CONTRIBUTING ZONE PLAN

for

Benmark Liberty Hill

15405 W. State Highway 29

in

Liberty Hill, Williamson County, Texas

Prepared for

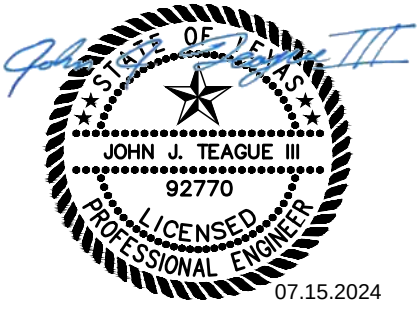
Reinert Management, LLC
PO Box 198
Midland, Texas 79702

Prepared by

Eckermann Engineering, Inc.
921 Main Street
Liberty Hill, TX 78642

Job No. 23030

July 2024



07.15.2024

ECKERMANN ENGINEERING, INC.

TBPELS FIRM REGISTRATION No. F-10496

Contributing Zone Plan Checklist

- **Edwards Aquifer Application Cover Page (TCEQ-20705)**
- **Contributing Zone Plan Application (TCEQ-10257)**

  Attachment A - Road Map
  Attachment B - USGS Quadrangle Map
  Attachment C - Project Narrative
  Attachment D - Factors Affecting Surface Water Quality
  Attachment E - Volume and Character of Stormwater
  Attachment F - Suitability Letter from Authorized Agent (if OSSF is proposed)
  Attachment G - Alternative Secondary Containment Methods (if AST with an alternative method of secondary containment is proposed)
  Attachment H - AST Containment Structure Drawings (if AST is proposed)
  Attachment I - 20% or Less Impervious Cover Declaration (if project is multi-family residential, a school, or a small business and 20% or less impervious cover is proposed for the site)
  Attachment J - BMPs for Upgradient Stormwater
  Attachment K - BMPs for On-site Stormwater
  Attachment L - BMPs for Surface Streams
  Attachment M - Construction Plans
  Attachment N - Inspection, Maintenance, Repair and Retrofit Plan
  Attachment O - Pilot-Scale Field Testing Plan, if BMPs not based on Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs
  Attachment P - Measures for Minimizing Surface Stream Contamination

- **Storm Water Pollution Prevention Plan (SWPPP)**

  -OR-

- **Temporary Stormwater Section (TCEQ-0602)**

  Attachment A - Spill Response Actions
  Attachment B - Potential Sources of Contamination
  Attachment C - Sequence of Major Activities
  Attachment D - Temporary Best Management Practices and Measures
  Attachment E - Request to Temporarily Seal a Feature, if sealing a feature
  Attachment F - Structural Practices
  Attachment G - Drainage Area Map
  Attachment H - Temporary Sediment Pond(s) Plans and Calculations
  Attachment I - Inspection and Maintenance for BMPs
  Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

- **Copy of Notice of Intent (NOI)**
- **Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- **Application Fee Form (TCEQ-0574)**
- **Check Payable to the "Texas Commission on Environmental Quality"**
- **Core Data Form (TCEQ-10400)**
- **Construction Plan Set**

EDWARDS AQUIFER APPLICATION COVER PAGE

(TCEQ-20705)

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

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

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

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

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

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

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

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

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

Technical Review

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

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

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

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: Benmark Liberty Hill						**2. Regulated Entity No.:**			
3. Customer Name: Reinert Management, LLC						**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):**		5.830	
9. Application Fee:	$5,000		**10. Permanent BMP(s):**			Batch Detention Basin			
11. SCS (Linear Ft.):	None		**12. AST/UST (No. Tanks):**			None			
13. County:	Williamson		**14. Watershed:**			South Fork San Gabriel River			

Application Distribution

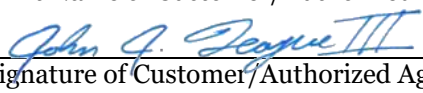
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which 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.)	___	___	X
County(ies)	___	___	X
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 ___Leander X 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. John J. Teague III, PE
Print Name of Customer/Authorized Agent
 07/15/2015
Signature of Customer/Authorized Agent Date

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

CONTRIBUTING ZONE PLAN APPLICATION

(TCEQ-10257)

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: John J. Teague III, PE, Eckermann Engineering, Inc.

Date: 07/15/2024

Signature of Customer/Agent:

Regulated Entity Name: Benmark Liberty Hill

Project Information

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

   Contact Person: Will Reinert
   Entity: Reinert Management, LLC
   Mailing Address: PO Box 198, Midland, TX 79702
   City, State: Midland, TX Zip: 79702
   Telephone: 432-682-6584 Fax: N/A
   Email Address: willreinert@benmark.com

5. Agent/Representative (If any):

Contact Person: John J. Teague, PE
Entity: Eckermann Engineering, Inc.
Mailing Address: 921 Main St.
City, State: Liberty Hill, Texas Zip: 78642
Telephone: 512-820-4027 Fax: N/A
Email Address: john@eckermannengineering.com

6. Project Location:

☒ The project site is located inside the city limits of Liberty Hill.
☐ 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.

15405 W State Highway 29, on the southwest corner of State Highway 29 and Deep Lake Dr.

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

13. Total project area (size of site): 5.83 Acres

    Total disturbed area: 3.76 Acres

14. Estimated projected population: N/A

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	12,812	÷ 43,560 =	0.29
Parking	11,361	÷ 43,560 =	0.261
Other paved surfaces	139,613	÷ 43,560 =	3.21
Total Impervious Cover	163,786	÷ 43,560 =	3.76

Total Impervious Cover 3.76 **÷ Total Acreage** 5.83 **X 100 =** 64.5**% 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 Liberty Hill Wastewater Treatment Plant (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

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

☒N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

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

Total x 1.5 = _____ Gallons

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

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

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

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

Table 3 - Secondary Containment

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

Total: _____ Gallons

30. Piping:

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

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

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

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

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

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

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

Site Plan Requirements

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

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

    Site Plan Scale: 1" = 30'.

35. 100-year floodplain boundaries:

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

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

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): _____.

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.

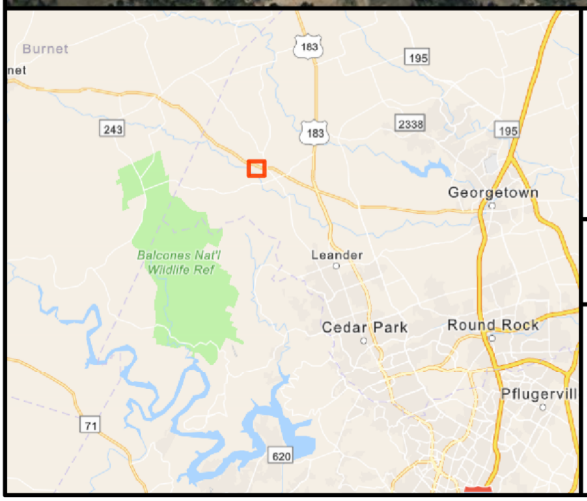
63. ☐ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements 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-10257

ATTACHMENTS A-P

3/28/2024



BENMARK LIBERTY HILL
15405 W SH29
Liberty Hill, Texas
CZP - Attachment A
Road Map

PROJECT LOCATION

N

0 500 1000 2000

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: 512-960-1098
TBPE FIRM NO. F-10496

ATTACHMENT "B"

USGS science for a changing world

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

The National Map US Topo

LIBERTY HILL QUADRANGLE
TEXAS
7.5-MINUTE SERIES

-98.0000° 30.7500° 96 000mE 97 98 99 NV 00 PV 01 02 03 04 05 06 07 -97.8750° 30.7500°
34 02 000mN 01 NV 00 NU 99 98 97 96 95 94 93 92 91 90 89 PV 00 PU 01 02 99 98 97 96 95 94 93 92 91 90 89 33 89 000mN
30.6250° 96 97 98 99 NU 00 PU 01 02 03 04 05 06 07 000mE -97.8750° 30.6250°

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, August 2016 - November 2016
Roads..... U.S. Census Bureau, 2015 - 2019
Names.....GNIS, 2008 - 2021
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

MN GN 3°50′ 68 MILS 0°33′ 10 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
00
NV PV
00
NU PU
Grid Zone Designation 14R

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

TEXAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Joppa
2 Mahomet
3 Florence
4 Bertram
5 Leander NE
6 Travis Peak
7 Nameless
8 Leander

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

LIBERTY HILL, TX
2022

NSN, 7643016397012
NGA REF NO. USGSX24K25631

ATTACHMENT C – PROJECT NARRATIVE

The project site is located at the southwest corner of State Highway 29 and Deep Lake Dr. in the City of Liberty Hill, Williamson County, Texas. The site is comprised of Lot 35A and 35B with two distinct drainage areas based on existing topography. Refer to the Road Map in Attachment A for the site location. The subject site includes 5.830 acres and is partially developed with an existing office/warehouse building and outdoor material storage. Pre-project conditions for Lot 35A are native grass and tree cover while 35B features the existing office/warehouse native grass. Under post project conditions an area of 3.762 acres is to be disturbed within the site. No portion of the site lies within the FEMA 100-year floodplain per map number 48491C0240F dated December 20, 2019. The proposed development is located fully within the Edwards Aquifer Contributing Zone.

The proposed improvements for the site include construction of a batch detention pond. The batch detention pond design is outlined in the plans within Attachment M of TCEQ-10257 herein. Offsite storm water runoff enters the project site from 0.348 acres of State Highway 29 right-of-way located to the north. Any offsite runoff entering an area of disturbance within the limits of construction on the site will flow through proposed temporary BMPs such as silt fence and rock berms. Permanent vegetation will be established in all disturbed areas upon completion of grading and construction activities.

The total proposed development which contains the existing building and pavement will include 3.74 acres of impervious cover. The permanent BMP utilized to mitigate for the proposed impervious cover is the above-mentioned batch detention pond.

The project will consist of the existing building, storage space and proposed parking and driveways. Access to the property will be provided from State Highway 29 to the north and Deep Lake Dr. to the east.

ATTACHMENT D – FACTORS AFFECTING SURFACE WATER QUALITY

Potential sources of sediment to stormwater runoff that could affect water quality during construction may include:

- Oil and grease from runoff pollutants associated with paving operations
- Asphalt emulsion from streets just after construction is complete
- Construction equipment pollutants including hydraulic fluid, machine oil, and diesel
- Temporarily non-stabilized soils as are commonly present during construction
- Heavy metals from concrete washout and waste, material delivery and storage, contaminated spills, etc.
- pH (acids & bases) from concrete washout and waste, structure construction, painting products,
- Cleaning products, material delivery and storage, hazardous waste, etc.
- Trash, debris and solids from clearing, grading, excavations, etc.

Post construction sources of sediment to stormwater runoff that could affect water quality include:

- Use of pesticides and fertilizers as are commonly used for building and landscape maintenance
- Trash and debris from the public utilizing the businesses
- Conveyance of suspended solids across parking and drives and through storm drains as is commonly present for commercial projects, for example:
    - Dirt, debris and other sediments brought into the site on vehicles
    - Oil or other fluid discharge from vehicles

ATTACHMENT E – VOLUME AND CHARACTER OF STORMWATER

The project site is located on a partially developed 5.830-acre subdivided property which generally drains from northwest to southeast. The site receives a minor amount off-site stormwater flow from 0.348 acres of State Highway 29 right-of-way located to the north of the project site. Existing drainage patterns convey the onsite flows via sheet flow and channelized flow. Runoff produced during proposed conditions will sheet flow and channel flow in roadside swells to be collected in a new batch detention pond located in on the southeast corner of the site, west of Deep Lake Dr.

Stormwater analysis for the site utilizes TR-55 Method and the City of Round Rock Design and Construction Standards.

Pre-construction:

- Quantity – 45.8 cfs (100-Year Event)
- Quality – The pre-construction condition of the site contains one developed commercial lot with a pre-existing office/warehouse building and one undeveloped lot with native grasses with tree cover. Runoff from the site includes natural sediment from the undeveloped lot during heavy storm events as well as runoff from the developed lot containing suspended solids and vehicle oil/fluid discharges from the parking and drives which drains through channels and storm drains.
- Area – 5.83 acres
- Impervious Cover – 2.00 acres
- Weighted Runoff coefficient – 85.3

Post-construction:

- Quantity – 43.3 cfs (100-Year Event)
- Quality – The post-construction condition of the site will consist of further development of Lot 35B with paving and parking lot. Development of Lot 35A has the removal of native grass. Factors affecting the stormwater quality of the site are increased with the additional impervious cover associated with the development on both Lots 35A and 35B. Stormwater from the two developed lots will be conveyed to the proposed batch detention pond for water quality and detention mitigation, to maintain discharge quantity and quality from pre-construction conditions.
- Area – 5.83 acres
- Impervious Cover – 3.76 acres
- Weighted Runoff coefficient – PR-1 – 85.3
  PR-2 – 89.9

ATTACHMENT F – SUITABILITY LETTER FROM AUTHORIZED AGENT

No new OSSF/Septic Tank is proposed with this project. The existing OSSF facility is to be abandoned/removed and wastewater service is proposed to be connected to the city of Liberty Hill public system.

ATTACHMENT G – ALTERNATIVE SECONDARY CONTAINMENT METHODS

No AST is proposed with this project.

ATTACHMENT H – AST CONTAINMENT STRUCTURE DRAWINGS

No AST is proposed with this project.

ATTACHMENT I – 20% OR LESS IMPERVIOUS COVER WAIVER

This site is proposing more than 20% impervious cover.

ATTACHMENT J – BMPS FOR UPGRADIENT STORMWATER

Upgradient runoff will flow through the site from 0.348 acres of State Highway 29 right-of-way located to the north of the project site. Any offsite runoff entering the project area on the site will be directed to the proposed batch detention facility via shallow concentrated flow. Additional runoff will channel flow along the eastern boundary of the site in a preexisting swell.

ATTACHMENT K – BMPS FOR ON-SITE STORMWATER

A batch detention pond is proposed to be constructed. The batch detention pond was sized to serve both existing sites and proposed improvements with a total impervious cover of 3.76 acres. The pond is proposed to be located at the southeast end of the site. Discharge from the water quality basin is to be conveyed by a pump system into roadside ditch of adjacent roadside swell. The TSS removal efficiency of the proposed batch detention system is 91% per the TCEQ Edwards Aquifer Protection Program technical guidance manual. The pond has been designed to detain flows for a minimum of 12 hours after a storm event and then release flows via a 6-inch pipe with automated valve to the downstream. Flows are to be released within 48 hours after the initial delay and the valve is to remain open for an additional two hours after the floats sense that the pond is empty.

The calculated required total capture volume of the pond is 4055 cubic feet, and the proposed volume of the batch detention pond is 4101 cubic feet, which exceeds the required amount. Please refer to the construction documents referenced in Attachment M and the TCEQ water quality calculation spreadsheet on the following pages for additional information.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Benmark Liberty Hill - 1540
Date Prepared: 7/1/2024

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

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

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

where:

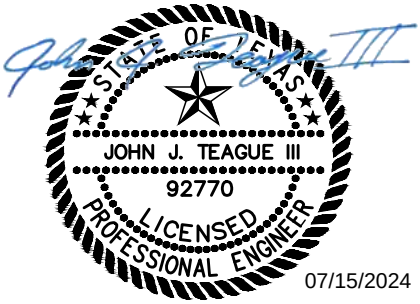
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	5.83	acres
Predevelopment impervious area within the limits of the plan * =	2.00	acres
Total post-development impervious area within the limits of the plan * =	3.76	acres
Total post-development impervious cover fraction * =	0.64	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	1530	lbs.

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

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



07/15/2024

TBPELS No. F-10496

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area =	3.83	acres	3-1 from RG-348
Predevelopment impervious area within drainage basin/outfall area =	1.25	acres	Permanent BMPs are those measu
Post-development impervious area within drainage basin/outfall area =	3.16	acres	Under 30 TAC Chapter 213, perma
Post-development impervious fraction within drainage basin/outfall area =	0.83		site or upgradient from the site and
$L_{M\ THIS\ BASIN}$ =	1664	lbs.	

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention Basin
Removal efficiency = 91 percent

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

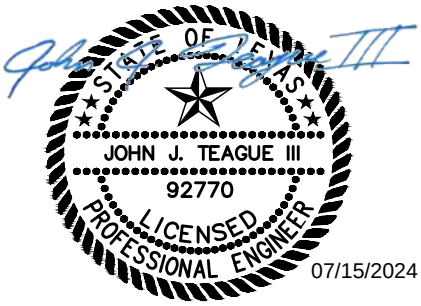
4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

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

where:

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

A_C =	4.25	acres
A_I =	3.16	acres



07/15/2024

TBPELS No. F-10496

A_P =	**1.09**	acres
L_R =	**3203**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**1530**	lbs.
F =	**0.48**	

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

Rainfall Depth =	**0.40**	inches
Post Development Runoff Coefficient =	**0.55**	
On-site Water Quality Volume =	**3379**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**676**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**4055**	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.

ATTACHMENT L – BMPS FOR SURFACE STREAMS

No surface streams are present which require additional BMPs.

ATTACHMENT M – CONSTRUCTION PLANS

The construction plans for the proposed batch detention facility have been included with this submittal and are located at the end of this electronic document. They are as follows:

C.01 Cover Sheet
C.02 General Notes
C.03 Subdivision Plat
C.04 Existing Conditions and Demolition Plan
C.05 Erosion and Sedimentation Control Plan
C.06 Site Plan
C.07 Wastewater Plan
C.08 Driveway Culvert Plan and Calculations
C.09 Fire Protection Plan
C.10 Proposed Grading and Paving Plan
C.11 Existing Drainage Area Map
C.12 Proposed Drainage Area Map
C.13 Batch Detention Plan
C.14 Batch Detention Details (1 of 2)
C.15 Batch Detention Details (2 of 2)
C.16 Construction Details
C.17 Construction Details
C.18 Construction Details
C.19 Wastewater Grinder Pump
C.20 Erosion Control Details
C.21 Culvert Details
C.22 Traffic Control Details
C.23 Lighting Plan
C.24 Lighting Details

ATTACHMENT N – INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

This Inspection, Maintenance, Repair and Retrofit Plan has been prepared for the Benmark Liberty Hill project located at 15405 W. State Highway 29 in the City of Liberty Hill, Williamson County, Texas.

BMP Maintenance operations should be performed on a regular basis as outlined below and are required to ensure that the BMPs and measures are constructed and functioning as designed. Inspection and Maintenance must be performed as required to maintain site aesthetics, proper vegetation coverage, and BMP access.

This Inspection, Maintenance, Repair and Retrofit Plan has been prepared by using the guidance set forth under the RG-348 "Complying with the Edwards Aquifer Rule, Technical Guidance on Best Management Practices.

Batch Detention Basins

Batch detention basin 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. Refer to the Edward's Aquifer Technical Guidance Manual if additional information is required.

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 for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s). 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. Grass areas in and around basins should be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

Debris and Litter Removal — Debris and litter removal should take place twice a year, as part of the periodic mowing operations and inspections. Debris and litter will accumulate near the extended detention control device and should be removed during regular mowing operations and inspections. Particular attention should be paid to floating debris that can eventually clog the low-flow control outlet and trash rack protection.

Erosion Control — the pond side slopes, emergency spillway, and embankment all may periodically suffer from slumping and erosion, although this should not occur if the soils are properly compacted during construction. Regrading and revegetation may be required to correct the problems. Correction of erosion control should take place whenever required based on periodic inspections.

Structural Repairs and Replacement — With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, headwalls, etc.) should be identified

and repaired immediately. These repairs should include patching of cracked concrete, sealing of voids, and removal of vegetation from cracks and joints. The various inlet/out and concrete outfall structures in a basin will eventually deteriorate and must be replaced.
Nuisance Control — Standing water or saturated conditions with the lower stage of the basin can create nuisance conditions for the public. Odors, mosquitoes, weeds, and litter are all occasionally perceived to be problems. Most of these problems are generally a sign that regular inspections and maintenance such as routine mowing, debris removal and/or outlet control cleaning is not being performed.

Sediment Removal — When properly designed and constructed, a batch detention basin will accumulate quantities of sediment over time. Sediment accumulation is a serious maintenance concern in batch detention dry ponds for several reasons. First, the sediment gradually reduces available stormwater management storage capacity within the basin. Secondly, sediment accumulation can make a batch detention basin very unsightly. Third, and perhaps most importantly, sediment tends to accumulate around the control device. Sediment deposition increases the risk that orifices will become clogged, and gradually reduces storage capacity reserved for pollutant removal. Sediment can also be resuspended if allowed to accumulate over time and escape through the low-flow outlet or grate on top of the outfall structure to the downstream channels. For these reasons, accumulated sediment needs to be removed from the lower stage when sediment buildup fills 20% of the volume of the lower basin or at least every 10 years. Care should be taken not to compromise the basin lining, if applicable, during maintenance. The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

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

An amended copy of this document shall be provided to the Texas Commission on Environmental Quality within thirty (30) days of any changes in the following information.
Responsible Party: Reinert Management, LLC
Mailing Address: PO Box 198, Midland, TX 79702
City, State, Zip: Midland, TX 79702
Telephone: 432-682-6584

Signature of Responsible Party _____ Date 7/17/24

Will Reinert

Engineer: John J. Teague III, P.E.
Firm: Eckermann Engineering, Inc.
TBPELS No. F-10496
Mailing Address: 921 Main St.
City, State, Zip: Liberty Hill, TX 78642
Telephone: 512-960-1098

ATTACHMENT O – PILOT-SCALE FIELD TESTING PLAN

All BMPs comply with the Edwards Aquifer Rules per RG-348; no field testing is required.

ATTACHMENT P – MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

No surface streams are present which require additional measures.

TEMPORARY STORMWATER SECTION

(TCEQ-0602)

ATTACHMENTS A-J

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: John Teague, PE - Eckermann Engineering, Inc.

Date: 07/15/2024

Signature of Customer/Agent:

Regulated Entity Name: Benmark Liberty Hill

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 Fork of the 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.

ATTACHMENT A

SPILL RESPONSE ACTIONS

Spills will be prevented utilizing Best Management Practices such as proper material storage, handling, and disposal practices. However, despite such efforts, a spill may occur on site. If a spill occurs, the following procedures will be utilized.

- **Stop the spill, if possible**. This can include shutting off power to a pump, righting an overturned container, or plugging a hole in a damaged container.
- **Contain the spill, safely.** Spill containment can be accomplished using a variety of materials and methods such as the use of absorbents (i.e. sawdust, Oil Dri, rags, soil, polypropylene pads or booms, etc.) to dike the area around the spill, or placing a leaking container inside one which is not leaking. Spill containment should only be attempted if it is safe to do so. Proper safety equipment such as gloves and eye protection should be used as directed on the Material Safety Data Sheet for the spilled material.
- **Report the spill, if necessary.** Certain quantities of hazardous or toxic materials such as pesticides, paint thinners, gasoline, etc. are required by Federal Law to be reported to the National Response Center (NRC) at 1-800-424-8802 as soon as you have knowledge of the spill. Since most of the quantities which require reporting to the NRC are larger than that found on a typical construction site, spill reporting to the State or Local authorities is more likely. When in doubt, report the spill.

The reporting requirements which may apply to the sites covered in this SWPPP are:

Texas Commission on Environmental Quality (TCEQ)
1-800-832-8224

Reportable quantities can be determined by accessing the webpage at the following link: https://www.tceq.texas.gov/response/spills/spill_rq.html TCEQ requires reporting of spills of 25 gallons or greater, especially those which might impact a waterway.

- **Clean the spill up, properly.** Spill cleanup should be performed in accordance with applicable regulations or according to the manufacturer's recommendations on the Material Safety Data Sheet. In most cases, proper spill cleanup is to use a dry method such as absorbing the spill and containerize for disposal via a licensed disposal company. For non-hazardous and non-toxic materials this may be through your solid waste disposal service with prior approval.

- **Fill in table on next page.**

The SWPPP must be modified within 14 days of a release to provide a description of the spill, the circumstances leading to the spill, and the date of the spill. Spill clean-up materials, methods, and additional Best Management Practices addressing spill prevention should also be included.

Spill Date	Material Spilled	Amount of spill (in gallons)	Circumstances of Spill (what caused the spill)	Corrective Action	Correction Date & Sign-off

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

Potential Sources of Contamination associated with this project may include:

1. Oil and grease from runoff pollutants associated with paving operations,
2. Asphalt emulsion from pavement just after construction is complete,
3. Construction equipment pollutants including hydraulic fluid, machine oil, and diesel,
4. Sediment from earth moving activities, and
5. Construction materials such as wood, paint, fertilizers, and concrete.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

1. Install construction fencing, stabilized construction entrance, erosion controls, and tree protection fencing per approved erosion and sedimentation control/tree protection plan. (Area Disturbed = 3.76 acres)
2. The contractor shall arrange and coordinate acceptable meeting times for an on-site preconstruction meeting with the Owner, Project Engineer, relevant contractors, and the City Environmental Inspector. The Environmental Inspector shall be contacted 72 hours prior to the required on-site preconstruction meeting. (Area Disturbed = 0.0 acres)
3. Begin site clearing/demolition. Silt Fence and SCE must be installed prior to and maintained during operations. (Area Disturbed = 3.76 acres)
4. Rough grade the site and construct drainage swales in accordance with plans and specifications. Silt Fence, Rock Berms, and SCE must be maintained during operations. (Area Disturbed = 3.76 acres)
5. Install utility improvements. Silt Fence, Rock Berms, Inlet Protection, and SCE must be maintained during operations. (Area Disturbed = 0.1 acres)
6. Construct building foundations. Silt Fence, Rock Berms, Inlet Protection, and SCE must be maintained during operations. (Area Disturbed = 0 acres)
7. Construct all-weather driving surface. Silt Fence, Rock Berms, Inlet Protection, and SCE must be maintained during operations. (Area Disturbed = 0.80 acres)
8. Construct building. Silt Fence, Rock Berms, Inlet Protection, and SCE must be maintained during operations. (Area Disturbed = Constructed on building foundations listed in Item 6)
9. Complete final grading, drainage, and pavement. Silt Fence, Rock Berms, and Inlet Protection must be maintained during operations. (Area Disturbed = 3 acres)
10. Hydromulch or sod all disturbed areas per landscape plan and general site cleanup. Silt Fence, Rock Berms, and Inlet Protection must be maintained during operations.
11. Final clearing of erosion and sedimentation controls and storm drain structures. 12. City Environmental inspector visits site and issues certificate of acceptance only if all construction is in substantial conformance to the plans. Total Disturbed Area = 3.76 acres

    *Note: Areas identified above in the sequence of construction may overlap and should not be totaled.

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

- Silt Fence – Approximately 928 linear feet of silt fence will be installed along the property line or limits of construction prior to the start of demolition or construction activities. The silt fence will prevent total suspended solids from leaving the site via sheet flow.
- Stabilized Construction Entrance – One (1) stabilized construction entrance will be installed at the driveway into the site prior to the start of construction activities. The construction entrance will be located as shown on the erosion control plan and will prevent the tracking of mud onto the public road.
- Rock Berm – Approximately two (2) rock berms will be installed along the drainage channels and at headwalls to prevent erosion during construction.
- Inlet Protection – Inlet protection will be installed on all proposed inlets while site construction activities are active.
- Concrete Washout – A concrete washout area is to be located near the Stabilized Construction Entrance.
- Spoils/Staging Area - A spoils/staging area is to be located near the Stabilized Construction Entrance. All the above listed temporary BMPs will be removed upon the completion of site construction activities and the establishment of permanent stabilization on the site.

ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE

(Not Applicable)

ATTACHMENT F

STRUCTURAL PRACTICES

All on-site drainage during construction will flow through the proposed temporary BMPs listed in Attachment D. Upgradient runoff will flow through the site from 0.348 acres of the railroad right-of-way located to the north of the project site. Any offsite runoff entering an area of disturbance within the limits of construction on the site will flow through the proposed temporary BMPs listed in Attachment D. Permanent vegetation will be established in all disturbed areas upon completion of grading and construction activities.

ATTACHMENT G

DRAINAGE AREA MAPS

(EXISTING AND PROPOSED)

(REFER TO CONSTRUCTION PLANS UNDER SEPARATE COVER)

ATTACHMENT H

TEMPORARY SEDIMENT POND PLANS AND CALCULATIONS

(Not Applicable)

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMPs

PROJECT NAME: **Benmark – Liberty Hill, TX**
ADDRESS: **15405 W. State Highway 29**
CITY, STATE: **Liberty Hill, TX**

SILT FENCE

- Inspections: Inspections shall be made weekly or after each rainfall event.

- Repair and Replacement: Repair or replacement of torn fabric shall be made promptly as needed or a second line of fencing parallel to the torn section shall be installed. 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.

- Sediment Removal: Accumulated silt shall be removed when it reaches a depth of 150mm (6 inches). The silt shall be disposed of on an approved site and in such a manner that will not contribute to additional siltation.

Silt fence shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

ROCK BERM

- Inspections: Inspections shall be made weekly or after each rainfall event. Daily inspections shall be made on high-service rock berms or rock berms within streambeds.

- Repair and Replacement: Repair any loose wire sheathing as needed. The stone and/or fabric core-woven sheathing shall be replaced or reshaped when the structure ceases to function as intended, due to silt accumulation among the rocks, washout, construction traffic damage, etc.

- Sediment Removal: Accumulated silt shall be removed when it reaches a depth of 150mm (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 berms shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

INLET PROTECTION

- Inspections: Inspections shall be made weekly or after each rainfall event.

- Repair and Replacement: Repair or replacement shall be made promptly as needed. Check placement of the inlet protection to prevent gaps between the device and curb/inlet. Replace/patch torn or missing filter fabric.

- Sediment Removal: Accumulated silt shall be removed when it reaches a depth of 75mm (3 inches). The silt shall be disposed of on an approved site and in a manner that will not contribute to additional siltation.

Inlet Protection shall be removed when the site is completely stabilized so as not to block or impede storm flow or drainage.

STABILIZED CONSTRUCTION ENTRANCE

- 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 sediment that is spilled, dropped, washed or tracked onto public roadway must be removed immediately.

- When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it should be done on an area stabilized with crushed stone that drains into another approved BMP.

The stabilized construction entrance will be removed once the driveway to the proposed site is complete.

CONCRETE WASHOUT AREAS

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of.

- Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of.

- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

Disposal of accumulated silt shall be accomplished following Texas Commission on Environmental Quality guidelines and specifications.

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

Responsible Party: Will Reinert
Mailing Address: PO Box 198, Midland, TX 79702
City, State: Midland, TX Zip: 79702
Telephone: 432-682-6584 Fax: N/A

Signature of Responsible Party  Date 7/17/24

Will Reinert

ATTACHMENT J

SCHEDULE FOR INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Interim stabilization shall be achieved through the temporary erosion controls. All disturbed pervious areas shall receive permanent hydromulch or sod after final grading is completed or if construction activities stop for more than 14 days. The remaining disturbed areas will be stabilized by the installation of pavement or building structures. 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.

COPY OF NOTICE OF INTENT (NOI)

TCEQ Office Use Only
Permit No:
CN:
RN:

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

IMPORTANT INFORMATION

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

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

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

ePERMITS

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

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

APPLICATION FEE AND PAYMENT

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

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

Provide your payment information for verification of payment:

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

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

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

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

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

SECTION 1. OPERATOR (APPLICANT)

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

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

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

Reinert Management, LLC

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

Prefix (Mr. Ms. Miss): Mr.

First and Last Name: Will Reinert Suffix: Click here to enter text

Title: Managing Partner Credentials: Click here to enter text

Phone Number: 432-682-6584 Fax Number: Click here to enter text

E-mail: willreinert@benmark.com

Mailing Address: PO Box 198

City, State, and Zip Code: Midland, TX 79702

Mailing Information if outside USA:

Territory: Click here to enter text

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

d) Indicate the type of customer:

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

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

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

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

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

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

State Franchise Tax ID Number: 1-75-2521170-6

Federal Tax ID: 75-2521170

Texas Secretary of State Charter (filing) Number: ___

DUNS Number (if known): 17500473

SECTION 2. APPLICATION CONTACT

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

☒ Yes, go to Section 3

☐ No, complete this section

Prefix (Mr. Ms. Miss): Click here to enter text.

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

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

Organization Name: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail: Click here to enter text.

Mailing Address: Click here to enter text.

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

City, State, and Zip Code: Click here to enter text.

Mailing information if outside USA:

Territory: Click here to enter text.

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

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

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

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

b) Name of project or site (the name known by the community where it's located): Benmark Liberty Hill

c) In your own words, briefly describe the type of construction occurring at the regulated site (residential, industrial, commercial, or other): Light Industrial Office/Warehouse

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

e) Latitude: 30.6751 Longitude: -97.9389

f) Site Address/Location

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

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

Section A:

Street Number and Name: 15405 West State Highway 29

City, State, and Zip Code: Liberty Hill, TX 78642

Section B:

Location Description: ___

City (or city nearest to) where the site is located: ___

Zip Code where the site is located: ___

SECTION 4. GENERAL CHARACTERISTICS

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

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

☒ No

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

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

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site? **1629**

d) What is the Secondary SIC Code(s), if applicable?

e) What is the total number of acres to be disturbed? 3.76

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

☒ Yes

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

g) What is the estimated start date of the project? 9/1/2024

h) What is the estimated end date of the project? 3/1/2025

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

j) What is the name of the first water body(ies) to receive the stormwater runoff or potential runoff from the site? South Fork San Gabriel River

k) What is the segment number(s) of the classified water body(ies) that the discharge will eventually reach? 1250

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

☒ Yes ☐ No

If Yes, provide the name of the MS4 operator: City of Liberty Hill

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

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

☒ Yes, complete the certification below.

☐ No, go to Section 5

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

SECTION 5. NOI CERTIFICATION

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

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

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

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

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

SECTION 6. APPLICANT CERTIFICATION SIGNATURE

Operator Signatory Name: Will Reinert

Operator Signatory Title: Managing Principal

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

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

Signature (use blue ink): _____Date: _____

NOTICE OF INTENT CHECKLIST (TXR150000)

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

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

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

APPLICATION FEE

If paying by check:

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

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

If using ePay:

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

RENEWAL

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

OPERATOR INFORMATION

☐ Customer Number (CN) issued by TCEQ Central Registry

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

☐ Name and title of responsible authority signing the application.

☐ Phone number and e-mail address

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

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

☐ Number of employees.

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

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

REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

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

☐ Site/project name and construction activity description

☐ County

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

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

GENERAL CHARACTERISTICS

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

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

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

☐ Estimated starting and ending dates of the project.

☐ Confirmation of concrete truck washout.

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

☐ Common plan of development or sale.

☐ Receiving water body or water bodies.

☐ Segment number or numbers.

☐ MS4 operator.

☐ Edwards Aquifer rule.

CERTIFICATION

☐ Certification statements have been checked indicating Yes.

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

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

GENERAL INFORMATION

Where to Send the Notice of Intent (NOI):

By Regular Mail:
TCEQ
Stormwater Processing Center (MC228)
P.O. Box 13087
Austin, Texas 78711-3087

By Overnight or Express Mail:
TCEQ
Stormwater Processing Center (MC228)
12100 Park 35 Circle
Austin, TX

Application Fee:

The application fee of $325 is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit. Payment of the fee may be made by check or money order, payable to TCEQ, or through EPAY (electronic payment through the web).

Mailed Payments:

Use the attached General Permit Payment Submittal Form. The application fee is submitted to a different address than the NOI. Read the General Permit Payment Submittal Form for further instructions, including the address to send the payment.

ePAY Electronic Payment: http://www.tceq.texas.gov/epay

When making the payment you must select Water Quality, and then select the fee category "General Permit Construction Storm Water Discharge NOI Application". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.

TCEQ Contact List:

Application – status and form questions:	512-239-3700, swpermit@tceq.texas.gov
Technical questions:	512-239-4671, swgp@tceq.texas.gov
Environmental Law Division:	512-239-0600
Records Management - obtain copies of forms:	512-239-0900
Reports from databases (as available):	512-239-DATA (3282)
Cashier's office:	512-239-0357 or 512-239-0187

Notice of Intent Process:

When your NOI is received by the program, the form will be processed as follows:

- **Administrative Review**: Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(es) on the form must be verified with the US Postal service as receiving regular mail delivery. Do not give an overnight/express mailing address.

- **Notice of Deficiency:** If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.
- **Acknowledgment of Coverage:** An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.

  or

  Denial of Coverage: If the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.

General Permit (Your Permit)

For NOIs submitted **electronically** through ePermits, provisional coverage under the general permit begins immediately following confirmation of receipt of the NOI form by the TCEQ.

For **paper** NOIs, provisional coverage under the general permit begins **7 days after a completed NOI is postmarked for delivery** to the TCEQ.

You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.texas.gov. Search using keyword TXR150000.

Change in Operator

An authorization under the general permit is not transferable. If the operator of the regulated project or site changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted no later than 10 days prior to the change in Operator status.

TCEQ Central Registry Core Data Form

The Core Data Form has been incorporated into this form. Do not send a Core Data Form to TCEQ. After final acknowledgment of coverage under the general permit, the program will assign a Customer Number and Regulated Entity Number, if one has not already been assigned to this customer or site.

For existing customers and sites, you can find the Customer Number and Regulated Entity Number by entering the following web address into your internet browser: http://www15.tceq.texas.gov/crpub/ or you can contact the TCEQ Stormwater Processing Center at 512-239-3700 for assistance. On the website, you can search by your permit number, the Regulated Entity (RN) number, or the Customer Number (CN). If you do not know these numbers, you can select “Advanced Search” to search by permittee name, site address, etc.

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For this permit, a Notice of Change form must be submitted to the program area.

INSTRUCTIONS FOR FILLING OUT THE NOI FORM

Renewal of General Permit. Dischargers holding active authorizations under the expired General Permit are required to submit a NOI to continue coverage. The existing permit number is required. If the permit number is not provided or has been terminated, expired, or denied, a new permit number will be issued.

Section 1. OPERATOR (APPLICANT)

a) Customer Number (CN)

TCEQ's Central Registry will assign each customer a number that begins with CN, followed by nine digits. **This is not a permit number, registration number, or license number**.

If the applicant is an existing TCEQ customer, the Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the applicant is not an existing TCEQ customer, leave the space for CN blank.

b) Legal Name of Applicant

Provide the current legal name of the applicant. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, as filed in the county. You may contact the SOS at 512-463-5555, for more information related to filing in Texas. If filed in the county, provide a copy of the legal documents showing the legal name.

c) Contact Information for the Applicant (Responsible Authority)

Provide information for the person signing the application in the Certification section. This person is also referred to as the Responsible Authority.

Provide a complete mailing address for receiving mail from the TCEQ. The mailing address must be recognized by the US Postal Service. You may verify the address on the following website: https://tools.usps.com/go/ZipLookupAction!input.action.

The phone number should provide contact to the applicant.

The fax number and e-mail address are optional and should correspond to the applicant.

d) Type of Customer (Entity Type)

Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type. Note that the selected entity type also indicates the name that must be provided as an applicant for an authorization.

Individual

An individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ.

Partnership

A customer that is established as a partnership as defined by the Texas Secretary of State Office (TX SOS). If the customer is a 'General Partnership' or 'Joint Venture' filed in the county (not filed with TX SOS), the legal name of each partner forming the 'General Partnership' or 'Joint Venture' must be provided. Each 'legal entity' must apply as a co-applicant.

Trust or Estate

A trust and an estate are fiduciary relationships governing the trustee/executor with respect to the trust/estate property.

Sole Proprietorship (DBA)

A sole proprietorship is a customer that is owned by only one person and has not been incorporated. This business may:

1. be under the person's name
2. have its own name (doing business as or DBA)
3. have any number of employees.

If the customer is a Sole Proprietorship or DBA, the 'legal name' of the individual business 'owner' must be provided. The DBA name is not recognized as the 'legal name' of the entity. The DBA name may be used for the site name (regulated entity).

Corporation

A customer that meets all of these conditions:

1. is a legally incorporated entity under the laws of any state or country
2. is recognized as a corporation by the Texas Secretary of State
3. has proper operating authority to operate in Texas

The corporation's 'legal name' as filed with the Texas Secretary of State must be provided as applicant. An 'assumed' name of a corporation is not recognized as the 'legal name' of the entity.

Government

Federal, state, county, or city government (as appropriate)

The customer is either an agency of one of these levels of government or the governmental body itself. The government agency's 'legal name' must be provided as the applicant. A department name or other description of the organization is not recognized as the 'legal name'.

Other

This may include a utility district, water district, tribal government, college district, council of governments, or river authority. Provide the specific type of government.

e) Independent Entity

Check No if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check Yes.

f) Number of Employees

Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the application.

g) Customer Business Tax and Filing Numbers

These are required for Corporations and Limited Partnerships. These are not required for Individuals, Government, and Sole Proprietors.

State Franchise Tax ID Number

Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter the Tax ID number.

Federal Tax ID

All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.

TX SOS Charter (filing) Number

Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512-463-5555.

DUNS Number

Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

Section 2. APPLICATION CONTACT

Provide the name and contact information for the person that TCEQ can contact for additional information regarding this application.

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

a) Regulated Entity Number (RN)

The RN is issued by TCEQ's Central Registry to sites where an activity is regulated by TCEQ. This is not a permit number, registration number, or license number. Search TCEQ's Central Registry to see if the site has an assigned RN at http://www15.tceq.texas.gov/crpub/. If this regulated entity has not been assigned an RN, leave this space blank.

If the site of your business is part of a larger business site, an RN may already be assigned for the larger site. Use the RN assigned for the larger site.

If the site is found, provide the assigned RN and provide the information for the site to be authorized through this application. The site information for this authorization may vary from the larger site information.

An example is a chemical plant where a unit is owned or operated by a separate corporation that is accessible by the same physical address of your unit or facility. Other examples include industrial parks identified by one common address but different corporations have control of defined areas within the site. In both cases, an RN would be assigned for the physical address location and the permitted sites would be identified separately under the same RN.

b) Name of the Project or Site

Provide the name of the site or project as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity name.

c) Description of Activity Regulated

In your own words, briefly describe the primary business that you are doing that requires this authorization. Do not repeat the SIC Code description.

d) County

Provide the name of the county where the site or project is located. If the site or project is located in more than one county, provide the county names as secondary.

e) Latitude and Longitude

Enter the latitude and longitude of the site in degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to: http://www.tceq.texas.gov/gis/sqmaview.html.

f) Site Address/Location

If a site has an address that includes a street number and street name, enter the complete address for the site in *Section A*. If the physical address is not recognized as a USPS delivery address, you may need to validate the address with your local police (911 service) or through an online map site used to locate a site. Please confirm this to be a complete and valid address. Do not use a rural route or post office box for a site location.

If a site does not have an address that includes a street number and street name, provide a complete written location description in *Section B.* For example: "The site is located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1."

Provide the city (or nearest city) and zip code of the site location.

Section 4. GENERAL CHARACTERISTICS

a) Indian Country Lands

If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA Region 6, Dallas. Do not submit this form to TCEQ.

b) Construction activity associated with facility associated with exploration, development, or production of oil, gas, or geothermal resources

If your activity is associated with oil and gas exploration, development, or production, you may be under jurisdiction of the Railroad Commission of Texas (RRC) and may need to obtain authorization from EPA Region 6.

Construction activities associated with a facility related to oil, gas or geothermal resources may include the construction of a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a

carbon dioxide geologic storage facility; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel.

Where required by federal law, discharges of stormwater associated with construction activities under the RRC's jurisdiction must be authorized by the EPA and the RRC, as applicable. Activities under RRC jurisdiction include construction of a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources, such as a well site; treatment or storage facility; underground hydrocarbon or natural gas storage facility; reclamation plant; gas processing facility; compressor station; terminal facility where crude oil is stored prior to refining and at which refined products are stored solely for use at the facility; a carbon dioxide geologic storage facility under the jurisdiction of the RRC; and a gathering, transmission, or distribution pipeline that will transport crude oil or natural gas, including natural gas liquids, prior to refining of such oil or the use of the natural gas in any manufacturing process or as a residential or industrial fuel. The RRC also has jurisdiction over stormwater from land disturbance associated with a site survey that is conducted prior to construction of a facility that would be regulated by the RRC. Under 33 U.S.C. §1342(l)(2) and §1362(24), EPA cannot require a permit for discharges of stormwater from field activities or operations associated with {oil and gas} exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be construction activities unless the discharge is contaminated by contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of the facility. Under §3.8 of this title (relating to Water Protection), the RRC prohibits operators from causing or allowing pollution of surface or subsurface water. Operators are encouraged to implement and maintain best management practices (BMPs) to minimize discharges of pollutants, including sediment, in stormwater during construction activities to help ensure protection of surface water quality during storm events.

For more information about the jurisdictions of the RRC and the TCEQ, read the Memorandum of Understanding (MOU) between the RRC and TCEQ at 16 Texas Administrative Code, Part 1, Chapter 3, Rule 3.30, by entering the following link into an internet browser: http://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=30 or contact the TCEQ Stormwater Team at 512-239-4671 for additional information.

c) Primary Standard Industrial Classification (SIC) Code

Provide the SIC Code that best describes the construction activity being conducted at this site.

Common SIC Codes related to construction activities include:

- 1521 - Construction of Single Family Homes
- 1522 - Construction of Residential Buildings Other than Single Family Homes
- 1541 - Construction of Industrial Buildings and Warehouses

- 1542 - Construction of Non-residential Buildings, other than Industrial Buildings and Warehouses
- 1611 - Highway and Street Construction, except Highway Construction
- 1622 - Bridge, Tunnel, and Elevated Highway Construction
- 1623 - Water, Sewer, Pipeline and Communications, and Power Line Construction

For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Local Government Assistance Section at 800-447-2827 for assistance.

d) Secondary SIC Code

Secondary SIC Code(s) may be provided. Leave this blank if not applicable. For help with SIC Codes, enter the following link into your internet browser: http://www.osha.gov/pls/imis/sicsearch.html or you can contact the TCEQ Small Business and Environmental Assistance Section at 800-447-2827 for assistance.

e) Total Number of Acres Disturbed

Provide the approximate number of acres that the construction site will disturb. Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage. Construction activities that disturb between one and five acres, unless they are part of a common plan that disturbs more than five acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

If you have any questions about this item, please contact the stormwater technical staff by phone at 512-239-4671 or by email at swgp@tceq.texas.gov.

f) Common Plan of Development

Construction activities that disturb less than five acres do not require submission of an NOI unless they are part of a common plan of development or for sale where the area disturbed is five or more acres. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres. Disturbed means any clearing, grading, excavating, or other similar activities.

For more information on what a common plan of development is, refer to the definition of "Common Plan of Development" in the Definitions section of the general permit or enter the following link into your internet browser: www.tceq.texas.gov/permitting/stormwater/common_plan_of_development_steps.html

For further information, go to the TCEQ stormwater construction webpage enter the following link into your internet browser: www.tceq.texas.gov/goto/construction and search for "Additional Guidance and Quick Links". If you have any further questions about the Common Plan of Development you can contact the TCEQ Stormwater Team at 512-239-4671 or the TCEQ Small Business and Environmental Assistance at 800-447-2827.

g) Estimated Start Date of the Project

This is the date that any construction activity or construction support activity is initiated at the site. If renewing the permit provide the original start date of when construction activity for this project began.

h) Estimated End Date of the Project

This is the date that any construction activity or construction support activity will end and final stabilization will be achieved at the site.

i) Will concrete truck washout be performed at the site?

Indicate if you expect that operators of concrete trucks will washout concrete trucks at the construction site.

j) Identify the water body(s) receiving stormwater runoff

The stormwater may be discharged directly to a receiving stream or through a MS4 from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).

If your site has more than one outfall you need to include the name of the first water body for each outfall, if they are different.

k) Identify the segment number(s) of the classified water body(s)

Identify the classified segment number(s) receiving a discharge directly or indirectly. Enter the following link into your internet browser to find the segment number of the classified water body where stormwater will flow from the site: www.tceq.texas.gov/waterquality/monitoring/viewer.html or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

You may also find the segment number in TCEQ publication GI-316 by entering the following link into your internet browser: www.tceq.texas.gov/publications/gi/gi-316 or by contacting the TCEQ Water Quality Division at (512) 239-4671 for assistance.

If the discharge is into an unclassified receiving water and then crosses state lines prior to entering a classified segment, select the appropriate watershed:

- 0100 (Canadian River Basin)
- 0200 (Red River Basin)
- 0300 (Sulfur River Basin)
- 0400 (Cypress Creek Basin)
- 0500 (Sabine River Basin)

Call the Water Quality Assessments section at 512-239-4671 for further assistance.

l) Discharge into MS4 – Identify the MS4 Operator

The discharge may initially be into a municipal separate storm sewer system (MS4). If the stormwater discharge is into an MS4, provide the name of the entity that operates the MS4 where the stormwater discharges. An MS4 operator is often a city, town, county, or utility district, but possibly can be another form of government. Please note that the Construction General Permit requires the Operator to supply the MS4 with a

copy of the NOI submitted to TCEQ. For assistance, you may call the technical staff at 512-239-4671.

m) Discharges to the Edwards Aquifer Recharge Zone and Certification

The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included or referenced as a part of the Stormwater Pollution Prevention Plan.

See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer by entering the following link into an internet browser: www.tceq.texas.gov/field/eapp/viewer.html or by contacting the TCEQ Water Quality Division at 512-239-4671 for assistance.

If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site-specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.

For questions regarding the Edwards Aquifer Protection Program, contact the appropriate TCEQ Regional Office. For projects in Hays, Travis and Williamson Counties: Austin Regional Office, 12100 Park 35 Circle, Austin, TX 78753, 512-339-2929. For Projects in Bexar, Comal, Kinney, Medina and Uvalde Counties: TCEQ San Antonio Regional Office, 14250 Judson Rd., San Antonio, TX 78233-4480, 210-490-3096.

Section 5. NOI CERTIFICATION

Note: Failure to indicate Yes to all of the certification items may result in denial of coverage under the general permit.

a) Certification of Understanding the Terms and Conditions of Construction General Permit (TXR150000)

Provisional coverage under the Construction General Permit (TXR150000) begins 7 days after the completed paper NOI is postmarked for delivery to the TCEQ. Electronic applications submitted through ePermits have immediate provisional coverage. You must obtain a copy and read the Construction General Permit before submitting your application. You may view and print the Construction General Permit for which you are seeking coverage at the TCEQ web site by entering the following link into an internet browser: www.tceq.texas.gov/goto/construction or you may contact the TCEQ Stormwater processing Center at 512-239-3700 for assistance.

b) Certification of Legal Name

The full legal name of the applicant as authorized to do business in Texas is required. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512-463 5555, for more information related to filing in Texas.

c) Understanding of Notice of Termination

A permittee shall terminate coverage under the Construction General Permit through the submittal of a NOT when the operator of the facility changes, final stabilization has

been reached, the discharge becomes authorized under an individual permit, or the construction activity never began at this site.

d) Certification of Stormwater Pollution Prevention Plan

The SWP3 identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter stormwater, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. You must develop this plan in accordance with the TCEQ general permit requirements. This plan must be developed and implemented before you complete this NOI. The SWP3 must be available for a TCEQ investigator to review on request.

Section 6. APPLICANT CERTIFICATION SIGNATURE

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

If you are a corporation:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

If you are a municipality or other government entity:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the TCEQ's Environmental Law Division at 512-239-0600.

30 Texas Administrative Code

§305.44. Signatories to Applications

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the

corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

Texas Commission on Environmental Quality
General Permit Payment Submittal Form

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

Instructions:

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

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

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

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

Fee Code: GPA General Permit: TXR150000

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

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

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

   Project/Site (RE) Name: Click here to enter text

   Project/Site (RE) Physical Address: Click here to enter text

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

AGENT AUTHORIZATION FORM

(TCEQ-0599)

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

I Will Reinert,
Print Name

Managing Partner,
Title - Owner/President/Other

of Reinert Management, LLC,
Corporation/Partnership/Entity Name

have authorized John J. Teague III, PE
Print Name of Agent/Engineer

of Eckermann 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

7/17/24
Date

THE STATE OF TEXAS §

County of Midland §

BEFORE ME, the undersigned authority, on this day personally appeared William Reinert 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 17th day of July, 2024.

NICOLE THORNTON NOTARY PUBLIC STATE OF TEXAS ID# 128756381 EXPIRES 10-3-2027

NOTARY PUBLIC

Nicole Thornton
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

APPLICATION FEE FORM

(TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Benmark Liberty Hill
Regulated Entity Location: 15405 W. State highway 29
Name of Customer: Reinert Management, LLC
Contact Person: Will Reinert Phone: 432-682-6584
Customer Reference Number (if issued):CN N/A
Regulated Entity Reference Number (if issued):RN N/A

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☒ Austin Regional Office
☒ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	5.83 Acres	$ 5000
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: John J. Teague III Date: 07/15/2024

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

CORE DATA FORM

(TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

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		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:*

Reinert Management, LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
	17525211706	75-2521170	175004373

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: PO Box 198

City	State	ZIP	ZIP + 4
Midland	TX	79702	

16. Country Mailing Information (if outside USA)	17. E-Mail Address (if applicable)
	willreinert@benmark.com

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(432) 682-6584		( ) -

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.*)

Benmark Liberty Hill

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	15405 W. State Highway 29							
	City	Liberty Hill	**State**	TX	**ZIP**	78642	**ZIP + 4**	
24. County	Williamson							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	40	30.27	97	56	19.92

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)
1629		423390	

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

Wholesale water and wastewater infrastructure supply

34. Mailing Address:	**15405 W. State Highway 29**							
	City	**Liberty Hill**	**State**	**TX**	**ZIP**	**78642**	**ZIP + 4**	

35. E-Mail Address:	**willreinert@benmark.com**		
36. Telephone Number	**37. Extension or Code**	**38. Fax Number** ***(if applicable)***	
(512) 778-6577		**( ) -**	

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:	John Teague, PE Eckermann Engineering, Inc.	**41. Title:**	Operations Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 820-4027		( ) -	john@eckermannengineering.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:	Reinert Management, LLC	**Job Title:**	Managing Partner
Name *(In Print):*	Will Reinert	**Phone:**	(432) 682- **6584**

Signature:		Date:	7/17/24

LEGAL DESCRIPTION:

LOTS 35A AND 35B OF THE RIVERBEND OAKS 5.170 ACRES IN THE R. WEST SURVEY, ABSTRACT # 643 IN WILLIAMSON COUNTY, TEXAS.

BENCHMARKS:

BM 1: SET COTTON SPINDLE
ELEV = 1024.58
N: 10217009.95
E: 3049215.24
VERTICAL DATUM: (NAVD 88)

FLOODPLAIN:

THE SUBJECT TRACT IS SHOWN TO BE IN UNSHADED FLOOD ZONE "X", AN AREA OF MINIMAL FLOOD HAZARD, OUTSIDE OF THE 100-YEAR FLOODPLAIN, AS SHOWN ON MAP NO. 48491C0240F, DATED DECEMBER 20, 2019 FOR WILLIAMSON COUNTY, TEXAS AND INCORPORATED AREAS

ZONING :

THIS SITE IS LOCATED WITHIN THE FULL PURPOSE JURISDICTION OF THE CITY OF LIBERTY HILL
ZONING CLASSIFICATION: GENERAL COMMERCIAL/RETAIL (C3)

	LOT 35A	LOT 35B	TOTAL
FUTURE LAND USE CATEGORY	Boulevard Redevelopment	Boulevard Redevelopment	
PROPOSED/CURRENT USE	Office Warehouse	Office Warehouse	
ACREAGE	2.222	2.948	5.17
BUILDING IMPERVIOUS COVER (SF)	0	12632	12632
TOTAL IMPERVIOUS COVER (SF)	78844	84942	163786

TXDOT DRAINAGE:

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

RELATED CASES:

REPLAT OF LOT 35 RIVERBEND OAKS DOC # 2015007612

PROJECT #2024-24-UE UTILITY EVALUATION

PROJECT #2024-2-CUP CONDITIONAL USE PERMIT

BENMARK LIBERTY HILL

FOR

BENMARK SUPPLY, INC.
15405 W SH29
LIBERTY HILL, TEXAS 78642

2024-21-SDP

SHEET INDEX

"BASED ON THE DESIGN ENGINEER'S CERTIFICATION OF COMPLIANCE WITH ALL APPLICABLE CITY, STATE, AND FEDERAL REGULATIONS. THE PLANS AND SPECIFICATIONS CONTAINED HEREIN HAVE BEEN REVIEWED AND ARE FOUND TO BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE CITY OF LIBERTY HILL."

APPROVED BY:

DAVID THOMISON, PUBLIC WORKS DIRECTOR _____ DATE

PAUL BRANDENBURG, CITY MANAGER _____ DATE

CRYSTAL MANCILLA, MAYOR _____ DATE

ELAINE SIMPSON, CITY SECRETARY _____ DATE

OWNER:

BENMARK SUPPLY, INC.
15405 W SH29
LIBERTY HILL, TEXAS 78642
[TEL] (432)-234-1450

SURVEYOR:

CUPLIN & ASSOCIATES, INC.
1500 OLLIE LANE
MARBLE FALLS, TX 78654
[TEL] (325) 338-3300

LANDSCAPE ARCHITECT:

COVEY PLANNING & LANDSCAPE ARCHITECTURE
800 S AUSTIN AVE
GEORGETOWN, TX 78626
[TEL] (512) 887-5311

CONTRACTOR:

TBD

UTILITY SERVICE PROVIDERS:

SANITARY SEWER
CITY OF LIBERTY HILL
[TEL] (512) 778-5449

WATER
CITY OF LIBERTY HILL
[TEL] (512) 778-5449

ELECTRIC
PERDENALES ELECTRIC CO-OP
[TEL] (512) 778-5470

CIVIL ENGINEER

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: 512-960-1098

TBPE FIRM REGISTRATION NO. F-10496

15405 W SH29
LIBERTY HILL, TEXAS 78642

07/11/2024

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

No.	Date	Revision Description	App.

C.01

Sheet 1 OF 24

C:\USERS\MATTHEWEEI SERVER DROPBOX\EEI FILES\2023\JOBS\23030 - BENMARK 15405 W SH29 LIBERTY HILL\DWG\SHEETS\23030_CVSH.DWG

7/11/2024 11:22:28 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_GNTS_1.dwg

CITY OF LIBERTY HILL GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS MANUAL.
2. ANY EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., NOT PLANNED FOR DESTRUCTION OR REMOVAL THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER WHO SHALL BE RESPONSIBLE FOR REVISING THE PLANS AS APPROPRIATE.
4. MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL PAVING CONSTRUCTION.
5. THE CONTRACTOR SHALL GIVE THE CITY OF LIBERTY HILL 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. TELEPHONE 512-778-5449 (PLANNING & DEVELOPMENT DEPARTMENT).
6. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, AT THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT BEFORE CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION, THE ENGINEER SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF LIBERTY HILL, HIMSELF, THE CONTRACTOR, OTHER UTILITY COMPANIES, ANY AFFECTED PARTIES AND ANY OTHER ENTITY THE CITY OR ENGINEER MAY REQUIRE.
8. THE CONTRACTOR AND THE ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LIBERTY HILL ACCURATE "AS-BUILT" DRAWINGS FOLLOWING COMPLETION OF ALL CONSTRUCTION. THESE "AS-BUILT" DRAWINGS SHALL MEET WITH THE SATISFACTION OF THE PLANNING & DEVELOPMENT DEPARTMENT PRIOR TO FINAL ACCEPTANCE.
9. THE LIBERTY HILL CITY COUNCIL SHALL NOT BE PETITIONED FOR ACCEPTANCE UNTIL ALL NECESSARY EASEMENT DOCUMENTS HAVE BEEN SIGNED AND RECORDED.
10. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE CONTRACTOR'S WORK TO WITHIN THE PERMANENT AND ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEAN-UP SHALL BE TO THE SATISFACTION OF THE CITY ENGINEER AND/OR CITY INSPECTOR.
11. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
12. EACH REQUIRED OFF-STREET PARKING SPACE AND OFF-STREET PARKING AREA SHALL BE IDENTIFIED BY SURFACE MARKINGS AT LEAST FOUR (4) INCHES IN WIDTH. MARKINGS SHALL BE VISIBLE AT ALL TIMES. SUCH MARKINGS SHALL BE ARRANGED TO PROVIDE FOR ORDERLY AND SAFE LOADING, UNLOADING, PARKING, AND STORAGE OF VEHICLES.
13. ALL OFF-STREET PARKING AREAS, DRIVE-AISLES, INTERNAL ROADWAYS, AND LOADING AREAS SHALL BE KEPT CLEAR OF DIRT, REFUSE, AND DEBRIS AT ALL TIMES.
14. ALL OFF-STREET PARKING AREAS, DRIVE AISLES, INTERNAL ROADWAYS, AND LOADING AREAS SHALL BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH THE MOST RECENTLY ADOPTED INTERNATIONAL PROPERTY MAINTENANCE CODE.
15. THE MAINTENANCE OF THE DRAINAGE AND DETENTION FACILITIES WITHIN LOTS 35A AND 35B SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S).
16. BENCHMARKS UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:

BM #1: COTTON SPINDLE
N: 10217009.95
E: 3049215.24
ELEV: 1024.58
VERTICAL DATUM: NAVD 88

TRENCH SAFETY NOTES:

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

STREET AND DRAINAGE NOTES:

1. ALL TESTING SHALL BE DONE BY AN INDEPENDENT LABORATORY AT THE OWNER'S EXPENSE. ANY RETESTING SHALL BE PAID FOR BY THE CONTRACTOR. A CITY INSPECTOR SHALL BE PRESENT DURING ALL TESTS. TESTING SHALL BE COORDINATED WITH THE CITY INSPECTOR AND HE SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO ANY TESTING. TELEPHONE 512-778-5449 (INSPECTIONS).
2. BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 3" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 3" SHALL BE CLEAN TOPSOIL FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE.
3. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT INCLUDING GAS, ELECTRIC, TELEPHONE, CABLE TV, WATER SERVICES, ETC., SHALL BE A MINIMUM OF 30" BELOW SUBGRADE.
4. STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS OTHERWISE INDICATED. HOWEVER, IN NO CASE SHALL THE WIDTH OF RIGHT-OF-WAY AT 1/4" PER FOOT SLOPE BE LESS THAN 10 FEET UNLESS A SPECIFIC REQUEST FOR AN ALTERNATE GRADING SCHEME IS MADE TO AND ACCEPTED BY THE CITY OF LIBERTY HILL PLANNING & DEVELOPMENT DEPARTMENT.
5. BARRICADES BUILT TO CITY OF LIBERTY HILL STANDARDS SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB AND PUBLIC SAFETY.
6. ALL R.C.P. SHALL BE MINIMUM CLASS III.
7. NO PUBLIC STREETS ARE PROPOSED AS PART OF THIS SITE PERMIT. CONTRACTOR SHALL REFER TO OWNER FOR PAVEMENT SECTION DESIGN.

THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE REQUIRED SHALL BE MADE THROUGH REVISION OF THE CONSTRUCTION PLANS.

8. WHERE PI'S ARE OVER 20, SUBGRADES MUST BE STABILIZED UTILIZING A METHOD ACCEPTABLE TO THE CITY ENGINEER. THE GEOTECHNICAL ENGINEER SHALL RECOMMEND AN APPROPRIATE SUBGRADE STABILIZATION IF SULFATES ARE DETERMINED TO BE PRESENT.

WATER AND WASTEWATER NOTES:

1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 200), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200 PSI, DR 9).
2. PIPE MATERIAL FOR PRESSURE WASTEWATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 150), OR DUCTILE IRON (AWWA C-100, MIN. CLASS 200). PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D2241 OR D3034, MAX. DR-26), DUCTILE IRON (AWWA C-100, MIN. CLASS 200).
3. UNLESS OTHERWISE ACCEPTED BY THE CITY ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUBGRADE.
4. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).
5. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE AND SEALED WITH DUCT TAPE OR EQUAL ACCEPTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR AT 512-778-5449 TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES.
7. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
8. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER.
9. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE WATER & WASTEWATER SUPERINTENDENT, TELEPHONE 512-778-5449.
10. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION PROCEDURE SHALL BE MONITORED BY CITY OF LIBERTY HILL PERSONNEL. WATER SAMPLES WILL BE COLLECTED BY THE CITY OF LIBERTY HILL TO VERIFY EACH TREATED LINE HAS ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE CITY OF LIBERTY HILL.
11. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTOR'S REQUEST, AND IN CONTRACTOR'S PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LIBERTY HILL NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. THE CONTRACTOR SHALL SUPPLY A CHECK OR MONEY ORDER, PAYABLE TO THE CITY OF LIBERTY HILL, TO COVER THE FEE CHARGED FOR TESTING EACH WATER SAMPLE. CITY OF LIBERTY HILL FEE AMOUNTS MAY BE OBTAINED BY CALLING THE PLANNING & DEVELOPMENT DEPARTMENT AT 512-778-5449 .
12. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF LIBERTY HILL PERSONNEL.
13. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
14. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF LIBERTY HILL.
15. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
16. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

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

17. TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF LIBERTY HILL.
18. CONTACT THE CITY OF LIBERTY HILL WATER & WASTEWATER SUPERINTENDENT AT 512-778-5449 FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS.
19. THE CITY OF LIBERTY HILL FIRE DEPARTMENT SHALL BE NOTIFIED 48 HOURS PRIOR TO TESTING OF ANY BUILDING SPRINKLER PIPING IN ORDER THAT THE FIRE DEPARTMENT MAY MONITOR SUCH TESTING.
20. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

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

21. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.
22. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 213 AND 317, AS APPLICABLE. WHENEVER TCEQ AND CITY OF LIBERTY HILL SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.

TRAFFIC MARKING NOTES:

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

EROSION AND SEDIMENTATION CONTROL NOTES:

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

ADDITIONAL GENERAL NOTES

1. CONTRACTOR SHALL CALL THE ONE CALL CENTER (811) AND THE CITY OF LIBERTY HILL (512-778-5449) FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.
2. CONTRACTOR TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS REGARDING EXCESS AND WASTE MATERIAL. INCLUDING METHODS OF HANDLING AND DISPOSAL.
3. CONTRACTOR TO COORDINATE INTERRUPTIONS OF ALL UTILITIES AND SERVICES. ALL WORK TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY COMPANY OR AGENCY INVOLVED.
4. LOCATION OF EXISTING UTILITIES SHOWN ON PLANS WAS COMPILED FROM RECORD INFORMATION. NO WARRANTY IS IMPLIED AS TO THE ACTUAL LOCATION OF EXISTING UTILITIES.
5. WHEN UNLOCATED OR INCORRECTLY LOCATED UNDERGROUND PIPING, OR A BREAK LOCATED IN THE LINE, OR OTHER UTILITIES AND SERVICES ARE ENCOUNTERED DURING SITE WORK OPERATIONS, NOTIFY THE APPLICABLE UTILITY COMPANY IMMEDIATELY TO OBTAIN PROCEDURE DIRECTIONS. COOPERATE WITH THE APPLICABLE UTILITY COMPANY IN MAINTAINING ACTIVE SERVICES IN OPERATION.
6. 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.
7. CONTRACTOR TO CONTROL DUST CAUSED BY THE WORK AND COMPLY WITH POLLUTION CONTROL REGULATIONS OF GOVERNING AUTHORITIES. (NO SEPARATE PAY)
8. THROUGHOUT THE CONSTRUCTION, AND AT THE COMPLETION OF CONSTRUCTION. THE CONTRACTOR IS TO ENSURE THAT DRAINAGE OF STORM WATER RUNOFF IS NOT BLOCKED.
9. THESE PLANS, PREPARED BY ECKERMANN ENGINEERING, INC. DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF ECKERMANN ENGINEERING REGISTERED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR IS TO PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY HOUSE BILLS 662 AND 665 ENACTED BY THE TEXAS LEGISLATURE IN THE 70TH LEGISLATURE, REGULAR SESSION.
10. TRAFFIC CONTROLS SHALL BE CONTRACTOR'S RESPONSIBILITY AND INSTALLED IN ACCORDANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
11. CONTRACTOR SHALL EXERCISE CAUTION DURING CONSTRUCTION NEAR AND AROUND GAS LINES. NOTIFY GAS COMPANY 24 HOURS PRIOR TO CONSTRUCTION.
12. NO BLASTING IS ALLOWED ON THIS PROJECT.
13. MAKE CONNECTION BETWEEN NEW AND EXISTING ASPHALT STREETS BY REMOVING EXISTING ASPHALT FROM END BACK UNTIL FULL DEPTH BASE AND HMAC ARE ENCOUNTERED AND HMAC APPEARS TO BE IN SOUND CONDITION. PROVIDE EXPANSION JOINT AND DOWELS WHERE CONNECTING EXISTING CURB TO NEW CURB.
14. A CURB LAYDOWN IS REQUIRED AT ALL POINTS WHERE THE PROPOSED SIDEWALK INTERSECTS THE CURB.
15. UNLESS OCCURRING AT AN EXPANSION JOINT, MAKE CONNECTION BETWEEN NEW AND EXISTING SIDEWALK BY EXPOSING AND CLEANING A ONE-FOOT LENGTH OF WELDED WIRE REINFORCEMENT AND LAPPING NEW REINFORCEMENT ONTO THIS LENGTH.
16. CONCRETE FOR SITE WORK, OTHER THAN CONCRETE PAVEMENT AND STRUCTURES, TO BE CLASS "A" (5 SACK, 3000 PSI @ 28-DAYS) AND ALL REINFORCING STEEL TO BE ASTM A615 60, UNLESS OTHERWISE NOTED. REFER TO GEOTECHNICAL REPORT AND ARCHITECTURAL DRAWINGS FOR PAVEMENT STRUCTURAL SPECIFICATIONS.
17. TREE SURVEY, CONTOURS, AND BENCHMARK INFORMATION SUPPLIED BY OTHERS. ACTUAL LOCATION OF TREES AND ELEVATION OF NATURAL GROUND ON THE PROJECT SITE MAY VARY FROM WHAT IS DEPICTED ON THE PLAN SHEETS. ECKERMANN ENGINEERING INC., IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION REGARDING SURVEYS OR BENCHMARK LOCATIONS.
18. DEMOLITION PERMITS (IF NEEDED) ARE TO BE OBTAINED BY THE CONTRACTOR AT THEIR EXPENSE.
19. CONTRACTOR SHALL REFER TO THE PROPERTY OWNER FOR SUBSURFACE INFORMATION REGARDING THIS PROJECT. AT ITS EXPENSE THE CONTRACTOR IS ENCOURAGED TO MAKE ADDITIONAL SUBSURFACE INVESTIGATIONS.
20. CONTRACTOR TO FIELD VERIFY LOCATION AND FLOWLINES OF EXISTING UTILITIES PRIOR TO INSTALLATION OF PROPOSED UTILITY. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
21. PUMPING OF STORM WATER FROM EXCAVATIONS IS PROHIBITED UNLESS THE STORM WATER IS DISCHARGED TO ENCOURAGE SHEET/OVERLAND FLOW. ADDITIONAL EROSION AND SEDIMENTATION CONTROLS MAY BE REQUIRED, AT NO ADDITIONAL COST TO THE OWNER.
22. UNLESS OTHERWISE NOTED, STORM SEWERS TO BE HDPE.
23. ALL WORK MUST STOP IF A VOID IN THE ROCK SUBSTRATE IS DISCOVERED WHICH IS ONE SQUARE FOOT IN TOTAL AREA, BLOWS AIR FROM WITHIN THE SUBSTRATE, AND/OR CONSISTENTLY RECEIVES WATER DURING ANY RAIN EVENT. AT THIS TIME IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY CONTACT A CITY OF LIBERTY HILL INSPECTOR FOR FURTHER INVESTIGATION.

CONSTRUCTION SEQUENCING

1. INSTALL CONSTRUCTION FENCING, STABILIZED CONSTRUCTION ENTRANCE, EROSION CONTROLS AND TREE PROTECTION FENCING PER APPROVED EROSION AND SEDIMENTATION CONTROL/TREE PROTECTION PLAN.
2. THE CONTRACTOR SHALL ARRANGE AND COORDINATE ACCEPTABLE MEETING TIMES FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH THE OWNER, PROJECT ENGINEER, RELEVANT CONTRACTORS, RELEVANT UTILITY REPRESENTATIVES, AND THE CITY ENGINEER/INSPECTOR.
3. BEGIN SITE CLEARING/DEMOLITION.
4. ROUGH GRADE SITE AND CONSTRUCT WATER QUALITY POND, DETENTION POND, AND DRAINAGE SWALES IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
5. INSTALL UTILITY IMPROVEMENTS
6. CONSTRUCT ALL-WEATHER DRIVING SURFACE.
7. COMPLETE GRADING, DRAINAGE AND PAVING.
8. HYDROMULCH OR SOD ALL DISTURBED AREAS AND CLEAN UP SITE.
9. FINAL CLEARING OF EROSION AND SEDIMENTATION CONTROLS AND STORM DRAIN STRUCTURES.
10. CITY VISITS SITE AND ISSUES CERTIFICATE OF ACCEPTANCE ONLY IF ALL CONSTRUCTION IS IN SUBSTANTIAL CONFORMANCE TO THE PLANS.

PERMANENT EROSON AND SEDIMENTATION NOTES

(COORDINATE WITH LANDSCAPE ARCHITECT PLANS)

1. EROSION CONTROL MATTING IS REQUIRED ON ALL DISTURBED AREA THAT HAVE A FINISHED GRADE IN EXCESS OF 3:1.
2. ALL DISTURBED AREAS ON THE ENTIRE PROJECT (SUCH AS AREAS THAT HAVE BEEN DRIVEN ON, GRADED, USED FOR STORAGE OF ANYTHING AND ARE NOT IN THE EXACT CONDITION THAT EXISTED PRIOR TO CONSTRUCTION) SHALL HAVE A MINIMUM OF SIX (6) INCHES OF TOPSOIL PLACED PRIOR TO REVEGETATION.
2. TOPSOIL SHALL BE CLEAN, FRIABLE, FERTILE SOIL WITH A RELATIVELY HIGH EROSION RESISTANCE, FREE OF OBJECTIONABLE MATERIALS INCLUDING ROOTS AND ROCKS LARGER THAN ONE (1) INCH. TOPSOIL SHALL NOT CONTAIN CALICHE OR LIMESTONE. TOPSOIL SHALL BE READILY ABLE TO SUPPORT THE GROWTH OF PLANTING, SEEDING AND SODDING, AS ACCEPTED BY THE CITY.
3. THE SEEDING FOR PERMANENT EROSION CONTROL SHALL BE APPLIED OVER AREAS DISTURBED BY CONSTRUCTION AS DIRECTED BY THE LANDSCAPE ARCHITECT.
4. FERTILIZE AS RECOMMENDED BY LANDSCAPE ARCHITECT.
5. ALL CONSTRUCTED AND ALTERED DRAINAGE CHANNELS SHALL BE STABILIZED AND VEGETATED IMMEDIATELY AFTER FINAL GRADING.

TOPSOIL (OR AS SPECIFIED BY THE LANDSCAPE PLANS)

1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING,GRUBBING OR EXCAVATION).
2. TEMPORARY AND PERMANENT EROSION CONTROL: ALL DISTURBED AREAS SHALL BE RESTORED AS NOTED BELOW.

ALL DISTURBED AREAS TO BE REVEGETATED ARE REQUIRED TO HAVE A MINIMUM OF SIX (6) INCHES OF TOPSOIL. DO NOT ADD TOPSOIL WITHIN THE CRITICAL ROOT ZONE OF EXISTING TREES. THE TOPSOIL SHALL MEET THE SPECIFICATIONS CONTAINED IN THE LANDSCAPE PLANS/SPECIFICATIONS. THE SOIL SHALL BE LOCALLY AVAILABLE NATIVE SOIL THAT MEETS THE FOLLOWING SPECIFICATIONS.

- SHALL BE FREE OF TRASH, WEEDS, DELETERIOUS MATERIALS, ROCKS, AND DEBRIS.
- 100% SHALL PASS THROUGH A 1-5 INCH (38-MM) SCREEN.
- SOIL TO BE LOAMY MATERIAL

TOPSOIL SALVAGED FROM THE EXISTING SITE MAY OFTEN BE USED, BUT IT SHOULD MEET THE SAME STANDARDS AS SET FORTH IN THESE STANDARDS OR AS SPECIFIED BY THE LANDSCAPE ARCHITECT (OR AS SPECIFIED BY THE LANDSCAPE PLANS).

TEMPORARY VEGETATIVE STABILIZATION:

1. TEMPORARY VEGETATION TO BE ESTABLISHED BY SOWN SEED OR HYDROMULCH IF WORK IS STOPPED FOR 14 DAYS. CURLEX BLANKET SHALL BE UTILIZED WITH SOWN SEED ON SLOPES 3:1 OR GREATER. LANDSCAPE SPECIFICATIONS AND PLANS SHALL TAKE PRECEDENT OVER THIS PLAN IN THE EVENT OF A DISCREPANCY.
2. FROM SEPTEMBER 15 TO MARCH 1, SEEDING SHALL BE WITH COOL SEASON COVER CROPS (WHEAT AT 5.6 POUNDS PER ACRE, OATS AT 4.0 POUNDS PER ACRE, CEREAL RYE GRAIN AT 45 POUNDS PER ACRE). COOL SEASON COVER CROPS ARE NOT PERMANENT EROSION CONTROL.
3. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 45 POUNDS PER ACRE OR A NATIVE PLANT SEED MIX CONFORMING TO ITEM 604S OR 609S OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.

3.1. FERTILIZER SHALL BE APPLIED ONLY IF WARRANTED BY A SOIL TEST AND SHALL CONFORM TO ITEM NO. 606S OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS. FERTILIZER SHOULD NOT OCCUR WHEN RAINFALL IS EXPECTED OR DURING SLOW PLANT GROWTH OR DORMANCY. CHEMICAL FERTILIZER MAY NOT BE APPLIED IN THE CRITICAL WATER QUALITY ZONE.
3.2. HYDROMULCH SHALL COMPLY WITH TABLE 1, BELOW.
3.3. TEMPORARY EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1 1/2 INCHES HIGH WITH A MINIMUM OF 95% TOTAL COVERAGE SO THAT ALL AREAS OF A SITE THAT RELY ON VEGETATION FOR TEMPORARY STABILIZATION ARE UNIFORMLY VEGETATED, AND PROVIDED THERE ARE NO BARE SPOTS LARGER THAN 10 SQUARE FEET.
3.4. WHEN REQUIRED, NATIVE PLANT SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL, AND STANDARD SPECIFICATION 604S OR 609S.

TABLE 1: HYDROMULCHING FOR TEMPORARY VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
100% OR ANY BLEND OF WOOD, CELLULOSE, STRAW, AND/OR COTTON PLANT MATERIAL (EXCEPT NO MULCH SHALL EXCEED 30% PAPER)	70% OR GREATER WOOD/STRAW 30% OR LESS PAPER OR NATURAL FIBERS	0-3 MONTHS	MODERATE SLOPES; FROM FLAT TO 3:1	1500 TO 2000 LBS PER ACRE

PERMANENT VEGETATIVE STABILIZATION: (OR AS APPROVED BY THE OWNER)

1. PERMANENT VEGETATION TO BE ESTABLISHED BY SOWN SEED OR SOD. CURLEX BLANKET SHALL BE UTILIZED WITH SOWN SEED ON SLOPES 3:1 OR GREATER. LANDSCAPE SPECIFICATIONS AND PLANS SHALL TAKE PRECEDENT OVER THIS PLAN IN THE EVENT OF A DISCREPANCY.
2. FROM SEPTEMBER 15 TO MARCH 1, SEEDING IS CONSIDERED TO BE TEMPORARY STABILIZATION ONLY. IF COOL SEASON COVER CROPS EXIST WHERE PERMANENT VEGETATIVE STABILIZATION IS DESIRED, THE GRASSES SHALL BE MOWED TO A HEIGHT OF LESS THAN ONE- HALF (1/2) INCH AND THE AREA SHALL BE RE- SEEDED IN ACCORDANCE WITH TABLE 2, BELOW. ALTERNATIVELY, THE COOL SEASON COVER CROP CAN BE MIXED WITH BERMUDAGRASS OR NATIVE SEED AND INSTALLED TOGETHER, UNDERSTANDING THAT GERMINATION OF WARM-SEASON SEED TYPICALLY REQUIRES SOIL TEMPERATURES OF 60 TO 70 DEGREES.
3. FROM MARCH 2 TO SEPTEMBER 14, SEEDING SHALL BE WITH HULLED BERMUDA AT A RATE OF 45 POUNDS PER ACRE WITH A PURITY OF 95% AND A MINIMUM PURE LIVE SEED (PLS) OF 0.83. BERMUDA GRASS IS A WARM SEASON GRASS AND IS CONSIDERED PERMANENT EROSION CONTROL. PERMANENT VEGETATIVE STABILIZATION CAN ALSO BE ACCOMPLISHED WITH A NATIVE PLANT SEED MIX CONFORMING TO ITEM 604S OR 609S OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.

3.1. FERTILIZER USE SHALL FOLLOW THE RECOMMENDATION OF A SOIL TEST. SEE ITEM 606S OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS. APPLICATIONS OF FERTILIZER (AND PESTICIDE) ON CITY-OWNED AND MANAGED PROPERTY REQUIRES THE YEARLY SUBMITTAL OF A PESTICIDE AND FERTILIZER APPLICATION RECORD, ALONG WITH A CURRENT COPY OF THE APPLICATOR'S LICENSE. FOR CURRENT COPY OF THE RECORD TEMPLATE CONTACT THE CITY OF AUSTIN'S IPM COORDINATOR.
3.2. HYDROMULCH SHALL COMPLY WITH TABLE 2, BELOW.
3.3. WATER THE SEEDED AREAS IMMEDIATELY AFTER INSTALLATION TO ACHIEVE GERMINATION AND A HEALTHY STAND OF PLANTS THAT CAN ULTIMATELY SURVIVE WITHOUT SUPPLEMENTAL WATER. APPLY THE WATER UNIFORMLY TO THE PLANTED AREAS WITHOUT CAUSING DISPLACEMENT OR EROSION OF THE MATERIALS OR SOIL. MAINTAIN THE SEEDBED IN A MOIST CONDITION FAVORABLE FOR PLANT GROWTH. ALL WATERING SHALL COMPLY WITH CITY CODE, AT RATES AND FREQUENCIES DETERMINE BY A LICENSED IRRIGATOR OR OTHER QUALIFIED PROFESSIONAL, AND AS ALLOWED BY THE WATER SERVICE PROVIDER AND CURRENT WATER RESTRICTIONS AND WATER CONSERVATION INITIATIVES.
3.4. PERMANENT EROSION CONTROL SHALL BE ACCEPTABLE WHEN THE GRASS HAS GROWN TO AT LEAST 1 1/2 INCHES HIGH WITH A MINIMUM OF 95% FOR THE NON-NATIVE MIX, AND 95% COVERAGE FOR THE NATIVE MIX SO THAT ALL AREAS OF A SITE THAT RELY ON VEGETATION FOR STABILITY MUST BE UNIFORMLY VEGETATED, AND PROVIDED THERE ARE NO BARE SPOTS LARGER THAN 10 SQUARE FEET.
3.5. WHEN REQUIRED, NATIVE PLANT SEEDING SHALL COMPLY WITH REQUIREMENTS OF THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL, ITEM 604S AND 609S OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS.

TABLE 2: HYDROMULCHING FOR PERMANENT VEGETATIVE STABILIZATION

MATERIAL	DESCRIPTION	LONGEVITY	TYPICAL APPLICATIONS	APPLICATION RATES
BONDED FIBER MATRIX (BFM)	80% ORGANIC DEFIBRATED FIBERS 10% TACKIFIER	6 MONTHS	ON SLOPES UP TO 2:1 AND EROSIVE SOIL CONDITIONS	2500 TO 4000 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)
FIBER REINFORCED MATRIX (FRM)	65% ORGANIC DEFIBRATED FIBERS 25% REINFORCING FIBERS OR LESS 10% TACKIFIER	UP TO 12 MONTHS	ON SLOPES UP TO 1:1 AND EROSIVE SOIL CONDITIONS	3000 TO 4500 LBS PER ACRE (SEE MANUFACTURERS RECOMMENDATIONS)

TCEQ CONTRIBUTING ZONE PLAN GENERAL CONSTRUCTION NOTES

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ONSITE.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON-SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:

11.1. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
11.2. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
11.3. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
11.4. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVED CONTRIBUTING ZONE PLAN.

ELECTRIC NOTES:

1. ELECTRIC PROVIDER HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY AND OTHER OBSTRUCTIONS ON THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. ELECTRIC PROVIDER WILL PERFORM ALL TREE WORK IN COMPLIANCE WITH CITY REQUIREMENTS.
2. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE ELECTRIC PROVIDER WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES.
3. THE OWNER SHALL BE RESPONSIBLE FOR ANY INSTALLATION OF TEMPORARY EROSION CONTROL, REVEGETATION AND TREE PROTECTION. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR ANY TREE PRUNING AND TREE REMOVAL THAT IS WITHIN TEN FEET OF THE CENTER LINE OF THE OVERHEAD ELECTRICAL FACILITIES DESIGNED TO PROVIDE ELECTRIC SERVICE TO THIS PROJECT. ALL ELECTRIC WORK SHALL ALSO BE INCLUDED WITHIN THE LIMITS OF CONSTRUCTION FOR THIS PROJECT.
4. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR MAINTAINING CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, ELECTRIC PROVIDER REGULATIONS AND TEXAS STATE LAWS PERTAINING TO CLEARANCE WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD LINES AND EQUIPMENT. ELECTRIC PROVIDER WILL NOT RENDER ELECTRIC SERVICE UNLESS REQUIRED CLEARANCES ARE MAINTAINED. ALL COSTS INCURRED BECAUSE OF FAILURE TO COMPLY WITH THE REQUIRED CLEARANCE WILL BE CHARGED TO THE OWNER.

FIRE DEPARTMENT NOTES:

1. VERTICAL CLEARANCE REQUIRED FOR FIRE APPARATUS IS FOURTEEN FEET FOR FULL WIDTH OF ACCESS DRIVES AND ROUTES FOR INTERNAL CIRCULATION. DEAD-END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH APPROVED PROVISIONS FOR THE TURNING AROUND OF FIRE APPARATUS.
2. FIRE APPARATUS ACCESS ROAD SHALL BE CONTINUOUSLY MARKED BY PAINTED LINES OF RED TRAFFIC PAINT SIX INCHES (6") IN WIDTH TO SHOW THE BOUNDARIES OF THE LANE. THE WORDS "FIRE LANE - TOW AWAY ZONE" SHALL APPEAR IN FOUR INCH (4") WHITE LETTERS AT 25 FEET INTERVALS ON THE RED BORDER MARKINGS ALONG BOTH SIDES OF THE FIRE LANES. WHERE A CURB IS AVAILABLE, THE STRIPING SHALL BE ON THE VERTICAL FACE OF THE CURB.
3. KNOX BOXES SHALL BE LOCATED AT MAIN ENTRANCE AND ALL FIRE RISER ROOMS. ELECTRONIC CONTROLLED GATES SHALL HAVE KNOX KEY SWITCH AND KNOX PADLOCK (MANUAL RELEASE) OR KNOX BOX. MANUAL GATES SHALL HAVE KNOX PADLOCK OR KNOX BOX.
4. FIRE HYDRANTS SHALL HAVE NATIONAL STANDARD THREADS. FIRE HYDRANT PUMPER NOZZLES REQUIRED TO BE 5" STORZ CONNECTIONS PER WCESD NO. 4 HYDRANT DETAIL.
5. THE REQUIRED FIRE FLOW FOR THIS PROJECT IS 1,500 GPM FOR 2 HOURS FOR BUILDINGS WITHOUT A FIRE SPRINKLER SYSTEM AND 1,000 GPM FOR 2 HOURS FOR BUILDINGS WITH A FIRE SPRINKLER SYSTEM.
6. PRIOR TO CONSTRUCTION ABOVE THE SLAB, PROVIDE AN ALL-WEATHER DRIVE SURFACE THAT IS ENGINEERED TO WITHSTAND 75,000 LBS. AN ACCEPTANCE INSPECTION BY FIRE INSPECTOR IS REQUIRED.
7. PRIOR TO CONSTRUCTION ABOVE THE SLAB, THE FIRE HYDRANTS ON THE SITE PLAN ARE REQUIRED TO BE INSPECTED AND APPROVED FOR SERVICE BY THE CITY OF LIBERTY HILL.
8. THE UNDERGROUND FIRE SPRINKLER RISER LINES AND REMOTE FDC UNDERGROUND LINES WILL NEED TO BE INSTALLED BY A CONTRACTOR THAT HAS A RME-U LICENSE THROUGH THE TEXAS FIRE MARSHAL'S OFFICE.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

GENERAL NOTES

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

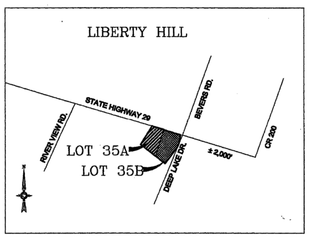
Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.02

2024-21-SDP

DOC# 2015007612

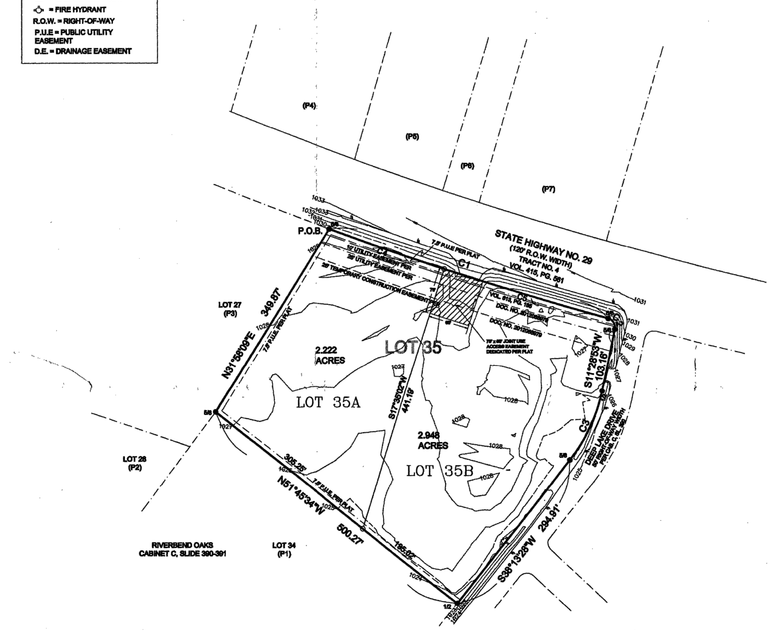
LEGEND
○ = IRON ROD SET W/CAP STAMPED "DIAMOND SURVEYING"
● = IRON ROD FOUND
△ = CALCULATED POINT
-◇- = FIRE HYDRANT
R.O.W. = RIGHT-OF-WAY
P.U.E = PUBLIC UTILITY EASEMENT
D.E. = DRAINAGE EASEMENT



LOCATION MAP
NOT TO SCALE

N

0 100' 200'
SCALE: 1 INCH = 100 FEET



GENERAL NOTES:

1. TOTAL ACREAGE = 5.170 ACRES
2. NUMBER OF BLOCKS = 1
3. TOTAL NUMBER OF LOTS = 2
4. TOTAL LINEAR FEET OF NEW STREET = NONE
5. TOTAL STREET ROW AREA TO BE DEDICATED = NONE
6. BUILDING SETBACKS WILL BE IN ACCORDANCE WITH CHAPTER 4, ZONING, LOT DESIGN STANDARDS OF THE CITY OF LIBERTY HILL UNIFIED DEVELOPMENT CODE (UDC).
7. SIDEWALKS WILL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 5, SUBDIVISION; PUBLIC IMPROVEMENTS OF THE CITY OF LIBERTY HILL (UDC) AND CONSTRUCTION STANDARDS.
8. THIS PROPERTY IS LOCATED WITHIN THE CITY OF LIBERTY HILL.
9. THIS DEVELOPMENT SHALL COMPLY WITH ALL APPLICABLE CITY, COUNTY, AND STATE REGULATIONS.
10. UTILITIES: WATER SERVICE BY THE CITY OF LIBERTY HILL; WASTEWATER SERVICE BY THE CITY OF LIBERTY HILL; ELECTRIC SERVICE BY CITY OF LIBERTY HILL AND TXU.
11. THE MONUMENTS ON THIS PLAT ARE NAD-83 - TEXAS CENTRAL ZONE (4203) AND NAVD 88.
12. THERE ARE NO AREAS WITHIN THE BOUNDARIES OF THIS SUBDIVISION IN THE 100-YEAR FLOOD PLAIN AS DEFINED BY FIRM MAP NO. 48491C0250E, MAP REVISED DATE SEPTEMBER 26, 2008.
13. NO OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO FENCES OR STORAGE, SHALL BE PERMITTED IN ANY DRAINAGE EASEMENTS SHOWN HEREON.
14. A TEN FOOT (10') PUE ABUTTING AND ALONG THE STREETSIDE PROPERTY LINE IS HEREBY DEDICATED FOR ALL STREETSIDE PROPERTY LOTS SHOWN HEREON.

CURRENT ADJOINING LAND OWNERS PER W.C.A.D. TAX ROLL

PROPERTY NO.	CURRENT OWNER	LEGAL DESCRIPTION	CURRENT DEED
P1	ARTURO JR, AND SONIA GOMEZ	LOT 34, RIVERBEND OAKS	DOC. 2009028478
P2	LIFE SPRINGS CHRISTIAN CHURCH	LOT 26, RIVERBEND OAKS	DOC. 2010034642
P3	LIFE SPRINGS CHRISTIAN CHURCH	LOT 27, RIVERBEND OAKS	DOC. 2010034642
P4	GRETCHEN MCKLER	5.29 ACRES	DOC. 2003049300
P5	K AND F ENTERPRISES	LOT 1, BLOCK A, DOLLAR GENERAL SUB.	DOC. 2005049042
P6	DANIEL PARK	LOT 2, BLOCK A, DOLLAR GENERAL SUB.	DOC. 2005012854
P7	TEMPLE R. KENNEDY III	5.27 ACRES	DOC. 2003106693

LOT TABLE	
COMMERCIAL	2
TOTAL LOTS	2

NUM	DELTA	ARC	RADIUS	BEARING	DISTANCE
C1	4°42'04"	475.06'	5789.65'	S72°13'36"E	474.92'
C2	85°34'31"	22.40'	15.00'	S31°22'44"E	20.38'
C3	26°27'59"	124.03'	268.51'	S25°06'56"W	122.93'
C4	1°56'02"	198.79'	5789.65'	S70°51'34"E	198.78'
C5	2°44'02"	276.26'	5789.65'	S73°12'37"E	276.24'

OWNER: DRUM PROPERTY COMPANY, LTD.
ACREAGE OF TOTAL SITE: 5.170
ACREAGE OF LOTS: 5.170
ACREAGE OF RIGHTS-OF-WAY: NO NEW RIGHT-OF-WAY
NUMBER OF BLOCKS: 1
NUMBER OF LOTS: 2

PLOT DATE: NOVEMBER 6, 2014

◇ DIAMOND SURVEYING, INC.
116 SKYLINE ROAD, GEORGETOWN, TX 78628
(512) 931-3100

REPLAT OF LOT 35
RIVERBEND OAKS

5.170 ACRES
IN THE R. WEST SURVEY, ABST. #643
CITY OF LIBERTY HILL,
WILLIAMSON COUNTY, TEXAS

SHEET 1 OF 2

DOC# 2015007612

METES AND BOUNDS DESCRIPTION

FOR A 5.170 ACRE TRACT OF LAND SITUATED IN THE R. WEST SURVEY, ABSTRACT NO. 643, WILLIAMSON COUNTY, TEXAS, BEING ALL OF LOT 35, OF RIVERBEND OAKS, A SUBDIVISION IN WILLIAMSON COUNTY, TEXAS, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN CABINET C, SLIDES 390-391, PLAT RECORDS, WILLIAMSON COUNTY, TEXAS, AND AS CONVEYED TO DRUM PROPERTY COMPANY, LTD., RECORDED IN DOCUMENT NO. 2014034672, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, SAID 5.170 ACRE TRACT OF LAND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING at a 5/8" iron rod found monumenting the northwest corner of said LOT 35, same being on the northeast corner of LOT 27 of said subdivision, same being on a point in the south boundary line of a 0.670 acre tract of land conveyed to the State of Texas, described as TRACT No. 4 in Volume 415, Page 561, Deed Records of Williamson County, Texas, same being on a point in the south right-of-way line of State Highway 29 (SH 29);

THENCE with the north boundary line of said LOT 35, same being with the south right-of-way line of said SH 29, same being with the south boundary line of said TRACT No. 4, along a curve to the left having an arc length of 475.06 feet, a radius of 5789.65 feet (per description of TRACT No. 4 contained in said Volume 415, Page 561), a delta angle of 4°42'04" and a chord which bears S 72°13'36" E, a distance of 474.92 feet to a 5/8" iron rod found on the northeast corner of said LOT 35, same being on the northwest corner of DEED LAKE DRIVE (50' right-of-way width per said Cabinet C, Slide 390), for the northeast corner hereof;

Thence with the easterly boundary line of said LOT 35, same being with the westerly right-of-way line of said DEEP LAKE DRIVE the following four (4) courses and distances:

1. along a curve to the right having an arc length of 22.40 feet, a radius of 15.00 feet, a delta angle of 85°34'31" and a chord which bears S 31°22'44" E, a distance of 20.38 feet to a 1/2" iron rod found;

2. S 11°25'53" W, a distance of 103.16 feet to a 5/8" iron rod found;

3. along a curve to the right having an arc length of 124.03 feet, a radius of 268.51 feet, a delta angle of 26°27'59" and a chord which bears S 25°06'56" W, a distance of 122.93 feet to a 5/8" iron rod found;

4. S 38°13'25" W, a distance of 294.91 feet to a 1/2" iron rod found on the southeast corner of said LOT 35, same being on the easterly corner of LOT 34, of said RIVERBEND OAKS, for the southeast corner hereof;

THENCE with the common boundary line of said LOT 35 and said LOT 34, N 51°45'34" W a distance of 500.27 feet to a 5/8" iron rod found on the southwest corner of said LOT 35, same being on the northerly corner of said LOT 34, same being on a point in the east boundary line of aforementioned LOT 27, for the southwest corner hereof;

THENCE with the common boundary of said LOT 35 and said LOT 27, N 31°58'09" E a distance of 349.57 feet to the **POINT OF BEGINNING** hereof, and containing 5.170 acres of land more or less.

Bearing Basis for this description: NAD-83, TEXAS CENTRAL (4203) STATE PLANE SYSTEM

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

I, Hayden Drum, President of Drum Property Company, LTD., a Texas limited partnership, as owner of that certain 5.170 acre tract of land recorded in Document No. 2014034672, of the Official Public Records of Williamson County, Texas, same being all of Lot 35, of Riverbend Oaks, a subdivision recorded in Cabinet C, Slides 390 - 391, Plat Records of Williamson County, Texas do hereby dedicate to the public forever use of the streets, alleys, easements and all other lands intended for public dedication as shown hereon to be known as REPLAT OF LOTS 35 RIVERBEND OAKS subdivision.

Drum Property Company, LTD.
Hayden Drum, President

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

This instrument was acknowledged before me on the 19 day of Dec, 20 14, by Hayden Drum, as President of Drum Property Company, LTD., a Texas limited partnership, on behalf of said Drum Property Company, LTD.
Notary Public, State of Texas
Printed Name: Natalie H Horst
My Commission Expires: 12-4-17

NATALIE H HORST
My Commission Expires
December 4, 2017

APPROVED on the 9th day of Dec, 20 14.
ATTEST: Connie Phelps
Connie Fuller, Mayor City of Liberty Hill, Texas
Barbara Zwiernemann
Barbara Zwiernemann, City Secretary City of Liberty Hill, Texas

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

Now comes _____, the sub[illegible] a subdivision to be known as REPLAT OF LOT 35 RIVERBEND OAKS, and states under oath of affirmation and subject to penalties of law, that the original tax certificates attached to the plat of the subdivision described all of the property contained within the subdivision and the taxing entities with jurisdiction over the property.

Signature_____ Date_____ Printed Name _____

Acknowledged and sworn before me on _____, 20___

Notary Public
My commission expires_____

NICK MCINTYRE

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

That I, John N McIntyre, do hereby certify that the information contained on this plat complies with Chapter 5, Subdivisions, Public Improvements City of Liberty Hill Unified Development Code, and the Design and Construction Standards adopted by the City of Liberty Hill, Texas

John N. McIntyre, P.E.
Registered Professional Eng. #100096

McIntyre & McIntyre, Inc.
9807 Brandywine Circle
Austin, TX 78750

DATE: 11/06/2014

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

That I, Shane Shafer, do hereby certify that I prepared this plat from an actual and accurate on-the-ground survey of the land and that the corner monuments shown thereon were properly placed under my personal supervision, in accordance with Chapter 5, Subdivision & Public Improvements, City of Liberty Hill Unified Development Code.

TO CERTIFY WHICH, WITNESS my hand and seal at Liberty Hill, Registered Professional Licensed Surveyor, Williamson County, Texas, this 12 day of DEC., 2014.

Shane Shafer, RPLS
No. 5281 State of Texas

STATE OF TEXAS
SHANE SHAFER
5281
REGISTERED
LAND SURVEYOR

County Clerk's Certification

STATE OF TEXAS {
COUNTY OF WILLIAMSON { KNOWN ALL MEN BY THESE PRESENTS

I, Nancy Rister, Clerk of the County Court of said County, do hereby certify that the foregoing instrument in writing, with its certificate was filed for record in my office on the 2nd day of February, 2015 A.D., at 5:40o'clock, A.m. and duly recorded on the 2nd day of February, 2015 A.D., at 5:55 o'clock, A.m. in the Plat Records of said County in Document No. 2015007612.

TO CERTIFY WHICH, WITNESS my hand and seal at the County Court of said County, at my office in Georgetown, Texas the date last shown above written.

Connie Phelps, Clerk
County Court of Williamson County, Texas
Connie Phelps, Deputy

COMMISSIONER'S COURT
WILLIAMSON COUNTY, TEXAS

◇ DIAMOND SURVEYING, INC.
116 SKYLINE ROAD, GEORGETOWN, TX 78628
(512) 931-3100

PLOT DATE: NOVEMBER 6, 2014

REPLAT OF LOT 35
RIVERBEND OAKS

5.170 ACRES
IN THE R. WEST SURVEY, ABST. #643
CITY OF LIBERTY HILL,
WILLIAMSON COUNTY, TEXAS

SHEET 2 OF 2

2024-21-SDP

Sheet 3 OF 24

C.03

Project No. 23030
Issued 07/11/2024
Drawn By: WS
Checked By: JT III

INCLUDED FOR REFERENCE ONLY

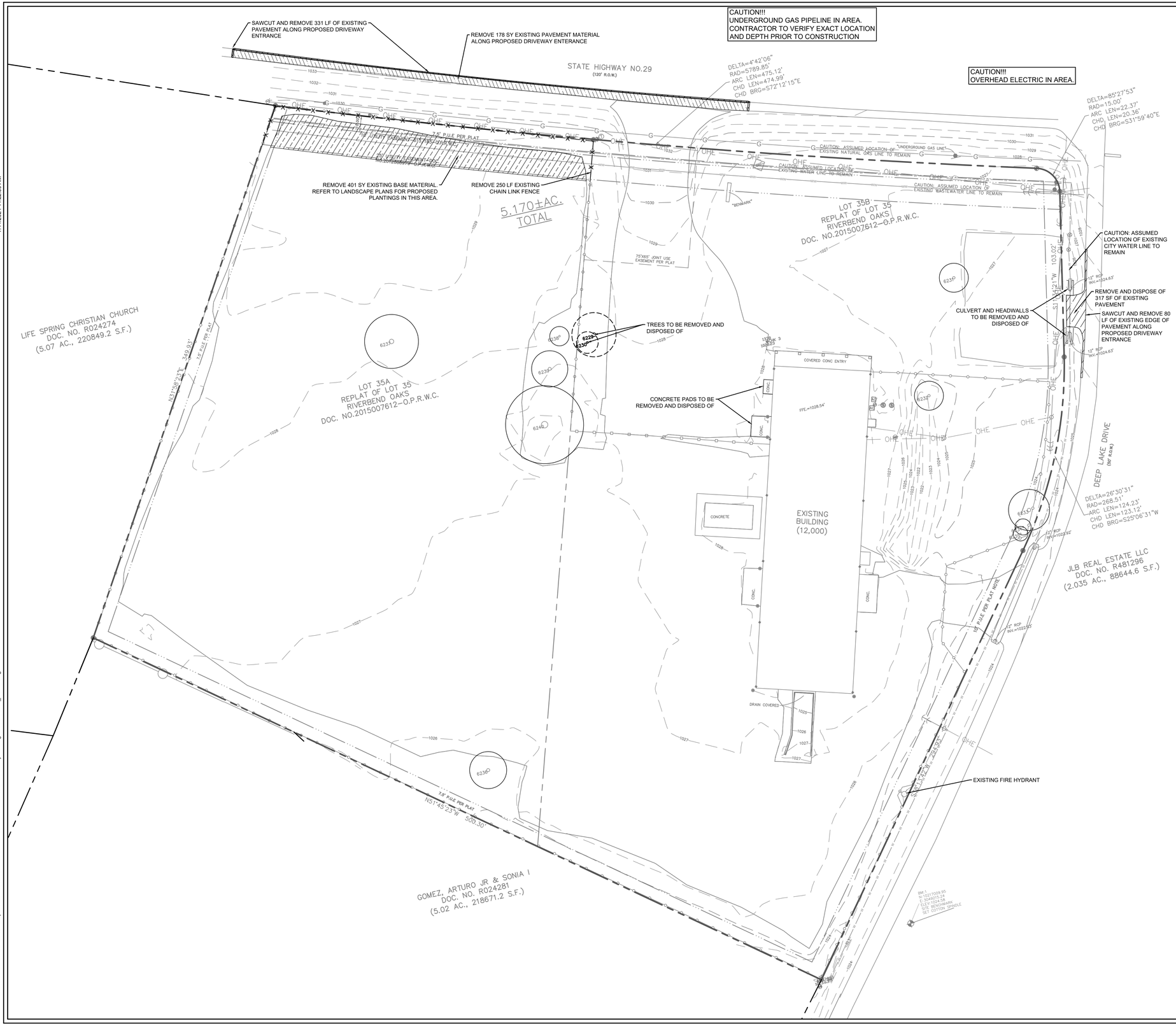
SUBDIVISION PLAT

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

No.	Date	Revisions	App.



LEGEND:

- PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING MAJOR CONTOUR (1025)
- EXISTING MINOR CONTOUR (1026)
- EXISTING ELECTRIC LINE (OHE)
- EXISTING GAS LINE (G)
- EXISTING WATER LINE (W)
- EXISTING WASTEWATER LINE
- EXISTING CHAIN-LINK FENCE
- SAWCUT
- EXISTING ASPHALT AREA TO BE REMOVED
- EXISTING BASE MATERIAL TO BE REMOVED
- BENCHMARK
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

NOTES:

1. SURVEY INFORMATION PROVIDED BY CUPLIN & ASSOCIATES, INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. REMOVAL OR RELOCATION OF EXISTING PUBLIC AND PRIVATE FRANCHISE UTILITIES (WATER, ELECTRIC, AND GAS ETC.) WITHIN THE LIMITS OF THE SITE DEMOLITION SHALL BE COORDINATED WITH THE APPLICABLE UTILITY AGENCIES.
3. ALL EXISTING UTILITY SERVICES TO BE TURNED OFF BY UTILITY FRANCHISE TECHNICIAN TO ALLOW FOR EXISTING SERVICE LINES TO BE CUT/ CAPPED AT PROPERTY LINE.
4. ALL UTILITIES TO REMAIN IN PLACE UNLESS NOTED OTHERWISE.
5. SURFACE PAVEMENT INDICATED HEREON (SUCH AS ASPHALT OR CONCRETE) MAY OVERLAY OTHER HIDDEN STRUCTURES (SUCH AS OTHER LAYERS OF PAVEMENT, BUILDING SLAB, ETC.) CONTRACTOR TO NOTIFY ENGINEER/OWNER IMMEDIATELY IF BURIED ITEMS ARE DISCOVERED.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES, IRRIGATION LINES, PAVEMENT, ETC., TO REMAIN RESULTING FROM DEMOLITION ACTIVITIES AND REPAIR AT HIS OWN EXPENSE.
7. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
8. ALL ITEMS TO BE REMOVED SHALL BE DISPOSED OFF-SITE IN A MANNER ACCEPTABLE TO ALL APPLICABLE REGULATIONS.
9. PERIMETER EROSION CONTROL DEVICES SHALL BE IN PLACE PRIOR TO DEMOLITION.
10. LOCATION OF PUBLIC AND FRANCHISE UTILITIES SHOWN ARE APPROXIMATE AND MAY NOT BE COMPLETE. CONTRACTOR SHALL CALL THE ONE CALL CENTER (811) AT LEAST 48 HOURS PRIOR TO COMMENCING DEMOLITION OR CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL CONTACT ANY OTHER UTILITIES WHO DO NOT SUBSCRIBE TO THE ONE CALL PROGRAM FOR LINE MARKINGS THE CONTRACTOR BEARS THE SOLE RESPONSIBILITY FOR VERIFYING LOCATIONS OF EXISTING UTILITIES, SHOWN OR NOT SHOWN, AND FOR ANY DAMAGE DONE TO THE FACILITIES.
11. CONTRACTOR SHALL ADJUST ALL VISIBLE UTILITY FEATURES TO FINISHED GRADE AS NEEDED AT NO ADDITIONAL COST TO OWNER.
12. CONTRACTOR SHALL SAW CUT AND REMOVE PAVEMENT AS NEEDED TO PROVIDE A SQUARE EDGE FOR PROPOSED PAVEMENT. CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.
13. CONTRACTOR TO COORDINATE WITH ADJACENT OWNER PRIOR TO MOVING, ALTERING, OR REMOVING FENCES.
14. CONTRACTOR SHALL VERIFY EXISTING UTILITY LINE TYPE, LOCATION, MATERIAL AND DEPTH PRIOR TO CONSTRUCTION.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

EXISTING CONDITIONS AND DEMOLITION PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.04

Sheet 4 OF 24

2024-21-SDP

7/11/2024 11:22:36 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_XSITE.dwg

CAUTION!!!
UNDERGROUND GAS PIPELINE IN AREA.
CONTRACTOR TO VERIFY EXACT LOCATION
AND DEPTH PRIOR TO CONSTRUCTION

CAUTION!!!
OVERHEAD ELECTRIC IN AREA.

STATE HIGHWAY NO.29
(120' R.O.W.)

DELTA=4°42'06"
RAD=5789.85'
ARC LEN=475.12'
CHD LEN=474.99'
CHD BRG=S72°12'15"E

DELTA=85°27'53"
RAD=15.00'
ARC LEN=22.37'
CHD LEN=20.36'
CHD BRG=S31°59'40"E

LIFE SPRING CHRISTIAN CHURCH
DOC. NO. R024274
(5.07 AC., 220849.2 S.F.)

5.170±AC.
TOTAL

7.5' P.U.E. PER PLAT
10' UTILITY EASEMENT-813/185-O.P.R.W.C.

25' UTILITY EASEMENT-DOC
NO.2012029979 O.P.R.W.C.

CONCRETE
WASHOUT

TEMPORARY SPOILS
STORAGE AREA

LOT 35B
REPLAT OF LOT 35
RIVERBEND OAKS
DOC. NO.2015007612-O.P.R.W.C.

SILT FENCE (TYP.)
REF. DETAIL SHEET
C.18

STABILIZED
CONSTRUCTION
ENTRANCE

20 LF OF ROCK BERM
TO BE INSTALLED

SILT FENCE (TYP.)
REF. DETAIL SHEET
C.18

LOT 35A
REPLAT OF LOT 35
RIVERBEND OAKS
DOC. NO.2015007612-O.P.R.W.C.

EXISTING
BUILDING
(12,000)

DEEP LAKE DRIVE
(50' R.O.W.)

DELTA=26°30'31"
RAD=268.51'
ARC LEN=124.23'
CHD LEN=123.12'
CHD BRG=S25°06'31"W

JLB REAL ESTATE LLC
DOC. NO. R481296
(2.035 AC., 88644.6 S.F.)

1" P.U.E. PER PLAT NOTE

BATCH WATER
QUALITY/DETENTION
POND

GOMEZ, ARTURO JR & SONIA I
DOC. NO. R024281
(5.02 AC., 218671.2 S.F.)

SILT FENCE (TYP.)
REF. DETAIL SHEET
C.18

15 LF OF ROCK BERM
TO BE INSTALLED

BM-1
N: 10017009.95
E: 3149221.34
ELEV: 1024.58
SITE BENCHMARK
SET COTTON SPINDLE

N

0 15 30 60
SCALE IN FEET

LEGEND:

PROPERTY LINE	
EXISTING MAJOR CONTOUR	1025
EXISTING MINOR CONTOUR	1026
MAJOR CONTOUR	1025
MINOR CONTOUR	1026
SILT FENCE	SF
LIMITS OF CONSTRUCTION	LOC
EXISTING ELECTRIC LINE	OHE
EXISTING GAS LINE	G
EXISTING WATER LINE	W
EXISTING WASTEWATER LINE	WW
EXISTING CHAIN-LINK FENCE	
ROCK BERM	
BENCHMARK	
SPOILS/STAGING AREA	
CONCRETE WASHOUT PIT	
STABILIZED CONSTRUCTION ENTRANCE	
TREE PROTECTION	

NOTES:

1. SURVEY INFORMATION PROVIDED BY CUPLIN & ASSOCIATES, INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. CONTRACTOR IS RESPONSIBLE FOR DEWATERING OF WORK AREAS. WHEN REQUIRED CONTRACTOR SHALL DEWATER EXCAVATED AREAS USING A CITY METHOD (I.E. SILT FENCE, HAY BALE DIKE, ROCK BERM, ETC.)
3. CONTRACTOR SHALL PROVIDE TEMPORARY STAGING AND SPOILS AREA AS NEEDED AND PROVIDE ADDITIONAL SILT FENCE ALONG THE DOWNSTREAM SIDE OF THESE AREAS THROUGHOUT CONSTRUCTION.
4. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP, OR REVEGETATION MATTING.
5. CITY INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/ SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN-COMPLIANCE WITH THE CITY RULES AND REGULATIONS.
6. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER CITY REQUIREMENTS, OR AS DIRECTED BY THE CITY INSPECTOR.
7. REFER TO GENERAL NOTES FOR THE SEQUENCE OF CONSTRUCTION.
8. CONCRETE WASHOUT AND STAGING / SPOILS AREA MAYBE RELOCATED AS NEEDED TO COMPLETE CONSTRUCTION ACTIVITIES.
9. ALL TREES TO REMAIN WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED PER THE CITY OF LIBERTY HILL STANDARDS.
10. ALL DISTURBED AREAS SHALL BE REVEGETATED PER LANDSCAPE ARCHITECTURE PLANS OR THE PERMANENT STABILIZED NOTES ON THE GENERAL NOTES SHEET.
11. SILT FENCE SHALL BE RELOCATED AS NECESSARY TO ALLOW FOR CONSTRUCTION WITHIN SUBJECT AREA, TRIANGULAR FILTER DIKE MAY BE USED AS SUBSTITUTE TO SILT FENCE WHEN INSTALLED ON PAVEMENT.

EROSION CONTROL QUANTITIES		
STABILIZED CONSTRUCTION ENTRANCE	1	EA
LIMITS OF CONSTRUCTION	3.99	AC
SILT FENCE	708.6	LF
INLET PROTECTION	0	EA
ROCK BURM	35	LF

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

EROSION AND SEDIMENTATION CONTROL PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

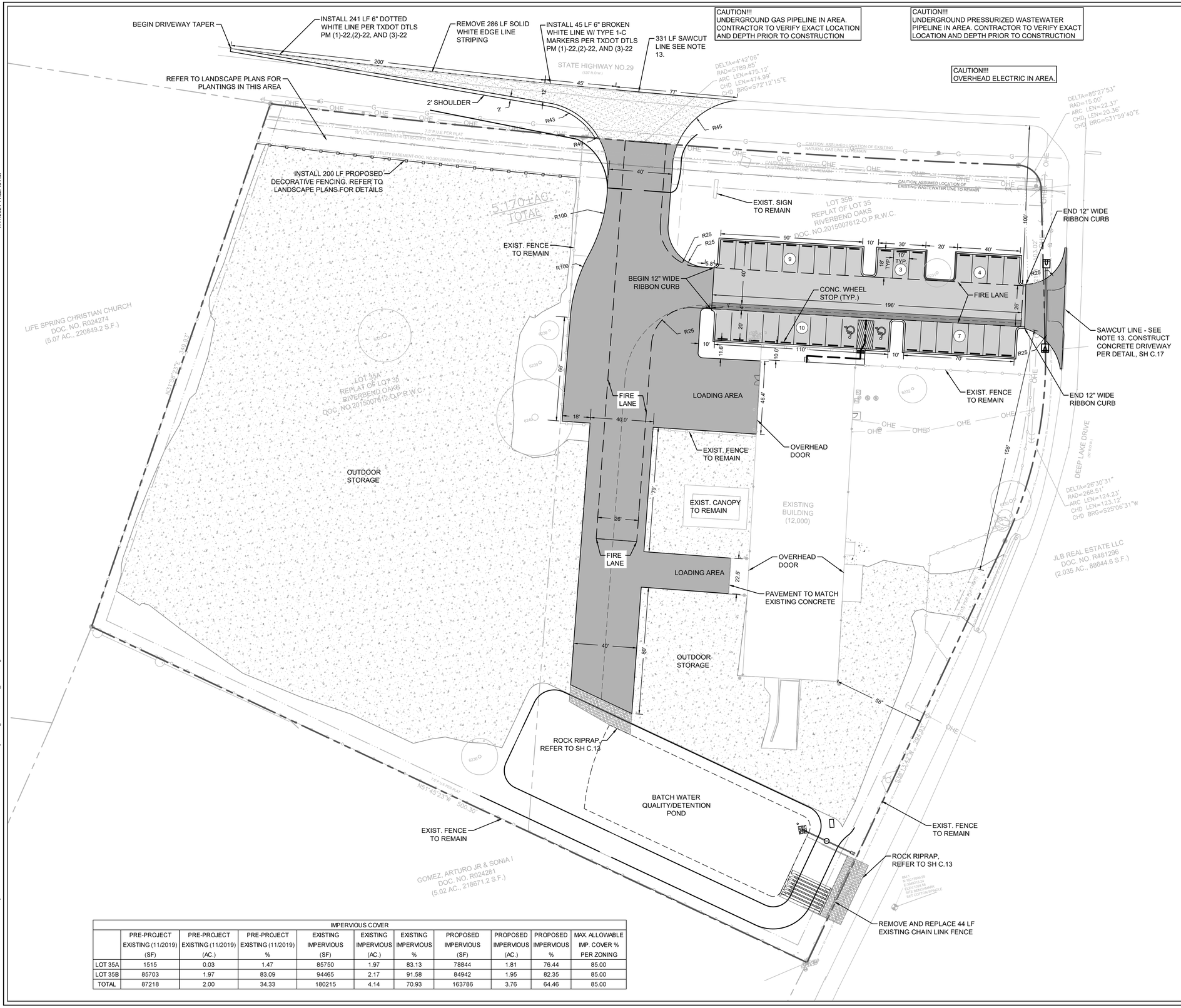
C.05

Sheet 5 OF 24

2024-21-SDP

7/11/2024 1:24:20 PM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_EROS.dwg



IMPERVIOUS COVER										
	PRE-PROJECT EXISTING (11/2019) (SF)	PRE-PROJECT EXISTING (11/2019) (AC.)	PRE-PROJECT EXISTING (11/2019) %	EXISTING IMPERVIOUS (SF)	EXISTING IMPERVIOUS (AC.)	EXISTING IMPERVIOUS %	PROPOSED IMPERVIOUS (SF)	PROPOSED IMPERVIOUS (AC.)	PROPOSED IMPERVIOUS %	MAX. ALLOWABLE IMP. COVER % PER ZONING
LOT 35A	1515	0.03	1.47	85750	1.97	83.13	78844	1.81	76.44	85.00
LOT 35B	85703	1.97	83.09	94465	2.17	91.58	84942	1.95	82.35	85.00
TOTAL	87218	2.00	34.33	180215	4.14	70.93	163786	3.76	64.46	85.00

N

0 15 30 60
SCALE IN FEET

LEGEND:

- PROPERTY LINE
- EXISTING EASEMENT LINE
- ADA ROUTE
- EXISTING CHAIN LINK FENCE
- EXISTING DECORATIVE METAL FENCE
- EXISTING ELECTRIC LINE (OHE)
- EXISTING GAS LINE (G)
- EXISTING WATER LINE (W)
- EXISTING WASTEWATER LINE
- PROPOSED CHAIN LINK FENCE
- PROPOSED DECORATIVE FENCE
- BENCHMARK
- PARKING COUNT (33)
- EXISTING BASE MATERIAL
- PROPOSED LIGHT DUTY HMAC PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED TXDOT NON-RESIDENTIAL DRIVEWAY SECTION: 2" TY C HMAC OVER 6" TY B HMAC OVER 12" FLEX BASE

NOTES:

1. SURVEY INFORMATION PROVIDED BY CUPLIN AND ASSOCIATES INC., RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. WATER AND WASTEWATER SERVICE TO BE PROVIDED BY THE CITY OF LIBERTY HILL.
3. ALL FIRE DEPARTMENT ACCESS DRIVES/ROADS TO HAVE A MINIMUM 14' VERTICAL CLEARANCE AND A SLOPE NO GREATER THAN 12% IN ANY DIRECTION.
4. ALL PARKING SPACES SHALL HAVE A 7'-0" VERTICAL CLEARANCE.
5. EVERY HANDICAP ACCESSIBLE PARKING SPOT SHALL BE IDENTIFIED BY A SIGN CENTERED 5 FEET ABOVE THE PARKING SURFACE, AT THE HEAD OF THE PARKING SPACE. THE SIGN MUST INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND STATE RESERVED, OR EQUIVALENT LANGUAGE. SUCH SIGNS SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE AND SHALL MEET THE CRITERIA SET FORTH IN THE UBC, 3108(C) AND ANSI A1171-1986-4.6.2. (SEE DETAIL) REFER TO ARCHITECTURAL ADA SHEET FOR MORE INFORMATION.
6. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
7. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP.
8. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP RUN IS 30 INCHES.
9. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50 YARD RETURN. 5' X 5' LANDINGS ARE REQUIRED AT ALL CHANGES IN DIRECTION. LANDINGS SHALL NOT HAVE A SLOPE OF GREATER THAN 1:50 IN ANY DIRECTION.
10. GROUND SURFACES ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM, AND SLIP RESISTANT.
11. REFER TO DETAILS FOR PAVEMENT SECTIONS.
12. EDGE LINES SHALL BE SINGLE 4" SOLID LINE WITH INSIDE STRIPING PAINTED SINGLE 4" SOLID LINE AT 30° O.C. 45 DEGREES TO EDGE LINES. PAINT COLOR ON ASPHALT PAVEMENT SHALL BE WHITE. PAINT COLOR ON CONCRETE PAVEMENT SHALL BE YELLOW. (SUBMIT PAINT SPEC FOR APPROVAL BY OWNER PRIOR TO INSTALLATION.)
13. CONTRACTOR SHALL SAW CUT AND REMOVE PAVEMENT AS NEEDED TO PROVIDE A SQUARE EDGE FOR PROPOSED PAVEMENT. CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.
14. WHEEL STOPS SHOWN ARE FOR REFERENCE ONLY. FINAL LOCATION AND QUANTITY OF WHEEL STOPS TO BE DETERMINED BY CONTRACTOR/OWNER. WHEEL STOPS SHALL BE APPROXIMATELY 2' OFF BUILDING WALLS AND CURB LINE UNLESS NOTED OTHERWISE AND SHALL BE FASTENED WITH 1/2" X 18" REBAR.
15. CONTRACTOR TO ADJUST CASTINGS, MANHOLE LIDS AND OTHER APPLICABLE APPURTENANCES ON EXISTING UTILITIES AS NECESSARY WITHIN THE LIMITS OF CONSTRUCTION.
16. ALL DIMENSIONS ARE TO INSIDE EDGE OF RIBBON CURB UNLESS NOTED OTHERWISE
17. ALL RADII TO BE 3' WHEN MEASURED AT FACE OF CURB, UNLESS OTHERWISE NOTED.

PARKING		
	STANDARD	H.C.
REQUIRED	24	1
PROVIDED	33	2

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

SITE PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.06

Sheet 6 OF 24

2024-21-SDP

7/11/2024 11:22:45 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W Sh29 Liberty Hill\dwg\Sheets\23030_PSITE.dwg

CAUTION!!!
UNDERGROUND GAS PIPELINE IN AREA.
CONTRACTOR TO VERIFY EXACT LOCATION
AND DEPTH PRIOR TO CONSTRUCTION

CAUTION!!!
UNDERGROUND PRESSURIZED WASTEWATER
PIPELINE IN AREA. CONTRACTOR TO VERIFY EXACT
LOCATION AND DEPTH PRIOR TO CONSTRUCTION

CAUTION!!!
OVERHEAD ELECTRIC IN AREA.

STATE HIGHWAY NO.29
(120' R.O.W.)

DELTA=4°42'06"
RAD=5789.85'
ARC LEN=475.12'
CHD LEN=474.99'
CHD BRG=S72°12'15"E

CAUTION!!! EXISTING OVERHEAD
ELECTRIC TO REMAIN IN PLACE

END PUBLIC IMPROVEMENT &
BEGIN PRIVATE IMPROVEMENTS
STA. 1+03.66 WWL 'A'
INSTALL:
1 - WW CURB STOP W/
CAST IRON BOOT & COVER
REF. DETAIL SHEET C.18

APPROXIMATE LOCATION OF
EXISTING WASTEWATER MAIN.
CONTRACTOR TO VERIFY
EXACT LOCATION/ELEVATION

CAUTION: ASSUMED LOCATION OF
EXISTING NATURAL GAS LINE TO REMAIN

CAUTION: ASSUMED LOCATION OF
EXISTING WATER LINE TO REMAIN

CAUTION: ASSUMED LOCATION OF
EXISTING WASTEWATER LINE TO REMAIN

DELTA=85°27'53"
RAD=15.00'
ARC LEN=22.37'
CHD LEN=20.36'
CHD BRG=S31°59'40"E

CAUTION!!! EXISTING
OVERHEAD ELECTRIC
TO REMAIN IN PLACE

7.5' P.U.E. PER PLAT
10' UTILITY EASEMENT-813/185-O.P.R.W.C.
25' UTILITY EASEMENT-DOC. NO.2015007612-O.P.R.W.C.

5.170±AC.
TOTAL

LOT 35B
REPLAT OF LOT 35
RIVERBEND OAKS
DOC. NO.2015007612-O.P.R.W.C.

BEGIN PUBLIC IMPROVEMENTS
STA. 0+00.00 WWL "A1"
CONNECT TO
EX.4" WW FORCE MAIN
INSTALL:
1 - 4" x 1.5" TAPPING SLEEVE

171 LF 1.5" SCHEDULE
80 PVC FORCE MAIN

STA. 1+21.54 WASTEWATER
LINE "A1"
INSTALL:
1 - PACKAGE GRINDER LIFT
STATION REF DETAIL,
SHEET C.18

1.5 LF 4" SCH 40 PVC
@ 2.0% MIN.

14 LF 4" SCH 40 PVC
@ 2.0% MIN.

SEPTIC TANKS TO BE
REMOVED OR ABANDONED
IN PLACE PER NOTE 9

CONNECT TO NEW 4" PVC TO
EXISTING BUILDING OUTFALL
INSTALL:
1 - 4" 45 DEG BEND
1 - 2 LF 4" SCH 40 PVC
1 - CLEANOUT
CONTRACTOR TO VERIFY
EXACT INVERT ELEVATION

APPROXIMATE
LOCATION OF
DRAIN/LEACH
FIELD. TO BE
ABANDONED
IN PLACE.

EXISTING
BUILDING
(12,000)

LIFE SPRING CHRISTIAN CHURCH
DOC. NO. R024274
(5.07 AC., 220849.2 S.F.)

N3°58'23"E 349.61'

LOT 35A
REPLAT OF LOT 35
RIVERBEND OAKS
DOC. NO.2015007612-O.P.R.W.C.

DEEP LAKE DRIVE
(60' R.O.W.)

DELTA=26°30'31"
RAD=268.51'
ARC LEN=124.23'
CHD LEN=123.12'
CHD BRG=S25°06'31"W

JLB REAL ESTATE LLC
DOC. NO. R481296
(2.035 AC., 88644.6 S.F.)

10' P.U.E. PER PLAT NOTE

S38°43'32"E 234.57'

CAUTION!!! EXISTING OVERHEAD
ELECTRIC TO REMAIN IN PLACE

BATCH WATER
QUALITY/DETENTION
POND

N51°45'23"W 5009.30'
15' P.U.E. PER PLAT

GOMEZ, ARTURO JR & SONIA I
DOC. NO. R024281
(5.02 AC., 218671.2 S.F.)

BM-1
N: 10017209.93
E: 3044912.24
ELEV: 1024.58
SITE: BENCHMARK
SET: COTTON SPINDLE

0 15 30 60
SCALE IN FEET

LEGEND:

PROPERTY LINE	
PROPOSED WASTEWATER LINE	WW WW
EXISTING CHAIN LINK FENCE	
EXISTING DECORATIVE METAL FENCE	
EXISTING ELECTRICAL LINE	OHE OHE
EXISTING GAS LINE	G
EXISTING WATER LINE	W W W W W
EXISTING WASTEWATER LINE	WW WW
BENCHMARK	

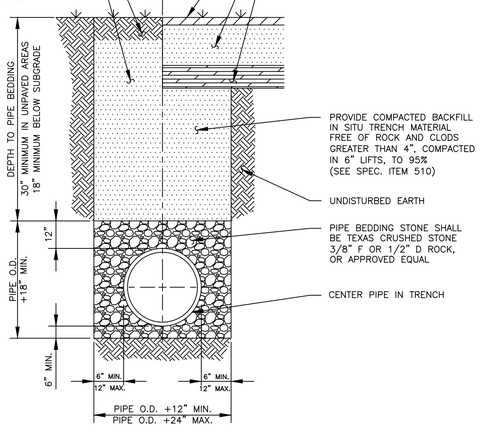
NOTES:

1. THE SURVEY WAS PROVIDED BY CUPLIN & ASOCIATES INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. WASTEWATER SERVICE TO BE PROVIDED BY THE CITY OF LIBERTY HILL. CONTRACTOR SHALL CONTACT UTILITY PROVIDER AT LEAST 48 HOURS BEFORE CONNECTING TO EXISTING WASTEWATER FACILITIES.
3. ALL WASTEWATER PIPE SHALL BE PVC SCH 80 PIPE UNLESS NOTED OTHERWISE
4. MINIMUM CLEARANCE BETWEEN WATER AND WASTEWATER LINES SHALL COMPLY WITH TCEQ REQUIREMENTS.
5. CONTRACTOR SHALL ADJUST ALL VISIBLE UTILITY FEATURES TO FINISHED GRADE AS NEEDED AT NO ADDITIONAL COST TO OWNER.
6. LOCATION OF PUBLIC AND FRANCHISE UTILITIES SHOWN ARE APPROXIMATE AND MAY NOT BE COMPLETE. CONTRACTOR SHALL CALL THE ONE CALL CENTER (811) AT LEAST 48 HOURS PRIOR TO COMMENCING DEMOLITION OR CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL CONTACT ANY OTHER UTILITIES WHO DO NOT SUBSCRIBE TO THE ONE CALL PROGRAM FOR LINE MARKINGS THE CONTRACTOR BEARS THE SOLE RESPONSIBILITY FOR VERIFYING LOCATIONS OF EXISTING UTILITIES, SHOWN OR NOT SHOWN, AND FOR ANY DAMAGE DONE TO THE FACILITIES.
7. CONTRACTOR SHALL VERIFY EXISTING UTILITY LINE TYPE, LOCATION, MATERIAL AND DEPTH PRIOR TO CONSTRUCTION.
8. ALL WASTEWATER IMPROVEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF LIBERTY HILL CONSTRUCTION STANDARDS.
9. ABANDON EXISTING SEPTIC TANK PER TEXAS ADMINISTRATIVE CODE TITLE 30, PART1, CHAPTER 285, SUBCHAPTER D RULE 285.36: SEPTIC TANK SHALL HAVE THE WASTEWATER REMOVED BY A WASTE TRANSPORTER, HOLDING A CURRENT REGISTRATION WITH THE EXECUTIVE DIRECTOR. TANK SHALL BE FILLED TO GROUND LEVEL WITH FILL MATERIAL (LESS THAN THREE INCHES IN DIAMETER) WHICH IS FREE OF ORGANIC AND CONSTRUCTION DEBRIS."
10. THE CONTRACTOR SHALL POT HOLE AND FIELD VERIFY THE LOCATION AND DEPTHS OF ALL PROPOSED UTILITY CROSSINGS & CONNECTIONS PRIOR TO ANY CONSTRUCTION OR ORDERING OF MATERIALS. CONTRACTOR SHALL REPORT DISCREPANCIES OF EXISTING UTILITIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
11. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY, AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
12. TRENCH SAFETY SYSTEMS SHALL BE REQUIRED FOR TRENCHES EXCEEDING 5' DEPTH. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF TEXAS.
13. WHERE A SEWER CROSSES A WATERLINE, ALL PORTIONS OF THE SEWER WITHIN NINE FEET OF THE WATERLINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC PIPE WITH A PRESSURE RATING OF AT LEAST 150 PSI USING APPROPRIATE ADAPTERS. CENTER 1 JOINT OF WASTEWATER LINE ON CROSSING.

NON-PAVED SURFACE:
(A) PROVIDE 6" OF TOPSOIL AND REVEGETATE

(B) PROVIDE COMPACTED BACKFILL IN SITU TRENCH MATERIAL FREE OF ROCK AND CLODS GREATER THAN 4", COMPACTED IN 6" LIFTS. COMPACTION TO 95% IN R.O.W. AND IN OR NEAR FLOOD PLAIN. OTHER LOCATIONS TO BE 85%. (SEE SPEC. ITEM 510)

PROPOSED PAVED SURFACE:
SUBGRADE PREP, FLEXIBLE BASE AND H.M.A.C. PER PAVEMENT PLANS, UNDER SEPARATE PROCEDURE



NOTE:

ALL TRENCHING AND TRENCH SAFETY SHALL COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

RECORD SIGNED COPY ON FILE AT U&ES DEPARTMENT APPROVED 03-01-18 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)	CITY OF ROUND ROCK WASTEWATER LINE BEDDING AND SURFACE REPAIR DETAIL (NON-PAVED & PROPOSED PAVED SURFACE)	DRAWING NO: WW-18 ROUND ROCK TEXAS

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

WASTEWATER PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

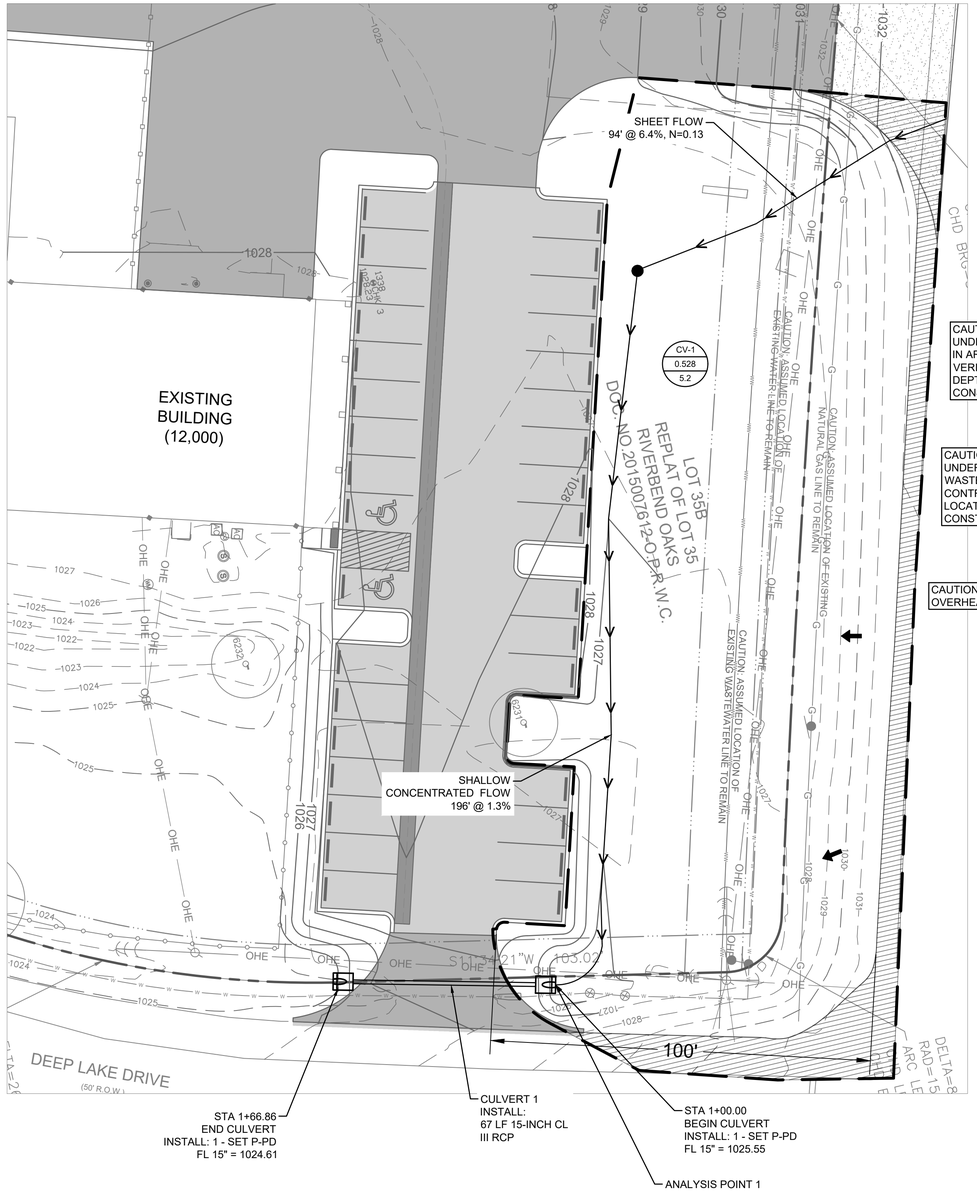
C.07

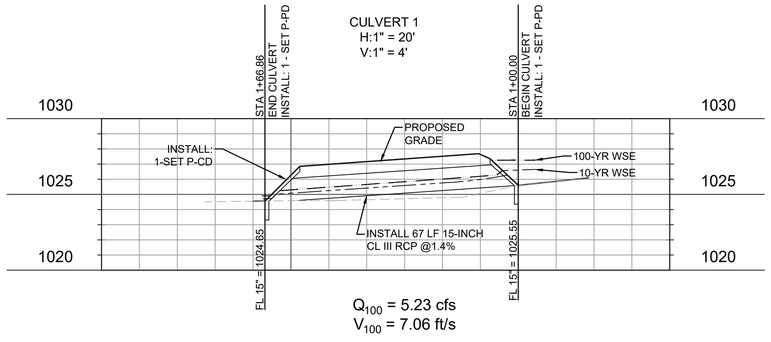
Sheet 7 OF 24

2024-21-SDP

7/11/2024 11:46:35 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_PUTIL.dwg





ANALYSIS POINT 1 (CFS) ROUTED FLOWS				
Condition		**10-year**	**25-year**	**100-year**
Proposed		2.88	3.77	5.23

*Flows are based on HEC-HMS model flows using CN=80 with the addition of 10.9% impervious area in the sub-basin and lag time of 6.0 minutes

PROPOSED CONDITIONS (SCS METHOD)								
Area ID	**DA (ac.)**	**TC(min.)**	**TC(hr.)**	**CN**		**Q_{10}(cfs)**	**Q_{25}(cfs)**	**Q_{100}(cfs)**
CV-1	0.536	10.0	0.17	80.0		2.88	3.77	5.23

PROPOSED CONDITIONS

(CV-1) **Total Time of Concentration = 10.0 minutes**

Sheet Flow

$T = \frac{0.007*(n*L)^{0.8}}{(P2)^{0.5}*s^{0.4}}$

= 4.7 minutes

where			
	T = Time of Concentration (hrs)	=	0.08
	n = Mannings roughness coefficient	=	0.13
	L = Flow Length (max 100 ft)	=	94
	P2 = 2-year, 24-hour rainfall (inches)	=	3.91
	s = slope (%)	=	6.4%

Shallow Concentrated Flow

$T_{unpaved} = \frac{L}{(3600)(16.1345)(s^{0.5})}$

= 1.8 minutes

	T = Time of Concentration (hrs)	=	0.03
	L = Flow Length (ft)	=	196
	s = slope (ft/ft)	=	0.013

PEAK FLOW	TOTAL DISCHARGE (CFS)	CULVERT DISCHARGE (CFS)	HEADWATER ELEVATION (FT)	INLET CONTROL DEPTH (FT)	OUTLET CONTROL DEPTH (FT)	FLOW TYPE	NORMAL DEPTH (FT)	CRITICAL DEPTH (FT)	OUTLET DEPTH (FT)	TAILWATER DEPTH (FT)	OUTLET VELOCITY (FT/S)	TAILWATER VELOCITY (FT/S)
10 YEAR	2.88	2.88	1026.58	1.03	0.00	1-S2n	0.51	0.68	0.51	0.22	6.16	2.14
100 YEAR	5.23	5.23	1027.24	1.69	0.84	5-S2n	0.72	0.93	0.73	0.31	7.06	2.59

N

0 10 20 40
SCALE IN FEET

LEGEND:

- PROPERTY LINE
- EXISTING MAJOR CONTOUR (1115)
- EXISTING MINOR CONTOUR (1114)
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- MAJOR CONTOUR (1113)
- MINOR CONTOUR (1112)
- EXISTING CHAIN LINK FENCE
- EXISTING DECORATIVE METAL FENCE
- EXISTING ELECTRICAL LINE (OHE)
- EXISTING GAS LINE (G)
- EXISTING WATER LINE (W)
- EXISTING WASTEWATER LINE (WW)
- DRAINAGE AREA TAG (CV-1 / 10.70 / 33.4) — DRAINAGE AREA, ACREAGE, 100 - YEAR PEAK FLOW
- DRAINAGE FLOW DIRECTION
- PROPOSED LIGHT DUTY HMAC PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED TXDOT NON-RESIDENTIAL DRIVEWAY SECTION: 2" TY C HMAC OVER 6" TY B HMAC OVER 12" FLEX BASE
- IMPERVIOUS AREA

NOTES:

1. THE SURVEY WAS PROVIDED BY CUPLIN & ASSOCIATES INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. THE SCS METHOD AND HEC-HMS VERSION 4.11 WERE UTILIZED TO ANALYZE PRE-DEVELOPMENT AND POST DEVELOPMENT PEAK FLOW RATES.
3. PRECIPITATION FREQUENCY VALUES WERE TAKEN FROM ATLAS 14 FOR LIBERTY HILL FOR A 24-HOUR DURATION FREQUENCY STORM
4. SOILS WERE DETERMINED TO BE WITHIN HYDROLOGIC SOIL GROUP D PER THE USDA SOIL SURVEY.
5. ALL PERVIOUS AREAS WERE ASSUMED TO BE FAIR CONDITION GRASSLAND (50% TO 75% COVER) WITH CURVE NUMBERS TAKEN FROM TR-55.
6. TIMES OF CONCENTRATION WERE CALCULATED USING TR-55 METHOD. A MINIMUM OF 10 MINUTES WAS ASSUMED
7. HYDRAULIC ANALYSIS FOR CULVERT 1 WAS PERFORMED UTILIZING HY-8 VERSION 7.80.2.

CV-1(SQ FT)		
TOTAL: 23,336		
IMPERVIOUS		PERVIOUS
PVMT	GRAVEL/ BASE	
2,712	0	20,624

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENCHMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

DRIVEWAY CULVERT PLAN AND CALCULATIONS

STATE OF TEXAS — JOHN J. TEAGUE III — 92770 — LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

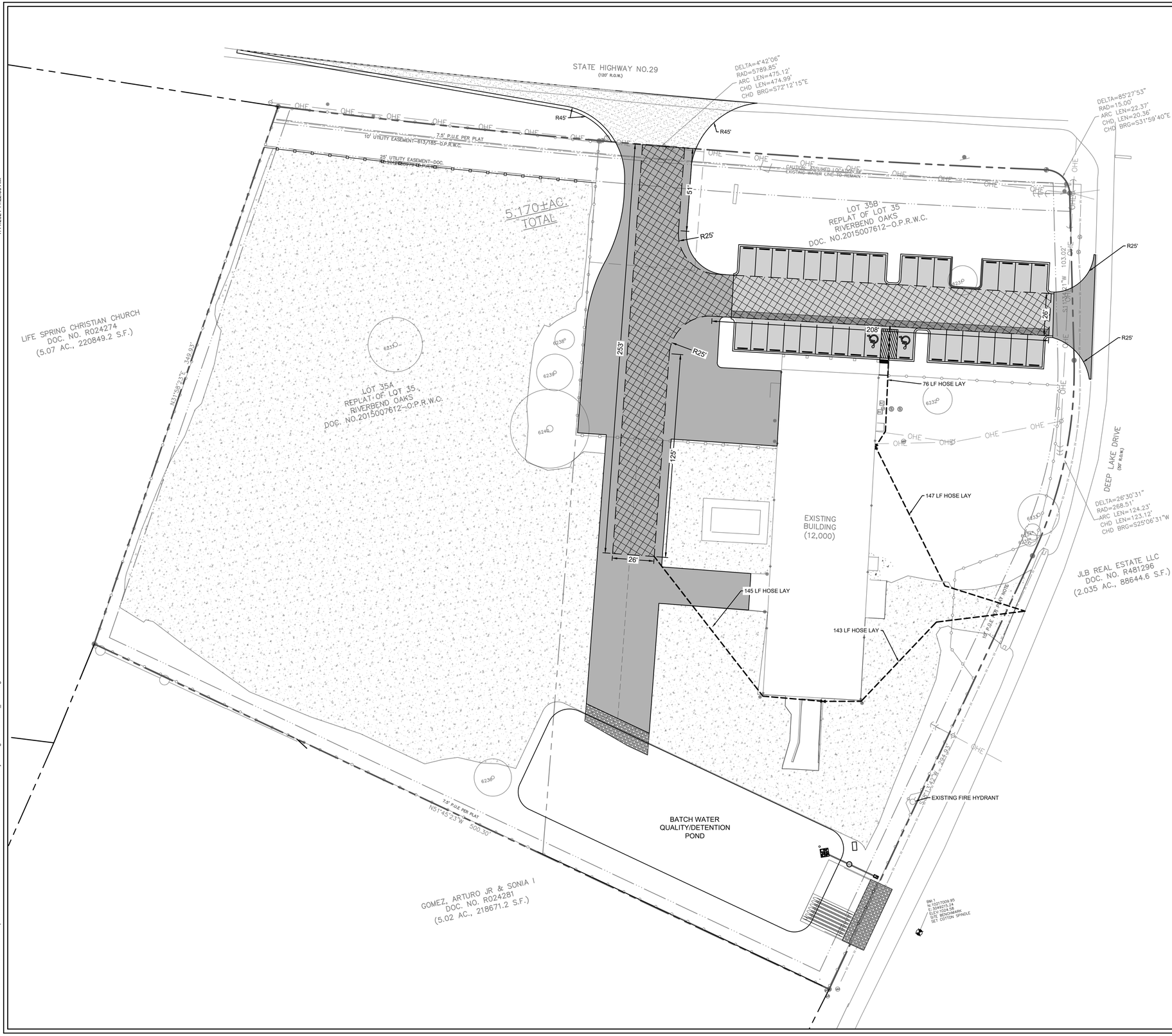
C.08

Sheet 8 OF 24

2024-21-SDP

7/11/2024 11:22:52 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_CDAM.dwg



N

0 15 30 60

SCALE IN FEET

LEGEND:

PROPERTY LINE	
EXISTING OVERHEAD ELECTRIC	OHE OHE
FIRE LANE STRIPING	
FIRE LANE	

NOTES:

1. THE SURVEY WAS PROVIDED BY CUPLIN & ASOCIATES, INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. ALL FIRE DEPARTMENT ACCESS DRIVES/ROADS TO HAVE A MINIMUM 13' - 6" VERTICAL CLEARANCE AND MAXIMUM SLOPE OF 10% IN ANY DIRECTION.
3. ALL PARKING SPACES SHALL HAVE A 7'-0" VERTICAL CLEARANCE.
4. REFER TO DETAILS FOR PAVEMENT SECTIONS.
5. KNOX BOXES SHALL BE LOCATED AT MAIN ENTRANCE AND ALL FIRE RISER ROOMS. ELECTRONIC CONTROLLED GATES SHALL HAVE KNOX KEY SWITCH AND KNOX PADLOCK (MANUAL RELEASE) OR KNOX BOX. MANUAL GATES SHALL HAVE KNOX PADLOCK OR KNOX BOX.
6. FIRE APPARATUS ACCESS ROADS AND WATER SUPPLY FOR FIRE PROTECTION MUST BE INSTALLED, INSPECTED, AND APPROVED PRIOR TO VERTICAL CONSTRUCTION.
7. NO CONSTRUCTION OF COMBUSTIBLE MATERIALS SHALL TAKE PLACE PRIOR TO FIRE HYDRANTS BEING INSTALLED AND OPERATIONAL.
8. VERTICAL CLEARANCE REQUIRED FOR FIRE APPARATUS IS 13'-6" FOR FULL WIDTH OF ACCESS DRIVES AND ROUTES FOR INTERNAL CIRCULATION. DEAD-END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150' IN LENGTH SHALL BE PROVIDED WITH APPROVED PROVISIONS FOR THE TURNING AROUND OF THE FIRE APPARATUS.
9. FIRE APPARATUS ACCESS ROAD SHALL BE CONTINUOUSLY MARKED BE PAINTED LINES OF RED TRAFFIC PAINT 6" IN WIDTH TO SHOW THE BOUNDARIES OF THE LANE. THE WORDS "FIRE LANE - TOW AWAY ZONE" SHALL APPEAR IN 4" WHITE LETTERS AT 25' INTERVALS ON THE RED BORDER MARKINGS ALONG BOTH SIDES OF THE FIRE LANES. WHERE A CURB IS AVAILABLE, THE STRIPING SHALL BE ON THE VERTICAL FACE OF THE CURB.
10. FIRE HYDRANTS SHALL HAVE NATIONAL STANDARDS THREADS. FIRE HYDRANT PUMPER NOZZLE REQUIRED TO BE 5" STORZ CONNECTION.
11. ALL THRUST BLOCKING ON UNDERGROUND FIRE LINES SHALL BE VERIFIED BY THE FIRE CODE OFFICIAL PRIOR TO COVER UP.
12. ANY NEW FIRE HYDRANT INSTALLED SHALL BE HYDROSTATIC TESTED AND VERIFIED BY FIRE CODE OFFICIAL PRIOR TO ACCEPTANCE.
13. FIRE HYDRANT INSTALLATION SHALL BE CONDUCTED BY LICENSED PROFESSIONAL THROUGH THE TEXAS SATE FIRE MARSHAL'S OFFICE.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

FIRE PROTECTION PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER

07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.09

Sheet 9 OF 24

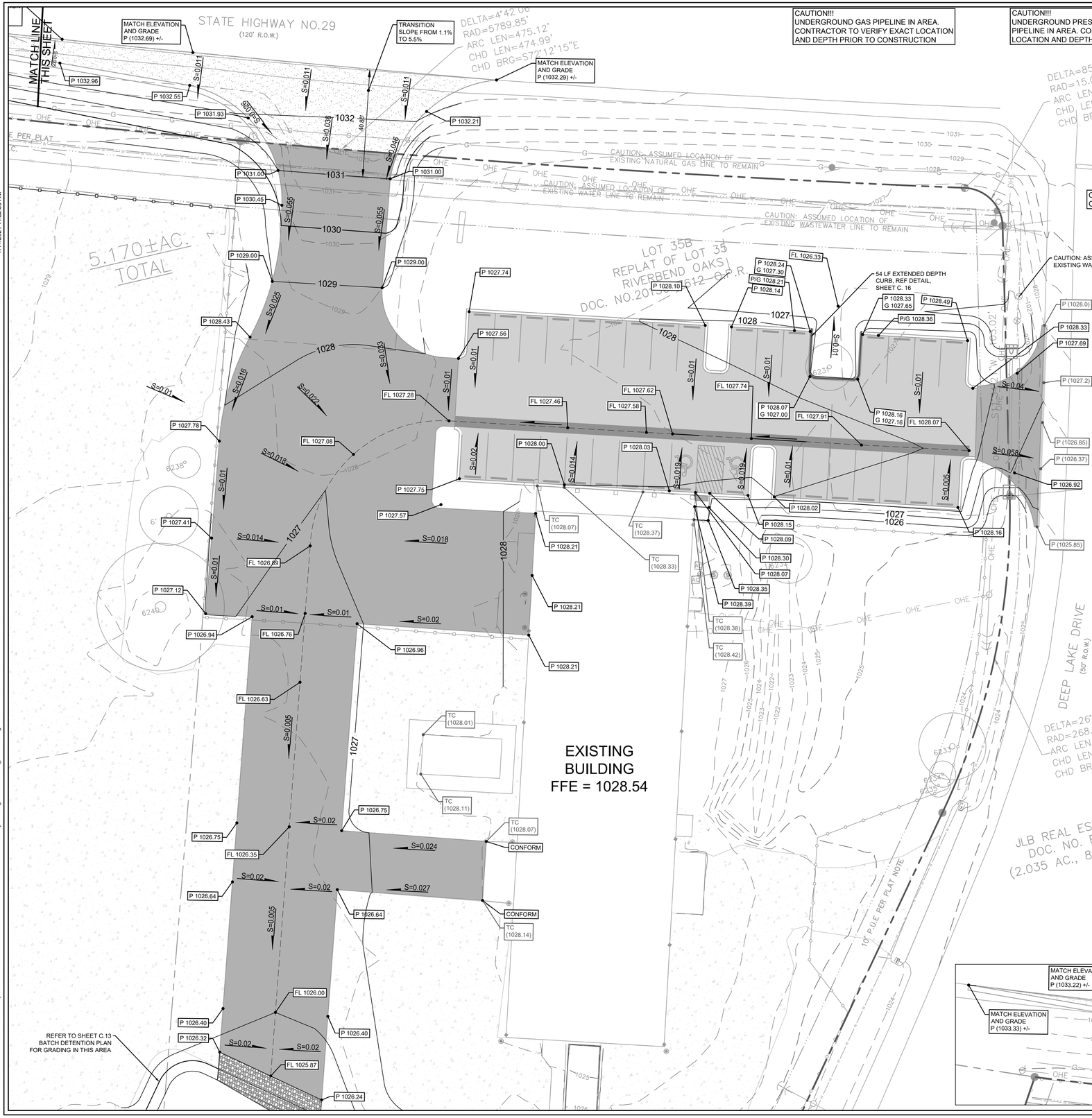
2024-21-SDP

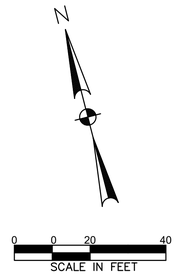
7/11/2024 11:22:56 AM

C:\Users\MatthewEEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W Sh29 Liberty Hill\dwg\Sheets\23030_FIRE.dwg

7/11/2024 11:22:58 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_PGRAD.dwg





LEGEND:

- PROPERTY LINE
- EXISTING MAJOR CONTOUR (1115)
- EXISTING MINOR CONTOUR (1114)
- MAJOR CONTOUR (3230)
- MINOR CONTOUR (3231)
- EXISTING CHAIN LINK FENCE
- EXISTING DECORATIVE METAL FENCE
- EXISTING ELECTRIC LINE (OHE)
- EXISTING GAS LINE (G)
- EXISTING WATER LINE (W)
- EXISTING WASTEWATER LINE (WW)
- BENCHMARK
- PROPOSED LIGHT DUTY HMAC PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT - REFER TO OWNER FOR PAVEMENT SECTION DESIGN
- PROPOSED TXDOT NON-RESIDENTIAL DRIVEWAY SECTION: 2" TY C HMAC OVER 6" TY B HMAC OVER 12" FLEX BASE
- PROPOSED CONTOUR SPOTS — P 1023.56
- MATCH TO EXISTING CONTOUR SPOTS — P (1023.56)
- EXISTING TREE TO REMAIN

NOTES:

1. THE SURVEY WAS PROVIDED BY CUPLIN & ASSOCIATES, INC. RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. SLOPES ON ACCESSIBLE ROUTES MAY NOT EXCEED 1:20 UNLESS DESIGNED AS A RAMP.
3. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION IS 1:12. THE MAXIMUM RISE FOR ANY RAMP IS 30 INCHES.
4. ACCESSIBLE ROUTES MUST HAVE A CROSS-SLOPE NO GREATER THAN 1:50. 5' X 5' LANDINGS ARE REQUIRED AT ALL CHANGES IN DIRECTION. LANDINGS SHALL NOT HAVE A SLOPE OF GREATER THAN 1:50 IN ANY DIRECTION.
5. GROUND SURFACES ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM, AND SLIP RESISTANT.
6. CONTRACTOR TO MATCH EXISTING GRADE, GUTTER, AND ASPHALT WHEN TYING INTO EXISTING ROADWAYS.
7. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATION.
8. CONCRETE PAVEMENT TO HAVE MINIMUM 0.5% SLOPE IN ALL AREAS. NO PONDING IS ALLOWED IN THE PARKING AREA.
9. ELEVATIONS SHOWN OUTSIDE OF PAVEMENT ARE FINISHED GRADES INCLUDING ANY TOPSOIL, GRASS, ETC.
10. ELEVATIONS SHOWN WITHIN PAVEMENT ARE TO GUTTER ELEVATION UNLESS OTHERWISE NOTED.
11. THE EXCAVATION CONTRACTOR SHALL TAKE INTO ACCOUNT THE REQUIREMENTS FOR COMPACTED BASE AND CONCRETE THICKNESS. ALL ELEVATIONS SHOWN ARE TO FINISHED GRADE.
12. SIDEWALK LOCATED ADJACENT TO BUILDING SHALL SLOPE A MINIMUM OF 1% AWAY FROM THE BUILDING.
13. LANDSCAPE AREAS DIRECTLY ADJACENT TO THE BUILDING SHALL SLOPE A MINIMUM OF 2% AWAY FROM THE BUILDING.
14. CONTRACTOR SHALL ADJUST ALL VISIBLE UTILITY STRUCTURES TO FINISHED GRADE AS NEEDED AT NO ADDITIONAL COST TO OWNER.
15. CONTRACTOR SHALL SAW CUT AND REMOVE PAVEMENT AS NEEDED TO PROVIDE A SQUARE EDGE FOR PROPOSED PAVEMENT. CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

PROPOSED GRADING AND PAVING PLAN

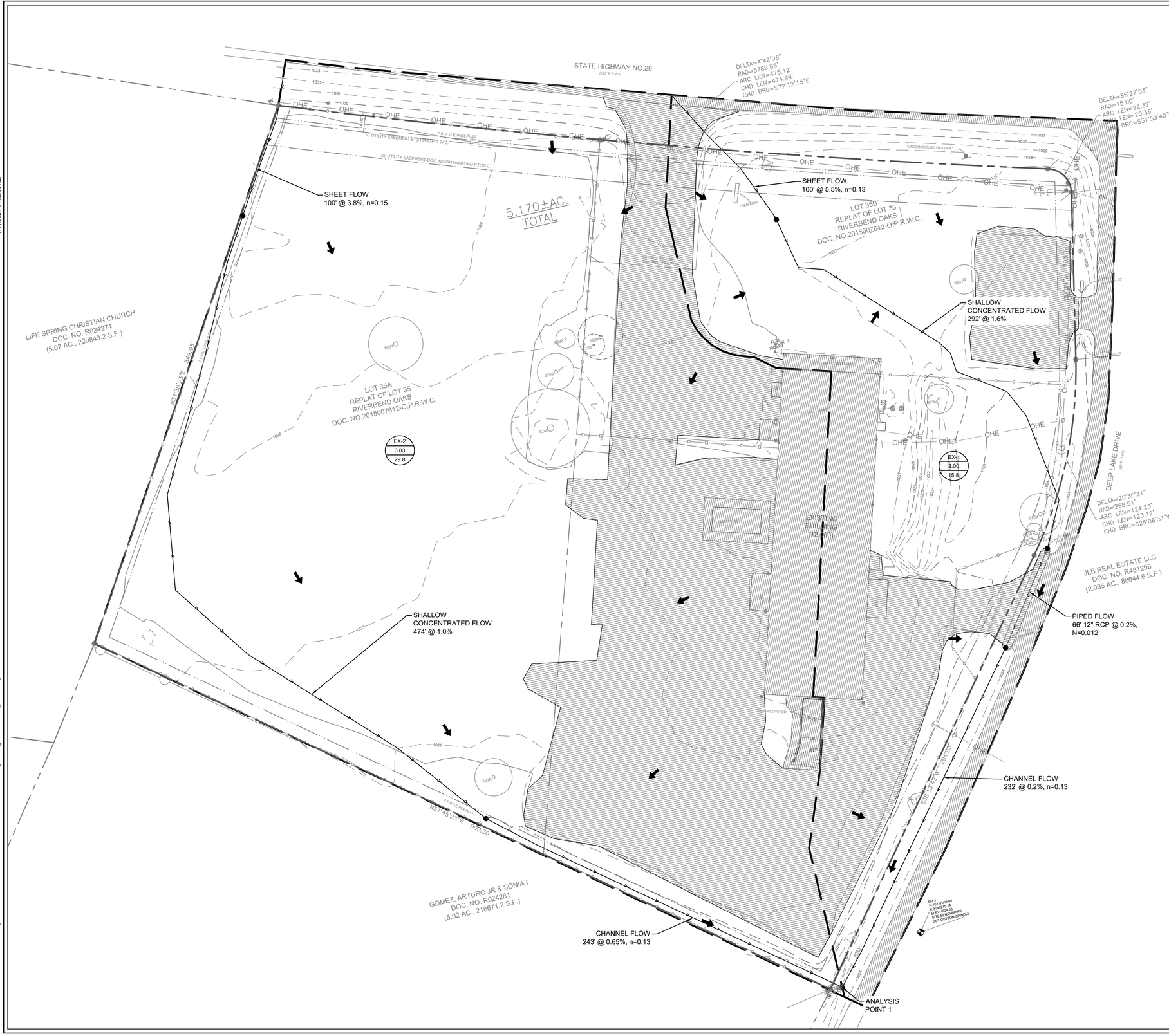
STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

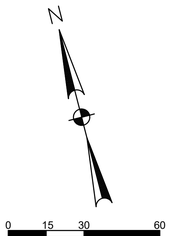
Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.10

Sheet 10 OF 24

2024-21-SDP





LEGEND:

- EXISTING MAJOR CONTOUR — 1115
- EXISTING MINOR CONTOUR — 1114
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- PROPERTY LINE
- IMPERVIOUS AREA (ROOF/PAVEMENT)
- IMPERVIOUS AREA (GRAVEL/BASE)
- DRAINAGE AREA TAG: EX-1 / 10.70 / 33.4 — DRAINAGE AREA / ACREAGE / 100 - YEAR PEAK FLOW
- DRAINAGE FLOW DIRECTION

NOTES:

1. SURVEY INFORMATION PROVIDED BY CUPLIN AND ASSOCIATES INC., RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. THIS SHEET TO BE USED SOLELY FOR PURPOSES OF ANALYSIS, NOT FOR CONSTRUCTION.
3. THE SCS METHOD AND HEC-HMS VERSION 4.11 WERE UTILIZED TO ANALYZE PRE-DEVELOPMENT AND POST DEVELOPMENT PEAK FLOW RATES.
4. PRECIPITATION FREQUENCY VALUES WERE TAKEN FROM ATLAS 14 FOR LIBERTY HILL FOR A 24-HOUR DURATION FREQUENCY STORM
5. SOILS WERE DETERMINED TO BE WITHIN HYDROLOGIC SOIL GROUP D PER THE USDA SOIL SURVEY.
6. ALL PERVIOUS AREAS WERE ASSUMED TO BE GOOD CONDITION RANGE (GREATER THAN 75% COVER) WITH CURVE NUMBERS TAKEN FROM TR-55.
7. EXISTING CONDITIONS FOR THE PRE CONSTRUCTION SURFACE CONDITIONS ARE BASED ON AERIAL IMAGERY FROM NOVEMBER 2019 AND SUPPLEMENTED WITH THE CURRENT TOPOGRAPHIC SURVEY.

EX-1(SQ FT)		
TOTAL: 87,177		
IMPERVIOUS		PERVIOUS
PVMT/ ROOF	GRAVEL/ BASE	
14,483	18,182	54,512

EX-2(SQ FT)		
TOTAL: 166,818		
IMPERVIOUS		PERVIOUS
PVMT/ ROOF	GRAVEL/ BASE	
9,307	45,246	112,265

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

EXISTING DRAINAGE AREA MAP

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

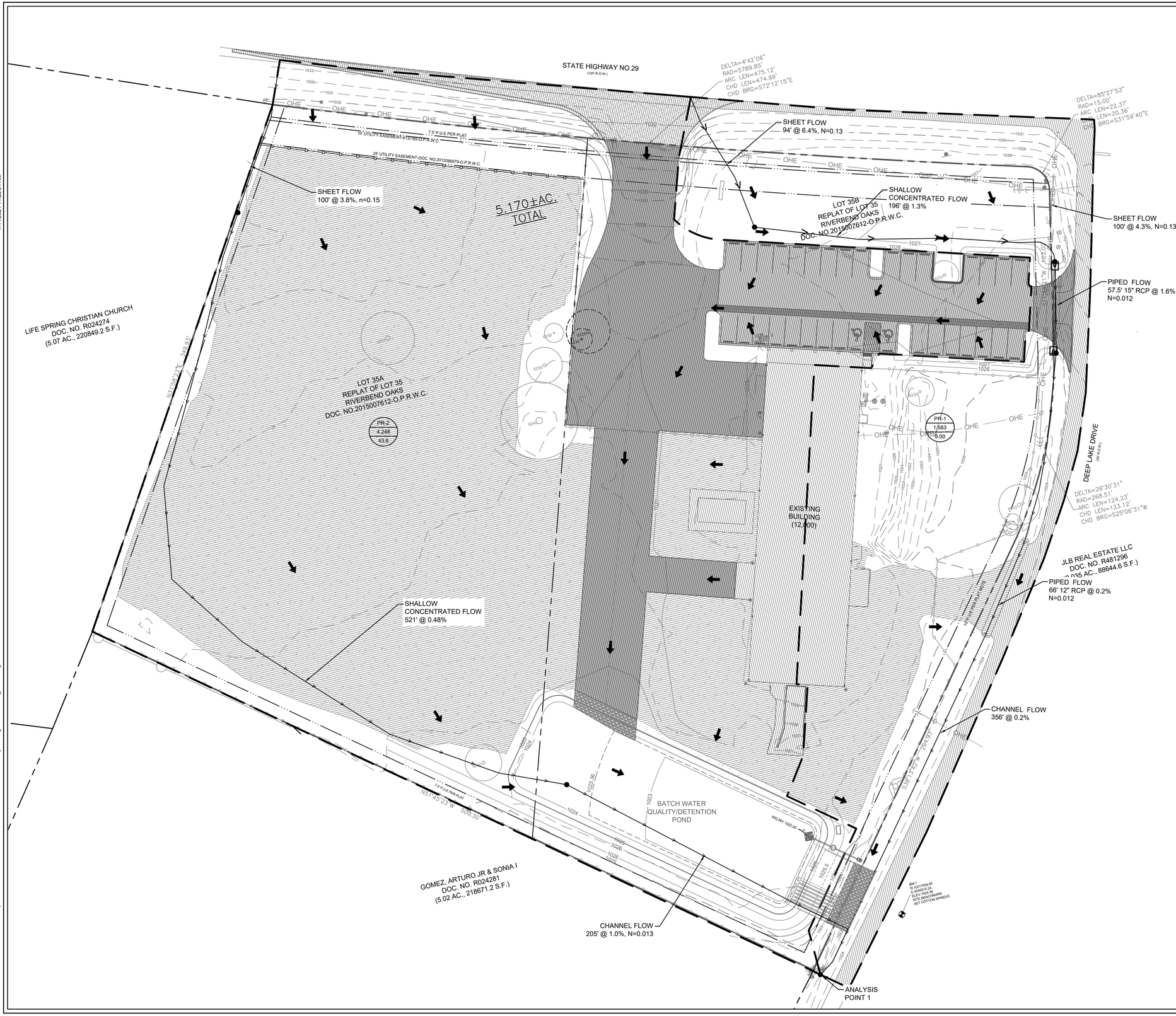
C.11

Sheet 11 OF 24

2024-21-SDP

7/11/2024 11:23:00 AM

C:\Users\MatthewWEEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_XDAM.dwg



N

0 15 30 60
SCALE IN FEET

LEGEND:

- PROPERTY LINE
- EXISTING MAJOR CONTOUR 1115
- EXISTING MINOR CONTOUR 1114
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- MINOR CONTOUR 1113
- MAJOR CONTOUR 1110
- DRAINAGE AREA TAG (PR-1 / 10.70 / 33.4) — DRAINAGE AREA / ACREAGE / 100 - YEAR PEAK FLOW
- DRAINAGE FLOW DIRECTION
- IMPERVIOUS AREA (ROOF/PAVEMENT)
- IMPERVIOUS AREA (GRAVEL/BASE)

NOTES:

1. SURVEY INFORMATION PROVIDED BY CUPLIN AND ASSOCIATES INC., RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. THIS SHEET TO BE USED SOLELY FOR PURPOSES OF ANALYSIS, NOT FOR CONSTRUCTION.
3. THE SCS METHOD AND HEC-HMS VERSION 4.11 WERE UTILIZED TO ANALYZE PRE-DEVELOPMENT AND POST DEVELOPMENT PEAK FLOW RATES.
4. PRECIPITATION FREQUENCY VALUES WERE TAKEN FROM ATLAS 14 FOR LIBERTY HILL FOR A 24-HOUR DURATION FREQUENCY STORM
5. SOILS WERE DETERMINED TO BE WITHIN HYDROLOGIC SOIL GROUP D PER THE USDA SOIL SURVEY.
6. ALL PERVIOUS AREAS WERE ASSUMED TO BE GOOD CONDITION OPEN SPACE (LAWN) (25% TO 75% COVER) WITH CURVE NUMBERS TAKEN FROM TR-55. ALL IMPERVIOUS AREAS WERE ASSUMEND TO BE ROOF, PAVEMENT, OR GRAVEL/BASE (75% TO 25% COVER) WITH CURVE NUMBERS TAKEN FROM TR-55.
7. REFER TO SHEET C.14 FOR RESULTS OF HEC-HMS ANALYSIS FOR PRE- AND POST PROJECT CONDITIONS

PR-1(SQ FT)		
TOTAL: 68,920		
IMPERVIOUS		PERVIOUS
PVMT/ ROOF	GRAVEL/ BASE	
14,843	11,387	44,965

PR-2(SQ FT)		
TOTAL: 185,075		
IMPERVIOUS		PERVIOUS
PVMT/ ROOF	GRAVEL/ BASE	
44,146	93,606	47,272

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

PROPOSED DRAINAGE AREA MAP

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

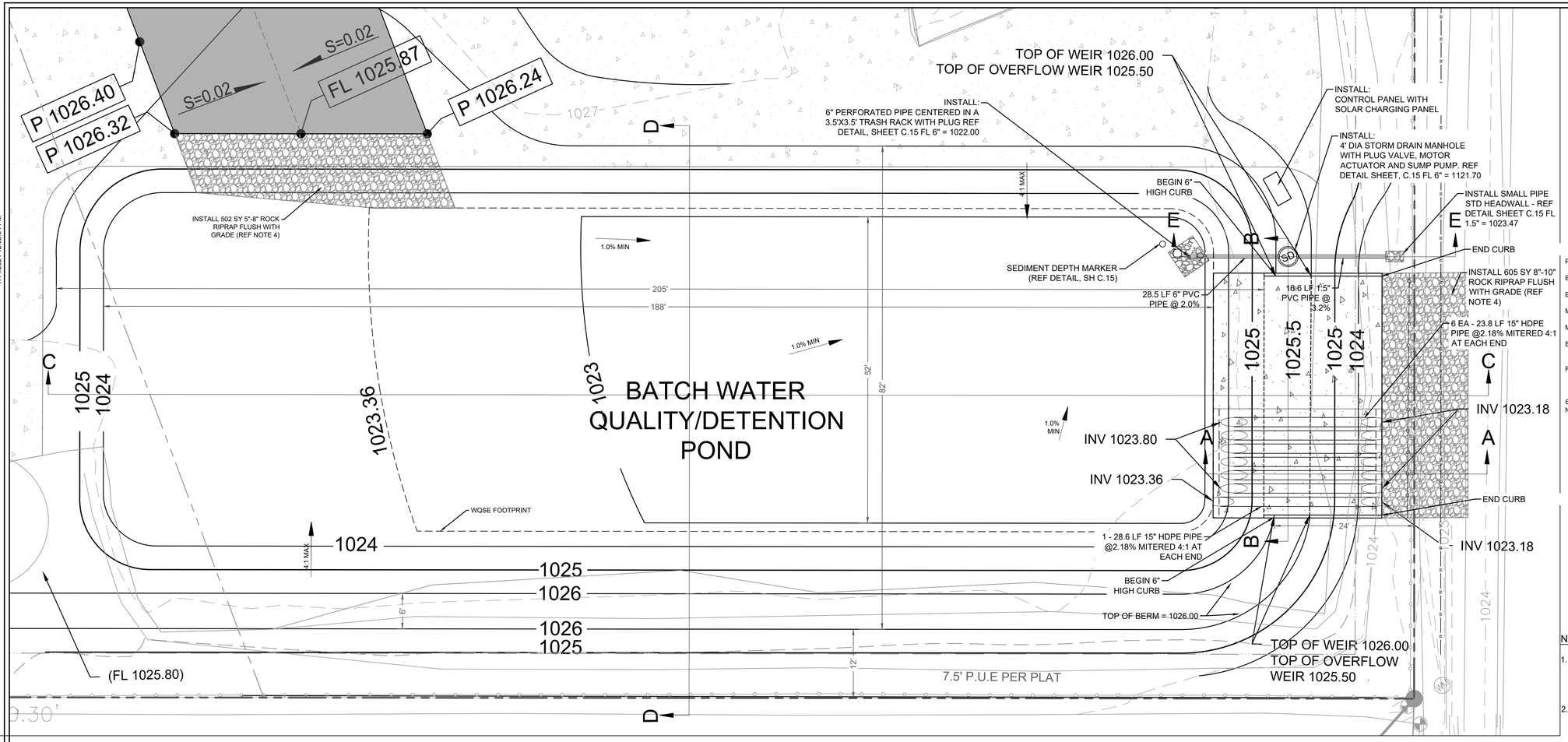
C.12

Sheet 12 OF 24

2024-21-SDP

7/11/2024 11:23:04 AM

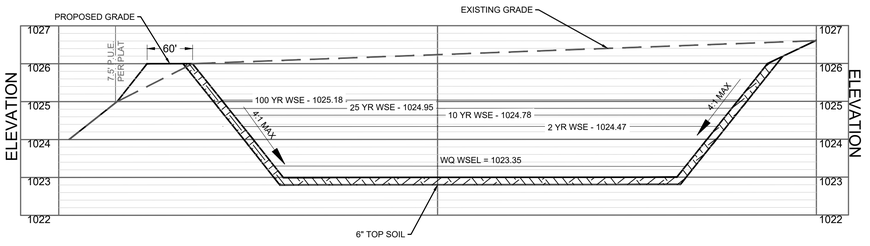
C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_PDAM.dwg



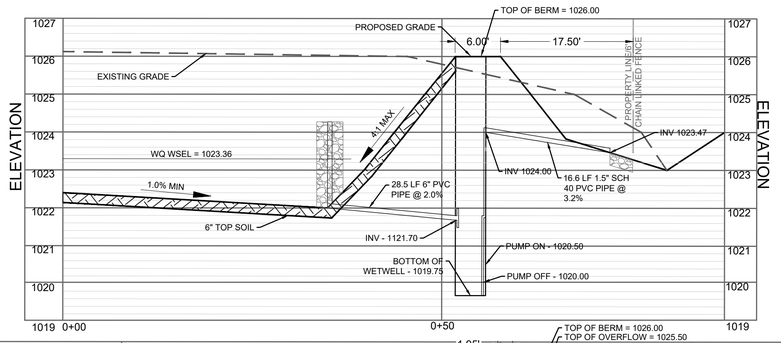
NOTES:

1. THE SURVEY WAS DONE BY CUPLIN & ASSOCIATES INC.RECEIVED ELECTRONICALLY NOVEMBER 2023. NO WARRANTY IS EXPRESSED AS TO ITS ACCURACY.
2. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. REFER TO ENGINEERING REPORT FOR SUPPORTING CALCULATIONS.
4. ALL ROCK RIP RAP WITHIN SITE SHALL MEET TXDOT SPECIFICATIONS ITEM NO. 432 AND STANDARDS

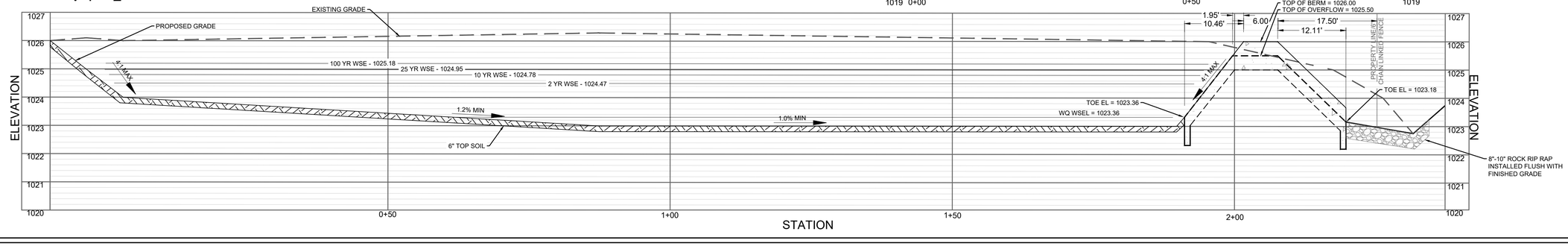
SECTION D-D
SCALE: H 1"=10'
V 1"= 2'



SECTION E-E
SCALE: H 1"=10'
V 1"= 2'



SECTION C-C
SCALE: H 1"=10'
V 1"= 2'



No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

BATCH DETENTION PLAN

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED
PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.13

Sheet 13 OF 24

2024-21-SDP

7/11/2024 12:03:04 PM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_POND.dwg

BATCH DETENTION POND REMOVAL CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Benmark Liberty Hill - 15405 W SH2
Date Prepared: 7/1/2024

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

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

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

where:

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

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

County =	**Williamson**	
Total project area included in plan * =	**5.83**	acres
Predevelopment impervious area within the limits of the plan * =	**2.00**	acres
Total post-development impervious area within the limits of the plan* =	**3.76**	acres
Total post-development impervious cover fraction * =	**0.64**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1530**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**3.83**	acres
Predevelopment impervious area within drainage basin/outfall area =	**1.25**	acres
Post-development impervious area within drainage basin/outfall area =	**3.16**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.83**	
$L_{M\ THIS\ BASIN}$ =	**1664**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**Batch Detention Basin**	
Removal efficiency =	**91**	percent

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

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

where:

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

A_C =	**4.25**	acres
A_I =	**3.16**	acres
A_P =	**1.09**	acres
L_R =	**3203**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ =	**1530**	lbs.
F =	**0.48**	

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

Rainfall Depth =	**0.40**	inches
Post Development Runoff Coefficient =	**0.55**	
On-site Water Quality Volume =	**3379**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**676**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**4055**	cubic feet

Stage/Volume/Discharge							
	CONTOUR AREA	CONTOUR AREA	CONICAL AREA	INCREMENTAL VOLUME	CUMULATIVE VOLUME	CUMULATIVE VOLUME	Q
	STAGE	(SF)	(AC)	(SF)	(ac-ft)	(ac-ft)	(CF)	(CFS)
	1022.00	0	0	0	0.000	0.000	0	-
	1023.00	5321	0.122	5321	0.041	0.041	1772	-
WQSE -	1023.36	7702	0.177	19425	0.053	0.094	4101	-
	1023.36	7702	0.177	23106	0.000	0.094	4101	

WQ Sump Pumped Outfall:

Volume (WQ **4101 cf**

Q(allow)= **0.02 cfs** **0.180** gpm

48 Hr Vol Dis **4147 cf**
(Min. 48 hour drawdown time per reviewer)

HEC-HMS SUMMARY

EXISTING CONDITIONS (SCS METHOD)

Area ID	DA (ac.)	TC(min.)	TC(hr.)	CN	Q2(cfs)	Q10(cfs)	Q25(cfs)	Q100(cfs)
EX-1	2.001	14.8	0.25	85.28	5.80	10.10	13.00	17.70
EX-2	3.830	21.0	0.35	85.33	9.50	16.70	21.50	29.20

PROPOSED CONDITIONS (SCS METHOD)

Area ID	DA (ac.)	TC(min.)	TC(hr.)	CN	Q2(cfs)	Q10(cfs)	Q25(cfs)	Q100(cfs)
PR-1	1.583	21.4	0.36	85.33	3.4	6.8	8.8	12.0
PR-2	4.248	14.3	0.24	89.86	14.4	23.6	29.7	39.5
PR-2 w/ Pond	4.248	14.3	0.24	89.86	10.3	18.6	24.0	31.5

ANALYSIS POINT 1 (CFS) ROUTED FLOWS

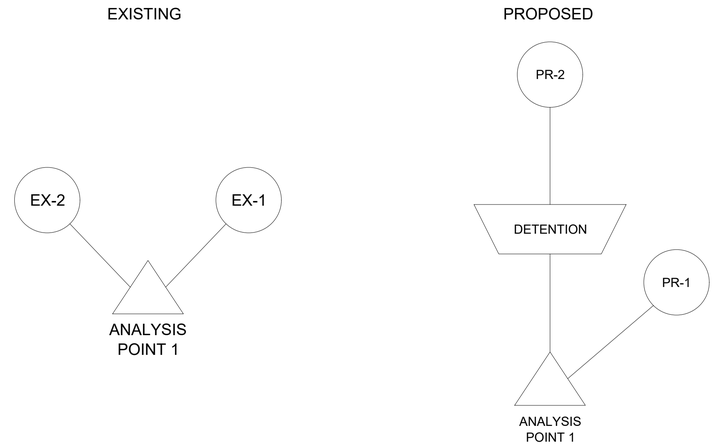
Condition	2-year	10-year	25-year	100-year
Existing	14.9	26.1	33.7	45.8
Post Project	14.4	25.4	32.7	43.3

CN CALCULATIONS
WATERSHED CONDITIONS

Area ID	Area	Area	Hyd. Soil Group	Weighted CN	CN Description
	Acres	sq. mi.			
EX-1	2.00	0.00312703	D	85.28	16.61% Impervious (Roof & Pavement) 20.86% Impervious (Gravel/Base) 62.53% Good Cond. Open Space (Lawn)
EX-2	3.83	0.00598375	D	85.33	5.58% Impervious (Roof & Pavement) 27.12% Impervious (Gravel/Base) 67.30% Fair Cond. Woods-Grass Combo
PR-1	1.58	0.00247406	D	85.33	21.52% Impervious (Roof & Pavement) 13.29% Impervious (Gravel/Base) 65.19% Good Cond. Open Space (Lawn)
PR-2	4.25	0.00663688	D	89.86	23.86% Impervious (Roof & Pavement) 50.59% Impervious (Gravel/Base) 25.55% Good Cond. Open Space (Lawn)

Using TR-55: Good Condition Open Space (Lawn): CN=80
Impervious Areas (Roofs & Pavement): CN=98
Impervious Areas (Gravel/Base): CN=91
Fair Condition Woods-Grass Combination: CN=82

HEC-HMS MODEL SCHEMATIC



Stage/Volume/Discharge								
		CONTOUR AREA	CONTOUR AREA	CONICAL AREA	INCREMENTAL VOLUME	CUMULATIVE VOLUME	CUMULATIVE VOLUME	Q
	STAGE	(SF)	(AC)	(SF)	(ac-ft)	(ac-ft)	(CF)	(CFS)
	1022.00	0	0	0	0.000	0.000	0	-
	1023.00	5321	0.122	5321	0.041	0.041	1772	-
WQSE -	1023.36	7702	0.177	19425	0.053	0.094	4101	-
	1023.36	7702	0.177	23106	0.000	0.094	4101	
	1024.00	11352	0.358	28405	0.139	0.233	10154	2.4
2-yr	1024.47	12275	0.540	35431	0.127	0.360	15699	10.3
10-yr	1024.78	12897	0.570	37754	0.089	0.450	19597	18.6
25-yr	1024.95	13242	0.600	39207	0.051	0.501	21816	24.0
	1025.00	13355	0.640	39895	0.015	0.516	22481	29.3
100-yr	1025.18	13725	0.680	40619	0.056	0.572	24915	31.5

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

BATCH DETENTION DETAILS (1 OF 2)

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.14

Sheet 14 OF 24

2024-21-SDP

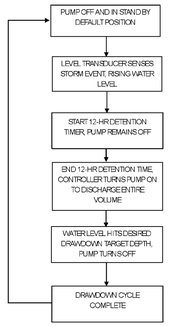
7/11/2024 11:23:11 AM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_WTQY.dwg

7/11/2024 12:04:17 PM

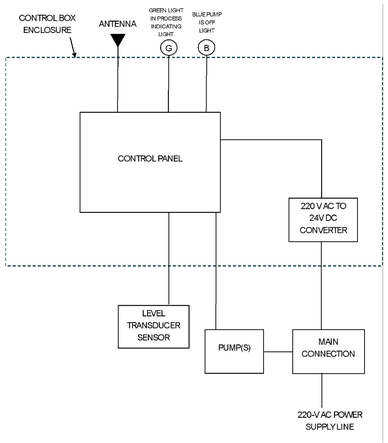
C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_WTQY_1.dwg

PROGRAMMABLE LOGIC FLOW CHART, VAULT PUMP OPERATION FOR DETENTION AND/OR WATER QUALITY



CONTROLLER NOTES:

1. CONTRACTOR TO COORDINATE INSTALLATION OF PUMP AND CONTROLLER WITH VALVE DIRECTION LLC
2. CONTROLLER (BY VALVE DIRECTION LLC) - OR APPROVED EQUAL
3. ALARM MODULE WITH VISUAL ALARM SHALL BE REQUIRED. COORDINATE INSTALLATION WITH VALVE DIRECTION LLC. MOUNT ALARM TO OUTSIDE OF BUILDING FACING POND. VISUAL ALARM SHALL INITIATE AT VALVE MALFUNCTION.
4. LEVEL SWITCHES TO BE MOUNTED WITHIN 18" PERFORATED PIPE LOCATED IN TRASH RACK AS SHOW ON PLAN.
5. PROVIDE TOPOINT SOLAR JTM SOLAR CHARGING PANEL AND BATTERY BACKUP SYSTEM.
6. PROVIDE LOGIC CONTROLLER (COORDINATE WITH VALVE DIRECTION LLC).
7. LOGIC CONTROLLER TO BE IN A LOCKABLE, WEATHER PROOF BOX PROVIDED BY VALVE DIRECTION LLC.



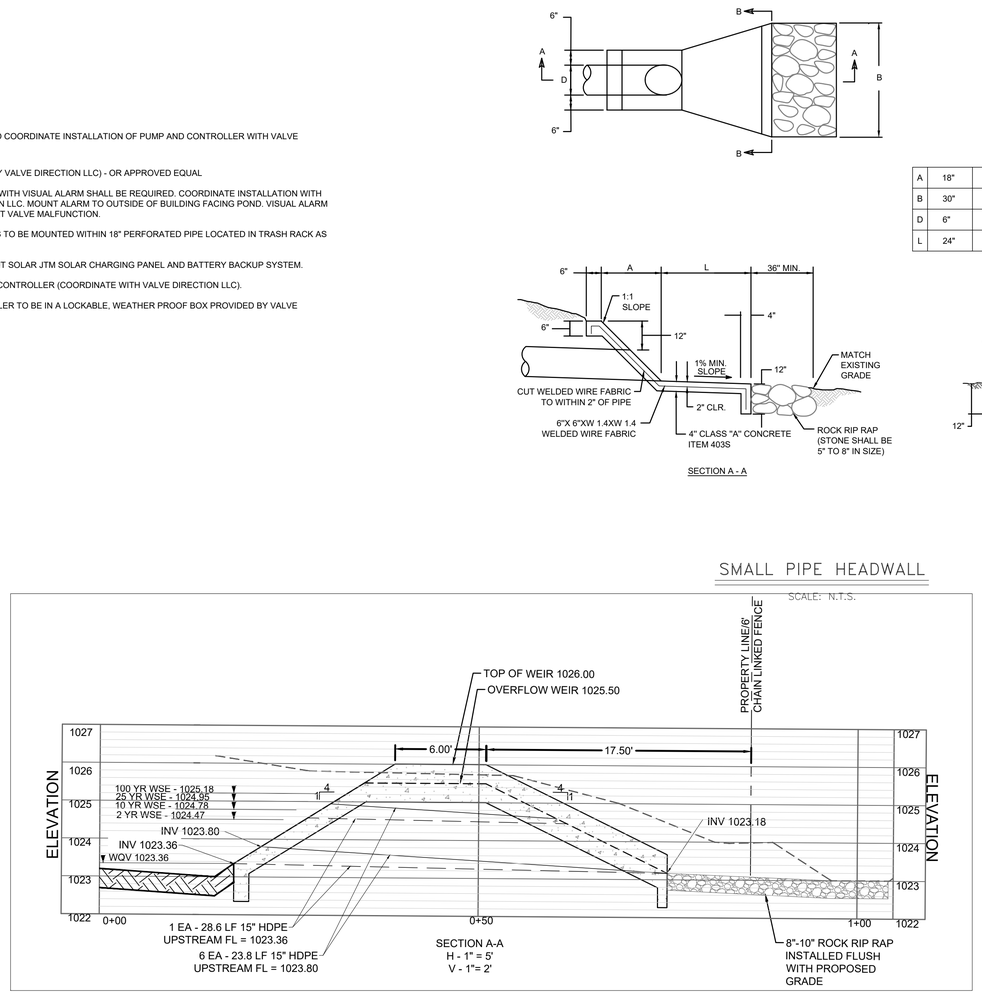
VALVE CIRCUIT

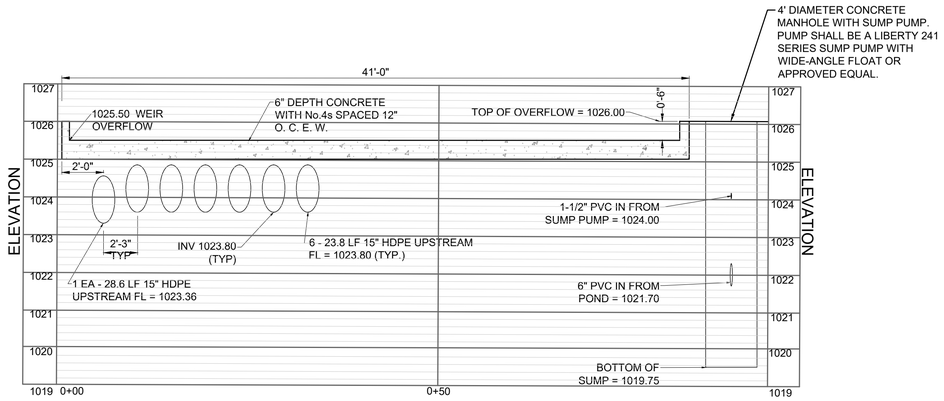
SCALE: N.T.S.

NOTE:
INSTALL FIXED VERTICAL SEDIMENT DEPTH MARKER TO INDICATE WHEN SEDIMENT ACCUMULATION REACHES A REQUIRED REMOVAL DEPTH OF 6 INCHES. CONTRACTOR TO LABEL MARKER AT ONE FOOT INTERVALS.

SEDIMENT DEPTH MARKER DETAIL

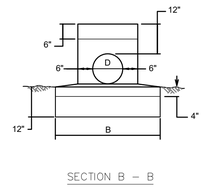
SCALE: N.T.S.





A	18"	20"	22"	24"	27"
B	30"	32"	34"	42"	51"
D	6"	8"	10"	12"	15"
L	24"	24"	30"	36"	48"

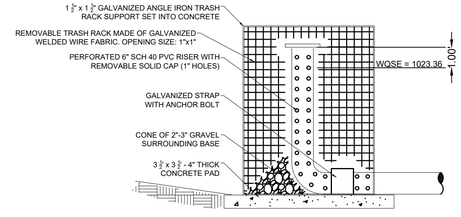
SECTION A - A



SECTION B – B

SMALL PIPE HEADWALL

SCALE: N.T.S.



PERFORATED RISER PIPE DETAIL

SCALE: N.T.S.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

BATCH DETENTION DETAILS (2 OF 2)

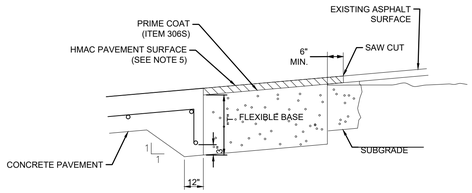
STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.15

Sheet 15 OF 24

2024-21-SDP

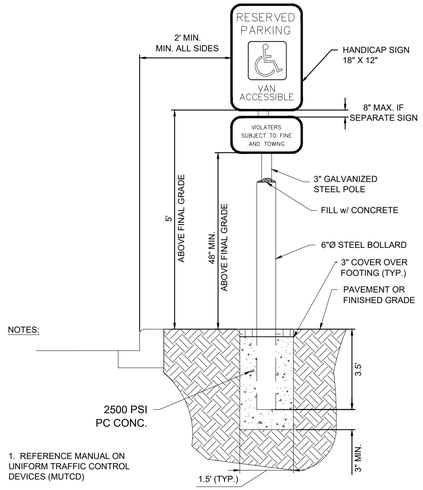


NOTES:

1. ALL DAMAGE CAUSED DIRECTLY OR INDIRECTLY TO THE STREET SURFACE OR SUBSURFACE OUTSIDE OF THE PAVEMENT CUT AREAS INCLUDING SCRAPES, CUTS, GOUGES, CRACKING, DEPRESSIONS, AND /OR ANY OTHER DAMAGE CAUSED BY THE CONTRACTOR DURING EXECUTION OF THE WORK SHALL BE REPAIRED AT NO ADDITIONAL COST.
2. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 6" WIDER THAN THE POINT OF CONNECTION TO PROPOSED PAVEMENT
3. A FLEXIBLE BASE LAYER EQUAL TO EXISTING BASE LAYER THICKNESS OR A MINIMUM OF 6" SHALL BE PLACED AND COMPACTED TO 95% STANDARD PROCTOR IN CONFORMANCE WITH STANDARD SPECIFICATION NO. 210S.
4. THE EXPOSED SUBGRADE SHALL BE COMPACTED IN CONFORMANCE WITH STANDARD SPECIFICATION NO. 210S.
5. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).

EXISTING PAVEMENT CONNECTION DETAIL

SCALE: N.T.S.

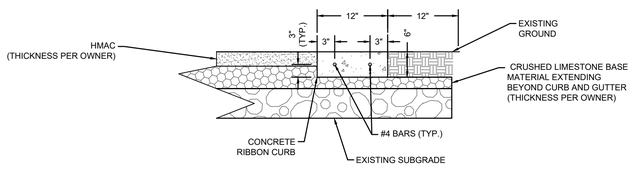


NOTES:

1. REFERENCE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

HANDICAP SIGN POST DETAIL

SCALE: N.T.S.

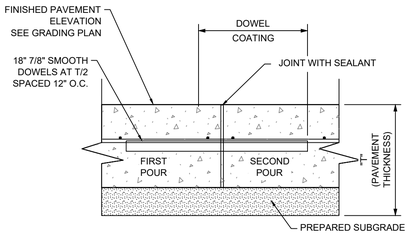


TYPICAL PAVEMENT SECTION NOTES:

1. THE PAVEMENT SHALL BE CONSTRUCTED IN GENERAL ACCORDANCE WITH TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS, AND BRIDGES, 1993 EDITION.

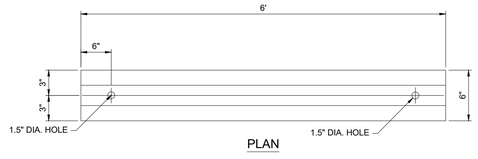
TYPICAL PAVEMENT SECTIONS

SCALE: N.T.S.

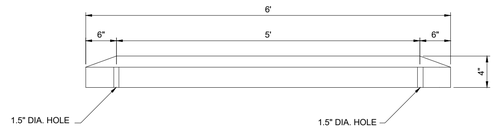


COLD JOINT DETAIL

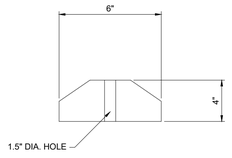
SCALE: N.T.S.



PLAN



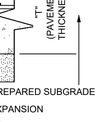
LONGITUDINAL SECTION



CROSS SECTION

PARKING LOT BUMPER CURB

SCALE: N.T.S.



PLAN

SECTION A–A

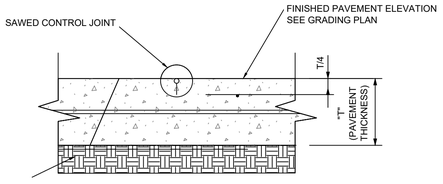
GENERAL NOTES

1. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF PFLUGERVILLE STANDARD SPECIFICATIONS.
2. CONCRETE SHALL BE CLASS A.

CONCRETE VALLEY GUTTER

SCALE: N.T.S.

PROVIDED BY OWNER



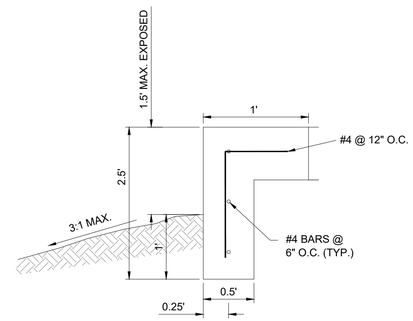
1. CONTRACTION JOINTS SHALL BE SPACED AT 15 FEET EACH WAY UNLESS OTHERWISE NOTED.
2. REQUIRED JOINT WIDTH IS ONE -EIGHTH (1/8) TO ONE -FOURTH (1/4) INCH.

CONTROL/CONTRACTION JOINT DETAIL

SCALE: N.T.S.

EXPANSION JOINT DETAIL

SCALE: N.T.S.



STANDUP CONCRETE CURB

SCALE: N.T.S.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

CONSTRUCTION DETAILS

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

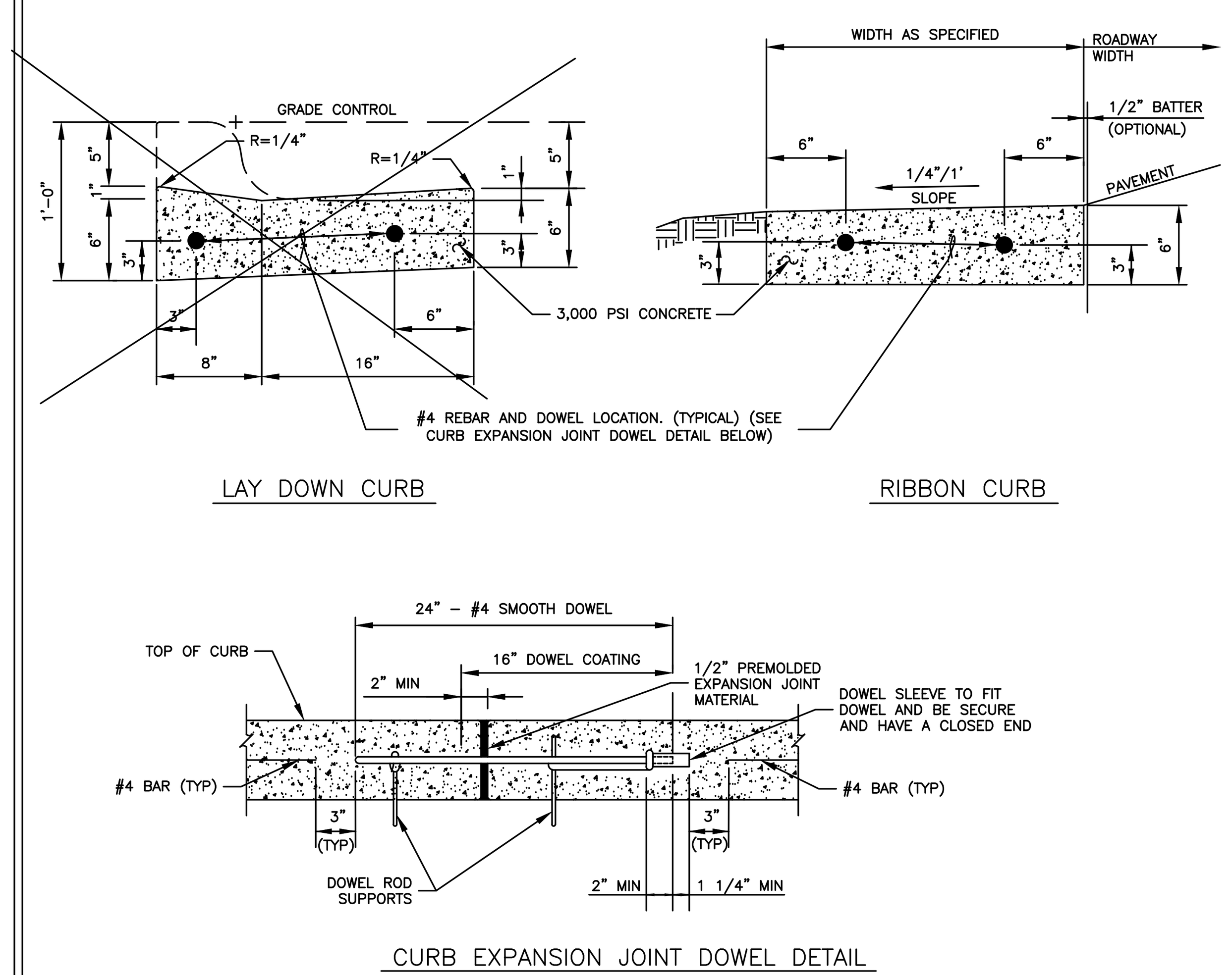
C.16

Sheet 16 OF 24

2024-21-SDP

7/11/2024 12:07:00 PM

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\21036_DTL.S02.dwg



NOTES:

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

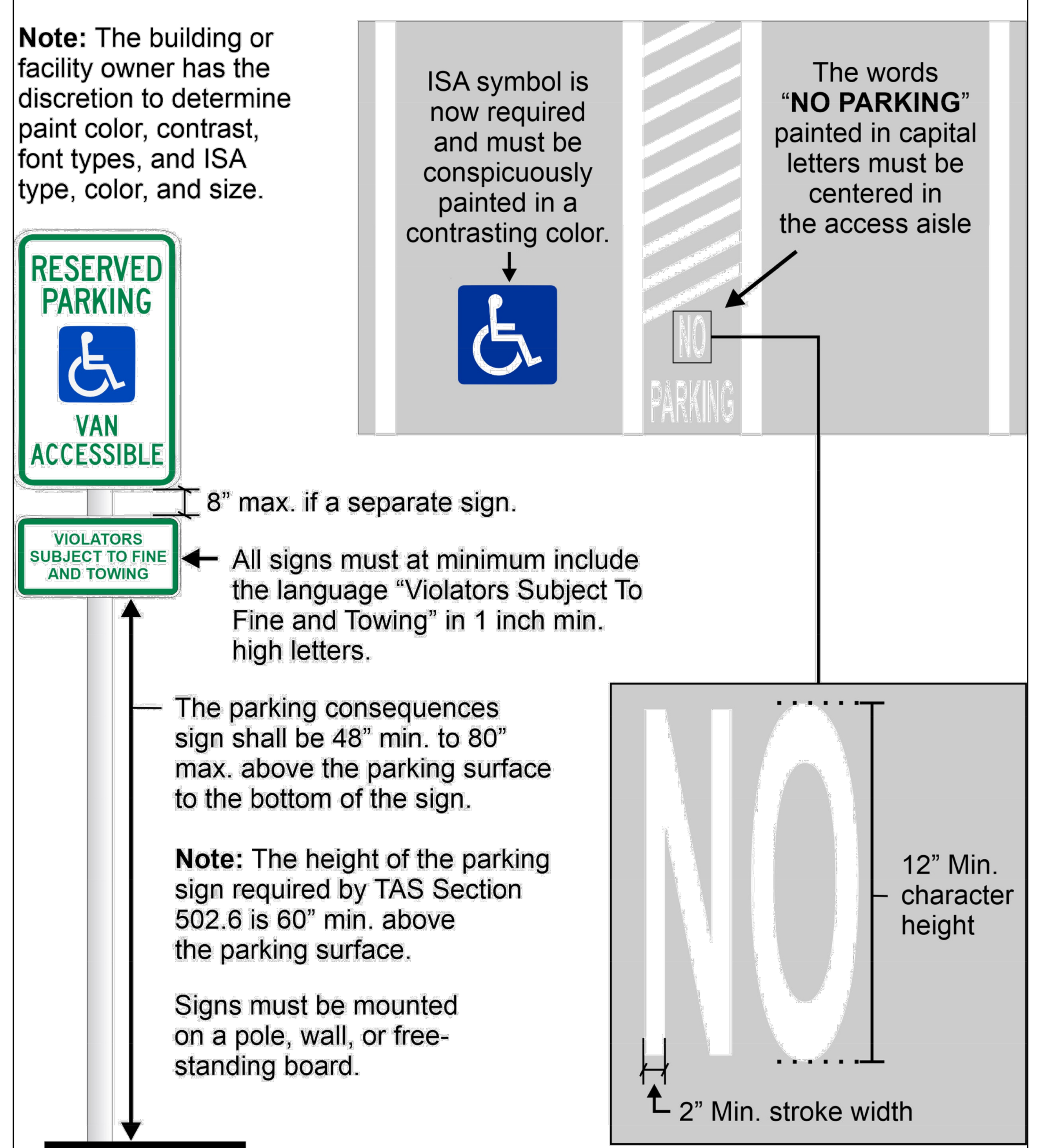
APPROVED
04–01–10
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

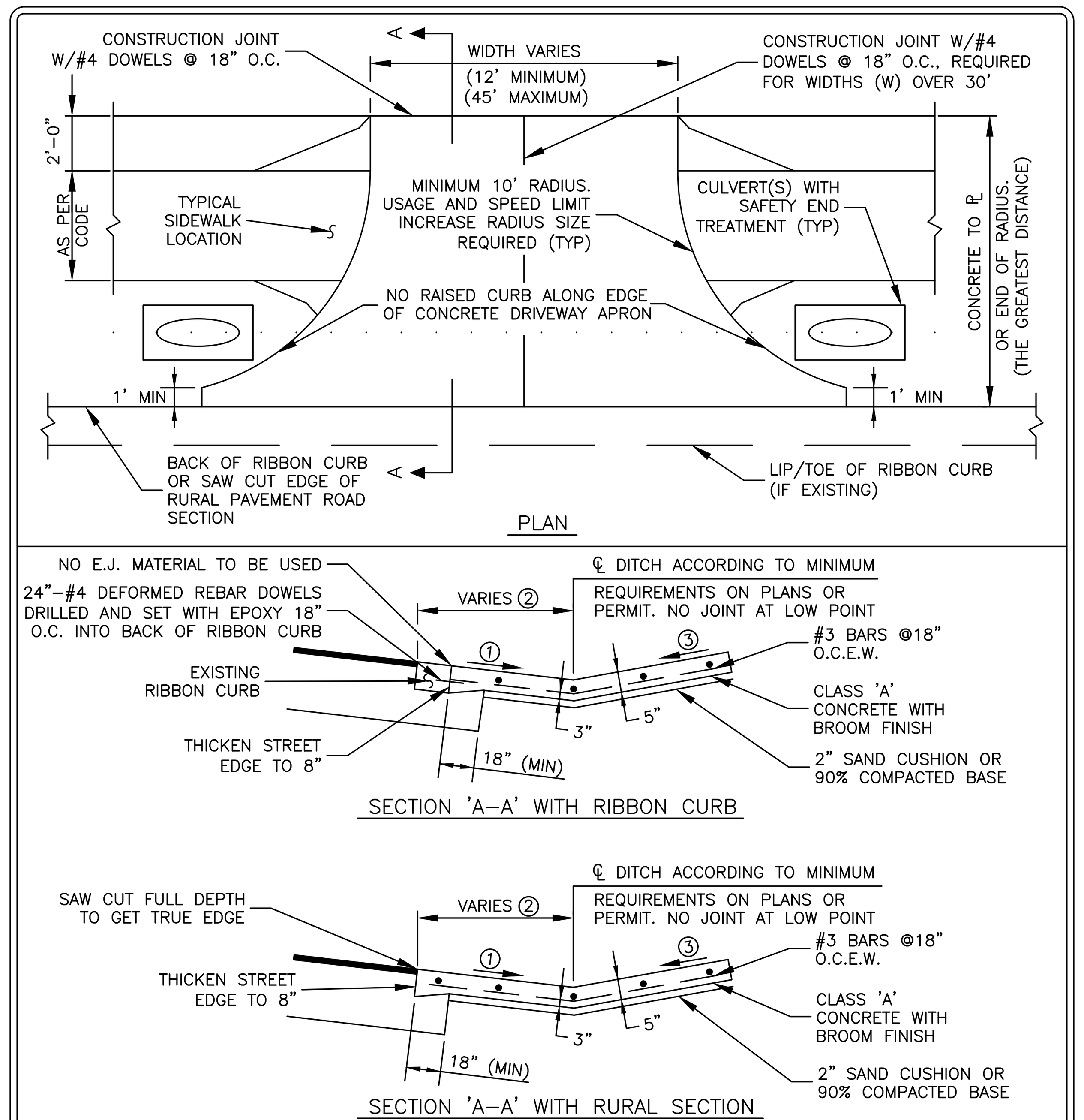
CITY OF ROUND ROCK

LAYDOWN AND RIBBON CURB DETAIL (WITH CURB EXPANSION JOINT DOWEL DETAIL)

DRAWING NO: ST–04

ROUND ROCK, TEXAS PURPOSE. PASSION. PROSPERITY.





NOTES:

① NEW DRIVEWAY MUST ACCEPT STORM WATER RUNOFF FROM ROADWAY PAVEMENT, GRADING AWAY FROM PAVEMENT AT MINIMUM –2%, MAXIMUM –12%.
② GRADE BACK DISTANCES MUST BE AT A MINIMUM OF 12' OR ℄ OF BAR DITCH IF GREATER THAN 12' OR TO THE DISTANCE REQUIRED IN THE PERMIT. (SHORTER OR LONGER)
③ GRADE OF DRIVEWAY PAST THE 12' POINT MAY CHANGE MULTIPLE TIMES AND BE POSITIVE OR NEGATIVE TO THE BACK SIDE OF THE APRON, BUT CAN BE NO GREATER THAN 2% IN THE AREA WHERE THE SIDEWALK IS TO CROSS.

APPROVED
04–01–10
DATE
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)

CITY OF ROUND ROCK

ADA PARKING STANDARDS
CONCRETE DRIVEWAYS DETAIL (RIBBON CURB OR RURAL SECTION)
SCALE: N.T.S.

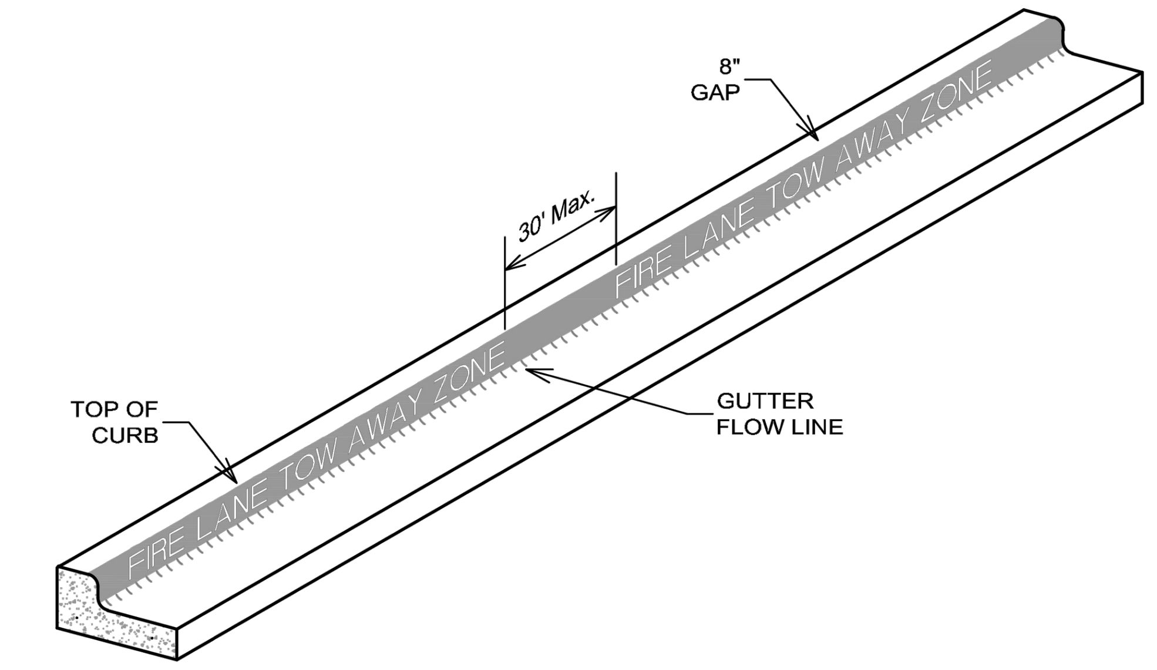
DRAWING NO: ST–14

ROUND ROCK, TEXAS PURPOSE. PASSION. PROSPERITY.

Williamson County Emergency Services District No. 4

Fire Lane Detail

NOTES:
FIRE LANE STRIPING TO BE 6" WIDE RED PAINT WITH "FIRE LANE TOW AWAY ZONE" IN 4" TALL WHITE LETTERS. WORDING MAY NOT BE SPACED GREATER THAN 30' APART. STRIPING TO BE PAINTED ON THE FACE OF CURB WHEN PRESENT AND PAINTED FLAT ON THE PARKING SURFACE WHEN IT IS NOT.



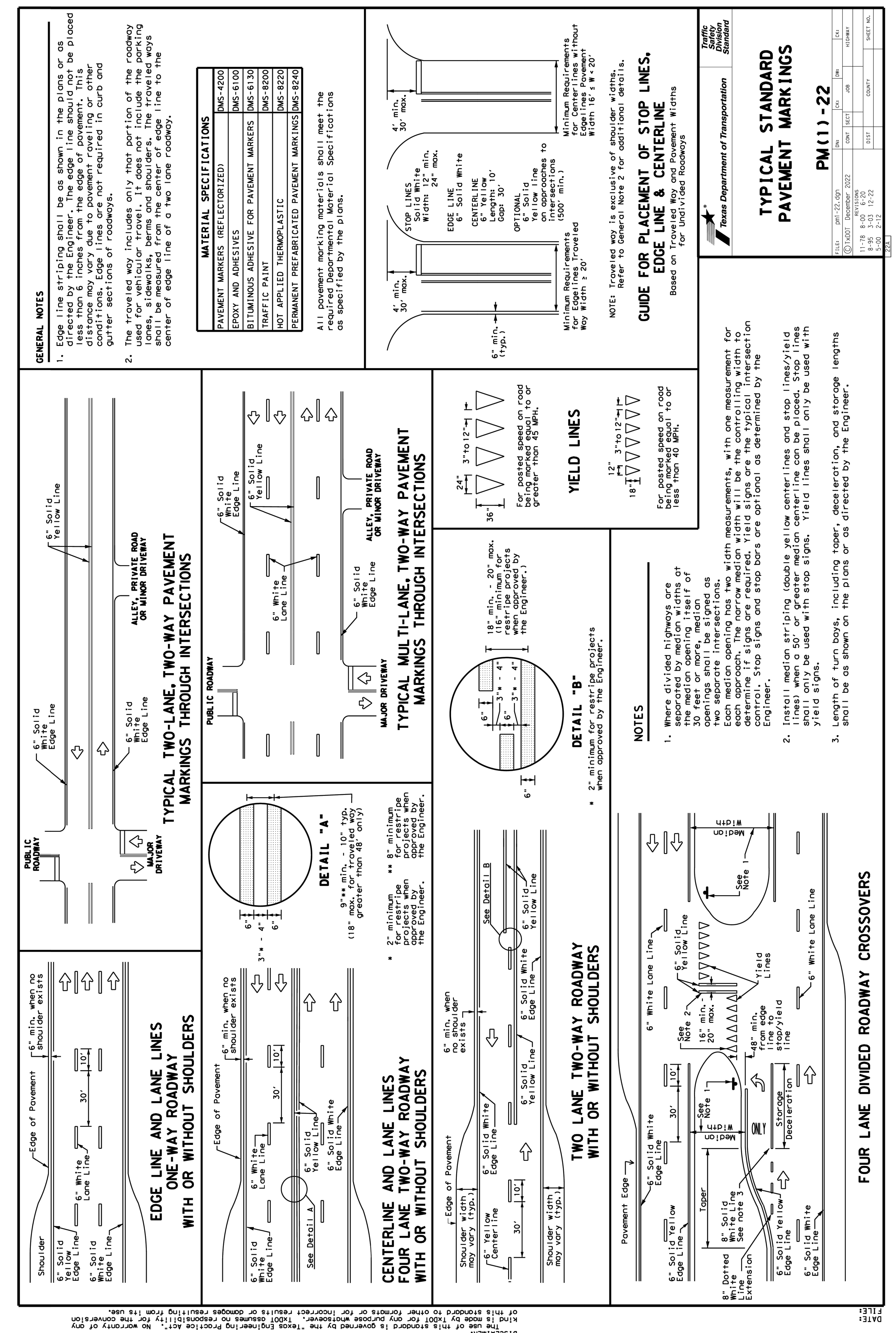
FIRE LANE STRIPING DETAIL
not to scale

Jay Engineering Company, Inc. P.O. Box 1220 Leander, Texas 78646-1220 Tel. (512) 259-3882 Fax. (512) 259-8016
TEXAS REGISTERED ENGINEERING FIRM F-4780

FIRE LANE STRIPING DETAIL

ENGINEER	DATE	DRAWN BY	PROJECT NO.	DRAWING NO.
FRANK T. PHELAN, P.E.	04 - 25 - 19	JJD	01	1 OF 1

D:\Standards\Const–Stnds\Fire–Lane–Striping_Curb.dwg



No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

CONSTRUCTION DETAILS

STATE OF TEXAS
JOHN J. TEAGUE III
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.: 23030
Issued: 07/11/2024
Drawn By: WS
Checked By: JT III

C.17

Sheet 17 OF 24

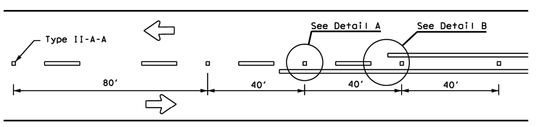
2024-21-SDP

7/11/2024 11:23:21 AM

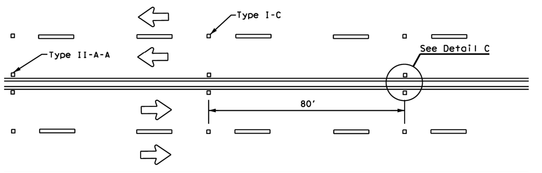
C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\21036_DTLS08.dwg

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

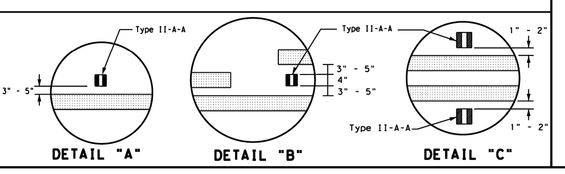
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



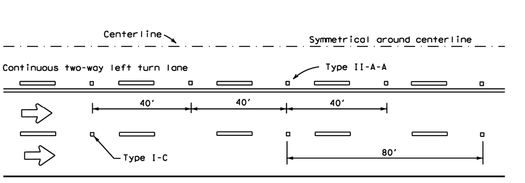
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



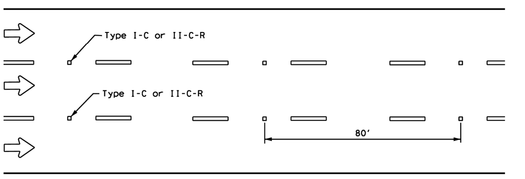
CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS



DETAIL "A" DETAIL "B" DETAIL "C"



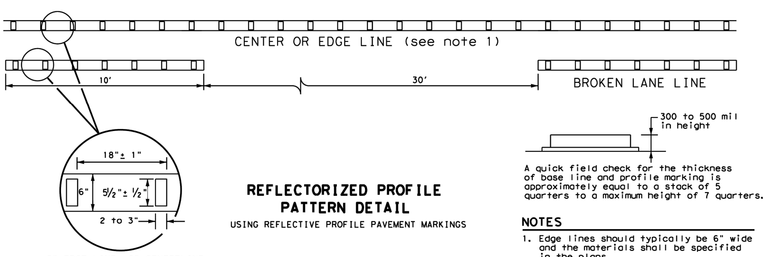
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

See Note 3.



6" EDGE LINE, 6" CENTERLINE
OR 6" LANE LINE

REFLECTORIZED PROFILE
PATTERN DETAIL
USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

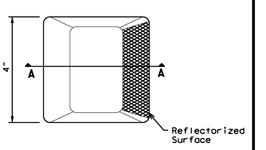
1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

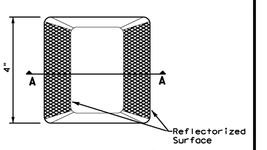
1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

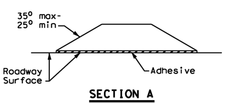
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation — Traffic Safety Division Standard

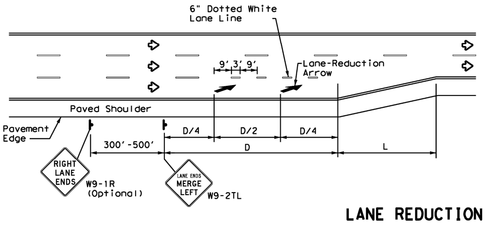
POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE:	pm2-22.dgn	DW:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-77 8-00 6-20		DIST	COUNTY		SHEET NO.
4-92 2-10 12-22					
5-00 2-12					

228

DATE:
FILE:

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

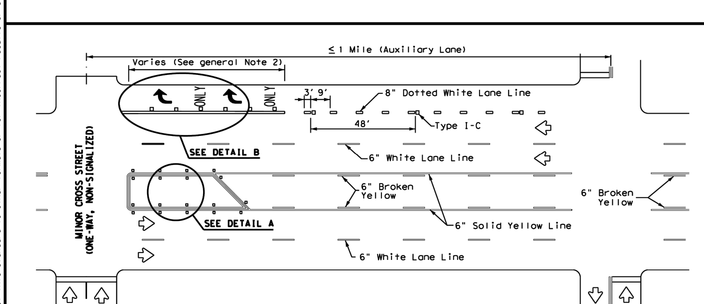


LANE REDUCTION

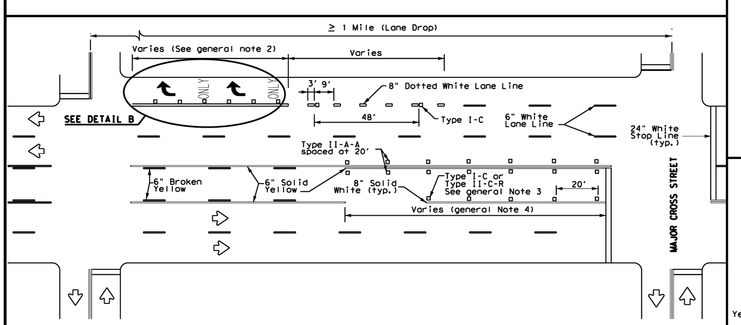
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

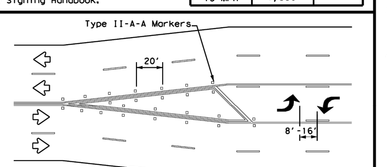
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	
50 MPH	885	L=WS
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

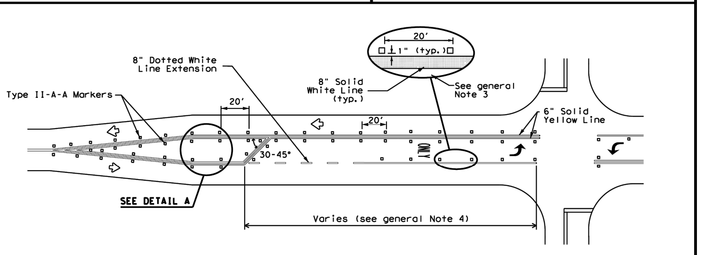
TYPICAL TRANSITION FOR TWLTL
AND DIVIDED HIGHWAY

GENERAL NOTES

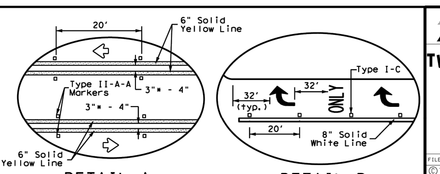
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22

FILE:	pm3-22.dgn	DW:	CK:	DW:	CK:
©TxDOT	December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS					
4-98 3-03 6-20		DIST	COUNTY		SHEET NO.
5-00 2-10 12-22					
8-00 2-12					

235

DATE:
FILE:

CONSTRUCTION DETAILS

BENMARK LIBERTY HILL

15405 W SH29
LIBERTY HILL, TEXAS 78642

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

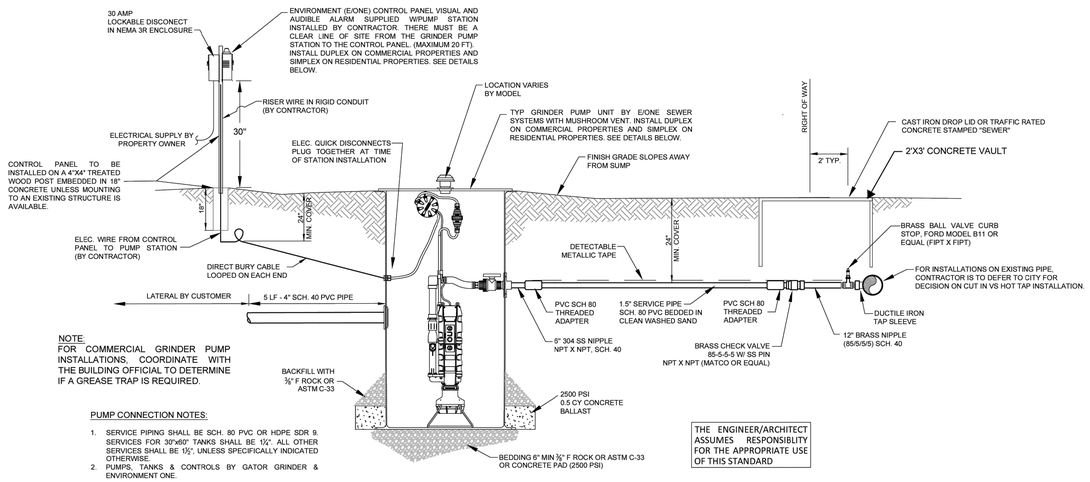
No.	Date	Revisions	App.

7/11/2024 11:23:32 AM

These drawings are the sole property of STEGER & BIZZELL ENGINEERING, INC. The use of these drawings is hereby restricted to the original site for which they were prepared. Reproduction or reuse of these drawings in whole or in part without written permission of STEGER & BIZZELL ENGINEERING, INC. is strictly prohibited.

C:\Users\MatthewIEEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W Sh29 Liberty Hill\dwg\Sheets\21036_DTLS07.dwg

L:\PROJECTS 2009\21558 Liberty Hill Wastewater\2NAWWS\Grinder Pump Standard Details\LH Typical grinder services.dwg, Sheet 1, 1/23/2018 11:30:50 AM, RYAN



NOTE:
FOR COMMERCIAL GRINDER PUMP INSTALLATIONS, COORDINATE WITH THE BUILDING OFFICIAL TO DETERMINE IF A GREASE TRAP IS REQUIRED.

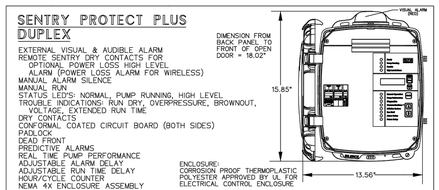
PUMP CONNECTION NOTES:

1. SERVICE PIPING SHALL BE SCH. 80 PVC OR HDPE SDR 9. SERVICES FOR 30"x60" TANKS SHALL BE 1½". ALL OTHER SERVICES SHALL BE 1½", UNLESS SPECIFICALLY INDICATED OTHERWISE.
2. PUMPS, TANKS & CONTROLS BY GATOR GRINDER & ENVIRONMENT ONE.

THE ENGINEER/ARCHITECT ASSUMES RESPONSIBLITY FOR THE APPROPRIATE USE OF THIS STANDARD

TYPICAL GRINDER PUMP SERVICE & PIPE INSTALLATION SECTION VIEW

N.T.S.

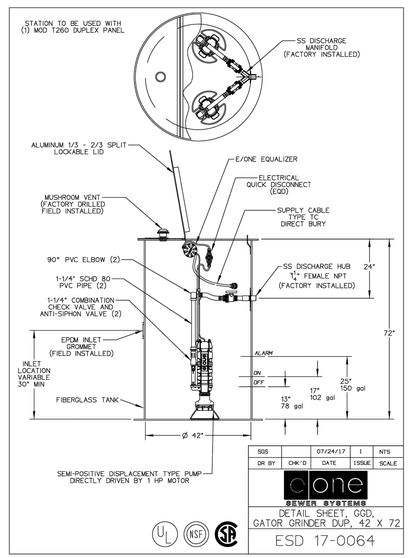


PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

SGS	02/03/12	PJD	-	N/A
DR BY	DATE	CHK'D	ISSUE	SCALE

SENTRY PROTECT PLUS PANEL, DUPLEX 240V 60Hz DOUBLE POLE POWER

NA0344P03



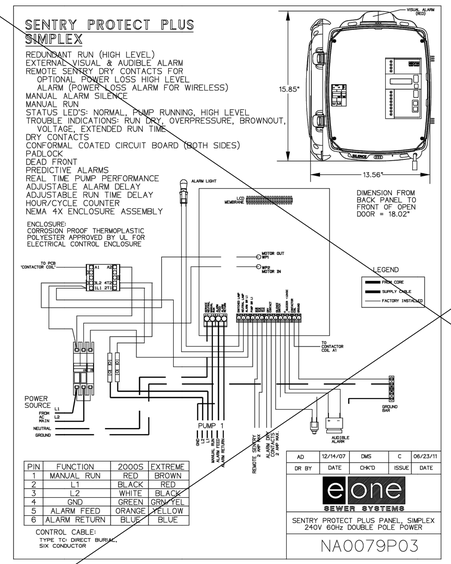
SGS		07/24/17	1	NTS
DR BY		CHK'D	DATE	ISSUE	SCALE

DETAIL SHEET - GDD
GATOR GRINDER DUP, 42 X 72

ESD 17-0064

COMMERCIAL GRINDER PUMP UNIT & CONTROL PANEL

N.T.S.



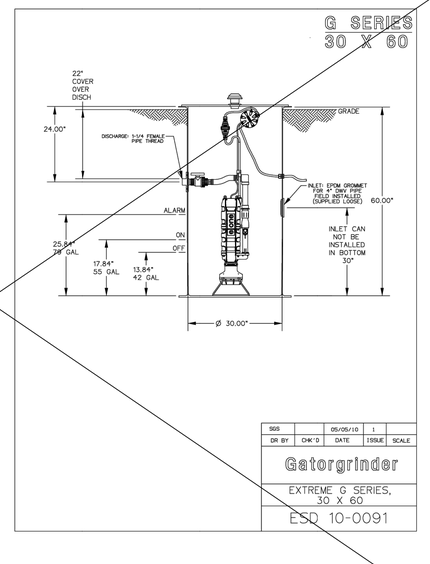
PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

CONTROL CABLE:
TYPE TC DIRECT BURIAL, SIX CONDUCTOR

AD	12/14/07	DMS	C	06/23/11
DR BY	DATE	CHK'D	ISSUE	DATE

SENTRY PROTECT PLUS PANEL, SIMPLEX 240V 60Hz DOUBLE POLE POWER

NA0079P03



SGS		05/05/10	1	
DR BY	CHK'D	DATE	ISSUE	SCALE

Gatorgrinder

EXTREME G SERIES, 30 X 60

ESD 10-0091

RESIDENTIAL GRINDER PUMP UNIT & CONTROL PANEL

N.T.S.

NO.	REVISION	BY	DATE
1	REVISED TANK	JMC	01/18/18
2	ADDED NOTE FOR CONNECTION TO FORCE MAIN	JMC	01/18/18

DJD, JMC, JH — DESIGNED BY — 2018-01-18 DATE
GAD, RMT, CJC — DRAWN BY — 2018-01-18 DATE
DJD, DLP, JJH — CHECKED BY — 2018-01-18 DATE
JMC — APPROVED BY — 2018-01-18 DATE

STATE OF TEXAS — JAMES M. CUMMINS — 105952 — LICENSED PROFESSIONAL ENGINEER — 1/18/2018

CITY OF LIBERTY HILL — INCORPORATED 1999

CITY OF
LIBERTY HILL
P.O. BOX 1920
LIBERTY HILL, TX 76742
PHONE: 512-778-5449

COMMERCIAL AND RESIDENTIAL WASTEWATER GRINDER PUMP DETAILS

CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

Project Number: 21558
SCALE: AS NOTED
Project Name: 21558 Liberty Hill Wastewater

Sheet Number: 1 of 1

STEGER BIZZELL

ADDRESS	1978 S. AUSTIN AVENUE		GEORGETOWN, TX 78626
METRO	512.930.9412	TEXAS REGISTERED ENGINEERING FIRM F-181	WEB STEGERBIZZELL.COM
SERVICES	>>ENGINEERS	>>PLANNERS	>>SURVEYORS

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

WASTEWATER DETAILS

JOHN J. TEAGUE III — 92770 — LICENSED PROFESSIONAL ENGINEER — STATE OF TEXAS

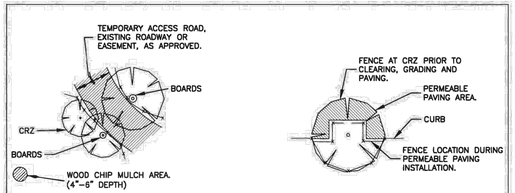
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.19

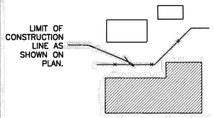
Sheet 19 OF 24

2024-21-SDP

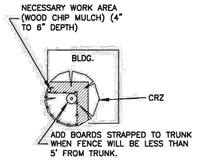


LINEAR CONSTRUCTION THROUGH TREES

TREES IN PAVING AREA



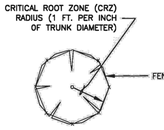
NATURAL AREAS



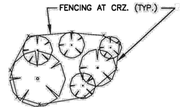
TREES NEAR CONSTRUCTION ACTIVITY

NOTE:

LIMITS OF MULCH AREAS AND DISTANCE FROM TRUNKS TO WORK/ PERMEABLE PAVING AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE FORESTRY MANAGER.



INDIVIDUAL TREE



GROUP OF TREES

FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.

SCALE: NTS

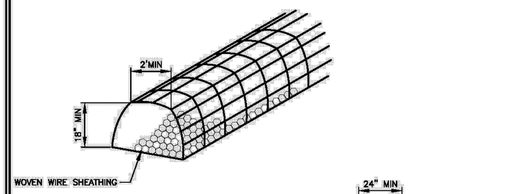
RECORD SIGNED COPY ON FILE APPROVED 01-28-21 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL (NOT TO SCALE)	CITY OF ROUND ROCK TREE PROTECTION FENCE LOCATIONS	DRAWING NO: EC-03 SHEET 1 of 1 ROUND ROCK TEXAS

1. ALL TREES NOT LOCATED WITHIN THE LIMITS OF CONSTRUCTION AND OUTSIDE OF DISTURBED AREAS SHALL BE PRESERVED. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL TREES TO BE PRESERVED FROM HIS ACTIVITIES.
2. ALL TREES SHOWN TO BE RETAINED ON THE PLANS, SHALL BE PROTECTED DURING CONSTRUCTION WITH FENCING. SEE: TREE PROTECTION TREE WELLS (EC-02), TREE PROTECTION TREE LOCATION (EC-03) AND TREE PROTECTION FENCE-CHAIN LINK (EC-04).
3. TREE PROTECTION FENCES SHALL BE ERECTED ACCORDING TO CITY STANDARDS FOR TREE PROTECTION, INCLUDING TYPES OF FENCING AND SIGNAGE.
4. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
5. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIPLINES.
6. FENCES SHALL COMPLETELY SURROUND THE TREE, OR CLUSTERS OF TREES, LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE) OR CRITICAL ROOT ZONE (CRZ), WHICHEVER IS GREATER; AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   - 6A. SOIL COMPACTION IN CRZ AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIAL.
   - 6B. CRZ DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL) OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE FORESTRY MANAGER.
   - 6C. WOUNDS TO EXPOSED ROOTS, TRUNK, OR LIMBS BY MECHANICAL EQUIPMENT
   - 6D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING, AND FIRES.
7. EXCEPTIONS TO INSTALLING TREE FENCES AT THE TREE DRIPLINES OR CRZ, WHICHEVER IS GREATER, MAY BE PERMITTED IN THE FOLLOWING CASES:
   - 7A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, OR TREE WELL;
   - 7B. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   - 7C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING.
   - 7D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE FORESTRY MANAGER TO DISCUSS ALTERNATIVES.
8. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 5 FEET TO A TREE TRUNK, THE TRUNK SHALL BE PROTECTED BY STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
9. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES UNDER THE DRIPLINE OR CRZ, WHICHEVER IS GREATER, THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION.
10. ALL GRADING WITHIN CRZ AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
11. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL AND BACKFILLED WITH GOOD QUALITY TOP SOIL WITHIN TWO DAYS. IF EXPOSED ROOT AREAS CANNOT BE BACKFILLED WITHIN 2 DAYS, AN ORGANIC MATERIAL WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION SHALL BE PLACED TO COVER THE ROOTS UNTIL BACKFILL CAN OCCUR.
12. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT, IN A LOCATION AND TO A DEPTH APPROVED BY THE FORESTRY MANAGER, TO MINIMIZE DAMAGE TO REMAINING ROOTS.
13. TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES WILL BE WATERED DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. TREE CROWNS ARE TO BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON LEAVES.
14. WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, A PLASTIC VAPOR BARRIER SHALL BE PLACED BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE CRZ.
15. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS FAR FROM EXISTING TREE TRUNKS AS POSSIBLE.
16. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN FOUR (4) INCHES SHALL BE PERMITTED WITHIN THE DRIPLINE OR CRZ OF TREES, WHICHEVER IS GREATER. NO TOPSOIL IS PERMITTED ON ROOT FLARES OF ANY TREE.
17. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND CONSTRUCTION EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS. ALL PRUNING MUST BE DONE ACCORDING TO CITY STANDARDS AND AS OUTLINED IN LITERATURE PROVIDED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA PRUNING TECHNIQUES).
18. ALL OAK TREE CUTS, INTENTIONAL OR UNINTENTIONAL, SHALL BE SEALED WITH AN APPROVED PRUNING SEALER IMMEDIATELY (WITHIN 10 MINUTES). PRUNING SEAL OR TREE PAINT MUST BE KEPT ON SITE AT ALL TIMES.
19. THE FORESTRY MANAGER HAS THE AUTHORITY TO REQUIRE ADDITIONAL TREE PROTECTION BEFORE OR DURING CONSTRUCTION.
20. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED. REFER TO THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL FOR APPROPRIATE REMOVAL METHODS.
21. PRIOR TO CONSTRUCTION, ALL LOWER TREE LIMBS OVER ROADWAYS MUST BE PRUNED TO A HEIGHT OF 14 FEET USING THE TECHNIQUES DESCRIBED IN THE CITY OF ROUND ROCK TREE TECHNICAL MANUAL.
22. DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS NON COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

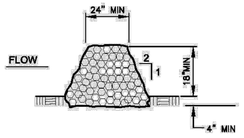
FOR QUESTIONS CONCERNING THIS DETAIL, PLEASE CONTACT THE FORESTRY MANAGER.

SCALE: NTS

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



ISOMETRIC

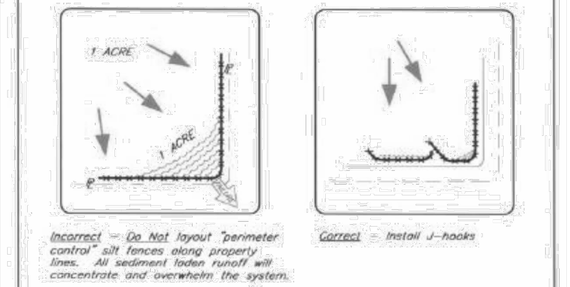


CROSS SECTION

NOTES:

1. USE ONLY OPEN GRADED ROCK (3 to 5") DIAMETER FOR ALL CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1" OPENING AND MINIMUM WIRE DIAMETER OF 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 OF 6", THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTATION PROBLEM.
5. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

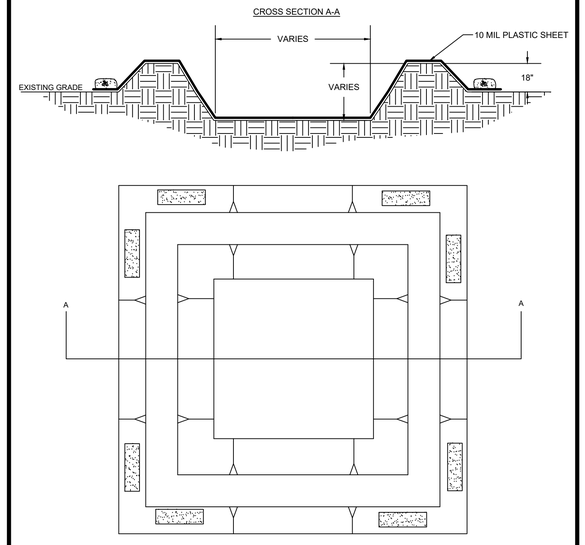
RECORD SIGNED COPY ON FILE AT PUBLIC WORKS APPROVED 03-29-11 DATE THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)	CITY OF ROUND ROCK ROCK BERM DETAIL	DRAWING NO: EC-12 ROUND ROCK TEXAS



SILT FENCE PLACEMENT FOR PERIMETER CONTROL

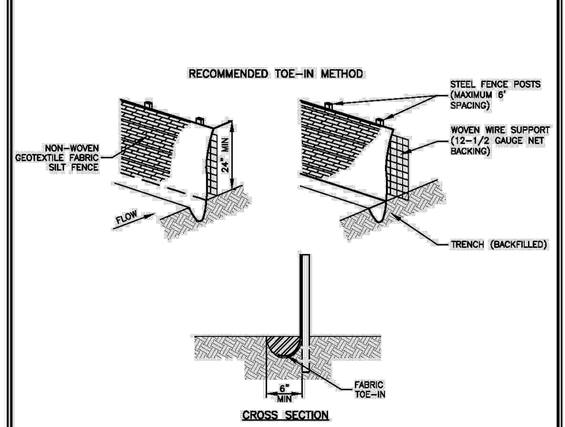
© 2001 JOHN McCULLAH

FILE: SF-PERIMETER CONTROL



NOTES:
1. SET LENGTH AND WIDTH AS NECESSARY TO PROVIDE ADEQUATE SPACE FOR WASHOUT ACTIVITIES.
2. IF RESTRICTED BY DEPTH DUE TO BELOW GRADE APPURTENANCES, PLACE EARTHEN BERMS AT GRADE.
3. USE EXCAVATED MATERIAL TO CREATE EARTHEN BERMS SURROUNDING THE AREA TO BE DESIGNATED AS A CONCRETE WASHOUT.
4. PLACE 10MIL OR GREATER PLASTIC SHEETING.
5. SECURE SHEETING ON OUTSIDE OF BERM AREA USING SAND BAGS OR ROCK EQUIVALENT.

	CONCRETE WASHOUT CONSTRUCTION STANDARDS AND DETAILS	DWG. # EC-11 EC-11.DWG

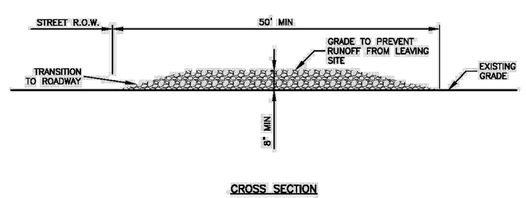


CROSS SECTION

NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MIN. OF ONE (1') FOOT.
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. WHERE FENCE CANNOT BE TRENCHED IN (E.G. PAVEMENT) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHALL BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS SECURELY FASTENED TO THE STEEL FENCE POSTS.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY 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 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.
8. SILT FENCE SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED

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



CROSS SECTION

NOTES:

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

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

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

EROSION CONTROL DETAILS

JOHN J. TEAGUE III
STATE OF TEXAS
92770
LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

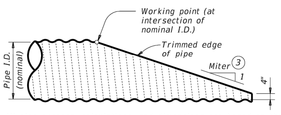
C.20

Sheet 20 OF 24

2024-21-SDP

7/11/2024 11:23:40 AM

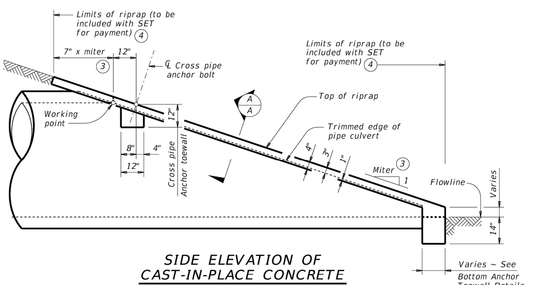
C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\21036_DTLS_EROS.dwg



NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

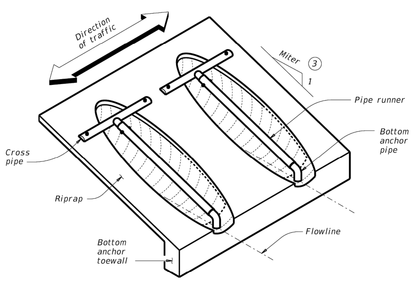
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (RCP) culvert are similar.)



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS (1) (2)

Nominal Culvert I.D.	Pipe Culvert Spa ~ G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1' – 7"	3' – 5"	N/A	N/A	N/A	5' – 10"	N/A	N/A	N/A	8' – 1"	N/A	N/A	N/A	12' – 9"
27"	1' – 8"	3' – 8"	N/A	N/A	5' – 5"	6' – 11"	N/A	N/A	7' – 7"	9' – 7"	N/A	N/A	11' – 11"	14' – 11"
30"	1' – 10"	3' – 11"	N/A	N/A	6' – 4"	8' – 0"	N/A	N/A	8' – 9"	11' – 0"	N/A	N/A	13' – 8"	17' – 0"
33"	1' – 11"	4' – 2"	6' – 2"	6' – 5"	7' – 3"	9' – 1"	8' – 6"	8' – 10"	10' – 0"	12' – 5"	13' – 3"	13' – 9"	15' – 5"	19' – 2"
36"	2' – 1"	4' – 5"	6' – 11"	7' – 3"	8' – 2"	10' – 2"	9' – 6"	9' – 11"	11' – 2"	13' – 10"	14' – 9"	15' – 3"	17' – 2"	21' – 3"
42"	2' – 4"	4' – 11"	8' – 6"	8' – 10"	9' – 11"	12' – 4"	11' – 7"	12' – 0"	13' – 6"	16' – 8"	17' – 9"	18' – 5"	20' – 8"	25' – 7"
48"	2' – 7"	5' – 5"	10' – 1"	10' – 5"	11' – 9"	N/A	13' – 7"	14' – 2"	15' – 10"	N/A	20' – 9"	21' – 6"	24' – 2"	N/A
54"	3' – 0"	5' – 11"	11' – 8"	12' – 1"	N/A	N/A	15' – 8"	16' – 3"	N/A	N/A	23' – 10"	24' – 8"	N/A	N/A
60"	3' – 3"	6' – 5"	13' – 3"	N/A	N/A	N/A	17' – 9"	N/A	N/A	N/A	26' – 10"	N/A	N/A	N/A

TYPICAL PIPE CULVERT MITERS (3)

Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED (2)

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS (1)

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' – 0"
4" STD	4.500"	4.026"	19' – 8"
5" STD	5.563"	5.047"	34' – 2"

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

(1) Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runner Lengths table.

(2) This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

If the above conditions cannot be met, the designer should consider using a safety end treatment with flared wings. For further information, refer to the TxDOT Roadway Design Manual.

(3) Miter = slope of mitered end of pipe culvert.

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(5) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT

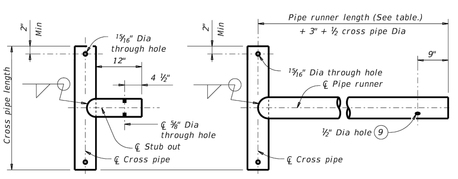
FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE:	setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS					
		DIST	COUNTY		SHEET NO.

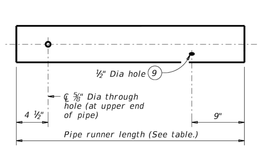
DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



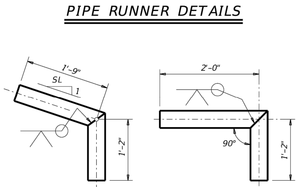
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



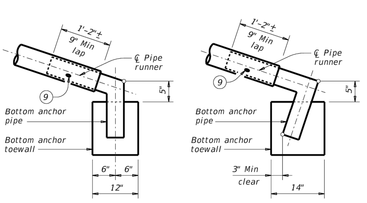
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



OPTION B1 OPTION B2

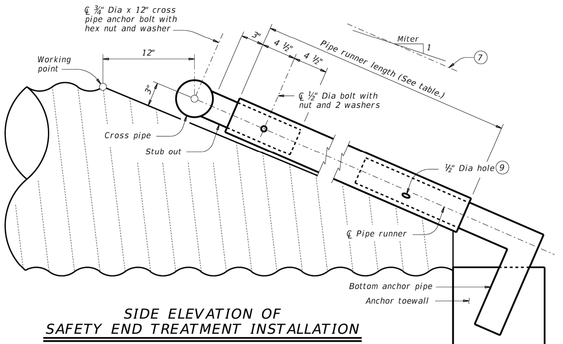
BOTTOM ANCHOR PIPE DETAILS (10)



OPTION B1 OPTION B2

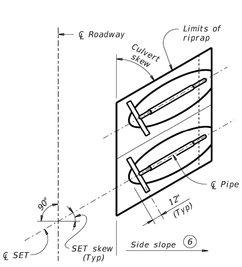
BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)

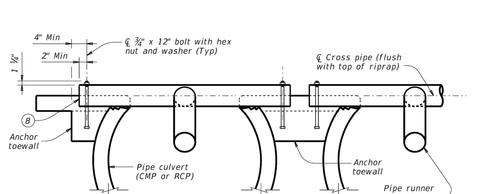


SIDE ELEVATION OF SAFETY END TREATMENT INSTALLATION

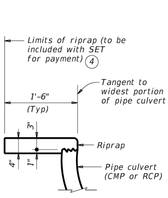
(Showing pipe runner with Cross Pipe Connection Option A1 and Anchor Pipe Option B2 on corrugated metal pipe (CMP) culvert. Reinforced concrete pipe culvert (RCP) details are similar. Riprap not shown for clarity)



PLAN OF SKEWED INSTALLATION



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

(4) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Recommended values of side slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

(7) Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

(8) Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

(9) After installation, inspect the ½" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

(10) At fabricator's option, a heat bend to a smooth 5° radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.

Payment for riprap and toewall is included in the price bid for each safety end treatment.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

FILE:	setpcdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS					
		DIST	COUNTY		SHEET NO.

DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

2024-21-SDP

Sheet 21 OF 24

C.21

Project No:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

CULVERT DETAILS

BENMARK LIBERTY HILL

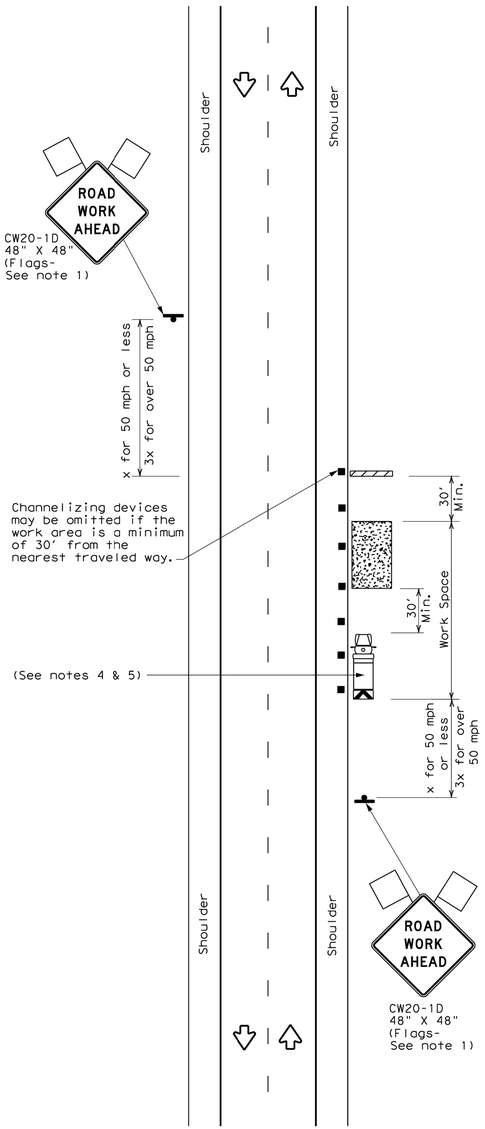
15405 W SH29
LIBERTY HILL, TEXAS 78642

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

No.	Date	Revisions	App.

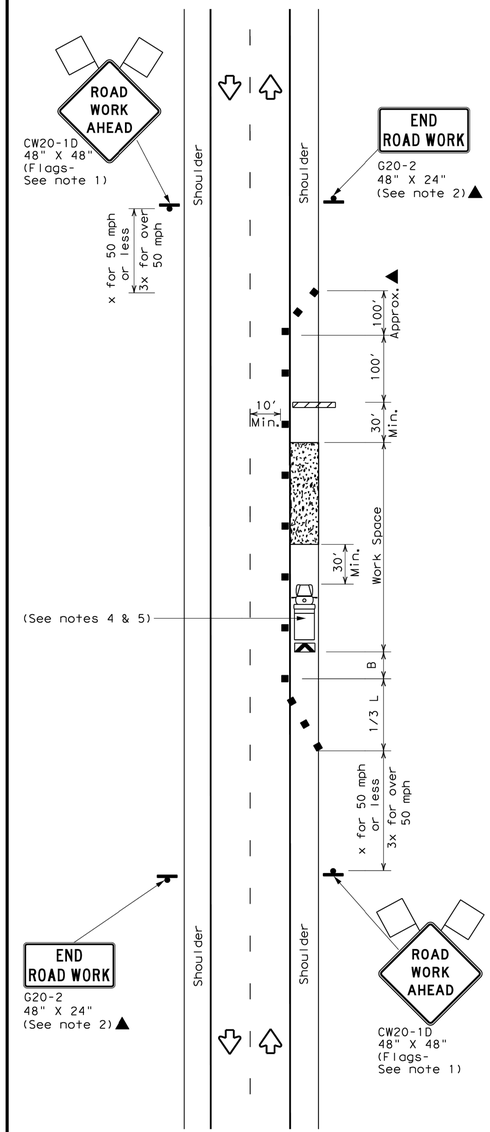
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



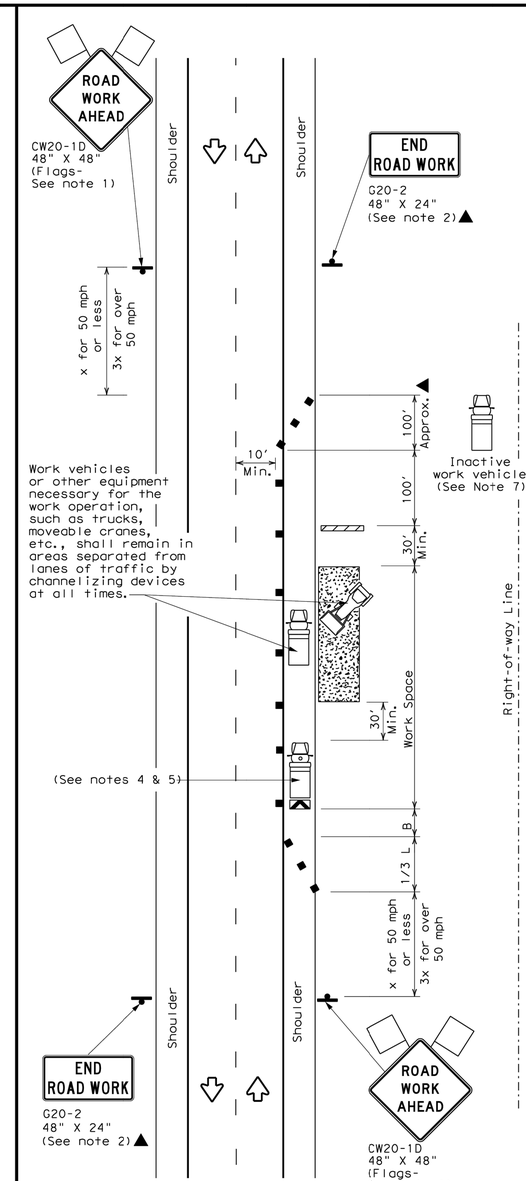
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW21-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.

161

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

TRAFFIC CONTROL DETAILS

STATE OF TEXAS — JOHN J. TEAGUE III — 92770 — LICENSED PROFESSIONAL ENGINEER
07/11/2024

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.22

Sheet 22 OF 24

2024-21-SDP

7/11/2024 11:23:53 AM

C:\Users\MatthewWEEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\21036_DTLS03.dwg

7/11/2024 11:23:58 AM

C:\Users\MatthewKEEI Server Dropbox\KEEI Files\2023\Jobs\23030 - Benmark 15405 W Sh29 Liberty Hill\dwg\Sheets\23030_LIGHT.dwg

Schedule									
Symbol	Label	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power
	W1	7	COOPER	GWC-SA2C-740-U-T4W	Galleon full cutoff wall pack w/ type 4 wide optic	32	458	1	113

Plan View
Scale - 1" = 30ft

LEGACY LIGHTING

Designer

Date
02/22/2024
Scale
Not to Scale
Drawing No.

Summary

1 of 1

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

LIGHTING PLAN

INCLUDED FOR REFERENCE ONLY

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.23

Sheet 23 OF 24

2024-21-SDP

7/11/2024 11:24:02 AM

Project		Catalog #		Type	W1
Prepared by		Notes		Date	

McGraw-Edison

GWC Galleon Wall

Wall Mount Luminaire

Product Features

Light ARchitect™

Product Certifications

Interactive Menu

Quick Facts

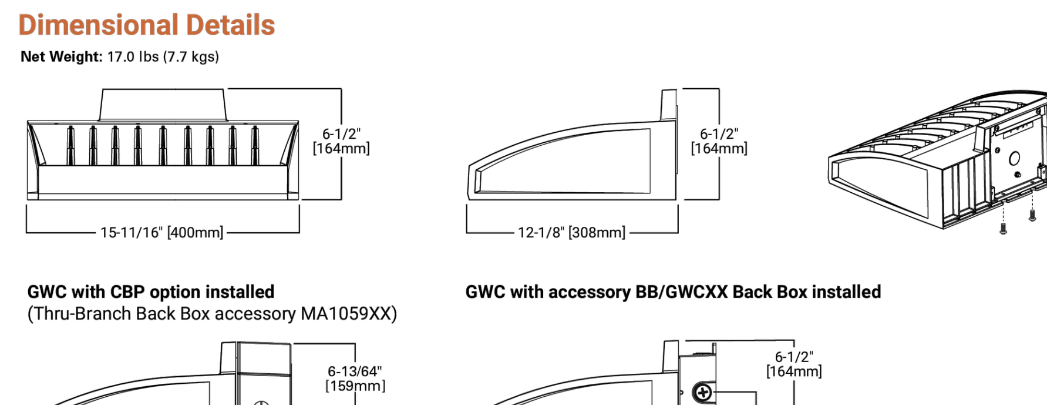
- Choice of thirteen high-efficiency, patented AccuLED Optics
- Downward and inverted wall mounting configurations
- Eight lumen packages from 3,215 up to 17,056
- Efficacies up to 154 lumens per watt

Connected Systems

- WaveLinx
- Enlighted

Dimensional Details

Net Weight: 17.0 lbs (7.7 kgs)



NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Ordering Information

SAMPLE NUMBER: **GWC-SA2C-740-U-T4FT-GM**

Product Family [1]	Light Engine: Configuration	Light Engine: Drive Current	Color Temperature	Voltage	Distribution	Finish
GWC=Galleon Wall **BAA-GWC**=Galleon Wall, Buy American Act Compliant [35] **TAA-GWC**=Galleon Wall, Trade Agreements Act Compliant [35]	**SA1**=1 Square **SA2**=2 Squares [2]	**A**=615mA **B**=800mA **C**=1000mA **D**=1200mA [4] **Z**=Configured [41]	**722**=70CRI, 2200K **727**=70CRI, 2700K **730**=70CRI, 3000K **735**=70CRI, 3500K **740**=70CRI, 4000K **750**=70CRI, 5000K **760**=70CRI, 6000K **827**=80CRI, 2700K **830**=80CRI, 3000K **AMB**=Amber, 590nm [3, 4]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [6,7] **9**=347V [6] **DV**=277-480V DuraVolt Drivers [7, 8, 37]	**T2**=Type II **T3**=Type III **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **5NQ**=Type V Square Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately) [36]
F=Single Fused (120, 277 or 347V. Must Specify Voltage) **FF**=Double Fused (208, 240 or 480V. Must Specify Voltage) **10K**=10kV Surge Module **20K**=Series 20kV UL 1449 Surge Protective Device **2L**=Two-Circuit Light Engine [38] **DIM**=External 0-10V Dimming Leads [9, 10] **CBP**=Battery Pack with Back Box, Cold Weather Rated [2, 4, 14, 33] **CBP-CEC**=Battery Pack with Back Box, Cold Weather Rated, CEC compliant [2, 4, 14] **BB**=Shipped with Back Box Accessory [39] **L90**=Optics Rotated 90° Left **R90**=Optics Rotated 90° Right **HSS**=Factory Installed House Side Shield [23] **GRSBK**=Factory Installed Glare Shield, BK [4, 27] **GRSWH**=Factory Installed Glare Shield, WH [4, 27] **UPL**=Uplight Housing [13] **HA**=50°C High Ambient [12] **LCF**=Light Square Trim Plate Painted to Match Housing [22] **MT**=Factory Installed Mesh Top **CC**=Coastal Construction finish [5] **CE**=CE Marking and Small Terminal Block [24] **AHD145**=After Hours Dim, 5 Hours [16] **AHD245**=After Hours Dim, 6 Hours [16] **AHD255**=After Hours Dim, 7 Hours [16] **AHD355**=After Hours Dim, 8 Hours [16] **DALI**=DALI Driver [11]	**BPC**=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) **PR**=NEMA 3-PIN Twistlock Photocontrol Receptacle **PR7**=NEMA 7-PIN Twistlock Photocontrol Receptacle [15] **FADC**=Field Adjustable Dimming Controller [40] **SPB1**=Dimming Occupancy Sensor with Bluetooth Interface, <8' Mounting [19,34] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [19,34] **SPB4**=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting [19,34] **MS-LXX**=Motion Sensor for On/Off Operation [17, 18, 19] **MS/DIM-LXX**=Motion Sensor for Dimming Operation [17, 18, 19] **ZW**=WaveLinx-enabled 4-PIN Twistlock Receptacle [29, 30] **ZD**=WaveLinx Module with DALI driver and 4-PIN Receptacle [29, 30] **SWPD4XX**=WaveLinx Sensor Only, 7'-15' [31,32] **SWPD5XX**=WaveLinx Sensor Only, 15'-40' [31, 32] **WOBXX**=WaveLinx Sensor with Bluetooth, 7'-15' [31,32] **WOFXX**=WaveLinx Sensor with Bluetooth, 15'-40' [31, 32] **LWR-LW**=Enlighted Wireless Sensor, Wide Lens for 8'-16' Mounting Height [19, 20, 21] **LWR-LN**=Enlighted Wireless Sensor, Narrow Lens for 16'-40' Mounting Height [19, 20, 21]	**OA/RA1013**=Photocontrol Shorting Cap **OA/RA1016**=NEMA Photocontrol - Multi-Tap 105-285V **OA/RA1201**=NEMA Photocontrol - 347V **OA/RA1027**=NEMA Photocontrol - 480V **MA1252**=10kV Circuit Module Replacement **MA1059XX**=Thru-branch Back Box (Must Specify Color) **BB/GWCXX**=Back Box (Must Specify Color) **LS/HSS**=Field Installed House Side Shield [23, 25] **LS/GRSBK-2PK**=Glare Shield, Black [25, 27] **LS/GRSWH-2PK**=Glare Shield, White [25, 27] **LS/PFS**=Perimeter Shield, Black [28] **FSIR-100**=Wireless Configuration Tool for Occupancy Sensor [17] **WOLC-7P-10A**=WaveLinx Outdoor Control Module (7-pin) [26, 29] **SWPD4-XX**=Wavelinx Wireless Sensor, 7' – 15' Mounting Height [29, 30, 31, 32] **SWPD5-XX**=Wavelinx Wireless Sensor, 15' – 40' Mounting Height [29, 30, 31, 32]

NOTES:
1. DesignLight Consortium® Qualified. Refer to www.designlights.org, Qualified Products List under Family Models for details.
2. Two light squares with CBP options limited to 25°C. CBP not available in combination with sensor options at 1200mA.
3. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Exact luminaire wattage available in IES files. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
4. Not available with HA option.
5. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654.
6. Require the use of a step down transformer. Not available in combination with sensor options at 1200mA.
7. 480V not to be used with ungrounded or impedance grounded systems.
8. DuraVolt drivers feature added protection from power quality issues such as loss of neutral, transients and voltage fluctuations. Visit www.signify.com/duravolt for more information.
9. Cannot be used with other control options.
10. Low voltage control leads extended 18" from fixture.
11. Not available in 1200mA. When used with CBP or HA options, only available with single light square.
12. Not available in 1200mA, UPL or CBP options. Available with single light square.
13. Not available with SL2, SL3, SL4, HA, CBP, PR or PR7 options.
14. Operates a single light square only. Operates at -20°C to +40°C. Backbox is non-IP rated.
15. Compatible with standard 3-PIN photocontrols, 5-PIN or 7-PIN ANSI controls.
16. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
17. The FSIR-100 configuration tool is required to adjust parameters such as high and low modes, sensitivity, time delay and cutoff. Consult your lighting representative at Cooper Lighting Solutions for more information.
18. Replace LXX with L08 (<8' mounting), L20 (8'-20' mounting) or L40W (21'-40' mounting.)
19. Includes integral photosensor.
20. Enlighted wireless sensors are factory installed requiring network components in appropriate quantities.
21. White sensor shipped on all housing color options.
22. Not available with HSS or GRS options.
23. Not for use with 5NQ, 5MQ, 5WQ or RW optics. The light square trim plate is painted black when the HSS option is selected.
24. CE is not available with the 1200, DALI, LWR, MS, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only.
25. One required for each light square.
26. Requires PR7.
27. Not for use with T4FT, T4W or SL4 optics.
28. Set of 4 pcs. Once set required per Light Square.
29. Cannot be used in conjunction with additional photocontrol or other controls systems (BPC, PR, PR7, MS, LWR).
30. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
31. Requires ZW or ZD receptacle.
32. Replace XX with sensor color (WH, BZ, or BK).
33. Specify 120V or 277V.
34. Smart device with mobile application required to change system defaults. See controls section for details.
35. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
36. For BAA or TAA requirements, Accessories sold separately will be separately analyzed under domestic preference requirements. Consult factory for further information.
37. Not available in 1 square configuration at 800mA or below. Not available with any control option except SPB.
38. 2L not available with FF, AHD or DALI options. Controls and/or battery packs operate only one of the two circuits when 2L is specified. 2L with controls options not available with 347V or 480V.
39. Not available with CBP or CBP-CEC options.
40. Cannot be used with PR7 or other motion response control options.
41. Customer specific specifications utilizes standard products with small adjustments to meet unique requirements such as packaging, labels, wattage adjustments, etc.

Product Specifications

Construction
- Driver enclosure thermally isolated from optics for optimal thermal performance
- Die-cast aluminum heat sinks
- IP66 rated housing
- 1.5G vibration rated

Optics
- Patented, high-efficiency injection-molded AccuLED Optics technology
- 13 optical distributions
- IDA Certified (3000K CCT and warmer only)

Electrical
- LED driver assembly mounted for ease of maintenance
- Standard with 0-10V dimming
- Optional 10kV or 20kV surge module
- Suitable for operation in -40°C to 40°C ambient environments; Optional 50°C high ambient (HA) configuration

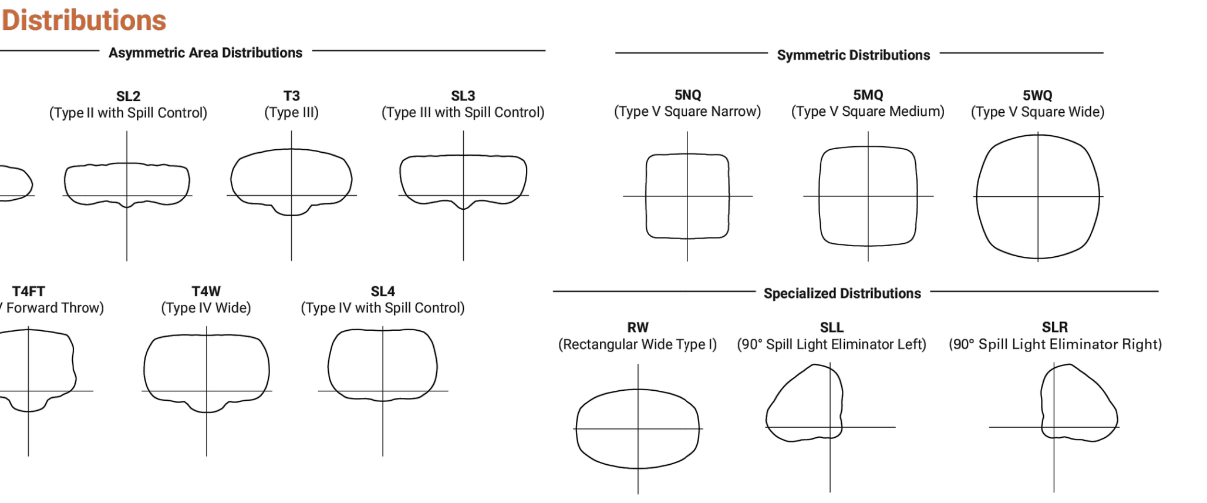
Mounting
- Gasketed and zinc plated rigid steel mounting attachment
- "Hook-N-Lock" mechanism for easy installation

Finish
- Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

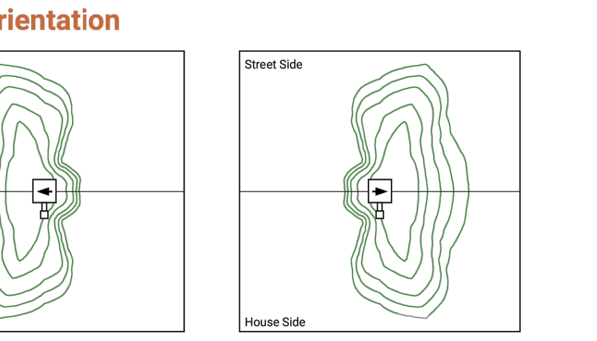
Typical Applications
- Exterior Wall, Walkway

Warranty
- Five-year warranty

Optical Distributions



Optic Orientation



Energy and Performance Data

Lumen Multiplier

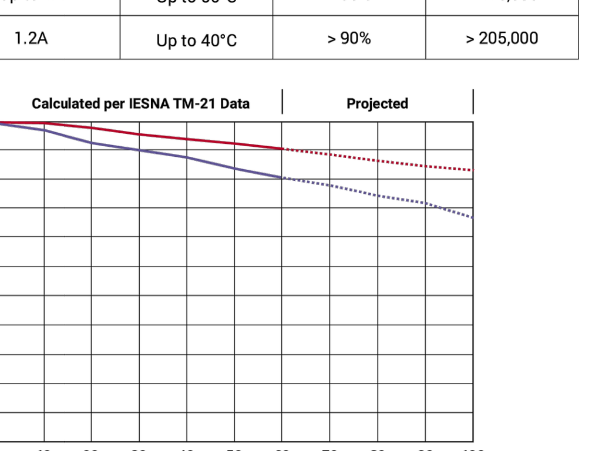
Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

FADC Settings

FADC Position	Lumen Multiplier
1	25%
2	46%
3	55%
4	62%
5	72%
6	77%
7	82%
8	85%
9	90%
10	100%

Lumen Maintenance

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	> 416,000
1.2A	Up to 40°C	> 90%	> 205,000



Energy and Performance Data

View GWC Galleon Wall IES files

4000K/5000K/6000K CCT, 70 CRI

Number of Light Squares		1				2			
Drive Current		615mA	800mA	1050mA	1.2A	615mA	800mA	1050mA	1.2A
Nominal Power (Watts)		34	44	59	67	66	86	113	129
Input Current @ 120V (A)		0.30	0.39	0.51	0.58	0.58	0.77	1.02	1.16
Input Current @ 208V (A)		0.17	0.22	0.29	0.33	0.34	0.44	0.56	0.63
Input Current @ 240V (A)		0.15	0.19	0.26	0.29	0.30	0.38	0.48	0.55
Input Current @ 277V (A)		0.14	0.17	0.23	0.25	0.28	0.36	0.42	0.48
Input Current @ 347V (A)		0.11	0.15	0.17	0.20	0.19	0.24	0.32	0.39
Input Current @ 480V (A)		0.08	0.11	0.14	0.15	0.15	0.18	0.24	0.30
Optics									
T2	Lumens	4,883	5,989	7,412	8,131	9,543	11,703	14,485	15,891
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
	Lumens per Watt	144	136	126	121	145	136	128	123
T3	Lumens	4,978	6,105	7,556	8,288	9,729	11,929	14,764	16,196
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	146	139	128	124	147	139	131	126
T4FT	Lumens	5,008	6,140	7,599	8,337	9,783	11,998	14,850	16,290
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	147	140	129	124	148	140	131	126
T4W	Lumens	4,942	6,060	7,502	8,229	9,658	11,843	14,658	16,080
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3
	Lumens per Watt	145	138	127	123	146	138	130	125
SL2	Lumens	4,874	5,979	7,399	8,117	9,528	11,684	14,461	15,863
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3
	Lumens per Watt	143	136	125	121	144	136	128	123
SL3	Lumens	4,976	6,104	7,555	8,287	9,727	11,927	14,763	16,194
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	146	139	128	124	147	139	131	126
SL4	Lumens	4,729	5,799	7,178	7,873	9,239	11,333	14,025	15,387
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4
	Lumens per Watt	139	132	122	118	140	132	124	119
5NQ	Lumens	5,134	6,296	7,793	8,547	10,033	12,303	15,226	16,704
	BUG Rating	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2
	Lumens per Watt	151	143	132	128	152	143	135	129
5MQ	Lumens	5,228	6,412	7,935	8,705	10,216	12,529	15,508	17,011
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	154	146	134	130	155	146	137	132
5WQ	Lumens	5,242	6,428	7,956	8,728	10,244	12,563	15,548	17,056
	BUG Rating	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	154	146	135	130	155	146	138	132
SLL/SLR	Lumens	4,373	5,365	6,640	7,283	8,547	10,481	12,973	14,231
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	129	122	113	109	130	122	115	110
RW	Lumens	5,087	6,238	7,721	8,472	9,941	12,190	15,088	16,553
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	150	142	131	126	151	142	134	128

* Nominal lumen data for 70 CRI. BUG rating for 4000K/5000K. Refer to IES files for 3000K BUG ratings.

3000K CCT, 80 CRI

Number of Light Squares		1				2			
Drive Current		615mA	800mA	1050mA	1.2A	615mA	800mA	1050mA	1.2A
Nominal Power (Watts)		34	44	59	67	66	86	113	129
Input Current @ 120V (A)		0.30	0.39	0.51	0.58	0.58	0.77	1.02	1.16
Input Current @ 208V (A)		0.17	0.22	0.29	0.33	0.34	0.44	0.56	0.63
Input Current @ 240V (A)		0.15	0.19	0.26	0.29	0.30	0.38	0.48	0.55
Input Current @ 277V (A)		0.14	0.17	0.23	0.25	0.28	0.36	0.42	0.48
Input Current @ 347V (A)		0.11	0.15	0.17	0.20	0.19	0.24	0.32	0.39
Input Current @ 480V (A)		0.08	0.11	0.14	0.15	0.15	0.18	0.24	0.30
Optics									
T2	Lumens	3,880	4,759	5,890	6,461	7,583	9,300	11,510	12,628
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	114	108	100	96	115	108	102	98
T3	Lumens	3,956	4,851	6,004	6,586	7,731	9,479	11,732	12,870
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
	Lumens per Watt	116	110	102	98	117	110	104	100
T4FT	Lumens	3,980	4,879	6,038	6,625	7,774	9,534	11,800	12,945
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	117	111	102	99	118	111	104	100
T4W	Lumens	3,927	4,816	5,961	6,539	7,675	9,411	11,648	12,778
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	116	109	101	98	116	109	103	99
SL2	Lumens	3,873	4,751	5,880	6,450	7,571	9,285	11,491	12,605
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	114	108	100	96	115	108	102	98
SL3	Lumens	3,954	4,851	6,004	6,585	7,729	9,478	11,731	12,868
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	116	110	102	98	117	110	104	100
SL4	Lumens	3,758	4,608	5,704	6,256	7,342	9,006	11,145	12,227
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3
	Lumens per Watt	111	105	97	93	111	105	99	95
5NQ	Lumens	4,080	5,003	6,193	6,792	7,973	9,776	12,099	13,274
	BUG Rating	B2-U0-G0	B2-U0-G1	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2
	Lumens per Watt	120	114	105	101	121	114	107	103
5MQ	Lumens	4,154	5,095	6,305	6,917	8,118	9,956	12,323	13,518
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	122	116	107	103	123	116	109	105
5WQ	Lumens	4,166	5,108	6,322	6,936	8,140	9,983	12,355	13,553
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	123	116	107	104	123	116	109	105
SLL/SLR	Lumens	3,475	4,263	5,276	5,787	6,792	8,329	10,309	11,309
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	102	97	89	86	103	97	91	88
RW	Lumens	4,042	4,957	6,135	6,732	7,900	9,687	11,990	13,154
	BUG Rating	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2
	Lumens per Watt	119	113	104	100	120	113	106	102

* Nominal lumen data for 70 CRI. BUG rating for 4000K/5000K. Refer to IES files for 3000K BUG ratings.

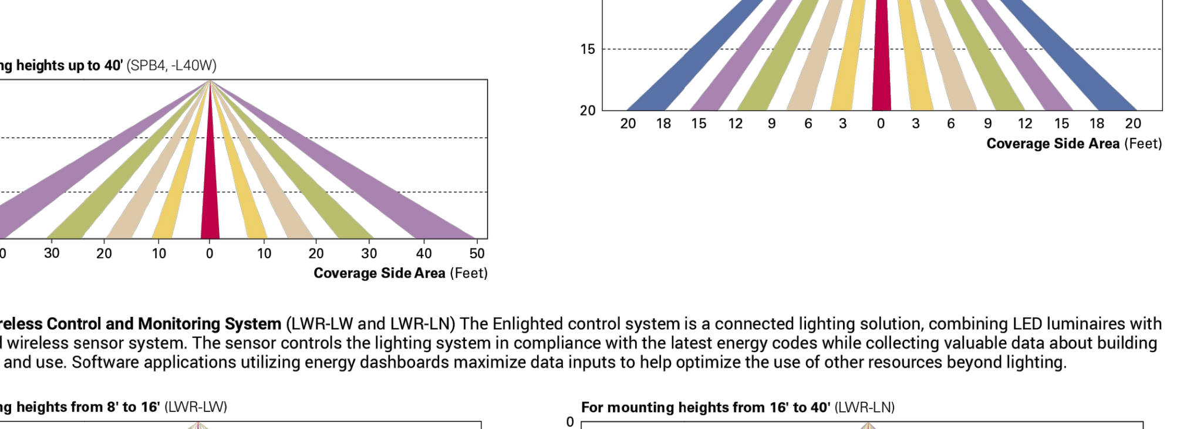
Control Options

0-10V This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

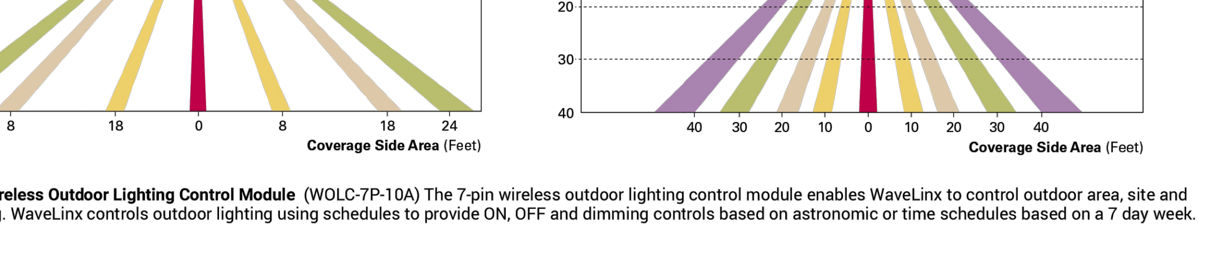
Photocontrol (BPC, PR, and PR7) Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

After Hours Dim (AHD) This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX and MS-LXX) These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.



Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN) The Enlighted control system is a connected lighting solution, combining LED luminaires with an integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes while collecting valuable data about building performance and use. Software applications utilizing energy dashboards maximize data inputs to help optimize the use of other resources beyond lighting.



WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A) The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

Cooper Lighting Solutions
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

© 2022 Cooper Lighting Solutions
All Rights Reserved.

Specifications and dimensions subject to change without notice.

No.	Date	Revisions	App.

ECKERMANN ENGINEERING, INC.
921 MAIN STREET
LIBERTY HILL, TEXAS 78642
PHONE: (512)-960-1098
TBPE FIRM NO. F-10496

BENMARK LIBERTY HILL
15405 W SH29
LIBERTY HILL, TEXAS 78642

LIGHTING DETAILS

INCLUDED FOR REFERENCE ONLY

Project No.:	23030
Issued:	07/11/2024
Drawn By:	WS
Checked By:	JT III

C.24

Sheet 24 OF 24

2024-21-SDP

C:\Users\Matthew\EEI Server Dropbox\EEI Files\2023\Jobs\23030 - Benmark 15405 W SH29 Liberty Hill\dwg\Sheets\23030_DTLS_LIGHT.dwg