CHANNEL A
(HORIZONTAL/VERTICAL = 40'/4')

SECTION C-C'



PROPOSED CHANNEL A
(HORIZONTAL/VERTICAL = 40'/4')



LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. CHANNEL BOTTOM AND EMBANKMENT SHALL BE COMPACTED TO MINIMUM OF 95%.
2. CHANNEL TO BE LINED WITH TEMPORARY TURF REINFORCEMENT MATTING, CURLEX OR EQUAL UNTIL FULLY VEGETATED

PROFILE LINE LEGEND

- 100-YR HGL
- 25-YR HGL
- NATURAL GROUND
- PROPOSED PAVEMENT

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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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

CHANNEL A PLAN

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 SS 15.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

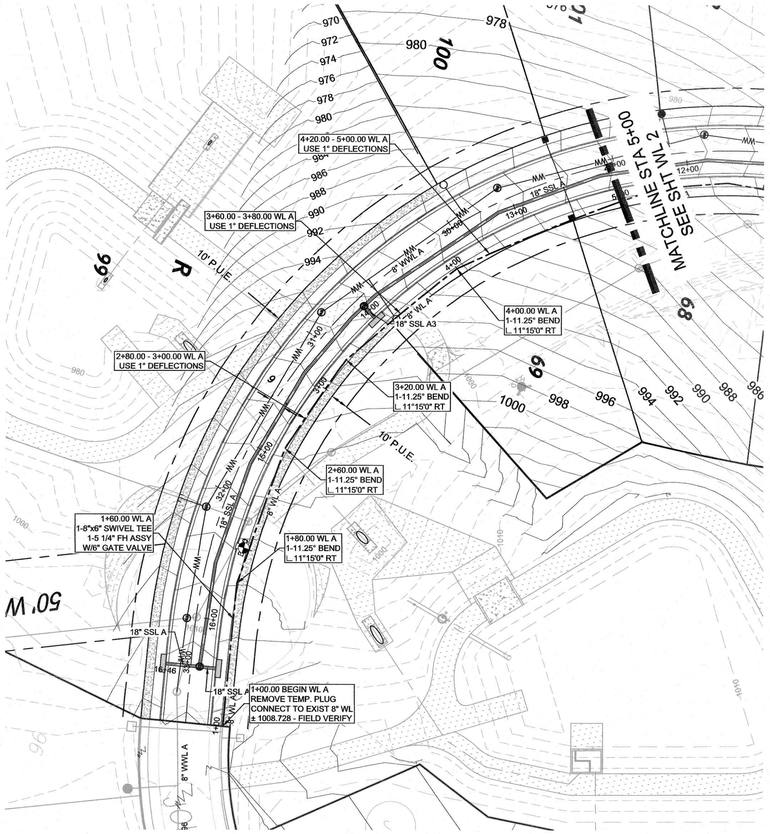
SS 15

SHEET NO. 44

OF 75 SHEETS

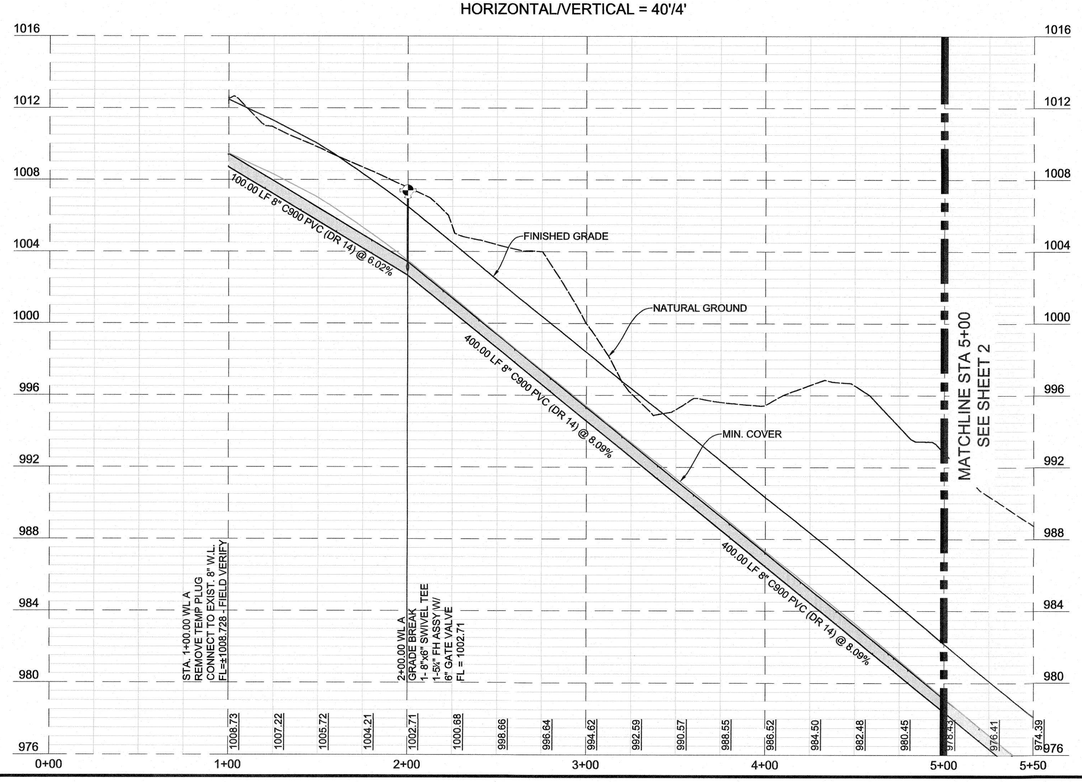
Date/Time: Wed, 05 Apr 2023, 11:11am User Name: sjones
Path/Name: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheets Files\SS\A311-0415 SS 15.dwg

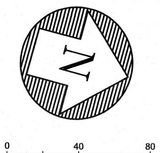
XXXX-XX-XX



WL A

HORIZONTAL/VERTICAL = 40'/4'





LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

NOTES:

1. ALL GATE VALVES TO BE INSTALLED PER COA DETAIL 511S-7 AT P.C. OF CURB AT ALL INTERSECTIONS UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL WATER SERVICES TO BE INSTALLED PER COA DETAIL 520S-9 (DOUBLE SERVICE), OR 520S-11 (SINGLE SERVICE).
3. FIRE HYDRANTS SHALL BE CONSTRUCTED PER COA DETAIL 511S-17. ALL FIRE HYDRANT LEADS TO BE CONSTRUCTED WITH DUCTILE IRON PIPE. FIRE HYDRANTS MUST BE LOCATED IN THE R.O.W. AND MAY NOT BE CLOSER THAN 7.5' TO A STORM SEWER INLET.
4. ALL LOTS IN THIS SUBDIVISION ARE REQUIRED TO HAVE A PRESSURE REDUCING VALVE SET TO 65 PSI ON THE PROPERTY OWNER'S SIDE OF THE METER.
5. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE STA. 1+00 TO 5+00

NO.	DESCRIPTION	BY	DATE
REVISIONS			

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
PROFESSIONAL
ENGINEER
4/19/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

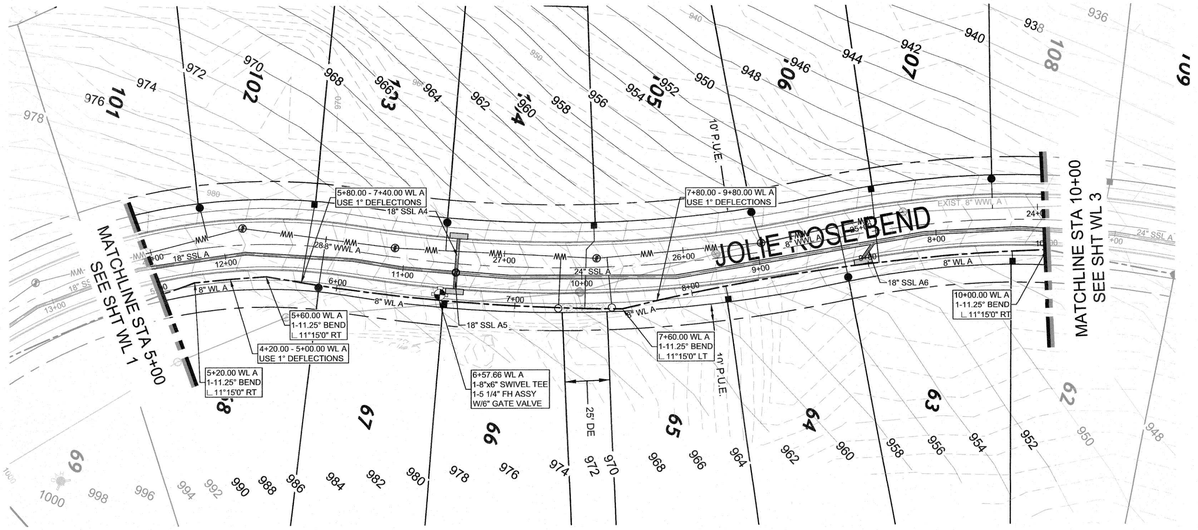
WL 1

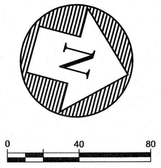
SHEET NO. 45

OF 75 SHEETS

XXXX-XX-XX

DateTime : Wed, 12 Apr 2023 - 2:38pm
User Name : djlopez
PathName : Q:\A311\0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 1.dwg

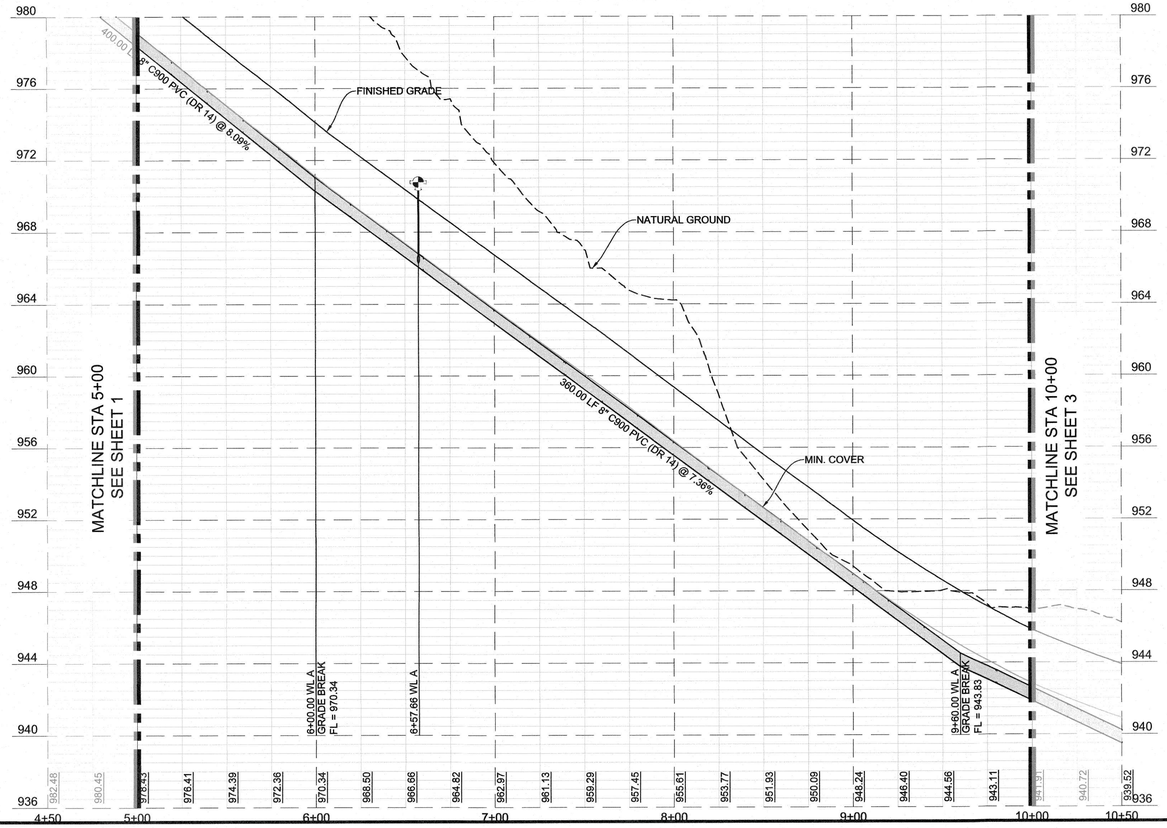




LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

WL A
HORIZONTAL/VERTICAL = 40'/4'



NOTES:

1. ALL GATE VALVES TO BE INSTALLED PER COA DETAIL 511S-7 AT P.C. OF CURB AT ALL INTERSECTIONS UNLESS OTHERWISE INDICATED ON PLANS.
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4. ALL LOTS IN THIS SUBDIVISION ARE REQUIRED TO HAVE A PRESSURE REDUCING VALVE SET TO 65 PSI ON THE PROPERTY OWNER'S SIDE OF THE METER.
5. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE
STA. 5+00.00 TO 10+00

NO.	DESCRIPTION	BY	DATE
REVISIONS			

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0418 WL 2.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4.11.23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

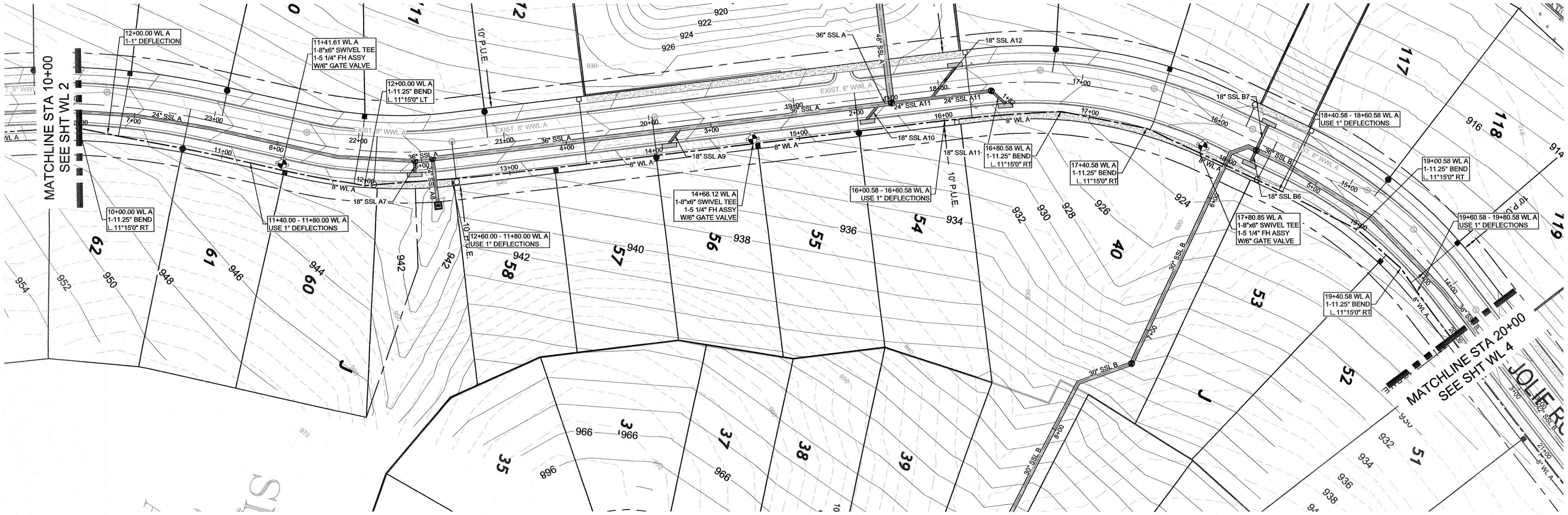
WL 2

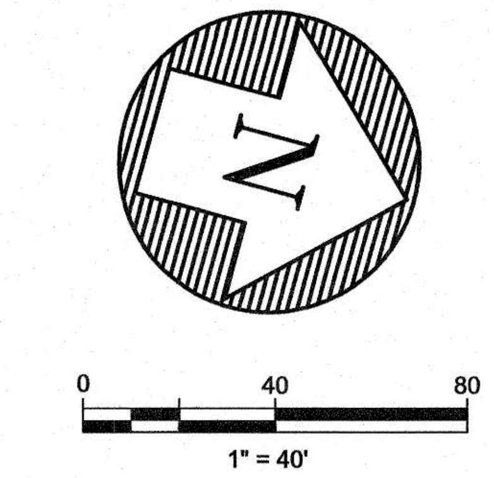
SHEET NO. 46

OF 75 SHEETS

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 3:08pm
User Name : ejlopez
Path/Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 2.dwg

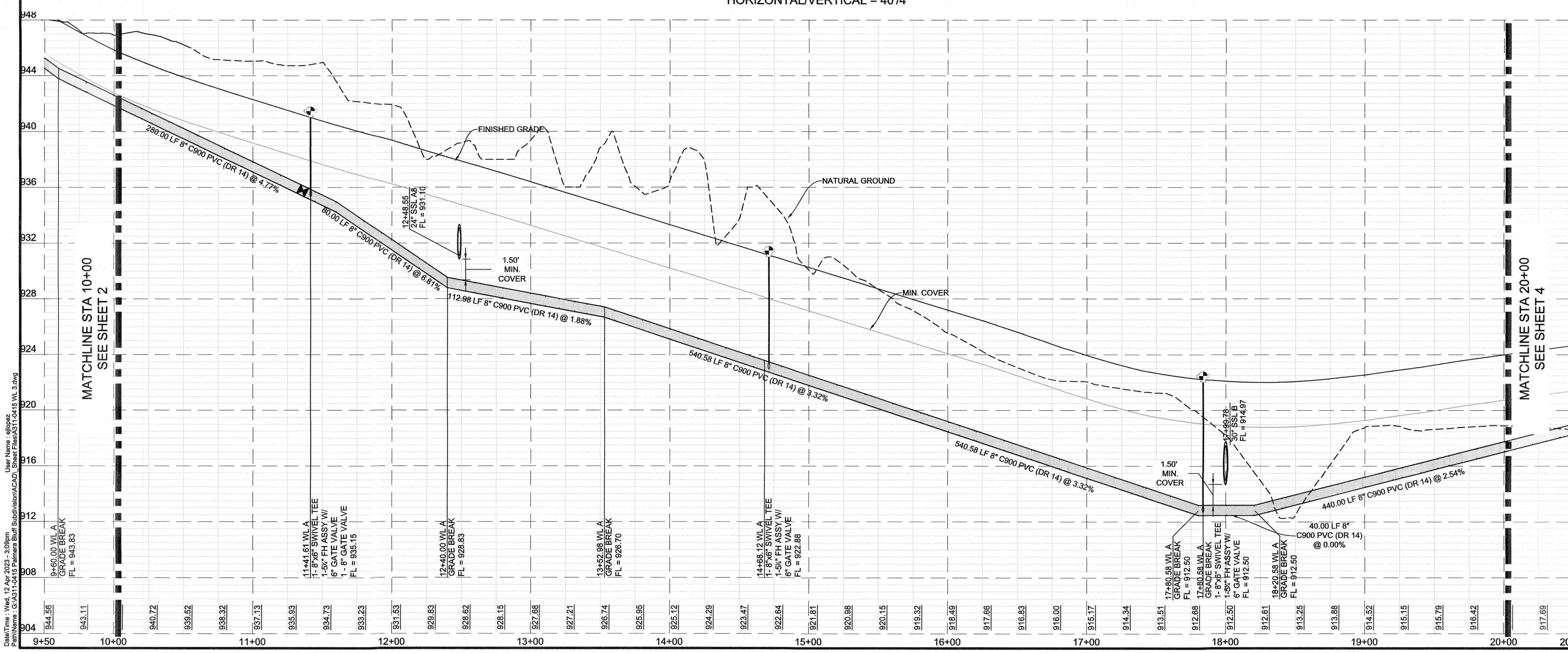




LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

WL A
HORIZONTAL/VERTICAL = 40'/4'



NOTES:

1. ALL GATE VALVES TO BE INSTALLED PER COA DETAIL 511S-7 AT P.C. OF CURB AT ALL INTERSECTIONS UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL WATER SERVICES TO BE INSTALLED PER COA DETAIL 520S-9 (DOUBLE SERVICE), OR 520S-11 (SINGLE SERVICE).
3. FIRE HYDRANTS SHALL BE CONSTRUCTED PER COA DETAIL 511S-17. ALL FIRE HYDRANT LEADS TO BE CONSTRUCTED WITH DUCTILE IRON PIPE. FIRE HYDRANTS MUST BE LOCATED IN THE R.O.W. AND MAY NOT BE CLOSER THAN 7.5' TO A STORM SEWER INLET.
4. ALL LOTS IN THIS SUBDIVISION ARE REQUIRED TO HAVE A PRESSURE REDUCING VALVE SET TO 65 PSI ON THE PROPERTY OWNER'S SIDE OF THE METER.
5. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF 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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE
STA. 10+00 TO 20+00

NO.	DESCRIPTION	BY	DATE
REVISIONS			

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 3.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

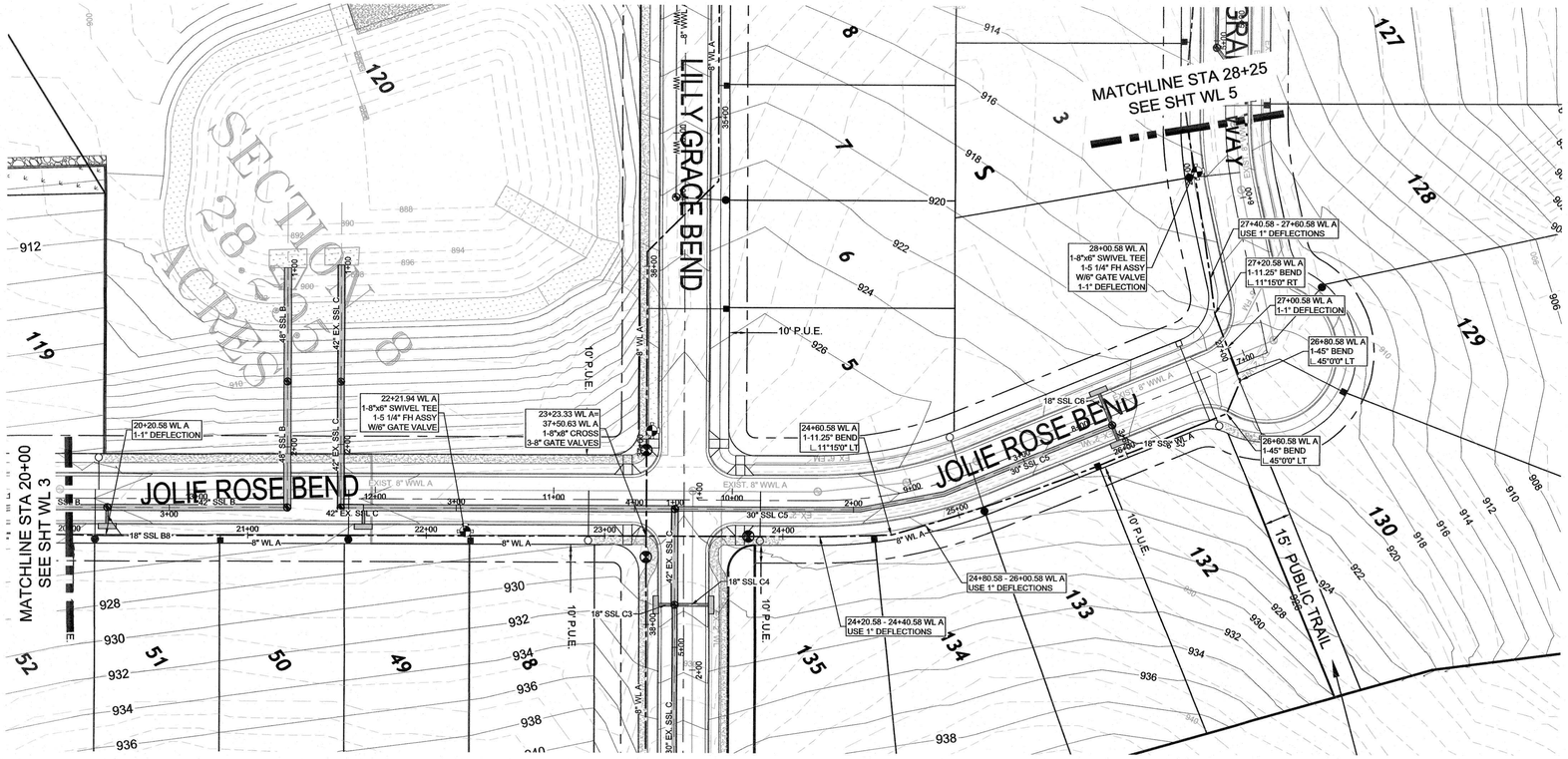
LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WL 3

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 3:09pm User Name : elopez
PathName: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 3.dwg



0 40 80
1" = 40'

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

NOTES:

1. ALL GATE VALVES TO BE INSTALLED PER COA DETAIL 511S-7 AT P.C. OF CURB AT ALL INTERSECTIONS UNLESS OTHERWISE INDICATED ON PLANS.
2. ALL WATER SERVICES TO BE INSTALLED PER COA DETAIL 520S-9 (DOUBLE SERVICE), OR 520S-11 (SINGLE SERVICE).
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4. ALL LOTS IN THIS SUBDIVISION ARE REQUIRED TO HAVE A PRESSURE REDUCING VALVE SET TO 65 PSI ON THE PROPERTY OWNER'S SIDE OF THE METER.
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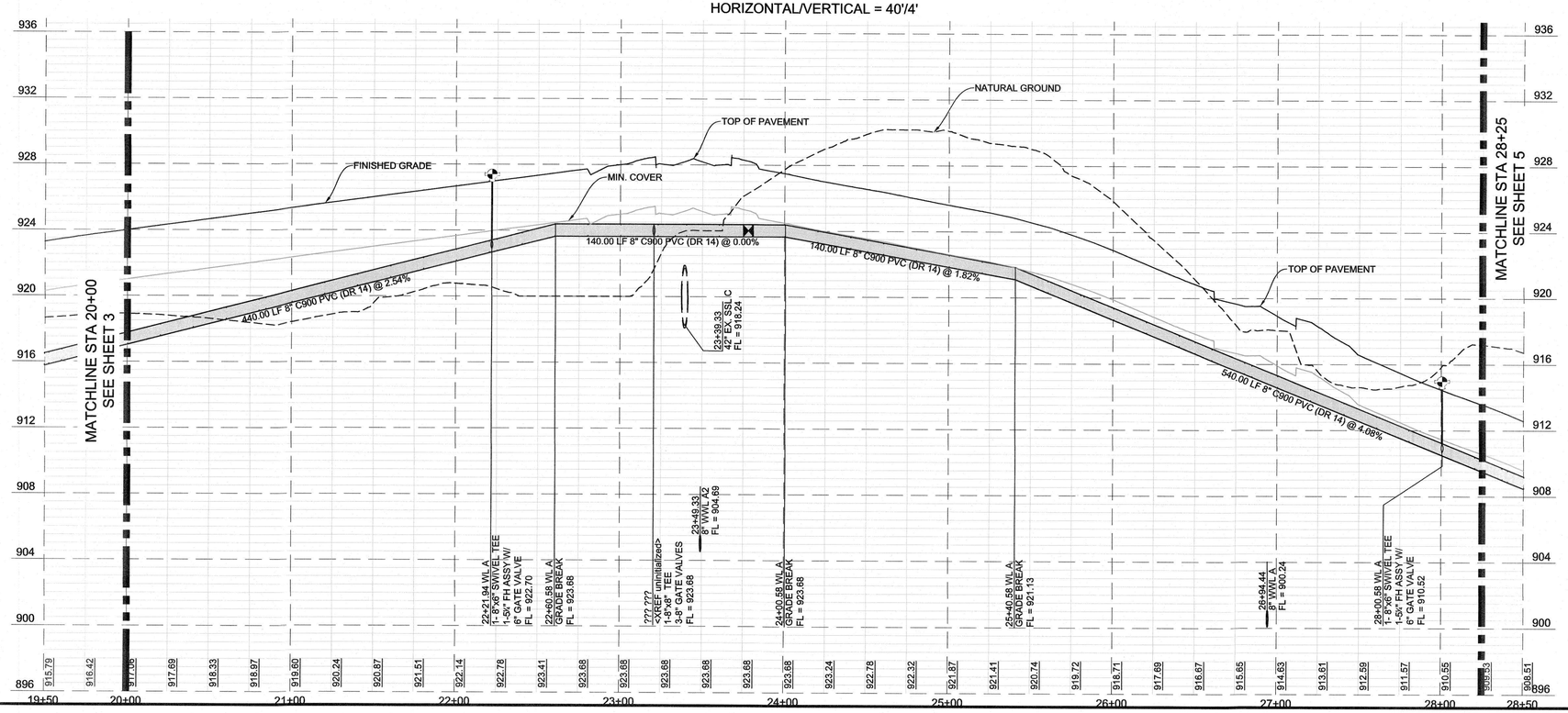
WL A
HORIZONTAL/VERTICAL = 40'/4'



DATE: 1/11/2023	DESIGNED BY: XXX	DRAWN BY: XXX	CHECKED BY: XXX	DRAWING NAME: A311-0415 WL 4.dwg

T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
4-11-23

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.

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WL 4

SHEET NO. 48

OF 75 SHEETS

REVISIONS

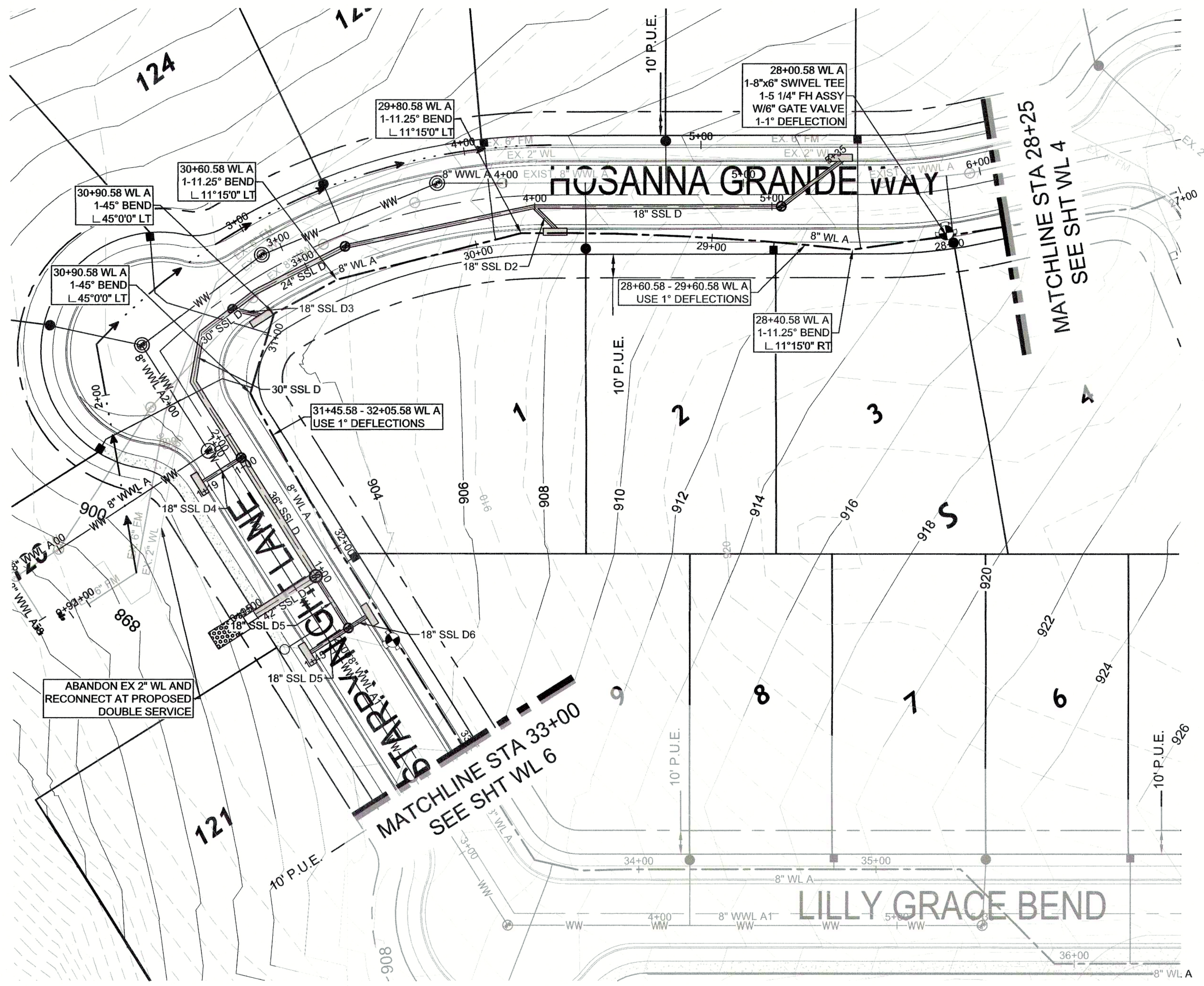
NO.	DESCRIPTION	BY	DATE

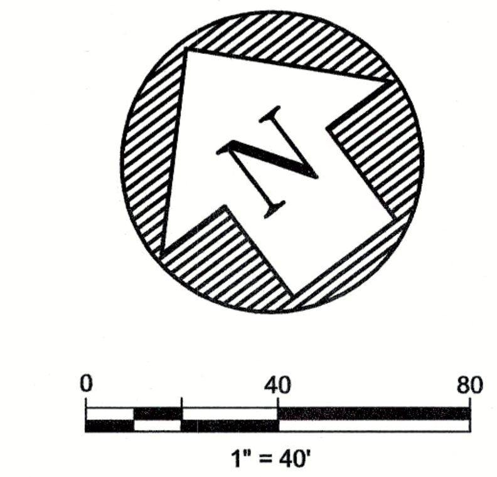
PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE
STA. 20+00 TO 28+25

Date/Time : Wed, 12 Apr 2023 - 3:10pm User Name : dlopez
Path\Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 4.dwg

XXXX-XX-XX

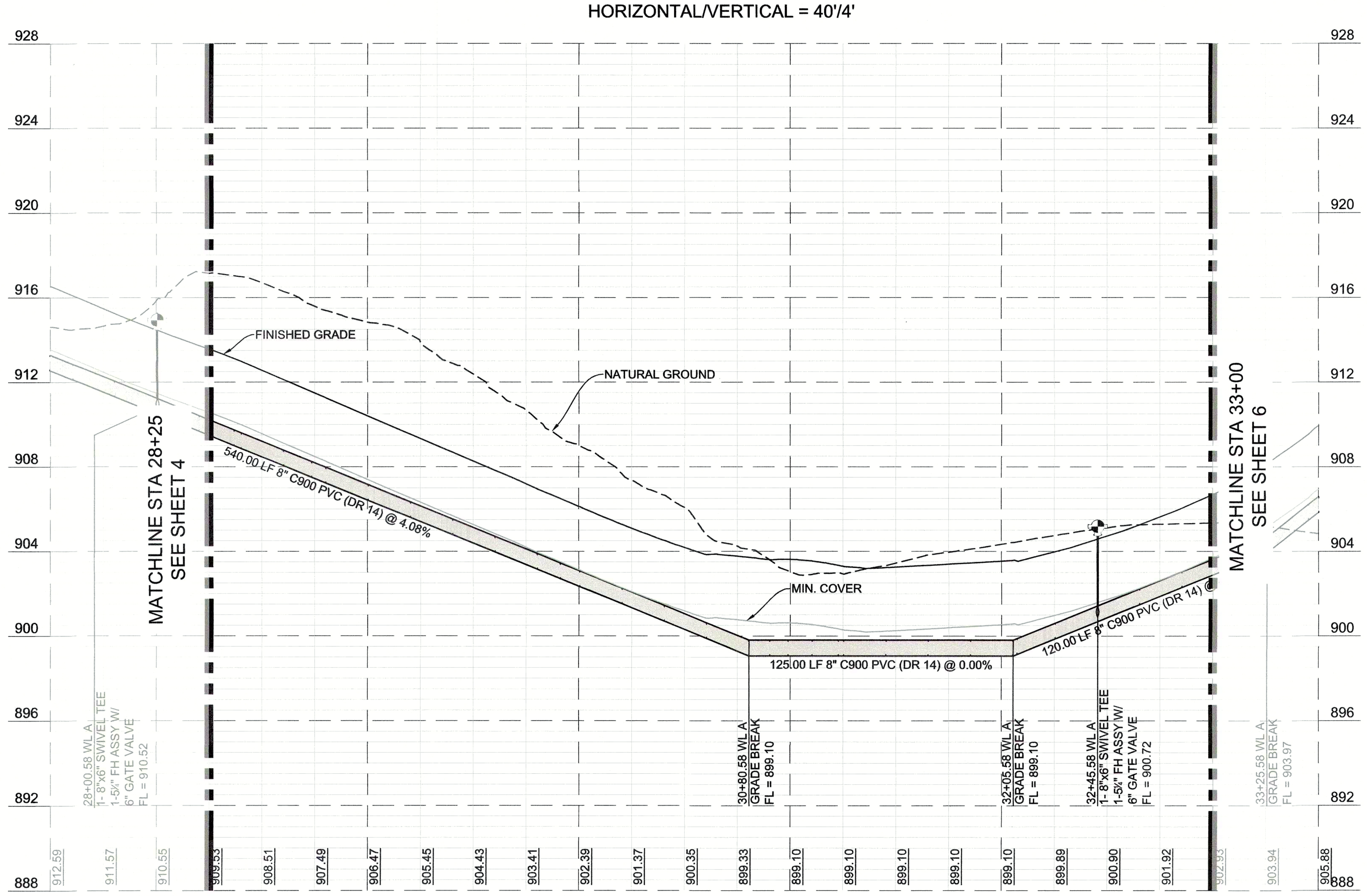




LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

WL A
HORIZONTAL/VERTICAL = 40'/4'



NOTES:

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2. ALL WATER SERVICES TO BE INSTALLED PER COA DETAIL 520S-9 (DOUBLE SERVICE), OR 520S-11 (SINGLE SERVICE).
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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE
STA. 28+00 TO 33+00

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
5/1/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

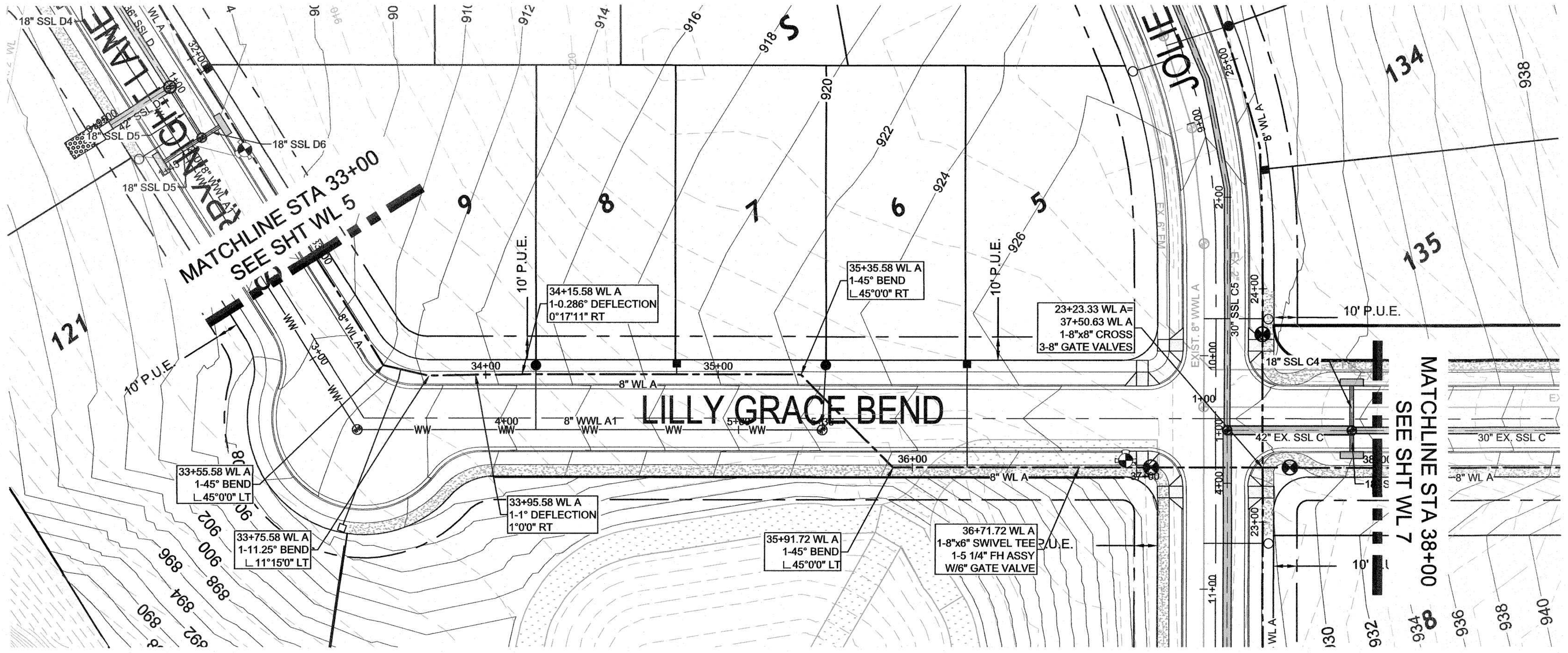
JOB NUMBER: A311-0415

WL 5

SHEET NO. 49 OF 75 SHEETS

XXXX-XX-XX

Date\Time : Thu, 27 Apr 2023 - 11:38am User Name : vhulsey
Path\Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 5.dwg

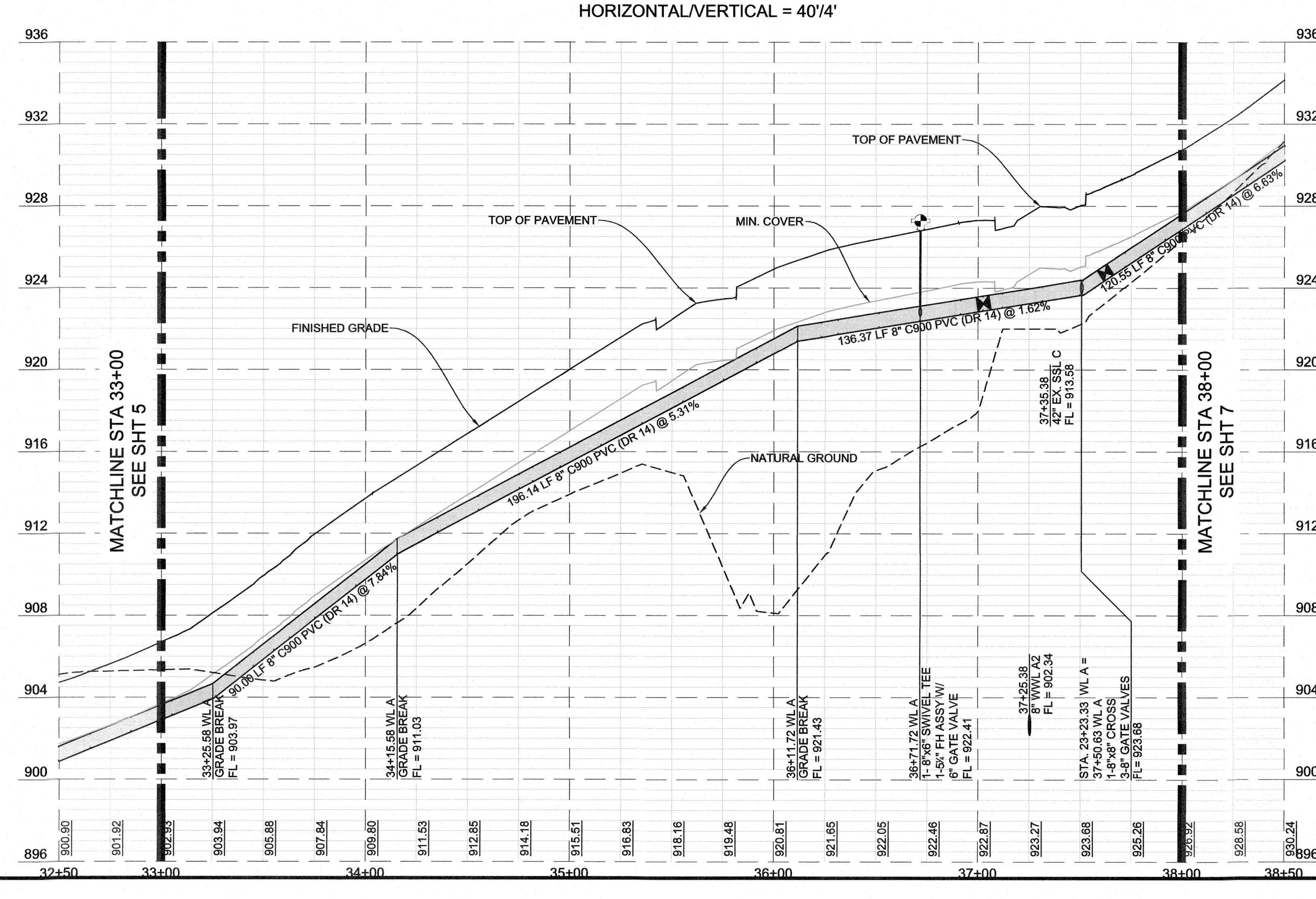


LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

1" = 40'

WL A
HORIZONTAL/VERTICAL = 40'/4'



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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE STA. 33+00 TO 38+00

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 6.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WL 6

XXXX-XX-XX

Date/Time : Wed, 12 Apr 2023 - 3:11pm
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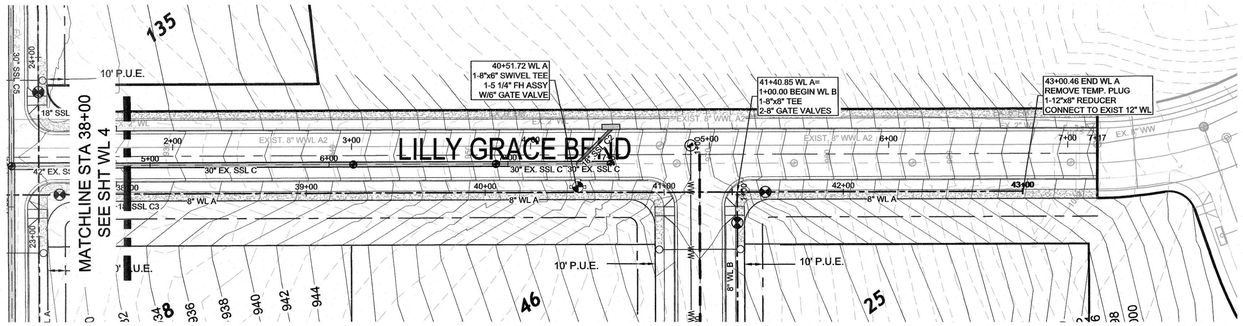

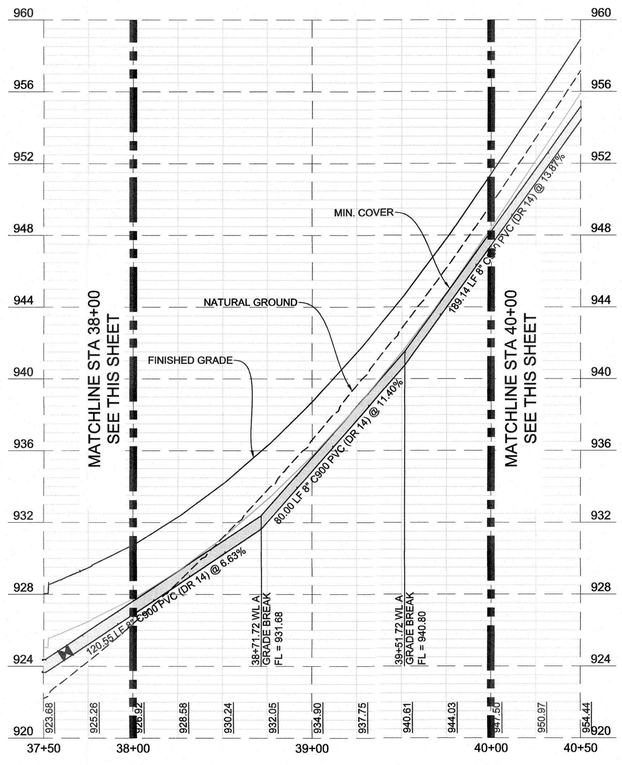

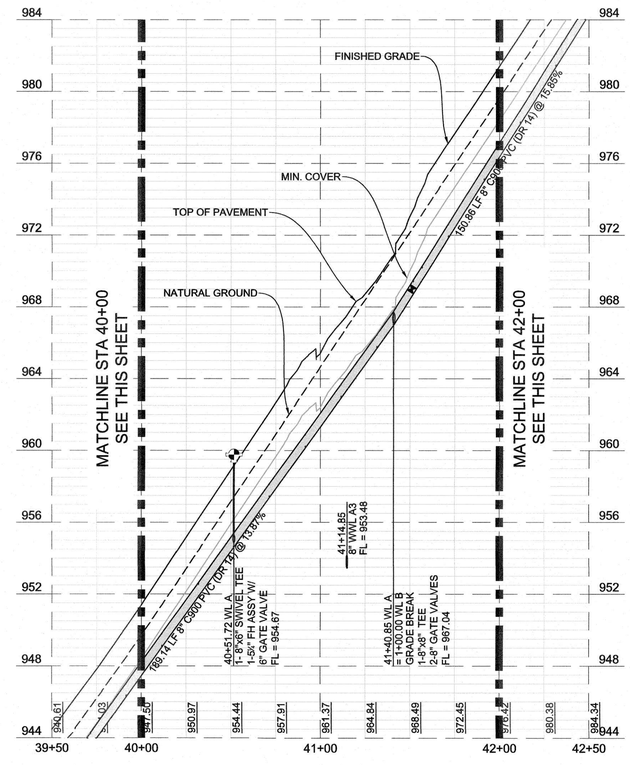

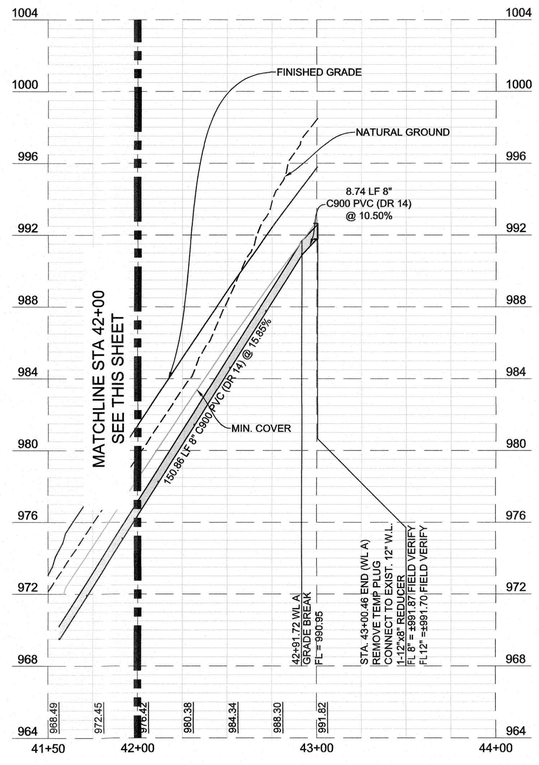

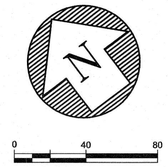

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

NOTES:

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WATER LINE A PLAN AND PROFILE STA. 38+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 7.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 76681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

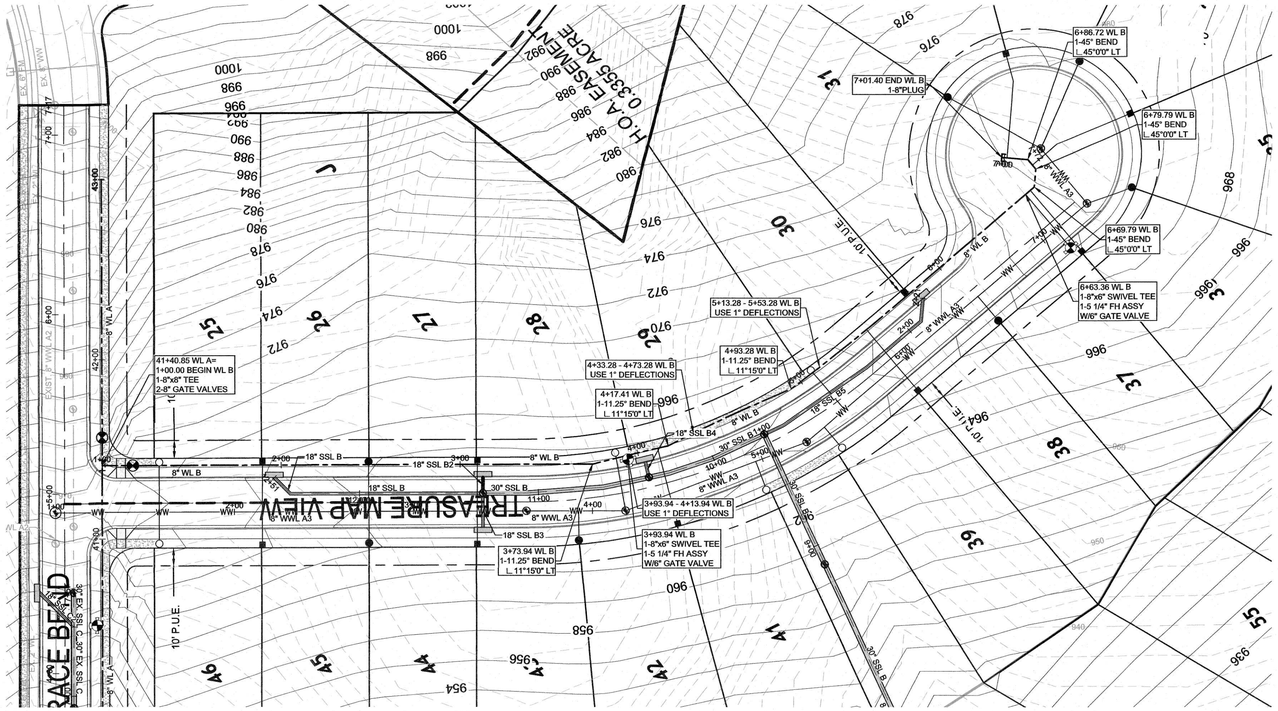
JOB NUMBER: A311-0415

WL 7

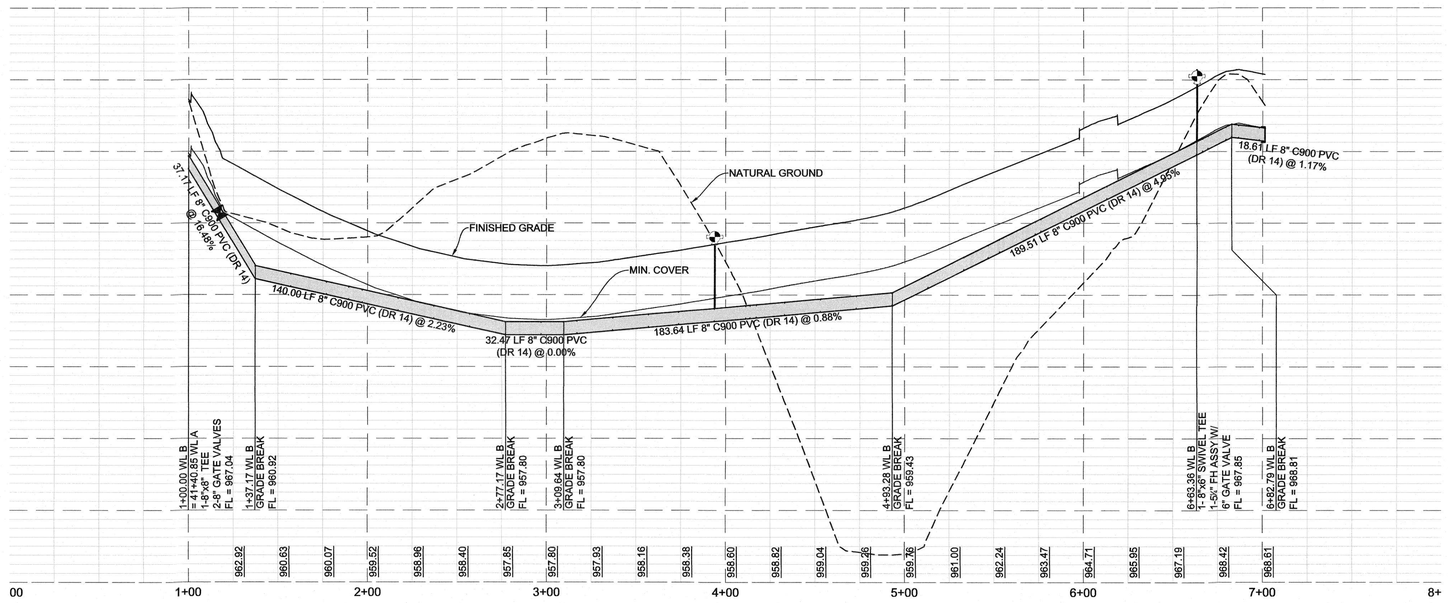
SHEET NO. 51 OF 75 SHEETS

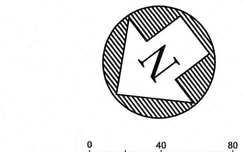
DateTime: Wed, 12 Jul 2023 - 3:12pm
PenName: C:\A311\0415 Palmera Bluff Subdivision\CAD_Sheet Files\A311-0415 WL 7.dwg
User Name: ajdonze

XXXX-XX-XX



WL B
HORIZONTAL/VERTICAL = 40'/4'





LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
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- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD

NOTES:

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PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
WATER LINE B PLAN AND PROFILE
STA. 1+00 TO END

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WL 8.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/19/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

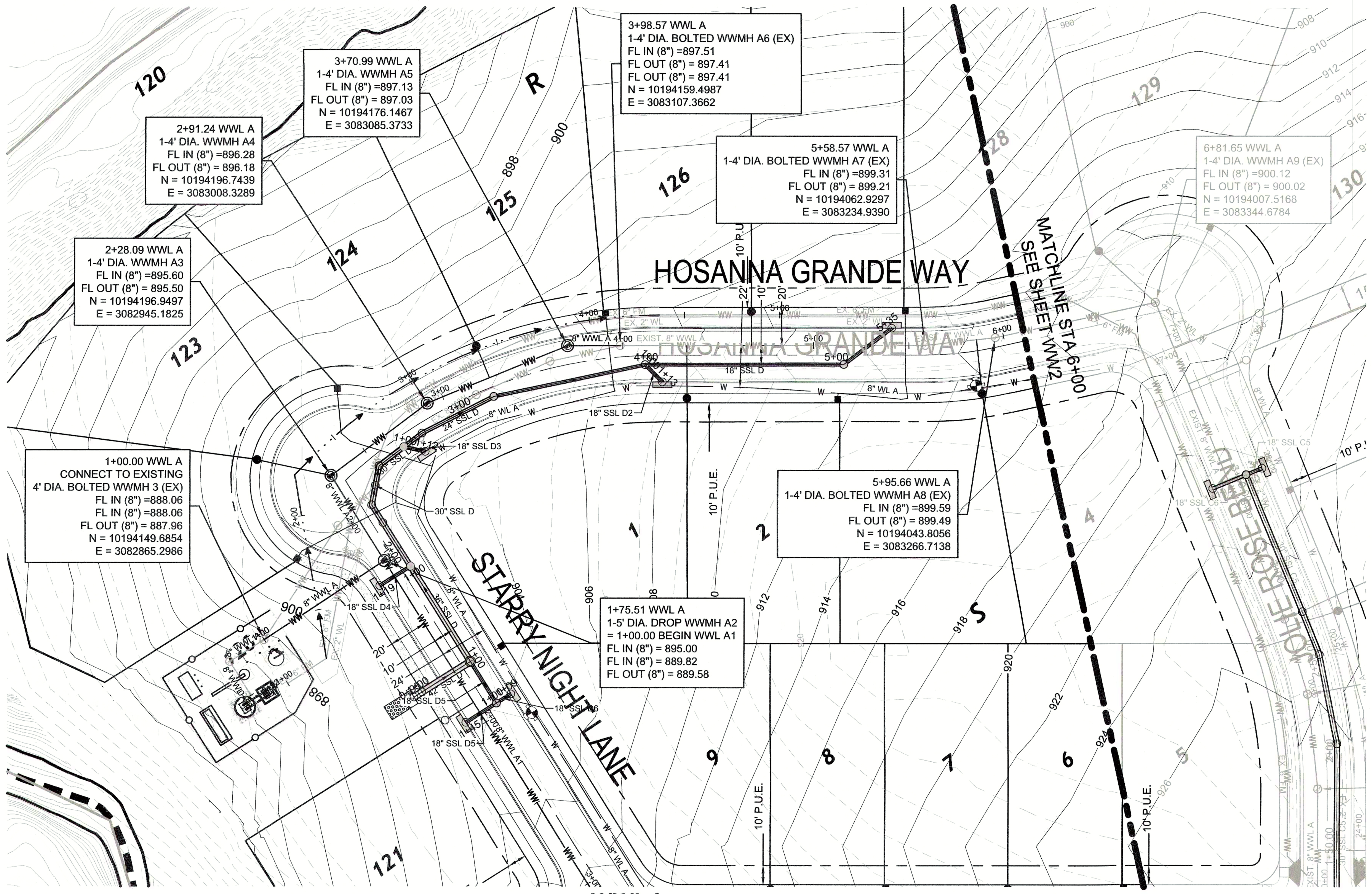
JOB NUMBER: A311-0415

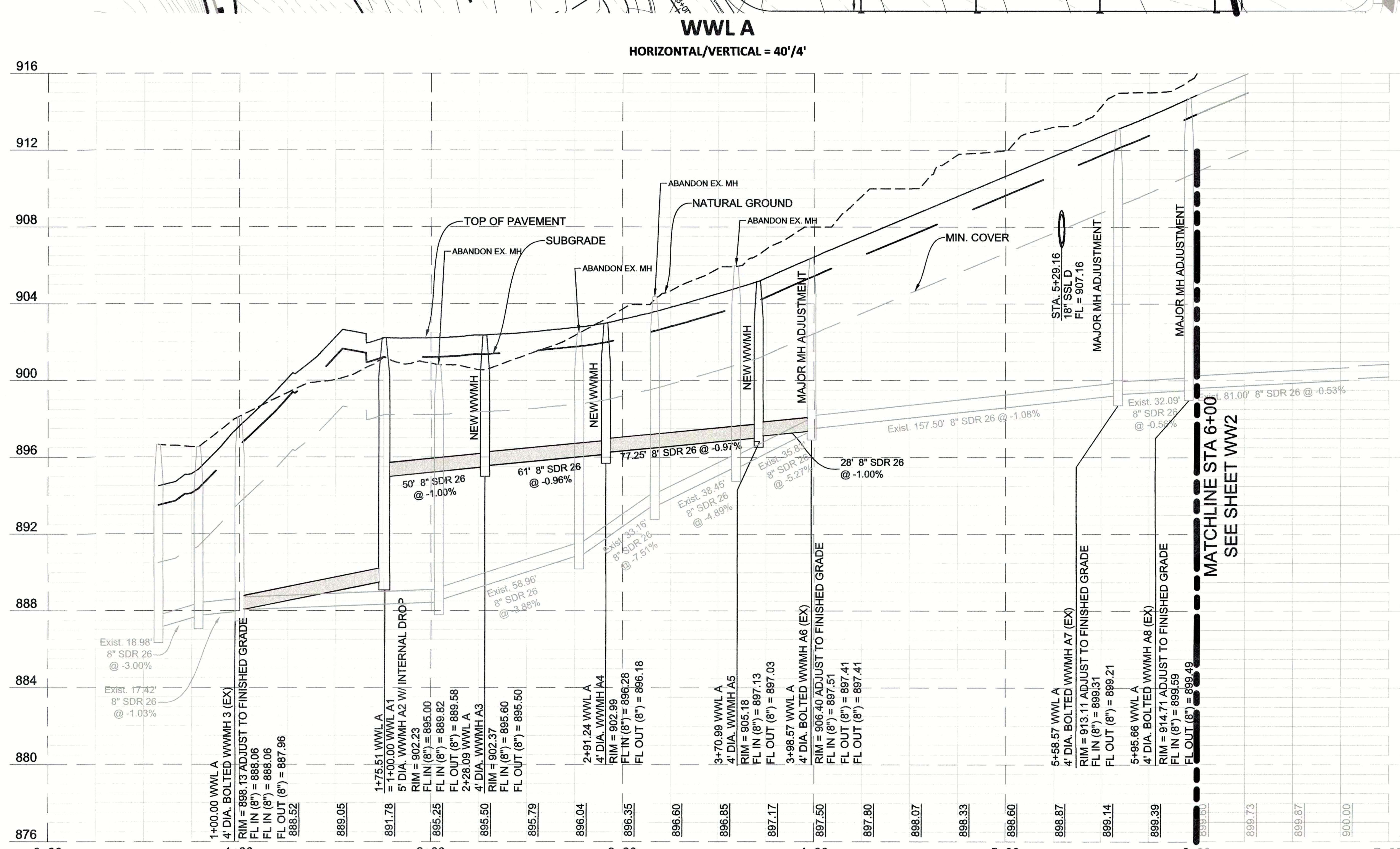
WL 8

SHEET NO. 52 OF 75 SHEETS

XXXX-XX-XX

Date/Time - Wed, 12 Apr 2023 - 3:12pm
User Name - djlopez
Path/Name - G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WL 8.dwg





LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.
11. EXISTING WASTEWATER LINE TO REMAIN IN SERVICE DURING CONSTRUCTION.
12. EXISTING WASTEWATER LINE TO BE ABANDONED IN PLACE.
13. EXISTING WASTEWATER MANHOLES TO BE ABANDONED SHALL BE CAPPED & PLUGGED BELOW PROPOSED STREET SUBGRADE.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A, PLAN AND PROFILE STA. 1+00 TO 6+00

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 1.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
5/1/23

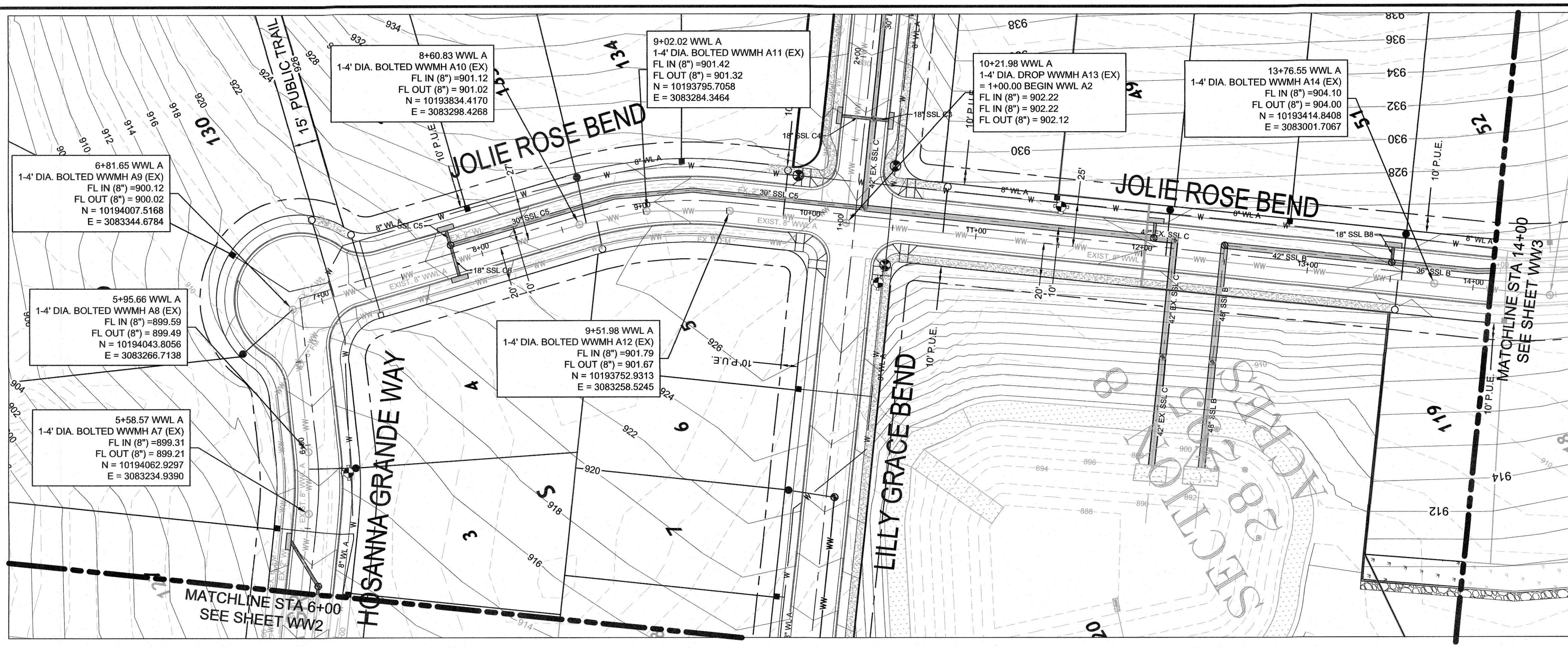
LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 1

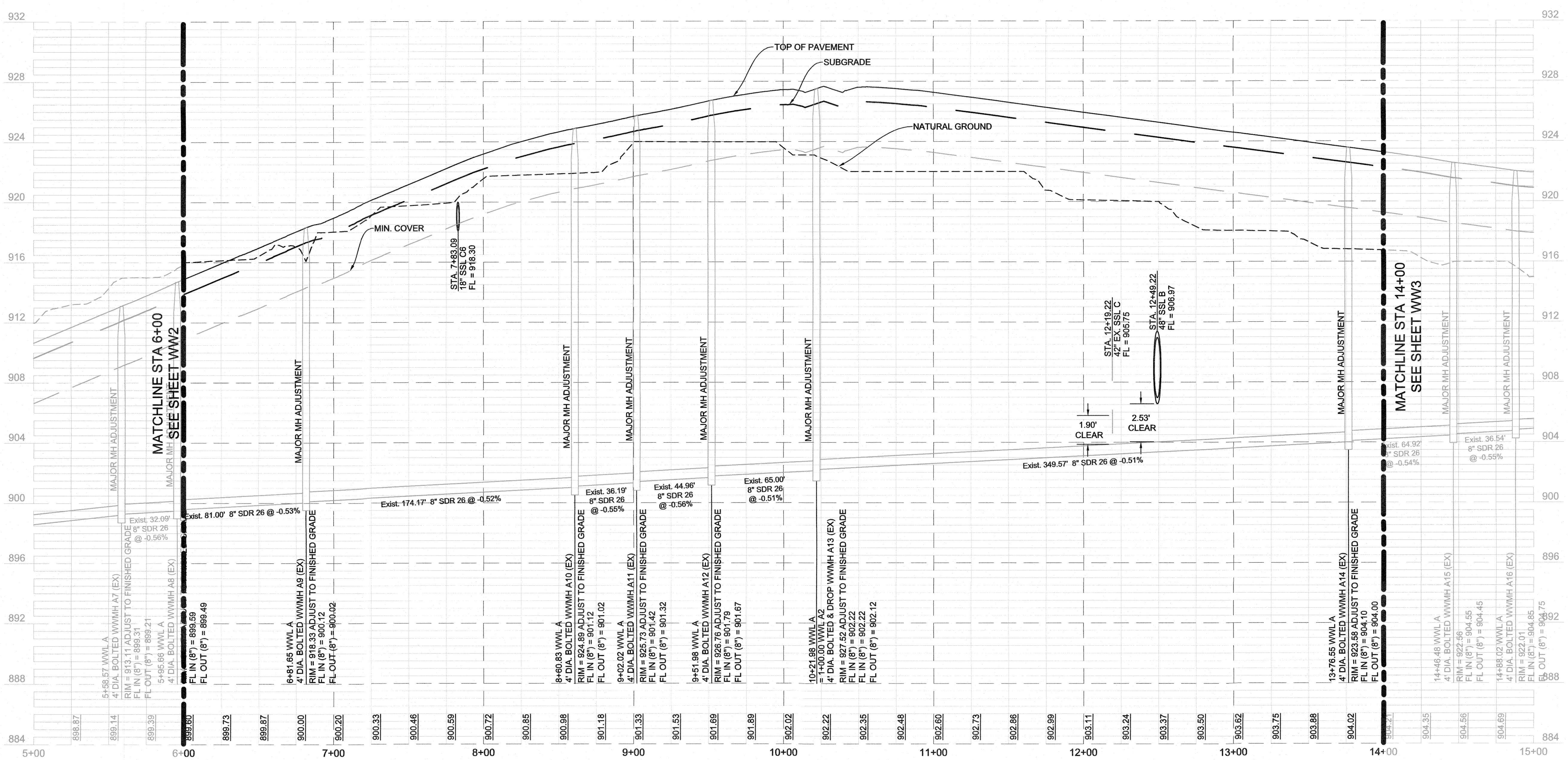
XXXX-XX-XX

Date\Time : Thu, 27 Apr 2023 - 10:38am User Name : vhulsey
Path\Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WW 1.dwg



WWL A

HORIZONTAL/VERTICAL = 40'/4'



LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.
11. EXISTING WASTEWATER LINE TO REMAIN IN SERVICE DURING CONSTRUCTION.
12. MANHOLE CASTING RAISING SHALL BE MADE PER MAJOR MANHOLE ADJUSTMENT DETAIL (COA DTL 506S-2). MANHOLES SHALL BE COVERED W/ BOLTED LIDS UNTIL STREET PAVING IS COMPLETED ABOVE MANHOLE.
13. MANHOLES SHALL BE COATED COATING. W/ MATERIAL MATCHING ORIGINAL

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A PLAN AND PROFILE STA. 6+00 TO 14+00

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 2.dwg

STATE OF TEXAS — T. W. HOYSA — 100072 — LICENSED PROFESSIONAL ENGINEER — 4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

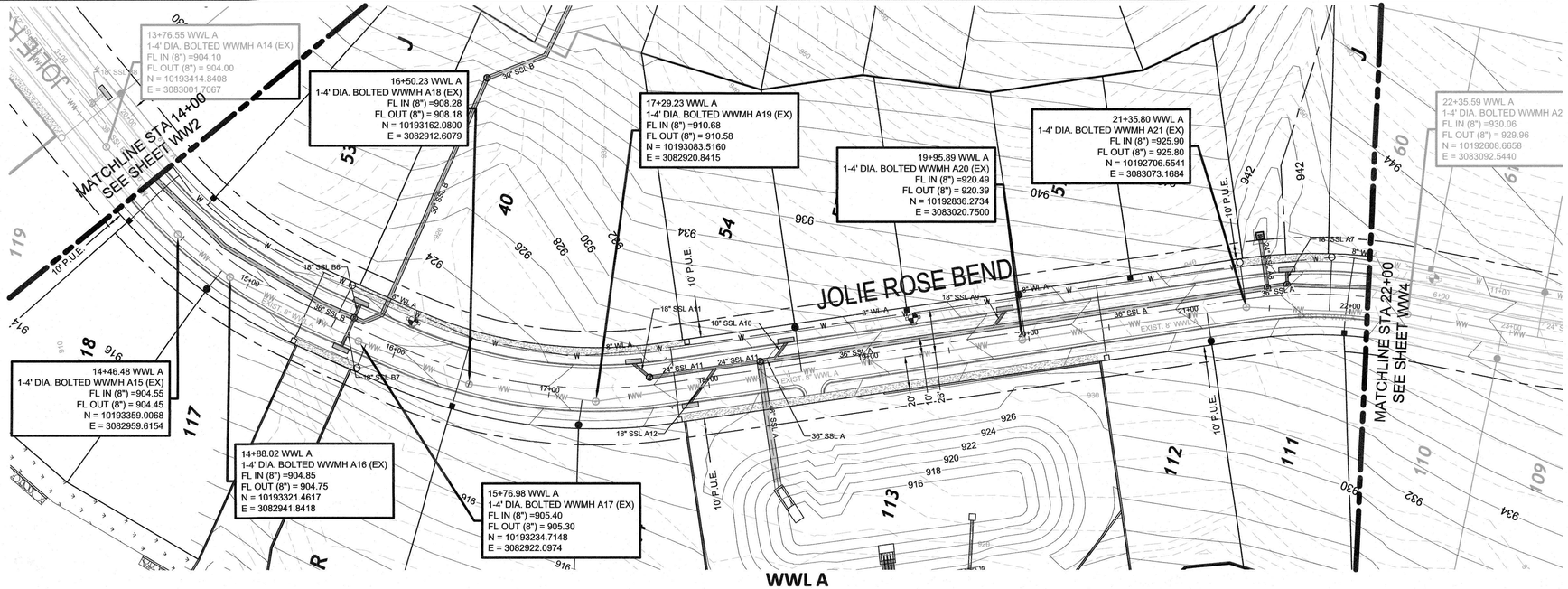
JOB NUMBER: A311-0415

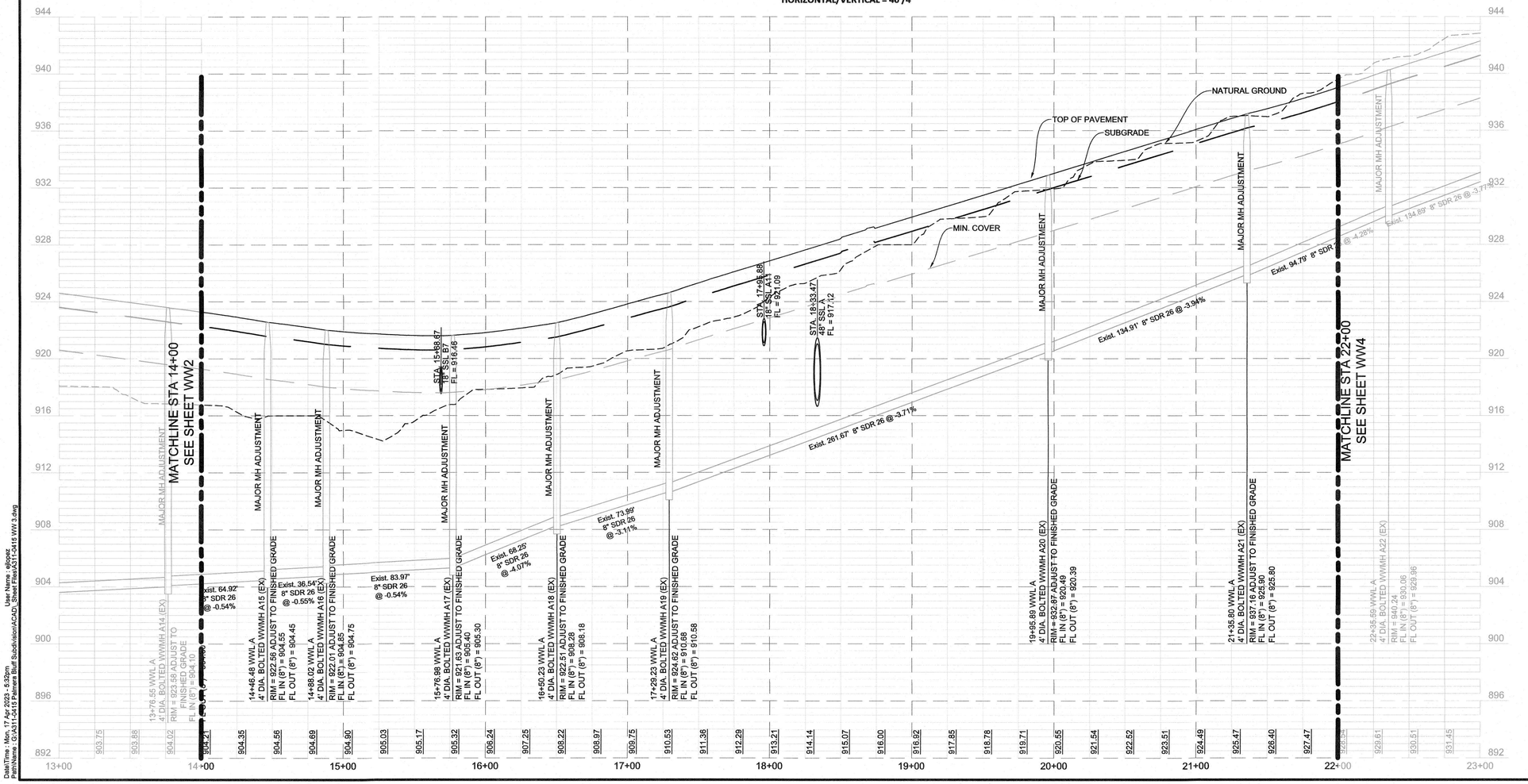
WW 2

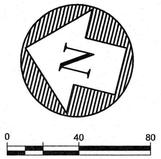
SHEET NO. 54 OF 75 SHEETS

XXXX-XX-XX

Date/Time : Mon, 17 Apr 2023 - 5:31pm User Name : eljopez
PathName : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WW 2.dwg







LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.
11. EXISTING WASTEWATER LINE TO REMAIN IN SERVICE DURING CONSTRUCTION.
12. MANHOLE CASTING RAISING SHALL BE MADE PER MAJOR MANHOLE ADJUSTMENT DETAIL (COA DTL 506S-2). MANHOLES SHALL BE COVERED W/ BOLTED LIDS UNTIL STREET PAVING IS COMPLETED ABOVE MANHOLE.
13. MANHOLES TO BE ADJUSTED SHALL BE COATED W/ MATERIAL MATCHING ORIGINAL COATING.
14. EXISTING WASTEWATER MANHOLES TO BE ABANDONED SHALL BE CAPPED & BACKFILLED PER COA DTL 506S-15.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A PLAN AND PROFILE STA. 14+00 TO 22+00

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 3.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

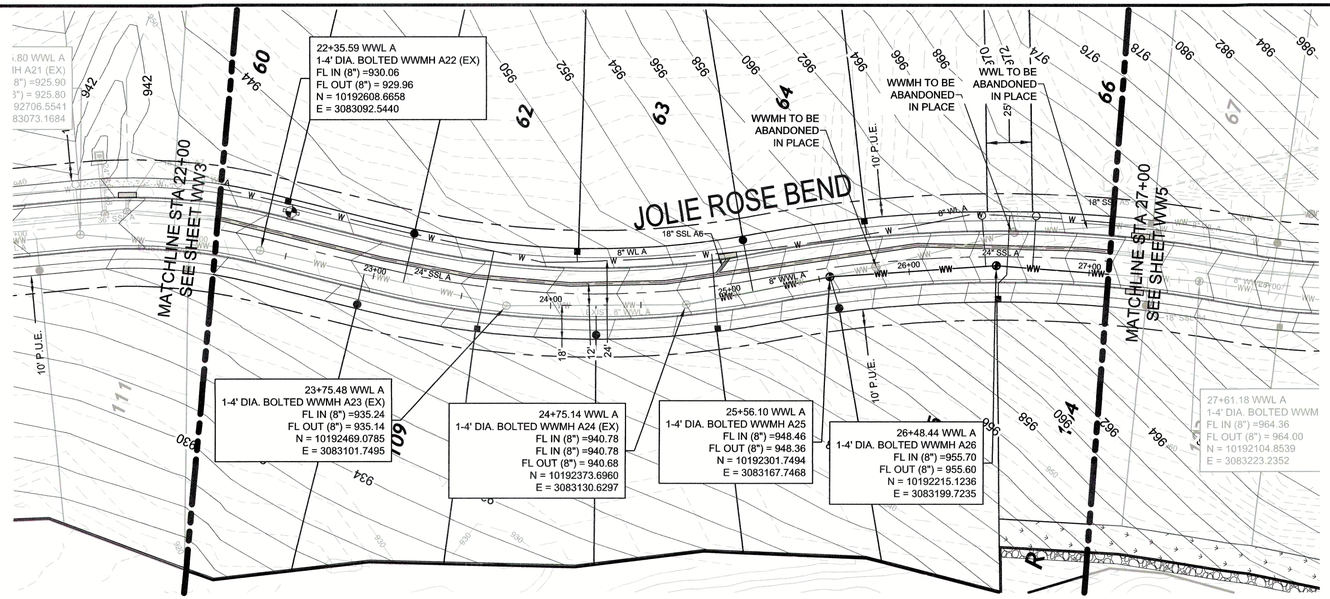
WW 3

SHEET NO. 55

OF 75 SHEETS

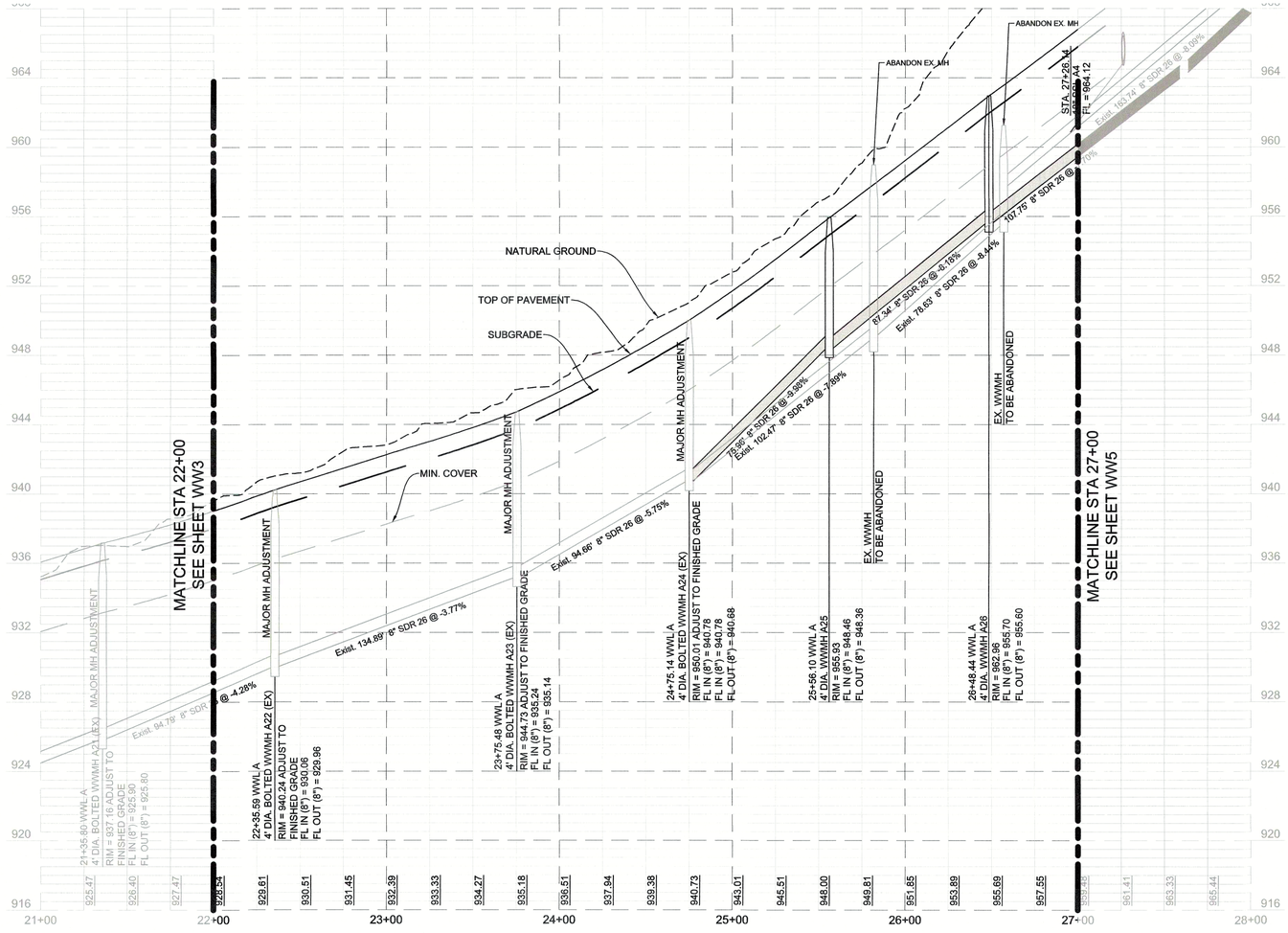
Date/Time - Mon, 17 Apr 2023 - 6:32pm
User Name - ebopez
Path/Name - G:\A311-0415 Palmera Bluff Subdivision\4-CAD_Sheet Files\A311-0415 WW 3.dwg

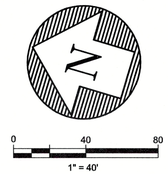
XXXX-XX-XX



WWL A

HORIZONTAL/VERTICAL = 40'/4'





LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.
11. EXISTING WASTEWATER LINE TO REMAIN IN SERVICE DURING CONSTRUCTION.
12. MANHOLE CASTING RAISING SHALL BE MADE PER MAJOR MANHOLE ADJUSTMENT DETAIL (COA DTL 506S-2). MANHOLES SHALL BE COVERED W/ BOLTED LIDS UNTIL STREET PAVING IS COMPLETED ABOVE MANHOLE.
13. MANHOLES TO BE ADJUSTED SHALL BE COATED W/ MATERIAL MATCHING ORIGINAL COATING.
14. EXISTING WASTEWATER MANHOLES TO BE ABANDONED SHALL BE CAPPED & BACKFILLED PER COA DTL 506S-15.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A PLAN AND PROFILE
STA. 22+00 TO 27+00

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
5/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 4

SHEET NO. 56

OF 75 SHEETS

XXXX-XX-XX

Date/Time : Thu, 27 Apr 2023 - 10:51am
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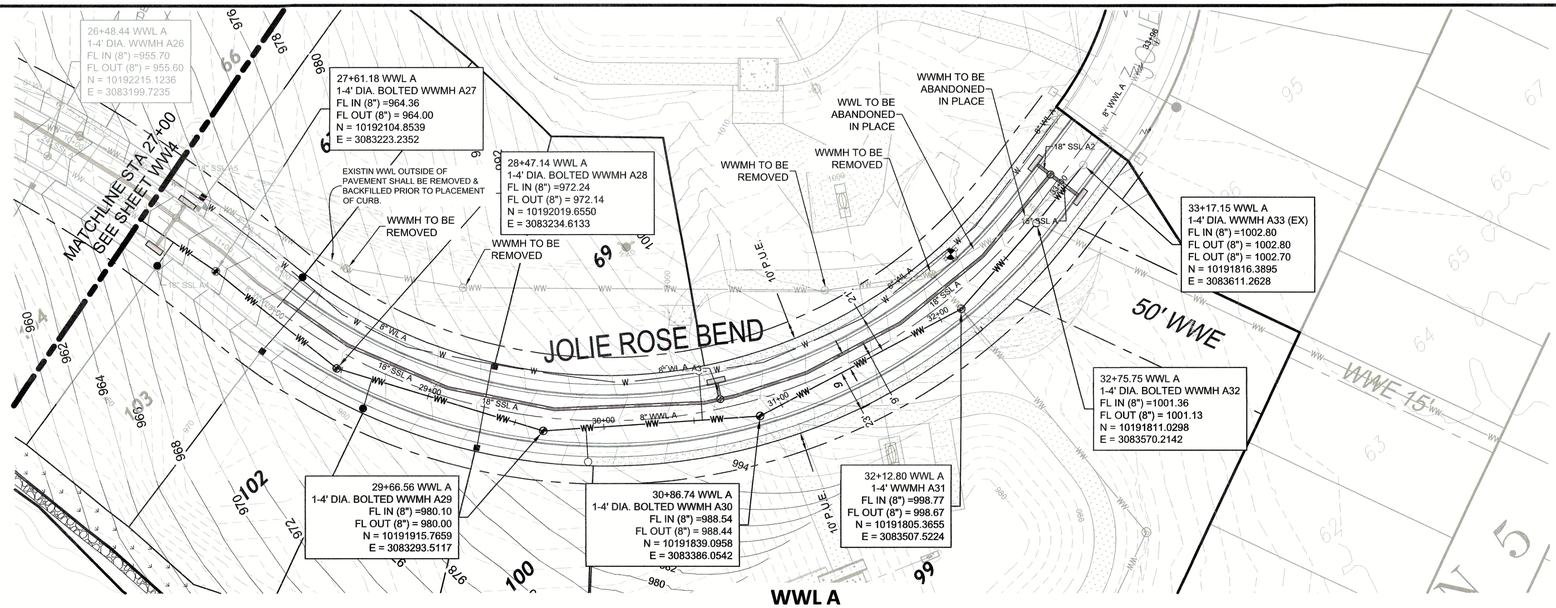
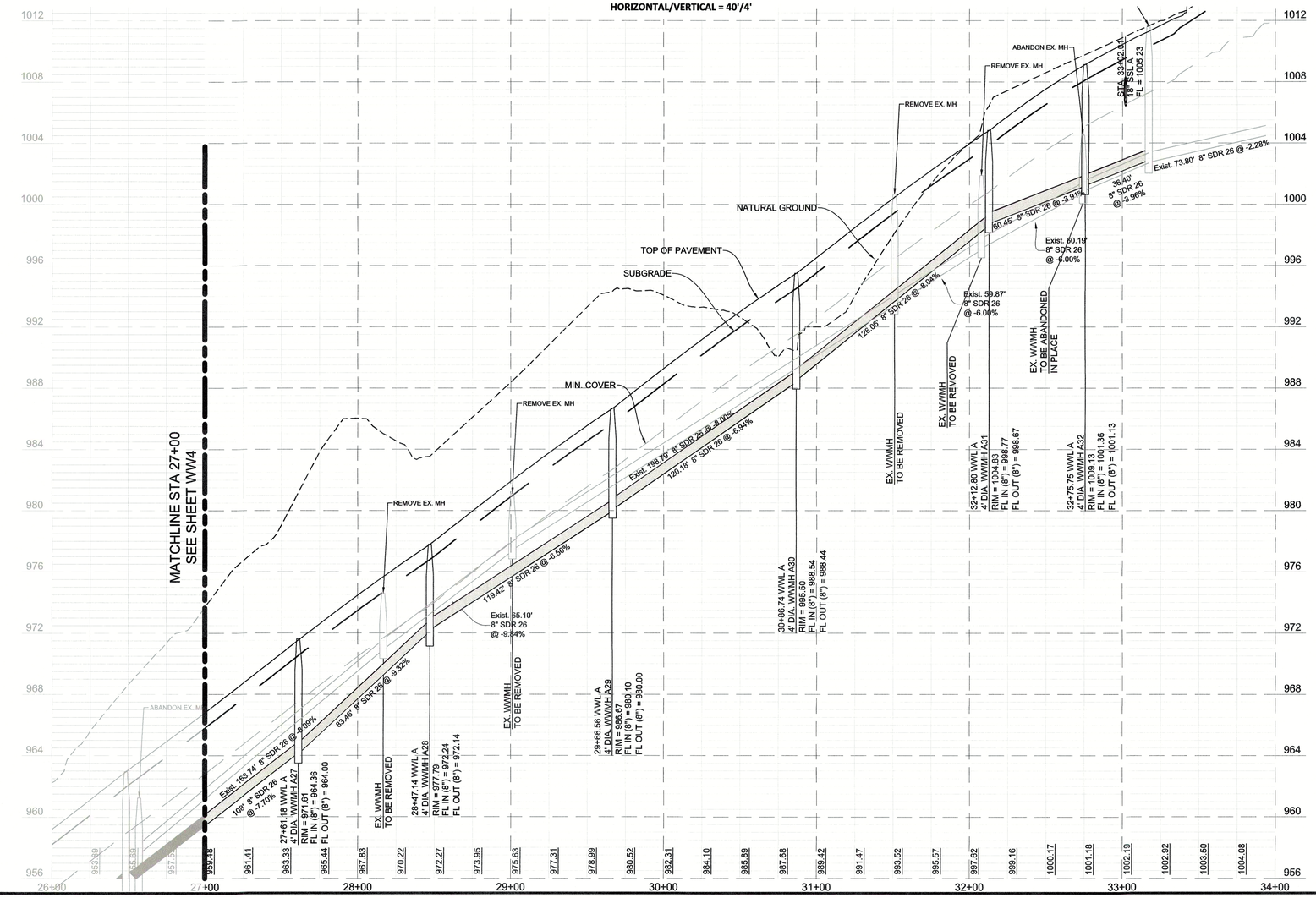
Path/Name : G:\A311-0415 Palmera Bluff Subdivision\CAD_Sheet Files\A311-0415 WW 4.dwg



WWL A

HORIZONTAL/VERTICAL = 40'/4'



LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF MANHOLE.
11. EXISTING WASTEWATER LINE TO REMAIN IN SERVICE DURING CONSTRUCTION.
12. MANHOLE CASTING RAISING SHALL BE MADE PER MAJOR MANHOLE ADJUSTMENT DETAIL (COA DTL 506S-2). MANHOLES SHALL BE COVERED W/ BOLTED LIDS UNTIL STREET PAVING IS COMPLETED ABOVE MANHOLE.
13. MANHOLES TO BE ADJUSTED SHALL BE COATED W/ MATERIAL MATCHING ORIGINAL COATING.
14. EXISTING WASTEWATER MANHOLES TO BE ABANDONED SHALL BE CAPPED & BACKFILLED PER COA DTL 506S-15.

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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A PLAN AND PROFILE
STA. 27+00 TO END

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
5/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 5

SHEET NO. 57

OF 75 SHEETS

XXXX-XX-XX

DateTime: Thu, 27 Apr 2023 - 10:38am
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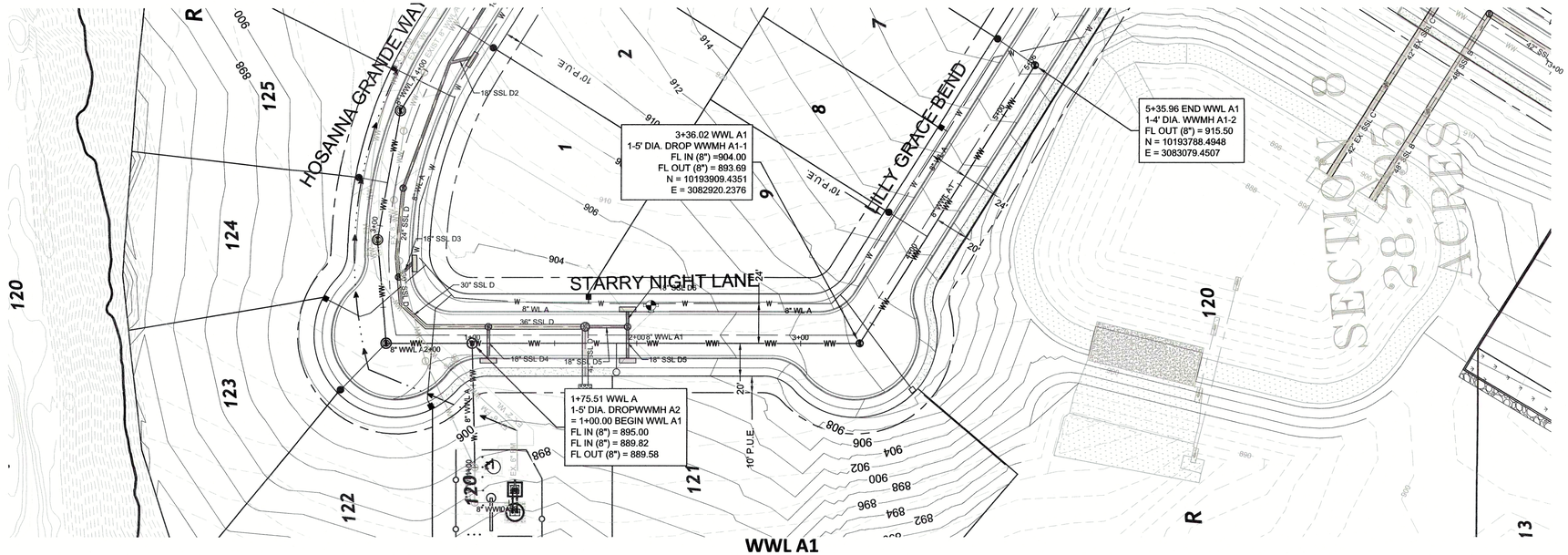

0 40 80
1" = 40'

LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF 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.

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A1 PLAN AND PROFILE
STA. 1+00 TO END

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 6.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED
PROFESSIONAL
ENGINEER
5/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 76681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 6

SHEET NO. 58

OF 75 SHEETS

Date/Time : Thu, 27 Apr 2023 - 10:54am
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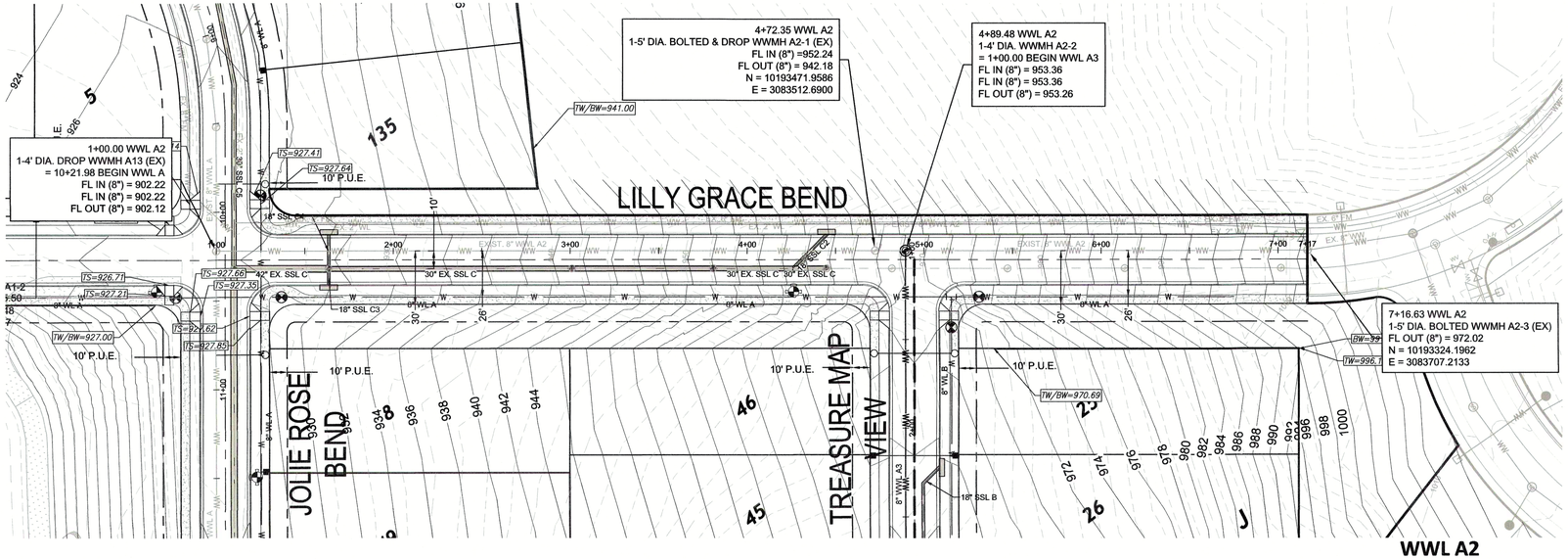
XXXX-XX-XX



LEGEND:

- PROPOSED FIRE HYDRANT ASSEMBLY
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE
- EXISTING GATE VALVE
- PROPOSED AIR RELEASE VALVE
- EXISTING AIR RELEASE VALVE
- PROPOSED PLUG OR CAP
- EXISTING PLUG OR CAP
- PROPOSED CLEAN OUT
- EXISTING CLEAN OUT
- PROPOSED WATER LINE
- PROPOSED WASTEWATER LINE AND MANHOLE
- PROPOSED STORM SEWER LINE AND MANHOLE
- EXISTING WATER LINE
- EXISTING WASTEWATER LINE AND MANHOLE
- EXISTING STORM SEWER LINE
- DOUBLE SANITARY SERVICE LEAD
- SINGLE SANITARY SERVICE LEAD
- DOUBLE WATER SERVICE LEAD
- SINGLE WATER SERVICE LEAD
- SINGLE WASTEWATER PRESSURE SERVICE LEAD

NOTES:

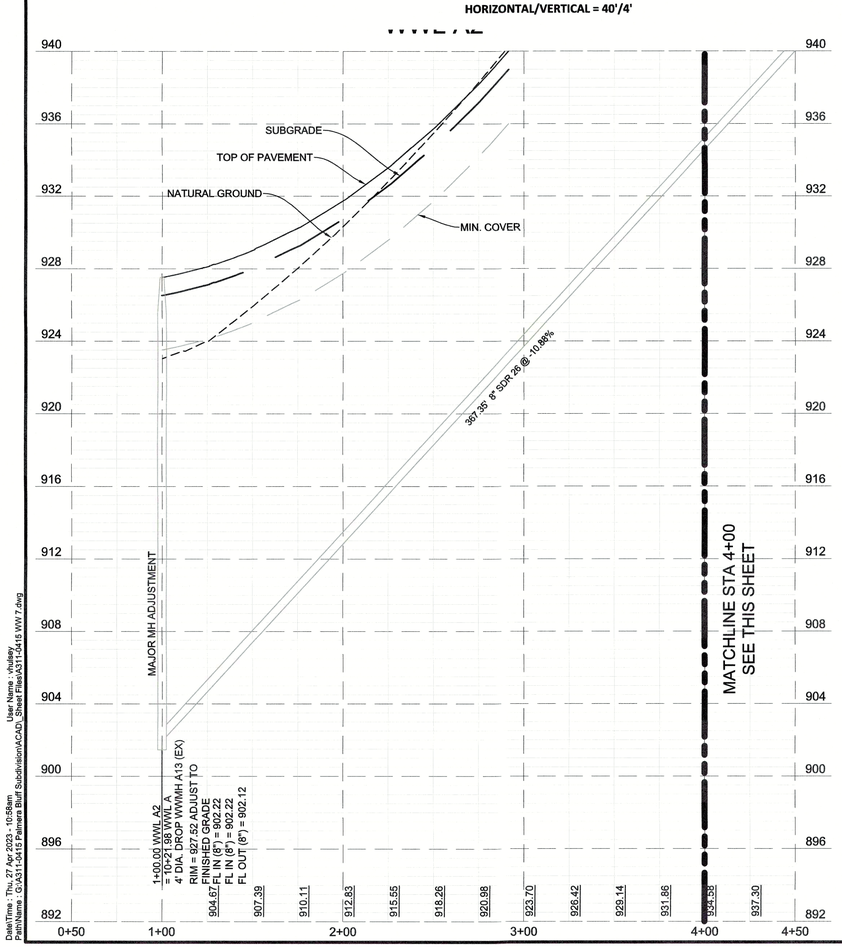
1. ALL WASTEWATER LINES ARE PVC SDR 26.
2. ALL WASTEWATER MANHOLES TO BE CONSTRUCTED PER COA DETAIL 506S-7 OR 506S-8 (DROP MANHOLE), 506S-9 OR 506S-10 (STANDARD MANHOLE), AND TO COA SPECIFICATION 506S.
3. ALL GRAVITY SANITARY SEWER LINES SHALL CONFORM TO ASTM D 3034, PVC, SDR 26 WITH ASTM 3212 JOINTS. GRAVITY SANITARY SEWER LINES CROSSING POTABLE WATER LINES SHALL CONFORM TO 30 TAC 217.53(d).
4. ALL MANHOLES OUTSIDE OF PUBLIC RIGHT OF WAY SHALL HAVE BOLTED AND GASKETED WATERTIGHT COVERS.
5. ALL STREETS SHALL BE CONSTRUCTED TO SUBGRADE PRIOR TO PLACEMENT OF WATER AND WASTEWATER LINES. FILL AREAS TO MEET CITY OF LEANDER SPECIFICATION FOR BACKFILL AND COMPACTION.
6. ALL WASTEWATER SERVICES TO BE INSTALLED PER COL DETAIL 101-2. NO SERVICES ARE TO BE LOCATED WITHIN SIDEWALKS OR CURB RAMPS.
7. CONTRACTOR TO VERIFY ALL WASTEWATER LINE GRADE AND ALIGNMENTS AT NO GREATER THAN 50' INTERVALS.
8. SEE PROFILE SHEETS FOR DEEP SERVICE CONNECTIONS AND LOCATIONS.
9. THE USE OF BRICK MANHOLES AND BRICKS TO ADJUST MANHOLES IS PROHIBITED.
10. PIPE STATIONING AND LINEAR FOOTAGE IS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. PIPE SLOPE IS CALCULATED FROM INSIDE FACE OF MANHOLE TO INSIDE FACE OF 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.

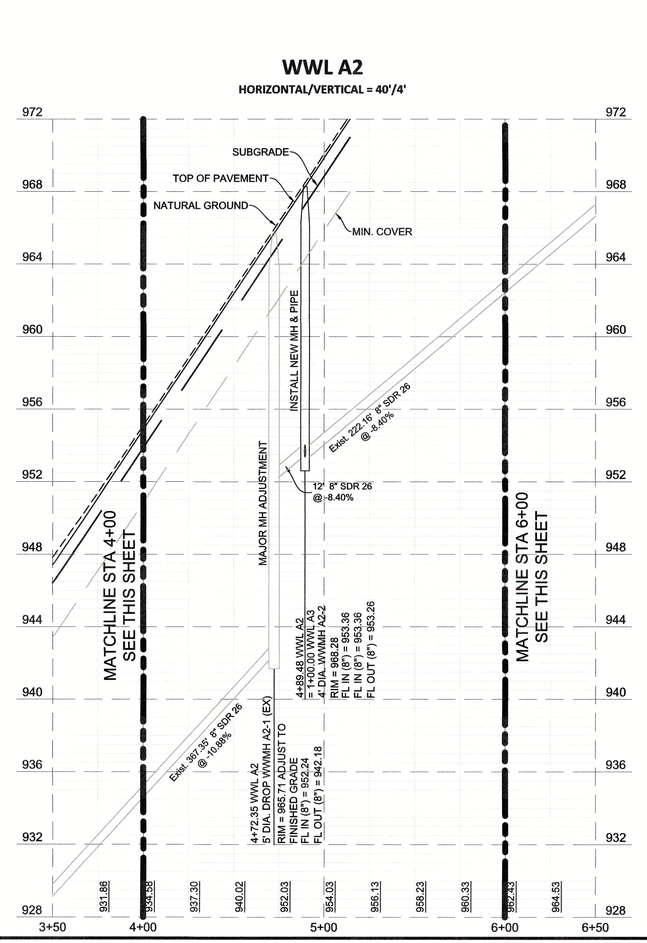
WWL A2

HORIZONTAL/VERTICAL = 40'/4'



WWL A2

HORIZONTAL/VERTICAL = 40'/4'



WWL A2

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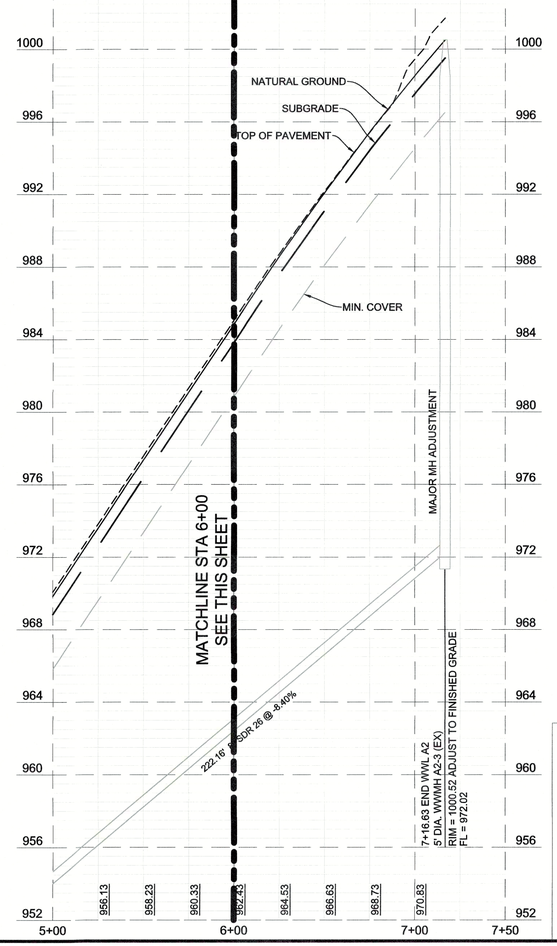

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

WASTEWATER LINE A2 PLAN AND PROFILE
STA. 1+00 TO END

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 7.dwg

STATE OF TEXAS
T. W. HOYSA
100072
REGISTERED PROFESSIONAL ENGINEER
5/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 7

SHEET NO. 59

OF 75 SHEETS

User Name: vhulsey
Date/Time: Thu, 27 Apr 2023 - 10:58am
Path/Name: C:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WW 7.dwg

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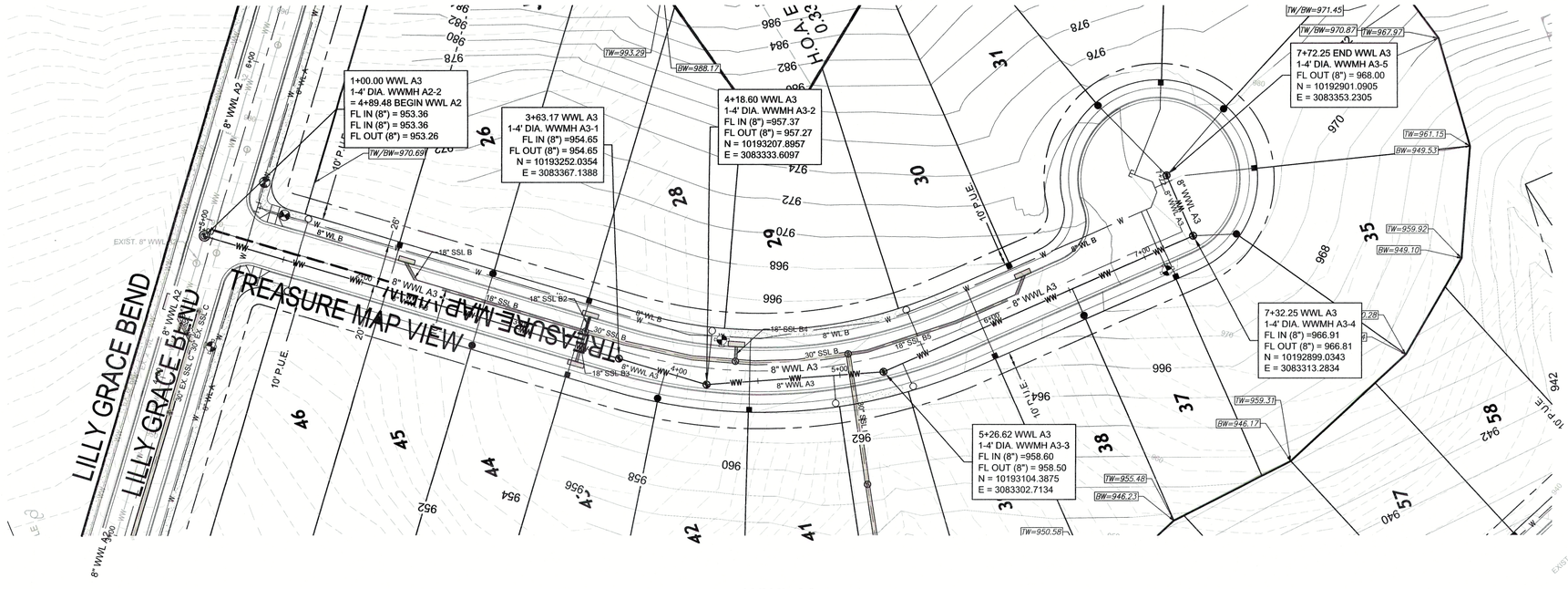
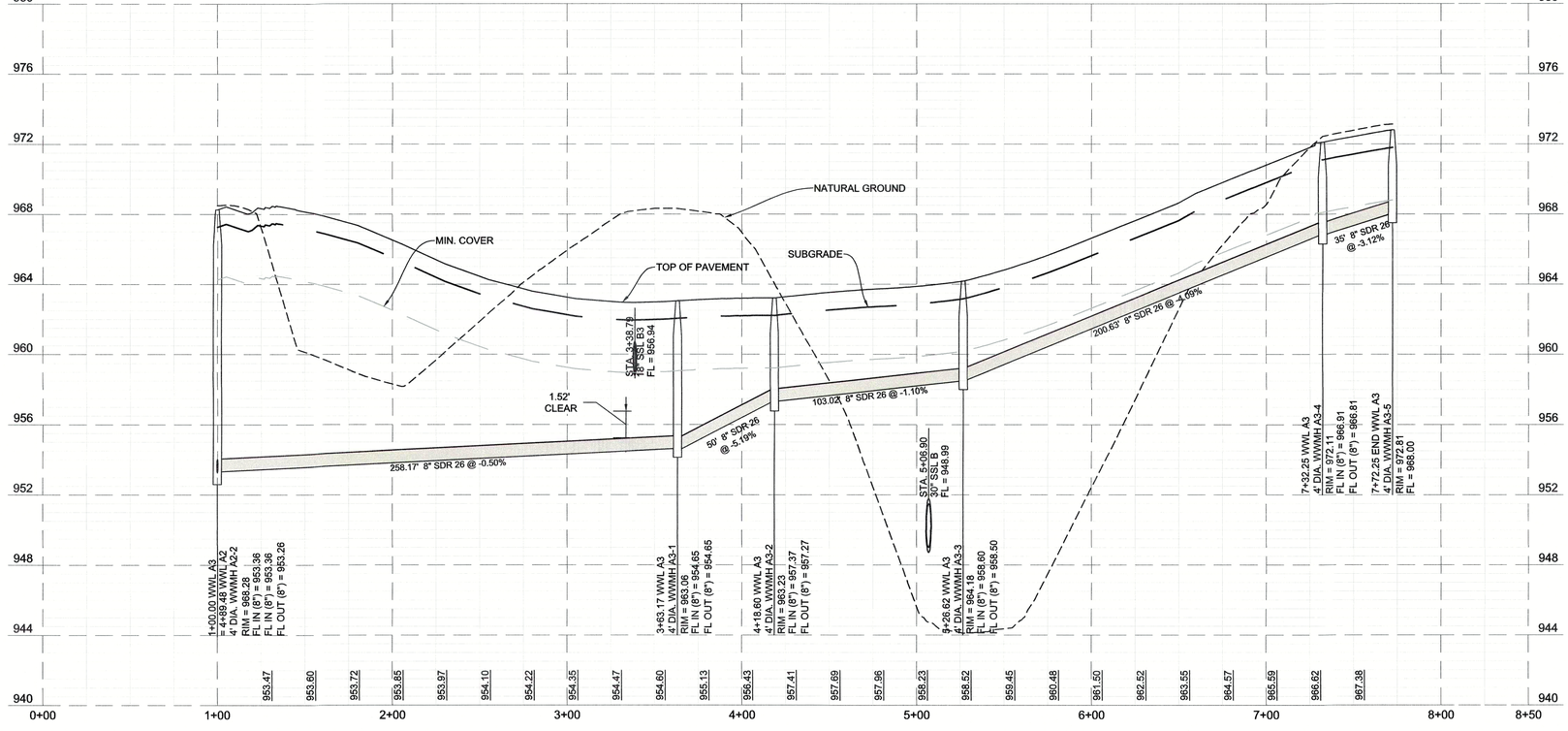
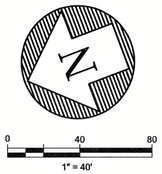


WWL A3

HORIZONTAL/VERTICAL = 40'/4'





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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER LINE A3 PLAN AND PROFILE
STA. 1+00 TO END

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 8.dwg

STATE OF TEXAS
T. W. HOYSA
100072
REGISTERED
ENGINEER
5/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 8

SHEET NO. 60

OF 75 SHEETS

Date/Time : Thu, 27 Apr 2023 - 11:08am
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User Name : vhulsey

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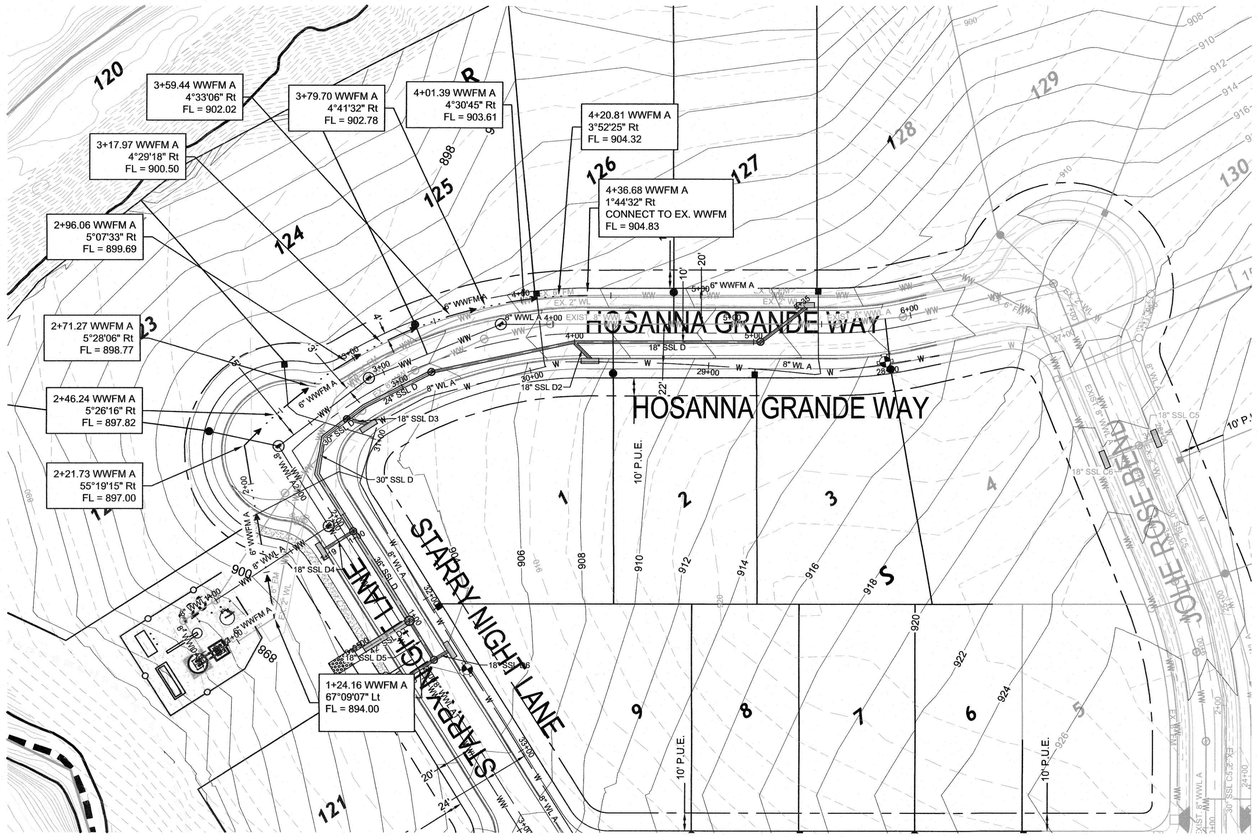

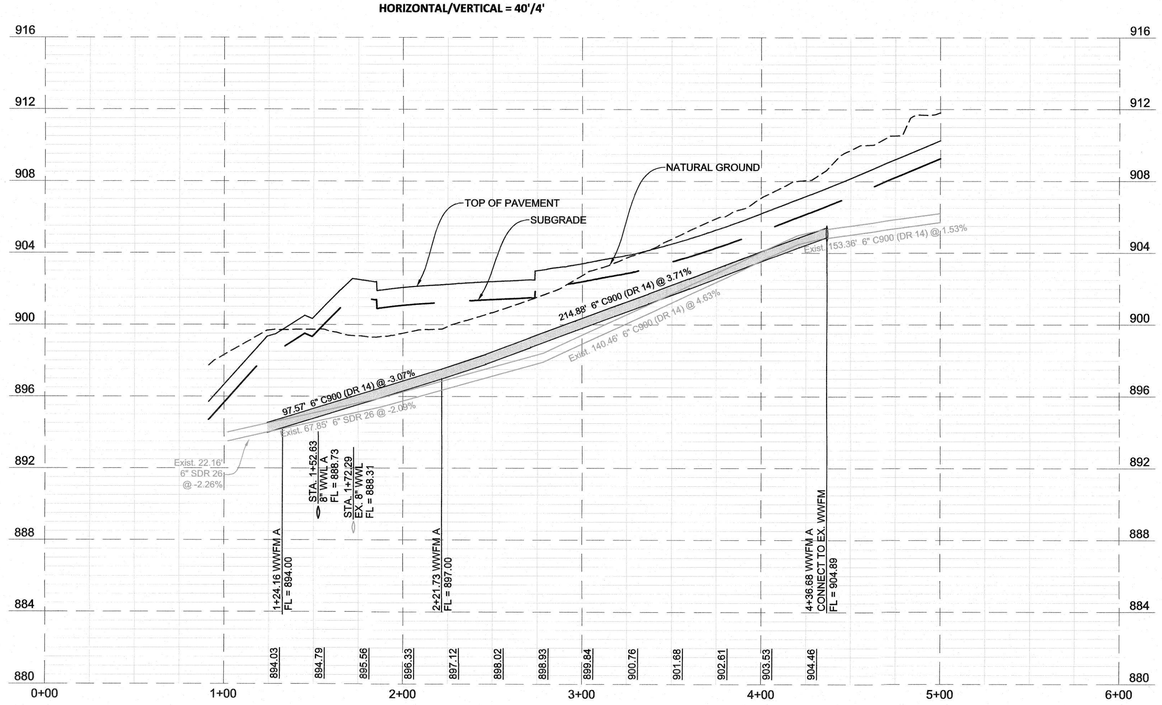

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PALMERA BLUFF SUBDIVISION SECTION 7 & 8

WASTEWATER FORCEMAIN A, PLAN AND PROFILE STA. 1+00 TO END

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 WW 9.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/17/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

WW 9

SHEET NO. 61 OF 75 SHEETS

DateTime: Mon, 17 Apr 2023 - 5:37pm
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FileName - Q:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 WW 9.dwg

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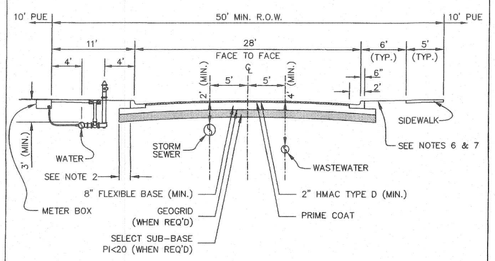
RESIDENTIAL LOCAL STREET SECTION WITH STANDARD UTILITY ASSIGNMENTS



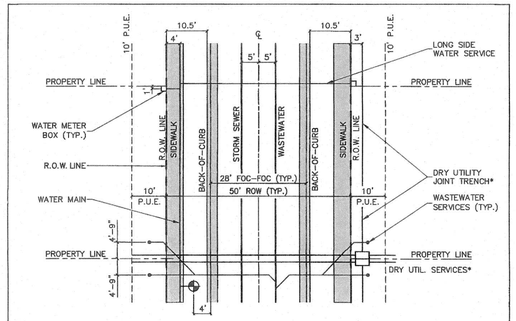
NOTES:

1. DIMENSIONS FOR ROW AND FOC-FOC ARE FOR RESIDENTIAL LOCAL STREETS ONLY. SEE TRANSPORTATION PLAN FOR ROADWAY AND RIGHT-OF-WAY WIDTHS FOR ALL OTHER ROADWAY CLASSIFICATIONS.
2. BASE COURSE TO EXTEND 1' (MINIMUM) PAST BACK OF CURB FOR SOILS WITH PI OF 20 OR LESS, 3' FOR ALL OTHER SOILS.
3. PAVEMENT STRUCTURAL SECTION SHALL, IN NO CASE, BE LESS THAN THE VALUES SHOWN ABOVE.
4. GEOTECHNICAL ENGINEER SHALL PROVIDE A PAVEMENT DESIGN TO DETERMINE THE NEED FOR ADDITIONAL ASPHALT THICKNESS, BASE THICKNESS, SUB-BASE AND GEOGRID BASED UPON ON-SITE SOIL CONDITIONS AND TRAFFIC PROJECTIONS.
5. SIDEWALK TO HAVE MAXIMUM 2% CROSS SLOPE.
6. SLOPE FROM BACK OF CURB TO RIGHT-OF-WAY SHALL BE 2% UNLESS OTHERWISE INDICATED ON THE GRADING PLAN.
7. STREET TREES, WHERE REQUIRED, SHALL BE PLACED BETWEEN SIDEWALK AND BACK OF CURB. SEE DETAIL 204-4.
8. METER BOXES AND SEWER SERVICE STUBS SHALL BE PLACED IN THE PUBLIC UTILITY EASEMENT ABUTTING THE SIDEWALK.

*THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD. DRAWING NOT TO SCALE.

STATE OF TEXAS · WAYNE S. WATTS · 86134 · LICENSED PROFESSIONAL ENGINEER
12/21/17

City Of Leander, Texas
DETAIL #204-3
RESIDENTIAL LOCAL STREET SECTION WITH STANDARD UTILITY ASSIGNMENTS



MINIMUM COVER BELOW FINISH-GRADE

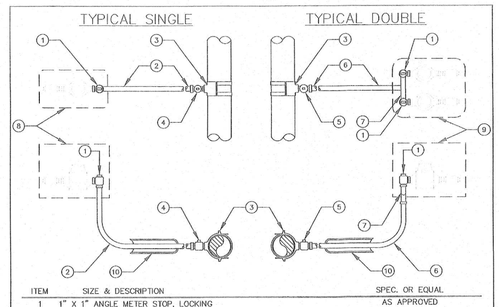
	BELOW SUBGRADE
STORM SEWER	48"
WASTEWATER	36"
WATER	36"
ELECTRIC PRIMARY*	30"
ELECTRIC SECONDARY*	24"
GAS*	24"
TELECOMMUNICATIONS*	24"

RESIDENTIAL STREET
NOT TO SCALE

*NOTE:
ALL GAS, ELECTRIC, AND TELECOMMUNICATION LINES SHALL BE INSTALLED PER THE UTILITY PROVIDER'S STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS · WAYNE S. WATTS · 86134 · LICENSED PROFESSIONAL ENGINEER
10/09/18

City Of Leander, Texas
DETAIL #204-5
UTILITY ASSIGNMENTS WITHIN RESIDENTIAL DEVELOPMENT



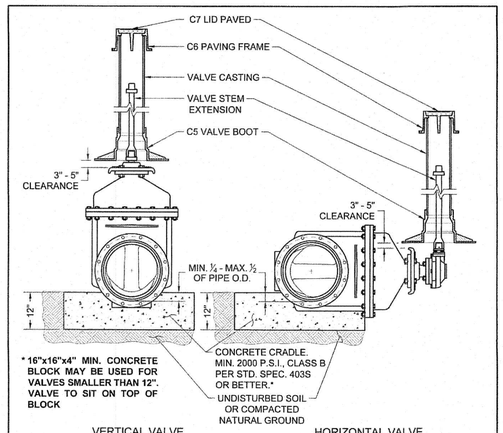
ITEM	SIZE & DESCRIPTION	SPEC. OR EQUAL
1	1" X 1" ANGLE METER STOP, LOCKING	AS APPROVED
2	1" SDR9 POLYETHYLENE TUBING	CLASS 250
3	EPOXY COATED DUCTILE IRON TAPPING SADDLE	AS APPROVED
4	1" CORPORATION STOP	AS APPROVED
5	1 1/2" CORPORATION STOP	AS APPROVED
6	1 1/2" SDR9 POLYETHYLENE TUBING	CLASS 250
7	BRASS U-BRANCH, 1 1/2" X 1"	FORD, OR EQUAL
8	METER BOX, SINGLE	DFW37F-12-1CA, OR EQUAL
9	METER BOX, DOUBLE	DFW39F-12-1CA, OR EQUAL
10	3" SCH. 40 PVC SLEEVE FOR LONG SIDE SERVICES (TYP.)	

NOTES:

1. SERVICE SADDLE SHALL BE WRAPPED COMPLETELY WITH 8 MIL POLYETHYLENE FILM.
2. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS.
3. BRANCH CONNECTION AND BOTH ANGLE METER STOPS SHALL BE INSTALLED PRIOR TO FIRST METER INSTALLATION.
4. SLEEVES FOR LONG-SIDE SERVICE TO BEGIN AND TERMINATE 6" BEHIND BACK OF CURB.
5. TOP OF METER BOXES SHOULD BE 1" ABOVE GROUND.
6. METER BOX SHALL BE BEHIND CURB AT ROW/PROPERTY LINE OR EASEMENT. METER BOX SHALL NOT BE INSTALLED IN SIDEWALK, DRIVEWAY OR VEHICULAR TRAVEL AREA.
7. 1" X 3/4" BRASS METER BUSHING REQUIRED FOR 5/8" AND 3/4" METERS.
8. AXIS OF METER ASSEMBLY (LINE THROUGH METER STOP, METER, CHECK VALVE, PIPING AND OWNER'S CUTOFF) SHALL BE 11" BELOW TOP OF BOX. METER BOXES ARE SIZED TO ACCOMMODATE METER STOP, WATER METER AND CHECK VALVE.

STATE OF TEXAS · WAYNE S. WATTS · 86134 · LICENSED PROFESSIONAL ENGINEER
10/24/15

City Of Leander, Texas
DETAIL #101-1
WATER SERVICE CONNECTIONS



VERTICAL VALVE

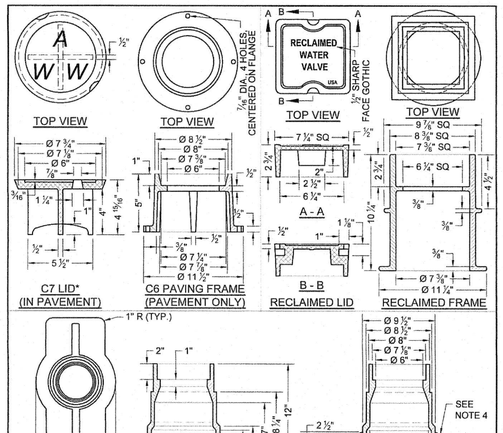
HORIZONTAL VALVE
ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:

1. WELD SOCKET 2⅝" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT, [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



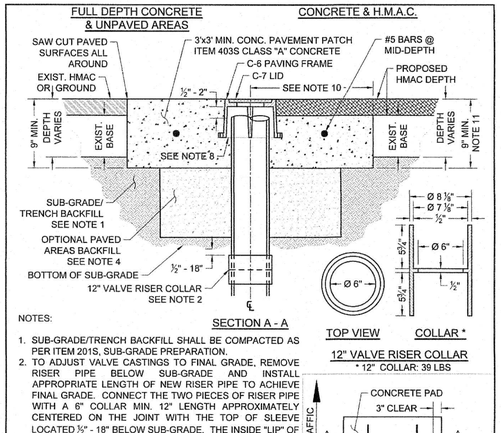
NOTES:

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



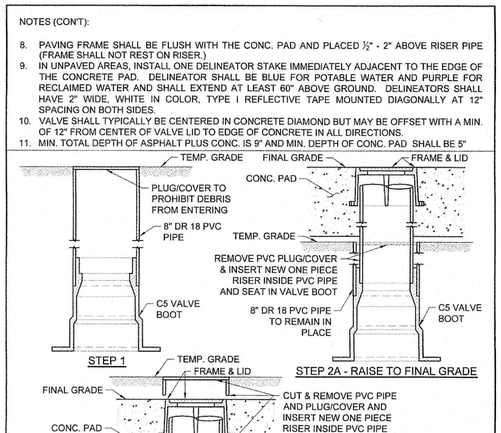
NOTES:

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 6" 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 406S.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 (CON'T):

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 60" 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

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

GENERAL DETAILS

NO.	DESCRIPTION	BY	DATE

REVISIONS

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DT1.dwg

STATE OF TEXAS · T. W. HOYSA · 100072 · REGISTERED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 1

SHEET NO. 62

OF 75 SHEETS

XXXX-XX-XX

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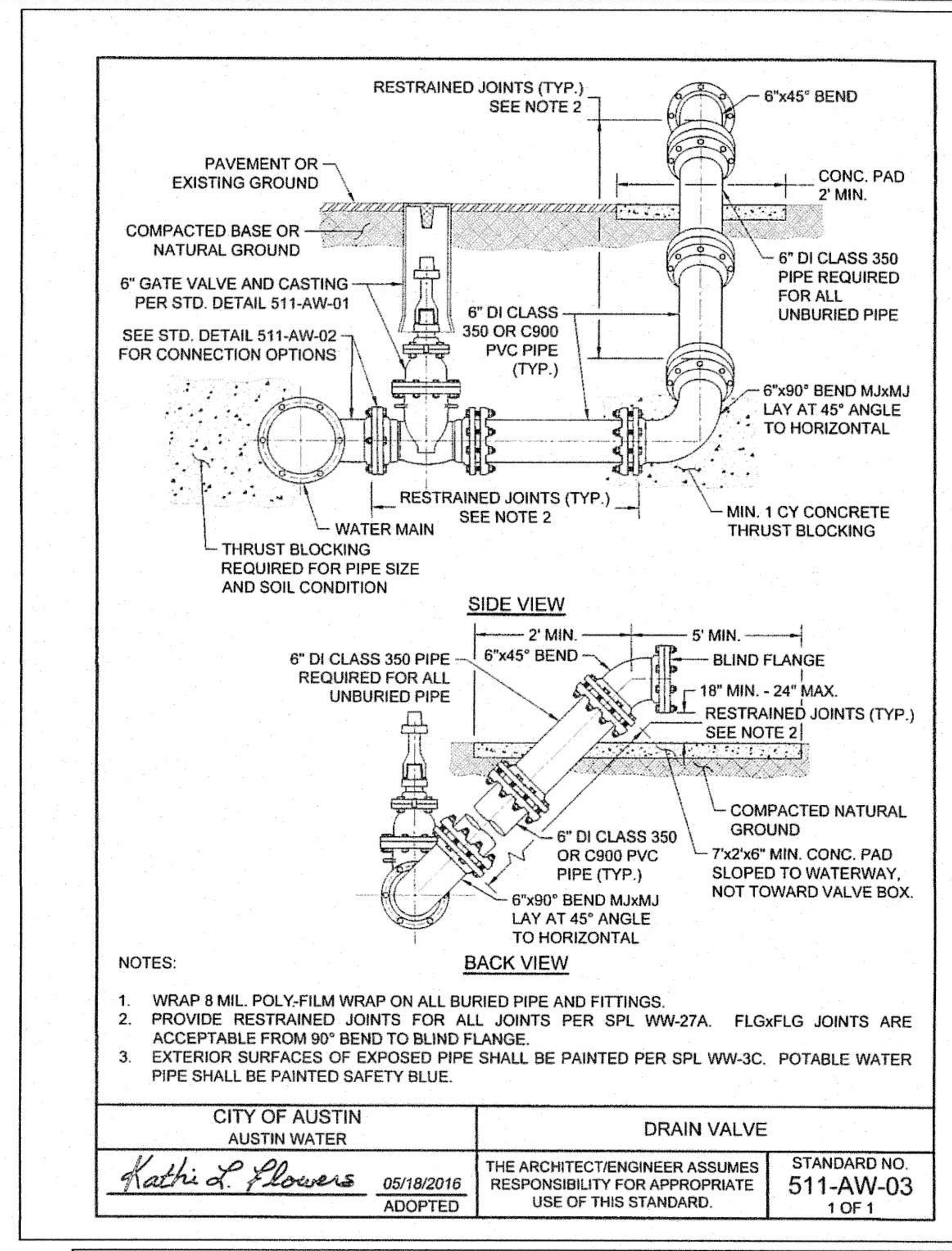

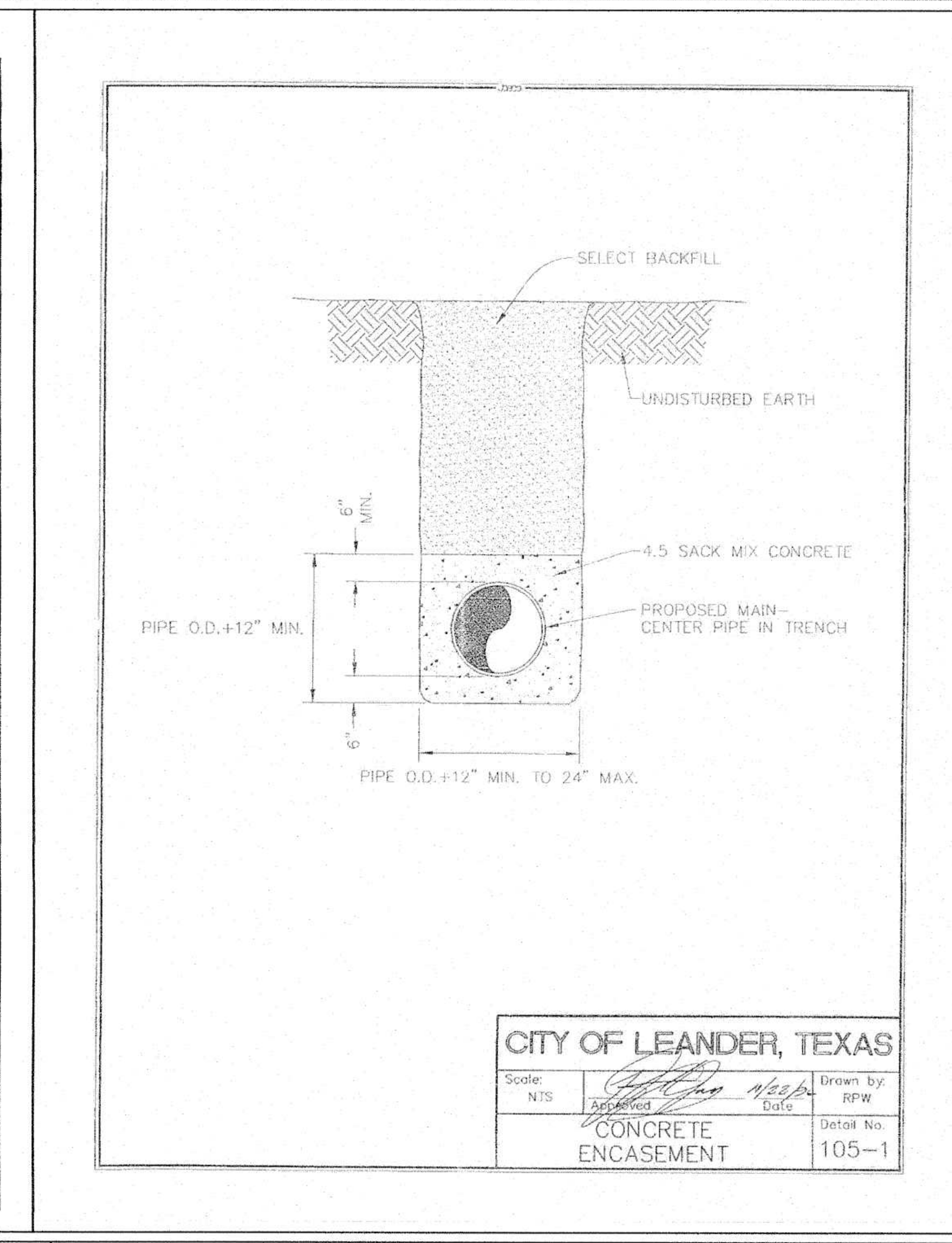

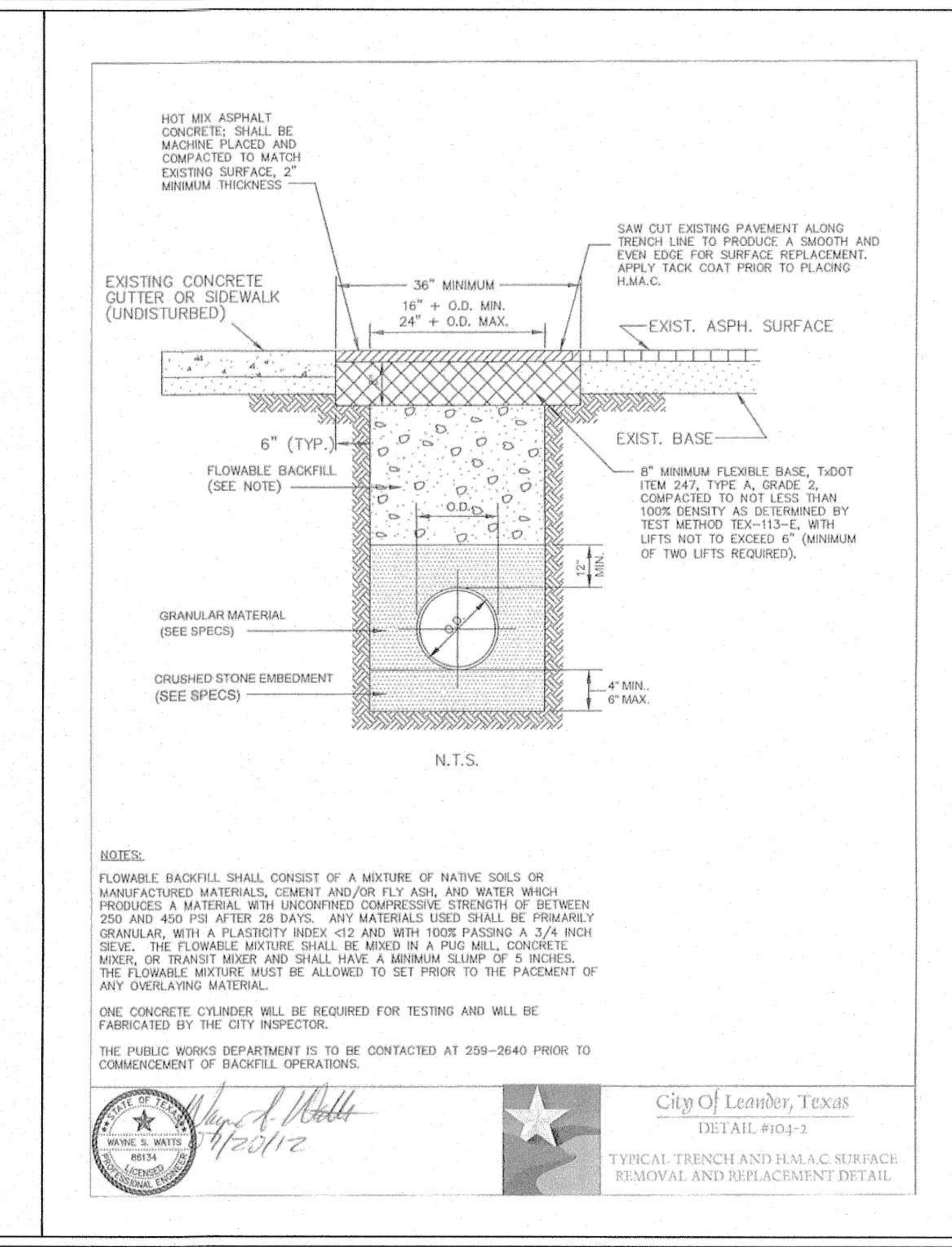

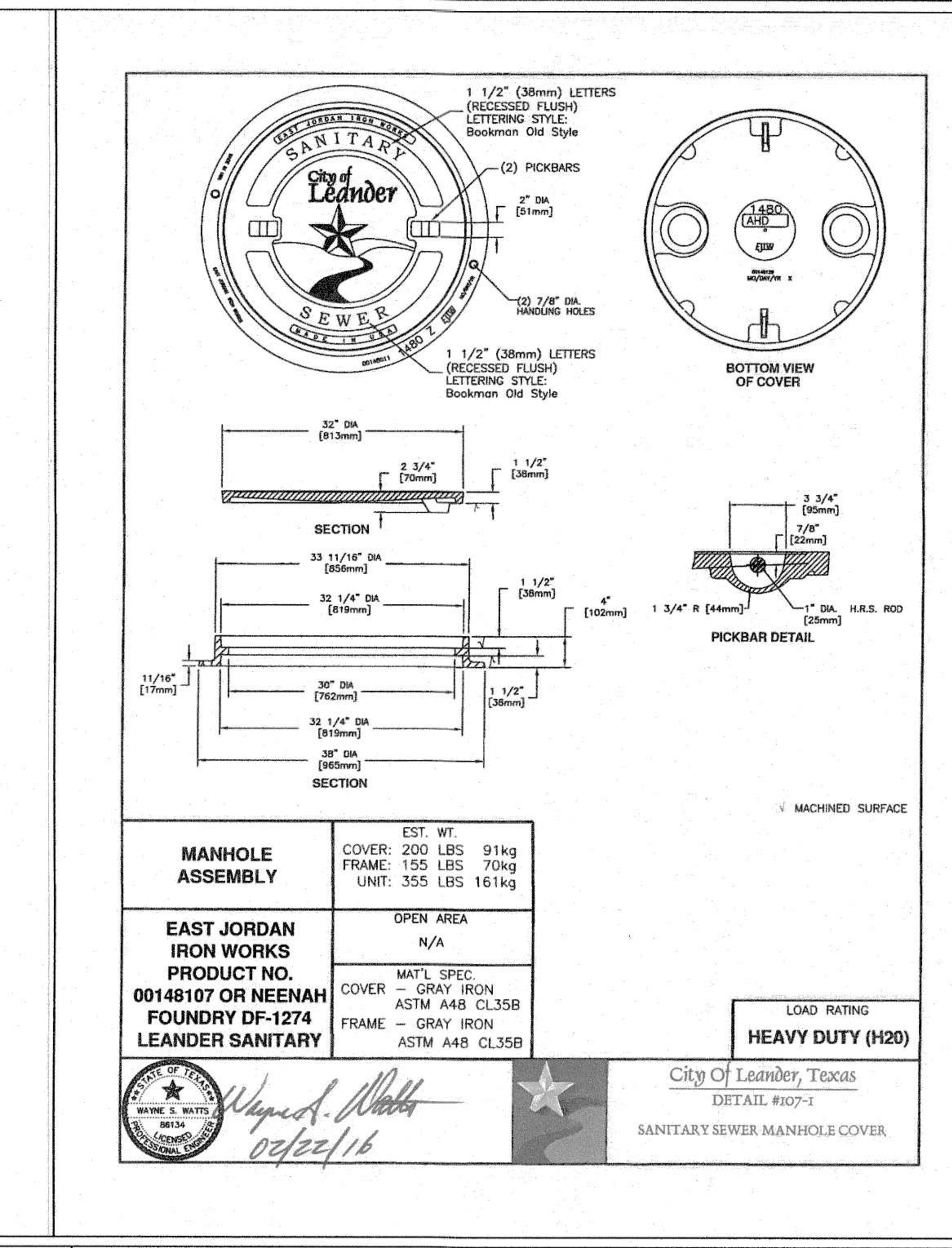

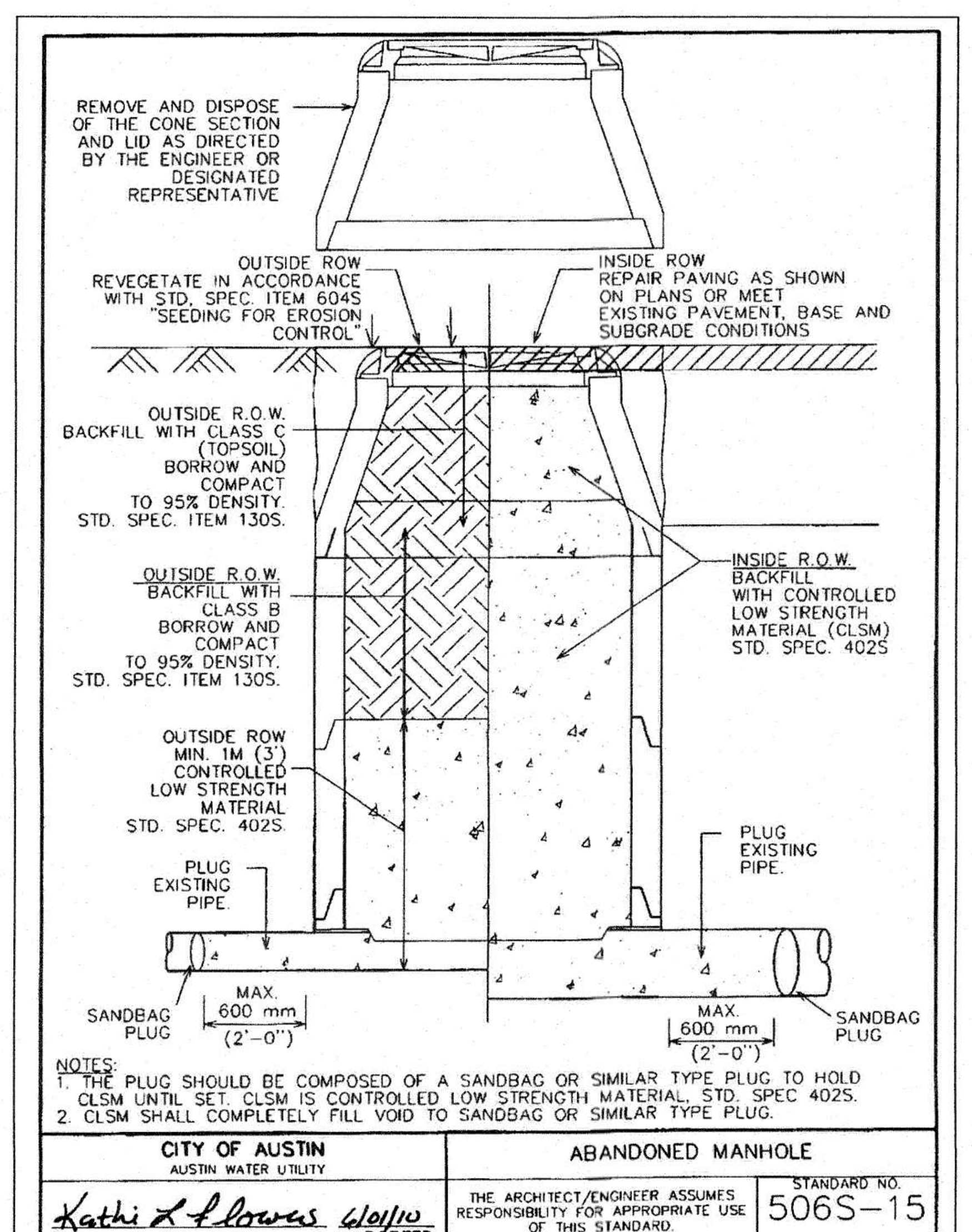

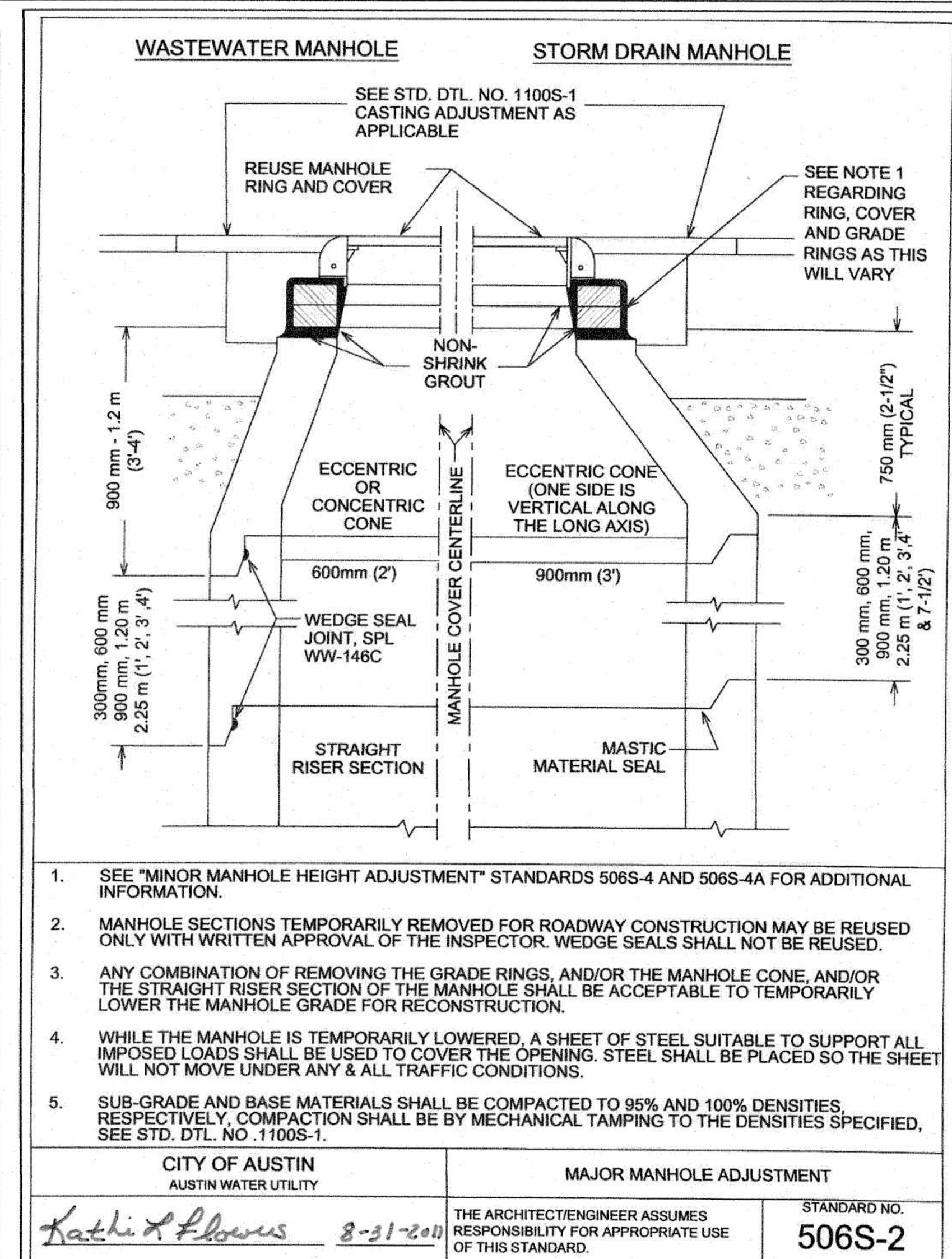

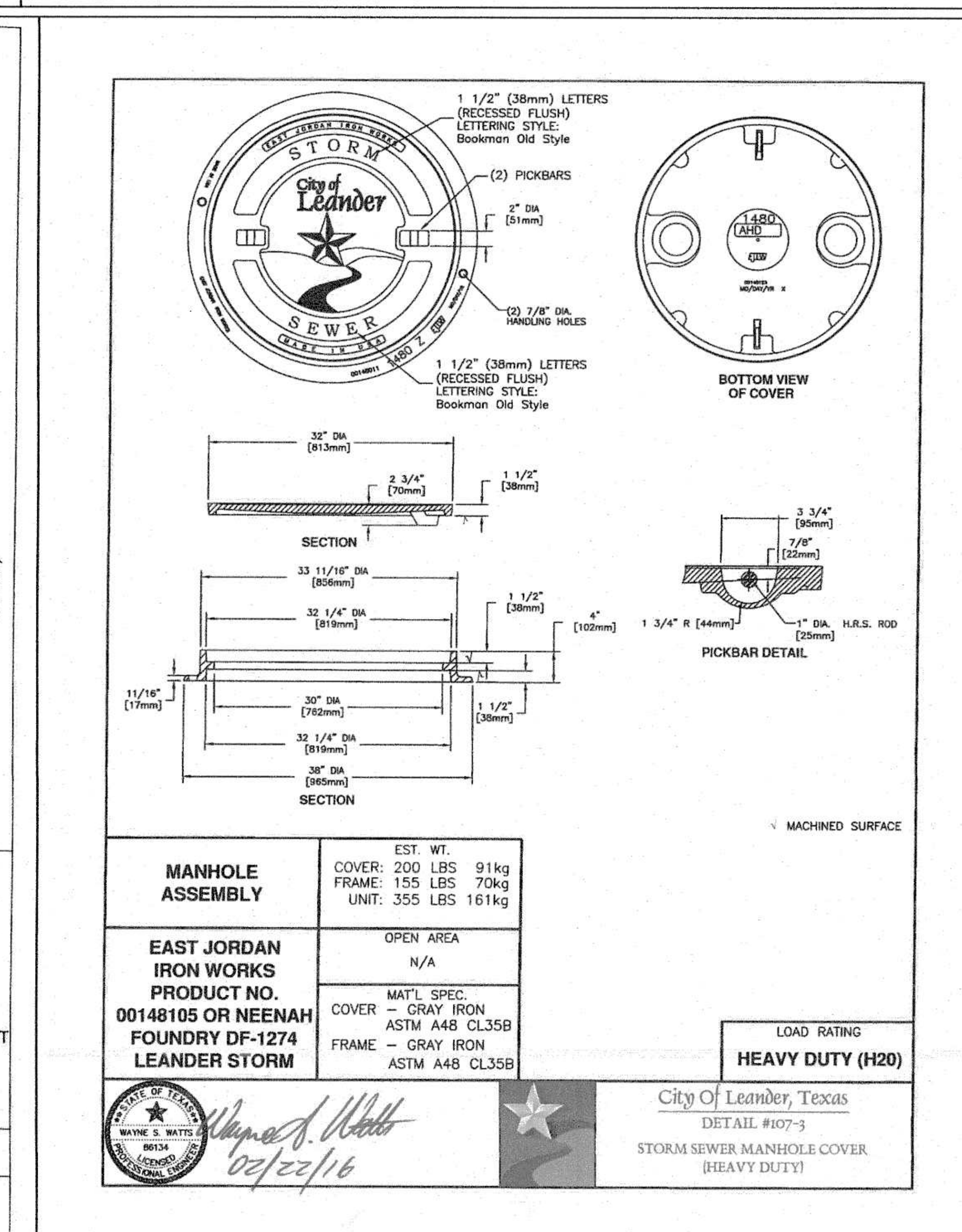

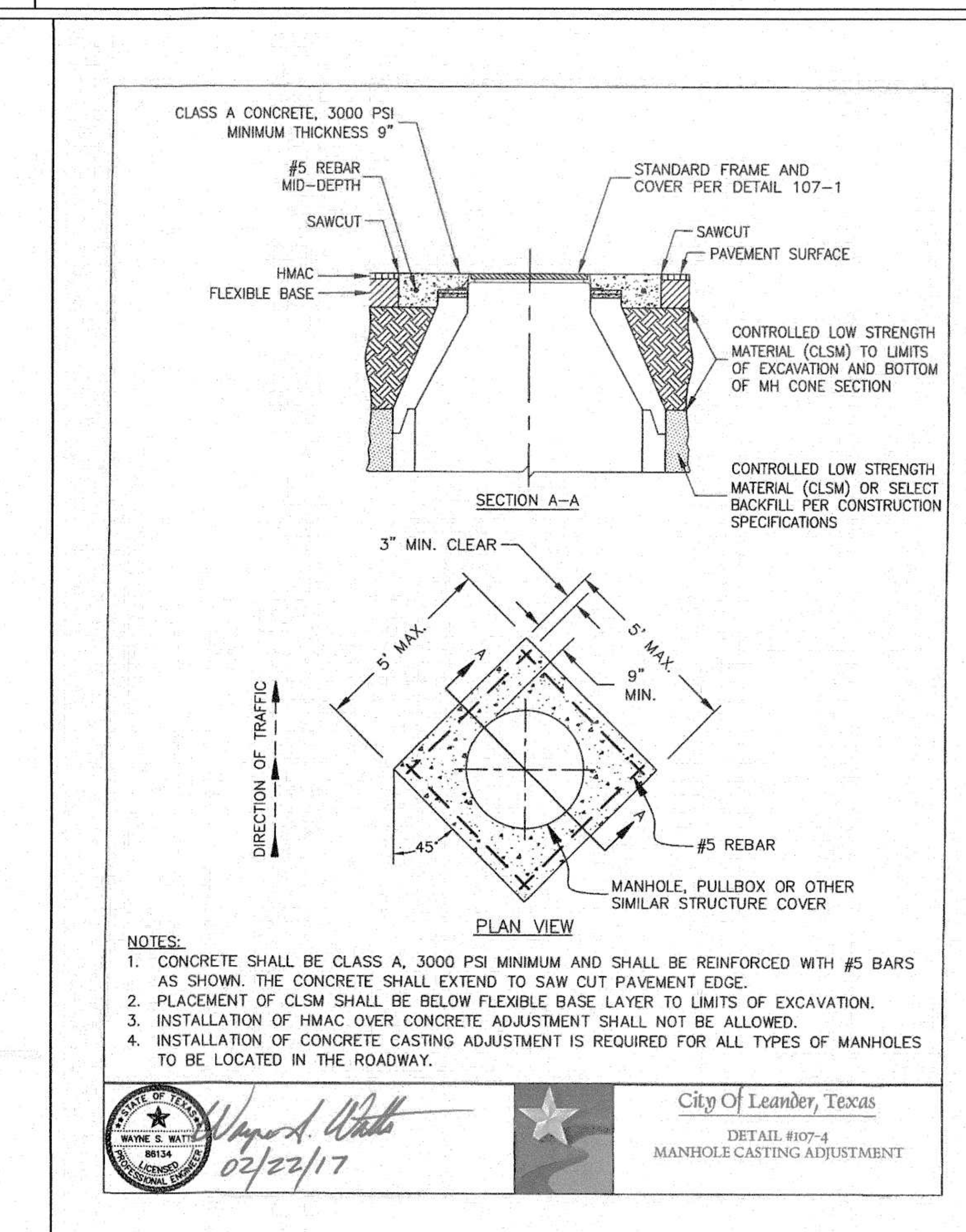

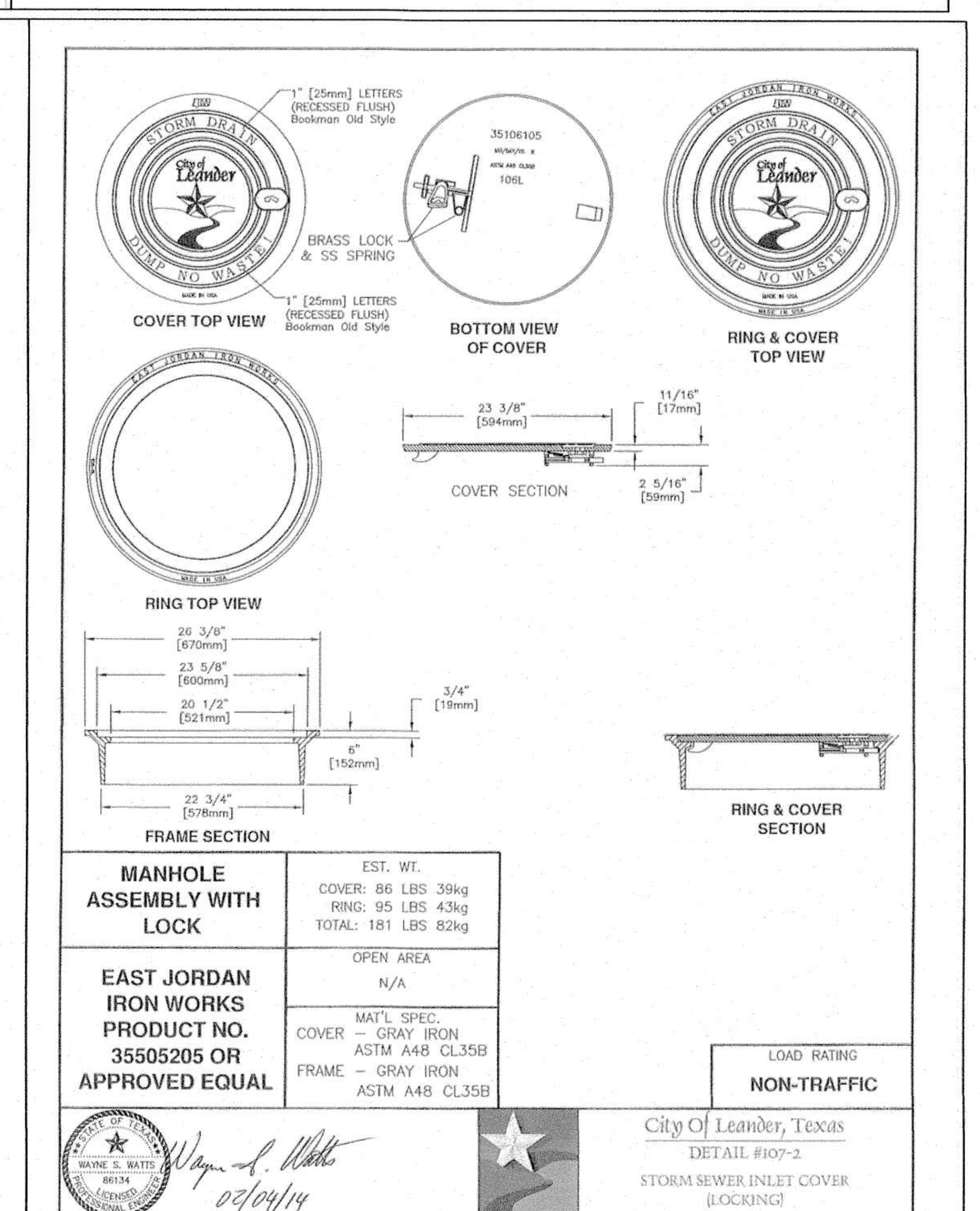

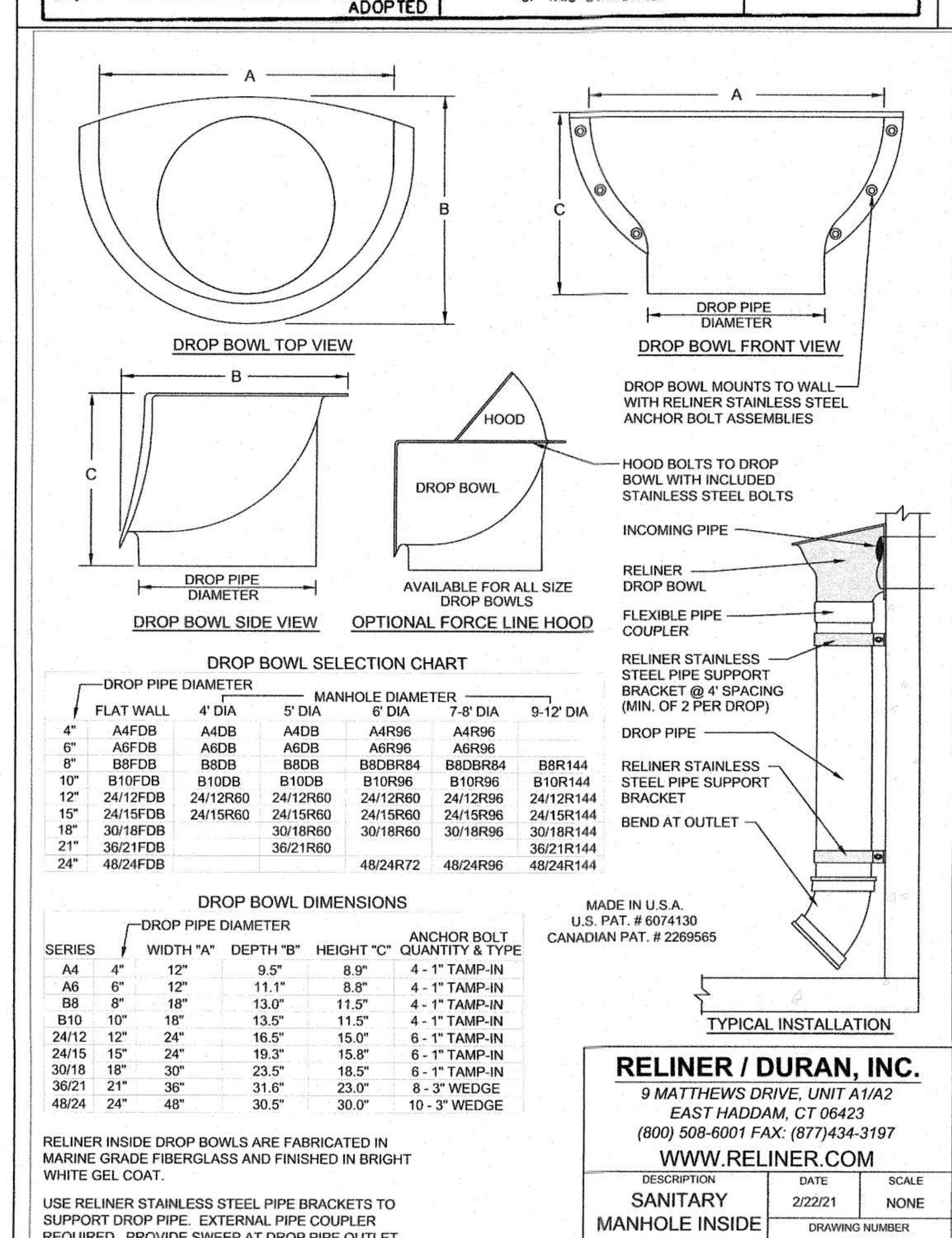

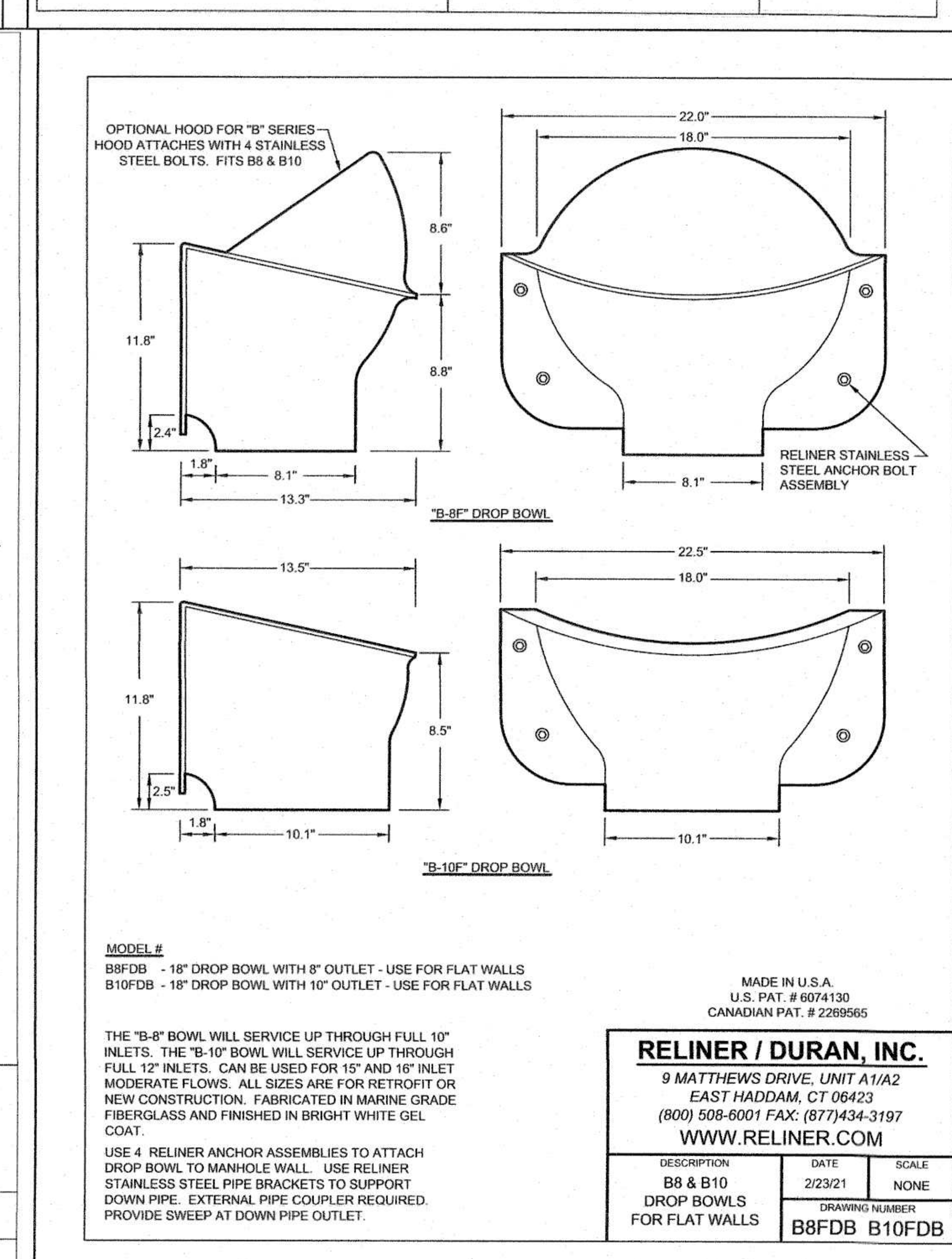

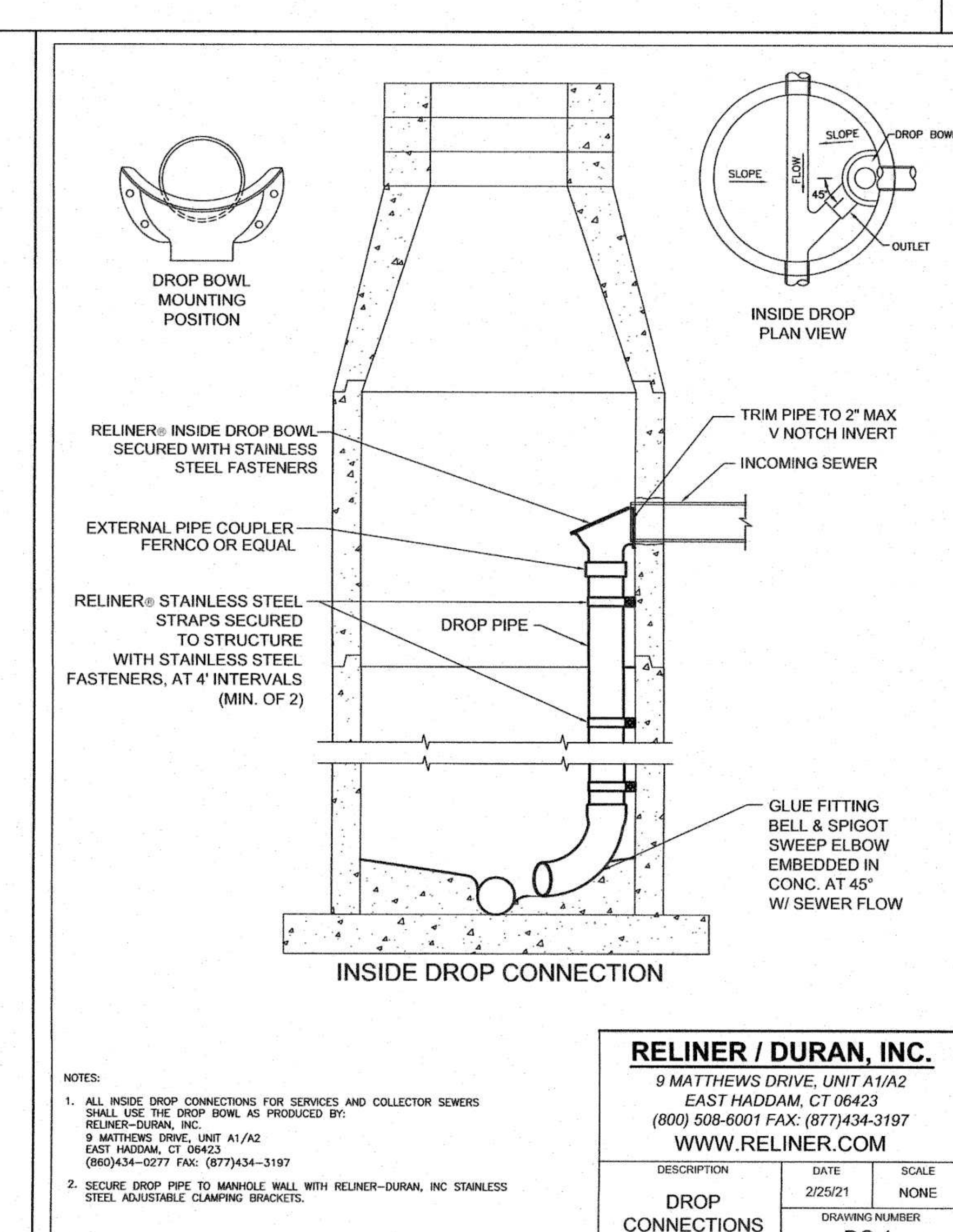

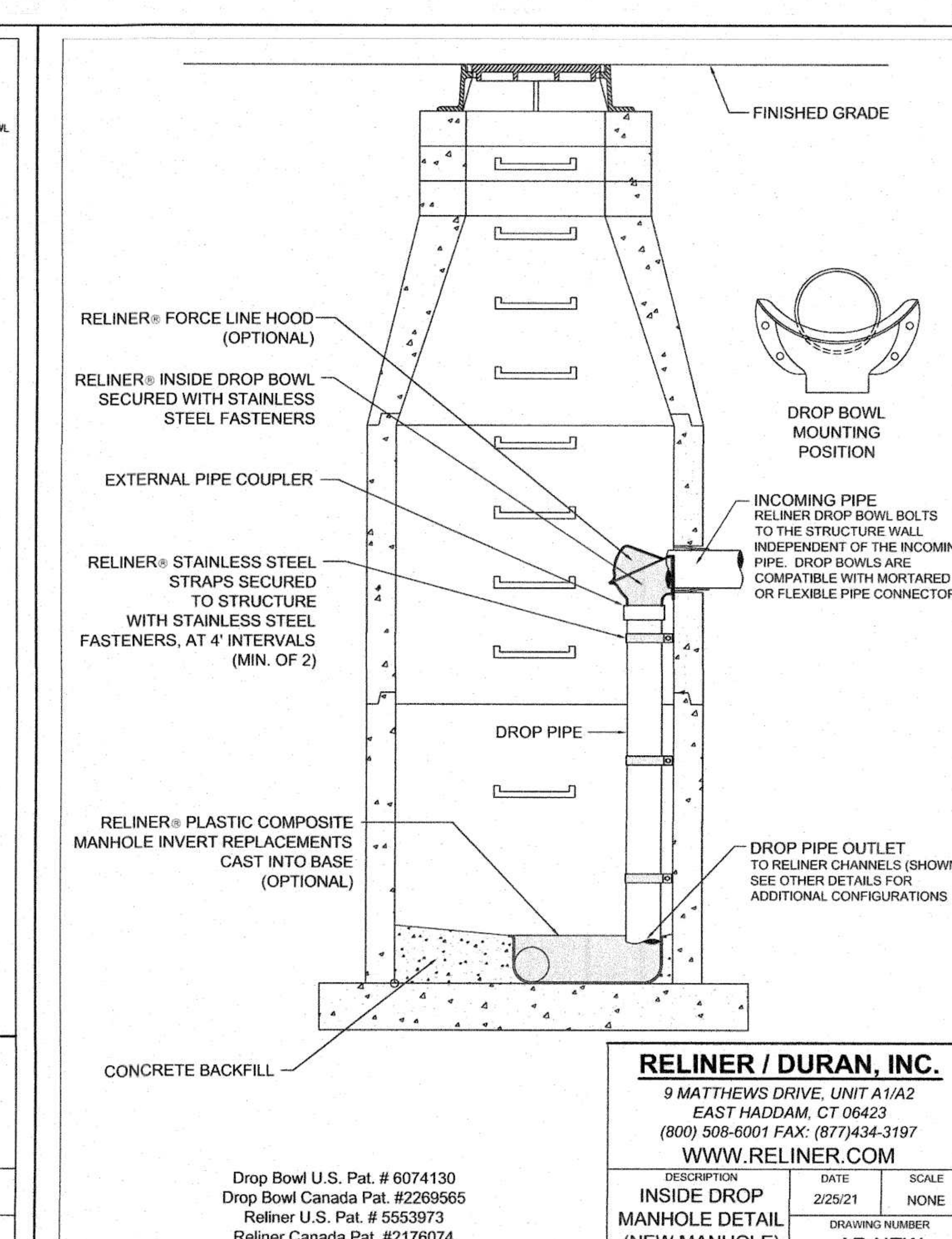

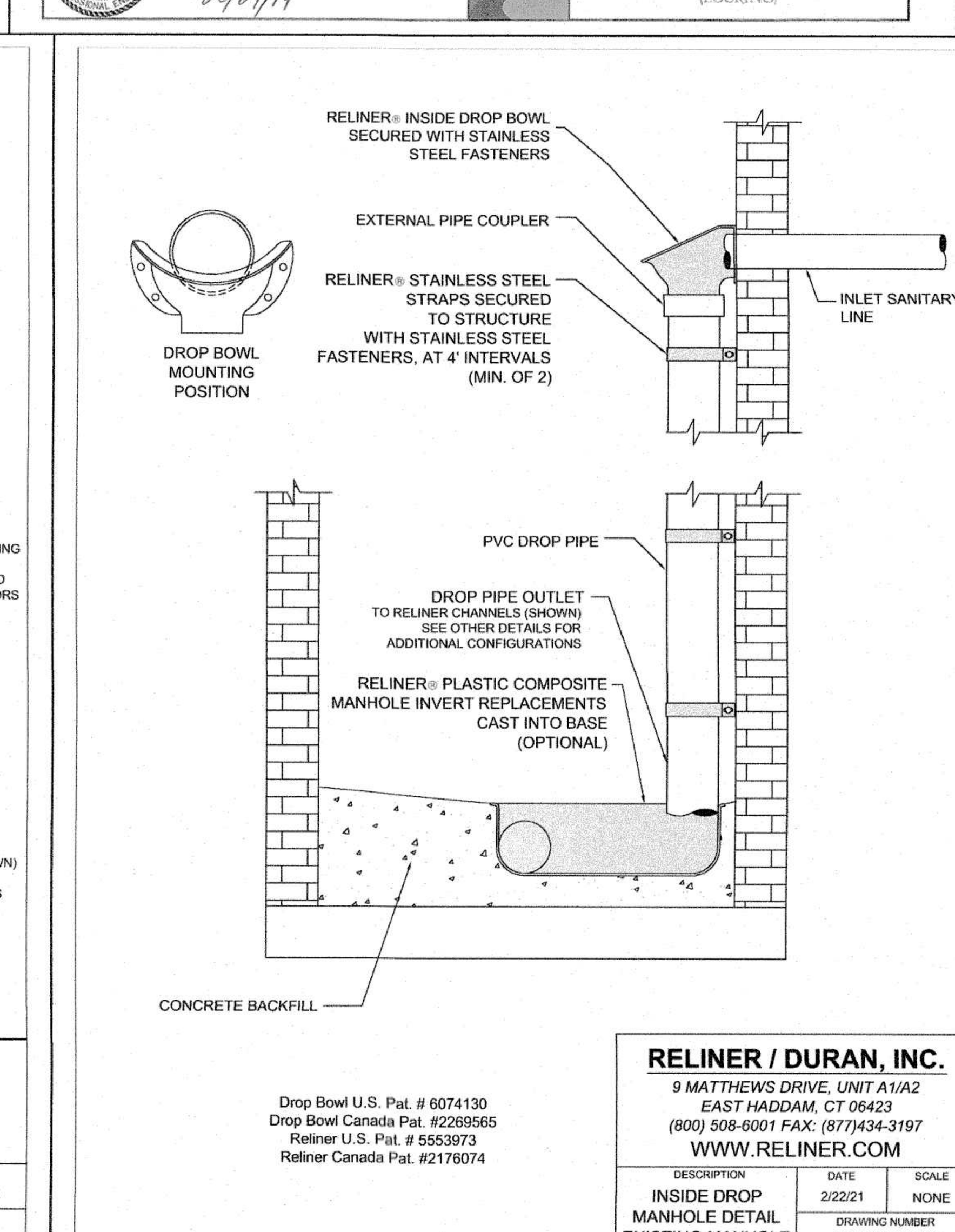

PALMERA BLUFF SUBDIVISION SECTION 7 & 8

GENERAL DETAILS

REVISIONS			
NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DT2.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/19/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
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Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 2

SHEET NO. 63 OF 75 SHEETS

XXXX-XX-XX

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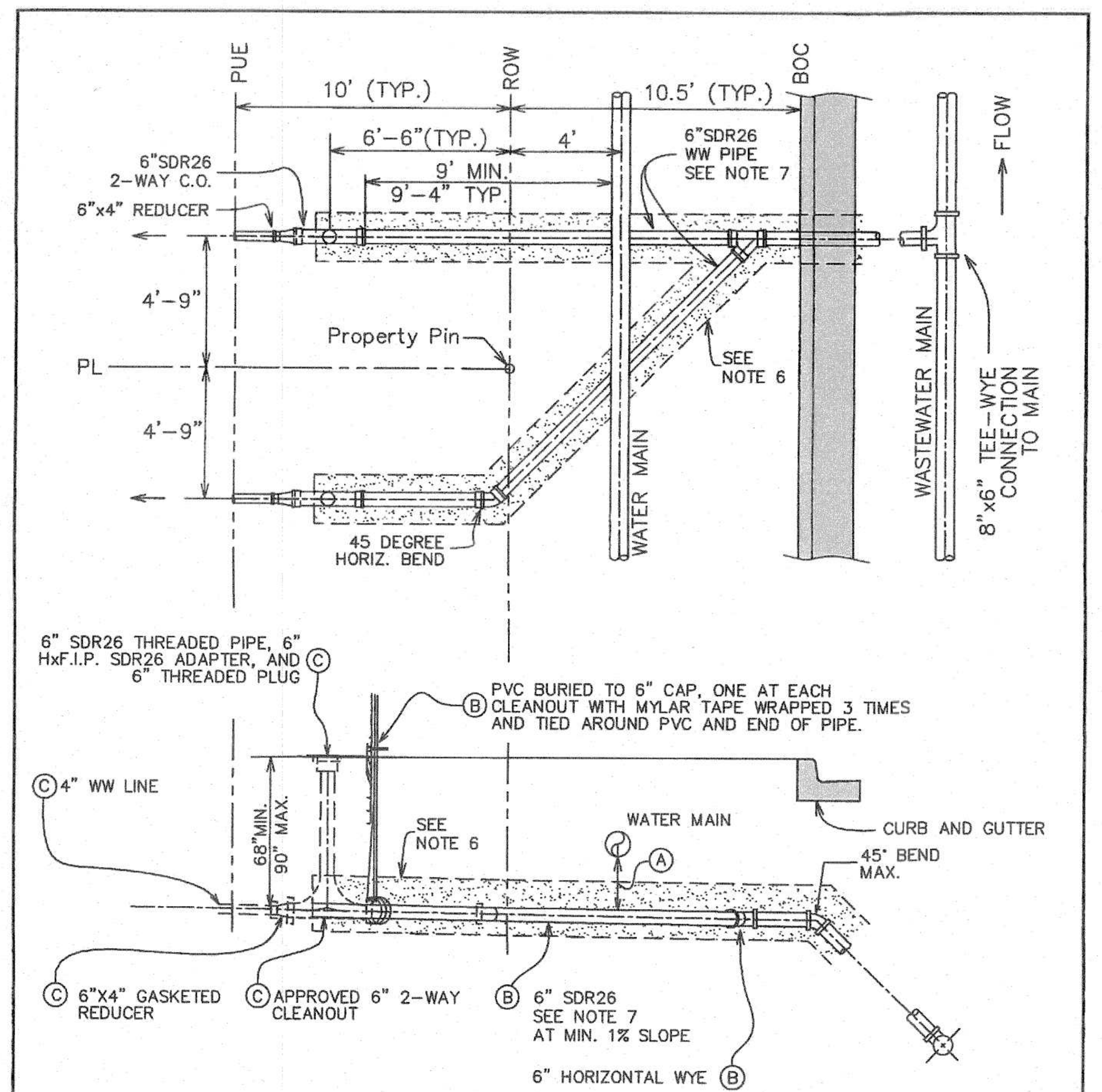


NOTES:

Ⓐ WATER MAIN SHALL CROSS ABOVE 6" WASTEWATER SERVICE, TWO-FOOT (2') MINIMUM VERTICAL SEPARATION.

Ⓑ TO BE INSTALLED AND INSPECTED DURING SUBDIVISION CONSTRUCTION. UTILITY CONTRACTOR INSTALLS SERVICE STUB WITH PLUG OR CAP.

Ⓒ 2-WAY CLEANOUTS, 6" HxF.I.P. ADAPTER, REDUCER, AND 4" SERVICE LINE INSTALLED BY BLDG. PLUMBER. PERMITS DEPARTMENT SHALL INSPECT CUSTOMER'S WASTEWATER LINE AND ALL APPURTENANCES INSTALLED BY BUILDING PLUMBER.

STATE OF TEXAS WAYNE S. WATTS 86134 LICENSED PROFESSIONAL ENGINEER — 09/26/18

City Of Leander, Texas
DETAIL #101-2
1 OF 2
WASTEWATER SERVICE CONNECTIONS

NOTES

1. DURING SUBDIVISION CONSTRUCTION, UTILITY CONTRACTOR INSTALLS WASTEWATER CONNECTION TO MAIN, 6" HORIZONTAL WYE FOR DOUBLE SERVICES, 6" SERVICE BRANCH, AND PLUG(S) FOR 6" SERVICE BRANCH STUB. CONTRACTOR TIES MYLAR TAPE TO END OF 6" STUB, WRAPS 3 TIMES AROUND LENGTH OF PVC BURIED TO THE DEPTH OF THE 6" STUB AND TIES TO TOP OF PVC EXTENDING A MINIMUM OF 2 FEET ABOVE GROUND.

   ALL WASTEWATER PIPING SHALL HAVE ELASTOMERIC GASKET TYPE JOINTS AND SHALL SLOPE DOWNWARD TO MAIN 1% (1/8" PER FOOT) MINIMUM TO 45° MAXIMUM. DEPTH OF SERVICE STUB AT PROPERTY LINE WILL BE SHOWN ON PLANS BY ENGINEER IF GREATER THAN 8', OTHERWISE THE INSTALLED DEPTH WILL TYPICALLY BE 6' TO 8'. IF WASTEWATER SERVICE LINE TO MAIN REQUIRES DEFLECTION EXCEEDING 45°, REFER TO DETAIL 520-6. ALL INSTALLATIONS SHALL BE MADE IN ACCORDANCE WITH INFORMATION SHOWN ON APPLICABLE STANDARD DRAWINGS AND WILL BE INSPECTED BY CITY OF LEANDER CONSTRUCTION INSPECTION PERSONNEL.

2. CUSTOMER REMOVES PLUG FROM 6" SERVICE LINE STUB, INSTALLS 6" 2-WAY CLEANOUT, 6" BY 4" REDUCER, RISER FOR CLEANOUT, 6" HxF.I.P. ADAPTER, 6" THREADED PLUG, AND 4" SERVICE LINE TO STRUCTURE. IF WASTEWATER WILL NOT SATISFACTORILY FLOW BY GRAVITY FROM STRUCTURE TO SEWER SERVICE STUB & WASTEWATER MAIN, PUMP EQUIPMENT MUST BE PROVIDED BY THE CUSTOMER AS PART OF CUSTOMER'S WASTEWATER SYSTEM.

3. CUSTOMER IS RESPONSIBLE FOR PUBLIC PIPING SYSTEM UNTIL WASTEWATER IS CONNECTED. ANY MISSING OR DAMAGED PARTS SHALL BE REINSTALLED BY CUSTOMER WHO SHALL GUARANTEE, FOR A PERIOD OF TWO (2) YEARS FROM DATE OF ACCEPTANCE, THAT CONNECTIONS TO CITY SYSTEMS ARE FREE FROM DEFECTS IN WORKMANSHIP OR MATERIAL. CUSTOMER ALSO HAS THE RESPONSIBILITY TO ASSURE THAT ALL 2-WAY-CLEANOUTS REMAIN CLEAR OF SIDEWALKS AND OTHER OBSTRUCTIONS.

4. CITY OF LEANDER ACTIVITY IS LIMITED TO INSPECTION OF CONNECTIONS TO THE CITY'S WASTEWATER SYSTEM. FOR MAINTENANCE PURPOSES, THE CITY'S RESPONSIBILITY ENDS AT THE CUSTOMER'S WASTEWATER CONNECTION TO THE 2-WAY-CLEANOUT.

5. 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 SECTION 510.3 (14) UNLESS OTHERWISE NOTED ON THIS DETAIL; 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 MINIMUM COVER BELOW FINAL STREET GRADE OF 42". ANY EXCEPTION MUST BE SPECIFICALLY APPROVED BY THE ENGINEER.

6. ALL SANITARY SEWER PIPE WITHIN 9' OF WATER MAINS SHALL BE BEDDED IN CEMENT STABILIZED SAND PER TCEQ CHAPTER 217 & 290 REQUIREMENTS. BEDDING SHALL EXTEND A MINIMUM OF 12" ABOVE PIPE, 4" BELOW PIPE, AND 12" BEYOND JOINTS AT EACH END.

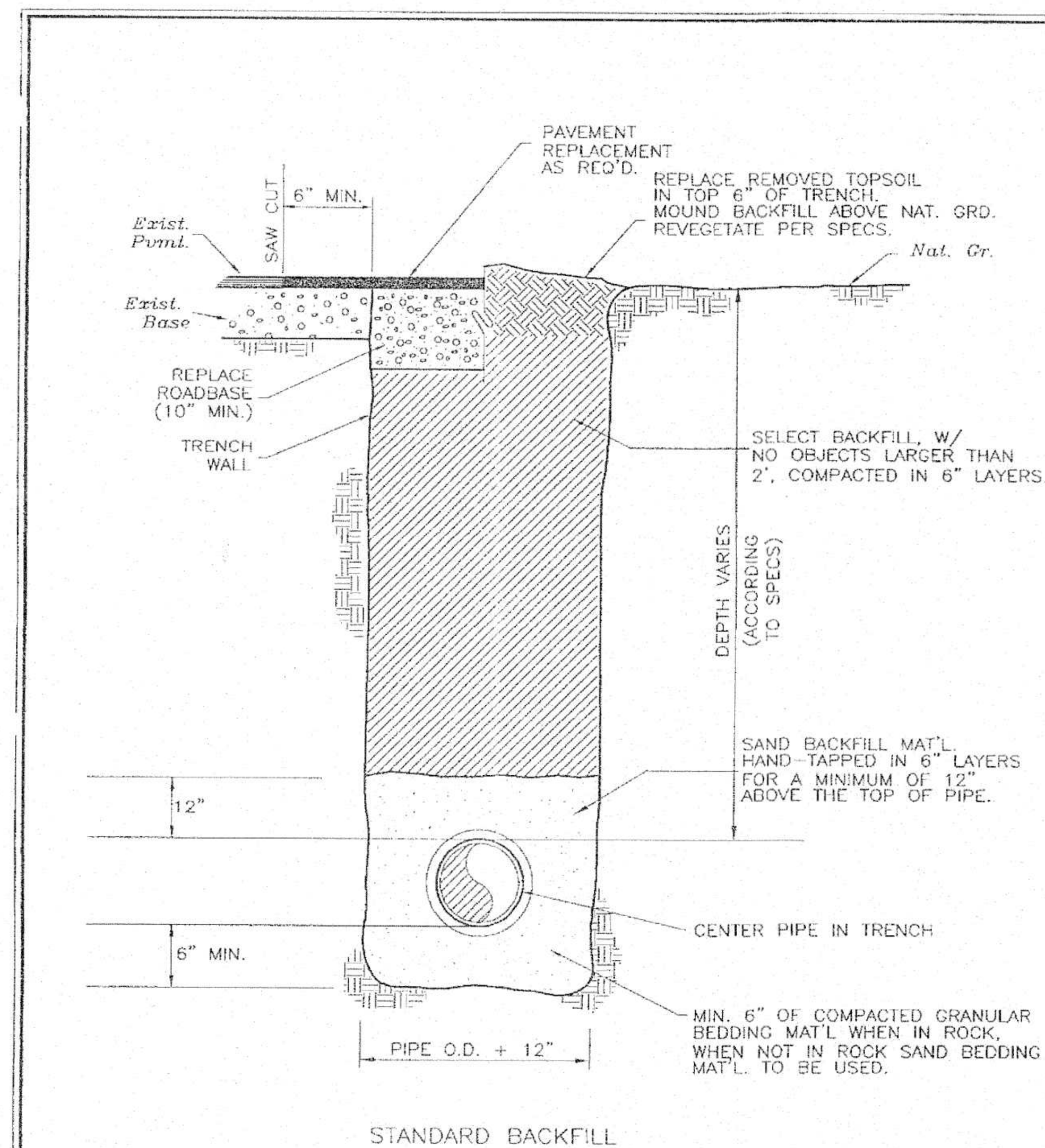
7. PIPE MATERIAL FOR WASTEWATER SERVICES SHALL BE 6" SDR-26 PVC D2241 160 PSI RATED.

8. NO METER BOX OR CLEAN OUT SHALL BE SET IN SIDEWALK OR DRIVEWAY AREA WITHOUT WRITTEN APPROVAL FROM THE CITY ENGINEERING DEPT.

9. NO JOINTS SHALL BE PERMITTED BETWEEN THE 6"x6" HORIZONTAL WYE AND THE 6" 2-WAY CLEANOUT EXCEPT FOR THE 6" 45-DEGREE BEND REQUIRED FOR DOUBLE SERVICES.

STATE OF TEXAS WAYNE S. WATTS 86134 LICENSED PROFESSIONAL ENGINEER — 09/26/18

City Of Leander, Texas
DETAIL #101-2
2 OF 2
WASTEWATER SERVICE CONNECTIONS

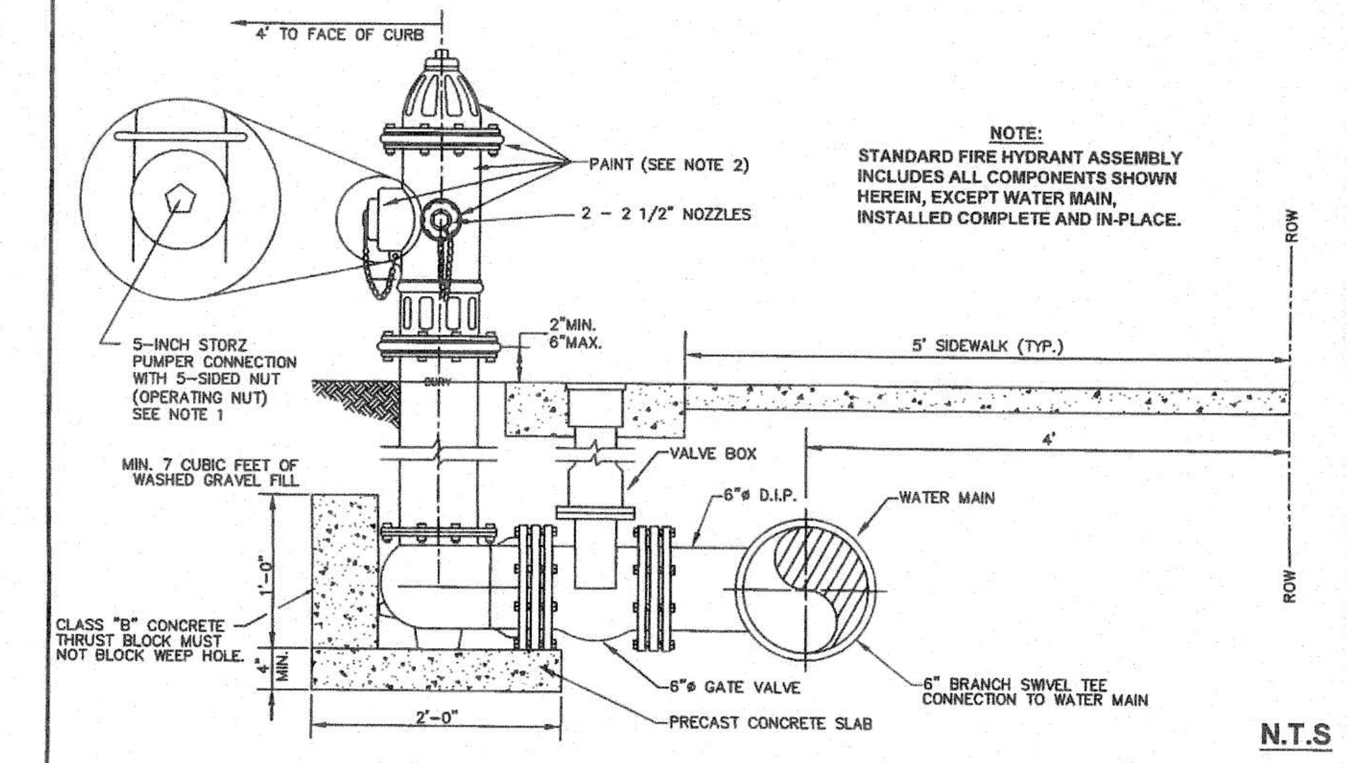


STANDARD BACKFILL

CITY OF LEANDER, TEXAS

Scale: NTS	Approved / Date	Drawn by: SDK
TYPICAL PIPE TRENCH AND EMBEDMENT		Detail No. 104-1

FIRE HYDRANTS LACKING INTEGRAL STORZ CONNECTOR SHALL BE REJECTED (NO STORZ ADAPTERS ALLOWED)



N.T.S

NOTES:

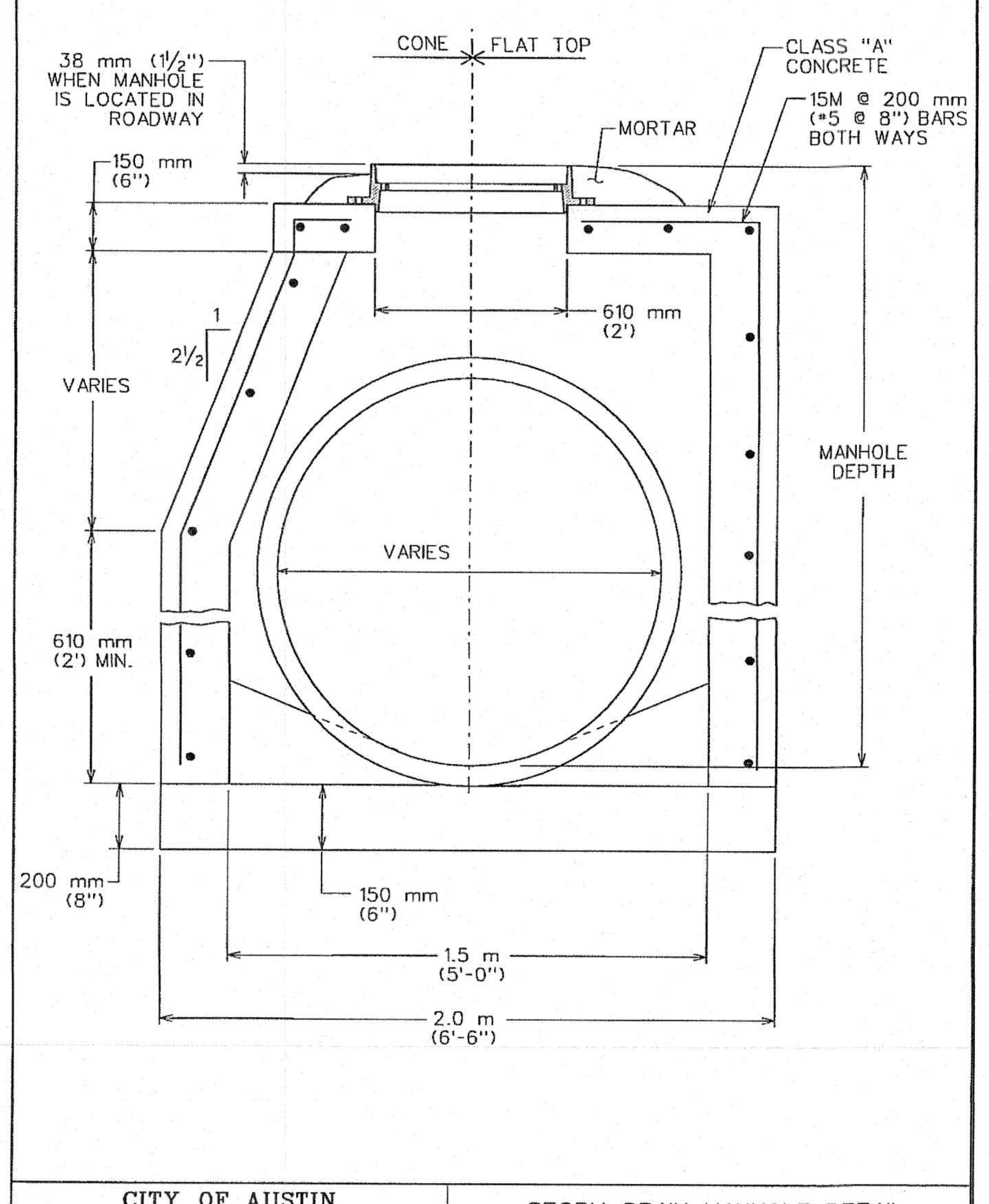
1. FIRE HYDRANT SHALL BE CLOW MEDALLION F2545, AMERICAN DARLING B-84-B-5, MUELLER SUPER CENTURION, EJ 5CD250 WATERMASTER, KENNEDY K81D GUARDIAN, AVK 2780, OR APPROVED EQUAL VIA SUBMITTAL PROCESS. THE PRIMARY FEATURES REQUIRED INCLUDE: FACTORY INSTALLED INTEGRAL 5-INCH STORZ PUMPER NOZZLE; 1.5-INCH PENT OPERATING NUT ON NOZZLE CAP; OPEN LEFT; FACTORY PAINTED.
2. HYDRANTS SHALL BE FACTORY PAINTED WITH FLYNT ALUMINUM SILVER PAINT OR SHERWIN WILLIAMS SILVER B59S11. HYDRANTS WILL NOT BE ACCEPTED IF PAINTED AFTER DELIVERY OR IF PAINT IS FLAT IN APPEARANCE.
3. ALL DUCTILE OR CAST IRON FITTINGS AND/OR PIPE SHALL BE POLYWRAPPED.
4. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE. ALL FITTINGS SHALL BE EQUIPPED WITH JOINT RESTRAINT "MEGALUG" OR APPROVED EQUAL. ALL ANCHOR FITTING TO BE CONCRETE THRUST BLOCKED.
5. BLUE, BI-DIRECTIONAL REFLECTIVE PAVEMENT MARKER, ULTIMATE WET NIGHT VISIBILITY SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION AT THE CORRESPONDING ROADWAY STATION OFFSET 6" (SIX INCHES) FROM CENTER OF STREET TO THE SIDE HYDRANT IS LOCATED. AT INTERSECTIONS, MARKERS SHALL BE PLACED ON BOTH ROADWAYS ADJACENT TO HYDRANT.

LOCATION:

6. SET F.H. ON LOT LINE (EXTENDED WHEN POSSIBLE)
7. F.H. LOCATED AT STREET INTERSECTIONS SHALL BE PLACED A MINIMUM OF TEN FEET (10') FROM RADIUS TANGENT POINT
8. NO OBSTRUCTIONS SHALL BE PERMITTED WITHIN THREE FEET (3') IN ALL DIRECTIONS FROM F.H.
9. 5-INCH STORZ PUMPER NOZZLE SHALL FACE THE FIRE LANE OR TRAVEL WAY UNLESS OTHERWISE NOTED.

STATE OF TEXAS WAYNE S. WATTS 86134 LICENSED PROFESSIONAL ENGINEER — 02/05/19

City Of Leander, Texas
DETAIL #101-4
STANDARD FIRE HYDRANT ASSEMBLY



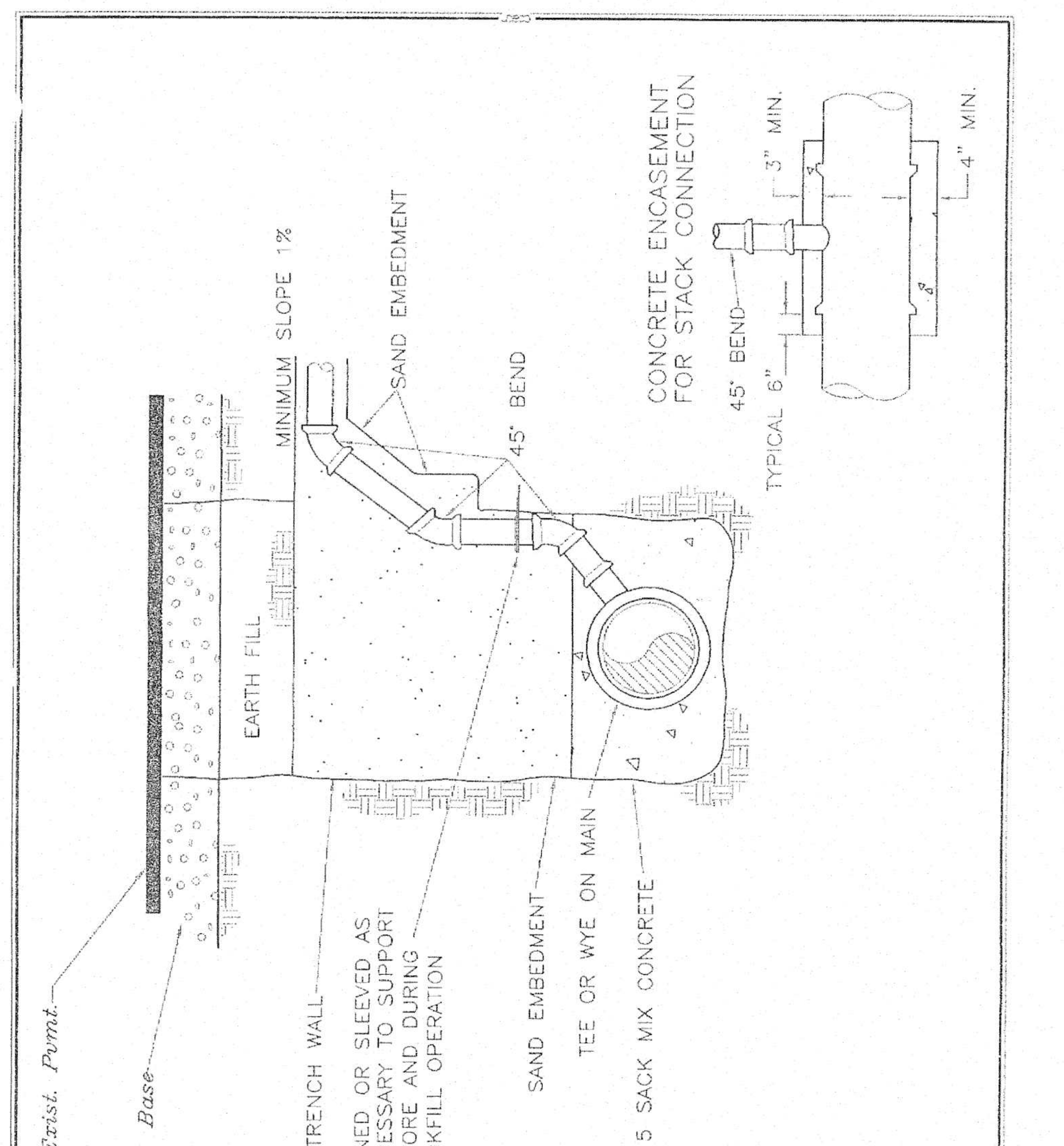
CITY OF AUSTIN
DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW

STORM DRAIN MANHOLE DETAIL

2/14/02 ADOPTED

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 506S-11



CITY OF LEANDER, TEXAS

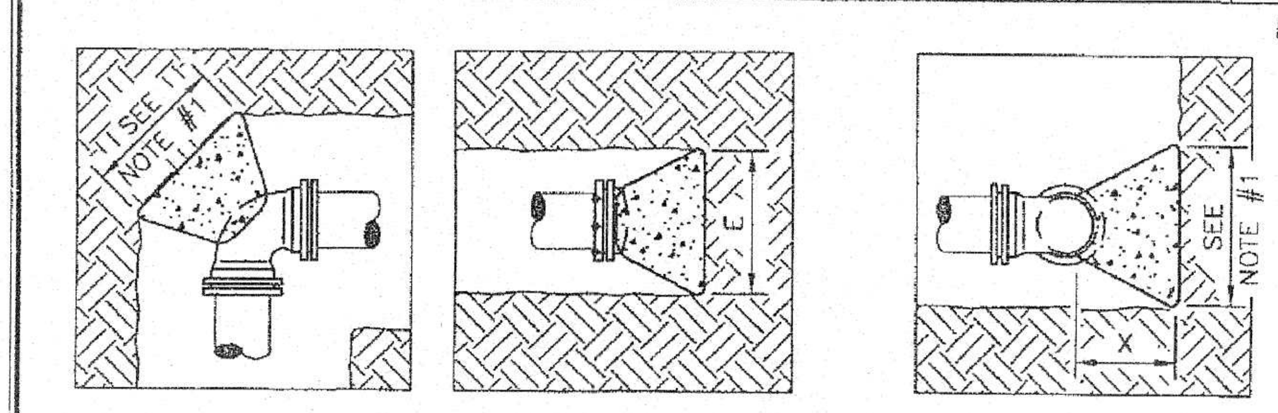
Scale: NTS	Approved / Date	Drawn by: SDK
WATER & WASTEWATER DEEP SERVICE CONNECTION		Detail No. 102-2

THRUST BLOCKING SCHEDULE

ASSUMPTIONS: LINE PRESSURE - 100 psi, ALLOWABLE BEARING - 4000 psf, SAFETY FACTOR - 3

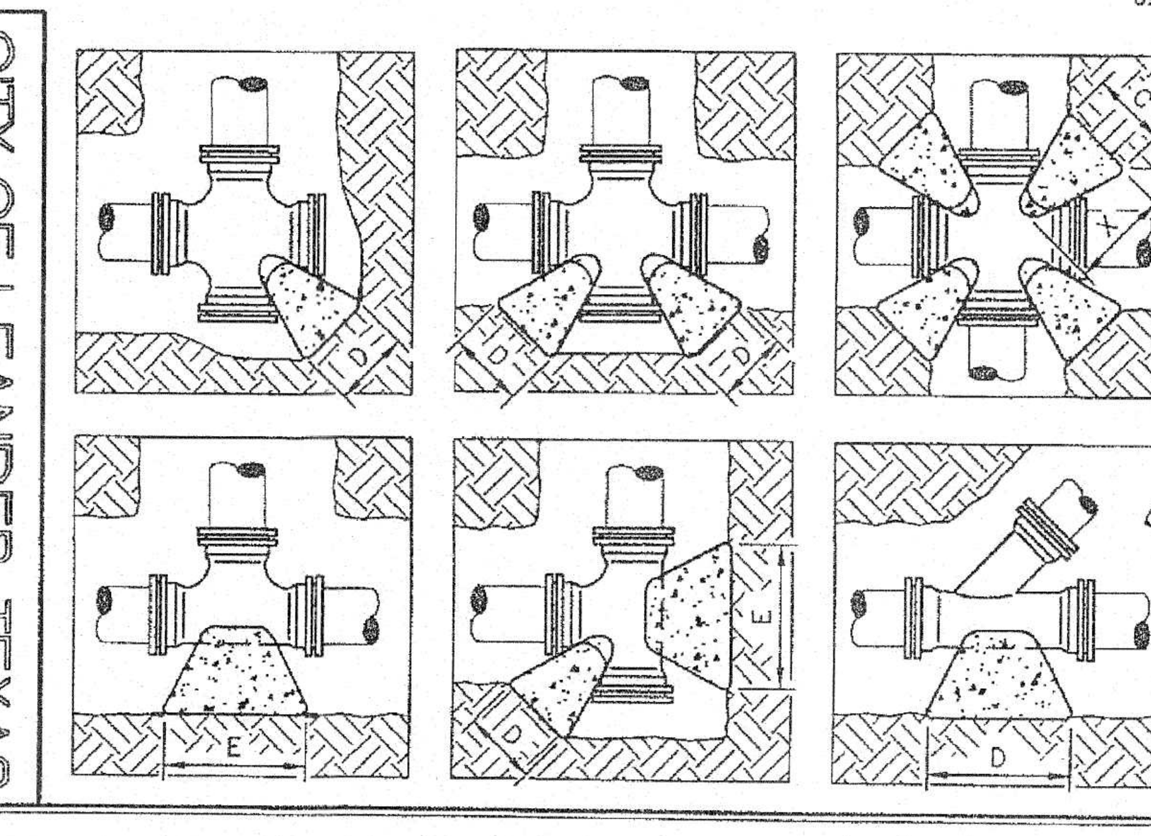
			11 1/4° BEND			22 1/2° BEND			45° BEND			90° BEND			TEE & PLUG		
PIPE DIAMETER	PIPE AREA Sq. In.	X	THRUST Lbs.	AREA Sq. Ft.	A	THRUST Lbs.	AREA Sq. Ft.	B	THRUST Lbs.	AREA Sq. Ft.	C	THRUST Lbs.	AREA Sq. Ft.	D	THRUST Lbs.	AREA Sq. Ft.	E
4"-12"	120.8	1.5'	2367	1.2	1.1'	4,712	2.4	1.5'	9,243	4.6	2.2'	17,078	8.5	2.9'	12,076	6.0	2.5'

NOTES:
1. USE A, B, C, D or E AS APPROPRIATE. REFER TO SCHEDULE.
2. ALL CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED TRENCH WALLS. DISTANCE (X) FROM PIPE FITTING TO TRENCH WALL SHALL BE AS SHOWN IN THE SCHEDULE OR A MIN. OF 12" AT THE THRUST BLOCK.
3. VERTICAL DIMENSION OF BEARING AREA AGAINST TRENCH WALL OF THRUST BLOCK SHALL BE EQUAL TO HORIZONTAL DIMENSION OF A, B, C, D, OR E AS APPROPRIATE. REFER TO SCHEDULE AND SECTION DRAWING.
4. ALL JOINTS SHALL BE TEMPORARILY JACKED WHEN POURING THRUST BLOCKS. ALL JOINTS OF FITTINGS SHALL BE KEPT FREE OF ANY CONCRETE.
5. ALL CONCRETE THRUST BLOCKS SHALL CONSIST OF A MIXTURE OF 1:2:6 OF CEMENT TO WASHED SAND TO GRAVEL & SHALL BE CURED FOR A MIN. OF 24 HRS.
6. CONCRETE THRUST BLOCKS SHALL APPLY TO ALL PIPE FITTINGS.



PLAN

SECTION



CITY OF LEANDER, TEXAS

Scale: NTS	Approved / Date	Drawn by: RPW
THRUST BLOCKING DETAILS		Detail No. 103-1

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

GENERAL DETAILS

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/1/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DT3.dwg

STATE OF TEXAS T. W. HOYSA 100072 LICENSED PROFESSIONAL ENGINEER — 4-12-23

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FRN - F-1386

JOB NUMBER: A311-0415

DT 3

SHEET NO. 64 OF 75 SHEETS

XXXX-XX-XX

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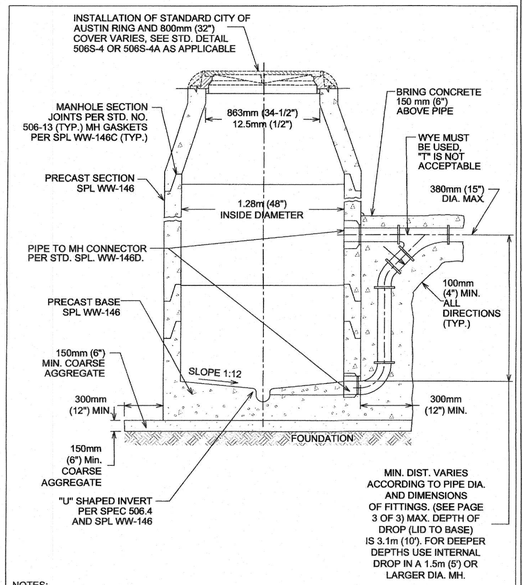
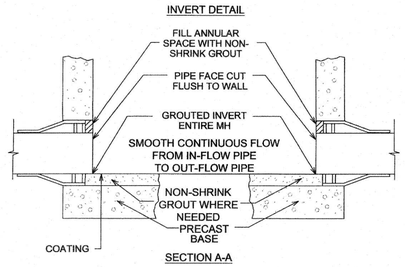
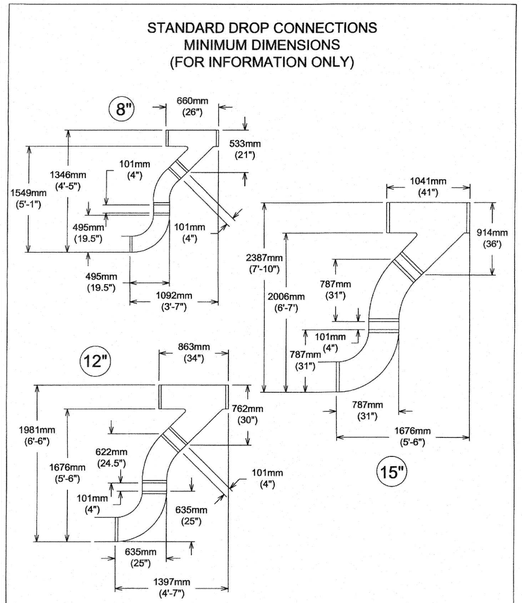


NOTES:
1. THE MANHOLE BASE SHALL BE BEDDED ON 150mm (6") COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MANHOLE FOUNDATION SHALL MEET OR EXCEED STD. SPEC 506.5B.

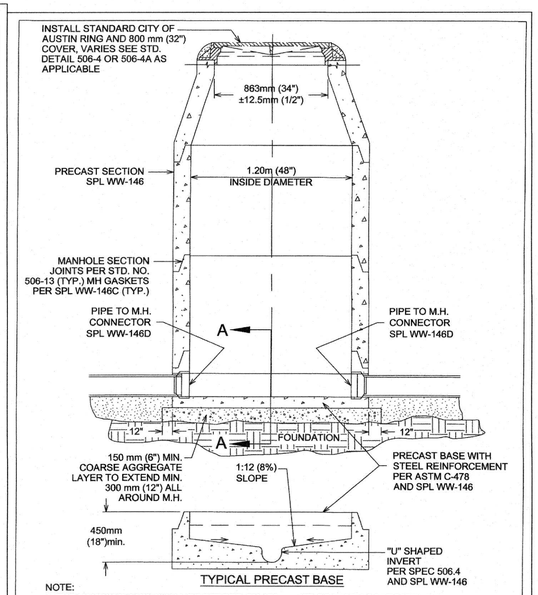
CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Bowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 1 OF 3



CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Bowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 2 OF 3

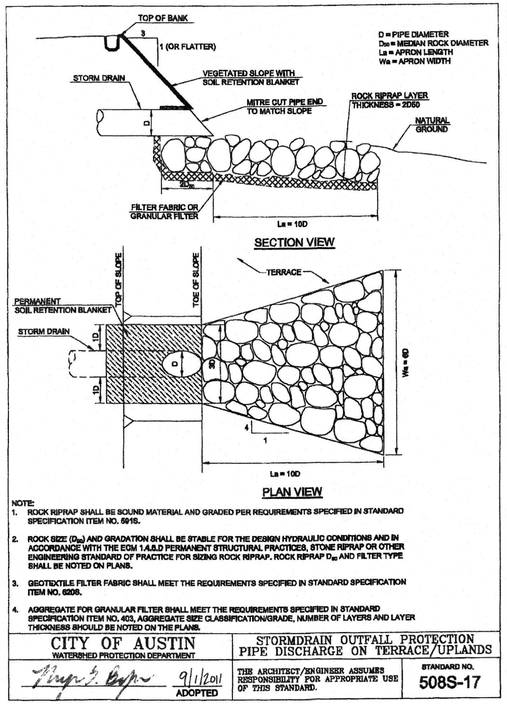


CITY OF AUSTIN AUSTIN WATER UTILITY	PRECAST MANHOLE WITH DROP INLET ON PRECAST BASE	
Kathi K Bowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-8 3 OF 3



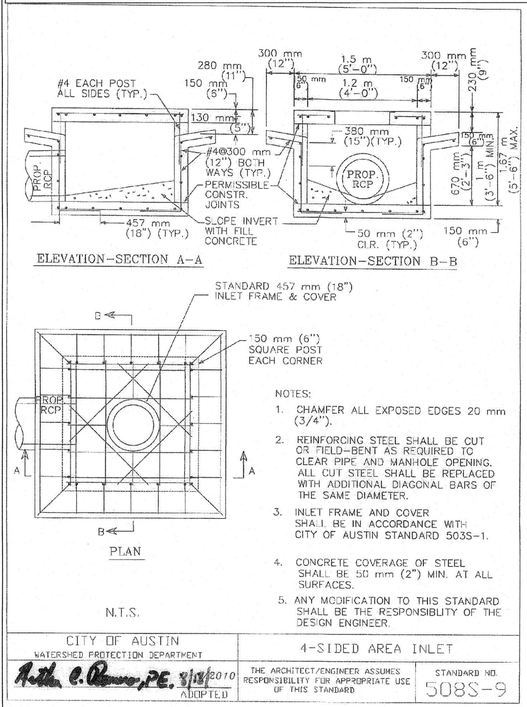
NOTE:
1. THE MANHOLE BASE SHALL BE BEDDED ON 150 mm (6") COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MH FOUNDATION SHALL MEET OR EXCEED STD. SPEC. 506.5B.

CITY OF AUSTIN AUSTIN WATER UTILITY	WASTEWATER MANHOLE ON PRECAST BASE	
Kathi K Bowers 8/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 506S-10



NOTE:
1. ROCK RIPRAP SHALL BE SOUND MATERIAL AND GRADED PER REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 6916.
2. ROCK SIZE (D_{50}) AND GRADATION SHALL BE STABLE FOR THE DESIGN HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH THE EOM 1.A.8.D PERMANENT STRUCTURAL PRACTICES, STONE RIPRAP OR OTHER ENGINEERING STANDARD OF PRACTICE FOR SIZING ROCK RIPRAP. ROCK RIPRAP D_{50} AND FILTER TYPE SHALL BE NOTED ON PLANS.
3. GEOTEXTILE FILTER FABRIC SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 6206.
4. AGGREGATE FOR GRANULAR FILTER SHALL MEET THE REQUIREMENTS SPECIFIED IN STANDARD SPECIFICATION ITEM NO. 403, AGGREGATE SIZE CLASSIFICATION/GRADE, NUMBER OF LAYERS AND LAYER THICKNESS SHOULD BE NOTED ON THE PLANS.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	STORMDRAIN OUTFALL PROTECTION PIPE DISCHARGE ON TERRACE/UPLANDS	
Virgil J. Taylor 9/1/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-17



NOTES:
1. CHAMFER ALL EXPOSED EDGES 20 mm (3/4").
2. REINFORCING STEEL SHALL BE CUT OR FIELD-BENT AS REQUIRED TO CLEAR PIPE AND MANHOLE OPENING. ALL CUT STEEL SHALL BE REPLACED WITH ADDITIONAL DIAGONAL BARS OF THE SAME DIAMETER.
3. INLET FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. CONCRETE COVERAGE OF STEEL SHALL BE 50 mm (2") MIN. AT ALL SURFACES.
5. ANY MODIFICATION TO THIS STANDARD SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	4-SIDED AREA INLET	
Ruth C. Rowe, P.E. 9/12/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 508S-9

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
GENERAL DETAILS

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DT4.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 4

SHEET NO. 65
OF 75 SHEETS

Date/Time : Wed, 12 Apr 2023 - 2:55pm
User Name : ebopez
Path/Name : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 DT4.dwg

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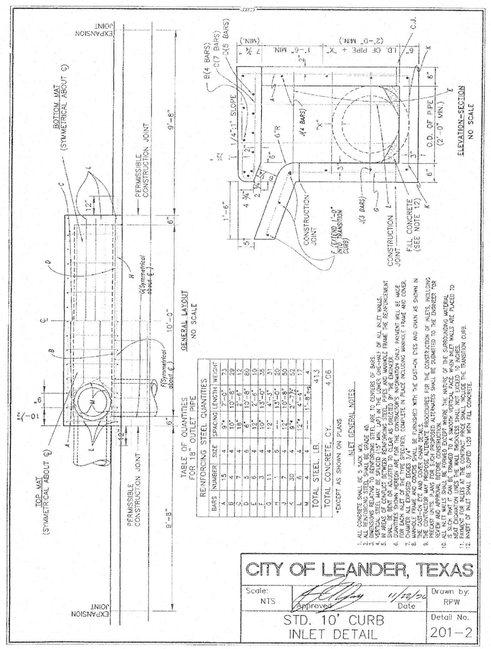
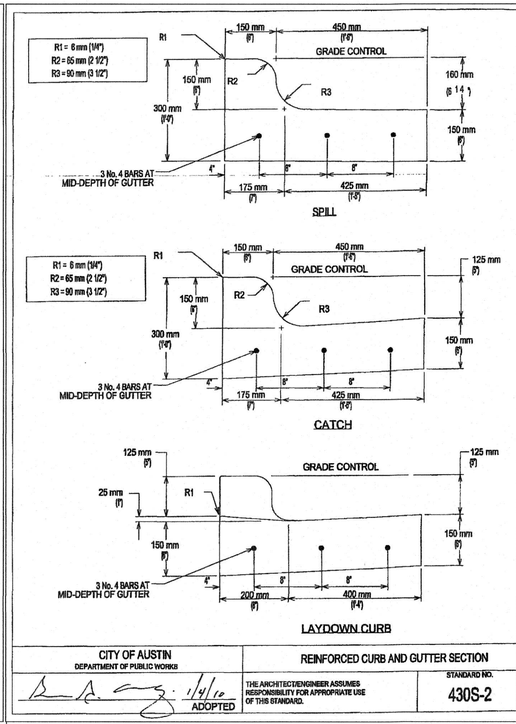




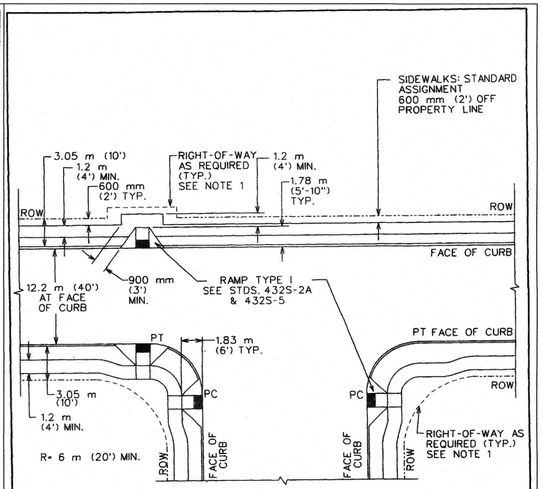
CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

REINFORCED CURB AND GUTTER SECTION

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 430S-2

ADOPTED 1/1/10



TYPICAL PLAN

CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPE 1 CURB RAMPS - "T" INTERSECTION

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 432S-3A 1 OF 2

ADOPTED 3/3/06

GENERAL NOTES:

1. THIS STANDARD IS APPLICABLE FOR RAMP CONSTRUCTION WITHIN RIGHT-OF-WAY OR EASEMENT ONLY.
2. THIS STANDARD REPRESENTS A TYPICAL CURB RAMP DESIGN FOR A NEWLY CONSTRUCTED INTERSECTION WITH A 6 m (20') RADIUS. LARGER RADII, STREET GRADES, LIMITED SIGHT DISTANCES, STREET CLASSIFICATION, SIGNALIZATION AND OTHER FACTORS MAY REQUIRE THE ENGINEER OR DESIGNATED REPRESENTATIVE TO MODIFY THIS STANDARD. SUFFICIENT RIGHT-OF-WAY SHALL BE DEDICATED SUCH THAT THE ENTIRE CURB RAMP, INCLUDING LANDING, AND THE INTER-CONNECTING SIDEWALK ARE CONTAINED WITHIN THE RIGHT-OF-WAY.
3. THE CURB, GUTTER AND RAMP SYSTEM SHALL BE CONFIGURED TO MAINTAIN ALL RUNOFF FROM A 25 YEAR FREQUENCY STORM WITHIN THE RIGHT-OF-WAY (DRAINAGE CRITERIA MANUAL SECTION 1.2.2.B). WHEN THERE IS AN ELEVATION DIFFERENCE BETWEEN THE BOTTOM OF RAMPS (IE. ELEVATION AT THE GUTTER) WITHIN A QUADRANT OF AN INTERSECTION, THE LOWER ELEVATION RAMP SHALL BE CONSTRUCTED WITH A POSITIVE RAMP SLOPE OF 1:12 IN ACCORDANCE WITH STANDARDS 432S-5, 432S-5A AND 432S-5B.
4. STANDARD ASSIGNMENT OF SIDEWALKS IS 600 mm (2') OFF PROPERTY LINE, EXCEPT AS INDICATED ON THE DRAWINGS.
5. ALTHOUGH CURB RAMPS MAY BE PLACED WITHIN THE RADIUS, PLACING THE RAMP OUTSIDE OF THE RADIUS WILL ALLOW FOR THE GREATEST DIFFERENCE IN ELEVATION BETWEEN THE RAMPS.
6. WINGS ARE REQUIRED ONLY IF PEDESTRIANS WOULD NORMALLY CROSS THE RAMP.
7. LANDINGS SHALL BE FLAT AND MATCH PT, PC OR TOP OF CURB ELEVATION.
8. CURB RAMPS WILL BE PERPENDICULAR TO ROADWAY CENTERLINES AND SHALL ALIGN WITH EACH OTHER.
9. GRADES ON SIDEWALKS LEADING TO OR FROM THE RAMPS SHALL FOLLOW CURB GRADES.
10. THE SLOPE OF THE SIDEWALK WHICH IS LOCATED WITHIN THE RADIUS AND CONNECTS TWO CURB RAMPS SHALL NOT EXCEED 1:20. THE DEVELOPER, AS PART OF THE CURB RAMP INSTALLATION, SHALL CONSTRUCT THIS CONNECTING SIDEWALK.
11. STRIPING AND SIGNAGE NOT REQUIRED IN ALL INSTANCES. STOP BARS, IF REQUIRED, SHALL BE LOCATED 1.2 m (4') FROM CROSSWALK.
12. IF A MEDIAN EXTENDS INTO THE CROSSWALK AREA, AN OPENING SHALL BE PROVIDED IN THE MEDIAN THE SAME WIDTH AS THE CURB RAMP.
13. CURB INLETS SHALL NOT BE LOCATED WITHIN 3.0 m (10') OF A CURB RAMP.
14. GUTTER SHALL PROVIDE SMOOTH TRANSITION TO RAMPS.

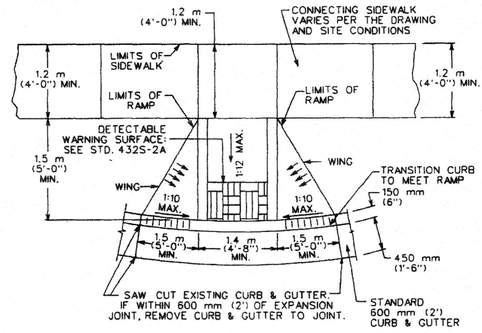
CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPE 1 CURB RAMPS - "T" INTERSECTION

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 432S-3A 2 OF 2

ADOPTED 3/13/06



CITY OF AUSTIN
DEPARTMENT OF PUBLIC WORKS

TYPE 1 SIDEWALK CURB RAMP

THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.

STANDARD NO. 432S-5

ADOPTED 9/14/05

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
GENERAL DETAILS

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 DT5.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
1/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 5

SHEET NO. 66

OF 75 SHEETS

DateTime : Wed, 12 Apr 2023 - 2:56pm
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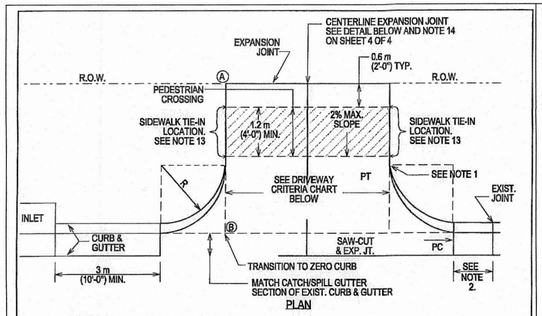
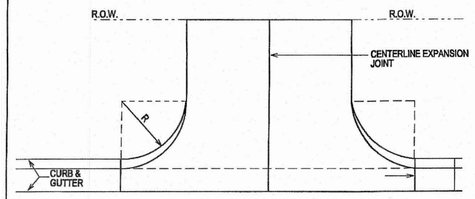


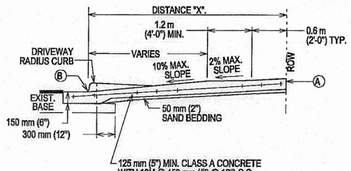
PLAN

NOTE: ALL DRIVEWAYS SHALL BE SLOPED TOWARDS THE STREET FROM THE R.O.W. LINE. ELEVATION OF POINT (A) ABOVE POINT (B) IS, TYPICALLY A MINIMUM OF 150 mm (6") PLUS 20 mm/m (2" RISE/FOOT) OVER DISTANCE "X" IN METERS (FEET).



PLAN

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
10-19-09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1 1 OF 4



125 mm (5") MIN. CLASS A CONCRETE WITH 10M @ 450 mm (#3 @ 18") C.C. OR 150 mm X 150 mm X MW10.5 X MW10 (6" X 6" X W1.5 X W1.5) MINIMUM.

REINFORCEMENT SHALL ACCURATELY PLACED AT SLAB MID-DEPTH AND HELD FIRMLY IN PLACE BY MEANS OF BAR SUPPORTS OF ADEQUATE STRENGTH AND NUMBER THAT WILL PREVENT DISPLACEMENT AND KEEP THE STEEL AT ITS PROPER POSITION DURING THE PLACEMENT OF THE P.C. CONCRETE. IN NO INSTANCE SHALL THE STEEL BE PLACED DIRECTLY ON THE SUBGRADE OR SAND CUSHION LAYER.

CROSS SECTION

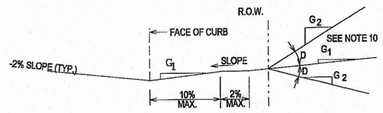
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
10-19-09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1 2 OF 4

DRIVEWAY CRITERIA	WIDTH METERS (FEET)		
USE	MIN.	*OPT.	MAX.
SIN. FAMILY	3.66 (12)	5.50 (18)	11.80 (25)
DUPLEX	4.56 (15)	5.50 (18)	11.80 (25)
TOWN HOME	4.56 (15)	5.50 (18)	11.80 (25)

*OPTIMUM

RADIUS DIMENSION METERS (FEET)			
USE	MIN.	*OPT.	MAX.
SINGLE FAMILY	1.5 (5)	1.5 (5)	3.0 (10)
DUPLEX	1.5 (5)	2.4 (8)	3.0 (10)
TOWN HOME	1.5 (5)	2.4 (8)	3.0 (10)

*OPTIMUM



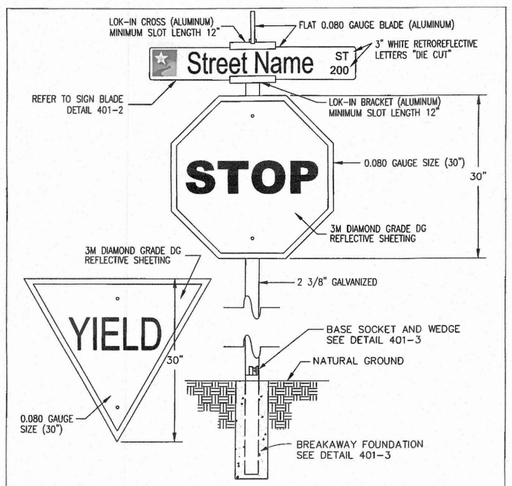
ALLOWABLE GRADES

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
10-19-09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1 3 OF 4

NOTES:

1. "ZERO" CURB AT PT OR SIDEWALK EDGE, WHICHEVER IS ENCOUNTERED FIRST. THE DRIVEWAY EDGE SHALL BE SMOOTHLY TRANSITIONED INTO THE SIDEWALK BEGINNING AT THE RADIUS PC LINE.
2. IF DIMENSION IS LESS THAN 1.5 METERS (5 FEET), REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH THE DRIVEWAY.
3. IF THE BASE IS OVER EXCAVATED WHERE THE CURB AND GUTTER WAS REMOVED, BACKFILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
4. ALL DRIVEWAYS MUST BE CONSTRUCTED WITHIN THE STREET FRONTAGE OF THE SUBJECT PROPERTY AS DETERMINED BY EXTENDING THE SIDE PROPERTY LINES TO THE CURB.
5. DRIVEWAYS SHALL NOT EXCEED 70% OF A LOTS' STREET FRONTAGE.
6. TYPE I DRIVEWAYS ARE TO BE LOCATED NO CLOSER TO THE CORNER OF INTERSECTING RIGHTS-OF-WAY THAN 60% OF PARCEL FRONTAGE OR 15 METERS (50 FEET); WHICHEVER IS LESS.
7. DRIVEWAYS SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
8. SINGLE FAMILY LOTS LIMITED TO ONE DRIVEWAY EXCEPT FOR APPROVED SEMICIRCULAR DRIVES.
9. WHEN TWO DRIVEWAYS ARE USED (ONE PER UNIT; TWO MAXIMUM) FOR DUPLEXES AND TOWN HOMES, SINGLE FAMILY STANDARDS SHALL APPLY.
10. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHOULD BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2" IS GREATER THAN 15%. "G1" PLUS "D" SHOULD NOT EXCEED 15%.
11. SEE TRANSPORTATION MANUAL SECTION 5 FOR OTHER DRIVEWAY REQUIREMENTS.
12. USE 12 mm ($\frac{1}{2}$") ASPHALT BOARD, OR OTHER APPROVED MATERIAL, FOR CURB AND GUTTER EXPANSION JOINTS.
13. THE SIDEWALK, REGARDLESS OF ITS LOCATION WITH RESPECT TO THE CURB OR PROPERTY LINE, SHALL BE CONNECTED TO THE DRIVEWAY AT THESE LOCATIONS.
14. PLACE AN EXPANSION JOINT DOWN THE CENTER OF ALL DRIVEWAYS.
15. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
10-19-09 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1 4 OF 4

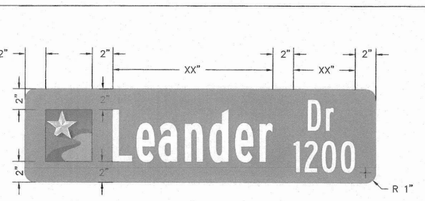


NOTES:
1. 7-FOOT MIN. HEIGHT FROM GROUND TO BOTTOM OF SIGN.
2. ALL SIGNS TO BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. ALL SIGNAGE SHEETINGS SHALL BE 3M DIAMOND GRADE DG REFLECTIVE SHEETING.

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

WAYNE S. WATTS 80134 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
11/20/15

City Of Leander, Texas
DETAIL #401-1
STREET SIGNS

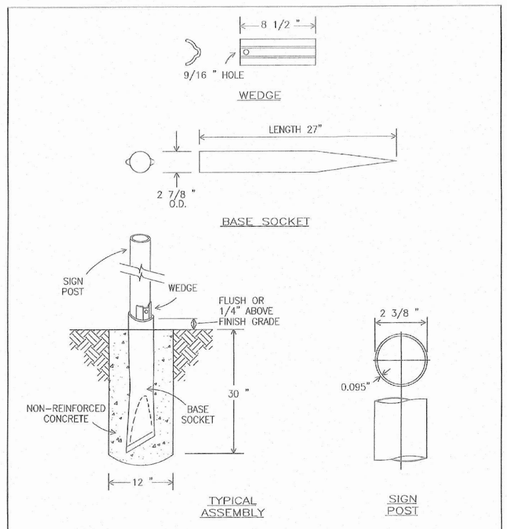


STREET NAME SIGNS:

1) HEIGHT SHALL BE EITHER:
   a) 9 INCHES WITH 5-INCH UPPER CASE AND 3.75-INCH LOWER CASE LETTERING ON STREETS WITH SPEED LIMITS 40 MPH OR LESS OR ON STREETS WITH ANY SPEED LIMIT THAT HAVE NO MORE THAN TWO LANES;
   b) 12 INCHES WITH 8-INCH UPPER CASE AND 6-INCH LOWER CASE LETTERING ON STREETS WITH SPEED LIMITS GREATER THAN 40 MPH AND MORE THAN TWO LANES.
2) 0.080 INCH THICK ALUMINUM BLANK. LENGTH DEPENDENT ON STREET NAME WITH A MINIMUM OF 24 INCHES. COVERED ON BOTH SIDES WITH 3M DIAMOND GRADE, WHITE, REFLECTIVE SHEETING (3M NUMBER 4090). STREET NAME WILL BE CUT OUT OF GREEN, 3M ELECTRO CUT FILM (3M NUMBER 1177C).
3) STREET DESIGNATION (DR, ST, TRL, RD, ETC.) IN UPPER RIGHT-HAND CORNER, BEGINNING BLOCK NUMBER UNDERNEATH. A CITY LOGO STICKER WILL BE PLACED ON THE LEFT-HAND SIDE OF THE SIGN AS SHOWN IN THE ABOVE ILLUSTRATION.
   A. ALL FONTS SHALL BE TRAFFIC CAD SERIES B OR FHWA SERIES B.
   B. NO WATER-BASED ADHESIVES ARE PERMISSIBLE FOR USE IN ANY PART OF SIGN.
   C. CITY LOGO STICKERS SHALL BE 4.5 BY 5 INCHES FOR 9-INCH BLADES AND 7.2 BY 8 INCHES FOR 12-INCH BLADES.
   D. LEANDER LOGO AVAILABLE FOR PURCHASE FROM PATHMARK TRAFFIC PRODUCTS AT (512) 392-2090
      4435 HUNTER RD
      SAN MARCOS, TX 78666
   E. ADDITIONALLY, THE .JPG FILE FOR THE CITY LOGO IS AVAILABLE FROM THE CITY OF LEANDER ENGINEERING DEPARTMENT AT (512) 528-2700. ANY CITY LOGO STICKERS FROM OTHER SOURCES MUST FIRST BE APPROVED BY THE PUBLIC WORKS DEPARTMENT.
   F. CITY LOGO STICKERS SHALL BE MADE OF 3M HIGH-INTENSITY REFLECTIVE MATERIAL.

WAYNE S. WATTS 80134 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
03/28/18

City Of Leander, Texas
DETAIL #401-2
STREET NAME SIGN BLADES



TYPICAL ASSEMBLY

SIGN POST

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

WAYNE S. WATTS 80134 LICENSED PROFESSIONAL ENGINEER STATE OF TEXAS
03/27/14

City Of Leander, Texas
401-3
POZ-LOC FOUNDATION

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

GENERAL DETAILS

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 STR.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4-11-23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

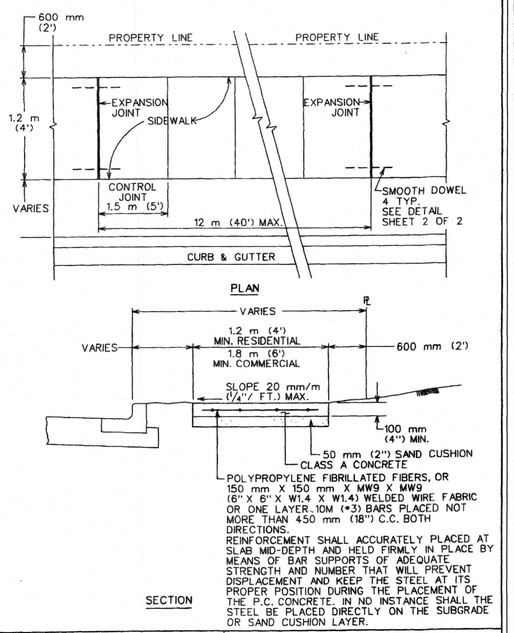
DT 6

SHEET NO. 67

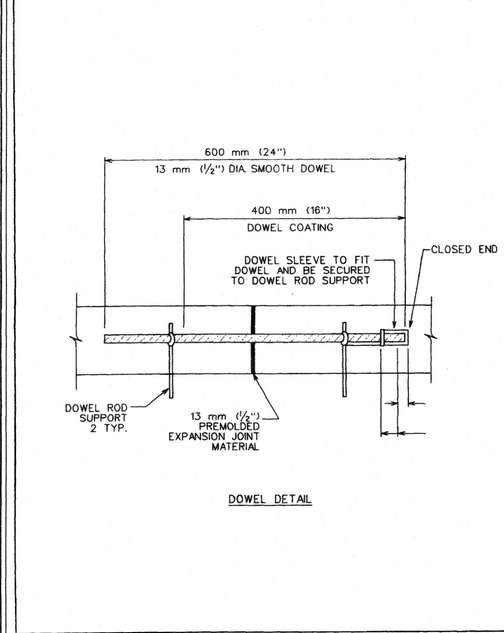
OF 75 SHEETS

XXXX-XX-XX

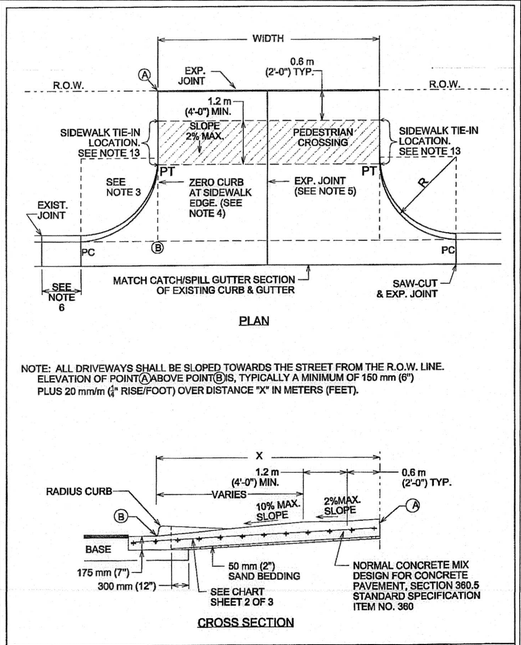
User Name: ejlopez
Date/Time: Wed, 12 Apr 2023 - 2:55pm
Path/Name: G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 DT6.dwg



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	SIDEWALK	
Bill Gardner 3/26/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1 1 OF 3



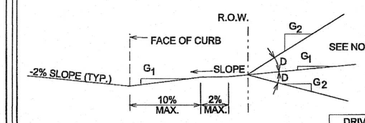
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	SIDEWALK	
Bill Gardner 3/26/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 432S-1 2 OF 3



NOTE: ALL DRIVEWAYS SHALL BE SLOPED TOWARDS THE STREET FROM THE R.O.W. LINE. ELEVATION OF POINT(A)ABOVE POINT(B)IS, TYPICALLY A MINIMUM OF 150 mm (6") PLUS 20 mm/m (¼" RISE/FOOT) OVER DISTANCE "X" IN METERS (FEET).

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE II DRIVEWAY	
2/24/16 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-2 1 OF 2

USE	THICKNESS	REINFORCEMENT
DRIVEWAYS FOR PASSENGER VEHICLE PARKING LOTS	150 mm (6") MIN.	125 mm (5") MIN. CONCRETE WITH ONE LAYER OF 13M (#4) BARS PLACED ON CHAIRS AT MIDDEPTH OF SLAB AT NO MORE THAN 450 mm (18") O.C. BOTH DIRECTIONS
ALL OTHERS	175 mm (7") MIN.	125 mm (5") MIN. CONCRETE WITH ONE LAYER OF 13M (#4) BARS PLACED ON CHAIRS AT MIDDEPTH OF SLAB AT NO MORE THAN 450 mm (18") O.C. BOTH DIRECTIONS

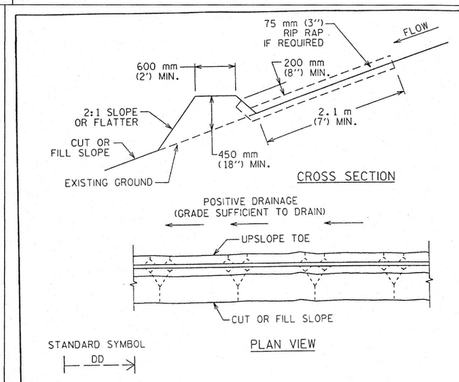


ALLOWABLE GRADES

DRIVEWAY VOLUME (ADT)	D=GRADE CHANGE STD.	MAX
>1500	0%	3%
500-1500	3%	6%
<500	6%	15%

NOTES:
1. ALL TYPE II DRIVEWAYS SHALL HAVE RADIUS ENDS.
2. DRIVEWAY WIDTHS AND RADII DIMENSIONS, ONE/TWO WAY TRAVEL REQUIREMENTS, AND GEOMETRIC LAY-OUT ARE HIGHLY VARIABLE, SUBJECT TO SITE SPECIFIC CONDITIONS AND REQUIREMENTS. SEE TRANSPORTATION CRITERIA MANUAL, SECTION 5 "DRIVEWAYS".
3. THE DRIVEWAY EDGE SHALL BE SMOOTHLY TRANSITITIONED INTO THE SIDEWALK TIE-IN LOCATION BEGINNING AT THE RADIUS PC LINE.
4. "ZERO" CURB AT PT OR SIDEWALK EDGE, WHICHEVER IS ENCOUNTERED FIRST.
5. PLACE AN EXPANSION JOINT DOWN THE CENTER OF DRIVEWAY ALL DRIVEWAYS.
6. IF DIMENSION IS LESS THAN 1.5 METERS (5 FEET), REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH DRIVEWAY.
7. IF THE BASE IS OVER-EXCAVATED WHERE THE CURB AND GUTTER WERE REMOVED, BACKFILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
8. TYPE II DRIVEWAYS ARE TO BE LOCATED NO CLOSER TO THE CORNER OF INTERSECTING RIGHT OF WAY THAN 60% OF PARCEL FRONTAGE AT 30 METERS (100 FEET); WHICHEVER IS LESS.
9. DRIVEWAY SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
10. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHALL BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2 IS GREATER THAN 15%.
11. USE 12 MM (1/2") ASPHALT BOARD OR OTHER APPROVED MATERIAL FOR CURB AND GUTTER EXPANSION JOINTS. SIDEWALK, AT THE R.O.W. LINE AND AT MIDWIDTH, SEE NOTE 5.
12. SEE TRANSPORTATION CRITERIA MANUAL, SECTION 5 FOR OTHER DRIVEWAY REQUIREMENTS.
13. THE SIDEWALK, REGARDLESS OF ITS LOCATION WITH RESPECT TO THE CURB OR PROPERTY LINE, SHALL BE CONNECTED TO THE DRIVEWAY AT THESE LOCATIONS.
14. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPE II DRIVEWAY	
2/24/16 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 433S-2 2 OF 2



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 SEDIMENT TRAPPING DEVICE, SUCH AS A ROCK BERM, BRUSH BERM, STONE OUTLET STRUCTURE, SEDIMENT 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 125 mm (3 TO 5 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	
3.27.00 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 622S-1

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8
GENERAL DETAILS

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST7.dwg

STATE OF TEXAS
T. W. HOYSA
100072
LICENSED PROFESSIONAL ENGINEER
4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 7

SHEET NO. 68

OF 75 SHEETS

Date/Time : Wed, 12 Apr 2023 - 2:56pm
User Name : dbosse
PathName : G:\A311-0415 Palmera Bluff Subdivision\ACAD_Sheet Files\A311-0415 ST7.dwg

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NOTES:

1. INSTALL 4" DIAMETER STAINLESS STEEL "NO DUMPING – DRAINS TO CREEK" MARKER, FACTORY PAINTED BLUE AS SHOWN, 2" ABOVE VERTICAL FACE OF INLET AT MIDPOINT OF ALL INLETS.
2. MARKER SHALL BE AFFIXED TO SURFACE WITH ADHESIVE PER MANUFACTURER'S RECOMMENDATIONS.
3. MARKER SHALL BE MANUFACTURED BY ALMATEK INDUSTRIES OR APPROVED EQUAL:
   ALMATEK INDUSTRIES, INC.
   2 JOY DRIVE
   HACKETTSTOWN, NJ 07840
   (800) 248–2080
   WWW.ALMATEK.COM

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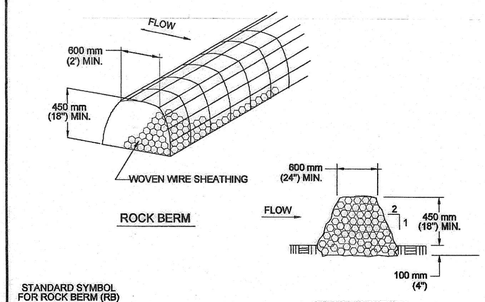
06/20/18

City Of Leander, Texas

DETAIL #303-3

STORM DRAIN MARKERS



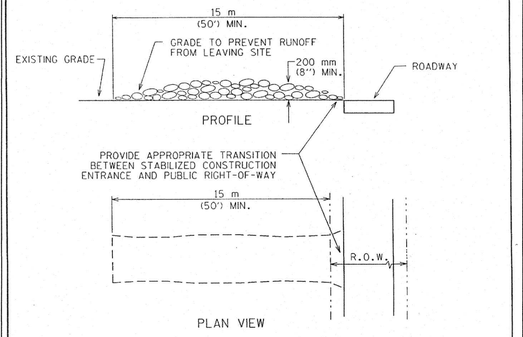
STANDARD SYMBOL FOR ROCK BERM (RB)

RB

NOTES:

1. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 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.

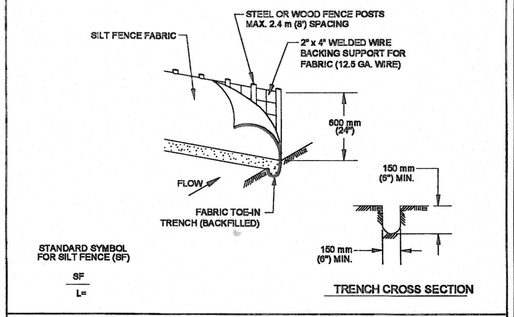
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	ROCK BERM	
Wayne S. Watts P.E. 8/24/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 639S-1



NOTES:

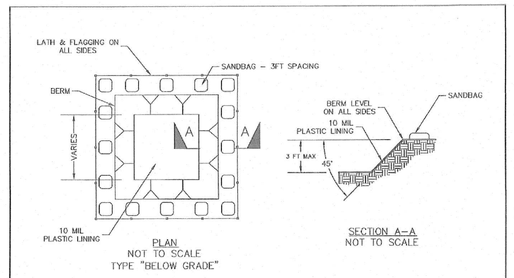
1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO 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	
5/23/06 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	
9/1/2011 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD

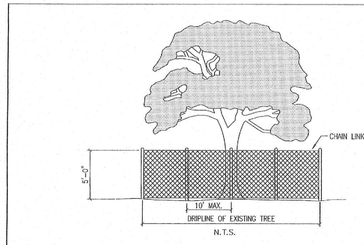
STATE OF TEXAS · WAYNE S. WATTS · 88134 · LICENSED PROFESSIONAL ENGINEER

01/30/15

City Of Leander, Texas

303-1

CONCRETE WASHOUT



1. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
2. FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES; SHALL BE LOCATED AT THE OUTERMOST LIMIT OF THE TREE BRANCHES (DRIPLINE), AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6")) CUT OR FILL, OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.
3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6'-0") TO BUILDING.
4. CRITICAL ROOT ZONE REQUIREMENTS
   A. NO CONSTRUCTION OR DISTURBANCE SHALL OCCUR WITHIN AN AREA THAT CONSTITUTES MORE THAN FIFTY (50%) OF THE TOTAL CRITICAL ROOT ZONE AND ONE HALF THE RADIAL DISTANCE OF THE CRITICAL ROOT ZONE FOR EACH TREE BEING PRESERVED INCLUDING SIGNIFICANT TREES, HERITAGE TREES, AND ANY OTHER TREES FOR WHICH PRESERVATION IS TO BE CREDITED. THE REMAINING CRITICAL ROOT ZONE SHALL CONSIST OF AT LEAST ONE HUNDRED (100) SQUARE FEET.
   B. THIS DEFINED AREA SHALL BE FLAGGED AND ENCIRCLED WITH PROTECTIVE FENCING DURING CONSTRUCTION. THE PLANNING DIRECTOR MAY APPROVE CONSTRUCTION CLOSER TO THE TRUNK THAN ONE HALF (½) THE RADIAL DISTANCE, DEPENDING ON THE SIZE, SPACING, OR SPECIES OF THE TREE, THE TYPE OF DISTURBANCE PROPOSED, AND UNIQUENESS OF THE SITUATION.
   C. CUT OR FILL THAT IS GREATER THAN FOUR (4) INCHES IN DEPTH AND THE SEVERING OF MAJOR ROOTS SHALL BE CONSIDERED DISTURBANCE FOR THE PURPOSES OF THIS ORDINANCE.
   D. WITHIN THE PROTECTED CRITICAL ROOT ZONE, ONLY FLATWORK, DECKING, OR SIMILAR CONSTRUCTION, MAY BE APPROVED AND SHALL NOT AFFECT THE BRANCHING OF THE TREE.
   E. IF PROPOSED OR ACTUAL PROTECTION OF THE CRITICAL ROOT ZONE OF A TREE DOES NOT MEET THE REQUIREMENTS OF THIS SECTION, THEN THE TREE SHALL BE CONSIDERED REMOVED AND SHALL REQUIRE MITIGATION IN ACCORDANCE WITH THIS ORDINANCE.

STATE OF TEXAS · WAYNE S. WATTS · 88134 · LICENSED PROFESSIONAL ENGINEER

08/21/15

City Of Leander, Texas

303-2

TREE PROTECTION

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

GENERAL DETAILS

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

DATE: 1/11/2023
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
DRAWING NAME: A311-0415 ST8.dwg

STATE OF TEXAS · T. W. HOYSA · 100072 · REGISTERED · 4/11/23

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

DT 8

SHEET NO. 69

OF 75 SHEETS

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Date/Time : Wed, 12 Apr 2023 - 2:56pm
User Name : ddopez
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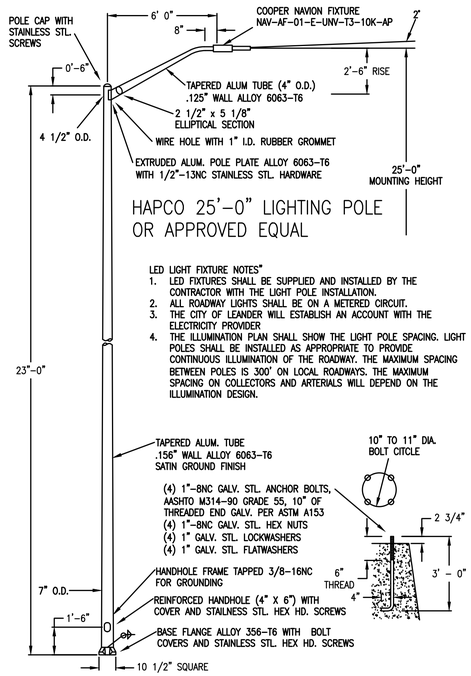
ELECTRICAL LEGEND

(NOTE: ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)



LED LIGHT FIXTURE NOTES"

1. LED FIXTURES SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR WITH THE LIGHT POLE INSTALLATION.
2. ALL ROADWAY LIGHTS SHALL BE ON A METERED CIRCUIT.
3. THE CITY OF LEANDER WILL ESTABLISH AN ACCOUNT WITH THE ELECTRICITY PROVIDER
4. THE ILLUMINATION PLAN SHALL SHOW THE LIGHT POLE SPACING. LIGHT POLES SHALL BE INSTALLED AS APPROPRIATE TO PROVIDE CONTINUOUS ILLUMINATION OF THE ROADWAY. THE MAXIMUM SPACING BETWEEN POLES IS 300' ON LOCAL ROADWAYS. THE MAXIMUM SPACING ON COLLECTORS AND ARTERIALS WILL DEPEND ON THE ILLUMINATION DESIGN.

SYMBOL LEGEND

LIGHTING

✳ POLE MOUNTED LIGHT FIXTURE AS SPECIFIED. PROVIDE PER THE CITY OF LEANDER'S SPECIFICATIONS.

CONDUIT AND WIRE

——— BRANCH CIRCUIT 3/4"C – 2#8 & 1#10 GROUND.

DISTRIBUTION & CONTROLS

(J) JUNCTION BOX WITH COVER PLATE

(E) EQUIPMENT CONNECTION. (PROVIDE ALL BRANCH CIRCUITRY REQUIRED TO CONNECT TO EQUIPMENT)

☒ PEC PAD MOUNTED TRANSFORMER

(M) ELECTRICAL METER

ABBREVIATIONS

(A)	A	AMPERE
	AIC	AMPERE INTERRUPTING CAPACITY
	AT	AMP TRIP
	AWG	AMERICAN WIRE GAUGE
(G)	GND.	GROUND
(K)	KVA	THOUSAND VOLT AMPERE
(N)	N.E.C.	NATIONAL ELECTRICAL CODE
	N.E.M.A.	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
(X)	XFMR	TRANSFORMER

GENERAL PROVISIONS

1. THE WORK COVERED SHALL INCLUDE THE FURNISHING OF ALL MATERIALS, LABOR, TRANSPORTATION, TOOLS, PERMITS, FEES, AND INCIDENTALS NECESSARY FOR THE COMPLETE INSTALLATION OF ALL ELECTRICAL WORK REQUIRED IN THE CONTRACT DOCUMENTS, THE INTENT OF THE OF THE CONTRACT DOCUMENTS IS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION MAY BE REQUIRED FOR THE WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOS TO PROVIDE ALL MATERIAL AND LABOR WHICH IS USUALLY FURNISHED WITH SUCH SYSTEMS IN ORDER TO MAKE THE INSTALLATION COMPLETE AND OPERATIVE. ELEMENTS OF THE WORK SHALL INCLUDE, BUT ARE NOT LIMITED TO, MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, HOISTING/RIGGING, STORAGE, UTILITIES, AND ALL REQUIRED PERMITS AND LICENSES.
2. DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT NECESSARILY REFLECT ALL WORK REQUIRED TO COMPLETE PROJECT. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT AS REQUIRED TO COMPLETE PROJECT WITHIN DESIGN INTENT AT NO ADDITIONAL COST TO OWNER OR TENANT. CONTRACTOR SHALL REQUEST ADDITIONAL INFORMATION IN CASES OF DOUBT
3. CONSIDERATION SHALL NOT BE GRANTED FOR MISUNDERSTANDING OF THE SCOPE OR AMOUNT OF WORK TO BE PERFORMED. TENDER OF A PROPOSAL CONVEYS FULL CONTRACTOR AGREEMENT OF THE ITEMS AND CONDITIONS SPECIFIED AND/OR INDICATED, SCHEDULED, OR IMPLIED ON THE CONTRACT DOCUMENTS, AND/OR REQUIRED BY THE NATURE OF THIS WORK.
4. ALL WORK IS TO BE PERFORMED BY A LICENSED MASTER ELECTRICIAN PER THE TEXAS ELECTRICAL SAFETY AND LICENSING ACT.

ELECTRICAL SPECIFICATIONS

DIVISION 26 – ELECTRICAL

26010 ELECTRICAL GENERAL PROVISIONS
WORK AND MATERIAL SHALL COMPLY WITH THE LATEST RULES AND REGULATIONS OF THE 2020 NATIONAL ELECTRICAL CODE, THE LOCAL ELECTRICAL CODE AMENDMENTS, NATIONAL ELECTRICAL SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ACT; 2015 INTERNATIONAL ENERGY CODE; AND ALL FEDERAL AND STATE CODES, ORDINANCES AND REGULATIONS.

ALL ELECTRICAL PANELBOARDS SHALL BE INSPECTED BEFORE THE PANEL IS CLOSED BY THE ELECTRICAL CONTRACTOR. CONTRACTOR SHALL COORDINATE ARRANGEMENTS FOR THIS INSPECTION. ALL PANELBOARD CIRCUIT DIRECTORIES SHALL BE TYPE WITH CORRESPONDING DEVICES AD EQUIPMENT (I.D. DESIGNATION) SERVED. TYPICAL NEW AND EXISTING PANELBOARDS.

26110 RACEWAYS
ACCEPTABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE RACEWAY OF ONE OF THE FOLLOWING MANUFACTURERS:

RIGID NON-METALLIC CONDUIT: CARLON. CONDUX INTERNATIONAL INC. CAN-TEX INDUSTRIES.

CONDUIT SHALL BE SCHEDULE 40 PVC, UV STABILIZED FOR 90° C CONDUCTORS, USE SCHEDULE 80 PVC UNDER TRAFFIC AREAS.
FITTINGS SHALL BE SOLVENT, WELDED SOCKET TYPE.
CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH NEMA TC-2, FEDERAL SPECIFICATION WC1094A AND UL STANDARD 651.

INSTALLATION METHODS.

1. ALL RACEWAY SYSTEMS SHALL BE COMPLETE BEFORE INSTALLING CONDUCTORS.
2. ALL RACEWAYS SHALL HAVE OPENINGS TEMPORARILY PLUGGED TO EXCLUDE FOREIGN OBJECTS. THE INTERIOR OF ALL RACEWAYS SHALL BE CLEANED BEFORE PULLING INSTALLING CONDUCTORS.
3. ALL JOINTS SHALL BE CUT SQUARE AND BE REAMED SMOOTH. ALL FIELD THREADED CONDUITS SHALL BE COATED WITH AN APPROVED ZINC CHROMATE OR WITH A 90 PERCENT ZINC PAINT.
4. ALL TURNS SHALL BE MADE WITH STANDARD ELLS OR CONDUIT BENT IN ACCORDANCE WITH THE NEC. CONDUIT BODIES MAY BE USED IN LIEU OF CONDUIT ELLS WHERE EASE OF INSTALLATION AND APPEARANCE WARRANTS THEIR USE. CONDUIT BODIES LARGER THAN 1-INCH MAY BE USED ONLY WHERE SPECIFICALLY APPROVED BY THE ARCHITECT. FURNISH AND INSTALL ACCESS DOORS FOR CONDUIT BODIES LOCATED ABOVE INACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED ACCESS DOORS' FIRE RATINGS. ALL FIELD BENDS SHALL BE MADE USING EQUIPMENT DESIGNED FOR THE PARTICULAR CONDUIT MATERIAL AND SIZE. BENDS SHALL BE FREE FROM DENTS OR FLATTENING. THERE SHALL BE NO MORE THAN THE EQUIVALENT OF THREE NINETY DEGREE BENDS IN ANY RACEWAY BETWEEN TERMINALS AND CABINETS, OR BETWEEN OUTLETS AND JUNCTION BOXES OR PULL BOXES.
5. SECURELY FASTEN AND SUPPORT CONDUIT TO METAL FRAMING USING HOT-DIPPED GALVANIZED, MALLEABLE IRON PIPE STRAPS OR OTHER APPROVED MEANS. REFER TO SECTION 26 05 29. GALVANIZED TIE WIRES FOR SECURING CONDUITS, IS NOT ACCEPTABLE. THE USE OF CADI-CLIPS FOR CONDUIT SUPPORTS FROM SUSPENDED CEILING SYSTEMS IS NOT ACCEPTABLE.
6. PROVIDE A NO. 30 NYLON PULL CORD IN ALL EMPTY CONDUITS. IDENTIFY BOTH ENDS OF THE LINE BY MEANS OF LABELS OR TAGS READING "PULLING LINE".
7. TERMINATE CONCEALED CONDUIT FOR FUTURE USE WITH A COUPLING AT STRUCTURAL SURFACES. INSTALL AN APPROVED CONDUIT PLUG FLUSH WITH THE SURFACE.
8. ALL OPENINGS AROUND ELECTRICAL PENETRATIONS AT FIRE RATED WALLS, PARTITIONS, FLOORS OR CEILINGS SHALL BE SEALED TO MAINTAIN THE FIRE RESISTANCE RATING OF THE PENETRATION.
9. ALL CONDUIT IN HAZARDOUS AREAS SHALL CONFORM TO NEC REQUIREMENTS FOR THESE AREAS AND WHERE FEEDING FROM OR TO A HAZARDOUS AREA TO ANOTHER ROOM "SEAL OFFS" SHALL BE USED.

INSTALLATION OF UNDERGROUND RACEWAYS

1. THE GROUND SHALL BE EXCAVATED IN OPEN TRENCHES TO THE PROPER WIDTH AND DEPTH FOR THE INSTALLATION OF THE UNDERGROUND CONDUITS. MINIMUM CONDUIT BURIAL DEPTH SHALL BE 24" BELOW FINISHED GRADE TO TOP OF THE CONDUIT.
2. WHERE THE BOTTOM OF THE TRENCH IS EXCAVATED BELOW THE NECESSARY ELEVATION, IT SHALL BE BROUGHT TO PROPER GRADE BY THE USE OF SAND OR THREE-EIGHTH INCH GRAVEL.
3. NO EXTRA WILL BE ALLOWED BECAUSE OF THE NATURE OF THE GROUND IN WHICH THE TRENCH OR OTHER EXCAVATIONS ARE MADE. ALL NECESSARY SHEATHING TO PREVENT CAVE-INS AND BARRICADES SHALL BE PROVIDED IN ACCORDANCE WITH OSHA REQUIREMENTS.
4. WHERE UNSTABLE GROUND IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, IT SHALL BE EXCAVATED TO A DEPTH OF AT LEAST 12 INCHES BELOW THE LINE OF THE DUCT OR SLAB, AND REPLACED WITH COARSE GRAVEL TO THE PROPER HEIGHT.
5. WHERE THE EXCAVATION FOR ITS ENTIRE DEPTH IS IN WATER OR WET SAND, PUMP AND TRENCH SO AS TO DRAIN IT EFFECTIVELY.
6. BACKFILL TRENCHES WITH THE EXCAVATED MATERIAL UNLESS OTHERWISE SPECIFIED. IT SHALL BE THOROUGHLY COMPACTED TO INSURE A SATISFACTORY JOB. IN SURFACED AREAS, COMPACTIONS SHALL BE 95% OF SURROUNDING UNDISTURBED SOIL. SODDED AREAS SHALL BE COMPACTED TO 95% UP TO TOPSOIL. TOPSOIL SHALL BE LIGHTLY COMPACTED THEN SOIL MOUNDED TO ALLOW FOR SETTLING.
7. WHERE CONDUITS PASS UNDER EXISTING SIDEWALKS, ROADS OR CURBS CUT AND REMOVE SAME IN ORDER TO INSTALL THE CONDUIT OR DUCTS. ALL SIDEWALKS, ROADS OR CURBS SHALL BE REPLACED WITH MATERIAL EQUAL TO THOSE NOW IN PLACE.
8. PROVIDE A BURIAL UTILITY TAPE WITH MAGNETIC TRACER, OVER ALL UNDERGROUND ELECTRICAL INSTALLATIONS THAT ARE EXTERIOR TO THE BUILDING. THIS SHALL INCLUDE ALL FEEDERS, BRANCH CIRCUITS AND COMMUNICATIONS CONDUITS.

   a. WARNING TAPE OVER ELECTRICAL INSTALLATION UNDER 600 VOLTS SHALL BE RED WITH BLACK LETTERING STATING "BURIED ELECTRICAL LINE".

   b. WARNING TAPE OVER ELECTRICAL INSTALLATIONS OVER 600 VOLTS SHALL BE RED WITH BLACK LETTERING STATING "BURIED HIGH VOLTAGE LINE".

   c. WARNING TAPE OVER COMMUNICATIONS INSTALLATIONS SHALL BE ORANGE WITH BLACK LETTERING STATING "BURIED TELEPHONE LINE". TAPE SHALL BE INSTALLED ONE FOOT TO SIX INCHES BELOW FINISHED GRADE, 3" WIDE AS MANUFACTURED BY T & B WESTLINE OR EQUAL. TAPE SHALL INCLUDE MAGNETIC TRACER.

   TAPE SHALL BE INSTALLED ONE FOOT TO SIX INCHES BELOW FINISHED GRADE, 3" WIDE AS MANUFACTURED BY T & B WESTLINE OR EQUAL. TAPE SHALL INCLUDE MAGNETIC TRACER.

9. ALL RACEWAYS INSTALLED UNDERGROUND SHALL BE SEALED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE ARTICLE 300. PROVIDE CONDUIT SEALING BUSHINGS TO PREVENT ENTRANCE OF MOISTURE INTO THE UNDERGROUND RACEWAY SYSTEMS. ACCEPTABLE SEALING BUSHING MANUFACTURER IS O-Z. GEDNEY OR APPROVED EQUAL.

26120 INSULATED CONDUCTORS
BRAND REX CO. CABLEC CORP. COLEMAN CABLE & WIRE CO. CAROL CABLE CO. ESSEX GROUP INC. INDUSTRIAL PRODUCTS. GENERAL CABLE CO. GUARDIAN PRODUCTS. THE OKONITE CO. PIRELLI CABLE CORP. SOUTHWIRE CO. SENATOR WIRE & CABLE CO. ENCORE WIRE CORP.
WIRE CONNECTORS. BURNDY. 3M ELECTRICAL PRODUCTS DIVISION. ILSCO. IDEAL. THOMAS & BETTS.
ALL CONDUCTORS SHALL BE SOFT-DRAWN ANNEALED COPPER WITH CONDUCTIVITY OF NOT LESS THAN 98% AT 20 DEGREES C (68 DEGREES F). CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID AND CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED. MINIMUM WIRE SIZE SHALL BE #10 AWG.
INSULATION SHALL BE AS FOLLOWS: TYPE THW: FOR DRY AND WET LOCATIONS; MAX OPERATING TEMPERATURE 75 DEGREES C (167 DEGREES F). PVC INSULATION, WITH A MINIMUM INSULATION RATING OF 600 VOLTS. TYPE THHN OR THWN: FOR DRY AND WET LOCATIONS; MAXIMUM OPERATING TEMPERATURE SHALL BE 75EC (THWN) OR 90EC (THHN). TYPE XHHW: FOR WET OR DRY LOCATIONS; MAXIMUM OPERATING TEMPERATURE 90EC. INSULATION SHALL BE CROSS-LINKED POLYETHYLENE.
COMPRESSION CONNECTORS AND LUGS: THE CONNECTORS SHALL BE COPPER WITH TIN PLATING. PUSH-IN WIRE CONNECTORS ARE NOT ACCEPTABLE.

26450 SECONDARY GROUNDING
PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS.

STREET LIGHT ASSEMBLY MODEL INFORMATION:

LUMINARIES: AS REQUIRED BY CITY OF LEANDER. REFER TO THE DETAIL.

POLE: HAPCO 1-B17802 STREETLIGHT POLE ASSEMBLY, ROUND TAPERED ALUMINUM, 11" BOLT HOLE CIRCLE, 14" DIAMETER ROUND FLAT PLATE ON BOTTOM, SUPPLIED WITH FOUR(4) 1"DIA.x2-1/2"LONG HEX HEAD BOLTS WITH SPLIT LOCKWASHERS FACTORY INSTALLED, ALL HOT DIPPED GALVANIZED. ALL LIGHT POLES SHALL BE PROVIDED WITH VIBRATION DAMPERS.

FOUNDATION: PROVIDE A DIRECT EMBEDDED STREET LIGHT FOUNDATION, 8.625" OD BY 58 5/8" LONG SHAFT, 1" THICK BY 12" SQUARE BASE PLATE WITH BOLT HOLE CIRCLE TO MATCH THE POLE. 12" DIAMETER ROUND FLAT PLATE ON BOTTOM SUPPLIED WITH FOUR 1" DIAMETER BY 2 1/2" LONG HEX HEAD BOLTS WITH LOCK WASHERS. ALL MATERIAL TO BE HOT DIP GALVANIZED. REFER TO CITY OF LEANDER STANDARD LIGHTING POLE FOUNDATION DETAIL #402-2 ON ES103 FOR ALL REQUIREMENTS. THE POLE FOUNDATION SHALL BE DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF TEXAS.

CONTROLS: REFER TO CITY OF LEANDER DETAIL #402-7 & 402-8 COL RESIDENTIAL ROADWAY LIGHTING STANDARDS FOR CONTROL WIRING.

LAMP: AS REQUIRED BY CITY OF LEANDER. REFER TO THE DETAIL.

FUSING: COOPER BUSSMAN "BREAKAWAY" TYPE FUSE HOLDERS WITH 3 AMP FUSES.

STREET LIGHT JOINT TRENCH NOTE:
1) STREET LIGHT CONDUIT SHALL BE INSTALLED IN A JOINT TRENCH WITH PEC UTILITIES AS MUCH AS POSSIBLE. REFER TO PEC SPECIFICATIONS FOR PLACEMENT REQUIREMENTS AND SEPARATIONS.

STREET LIGHT NOTES:
1) CONTRACTOR SHALL PROVIDE ALL REQUIRED MATERIAL AND LABOR, UNLESS NOTED OTHERWISE TO ENSURE INSTALLATIONS MEET ALL CURRENT ELECTRIC UTILITY, LOCAL, STATE, NEC, & NESC REQUIREMENTS FOR A COMPLETE AND ENERGIZED SYSTEM.

2) CONTRACTOR SHALL INSTALL SERVICE CONDUCTOR ASSEMBLIES AS REQUIRED BY CITY OF LEANDER/PEC FROM PEC EQUIPMENT TO THE METERS THROUGH 2" CONDUIT INSTALLED BY CONTRACTOR. 2" CONDUIT SHALL BE INSTALLED FROM PEC CLOSEST TRANSFORMER OR SECONDARY ENCLOSURE TO METER SERVICE LOCATIONS.

3) ALL POLE FOUNDATION LOCATIONS ARE SHOWN BASED ON UTILITY INFORMATION AVAILABLE. CONTRACTOR SHALL VERIFY THAT NO CONFLICTS EXIST PRIOR TO THE PLACEMENT OF POLE FOUNDATIONS AND CONDUITS.

1 / E1 SITE LIGHTING DETAIL
SCALE: NOT TO SCALE

HMG & ASSOCIATES INC.
Consulting Mechanical • Electrical Engineers
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Austin, Texas 78759 FAX (512)794-8239
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SECTION 7 & 8

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E.G. LOPEZ DEL CASTILLO
58483
REGISTERED
PROFESSIONAL ENGINEER
04/04/2023

LJA Engineering, Inc.
2700 La Frontera Blvd
Suite 150
Round Rock, TX 78681
Phone 512.439.4700
Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ELECTRICAL SYMBOL LEGEND & DETAILS

SHEET NO.

OF 75 SHEETS

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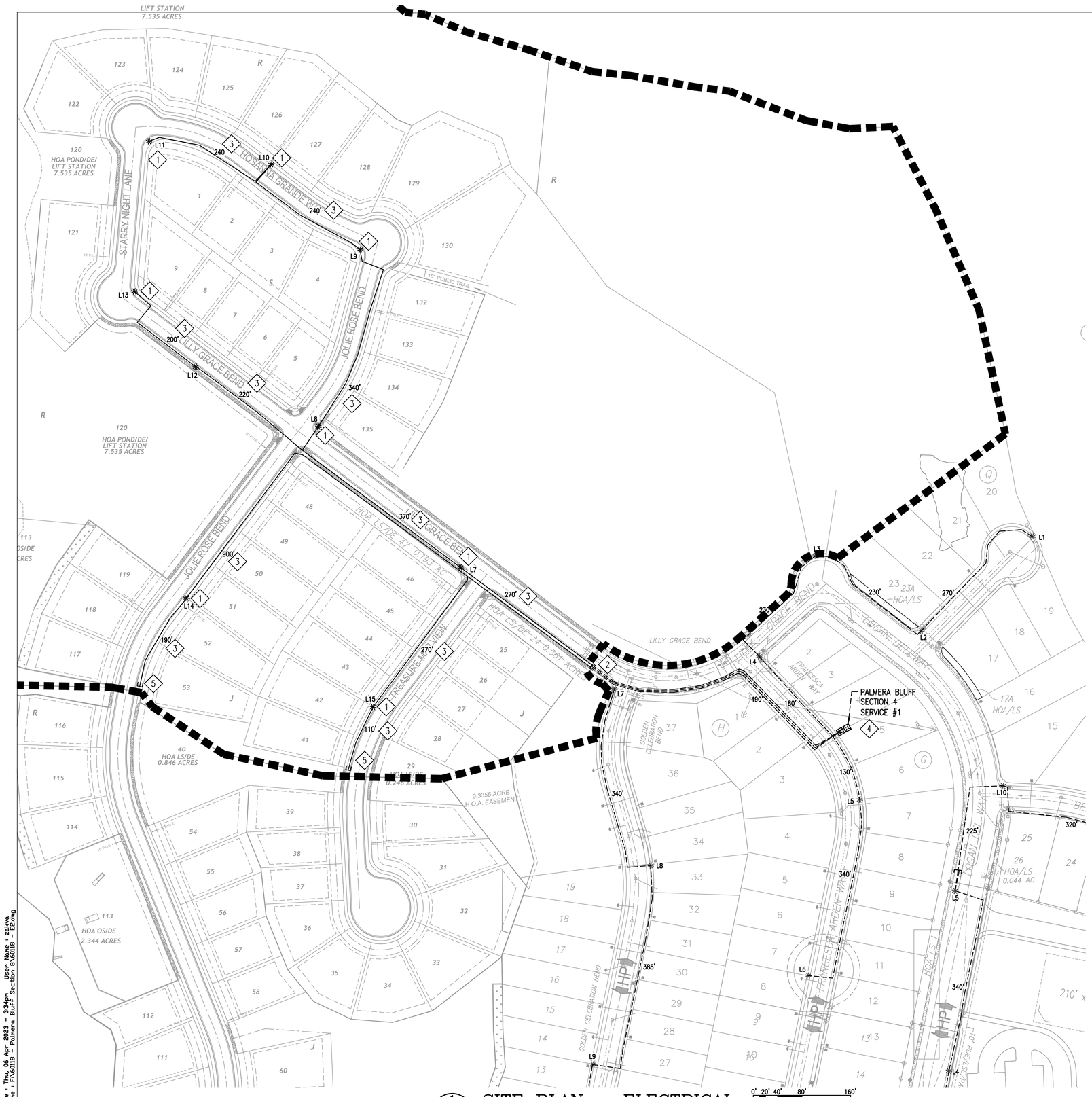


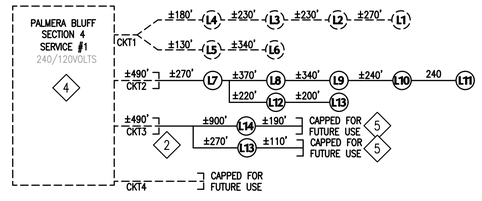
KEYED NOTES

1. POLE MOUNTED LIGHT FIXTURES AS SPECIFIED.
2. EXTEND 3/4" EMPTY CONDUIT TO CONNECT TO PLAMERA BLUFF SECTION 4 SERVICE.
3. CIRCUIT SIZE IS PER THE SYMBOL LEGEND AND THE DISTANCE IS PER THE SCALE OF THE SITE PLAN, TYPICAL.
4. EXISTING SERVICE INSTALLED UNDER A DIFFERENT CONTRACT.
5. EMPTY CONDUIT WITH PULL WIRE FOR FUTURE LIGHTING.

GENERAL NOTES

1. THE STANDARD ASSIGNMENT AREA FOR THE STREET LIGHTS HAVE AN OFFSET DISTANCE OF 24" FROM THE FACE OF THE CURB TO THE EDGE OF THE POLE. THE SIDEWALKS SHALL BE DEFLECTED AROUND THE POLES.
2. CLEAR WIDTH SHALL BE PROVIDED FOR SIDEWALKS WHERE STREET LIGHTS ARE INSTALLED NEAR FIRE HYDRANTS, CLEANOUTS, WATER METERS.
3. ENSURE PROPOSED SERVICE IS NOT ADJACENT TO A PEC COMBINATION TRANSFORMER PAD.

LINETYPE LEGEND	
- - - - -	INDICATES EXISTING EQUIPMENT & CIRCUITING TO REMAIN.
———	INDICATES NEW EQUIPMENT AND CIRCUITING.



1 E2 SITE PLAN – ELECTRICAL

SCALE: 1"=80'-0"

2 E2 STREET LIGHT CIRCUIT DIAGRAM

SCALE: N.T.S.

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

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JOB NUMBER: A311-0415

ELECTRICAL SITE PLAN

SHEET NO. 1"=80'-0"

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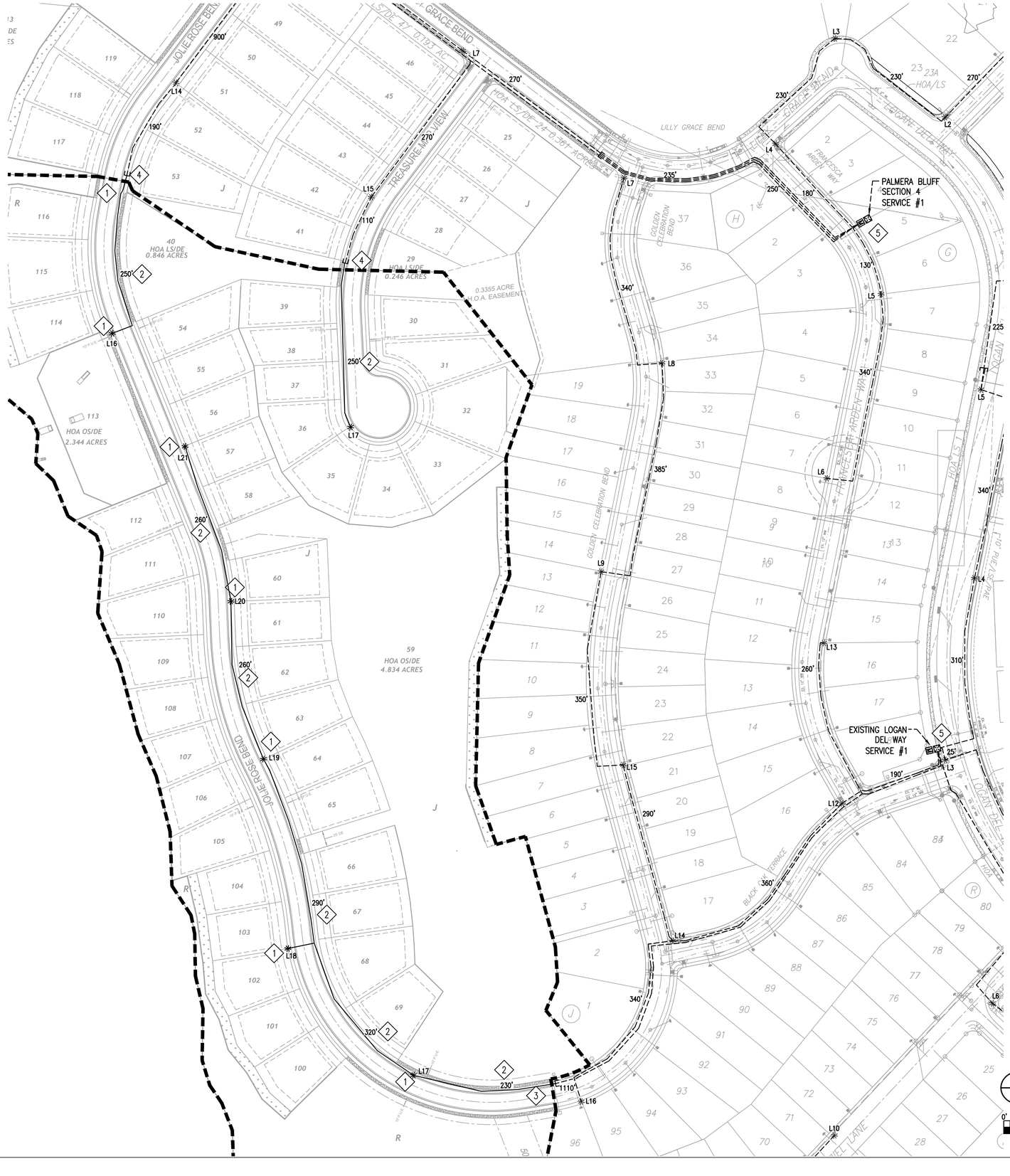

KEYED NOTES

1. POLE MOUNTED LIGHT FIXTURES AS SPECIFIED.
2. CIRCUIT SIZE IS PER THE SYMBOL LEGEND AND THE DISTANCE IS PER THE SCALE OF THE SITE PLAN, TYPICAL.
3. EXTEND EXISTING CONDUIT FROM LOGAN DEL WAY SERVICE #1.
4. EXTEND EXISTING CONDUIT FROM PALMERA BLUFF SECTION 4 SERVICE #1
5. EXISTING SERVICE INSTALLED UNDER DIFFERENT CONTRACT.

GENERAL NOTES

1. THE STANDARD ASSIGNMENT AREA FOR THE STREET LIGHTS HAVE AN OFFSET DISTANCE OF 24" FROM THE FACE OF THE CURB TO THE EDGE OF THE POLE. THE SIDEWALKS SHALL BE DEFLECTED AROUND THE POLES.
2. CLEAR WIDTH SHALL BE PROVIDED FOR SIDEWALKS WHERE STREET LIGHTS ARE INSTALLED NEAR FIRE HYDRANTS, CLEANOUTS, WATER METERS.
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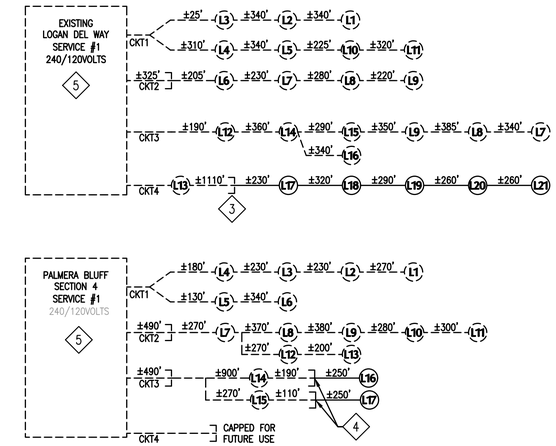
LINETYPE LEGEND	
- - - -	INDICATES EXISTING EQUIPMENT & CIRCUITING TO REMAIN.
———	INDICATES NEW EQUIPMENT AND CIRCUITING.



2 STREET LIGHT CIRCUIT DIAGRAM
E3 SCALE: N.T.S.

1 SITE PLAN – ELECTRICAL
E3 SCALE: 1"=80'-0"

0' 20' 40' 80' 160'

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ELECTRICAL SITE PLAN

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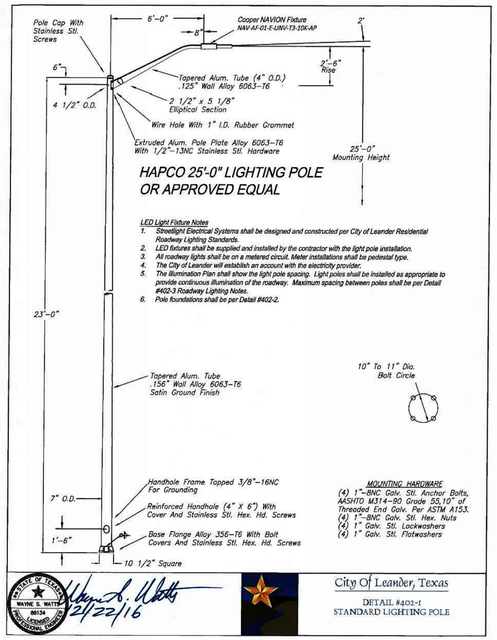
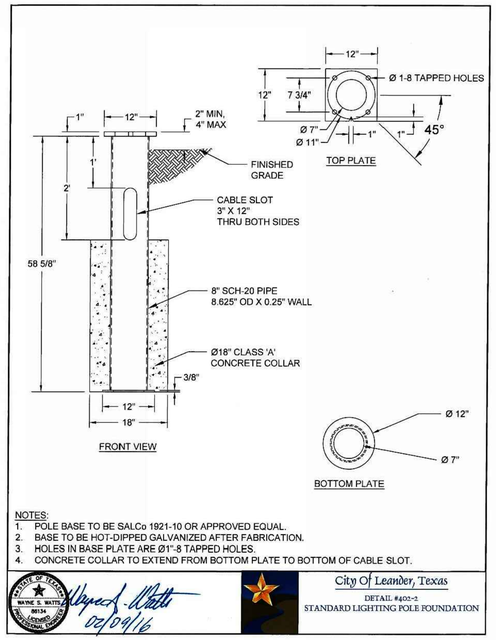




SHEET SPECIFIC NOTES

SHEET #402-4:

1. STREETLIGHTS SHALL BE MOUNTED ON THE PROPERTY LINE BETWEEN PRIVATE LOTS AND WITH A MINIMUM DISTANCE OF 4 FEET FROM ANY PRIVATE DRIVE TO THE EDGE OF THE POLE BASE.
2. ALTERNATE STREETLIGHTS ALONG EACH SIDE OF THE STREET. WIRING FOR THE OPPOSITE SIDE OF THE STREET SHALL CROSS AT EACH STREETLIGHT LOCATION WITH CONDUIT SWEEPS AS SHOWN. PROVIDE PULL BOXES AS REQUIRED TO NOT EXCEED 360' BETWEEN PULL LOCATIONS.
3. STREETLIGHTS SHALL BE SPACED A NOMINAL SPACING OF 150 FEET FROM FOLLOWING LIGHT ON OPPOSITE SIDE OF ROAD AND 300 FEET FROM FOLLOWING LIGHT ON THE SAME SIDE OF ROAD, LOCATED AT THE NEAREST PROPERTY LINES.
4. STREETLIGHTS MOUNTED ON THE OUTSIDE RADIUS OF A CURVED ROAD SHALL BE SUCH THAT THE STREETLIGHTS WILL BE SPACED A NOMINAL SPACING OF 300 FEET APART, AT THE NEAREST PROPERTY LINE.
5. STREETLIGHTS MOUNTED ON THE INSIDE RADIUS OF A CURVED ROAD SHALL BE SPACED SUCH THAT THEY ARE CENTERED BETWEEN THE TWO STREETLIGHTS ON THE OUTSIDE RADIUS, AT THE NEAREST PROPERTY LINE.

SHEET #402-5:

6. EACH LOCAL STREET INTERSECTION MUST HAVE ONE STREETLIGHT MOUNTED TO ONE CORNER. COLLECTOR LEVEL AND HIGHER LEVEL STREETS SHALL HAVE TWO STREET LIGHTS MOUNTED AT OPPOSING CORNERS. ALL SUBSEQUENT STREETLIGHTS TO BE MOUNTED A MINIMUM OF 75 FEET AWAY FROM THE INTERSECTION CORNERS, AT THE NEAREST PROPERTY LINE.
7. PROVIDE CONDUIT SWEEPS AT INTERSECTION CORNERS AS REQUIRED. DO NOT EXCEED A MAXIMUM BEND OF 360' BETWEEN PULL LOCATIONS.
8. CONDUIT CROSSING THE ROAD SHALL TAKE THE SHORTEST PATH AVAILABLE WITHOUT CROSSING A CORNER OF AN INTERSECTION.
9. PROVIDE ONE PULL BOX IN EACH LANDSCAPE STRIP AS SHOWN WHEN CROSSING A ROAD WHERE THERE IS NOT A STREETLIGHT ON EITHER SIDE OF THE CROSSING.

SHEET #402-6:

10. ORIENT PEDESTAL SO THAT LIGHTING CONTROL PANEL FACES ROADWAY.
11. FOLLOW PEDERNALES ELECTRIC COOPERATIVE INC. DRAWING NUMBER 520-010-0911 AND 510-009-0911 FOR PEDESTAL BASE CONSTRUCTION.

SHEET #402-7:

12. EACH CONTROL PEDESTAL HAS A PHOTOCELL, TORK CATALOG # S895.
13. PER 2014 NATIONAL ELECTRICAL CODE (NEC) ARTICLE 409.108, ENCLOSURE SHALL BE LABELED "SUITABLE FOR USE ONLY AS SERVICE EQUIPMENT". ENCLOSURE SHALL COMPLY WITH ALL OTHER MARKING REQUIREMENTS FOUND IN ARTICLE 409.110.

SHEET #402-8:

14. CONNECT ONE #6 BARE COPPER CONDUCTOR FROM THE NEUTRAL BUSS TO THE GROUND ROD IN THE PEDESTAL BASE. CONNECTION TO THE GROUND ROD MAY BE EITHER EXOTHERMIC WELD OR MECHANICAL FITTING RATED FOR DIRECT BURIAL.
15. ALL CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY OF 10KAIC.

SHEET #402-9:

16. COORDINATE PLACEMENT OF PEDESTAL WITH ALL OTHER UNDERGROUND UTILITIES. INSTALL PEDESTAL ON A "DRY" LOT LINE UNLESS IN CONFLICT WITH UTILITY EQUIPMENT, WHERE A MINIMUM OF 3-FEET SPACING IS REQUIRED. PEDESTAL SHALL NOT BE INSTALLED NEXT TO A COMBINATION TRANSFORMER PAD.
17. IF A PEDESTAL MUST BE INSTALLED NEXT TO A UTILITY TRANSFORMER, CONTRACTOR SHALL SUBMIT A PLAN TO THE CITY OF LEANDER ENGINEER SHOWING PEDESTAL PLACEMENT, CONDUIT ROUTING, AND ALL OTHER DETAILS NECESSARY TO MINIMIZE CONFLICTS WITH ALL UNDERGROUND UTILITIES. PLAN MUST BE APPROVED BY CITY ENGINEER PRIOR TO THE START OF CONSTRUCTION.
18. ALL PULL BOXES SHALL BE A HUBBELL QUAZITE 11"x18"x18".
19. ANY WIRE JUNCTIONS MADE IN AN IN GROUND PULL BOX SHALL BE MADE WITH THOMAS & BETTS PART NUMBER USK 2/0.

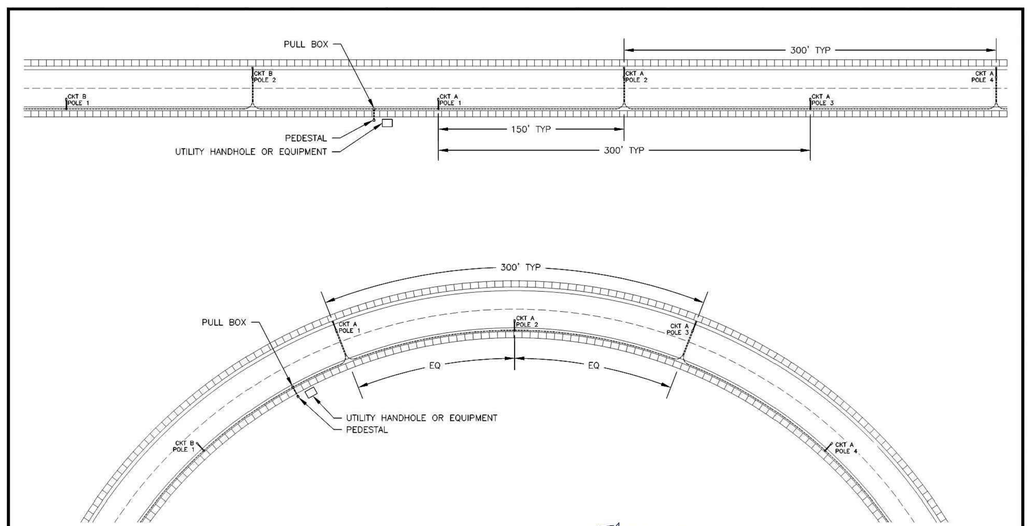
SHEET #402-10:

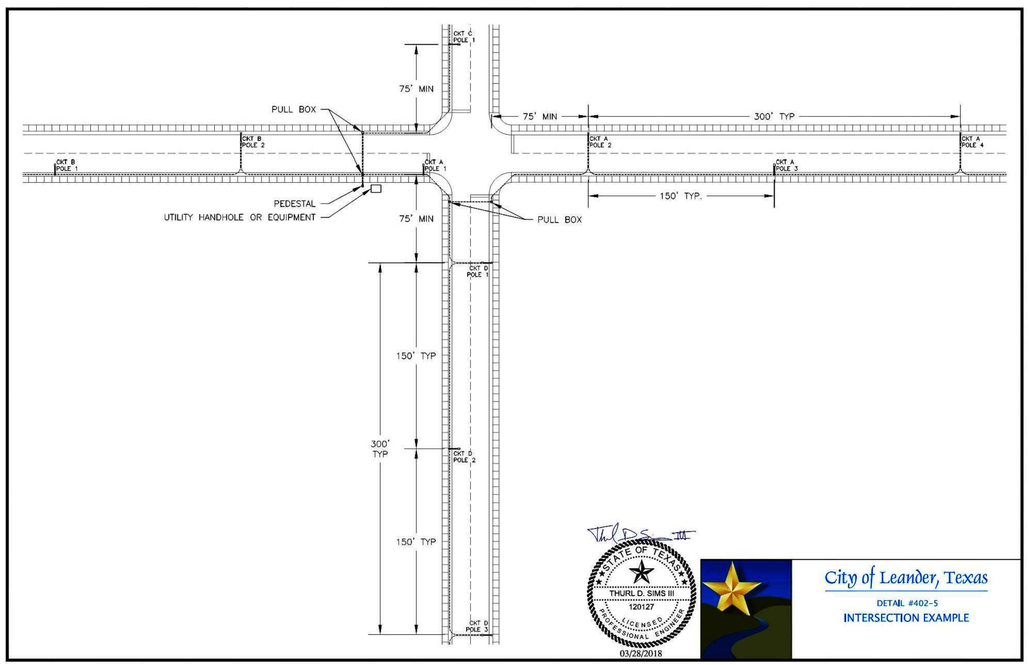
20. DYU 6 CONNECTORS MAY BE ELIMINATED FOR LAST POLE IN CIRCUIT. IF A CONDUCTOR SIZE CHANGE IS NECESSARY AT THE LAST POLE, USE THOMAS & BETTS PART NUMBER SDK M.
21. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 80 PVC.
22. ALL CONNECTORS TO BE INSTALLED WITH A 3 AMP FUSE, NO COPPER.

GENERAL NOTES

1. THESE STANDARDS APPLY TO RESIDENTIAL ROADWAY LIGHTING ONLY. ANY LIGHTING FOR OTHER ROADWAY TYPES SUCH AS ARTERIAL, COLLECTOR, HIGHWAY, ETC. SHALL BE DESIGNED BASED ON A PHOTOMETRIC STUDY IN ACCORDANCE WITH THE IESNA RP-8-14 STANDARD AND APPROPRIATE ROADWAY CLASSIFICATION.
2. ANY DEVIATIONS FROM THE FOLLOWING STANDARDS SHALL REQUIRE CONSTRUCTION DOCUMENTS WITH AN ENGINEER'S SEAL, SIGNATURE, AND DATE OF SIGNATURE. SUBMIT TO THE CITY OF LEANDER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. REFER TO CITY OF LEANDER DETAIL #402-1 AND #402-2 FOR STANDARD POLE BASE, POLE, AND STREETLIGHT SELECTION.
4. THE CONTRACTOR SHALL PROVIDE POWER TO A MINIMUM OF TEN STREETLIGHTS PER CONTROL PEDESTAL WITH THE INTENT TO DEPLOY AS FEW CONTROL PEDESTALS AS POSSIBLE. A SINGLE CONTROL PEDESTAL IS SIZED SUCH THAT IT MAY FEED A MAXIMUM OF 4 CIRCUITS WITH 10 STREETLIGHTS EACH (40 TOTAL).
5. ACCOMMODATION MUST BE MADE FOR PHASED DEVELOPMENTS. ARRANGE STREETLIGHTS AND CIRCUITS SUCH THAT SPARE CIRCUITS IN CONTROL PEDESTAL ARE AVAILABLE TO SERVE FUTURE PHASES WITHOUT THE NEED FOR ADDITIONAL LIGHTING CONTROL PEDESTALS. PROVIDE CONDUIT AND PULL BOXES AT THE BOUNDARY OF EACH ADJOINING PHASE SO THAT SUBSEQUENT PHASES MAY BE EASILY TIED IN TO THE EXISTING LIGHTING CONTROL PEDESTAL.
6. ALL STREETLIGHT BRANCH CIRCUIT WIRING SHALL BE #10AWG UNLESS OTHERWISE NOTED. MAXIMUM BRANCH CIRCUIT DISTANCE IS 2000' OF WIRE, AND THE MAXIMUM NUMBER OF STREETLIGHTS PER BRANCH CIRCUIT IS (10). IF CIRCUITS OR STREETLIGHT QUANTITIES MUST EXCEED THESE NUMBERS, THE SEALING ENGINEER IS RESPONSIBLE FOR PERFORMING VOLTAGE DROP CALCULATIONS DEMONSTRATING THAT THE CALCULATED VOLTAGE DROP IS AT A TOLERABLE LEVEL PER NEC ARTICLE 215.2.

STATE OF TEXAS
THURL D. SIMS III
120127
LICENSED PROFESSIONAL ENGINEER
10/04/2021
M&S ENGINEERING
CIVIL | ELECTRICAL | STRUCTURAL | MEP
TEXAS PROFESSIONAL ENGINEERING FIRM # F-13996
WWW.MSENGR.COM | (830) 228-5446
City of Leander, Texas
DETAIL #402-3
RESIDENTIAL ROADWAY LIGHTING NOTES





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ELECTRICAL DETAILS

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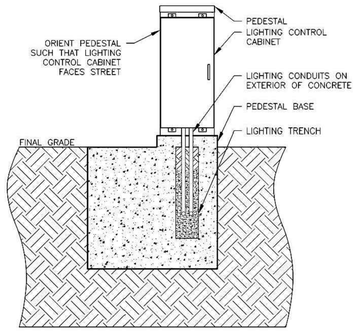
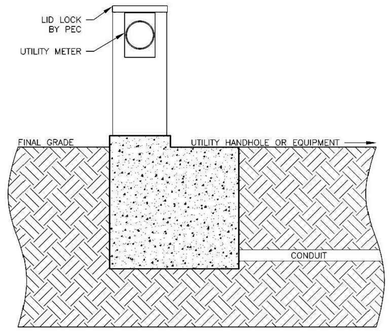
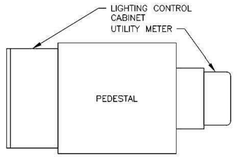


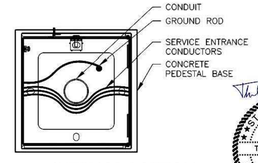
1 FACING ROADWAY
SCALE 1:16



2 FACING RIGHT OF WAY
SCALE 1:16



3 EXTERIOR TOP
SCALE 1:8



4 INTERIOR BOTTOM
SCALE 1:8

City of Leander, Texas
DETAIL #402-6
METER AND CONTROL PEDESTAL VIEWS

CONTROL PEDESTAL NOTES

1. EACH LIGHTING CONTROL PEDESTAL SHALL HAVE THE MAJOR COMPONENTS LISTED BELOW.
2. MINOR ASSEMBLY ITEMS SUCH AS DIN RAILS, MOUNTS, FASTENERS, TIE BASES, ETC. ARE NOT SPECIFICALLY ENUMERATED AND MUST BE PROVIDED BY THE DEVELOPER IN ORDER TO ENSURE A COMPLETE AND FUNCTIONAL CONTROL CABINET.
3. EXCEPTING THE PEDESTAL, ENCLOSURE, AND TIME SWITCH, SIEMENS, EATON, AND SQUARE D ARE ACCEPTABLE MANUFACTURERS OF MAJOR COMPONENTS. SIEMENS PART NUMBERS ARE LISTED BELOW AS A STANDARD OF QUALITY.
4. MIXED MANUFACTURERS OF MAJOR COMPONENTS ARE NOT ALLOWED IN A CONTROL PANEL.
5. ALL CONTROL PANELS IN A NEIGHBORHOOD MUST HAVE THE SAME COMPONENTS FROM THE SAME MANUFACTURER.
6. ALL PEDESTAL ENCLOSURES SHALL HAVE PROVISIONS FOR LOCKING, AND SHALL BE COMPATIBLE WITH STANDARD PADLOCK SHANKS.
7. ALL CONTROL PANELS SHALL HAVE POWER SWITCH WITH PROVISIONS FOR LOCKING IN CLOSED POSITION.

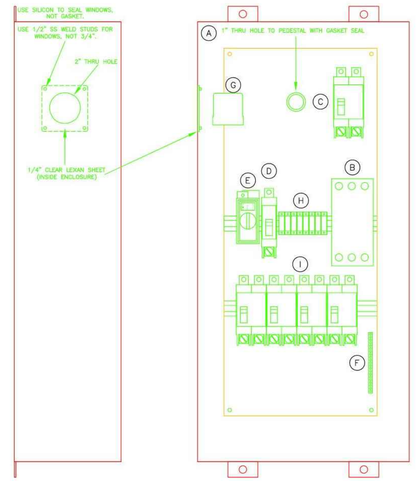
PEDESTAL:
MILBANK CATALOG # S9650-O

UTILITY METER SOCKET:
SIEMENS CATALOG # SUAT111-OPQG

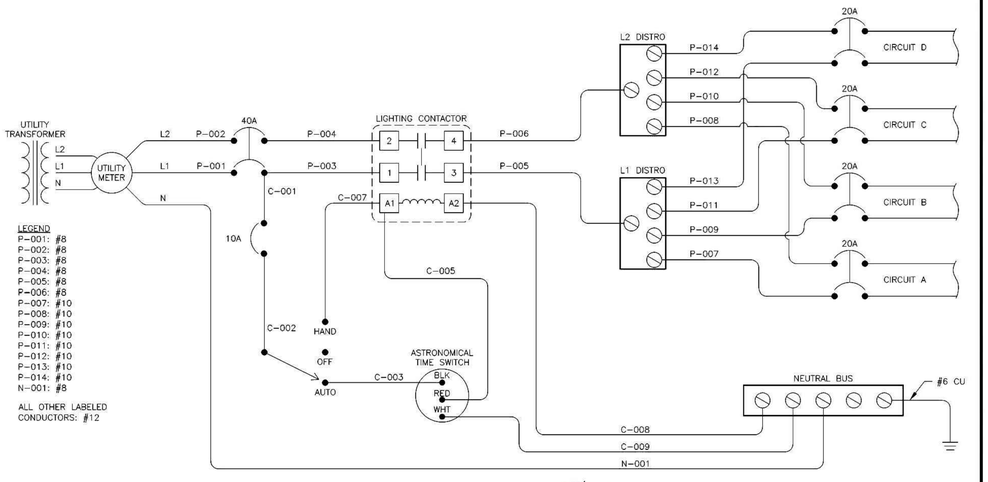
CONTROL CABINET:

A:	ENCLOSURE:	AMERITEX CATALOG # WS3R-321408 NEMA ENCLOSURES QUOTATION 31966 SCHAEFER'S CATALOG # SPSN4SS-291408-659
B:	CONTACTOR:	SIEMENS CATALOG # LEN00D03120B
C:	MAIN BREAKER:	SIEMENS CATALOG # BQ2B040QLD-TC1Q1
D:	CONTROL BREAKER:	SIEMENS CATALOG # BQ1B010QLD-TC1Q1
E:	HOA SWITCH:	SIEMENS CATALOG # 49SBSB1
F:	NEUTRAL BUS:	SIEMENS CATALOG # ECGB14
G:	PHOTOCELL:	TORK CATALOG # S895
H:	POWER DISTRIBUTION:	SIEMENS CATALOG # BWA1
I:	ZONE BREAKERS:	SIEMENS CATALOG # BQ2B020QLD-TC1Q1

APPROVED PANEL SHOPS:
CONTRACTORS MAY CHOOSE TO ASSEMBLE CABINETS USING COMPONENTS ABOVE, OR SOURCE ASSEMBLED CONTROL PANELS FROM THE FOLLOWING VENDORS:
1. W.E. MANUFACTURING – REFERENCE QUOTE #WE-S1431496 LEANDER PANEL, CONTACT NUMBER: 832-706-1866.
2. THE DUDLEY COMPANY – REFERENCE QUOTE #180815-001. CONTACT NUMBER: 210-337-4804.



City of Leander, Texas
DETAIL #402-7
CONTROL PANEL COMPONENT LAYOUT



City of Leander, Texas
DETAIL #402-8
CONTROL PANEL SCHEMATIC

1 POLE BASE AND PEDESTAL PLACEMENT
SCALE: 1/2": 1'

City of Leander, Texas
DETAIL #402-9
DETAILS PAGE 1

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Date\Time : Thu, 06 Apr 2023 - 4:34pm User Name : zalva
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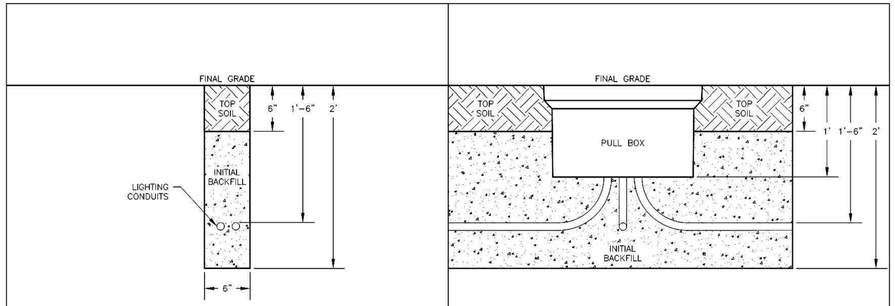
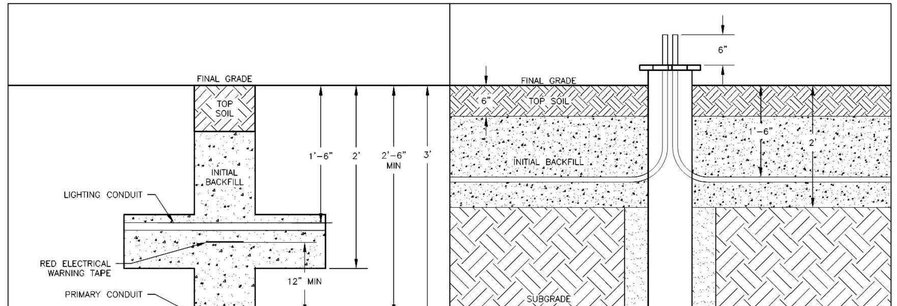
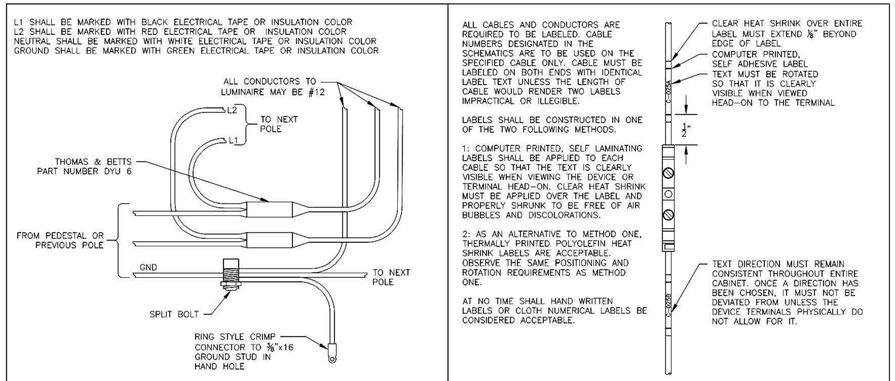


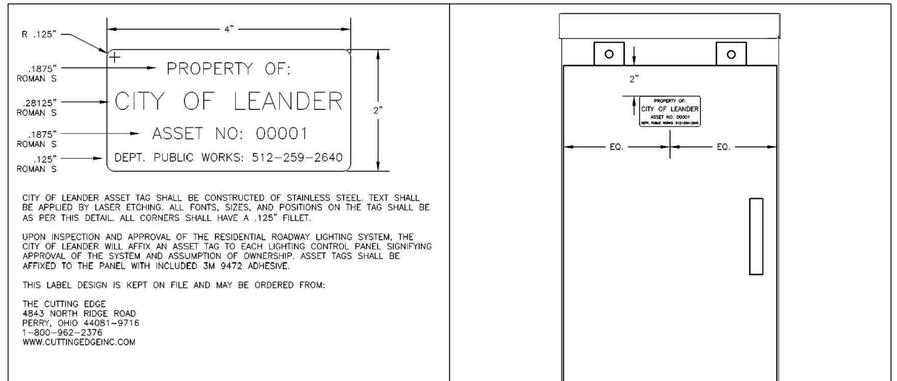
2	LIGHTING CONDUIT TRENCH	SCALE: 1 : 8	3	LIGHTING CONDUIT TRENCH INTERSECTION WITH PULL BOX	SCALE: 1 : 8



4	LIGHTING CONDUIT CROSSING ELECTRIC UTILITY CONDUIT	SCALE: 1 : 8	5	CONDUIT AT LIGHT POLE BASE	SCALE: 1 : 12



6	JUNCTION WIRING IN HAND HOLE	SCALE: 1 : 4	7	LIGHTING CONTROL CABINET CABLE LABELING STANDARD	SCALE: N/A



8	CITY OF LEANDER ASSET TAG	SCALE: 1 : 1	9	ASSET TAG MOUNTING LOCATION	SCALE: 1:4

THURL D. SIMS III
120127
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
03/28/2018

City of Leander, Texas
DETAIL #402-10
DETAILS PAGE 2

City of Leander, Texas
DETAIL #402-11
DETAILS PAGE 3

City of Leander, Texas
DETAIL #402-12
DETAILS PAGE 4

City of Leander, Texas
DETAIL #402-13
DETAILS PAGE 5

PALMERA BLUFF SUBDIVISION
SECTION 7 & 8

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 4/5/2023
DESIGNED BY: ZV
DRAWN BY: ZV
CHECKED BY: EC
DRAWING NAME: 60118_E3.dwg

E.G. LOPEZ DEL CASTILLO
58483
REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
04/04/2023

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2700 La Frontera Blvd
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Fax 512.439.4716
FRN - F-1386

JOB NUMBER: A311-0415

ELECTRICAL DETAILS

SHEET NO.

OF 75 SHEETS

HMG & ASSOCIATES INC.
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12515 Research Blvd. Bldg. 7 #140 (512)794-8234
Austin, Texas 78759 FAX (512)794-8239
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Date/Time : Thu, 06 Apr, 2023 - 3:35pm User Name : Zakva
Path/Name : C:\Users\zakva\appdata\local\temp\AcPublish_70800\60118 - E3.dwg