Edwards Aquifer

Contributing Zone Plan

Permit Application

Johnson Ranch BTR

(3388.00)

Prepared for:

Embrey Partners, LLC

7600 Broadway, Suite 300

San Antonio, Tx 78209

Prepared by:

8 Spencer Rd Suite 100
Boerne, TX. 78006
(830) 249-0600

Contributing Zone Plan Checklist

1.0 - Edwards Aquifer Application Cover Page (TCEQ-20705)

2.0 - 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

3.0 - 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)

4.0 - Agent Authorization Form (TCEQ-0599), if application submitted by agent

5.0 - Application Fee Form (TCEQ-0574)

Check Payable to the "Texas Commission on Environmental Quality"

6.0 - Core Data Form (TCEQ-10400)

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: Johnson Ranch BTR						**2. Regulated Entity No.:**			
3. Customer Name: Embrey Partners, LLC						**4. Customer No.: 603803651**			
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):**		22.47 Ac	
9. Application Fee:	$4,000		**10. Permanent BMP(s):**			Yes			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**						
13. County:	Comal		**14. Watershed:**			Headwaters Cibolo Creek			

Application Distribution

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

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

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

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

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	X	___	___	___
Region (1 req.)	___	X	___	___	___
County(ies)	___	X	___	___	___
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	X_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.
Ken Kolacny, P.E. Matkin-Hoover Engineering & Surveying
Print Name of Customer/Authorized Agent 08/7/2023
Signature of Customer/Authorized Agent Date

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

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: Ken Kolacny, P.E., MatkinHoover Engineering & Surveying

Date: 08/7/23

Signature of Customer/Agent:

Regulated Entity Name: Johnson Ranch BTR

Project Information

1. County: Comal
2. Stream Basin: Lewis Creek
3. Groundwater Conservation District (if applicable): _____
4. Customer (Applicant):

   Contact Person: Jeremy Williams
   Entity: Embrey Partners, LLC
   Mailing Address: 7600 Broadway, Suite 300
   City, State: San Antonio Zip: 78209
   Telephone: (210) 824 - 6044 Fax: N/A
   Email Address: Jwilliams@embreydc.com

5. Agent/Representative (If any):

Contact Person: Ken Kolacny, P.E.
Entity: MatkinHoover Engineerng & Survey
Mailing Address: 8 Spencer Rd. Suite 100
City, State: Borene, Tx Zip: 78006
Telephone: 830-249-0600 Fax: N/A
Email Address: kkolacny@matkinhoover.com

6. Project Location:

☐ The project site is located inside the city limits of _____.
☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Bulverde, Tx.
☐ 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.

The project is situated just east of U.S. Hwy 281 in Southern Comal County, south of Mustang Vista, and north of Johnson Way. From TCEQ San Antonio Regional Office, go North of Judson Road for 2.5 miles, take TX Loop 1604 W for 4.4 miles, then take U.S. 281 North for 11.6 miles to Mustang Vista. The site will be located right off the highway on Mustang Vista, on the right.

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: 224
- ☐ Commercial
- ☐ Industrial
- ☐ Other: _____

13. Total project area (size of site): 22.47 Acres

    Total disturbed area: 20.09 Acres

14. Estimated projected population: 560

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	207,610.0	÷ 43,560 =	4.77
Parking	225,239.9	÷ 43,560 =	5.17
Other paved surfaces	107,150.1	÷ 43,560 =	2.46
Total Impervious Cover	540,000	÷ 43,560 =	12.40

Total Impervious Cover 12.40 **÷ Total Acreage** 22.47 **X 100 =** 55.17**% 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 _____ (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			

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
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" = 40'.

35. 100-year floodplain boundaries:

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

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

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA Firm Panel No. 48091C0220F, dated 9/2/2009.

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.

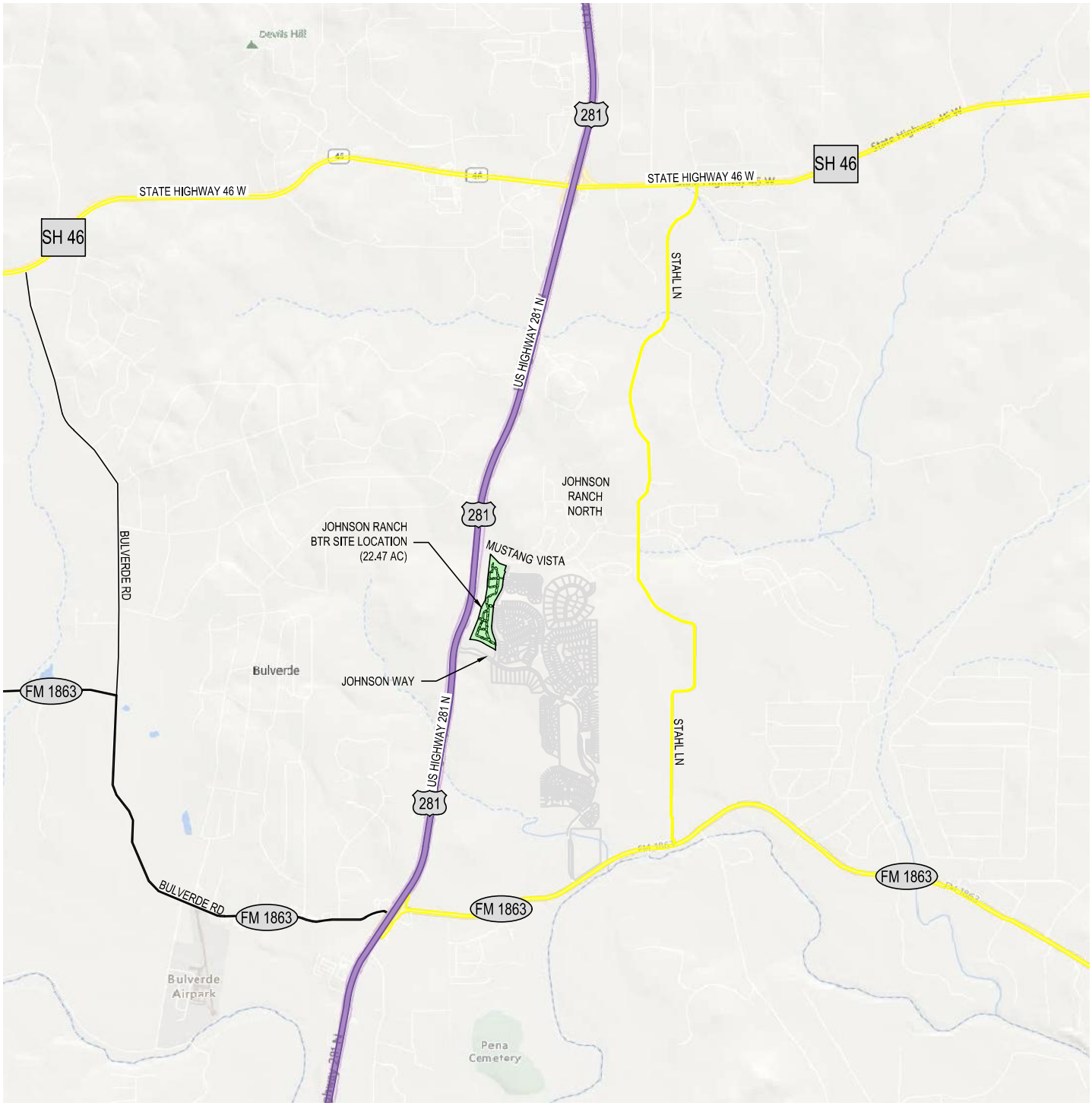
Administrative Information

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.



N

SCALE: 1"=4000'

0 2000' 4000' 6000' 8000'

Date: Aug 03, 2023, 11:15am User ID: jporras

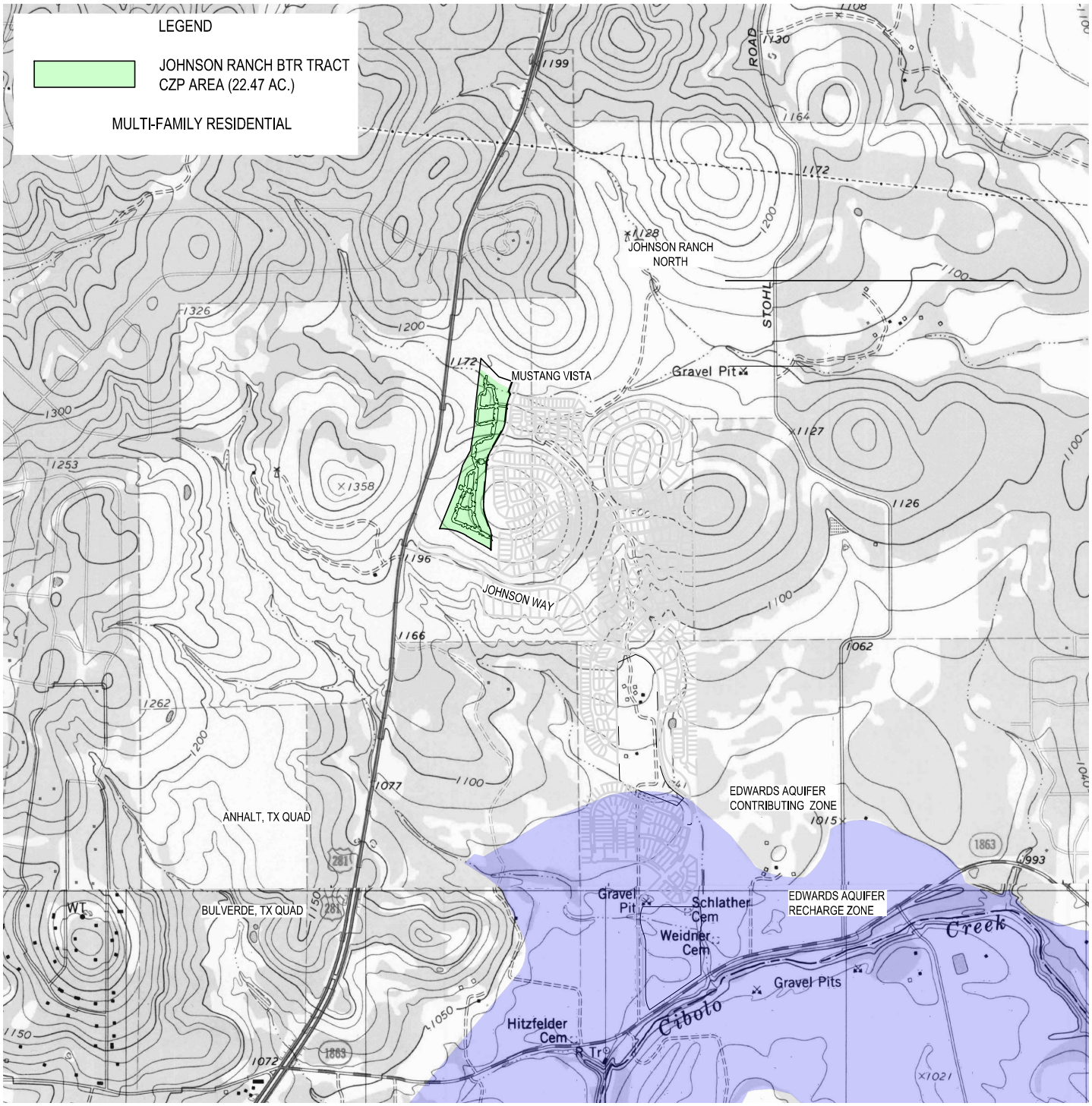
MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-004512 SURVEYING FIRM F-10024000

ATTACHMENT A ROAD MAP
CONTRIBUTING ZONE PLAN APPLICATION

FOR

JOHNSON RANCH BTR

JOB NO.	3388.00
DATE	Jun 2023
DESIGNED BY:	KBK
DRAWN BY:	RJV
CHECKED BY:	KBK
SHEET NO.	



Date: Aug 03, 2023, 11:19am User ID: jporras

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
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TEXAS REGISTERED ENGINEERING FIRM F-004512 SURVEYING FIRM F-10024000

ATTACHMENT B
USGS QUADRANGLE MAP

FOR
JOHNSON RANCH BTR

JOB NO.	3388.00
DATE	Jun 2023
DESIGNED BY:	KBK
DRAWN BY:	RJV
CHECKED BY:	KBK
SHEET NO.	

Attachment C – Project Narrative

Johnson Ranch BTR is a proposed continuation of the Johnson Ranch master-planned development and is located completely within the Edwards Aquifer Contributing Zone. Johnson Way consists of 22.47 acres and includes 224 proposed single-family residential units and associated access streets, drainage improvements and utilities.

Johnson Ranch BTR was included in the original WPAP approved for the Johnson Ranch development on October 24, 2007. Portions of the Johnson Way area were removed from the WPAP area by subsequent WPAP modifications.

The table below summarizes the acreages and proposed impervious cover for Johnson Ranch BTR Section 3:

	Proposed
Total Acreage	22.47 Ac
Residential Living Units	224
IC	12.40 Ac
IC%	55.17%

TCEQ-10257 Attachments

Johnson Ranch BTR

Contributing Zone Plan Application

Attachment D – Factors Affecting Surface Water Quality

Potential sources of pollution that may be expected to affect the quality of the stormwater discharges from the construction site include the following:

- Soil erosion due to the clearing of the site for roads, buildings, and drainagestructures.
- Oil, grease, fuel and hydraulic fluid contamination from construction equipmentand vehicle drippings.
- Hydrocarbons from asphalt paving operations.
- Miscellaneous trash and litter from construction.
- Concrete truck washout

TCEQ-10257 Attachments

Johnson Ranch BTR

Contributing Zone Plan Application

Attachment E – Volume and Character of Stormwater

The existing conditions of the site show storm water draining as sheet flow from a high point located in the middle of the site towards the north and south borders. Stormwater changes from the Johnson Ranch BTR development have been analyzed using drainage guidelines from City of Bulverde as well as TCEQ criteria. With the addition of the proposed detention and water quality ponds, peak stormwater flows downstream of Johnson Ranch BTR show a decrease from existing to proposed conditions.

The CN runoff coefficients for Johnson Ranch BTR increase with development. The pre- developed composite CN values for sub basins range from 83.0 to 84.4, while in post developed conditions composite CN values range from 82.2 to 90.4.

On the southern portion of the site, runoff flows to three downstream convergence points CP-1, CP-2, and CP-3. Existing flow rates for the 2-yr, 5-yr, 10-yr, 25-yr, and 100-yr storm events for CP-1 were calculated as 16.59, 24.94, 33.11, 45.62, and 69.19 cfs respectively. CP-2 has existing flow rates of 44.46, 66.19, 87.39, 119.78, and 180.78 cfs, while existing flow rates for CP-3 are 16.78, 25.22, 33.49, 46.14, and 69.98 cfs for the 2-yr, 5-yr, 10-yr, 25-yr, and 100-yr storm events.

Proposed flow rates for CP-1, CP-2, and CP-3 have all shown to decrease with the implementation of the proposed detention pond. Proposed flow rates for the 2-yr, 5-yr, 10-yr, 25-yr, and 100-yr storm events for CP-1 were calculated as 15.2, 22.9, 30.66, 43.00, and 67.53 cfs respectively. CP-2 has proposed flow rates of 40.32, 60.07, 79.59, 109.83, and 167.95 cfs, while proposed flow rates for CP-3 are 12.02, 18.23, 24.33, 33.69, and 51.34 cfs for the 2-yr, 5-yr, 10-yr, 25-yr, and 100-yr storm events.

The remaining runoff flows to the north to an existing regional detention pond as part of watershed D1 per the Johnson Ranch North Drainage Report, prepared by Bowman Consulting Group, Ltd in September 2018. This pond was sized with 3,808,795 SF of impervious cover allotted for ultimate conditions of the proposed D1 watershed. The total impervious cover used, including the

proposed Johnson Way BTR site, amounts to 2,063,264 SF, well below the designed threshold.

Batch-detention is proposed for water quality 80% TSS removal, with the storage requirements for pond A1 calculated at 53,932 CF, 6,694 CF for pond A2, and 8,095 CF for pond A3.

Not Applicable

Not Applicable

Not Applicable

Not Applicable

The topography of this site starts from a highpoint which drains from East to Southwest and East to Northwest. The eastern boundary has a road which collects all upgradient water from flowing into the site. Therefore, no BMP's for upgradient stream water are needed.

The proposed land use for this site is single family residential and has more than 20% impervious cover. Areas with impervious cover within the project limits will be treated by Permanent BMP's. Some areas of impervious cover are considered "ByPass" and are not being treated by Permanent BMP's. Other Permanent BMP's are oversized to achieve total required removal efficiency of the site.

A Water Quality Pond will be placed at the north boundary of the development to serve as a permanent BMP for all drainage leaving the site to the north. A combination detention-Water Quality Pond will be placed at the southwest corner of the development to serve as permanent BMP for all drainage leaving the southern portion of the site. A final Water Quality Pond will be placed near the center of the development to serve as a Permanent BMP for all drainage leaving the site at the center.

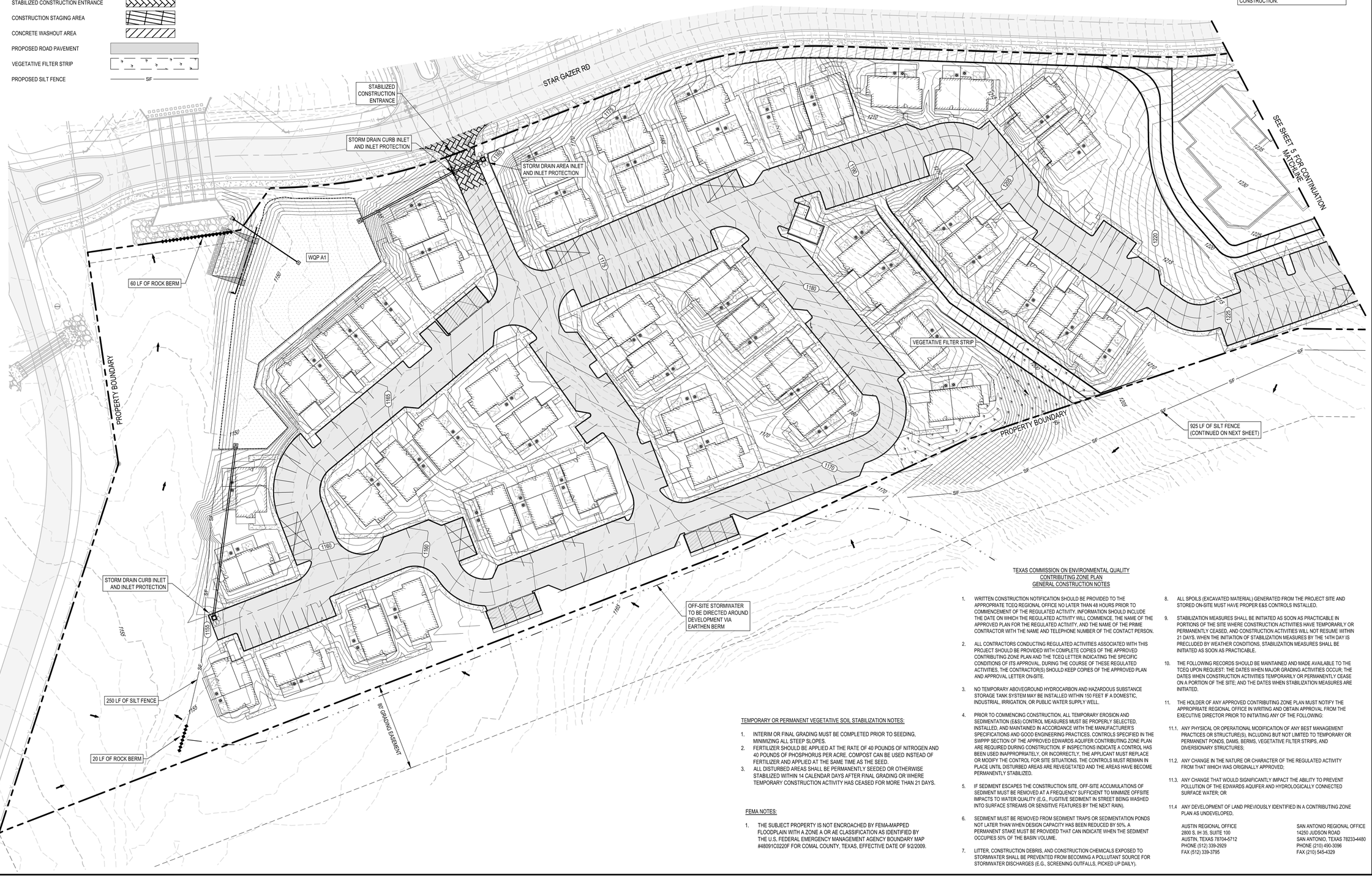
Vegetated Filter Strips will be utilized in drainage areas of sheet flow to treat the remaining impervious cover. These areas are generally located along the south and western boundaries of the site.

No surface streams are present on this site.

The proposed land use for this project is for single family residential development and has more than 20% impervious cover. Therefore, construction plans for permanent BMP's are included.

LEGEND

- PROPERTY BOUNDARY
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR — 1275
- PROPOSED CULVERT
- ROCK BERM
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE
- CONSTRUCTION STAGING AREA
- CONCRETE WASHOUT AREA
- PROPOSED ROAD PAVEMENT
- VEGETATIVE FILTER STRIP
- PROPOSED SILT FENCE — SF



NOTE:
CONSTRUCTION ENTRANCE LOCATION TO COINCIDE WITH SEQUENCING OF HOME CONSTRUCTION.

TEMPORARY OR PERMANENT VEGETATIVE SOIL STABILIZATION NOTES:

1. INTERIM OR FINAL GRADING MUST BE COMPLETED PRIOR TO SEEDING, MINIMIZING ALL STEEP SLOPES.
2. FERTILIZER SHOULD BE APPLIED AT THE RATE OF 40 POUNDS OF NITROGEN AND 40 POUNDS OF PHOSPHORUS PER ACRE. COMPOST CAN BE USED INSTEAD OF FERTILIZER AND APPLIED AT THE SAME TIME AS THE SEED.
3. ALL DISTURBED AREAS SHALL BE PERMANENTLY SEEDED OR OTHERWISE STABILIZED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE TEMPORARY CONSTRUCTION ACTIVITY HAS CEASED FOR MORE THAN 21 DAYS.

FEMA NOTES:

1. THE SUBJECT PROPERTY IS NOT ENCROACHED BY FEMA-MAPPED FLOODPLAIN WITH A ZONE A OR AE CLASSIFICATION AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY BOUNDARY MAP #48091C0220F FOR COMAL COUNTY, TEXAS, EFFECTIVE DATE OF 9/2/2009.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
CONTRIBUTING ZONE PLAN
GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION SHOULD BE PROVIDED TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION SHOULD INCLUDE THE DATE ON WHICH THE REGULATED ACTIVITY WILL COMMENCE, THE NAME OF THE APPROVED PLAN FOR THE REGULATED ACTIVITY, AND THE NAME OF THE PRIME CONTRACTOR WITH THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN 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 ON-SITE.
3. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM MAY BE INSTALLED WITHIN 150 FEET IF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL.
4. PRIOR TO COMMENCING CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE SWPPP SECTION OF THE APPROVED EDWARDS AQUIFER CONTRIBUTING ZONE PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
5. 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).
6. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%. A PERMANENT STAKE MUST BE PROVIDED THAT CAN INDICATE WHEN THE SEDIMENT OCCUPIES 50% OF THE BASIN VOLUME.
7. 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).
8. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE AND STORED ON-SITE MUST HAVE PROPER E&S CONTROLS INSTALLED.
9. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND CONSTRUCTION ACTIVITIES WILL NOT RESUME WITHIN 21 DAYS. WHEN THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
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.
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    - 11.1. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, VEGETATIVE FILTER STRIPS, 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 AND HYDROLOGICALLY CONNECTED SURFACE WATER; OR
    - 11.4 ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED IN A CONTRIBUTING ZONE PLAN AS UNDEVELOPED.

AUSTIN REGIONAL OFFICE
2800 S. IH 35, SUITE 100
AUSTIN, TEXAS 78704-5712
PHONE (512) 339-2929
FAX (512) 339-3795

SAN ANTONIO REGIONAL OFFICE
14250 JUDSON ROAD
SAN ANTONIO, TEXAS 78233-4480
PHONE (210) 490-3096
FAX (210) 545-4329

SCALE: 1"=40'
0 20' 40' 60' 80'
SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
8/22/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | TX SURVEYING FIRM F-10024000
3300 SHELL ROAD SUITE L
GEORGETOWN, TX 78628
OFFICE: 512.868.2244

CONTRIBUTING ZONE PLAN (SHEET 1)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG801

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	04 OF 45

Date: Aug 22, 2023, 2:57pm User ID: tsaur

LEGEND

- PROPERTY BOUNDARY
- EXISTING 5' CONTOUR
- EXISTING 25' CONTOUR (1275)
- PROPOSED CULVERT
- ROCK BERM
- FLOW ARROW
- STABILIZED CONSTRUCTION ENTRANCE
- CONSTRUCTION STAGING AREA
- CONCRETE WASHOUT AREA
- PROPOSED ROAD PAVEMENT
- VEGETATED FILTER STRIP
- PROPOSED SILT FENCE (SF)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
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SCALE: 1"=40'
0 20' 40' 60' 80'
SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
8/22/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900
3503 SHELL ROAD SUITE 2
SAN ANTONIO, TEXAS 78828
OFFICE: 512.868.2244

CONTRIBUTING ZONE PLAN (SHEET 2)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG802

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	05 OF 45

Z:\PROJECTS\3388 - Embrey_Johnson Way MF\CU5 Contributing Zone Plan (Sheet 2).dwg

CONTRIBUTING ZONE SITE PLAN

1.4.2 Temporary Construction Entrance/Exit

The purpose of a temporary gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way, street, alley, sidewalk or parking area. The purpose of a stabilized construction entrance is to reduce or eliminate the tracking or flowing of sediment onto public rights-of-way. This practice should be used at all points of construction ingress and egress. Schematic diagrams of a construction entrance/exit are shown in Figure 1-24 and Figure 1-25.

Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected were access is not necessary. A rock stabilized construction entrance should be used at all designated access points.

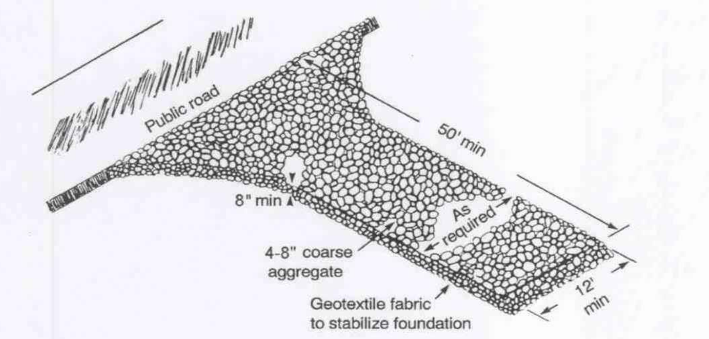


Figure 1-24 Schematic of Temporary Construction Entrance/Exit (after NC, 1993)

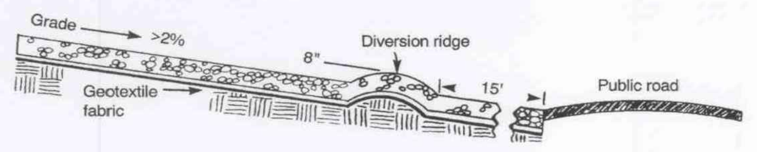


Figure 1-25 Cross-section of a Construction Entrance/Exit (NC, 1993)

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft^2, and Brindell hardness exceeding 140. Rebar (either #5 or #6) may also be used to anchor the berm.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

(4) The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.

(5) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1-inch openings.

(2) Install the silt fence along the center of the proposed berm placement, as with a normal silt fence described in Section 2.4.3.

(3) Place the rock along the sheathing on both sides of the silt fence as shown in the diagram (Figure 1-29), to a height not less than 24 inches. Clean, open graded 3-5" diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rock may be used.

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

(5) The high service rock berm should be removed when the site is revegetated or otherwise stabilized or it may remain in place as a permanent BMP if drainage is adequate.

Common trouble points

(1) Inadequate runoff control – sediment washes onto public road.

(2) Stone too small or geotextile fabric absent, results in muddy condition as stone is pressed into soil.

(3) Pad too short for heavy construction traffic – extend pad beyond the minimum 50 foot length as necessary.

(4) Pad not flared sufficiently at road surface, results in mud being tracked on to road and possible damage to road edge.

(5) Unstable foundation – use geotextile fabric under pad and/or improve foundation drainage.

Inspection and Maintenance Guidelines:

(1) The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.

(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.

(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.

(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

1.4.18 Concrete Washout Areas

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.

For onsite washout:

- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility (type above grade) should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

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.

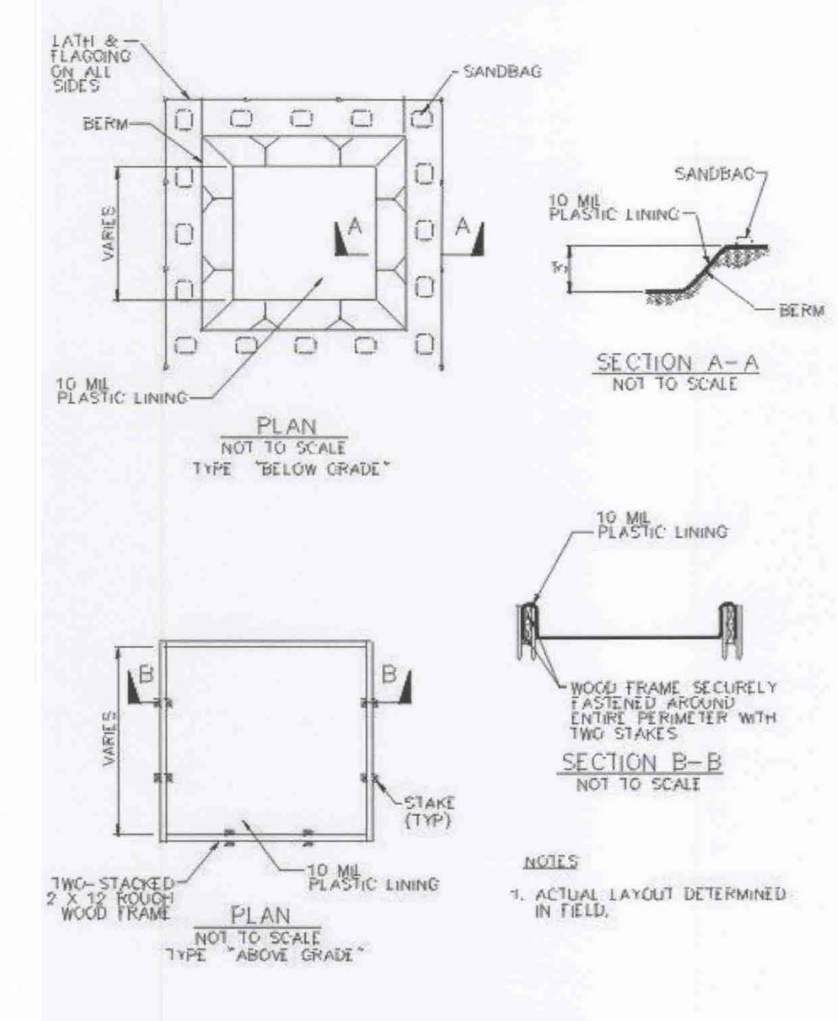


Figure 1-43 Schematics of Concrete Washout Areas

1.4.5 Rock Berms

The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures farther up the watershed.

Materials:

(1) The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.

(2) Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

(1) Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.

(2) Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.

(3) Place the rock along the sheathing as shown in the diagram (Figure 1-28), to a height not less than 18".

(4) Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.

(5) Berm should be built along the contour at zero percent grade or as near as possible.

(6) The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

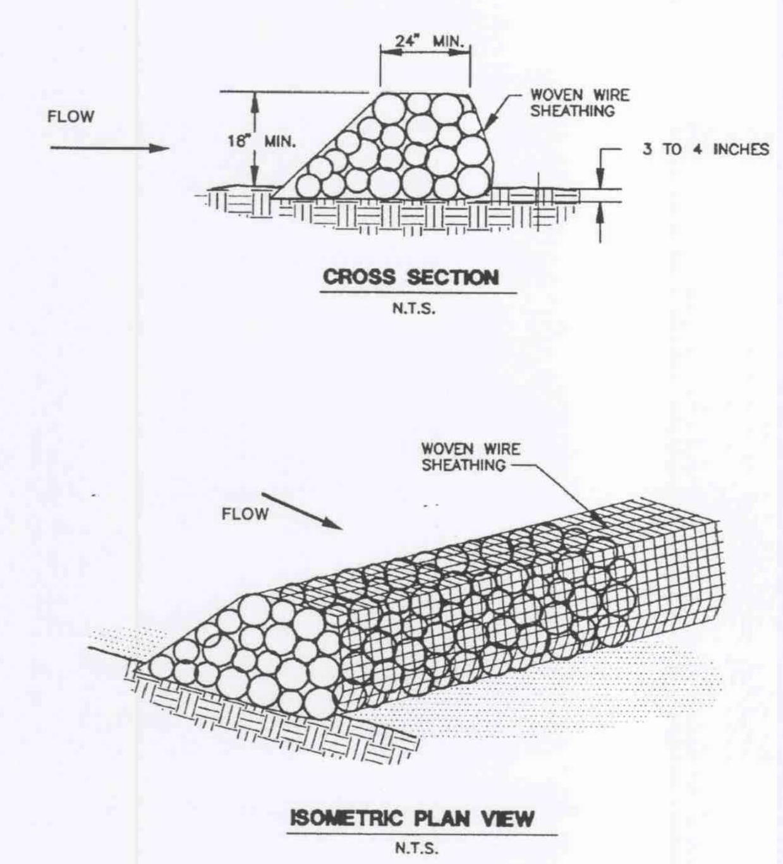


Figure 1-28 Schematic Diagram of a Rock Berm (NCTCOG, 1993)

Common Trouble Points:

(1) Insufficient berm height or length (runoff quickly escapes over the top or around the sides of berm)

(2) Berm not installed perpendicular to flow line (runoff escaping around one side)

Inspection and Maintenance Guidelines:

(1) Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.

(2) Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.

(3) Repair any loose wire sheathing.

(4) The berm should be reshaped as needed during inspection.

(5) The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.

(6) The rock berm should be left in place until all upstream areas are stabilized and accumulated silt removed.

1.4.3 Silt Fence

A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond, allowing heavier solids to settle out. If not properly installed, silt fences are not likely to be effective. A schematic illustration of a silt fence is shown in Figure 1-26.

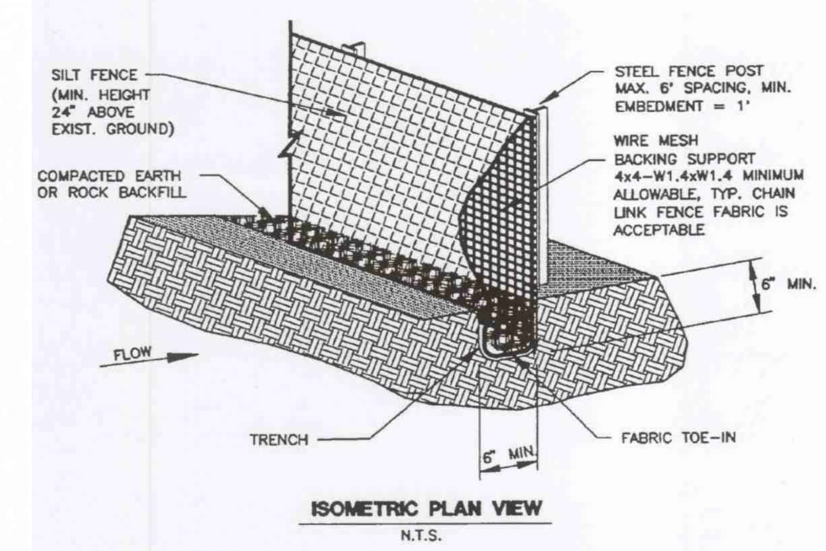


Figure 1-26 Schematic of a Silt Fence Installation (NCTCOG, 1993b)

The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

(1) Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in^2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

(2) Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft^2, and Brindell hardness exceeding 140.

(3) Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

(1) Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1-foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

(2) Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

(3) The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

(4) 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.

(5) Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

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

Common Trouble Points:

(1) Fence not installed along the contour causing water to concentrate and flow over the fence.

(2) Fabric not seated securely to ground (runoff passing under fence)

(3) Fence not installed perpendicular to flow line (runoff escaping around sides)

(4) Fence treating too large an area, or excessive channel flow (runoff overtops or collapses fence)

Inspection and Maintenance Guidelines:

(1) Inspect all fencing weekly, and after any rainfall.

(2) Remove sediment when buildup reaches 6 inches.

(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.

(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.

(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

VEGETATIVE FILTER STRIPS

3.2.4 Vegetative Filter Strips

Filter strips, also known as vegetated buffer strips, are vegetated sections of land similar to grassy swales, except they are essentially flat with low slopes, and are designed only to accept runoff as overland sheet flow. A photograph of a vegetated buffer strip is shown in Figure 3-3. The dense vegetative cover facilitates conventional pollutant removal through detention, filtration by vegetation, and infiltration (Young et al., 1996).

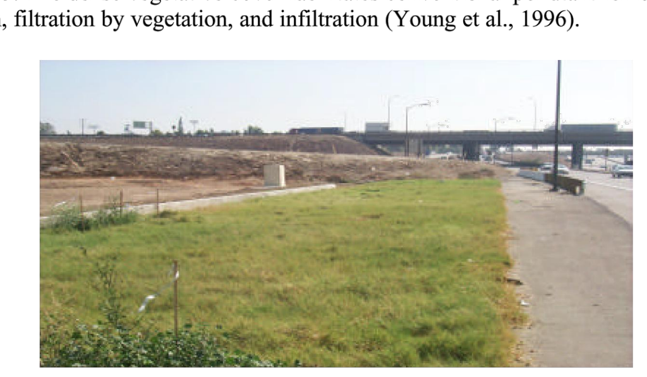


Figure 3-3 Filter Strip

Filter strips cannot treat high velocity flows, and do not provide enough storage or infiltration to effectively reduce peak discharges to predevelopment levels for design storms (Schueler et al., 1992). This lack of quantity control restricts their use to relatively small tributary areas.

There are three primary applications for vegetative filter strips. One application is as an interim measure on a phased development. Another is along roadways where runoff that would otherwise discharge directly to a receiving water, passes through the filter strip before entering a conveyance system. Properly designed roadway medians and shoulders make effective vegetated filter strips. The third application is land in the natural condition adjacent to perimeter lots in subdivisions that will not drain via gravity to other BMPs.

Vegetative filter strips can be implemented as an interim BMP on a phased project where the initial level of development results in less than 20% impervious cover in a sub-watershed on the tract. The requirements for this type of installation are less stringent than those implemented as a permanent BMP and level spreaders are acceptable for distributing the flow over the strip. Once the impervious cover in a sub-watershed exceeds 20%, a permanent BMP such as a sand filter or pond must be constructed to treat the runoff.

In vegetative filter strips implemented as a permanent and final BMP, the catchment area must have sheet flow to the filter strips without the use of a level spreader. Although an inexpensive control measure, they are most useful in contributing watershed areas where

peak runoff velocities are low, as they are unable to treat the high flow velocities typically associated with high impervious cover.

Successful performance of filter strips relies heavily on maintaining shallow unconcentrated flow. To avoid flow channelization and maintain performance, a filter strip should:

- Contain dense vegetation with a mix of erosion resistant, soil binding species
- Engineered vegetated filter strips should be graded to a uniform, even and a slope of less than 20%
- Natural vegetated filter strip slopes should not exceed 10%, providing that there are no flow concentrating areas on the strip.
- Laterally traverse the contributing runoff area (Schueler, 1987)

Filter strips can be used upgradient from watercourses, wetlands, or other water bodies, along toes and tops of slopes, and at outlets of other stormwater management structures. They should be incorporated into street drainage and master drainage planning (Urbonas et al., 1992). The most important criteria for selection and use of this BMP are soils, space, and slope.

Selection Criteria

- Soils and moisture are adequate to grow relatively dense vegetative stands
- Sufficient space is available
- Slope is less than 20%
- Comparable performance to more expensive structural controls

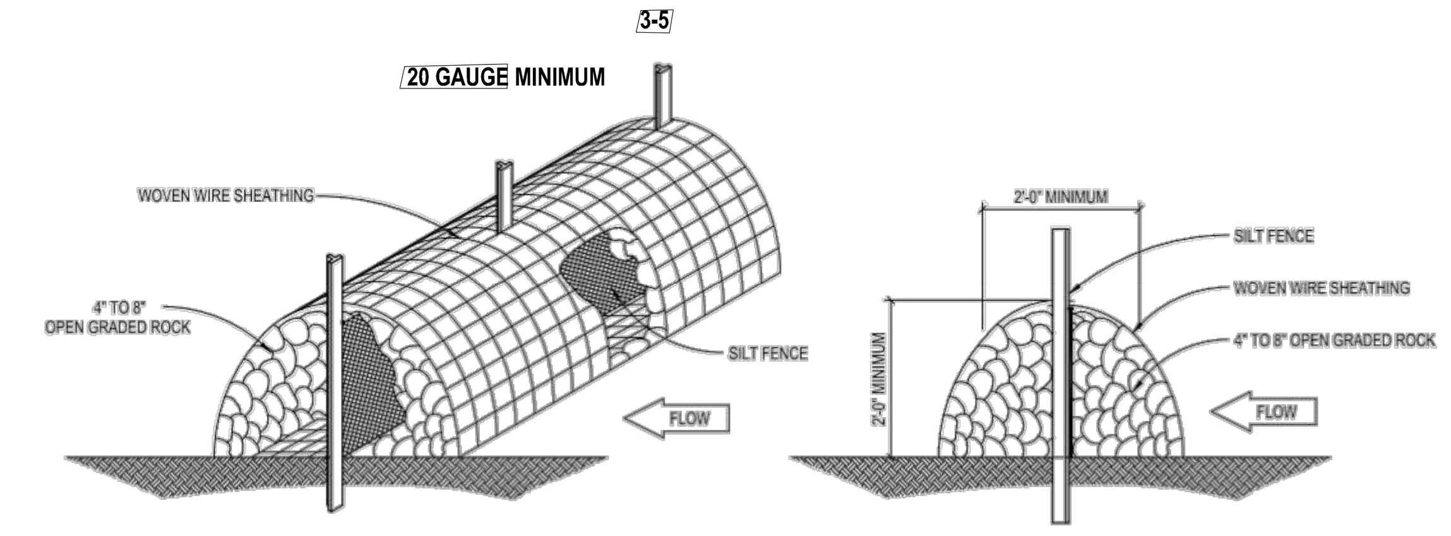
Limitations (NCTCOG, 1993)

- Can be difficult to maintain sheet flow
- Cannot be placed on steep slopes
- Area required may make infeasible on some sites

Cost Considerations

Filter strips are one of the least expensive stormwater treatment options and cost less to construct than curb and gutter drainage systems.

3-5



INSTALLATION NOTES:

1. LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
2. CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
3. PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
4. INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DETAIL [01, CG851].
5. PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
6. WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
7. SECURE WITH TIE WIRE.
8. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

ROCK BERM NOTES:

1. USE ONLY OPEN GRADED ROCK 4-8 INCHES DIAMETER FOR STREAM FLOW CONDITION; USE OPEN GRADED ROCK 3-5 INCHES DIAMETER FOR OTHER CONDITIONS.
2. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 1 INCH OPENING AND MINIMUM WIRE DIAMETER OF 1/32 INCH.
3. THE ROCK BERM SHALL BE INSPECTED WEEKLY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN WIRE SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 12 INCHES, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED SITE AND IN A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SERVICE ROCK BERMS; SILT SHALL BE REMOVED WHEN ACCUMULATION REACHES 6 INCHES.
6. WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
8/22/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244
TEXAS REGISTERED ENGINEERING FIRM F-004512 SURVEYING FIRM F-10024000

CONTRIBUTING ZONE DETAILS

FOR

JOHNSON RANCH BTR

COMAL COUNTY, TEXAS

CG803

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	06 OF 45

80% TSS Removal Calculation (TCEQ) As Permitted

Drainage Area				On-Site Impervious Area	Off-Site Impervious Area	TSS Removed with BMPs	WQ Pond Required Volume	WQ Pond Provided Volume
WS	On-Site (AC)	Off-Site (AC)	Total (AC)	*Total (AC)*	*Total (AC)*	*Lbs/Year*	*Cubic Feet*	*Cubic Feet*
WQP-A1 (North)	9.76	0.00	9.76	5.89	0.00	6,028	53,932	57,450
WQP-A2 (South)	5.68	0.00	5.68	3.35	0.00	2,269	6,694	6,890
WQP-A3 (Central)	1.11	0.00	1.11	0.70	0.00	730	7,850	8,015
VFS	5.25	0.00	5.25	2.13	0.00	2,125	N/A	N/A
ByPass	0.67	0.00	0.67	0.33	0.00	N/A	N/A	N/A
Totals:	22.47	0.00	22.47	12.40	0.00	**11,152**		

Total Required Project TSS Removal **11,130** lbs -22 lbs/yr over 80% removal

Notes:

1) The "ByPass" Impervious Cover is not being treated by a permanent BMP. Other BMPs are oversized to achieve required removal efficiency.

LEGEND

- PROPERTY BOUNDARY
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR (1380)
- PROPOSED 2' CONTOUR
- PROPOSED 10' CONTOUR (1245)
- WATERSHED BOUNDARY
- VEGETATIVE FILTER STRIP (VFS)
- SLOPE ARROW
- WATERSHED IDENTIFICATION / WATERSHED AREA (AC): X-X / X.XXX
- WATER QUALITY POND: WQP-XX

N

SCALE: 1"=100'

0 50' 100' 150' 200'

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
8/22/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
3303 SHELL ROAD SUITE 1
SAN ANTONIO, TEXAS 78123
OFFICE: 512.868.2244
SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900

CZP WATERSHED DRAINAGE MAP
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

FIG. 02.14.04

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 3388.00 Johnson Way, Bulverde ETJ
Date Prepared: 6/8/2023

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

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

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

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

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

County =	Comal	
Total project area included in plan * =	22.47	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	12.40	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	11130	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. = VFS

Total drainage basin/outfall area =	5.25	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	2.13	acres
Post-development impervious fraction within drainage basin/outfall area =	0.41	
$L_{M\ THIS\ BASIN}$ =	1912	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

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

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 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 =	5.25	acres
A_I =	2.13	acres
A_P =	3.12	acres
L_R =	2114	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 2125 lbs.

F = 1.00

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

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.31	
On-site Water Quality Volume =	23603	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 =	4721	
Total Capture Volume (required water quality volume(s) x 1.20) =	28323	cubic feet

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
6/22/23

REVISIONS:

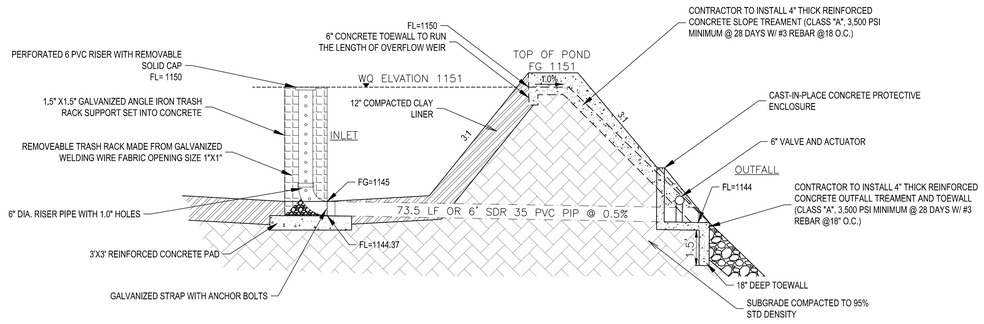
MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900
3303 SHELL ROAD SUITE 1
CORPUS CHRISTI, TX 78418
OFFICE: 512.868.2244

CZP WATERSHED VEGETATIVE FILTER STRIP CALCS
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

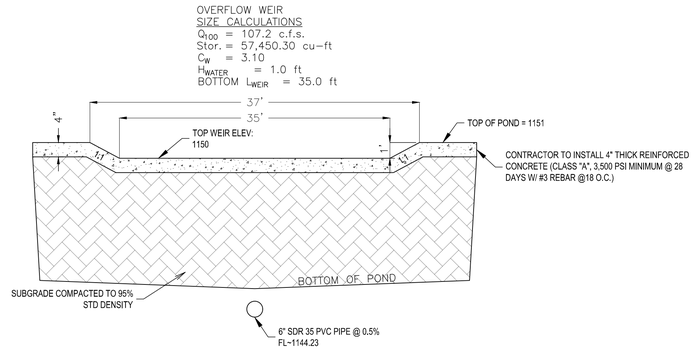
FIG. 02.14.05

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	

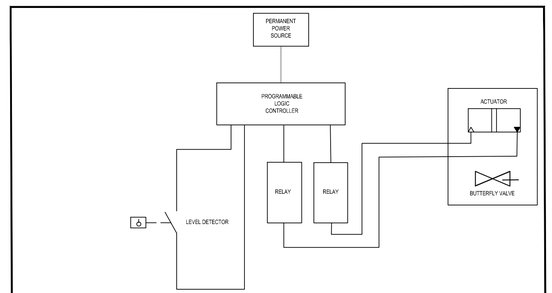
Date: Aug 22, 2023, 4:44pm User ID: mhubble



DETENTION POND OUTFALL SECTION "A"

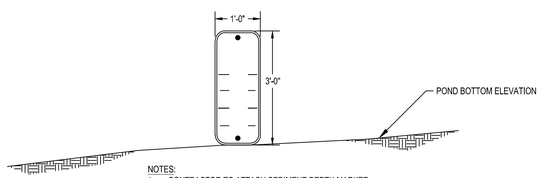


DETENTION POND OUTFALL SECTION "B"



BLOCK DIAGRAM OF CIRCUIT FOR WATER QUALITY POND

NOT TO SCALE



NOTES:
1. CONTRACTOR TO ATTACH SEDIMENT DEPTH MARKER NEAR THE WATER QUALITY POND INLET RISER.

SEDIMENT DEPTH MARKER

NOT TO SCALE

LEGEND

PROPERTY BOUNDARY	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	1300
PROPOSED 1' CONTOUR	1381
PROPOSED 5' CONTOUR	1380
PROPOSED GRADE/ SLOPE DIRECTION	1.0%
SLOPE ARROW	
[DETAIL, SHEET]	[01, CG822]

N

SCALE: 1"=20'

0 10' 20' 30' 40'

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
8/22/23

REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900
3310 SHELL ROAD SUITE 1
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244

WATER QUALITY POND A1 DETAILS (SHEET 1)

FOR

JOHNSON RANCH BTR

COMAL COUNTY, TEXAS

CG408

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	17 OF 45

Z:\PROJECTS\3388 - Embrey, Johnson Way MF\C17 Water Quality Pond A1 Details (Sheet 1).dwg

BATCH DETENTION POND SUMMARY:

THE WATER QUALITY VOLUME WAS CALCULATED USING THE BELOW TABLES PROVIDED BY TCEQ. THESE TABLES WERE MODIFIED TO CALCULATE 80% TSS REMOVAL PER TCEQ REQUIREMENTS. A WATER QUALITY POND WILL BE PROVIDED FOR THIS SITE TO OBTAIN THE MINIMUM 80% TSS REMOVAL. THE CALCULATED REQUIRED WATER QUALITY VOLUME IS 53,932.00 C.F. A VOLUME OF 57,450.30 C.F. AND ELEVATION OF 1150.0 WAS DEDICATED TO WATER QUALITY IN THE PROPOSED BATCH DETENTION POND. REFERENCE THIS SHEET FOR POND DETAILS.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 3388.00 Johnson Way, Bulverde ETJ
Date Prepared: 7/18/2023

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

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

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

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

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

County =	Comal	
Total project area included in plan * =	22.47	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	12.40	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	11130	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. = A1 - North

Total drainage basin/outfall area =	9.76	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	5.89	acres
Post-development impervious fraction within drainage basin/outfall area =	0.60	
$L_{M\ THIS\ BASIN}$ =	5287	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

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

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

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

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

A_C =	9.76	acres
A_I =	5.89	acres
A_P =	3.87	acres
L_R =	6183	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 6028 lbs.

F = 0.97

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 =	3.00	inches
Post Development Runoff Coefficient =	0.42	
On-site Water Quality Volume =	44944	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 =	8989	
Total Capture Volume (required water quality volume(s) x 1.20) =	53932	cubic feet

POND CLAY LINER SPECIFICATIONS:

1. PONDS SHALL BE MAINTAINED BY THE PROPERTY OWNER

2. 12" CLAY LINER TO BE PLACED WITHIN THE WHOLE OF THE WET PERIMETER OF THE POND. THE WET PERIMETER SURFACE IS THE AREA OF THE POND THAT STARTS AT THE LOWEST, BOTTOM PART OF THE POND AND EXTENDS OUT AND UP TO THE TOP INSIDE EDGE OF THE BERM.

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1 x 10^-6
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

3. A GEOMEMBER LINER CAN BE USED INSTEAD OF A CLAY LINER. THE LINER SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. IT ALSO MUST COVER THE WET PERIMETER SURFACE OF THE POND.

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd2	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D1682	lb	200
Equiv. Opening Size	US Standard Sieve	No.	80

STORMWATER MANAGEMENT POND FLOW CONTROL RELEASE VALVE CIRCUIT DIAGRAM NOTES:

OVERVIEW:
THE BASIN IS TYPICALLY FILLED QUICKLY BY STORMWATER MAKING THE INFLUENCE TIME RELATIVELY SHORT. THE RESIDENCE TIME OF THE STORMWATER IS TWELVE (12) HOURS AND IS CONTROLLED BY THE RELEASE VALVE (NORMALLY SHUT) AND ACTUATOR THAT ARE INSTALLED ON THE OUTLET STRUCTURE OF THE WATER QUALITY POND. THE CONTROL VALVE OPENS ONCE THE DESIRED RESIDENCE TIME IS ACHIEVED AFTER A STORM EVENT. THE TREATED WATER IS RELEASED SLOWLY OVER A TIME OF 24 TO 48 HOURS INTO THE DETENTION POND.

VALVE/ACTUATOR:
THE VALVE/ACTUATOR ASSEMBLY CONSISTS OF A BUTTERFLY VALVE WITH A SMALL 12VC DC ACTUATOR. THE VALVE IS A QUARTER TURN VALVE. THE ACTUATOR OPERATES THE VALVE BETWEEN THE FULL O PEN AND FULL CLOSED POSITIONS. A MECHANICAL HAND CRANK ALLOWS A PHYSICAL OVERRIDE OF THE VALVE POSITION.

THE VALVE IS A KEYSTONE 6-INCH(100MM) BUTTERFLY VALVE MOUNTED WITH AN EPI-5 12V DC ACTUATOR. THE EPI-6 ACTUATOR REQUIRES AN OPEN OR CLOSE SIGNAL OF 10 SECONDS. THE ACTUATOR HAS LIMIT SWITCHES THAT DETECT END OF TRAVEL AND SHUT OFF THE INCOMING OPEN OR CLOSE SIGNAL TO THE ACTUATOR ONCE THE VALVE REACHES THE FULL OPEN OR CLOSED POSITION. OPEN TORQUE SENSORS WILL SHUT DOWN THE ACTUATOR IN THE EVENT OF AN OVER TORQUE SITUATION.

CONTROLLER SYSTEM SPECIFICATIONS:
POWER – THE CONTROLLER SHALL BE POWERED BY A SELF-CONTAINED, RENEWABLE POWER SOURCE (SUCH AS SOLAR POWER) IF ELECTRICAL POWER IS NOT AVAILABLE. A SINGLE SUPPLY VOLTAGE FOR ALL COMPONENTS IS DESIRABLE.
PROGRAMMABILITY – THE CONTROLLER SHALL BE PROGRAMMABLE. IT SHALL BE POSSIBLE TO UPDATE PROGRAMS IN THE FIELD. THE DETENTION TIME AND DRAW-DOWN TIME SHALL BE ADJUSTABLE IN HOURS FROM 0 HOURS TO 72 HOURS. THE CONTROLLER SHALL BE PROGRAMMED TO HOLD THE STORMWATER EVENT FOR A MINIMUM OF 12 HOURS AND RELEASE THE BASIN AT THE FOLLOWING 6 A.M. TIME PERIOD. IF 6 A.M. FALLS BEFORE THE MINIMUM 12 HOURS RETENTION TIME THAN THE VALVE WILL STAY CLOSED UNTIL THE FOLLOWING 6 A.M. TIME PERIOD. STORMWATER WILL BE HELD IN THE BASIN FOR A FULL OVERNIGHT THERMAL EXCHANGE CYCLE.
EVENT SENDING – THE CONTROLLER SHALL BE ABLE TO SENSE THE BEGINNING OF A STORM (WATER FILLING THE BASIN), AND THE END OF A STORM (WATER DRAINING FROM THE BASIN).
ENVIRONMENT – THE CONTROLLER SHALL OPERATE IN TEMPERATURES FROM 0°C TO 55°C, IN HUMIDITY FROM 10% TO 90% (NON-CONDENSING). THE CONTROLLER SHALL OPERATE DURING PERIODS OF RAINFALL.
SAFETY/SECURITY – THE SYSTEM COMPONENTS SHALL BE LOCKED IN AN ENCLOSURE TO PREVENT ACCIDENTAL CONTRACT THAT COULD COMPROMISE THE FUNCTION OF THE APPARATUS OR CAUSE INJURY.
COMPONENTS – COMPONENT PARTS OF THE CONTROLLER SHALL BE OFF THE SHELF, MULTIPLE SOURCE PARTS WHERE POSSIBLE.
MAINTENANCE – THE CONTROLLER SHALL REQUIRE MINIMAL PERIODIC MAINTENANCE. THE CONTROLLER PROGRAM SHALL BE FIELD UPGRADEABLE. THE ABILITY TO MANUALLY OPERATE THE VALVE SHALL BE PROVIDED.
RELIABILITY – 40,000 HOURS (4.6 YEARS) OR GREATER.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, DESIGN OF SENSOR, AUTOMATIC VALVE, CONTROLLER, ETC. TO ENGINEER FOR REVIEW AND APPROVAL.

STORAGE VOLUMES - WQP - A1 (NORTH)

STAGE (FT)	ELEVATION (FT)	AREA (SQFT)	VOLUME (FT^3)	CUMULATIVE (FT^3)	NOTES
0.00	1145.00	0.18	-	-	
0.25	1145.25	1,997.89	249.76	249.76	
0.50	1145.50	6,236.35	1,029.28	1,279.04	
0.75	1145.75	8,744.29	1,872.58	3,151.62	
1.00	1146.00	9,439.54	2,272.98	5,424.60	
1.25	1146.25	9,921.99	2,420.19	7,844.79	
1.50	1146.50	10,910.80	2,604.10	10,448.89	
1.75	1146.75	12,063.61	2,871.80	13,320.69	
2.00	1147.00	12,327.01	3,048.83	16,369.52	
2.25	1147.25	12,551.76	3,109.85	19,479.36	REQUIRED
2.50	1147.50	12,777.36	3,166.14	22,645.50	VOLUME:
2.75	1147.75	13,003.82	3,222.65	25,868.15	53,932 CF
3.00	1148.00	13,231.13	3,279.37	29,147.52	
3.25	1148.25	13,459.31	3,336.31	32,483.82	
3.50	1148.50	13,688.34	3,393.46	35,877.28	
3.75	1148.75	13,918.23	3,450.82	39,328.10	
4.00	1149.00	14,148.99	3,508.40	42,836.50	
4.25	1149.25	14,380.62	3,566.20	46,402.71	
4.50	1149.50	14,613.13	3,624.22	50,026.92	
4.75	1149.75	14,846.52	3,682.46	53,709.38	
5.00	1150.00	15,080.81	3,740.92	**57,450.30**	
5.00	1150.00	15,080.81	-	57,450.30	
5.25	1150.25	15,316.01	3,799.60	61,249.90	
5.50	1150.50	15,552.14	3,858.52	65,108.42	1' FREE BOARD
5.75	1150.75	15,789.24	3,917.67	69,026.09	
6.00	1151.00	16,032.73	3,977.75	73,003.84	

80% TSS Removal Calculation (TCEQ) As Permitted

Drainage Area				On-Site Impervious Area	Off-Site Impervious Area	TSS Removed with BMPs	WQ Pond Required Volume	WQ Pond Provided Volume
WS	On-Site (AC)	Off-Site (AC)	Total (AC)	*Total (AC)*	*Total (AC)*	*Lbs/Year*	*Cubic Feet*	*Cubic Feet*
WQP-A1 (North)	9.76	0.00	9.76	5.89	0.00	6,028	53,932	57,450
WQP-A2 (South)	5.68	0.00	5.68	3.35	0.00	2,269	6,694	6,890
WQP-A3 (Central)	1.11	0.00	1.11	0.70	0.00	730	7,850	8,015
VFS	5.25	0.00	5.25	2.13	0.00	2,125	N/A	N/A
ByPass	0.67	0.00	0.67	0.33	0.00	N/A	N/A	N/A
Totals:	22.47	0.00	22.47	12.40	0.00	**11,152**		

Total Required Project TSS Removal	**11,130** lbs	-22 lbs/yr	over 80% removal

Notes:
1) The "ByPass" Impervious Cover is not being treated by a permanent BMP. Other BMPs are oversized to achieve required removal efficiency.

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
7/22/23

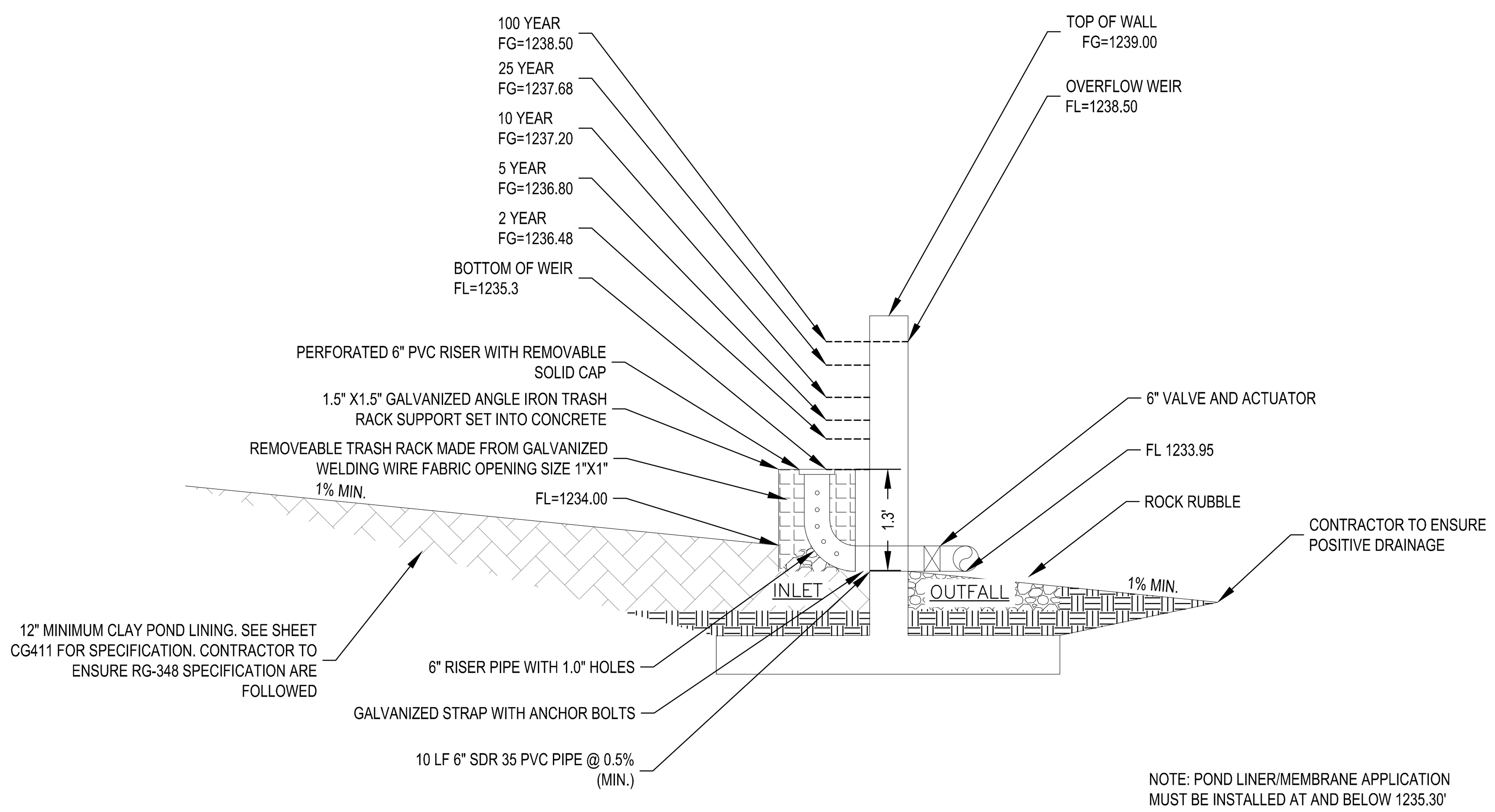
REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
3303 SHELL ROAD SUITE 1
BRYAN, TEXAS 77808
OFFICE: 512.868.2244
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900

WATER QUALITY POND A1 DETAILS (SHEET 2)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG409

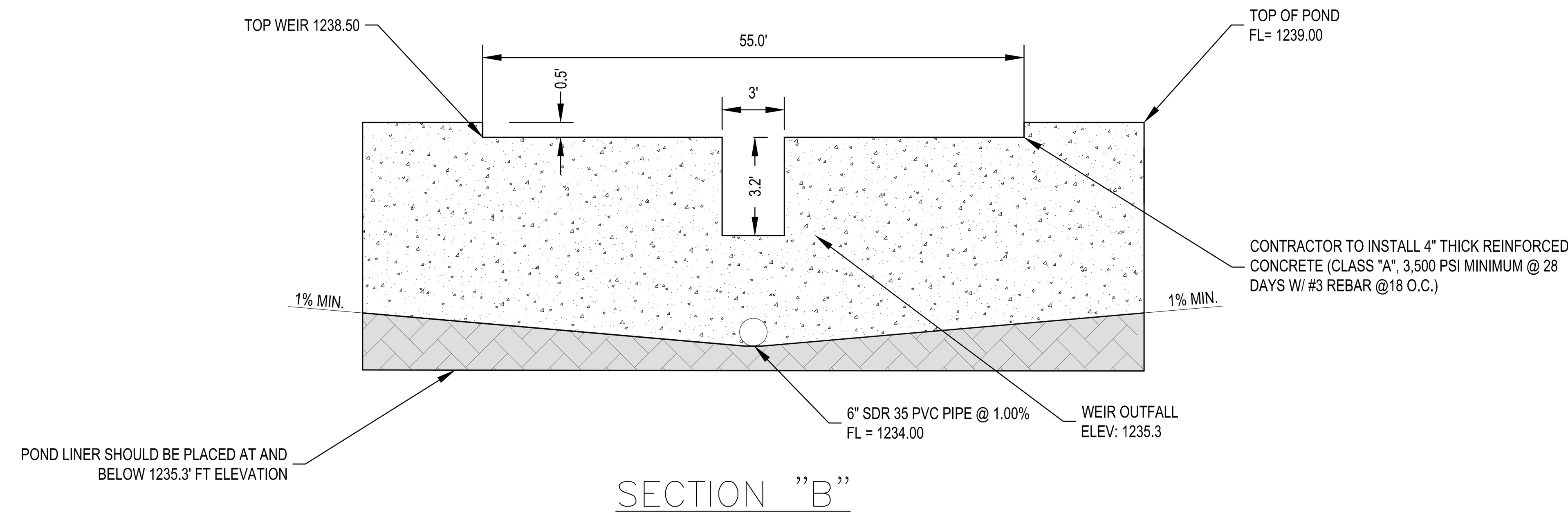
JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	18 OF 45



DETENTION POND OUTFALL SECTION "A"

OVERFLOW WEIR
SIZE CALCULATIONS

Q_{100} = 62.4 c.f.s.
C_W = 3.33
H_{WATER} = 0.5 ft
L_{WEIR} = 55 ft
Q_{MAX} = 71.1 c.f.s.



DETENTION POND OUTFALL SECTION "B"

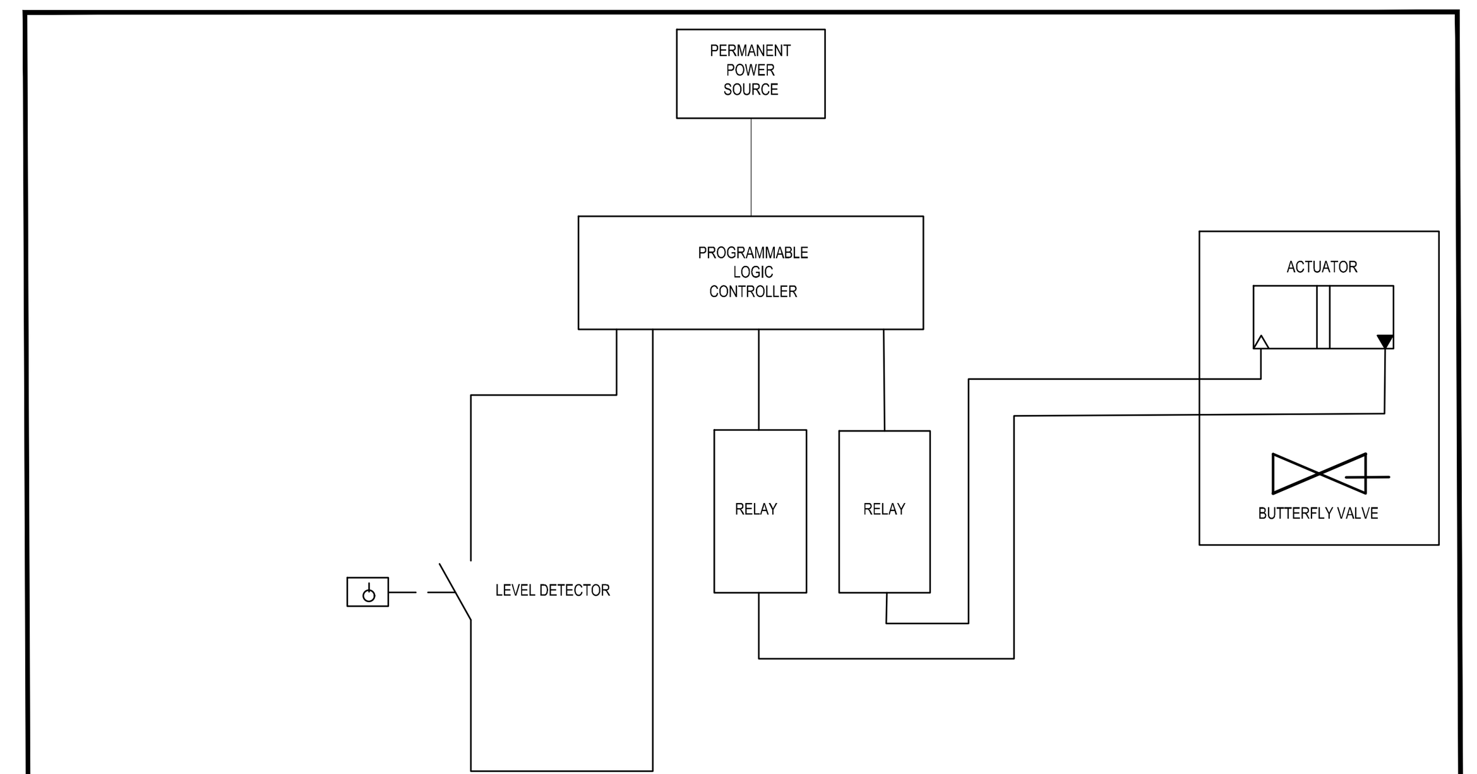
LEGEND

PROPERTY BOUNDARY	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	1300
PROPOSED 1' CONTOUR	1381
PROPOSED 5' CONTOUR	1380
PROPOSED GRADE/ SLOPE DIRECTION	1.0%
SLOPE ARROW	
[DETAIL, SHEET]	[01, CG822]

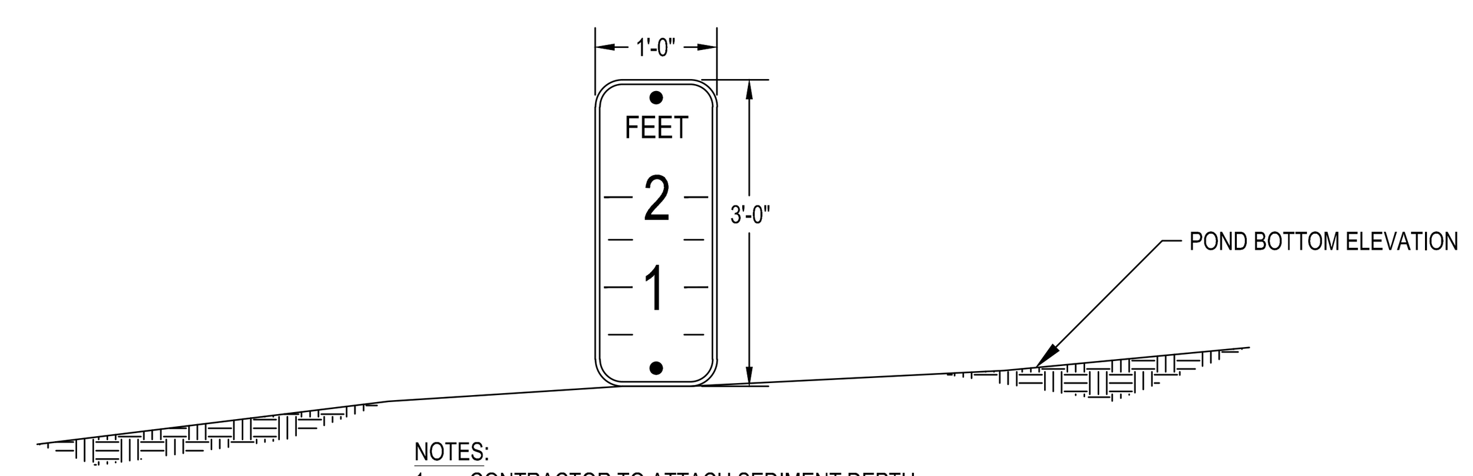
N

SCALE: 1"=20'
0 10' 20' 30' 40'
SHEET SIZE: 24" x 36"

REVISIONS:



BLOCK DIAGRAM OF CIRCUIT FOR WATER QUALITY POND
NOT TO SCALE



NOTES:
1. CONTRACTOR TO ATTACH SEDIMENT DEPTH MARKER ON WATER QUALITY POND WALL.

SEDIMENT DEPTH MARKER
NOT TO SCALE

MATKINHOOVER
ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
3303 SHELL ROAD SUITE 3
GEORGETOWN, TEXAS 78628
OFFICE: 512.868.2244
TEXAS REGISTERED ENGINEERING FIRM F-004512 SURVEYING FIRM F-10024000

WATER QUALITY POND A2 DETAILS (SHEET 1)

FOR

JOHNSON RANCH BTR

COMAL COUNTY, TEXAS

CG410

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	19 OF 45

BATCH DETENTION POND SUMMARY:

THE WATER QUALITY VOLUME WAS CALCULATED USING THE BELOW TABLES PROVIDED BY TCEQ. THESE TABLES WERE MODIFIED TO CALCULATE 80% TSS REMOVAL PER TCEQ REQUIREMENTS. A WATER QUALITY POND WILL BE PROVIDED FOR THIS SITE TO OBTAIN THE MINIMUM 80% TSS REMOVAL. THE CALCULATED REQUIRED WATER QUALITY VOLUME IS 6,694 C.F. FOR THE PURPOSE OF PROVIDING DETENTION A CALCULATED VOLUME OF 6,995.52 C.F. AT ELEVATION 1235.25 WAS DEDICATED TO WATER QUALITY IN THE PROPOSED BATCH DETENTION POND. REFERENCE THIS SHEET FOR POND DETAILS.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 3388.00 Johnson Way, Bulverde ETJ
Date Prepared: 6/8/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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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 =	Comal	
Total project area included in plan * =	22.47	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	12.40	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	11130	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. = A2 - South

Total drainage basin/outfall area =	5.68	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	3.35	acres
Post-development impervious fraction within drainage basin/outfall area =	0.59	
$L_{M\ THIS\ BASIN}$ =	3007	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
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Vegetated Filter Strips
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4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

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where:
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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 =	5.68	acres
A_I =	3.35	acres
A_P =	2.33	acres
L_R =	3519	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 2269 lbs.

F = 0.64

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 =	0.66	inches
Post Development Runoff Coefficient =	0.41	
On-site Water Quality Volume =	5578	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 =	1116	
Total Capture Volume (required water quality volume(s) x 1.20) =	6694	cubic feet

POND CLAY LINER SPECIFICATIONS:

1. PONDS SHALL BE MAINTAINED BY THE PROPERTY OWNER

2. 12" CLAY LINER TO BE PLACED WITHIN THE WHOLE OF THE WET PERIMETER OF THE POND. THE WET PERIMETER SURFACE IS THE AREA OF THE POND THAT STARTS AT THE LOWEST, BOTTOM PART OF THE POND AND EXTENDS OUT AND UP TO THE TOP INSIDE EDGE OF THE BERM.

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OVERVIEW:
THE BASIN IS TYPICALLY FILLED QUICKLY BY STORMWATER MAKING THE INFLUENCE TIME RELATIVELY SHORT. THE RESIDENCE TIME OF THE STORMWATER IS TWELVE (12) HOURS AND IS CONTROLLED BY THE RELEASE VALVE (NORMALLY SHUT) AND ACTUATOR THAT ARE INSTALLED ON THE OUTLET STRUCTURE OF THE WATER QUALITY POND. THE CONTROL VALVE OPENS ONCE THE DESIRED RESIDENCE TIME IS ACHIEVED AFTER A STORM EVENT. THE TREATED WATER IS RELEASED SLOWLY OVER A TIME OF 24 TO 48 HOURS INTO THE DETENTION POND.

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MAINTENANCE – THE CONTROLLER SHALL REQUIRE MINIMAL PERIODIC MAINTENANCE. THE CONTROLLER PROGRAM SHALL BE FIELD UPGRADEABLE. THE ABILITY TO MANUALLY OPERATE THE VALVE SHALL BE PROVIDED.
RELIABILITY – 40,000 HOURS (4.6 YEARS) OR GREATER.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, DESIGN OF SENSOR, AUTOMATIC VALVE, CONTROLLER, ETC. TO ENGINEER FOR REVIEW AND APPROVAL.

DETENTION POND ANALYSIS FOR PEAK FLOW

STORM EVENT FREQUENCY	INFLOW (CFS)	OUTFLOW (CFS)	WATER ELEVATION (FT)	STORAGE (CU-FT)
2-YR	12.1	1.3	727.7	21,780
10-YR	20.5	9.5	728.8	39,203
25-YR	7.5	5.7	279.2	47,915
100-YR	56.0	27.7	729.7	60,984

STORAGE VOLUMES - WQ BATCH DETENTION - A2 (SOUTH)

WQP - A2 (SOUTH)

WQP DEPTH (FT)	STAGE (FT)	ELEVATION	AREA SQFT	VOLUME (FT3)	CUMULATIVE (FT3)	WQP CUMULATIVE (FT3)	NOTES
0.00	0.00	1234.00	0.12	-	-	-	REQUIRED VOLUME: 6,694 CF
0.25	0.25	1234.25	900.00	112.52	112.52	112.52	
0.50	0.50	1234.50	2,983.00	485.38	597.89	597.89	
0.75	0.75	1234.75	6,221.00	1,150.50	1,748.39	1,748.39	
1.00	1.00	1235.00	10,400.00	2,077.63	3,826.02	3,826.02	
1.25	1.25	1235.25	14,956.00	3,169.50	6,995.52	**6,995.52**	

DETENTION - A2 (SOUTH)

DETENTION DEPTH (FT)	STAGE (FT)	ELEVATION	AREA SQFT	VOLUME (FT3)	CUMULATIVE (FT3)	DETENTION CUMULATIVE (FT3)	NOTES
0.00	1.25	1235.25	14,956.00	-	6,995.52	-	
0.25	1.50	1235.50	17,125.00	4,010.13	11,005.64	4,010.13	
0.50	1.75	1235.75	17,450.00	4,321.88	15,327.52	8,332.00	
0.75	2.00	1236.00	17,450.00	4,362.50	19,690.02	12,694.50	
1.00	2.25	1236.25	17,450.00	4,362.50	24,052.52	17,057.00	
1.25	2.50	1236.50	17,450.00	4,362.50	28,415.02	21,419.50	
1.50	2.75	1236.75	17,450.00	4,362.50	32,777.52	25,782.00	100-YR VOLUME: 55,982
1.75	3.00	1237.00	17,450.00	4,362.50	37,140.02	30,144.50	
2.00	3.25	1237.25	17,450.00	4,362.50	41,502.52	34,507.00	
2.25	3.50	1237.50	17,450.00	4,362.50	45,865.02	38,869.50	
2.50	3.75	1237.75	17,450.00	4,362.50	50,227.52	43,232.00	
2.75	4.00	1238.00	17,450.00	4,362.50	54,590.02	47,594.50	
3.00	4.25	1238.25	17,450.00	4,362.50	58,952.52	51,957.00	
3.25	4.50	1238.50	17,450.00	4,362.50	63,315.02	**56,319.50**	
3.25	4.50	1238.50	17,450.00	-	63,315.02	56,319.50	6" FREE BOARD
3.50	4.75	1238.75	17,450.00	4,362.50	67,677.52	60,682.00	
3.75	5.00	1239.00	17,450.00	4,362.50	72,040.02	65,044.50	

80% TSS Removal Calculation (TCEQ) As Permitted

Drainage Area				On-Site Impervious Area	Off-Site Impervious Area	TSS Removed with BMPs	WQ Pond Required Volume	WQ Pond Provided Volume
WS	On-Site (AC)	Off-Site (AC)	Total (AC)	*Total (AC)*	*Total (AC)*	*Lbs/Year*	*Cubic Feet*	*Cubic Feet*
WQP-A1 (North)	9.76	0.00	9.76	5.89	0.00	6,028	53,932	57,450
WQP-A2 (South)	5.68	0.00	5.68	3.35	0.00	2,269	6,694	6,890
WQP-A3 (Central)	1.11	0.00	1.11	0.70	0.00	730	7,850	8,015
VFS	5.25	0.00	5.25	2.13	0.00	2,125	N/A	N/A
ByPass	0.67	0.00	0.67	0.33	0.00	N/A	N/A	N/A
Totals:	22.47	0.00	22.47	12.40	0.00	**11,152**		

Total Required Project TSS Removal **11,130** lbs -22 lbs/yr over 80% removal

Notes:
1) The "ByPass" Impervious Cover is not being treated by a permanent BMP. Other BMPs are oversized to achieve required removal efficiency.

SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
86300
LICENSED
PROFESSIONAL ENGINEER
6/22/23

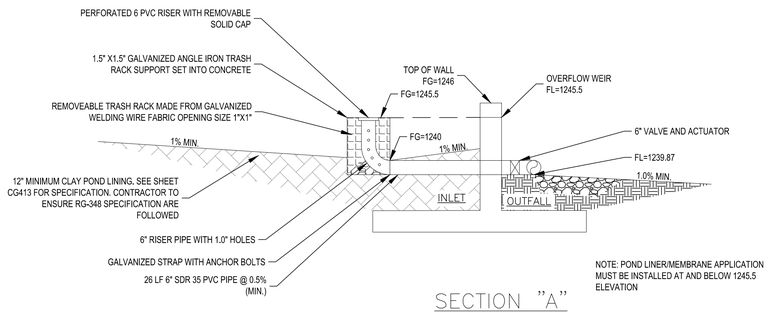
REVISIONS:

MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900
3303 SHELL ROAD SUITE 1
SAN ANTONIO, TEXAS 78228
OFFICE: 512.868.2244

WATER QUALITY POND A2 DETAILS (SHEET 2)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG411

JOB NO. 3388.00
DESIGNED BY: KBK
DRAWN BY: EAJ
CHECKED BY: MMR
SHEET # 20 OF 45

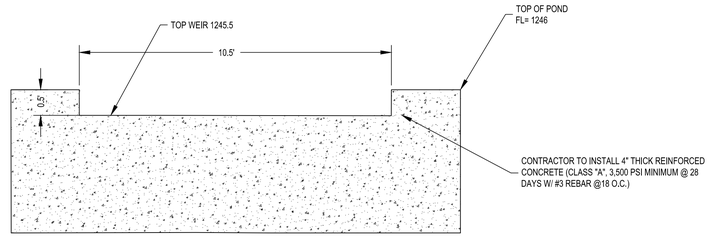


SECTION "A"

NOTE: POND LINER/MEMBRANE APPLICATION MUST BE INSTALLED AT AND BELOW 1245.5 ELEVATION

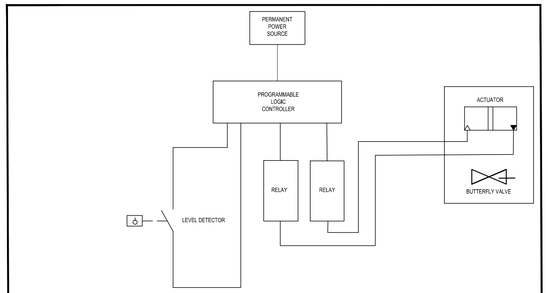
WATER QUALITY POND OUTFALL SECTION "A"

OVERFLOW WEIR
SIZE CALCULATIONS
Q_{100} = 12.22 c.f.s.
C_W = 3.33
H_{WATER} = 0.5 ft
L_{WEIR} = 10.50 ft
Q_{MAX} = 12.22 c.f.s.

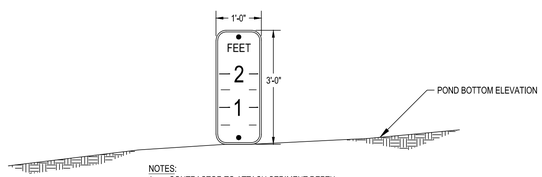


SECTION "B"

WATER QUALITY POND OUTFALL SECTION "B"



BLOCK DIAGRAM OF CIRCUIT FOR WATER QUALITY POND
NOT TO SCALE



NOTES:
1. CONTRACTOR TO ATTACH SEDIMENT DEPTH MARKER ON WATER QUALITY POND WALL.

SEDIMENT DEPTH MARKER
NOT TO SCALE

LEGEND

PROPERTY BOUNDARY	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	1300
PROPOSED 1' CONTOUR	1381
PROPOSED 5' CONTOUR	1380
PROPOSED GRADE/ SLOPE DIRECTION	1.0%
SLOPE ARROW	
[DETAIL, SHEET]	[01, CG822]

N

SCALE: 1"=10'
0 5' 10' 15' 20'
SHEET SIZE: 24" x 36"

STATE OF TEXAS
KENNETH B. KOLACNY
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MATKINHOOVER ENGINEERING & SURVEYING
8 SPENCE ROAD SUITE 100
BOERNE, TEXAS 78006
OFFICE: 830.249.0600
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-9045 | SURVEYING FIRM F-10024900
1301 SHELL ROAD SUITE 1
SAN ANTONIO, TEXAS 78216
OFFICE: 512.868.2244

WATER QUALITY POND A3 DETAILS (SHEET 1)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG412

JOB NO.	3388.00
DESIGNED BY:	KBK
DRAWN BY:	EAJ
CHECKED BY:	MMR
SHEET #	21 OF 45

BATCH DETENTION POND SUMMARY:

THE WATER QUALITY VOLUME WAS CALCULATED USING THE BELOW TABLES PROVIDED BY TCEQ. THESE TABLES WERE MODIFIED TO CALCULATE 80% TSS REMOVAL PER TCEQ REQUIREMENTS. A WATER QUALITY POND WILL BE PROVIDED FOR THIS SITE TO OBTAIN THE MINIMUM 80% TSS REMOVAL. THE CALCULATED REQUIRED WATER QUALITY VOLUME IS 7,850 C.F. A VOLUME OF 8,014.91 AND ELEVATION OF 1245.5 WAS DEDICATED TO WATER QUALITY IN THE PROPOSED BATCH DETENTION POND. REFERENCE THIS SHEET FOR POND DETAILS.

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: 3388.00 Johnson Way, Bulverde ETJ
Date Prepared: 6/8/2023

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

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

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

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

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

County =	Comal	
Total project area included in plan * =	22.47	acres
Predevelopment impervious area within the limits of the plan * =	0.00	acres
Total post-development impervious area within the limits of the plan* =	12.40	acres
Total post-development impervious cover fraction * =	0.55	
P =	33	inches
$L_{M\ TOTAL\ PROJECT}$ =	11130	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. = A3 - Central

Total drainage basin/outfall area =	1.11	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	0.70	acres
Post-development impervious fraction within drainage basin/outfall area =	0.63	
$L_{M\ THIS\ BASIN}$ =	628	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Batch Detention
Removal efficiency = 91 percent

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

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

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

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

A_C =	1.11	acres
A_I =	0.70	acres
A_P =	0.41	acres
L_R =	734	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 730 lbs.

F = 0.99

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 =	3.66	inches
Post Development Runoff Coefficient =	0.44	
On-site Water Quality Volume =	6542	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 =	1308	
Total Capture Volume (required water quality volume(s) x 1.20) =	7850	cubic feet

POND CLAY LINER SPECIFICATIONS:

1. PONDS SHALL BE MAINTAINED BY THE PROPERTY OWNER

2. 12" CLAY LINER TO BE PLACED WITHIN THE WHOLE OF THE WET PERIMETER OF THE POND. THE WET PERIMETER SURFACE IS THE AREA OF THE POND THAT STARTS AT THE LOWEST, BOTTOM PART OF THE POND AND EXTENDS OUT AND UP TO THE TOP INSIDE EDGE OF THE BERM.

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	cm/sec	1 x 10^-6
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30
Clay Particles Passing	ASTM D-422	%	Not less than 30
Clay Compaction	ASTM D-2216	%	95% of Standard Proctor Density

3. A GEOMEMBER LINER CAN BE USED INSTEAD OF A CLAY LINER. THE LINER SHOULD HAVE A MINIMUM THICKNESS OF 30 MILS AND BE ULTRAVIOLET RESISTANT. IT ALSO MUST COVER THE WET PERIMETER SURFACE OF THE POND.

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd2	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D1682	lb	200
Equiv. Opening Size	US Standard Sieve	No.	80

STORMWATER MANAGEMENT POND FLOW CONTROL RELEASE VALVE CIRCUIT DIAGRAM NOTES:

OVERVIEW:
THE BASIN IS TYPICALLY FILLED QUICKLY BY STORMWATER MAKING THE INFLUENCE TIME RELATIVELY SHORT. THE RESIDENCE TIME OF THE STORMWATER IS TWELVE (12) HOURS AND IS CONTROLLED BY THE RELEASE VALVE (NORMALLY SHUT) AND ACTUATOR THAT ARE INSTALLED ON THE OUTLET STRUCTURE OF THE WATER QUALITY POND. THE CONTROL VALVE OPENS ONCE THE DESIRED RESIDENCE TIME IS ACHIEVED AFTER A STORM EVENT. THE TREATED WATER IS RELEASED SLOWLY OVER A TIME OF 24 TO 48 HOURS INTO THE DETENTION POND.

VALVE/ACTUATOR:
THE VALVE/ACTUATOR ASSEMBLY CONSISTS OF A BUTTERFLY VALVE WITH A SMALL 12VC DC ACTUATOR. THE VALVE IS A QUARTER TURN VALVE. THE ACTUATOR OPERATES THE VALVE BETWEEN THE FULL O PEN AND FULL CLOSED POSITIONS. A MECHANICAL HAND CRANK ALLOWS A PHYSICAL OVERRIDE OF THE VALVE POSITION.

THE VALVE IS A KEYSTONE 6-INCH(100MM) BUTTERFLY VALVE MOUNTED WITH AN EPI-5 12V DC ACTUATOR. THE EPI-6 ACTUATOR REQUIRES AN OPEN OR CLOSE SIGNAL OF 10 SECONDS. THE ACTUATOR HAS LIMIT SWITCHES THAT DETECT END OF TRAVEL AND SHUT OFF THE INCOMING OPEN OR CLOSE SIGNAL TO THE ACTUATOR ONCE THE VALVE REACHES THE FULL OPEN OR CLOSED POSITION. OPEN TORQUE SENSORS WILL SHUT DOWN THE ACTUATOR IN THE EVENT OF AN OVER TORQUE SITUATION.

CONTROLLER SYSTEM SPECIFICATIONS:
POWER – THE CONTROLLER SHALL BE POWERED BY A SELF-CONTAINED, RENEWABLE POWER SOURCE (SUCH AS SOLAR POWER) IF ELECTRICAL POWER IS NOT AVAILABLE. A SINGLE SUPPLY VOLTAGE FOR ALL COMPONENTS IS DESIRABLE.
PROGRAMMABILITY – THE CONTROLLER SHALL BE PROGRAMMABLE. IT SHALL BE POSSIBLE TO UPDATE PROGRAMS IN THE FIELD. THE DETENTION TIME AND DRAW-DOWN TIME SHALL BE ADJUSTABLE IN HOURS FROM 0 HOURS TO 72 HOURS. THE CONTROLLER SHALL BE PROGRAMMED TO HOLD THE STORMWATER EVENT FOR A MINIMUM OF 12 HOURS AND RELEASE THE BASIN AT THE FOLLOWING 6 A.M. TIME PERIOD. IF 6 A.M. FALLS BEFORE THE MINIMUM 12 HOURS RETENTION TIME THAN THE VALVE WILL STAY CLOSED UNTIL THE FOLLOWING 6 A.M. TIME PERIOD. STORMWATER WILL BE HELD IN THE BASIN FOR A FULL OVERNIGHT THERMAL EXCHANGE CYCLE.
EVENT SENDING – THE CONTROLLER SHALL BE ABLE TO SENSE THE BEGINNING OF A STORM (WATER FILLING THE BASIN), AND THE END OF A STORM (WATER DRAINING FROM THE BASIN).
ENVIRONMENT – THE CONTROLLER SHALL OPERATE IN TEMPERATURES FROM 0°C TO 55°C, IN HUMIDITY FROM 10% TO 90% (NON-CONDENSING). THE CONTROLLER SHALL OPERATE DURING PERIODS OF RAINFALL.
SAFETY/SECURITY – THE SYSTEM COMPONENTS SHALL BE LOCKED IN AN ENCLOSURE TO PREVENT ACCIDENTAL CONTRACT THAT COULD COMPROMISE THE FUNCTION OF THE APPARATUS OR CAUSE INJURY.
COMPONENTS – COMPONENT PARTS OF THE CONTROLLER SHALL BE OFF THE SHELF, MULTIPLE SOURCE PARTS WHERE POSSIBLE.
MAINTENANCE – THE CONTROLLER SHALL REQUIRE MINIMAL PERIODIC MAINTENANCE. THE CONTROLLER PROGRAM SHALL BE FIELD UPGRADEABLE. THE ABILITY TO MANUALLY OPERATE THE VALVE SHALL BE PROVIDED.
RELIABILITY – 40,000 HOURS (4.6 YEARS) OR GREATER.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, DESIGN OF SENSOR, AUTOMATIC VALVE, CONTROLLER, ETC. TO ENGINEER FOR REVIEW AND APPROVAL.

STORAGE VOLUMES - WQP - A3 (CENTRAL)

STAGE (FT)	ELEVATION	AREA SQFT	VOLUME (FT3)	CUMULATIVE (FT3)	NOTES
0.00	1240.00	0.12	-	-	
0.25	1240.25	1,130.57	141.34	141.34	
0.50	1240.50	1,507.34	329.74	471.08	
0.75	1240.75	1,507.48	376.85	847.93	
1.00	1241.00	1,507.63	376.89	1,224.82	
1.25	1241.25	1,507.77	376.93	1,601.74	
1.50	1241.50	1,507.91	376.96	1,978.70	
1.75	1241.75	1,508.05	377.00	2,355.70	
2.00	1242.00	1,508.20	377.03	2,732.73	
2.25	1242.25	1,508.34	377.07	3,109.80	
2.50	1242.50	1,508.48	377.10	3,486.90	
2.75	1242.75	1,508.62	377.14	3,864.04	
3.00	1243.00	1,508.77	377.17	4,241.21	
3.25	1243.25	1,508.91	377.21	4,618.42	
3.50	1243.50	1,509.05	377.25	4,995.66	
3.75	1243.75	1,509.19	377.28	5,372.94	
4.00	1244.00	1,509.34	377.32	5,750.26	
4.25	1244.25	1,509.48	377.35	6,127.61	
4.50	1244.50	1,509.62	377.39	6,505.00	
4.75	1244.75	1,509.76	377.42	6,882.42	
5.00	1245.00	1,509.91	377.46	7,259.88	
5.25	1245.25	1,510.05	377.50	7,637.38	
5.50	1245.50	1,510.19	377.53	**8,014.91**	
5.50	1245.50	1,510.19	-	8,014.91	
5.75	1245.75	1,510.39	377.57	8,392.48	6" FREE BOARD
6.00	1246.00	1,512.33	377.84	8,770.32	

REQUIRED VOLUME: 7,850 CF

80% TSS Removal Calculation (TCEQ) As Permitted

Drainage Area				On-Site Impervious Area	Off-Site Impervious Area	TSS Removed with BMPs	WQ Pond Required Volume	WQ Pond Provided Volume
WS	On-Site (AC)	Off-Site (AC)	Total (AC)	*Total (AC)*	*Total (AC)*	*Lbs/Year*	*Cubic Feet*	*Cubic Feet*
WQP-A1 (North)	9.76	0.00	9.76	5.89	0.00	6,028	53,932	57,450
WQP-A2 (South)	5.68	0.00	5.68	3.35	0.00	2,269	6,694	6,890
WQP-A3 (Central)	1.11	0.00	1.11	0.70	0.00	730	7,850	8,015
VFS	5.25	0.00	5.25	2.13	0.00	2,125	N/A	N/A
ByPass	0.67	0.00	0.67	0.33	0.00	N/A	N/A	N/A
Totals:	22.47	0.00	22.47	12.40	0.00	**11,152**		

Total Required Project TSS Removal **11,130** lbs -22 lbs/yr over 80% removal

Notes:
1) The "ByPass" Impervious Cover is not being treated by a permanent BMP. Other BMPs are oversized to achieve required removal efficiency.

SHEET SIZE: 24" x 36"

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BOERNE, TEXAS 78006
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3310 SHELL ROAD SUITE 1
SAN ANTONIO, TX 78218
OFFICE: 512.868.2244

WATER QUALITY POND A3 DETAILS (SHEET 2)
FOR
JOHNSON RANCH BTR
COMAL COUNTY, TEXAS

CG413

JOB NO. 3388.00
DESIGNED BY: KBK
DRAWN BY: EAJ
CHECKED BY: MMR
SHEET # 22 OF 45

The proposed land use for this project is for single family residential development and has more than 20% impervious cover. Batch detention and vegetative filter strip maintenance guidelines can be found on the next pages.

02.15.01 Batch Detention Maintenance Guidelines

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

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

Mowing. The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

Litter and Debris Removal. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

Erosion control. The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

Nuisance Control. Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

Sediment Removal. A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet

structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

Logic Controller. The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

JOHNSON RANCH BTR
INSPECTION AND MAINTENANCE FOR BMPs

Designated and qualified person(s) shall inspect Pollution Control Measures every seven days and within 24 hours after a storm event. An inspection report that summarized the scope of the inspection, names and qualifications of personnel conducting the inspection, date of inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of the Storm Water T.P.D.E.S. Plan. A copy of the inspection report form is provided as page 3 of this attachment. Inspection and Maintenance Guidelines are as follows:

Vegetative Filter Strip:

- *Pest Management.* An Integrated Pest Management (IPM) Plan should be developed for vegetated areas. This plan should specify how problem insects and weeds will be controlled with minimal or no use of insecticides and herbicides.
- *Seasonal Mowing and Lawn Care.* If the filter strip is made up of turf grass, it should be mowed as needed to limit vegetation height to 18 inches, using a mulching mower (or removal of clippings). If native grasses are used, the filter may require less frequent mowing, but a minimum of twice annually. Grass clippings and brush debris should not be deposited on vegetated filter strip areas. Regular mowing should also include weed control practices, however herbicide use should be kept to a minimum (Urbonas et al., 1992). Healthy grass can be maintained without using fertilizers because runoff usually contains sufficient nutrients. Irrigation of the site can help assure a dense and healthy vegetative cover.
- *Inspection.* Inspect filter strips at least twice annually for erosion or damage to vegetation; however, additional inspection after periods of heavy runoff is most desirable. The strip should be checked for uniformity of grass cover, debris and litter, and areas of sediment accumulation. More frequent inspections of the grass cover during the first few years after establishment will help to determine if any problems are developing, and to plan for long-term restorative maintenance needs. Bare spots and areas of erosion identified during semi-annual inspections must be replanted and restored to meet specifications. Construction of a level spreader device may be necessary to reestablish shallow overland flow.
- *Debris and Litter Removal.* Trash tends to accumulate in vegetated areas, particularly along highways. Any filter strip structures (i.e. level spreaders) should be kept free of obstructions to reduce floatables being flushed downstream, and for aesthetic reasons. The need for this practice is determined through periodic inspection, but should be performed no less than 4 times per year.
- *Sediment Removal.* Sediment removal is not normally required in filter strips, since the vegetation normally grows through it and binds it to the soil. However, sediment may accumulate along the upstream boundary of the strip preventing uniform overland flow. Excess sediment should be removed by hand or with flat-bottomed shovels.

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

Temporary/Permanent Vegetation:

(1) Permanent vegetation should be inspected weekly and after each rain event to locate and repair any erosion.
(2) Erosion from storms or other damage should be repaired as soon as practical by regrading the area and applying new seed.
(3) If the vegetated cover is less than 80%, the area should be reseeded.

JOHNSON RANCH BTR
INSPECTION AND MAINTENANCE FOR BMPs

INSPECTION REPORT

Approved Inspection intervals:

i. Conducted once every 7 days AND within 24 hours after rainfall event greater than 0.5 inch

PROJECT NAME Johnson Ranch BTR
REPORT # _____ DATE _____
INSPECTOR _____ TITLE _____
REASON FOR INSPECTION (CHECK ONE) Weekly ____ Or ½" Rain ____
DATE OF LAST RAINFALL _____ AMOUNT _____

SITE CONDITIONS:

EROSION AND SEDIMENTATION CONTROLS	IN CONFORMANCE		EFFECTIVE	
Batch Detention Ponds		Yes/No/Na		Yes/No
Permanent Vegetative Filter Strip		Yes/No/Na		Yes/No

RECOMMENDED REMEDIAL ACTIONS:

COMMENTS:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision with a system designed to assure that qualified personnel properly gathered and evaluated 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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

INSPECTOR: _____ DATE: _____

Not Applicable

Not Applicable

Temporary Stormwater Section

(TCEQ – 0602)

Temporary Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Ken Kolacny, P.E., Matkin Hoover Engineering

Date: 08/7/23

Signature of Customer/Agent:

Regulated Entity Name: Johnson Ranch BTR

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: Cibolo Creek

Temporary Best Management Practices (TBMPs)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ N/A

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

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

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

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

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

Soil Stabilization Practices

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

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

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

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

Administrative Information

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

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

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

TCEQ-0602 Attachments

Johnson Ranch BTR

Temporary Stormwater Section

Attachment A – Spill Response Actions

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses. Measures include reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information is available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have a contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum, products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater runoff during rainfall to the extent that is doesn't compromise cleanup activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended puprpose in conformance with the provisions in applicable BMP's.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill

(6) Recover spilled materials

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

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

Spills should be cleaned up immediately using the following steps:

(1) Contain spread of the spill

(2) Notify the project foreman immediately

(3) If the spill occurs on paved or impermeable surfaces, clean up using “dry” methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

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

Significant/Hazardous Spills

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at : http://www.tceq.texas.gov/response/

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.

(2) Regularly inspect onsite vehicles and equipment for leaks and repair immediately.

(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

(4) Always use secondary containment, such as drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

(5) Place drip pans or absorbent materials under paving equipment when not in use.

(6) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

(7) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over the waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

(9) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all of the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainagecourses, to prevent the runon of stormwater and the runoff of spills.

(2) Discourage “topping off” of fuel tanks.

(3) Always use secondary containment, such as a drain pan, when fueling to catchspills/ leaks.

Attachment B – Potential Sources of Contamination

Potential Source: Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle drippings

Preventative Measure: Vehicle maintenance, when possible, will be performed withinthe construction staging areas.

Potential Source: Miscellaneous trash and litter from construction

Preventative Measure: Trash containers will be placed throughout the site toencourage proper trash disposal.

Potential Source: Construction debris

Preventative Measure: Construction debris will be monitored daily by contractor.Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressedon a case by case basis.

Attachment C – Sequence of Major Activities

For all activities listed below, Erosion and Sediment control measures have been included in the construction plans to lessen the impact of disturbed soils during the major activities in construction. Please refer to these sheets in the Construction Drawings for more detailed information.

Install temporary erosion and sedimentation controls.

- Silt Fence
- Stabilized Construction Entrance/Exit
- Rock Berms, etc.

Construction of Roads & Related Drainage Improvements:

- Clearing & Grubbing
- Earthwork & Preparation of Road Subgrade
- Installation of Drainage Structures
- Lot Grading
- Installation of Road Base & Concrete Curbing
- Final Paving

Construction of Utilities:

- Install new wastewater lines
- Install new water lines
- Install new electric & communication lines

Total Disturbed
Area: 20.09 acres

New Impervious
Cover: 12.40 acres

Attachment D – Temporary Best Management Practices and Measures

Temporary BMP's included in this plan include:

- Stabilized construction entrance
- Concrete wash out
- Use of a diversion dike to route stormwater around the construction area
- Silt fence
- Rock berms

Temporary measures are intended to provide a method of slowing the flow or runoff fromthe construction site in order to allow sediment and suspended solids to settle out of the water. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features.

Site Preparation:

The clearing and grading of the land will disturb the largest area of soil, so erosion control measures will be installed as the first step in construction. The methodology for pollutionprevention of all on-site stormwater will include a) the erection of silt fences along the downgradient boundary of the construction activities, b) installation of rock berms with siltfence covering downgradient from areas of concentrated stormwater flow, c) installation of stabilized construction entrances to reduce the dispersion of sediment from the site, d)rough grading of the pond at the earliest possible stage of construction to act as a temporary sediment trap, and e) installation of a construction staging area.

Construction:

All installed erosion control measures will be inspected, and if necessary, repaired beforeany additional construction begins, as well as periodically throughout the construction process. The contractor will be responsible for all maintenance of erosion control measures, as well as the installation of all remaining on-site control measures, includingthe concrete truck washout, as necessary.

The following measures are proposed prevent pollution for these areas:

Upgradient storm water / surface water / groundwater – Stabilized Construction Entrance,Silt Fence and Diversion Dikes are being utilized

Onsite storm water / surface water / groundwater – Silt Fence and Rock Berm are being utilized. Additional measures include the concrete trickle channel; maintaining flow of water through the pond with no impoundment of stormwater except in large rainfall events.

Streams / features / aquifer - Silt Fence, Rock Berm and Non-Woven Geotextile Fabric are being utilized. Additional measures include concrete and riprap channel protection where velocities are increased then return to the existing stream

Maintain natural flow – Diversion Dikes, Concrete Trickle Channel and Non-Woven Geotextile Fabric are being utilized. As soon as practical after the pond outfall stormwateris returned to the existing waterway and permanent erosion protection is provided downstream before returning to the existing water course.

Attachment E - Request to Temporarily Seal a Feature, if sealing a feature

N/A

Attachment F – Structural Practices

The following structural measures will be installed prior to the initiation of siteconstruction:

- Silt fences along the downstream boundary of all construction activity, and rock bermswith silt fence covering for secondary protection
- Installation of stabilized construction entrances and construction staging areas
- Installation of concrete truck washout pits, as required

Attachment G – Drainage Map

SEE CONSTRUCTION PLANS

Attachment H - Temporary Sediment Pond(s) Plans and Calculations

N/A

Attachment I – Inspection and Maintenance for BMPs

Inspections

Designated and qualified person(s) shall inspect BMPs every seven days, and within 24 hours after a storm event greater than 0.5 inches of rainfall. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of the Storm Water TPDES data for a period of three years after the date of the inspection. A copy of the Inspection Report Form is provided in the Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion. (2) storage areas for evidence of leakage from the exposed stored materials,

(3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, and (6) concrete truck rinse-out pit for signs of potential failure. Deficiencies noted during the inspection will be corrected and documented within seven (7) calendar days following the inspection or before the next anticipated storm event if practicable

Attachment J – Schedule of Interim and Permanent Soil Stabilization Practices

STABILIZATION PRACTICES

Installation and utilization of stabilization measures will begin as soon as practicable in any portion of the site where construction activities have either temporarily or permanently ceased. Stabilization measures must be initiated immediately, where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth- disturbing activities have temporarily or permanently ceased. Temporary / Interim stabilization methods should be utilized in situations where development and/or construction practices have ceased temporarily, and permanent stabilization methods should be utilized after development and/or construction activities have been completed.

Disturbed areas to receive paving, landscape treatment and turfing shall be covered by erosion control blankets. All other rough graded slopes, disturbed ground surfaces and discharge channels shall receive seeding with native seed mix and then covered by erosion control blankets or straw mulching or other approved BMP. Stockpile materials shall be seeded and covered by soil erosion blankets. A storm water perimeter control device shall be established at a minimum distance of 10 feet from the toe of the stockpile. The materials excavated from utility trenching shall be protected from up gradient storm run- on. The excavated materials shall be covered by erosion control blankets.

TEMPORARY STABILIZATION

Temporary (Interim) Stabilization

Seed Specification: INTERIM SEEDING: N/A

Temporary vegetation - establishment of natural grassy areas that are intended to l be re-disturbed during later phases of construction or development. Temporary vegetation is usually accomplished by spreading rapidly growing grasses via the process of hydro-seeding or hydro-mulching.

Mulching - the process of spreading a ground layer of chipped wood or brush to protect disturbed and unstable topsoil against erosion by storm water runoff by slowing run-off velocities, promoting sediment deposition, filtering sediment, and promoting increased ground infiltration rates. Mulching also provides the added benefits of reducing soil water loss, which is beneficial when attempting to establish newly planted vegetation. Applied in thicker layers and the size of mulch chips, mulching can also be used to prevent erosion on areas of steeper slope.

Geo-textiles - Geo-textiles (i.e. fiber matting, coir, filter fabrics) are porous materials or ground coverings which allow storm water run-off to pass through, but block the passage of most sediment and larger suspended particles. Geo-textiles matting can be used on newly seeded slopes to lessen seed and soil loss, or next to riprap to prevent run-off from washing out the soil beneath.

Vegetative buffer strips - areas where vegetation has been left undisturbed or where vegetation has been re-established, typically in long, narrow strips. Buffer strip areas retard the speed of storm water runoff, promote sediment filtration, increase ground infiltration, and improve site aesthetics. Vegetative buffer strips are extremely effective on steep, unstable slopes, or within floodplains, and along the bank slopes of waterways.

Tree Protection - is a required practice by most regulatory agencies. Only trees of certain sizes are required to be protected. Refer to your specific governing jurisdiction for specific regulations. However, even if tree protection is not a required, regulated practice it is still and important and cost effective erosion control method. (reference: **Preservation of mature vegetation** for specific details)

Preservation of mature vegetation - provides a natural buffer zone and promotes improved storm water run-off quality by helping minimize topsoil erosion as well as providing cost effective aesthetic benefits. Established, mature vegetation can withstand and tolerate heavier storm events than newly planted vegetation, due to a deeper, more established root system. It is necessary that preservation of existing, mature vegetation be planned for in advance of site construction. Areas to be preserved should be clearly marked and possibly even barricaded to prevent damage during construction.

Interim Stabilization Practices:	**When Implemented:**	**Located:**	**Purpose:**	**In Use:**
Temporary Vegetation	Throughout site development	N/A	Temporary vegetation growth is recommended to reduce soil erosion in areas that are not actively under development.	**NO**
Mulching	Throughout site development	N/A	Mulching is utilized to reduce topsoil erosion and to prevent soil water loss. This method can be used in planted/landscaped areas to prevent soil movement and water loss until vegetation is well established.	**NO**
Geo-textiles	Throughout site developme nt	N/A	Geo-textiles (i.e. matting, Curlex) can be used to temporarily stabilize soil in areas where it is not feasible to utilize mulching or temporary vegetation	**NO**

Vegetative Buffer Strips	Throughout site development	Located at perimeters of the site and along natural creek beds	Vegetative buffer strips will be utilized throughout the site for both drainage and aesthetic purposes, as well as for the secondary benefits of improved water quality due to sediment deposition and improved infiltration.	**NO**
Tree Protection	Throughout site development	Located around all desirable trees to be retained, per plan	Desirable trees throughout the site are to be protected during and after construction to promote both water quality and aesthetics.	**YES**
Preservation of Existing Mature Vegetation	Throughout site development	Desirable existing vegetation to be preserved throughout the site, per plan	Desirable existent mature vegetation (i.e. under-story) is to be preserved throughout the site to promote water quality via sediment deposition and improved infiltration.	**YES**

PERMANENT STABILIZATION

Permanent Stabilization

Permanent drainage structures, including concrete curbs and gutters, concrete pavement, asphalt pavement, drainage swales, drainage ditch, turfing, vegetative strips, concrete culvert and pipe culvert will provide permanent erosion control at this project site. After initial stabilization, the Contractor shall inspect the site once a month until project acceptance as been granted by the Customer Representative/Contract Manager. Unsatisfactory stabilized areas shall be future stabilized at the request of the Customer Representative/Contract Manager. Final or permanent stabilization shall be in

accordance with the specification sections: [2300 Earthwork], [02916 Mulching for erosion control],[02921 Seeding],[02922 Sodding],[02923 Sprigging],[02919 Top soil], [02924 Seeding] and [02925or 02926 Establishment of Turf].

Seed Specification: PERMANENT SEEDING: Permanent stabilization to be according to site specific re- stabilization / landscape plan and / or the San Antonio Ordinances.

Permanent vegetation - the process of establishing a permanent vegetative ground cover that helps reduce topsoil erosion by holding and stabilizing soil particles, which in turn slows storm water run-off velocity, promotes ground infiltration, promoting sediment deposition, and by providing secondary aesthetic benefits. Permanent vegetation is established by planting and seeding in areas where the soil needs stabilization due to existing soil structure, texture, or steeper grade slopes. Permanent vegetation can include trees, grasses and shrubs.

Mulching - the process of spreading a ground layer of chipped wood or brush to protect disturbed and unstable topsoil against erosion by storm water runoff by slowing run-off velocities, promoting sediment deposition, filtering sediment, and promoting increased ground infiltration rates. Mulching also provides the added benefits of reducing soil water loss, which is beneficial when attempting to establish newly planted vegetation. Applied in thicker layers and the size of mulch chips, mulching can also be used to prevent erosion on areas of steeper slope.

Geo-textiles - Geo-textiles (i.e. fiber matting, coir, filter fabrics) are porous materials or ground coverings which allow storm water run-off to pass through, but block the passage of most sediment and larger suspended particles. Geo-textiles matting can be used on newly seeded slopes to lessen seed and soil loss, or next to riprap to prevent run-off from washing out the soil beneath.

Sod stabilization - the practice of installing grass sod strips or squares over a disturbed or unprotected topsoil surface to provide instant protection of soil from the erosive forces of storm water run-off. Sod stabilization is an effective and feasible practice in areas where construction activities are complete increasing the chances that the grass cover will have the opportunity to become established. This measure requires maintenance such as the installation of sub-sod topsoil and frequent watering to promote sod growth.

Hydro-mulch/seeding stabilization - the practice of applying seed mixtures hydraulically with paper or wood mulch material over a disturbed or unprotected topsoil surface to provide vegetative protection of soil from the erosive forces of storm water run-off. Hydro-mulch/seeding stabilization is an effective and feasible practice in areas where construction activities are complete increasing the chances that the grass cover will have the opportunity to become established. This measure requires maintenance such as the placement of topsoil and frequent watering to promote sod growth.

Vegetative buffer strips - areas where vegetation has been left undisturbed or where vegetation has been re-established, typically in long, narrow strips. Buffer strip areas retard the speed of storm water runoff, promote sediment filtration, increase ground infiltration, and improve site aesthetics. Vegetative buffer

Paved or impervious surfaces - provides permanent stabilization by protecting soil from exposure of impact erosion by rainfall with a layer of concrete, asphalt or other impervious cover.

Preservation of mature vegetation - provides a natural buffer zone and promotes improved storm water run-off quality by helping minimize topsoil erosion as well as providing cost effective aesthetic benefits. Established, mature vegetation can withstand and tolerate heavier storm events than newly planted vegetation, due to a deeper, more established root system. It is necessary that preservation of existing, mature vegetation be planned for in advance of site construction. Areas to be preserved should be clearly marked and possibly even barricaded to prevent damage during construction.

Permanent Stabilization Practices:	**When Implemented:**	**Located:**	**Purpose:**	**In Use:**
Permanent Vegetation (i.e. grasses, shrubbery, trees)	Installed during the last phase of site development	To be located throughout site, per plan	Installation of permanent vegetation is a method of reducing and preventing soil erosion, improved infiltration and increases site aesthetics.	**YES**
Mulching	Installed during the last phase of site development	N/A	Mulching is utilized to reduce topsoil erosion and to prevent soil water loss. This method can be used in planted/landscaped areas to prevent soil movement and water loss until vegetation is well established.	**NO**
Geo-textiles	Installed during the last phase of site development	To be located in areas of significant soil disturbance	Geo-textiles are utilized to reduce soil erosion and promote vegetation growth in high slope and/or high water flow areas.	**NO**
Sod Stabilization	Installed during the last phase of site development	To be located throughout the site, per landscaping plan	Sod stabilization is used to establish a complete and instant vegetative ground cover in an effort to prevent topsoil erosion.	**YES**
Hydro-mulch/Seeding	Installed during the last phase of site development	To be used throughout the site, per landscaping plan	Hydro-mulch/seeding stabilization is used to establish a complete vegetative ground cover in an effort to prevent topsoil erosion.	**YES**

Stabilization				
Vegetative Buffer Strips	Installed during the last phase of site development	To be located at perimeter of site	Vegetative buffer strips will be utilized throughout the site for both drainage and aesthetic purposes, as well as for the secondary benefits of improved water quality due to sediment deposition and improved infiltration.	**NO**
Paved and/or Impervious Surfaces	Installed during the last phase of site development	Throughout the site	Areas where structural concrete are located within the site; minimize and prevent erosion at those locations	**YES**
Preservation of Existing Mature Vegetation	Installed during the last phase of site development	Located at perimeters of site	Desirable existent mature vegetation (i.e. under-story) is to be preserved throughout the site to promote water quality via sediment deposition and improved infiltration.	**YES**

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 Jeremy Williams,
Print Name

Registered Agent,
Title - Owner/President/Other

of Embrey Partners, LLC,
Corporation/Partnership/Entity Name

have authorized Ken Kolacny, P.E.
Print Name of Agent/Engineer

of Matkin-Hoover Engineering & Surveying
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

8/2/23
Date

THE STATE OF Texas §

County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Jeremy Williams 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 2nd day of August, 2023.

MONICA GARZA
Notary ID #124737277
My Commission Expires
November 5, 2023

NOTARY PUBLIC

Monica Garza
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/05/2023

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

I Charlie Hill,
Print Name

President,
Title - Owner/President/Other

of DHJB Development, LLC,
Corporation/Partnership/Entity Name

have authorized Ken Kolacny, P.E.
Print Name of Agent/Engineer

of Matkin-Hoover Engineering & Surveying
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.

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SIGNATURE PAGE:

Applicant's Signature

8/2/23
Date

THE STATE OF Texas §

County of Kendall §

VICTORIA ASHLEY DEROCHER
Notary Public, State of Texas
Comm. Expires 11-24-2025
Notary ID 133463786

BEFORE ME, the undersigned authority, on this day personally appeared Charlie Hill 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 2 day of August, 2023.

NOTARY PUBLIC

Victoria A. DeRocher
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/24/25

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

I Charlie Hill,
Print Name

President,
Title - Owner/President/Other

of DH/JB Partnership, LTD,
Corporation/Partnership/Entity Name

have authorized Ken Kolacny, P.E.
Print Name of Agent/Engineer

of Matkin-Hoover Engineering & Surveying
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.

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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

8/8/23
Date

THE STATE OF Texas §

County of Kendall §

VICTORIA ASHLEY DEROCHER
Notary Public, State of Texas
Comm. Expires 11-24-2025
Notary ID 133463786

BEFORE ME, the undersigned authority, on this day personally appeared Charlie Hill 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 8 day of August, 23.

NOTARY PUBLIC

Victoria A. DeRocher
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/24/25

Owner Authorization Form

Texas Commission on Environmental Quality
for Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

Land Owner Authorization

I, Charlie Hill of DHJB Development, LLC
Land Owner Signatory Name — Land Owner Name (Legal Entity or Individual)

am the owner of the property located at
22.47 acre tract of land, located in the I&GN RR. Co. survey 793, abstract 289
Legal description of the property referenced in the application

and am duly authorized in accordance with §213.4(c)(2) and §213.4(d)(1) or §213.23(c)(2) and §213.23(d) relating to the right to submit an application, signatory authority, and proof of authorized signatory.

I do hereby authorize Embrey Partners, LLC
Applicant Name (Legal Entity or Individual)

to conduct residential land development
Description of the proposed regulated activities

at NE corner of the intersection of U.S.Hwy 281 and Johnson Way in southern Comal County .
Precise location of the authorized regulated activities

Land Owner Acknowledgement

I understand that DHJB Development, LLC
Land Owner Name (Legal Entity or Individual)

Is ultimately responsible for compliance with the approved or conditionally approved Edwards Aquifer protection plan and any special conditions of the approved plan through all phases of plan implementation even if the responsibility for compliance and the right to possess and control the property referenced in the application has been contractually assumed by another legal entity. I further understand that any failure to comply with any condition of the executive director's approval is a violation is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Land Owner Signature

Land Owner Signature

8/2/23

Date

THE STATE OF § TEXAS

County of § _____

VICTORIA ASHLEY DEROCHER
Notary Public, State of Texas
Comm. Expires 11-24-2025
Notary ID 133463786

BEFORE ME, the undersigned authority, on this day personally appeared Charlie Hill 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 1 day of August, 2023

NOTARY PUBLIC

Victoria DeRocher

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/24/25

Attached: (Mark all that apply)

- ☐ Lease Agreement
- ☐ Signed Contract
- ☐ Deed Recorded Easement
- ☐ Other legally binding document

Applicant Acknowledgement

I, Jeremy Williams of Embrey Partners, LLC
Applicant Signatory Name — Applicant Name (Legal Entity or Individual)

acknowledge that DHJB Development, LLC
Land Owner Name (Legal Entity or Individual)

has provided Embrey Partners, LLC
Applicant Name (Legal Entity or Individual)

with the right to possess and control the property referenced in the Edwards Aquifer protection plan.

I understand that Embrey Partners, LLC
Applicant Name (Legal Entity or Individual)

is contractually responsible for compliance with the approved or conditionally approved Edwards Aquifer protection plan and any special conditions of the approved plan through all phases of plan implementation. I further understand that failure to comply with any condition of the executive director's approval is a violation is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Applicant Signature

Applicant Signature — Date: 8/2/23

THE STATE OF § TEXAS

County of § Bexar

BEFORE ME, the undersigned authority, on this day personally appeared Jeremy Williams 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 2nd day of August, 2023

NOTARY PUBLIC

MONICA GARZA
Notary ID #124737277
My Commission Expires
November 5, 2023

Monica Garza
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/05/23

Owner Authorization Form

Texas Commission on Environmental Quality
for Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

Land Owner Authorization

I, Charlie Hill of DH/JB Partnership, LTD

Land Owner Signatory Name — Land Owner Name (Legal Entity or Individual)

am the owner of the property located at

22.47 acre tract of land, located in the I&GN RR. Co. survey 793, abstract 289

Legal description of the property referenced in the application

and am duly authorized in accordance with §213.4(c)(2) and §213.4(d)(1) or §213.23(c)(2) and §213.23(d) relating to the right to submit an application, signatory authority, and proof of authorized signatory.

I do hereby authorize Embrey Partners, LLC

Applicant Name (Legal Entity or Individual)

to conduct residential land development

Description of the proposed regulated activities

at NE corner of the intersection of U.S.Hwy 281 and Johnson Way in southern Comal County .

Precise location of the authorized regulated activities

Land Owner Acknowledgement

I understand that DH/JB Partnership, LTD

Land Owner Name (Legal Entity or Individual)

Is ultimately responsible for compliance with the approved or conditionally approved Edwards Aquifer protection plan and any special conditions of the approved plan through all phases of plan implementation even if the responsibility for compliance and the right to possess and control the property referenced in the application has been contractually assumed by another legal entity. I further understand that any failure to comply with any condition of the executive director's approval is a violation is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Land Owner Signature

Land Owner Signature

8/8/23
Date

THE STATE OF § TEXAS

County of § Kendall

BEFORE ME, the undersigned authority, on this day personally appeared Charlie Hill 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 8 day of August 2023

NOTARY PUBLIC

VICTORIA ASHLEY DEROCHER
Notary Public, State of Texas
Comm. Expires 11-24-2025
Notary ID 133463786

Victoria A. DeRocher
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/24/25

Attached: (Mark all that apply)

- ☐ Lease Agreement
- ☐ Signed Contract
- ☐ Deed Recorded Easement
- ☐ Other legally binding document

Applicant Acknowledgement

I, Jeremy Williams of Embrey Partners, LLC
Applicant Signatory Name — Applicant Name (Legal Entity or Individual)

acknowledge that DH/JB Partnership, LTD
Land Owner Name (Legal Entity or Individual)

has provided Embrey Partners, LLC
Applicant Name (Legal Entity or Individual)

with the right to possess and control the property referenced in the Edwards Aquifer protection plan.

I understand that Embrey Partners, LLC
Applicant Name (Legal Entity or Individual)

is contractually responsible for compliance with the approved or conditionally approved Edwards Aquifer protection plan and any special conditions of the approved plan through all phases of plan implementation. I further understand that failure to comply with any condition of the executive director's approval is a violation is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Applicant Signature

Applicant Signature — Date: 8/10/23

THE STATE OF § TEXAS

County of § Bexar

BEFORE ME, the undersigned authority, on this day personally appeared Jeremy Williams 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 10th day of August

Monica Garza
NOTARY PUBLIC

MONICA GARZA
Notary ID #124737277
My Commission Expires
November 5, 2023

Monica Garza
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11/05/23

Application Fee Form

(TCEQ – 0574)

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Johnson Ranch BTR
Regulated Entity Location: NE Corner of US Hwy. 281 at Johnson Way
Name of Customer: Embrey Partners, LLC
Contact Person: Jeremy Williams Phone: (210) 824 - 6044
Customer Reference Number (if issued):CN _____
Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☒ Comal ☐ Kinney

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

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

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

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	*Size*	*Fee Due*
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	22.47 Acres	$ 4,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: _____ Date: 08/22/23

Application Fee Schedule

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

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:*

Embrey Partners, 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)*
0803880318	32036459223		

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☒ Other: Limited Liability Company

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: 7600 Broadway, Suite 300

City	State	ZIP	ZIP + 4
San Antonio	TX	78209	

16. Country Mailing Information (*if outside USA*)

17. E-Mail Address (*if applicable*)
jwilliams@embreydc.com

18. Telephone Number	19. Extension or Code	20. Fax Number (*if applicable*)
(210) 824-6044		( ) -

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.*)

Johnson Ranch BTR

23. Street Address of the Regulated Entity: *(No PO Boxes)*	3614 Mustang Vista							
	City	Bulverde	**State**	TX	**ZIP**	78163	**ZIP + 4**	
24. County	Comal							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**
Bulverde			Tx		78163
27. Latitude (N) In Decimal:	29.766417		**28. Longitude (W) In Decimal:**	98.426539	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	45	59.10	98	25	35.54

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)
6552		531390	

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

34. Mailing Address:	**7600 Broadway, Suite 300**							
	City	**San Antonio**	**State**	**TX**	**ZIP**	**78209**	**ZIP + 4**	

35. E-Mail Address:	**jwilliams@embreydc.com**	
36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(210) 824-6044		**( ) -**

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:	Ken Kolacny, P.E.	**41. Title:**	Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(830) 249-0600		( ) -	kkolacny@matkinhoover.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:	Matkin Hoover Engineering & Surveying	**Job Title:**	Vice President
Name *(In Print):*	Ken Kolacny	**Phone:**	(830) 249- 0600
Signature:		**Date:**	8/15/23