

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

February 25, 2015

Mr. Jason Gale
Gale Estates, LLC
15315 San Pedro
San Antonio, Texas 78232-3719

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: **Serenity Oaks Subdivision, Unit 4**; Located on Raynor Ranch Road; New Braunfels, Texas

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

Investigation No. 1217052; Regulated Entity No. RN107914434; Additional ID No. 13-14121501

Dear Mr. Gale:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the CZP Application for the above-referenced project submitted to the San Antonio Regional Office by Gallegos Engineers, Inc. on behalf of Gale Estates, LLC on December 15, 2014. Final review of the CZP was completed after additional material was received on February 5 and February 16, 2015. As presented to the TCEQ, the Temporary Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are **hereby approved** subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed residential project will have an area of approximately 57.51 acres. It will include 40 single-family residential structures, driveways, roads, and utility infrastructure. The impervious cover will be 5.42 acres (9.42 percent). Project wastewater will be disposed of by on-site sewage facilities. According to a letter dated August 13, 2014, signed by Mr. Robert Boyd, P.E., with Comal County, the development is acceptable for the use of on-site sewage facilities.

PERMANENT POLLUTION ABATEMENT MEASURES

This single-family residential project will not have more than 20 percent impervious cover.

SPECIAL CONDITIONS

- I. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested format (Deed Recordation Affidavit, TCEQ-0625A) that you may use to deed record the approved CZP is enclosed.
- II. Since this project will not have more than 20 percent impervious cover, an exemption from additional permanent BMPs is approved. If the percent impervious cover ever increases above 20 percent or the land use changes, the exemption for the whole site as described in the property boundaries required by §213.4(g), may no longer apply and the property owner must notify the appropriate regional office of these changes.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.

Prior to Commencement of Construction:

4. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved Contributing Zone Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
5. Any modification to the activities described in the referenced CZP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
6. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the name of the approved plan and file number for the regulated activity, the date on which the regulated activity will commence, and the name of the prime contractor with the name and telephone number of the contact person.

7. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved Storm Water Pollution Prevention Plan (SWPPP) must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. If a water quality pond is proposed, it shall be used as a sedimentation basin during construction. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

During Construction:

8. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
9. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been significantly reduced. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).
10. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge will be filtered through appropriately selected best management practices. These may include vegetated filter strips, sediment traps, rock berms, silt fence rings, etc.
11. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
12. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
13. This approval does not authorize the installation of temporary aboveground storage tanks on this project. If the contractor desires to install a temporary aboveground storage tank for use during construction, an application to modify this approval must be submitted and approved prior to installation. The application must include information related to tank location and spill containment. Refer to Standard Condition No. 5, above.

After Completion of Construction:

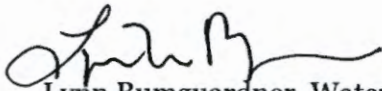
14. Owners of permanent BMPs and measures must insure that the BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
15. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes

such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.

16. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Contributing Zone Plan. If the new owner intends to commence any new regulated activity on the site, a new Contributing Zone Plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
17. A Contributing Zone Plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years from the initial approval of a plan. A new Contributing Zone Plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.
18. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Michael Isley, P.E. of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4057.

Sincerely,



Lynn Bumguardner, Water Section Manager
San Antonio Region Office
Texas Commission on Environmental Quality

LMB/MI/eg

Enclosures: Deed Recordation Affidavit, Form TCEQ-0625A
Change in Responsibility for Maintenance of Permanent BMPs, Form TCEQ-10263

cc: Mr. Richard Gallegos, P.E., Gallegos Engineers, Inc.
Mr. Thomas Hornseth, P.E., Comal County
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. Garry Ford, Jr., P.E., City of New Braunfels
TCEQ Central Records, Building F, MC212



GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

February 16, 2015

Michael Isley, P.E.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

RECEIVED

FEB 23 2015

COUNTY ENGINEER

**Re: Response to February 9, 2015 Comments to Application for CZP
Serenity Oaks Subdivision, Unit 4, Comal County
File ID No. 13-14121501**

Dear Mr. Isley:

We are responding to your February 9, 2015 letter requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

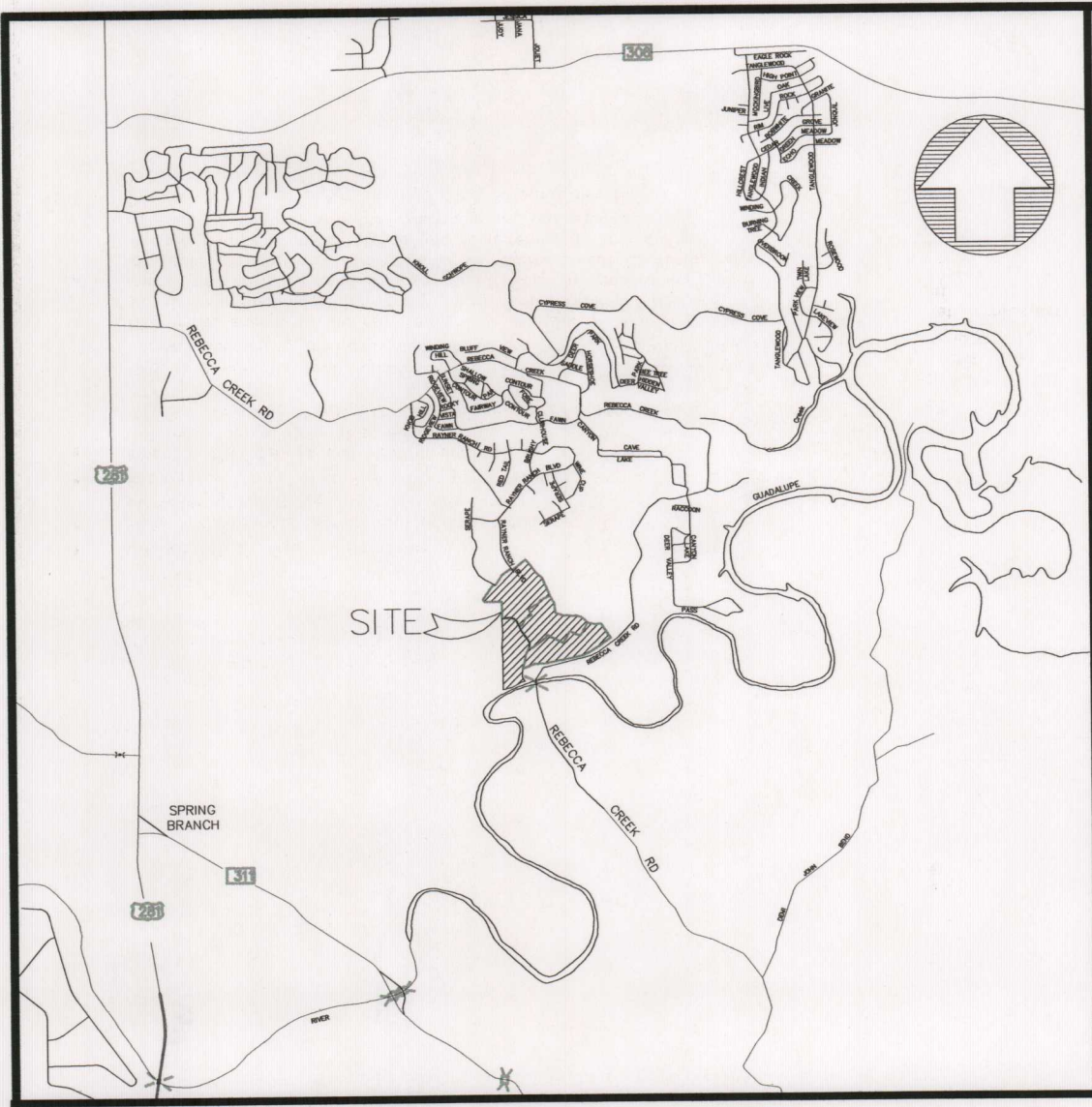
1. We have modified the slit fence temporary BMP along the eastern portion of Unit 4. Please replace the revised CZP-2 map dated February 2, 2015 found behind Tab "X" with the enclosed CZP-2 map dated February 15, 2015. This final map was modified to ensure all disturbed areas drain to a temporary BMP, in this case a silt fence.

Please let us know if you have any questions, comments or require any additional information.

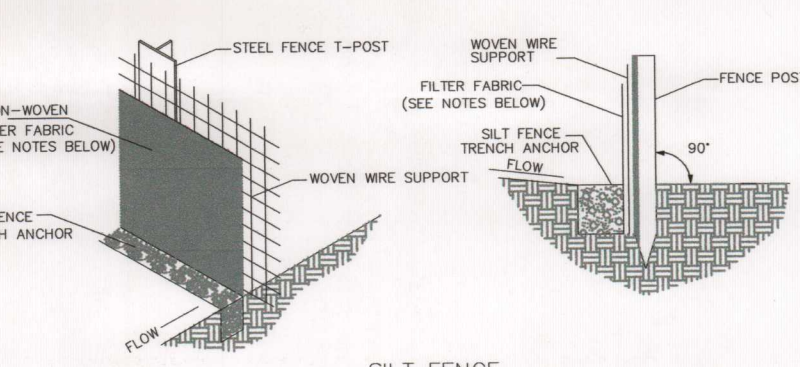
Sincerely,
GALLEGOS ENGINEERING, INC.

Richard M. Gallegos, P.E.
President

RECEIVED TOE
SAN ANTONIO
REGION
2015 FEB 16 PM 3:09



LOCATION MAP
NOT TO SCALE



SILT FENCE

GENERAL NOTES:

- The maximum height of the filter fabric should range between 18 and 36 inches above the ground surface (depending on the amount of upstate ponding expected).
- Posts should be spaced 8 to 10 feet apart when a woven wire support fence is used and not more than 6 feet apart when extra strength filter fabric (without a woven wire support fence) is used. The posts should be embedded a minimum of 18 inches.
- A trench should be excavated 4 to 8 inches wide and 4 to 12 inches deep along the upslope side of the line of posts.
- If standard strength filter fabric is to be used, the optional woven wire support fence should be fastened to the upslope side of the posts. Extend the woven wire support to the bottom of the trench. The filter fabric should be fastened using 4 evenly spaced staples or 1-clips to the woven wire support fence, and 8 to 20 inches of the fabric should extend into the trench.
- Extra strength filter fabric does not require a woven wire support fence. Fastened the filter fabric directly to the posts and extend 8 to 20 inches of the fabric into the trench.
- Where joints in the filter fabric are required, the filter fabric should be spliced together only at a support post, with a minimum 6-inch overlap and securely sealed.
- Do not attach filter fabric to trees.
- Backfill the anchor trench with compacted soil or 0.75 inch minimum diameter gravel placed over the filter fabric.
- Inspect silt fence when the construction site is completely stabilized.
- Remove silt fence daily during periods of prolonged rain, and weekly during periods of no rainfall. Make any required repairs immediately.
- Sediment must be removed when it reaches a depth of 6". Take care to avoid damaging the fence during removal.
- Silt fences should not be removed until the upslope area has been permanently stabilized. Contaminated sediment deposits must be removed and disposed of off-site in accordance with applicable regulations. Uncontaminated sediment deposits remaining in place after the silt fence has been removed should be dressed to conform with the existing grade, and stabilized.
- Place silt fence along a line of uniform elevation, perpendicular to the direction of flow.

MATERIALS:

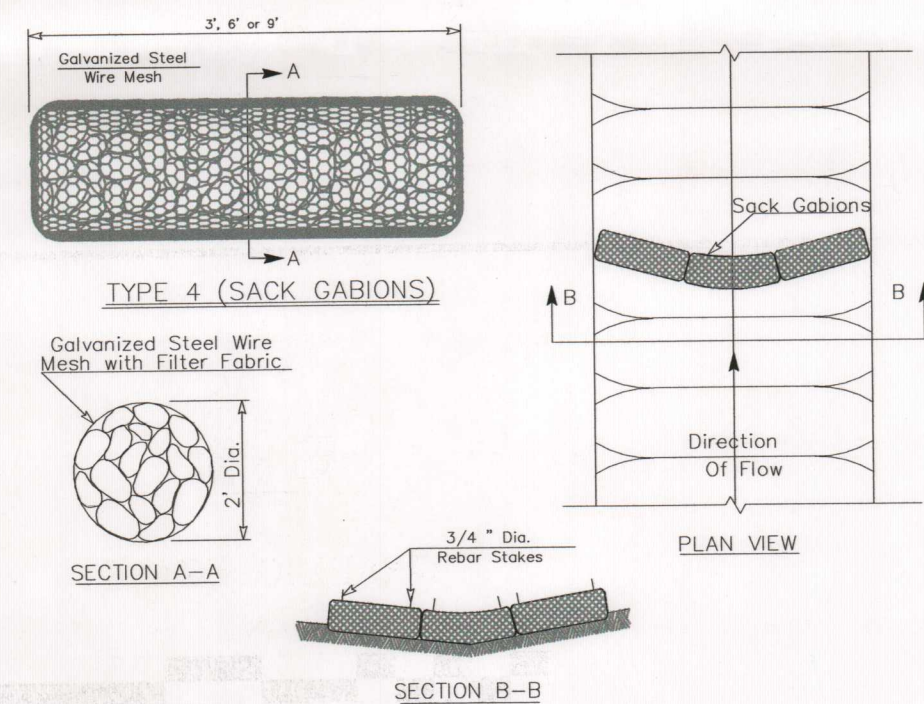
- Fence posts may be either 4" min. steel or wood posts spaced at 6" to 8". Softwood shall be 3" min. dia. or nominal 2" x 4". Hard wood posts shall have a min. cross section 1.5" x 1.5".
- Synthetic filter fabric should be a porous sheet of polypropylene, nylon, polyester, or polyethylene yarn conforming to the requirements below:

Physical Property	Requirements
Minimum Weight	3.5 ounces per square yard (ASTM 3736-84)
Min. Mullen Burst Strength	200 lbs. per square inch (ASTM 3736-87)
Maximum Flow Through Rate	100 gpm/99' of water area (ASTM 4481-80)

- Burlap of 10 ounces per square yard of fabric can also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Net protection should remain in place and operational until the drainage area is stabilized.



GENERAL NOTES:

- The top of the sack gabions should be level and oriented perpendicular to the direction of flow.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material should meet the following specifications: Resistant to ultraviolet light, Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: 1/4" - 8" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed.
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to re-erosion. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.
- Remove sack gabions after construction site is completely stabilized.

INSTALLATION:

- Layout perpendicular to flow direction.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh and filter fabric on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Place the rock along the center of the woven wire mesh taking care not to damage the filter fabric.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains it's shape.
- Secure with tie wire.

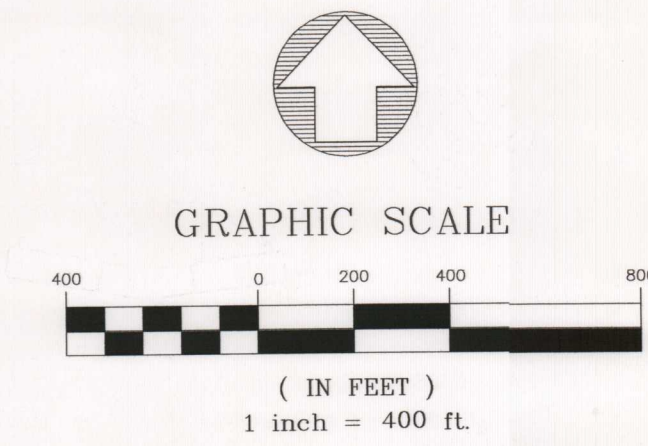
MATERIALS:

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
- Burlap of 10 ounces per square yard of fabric may also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.
- Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.

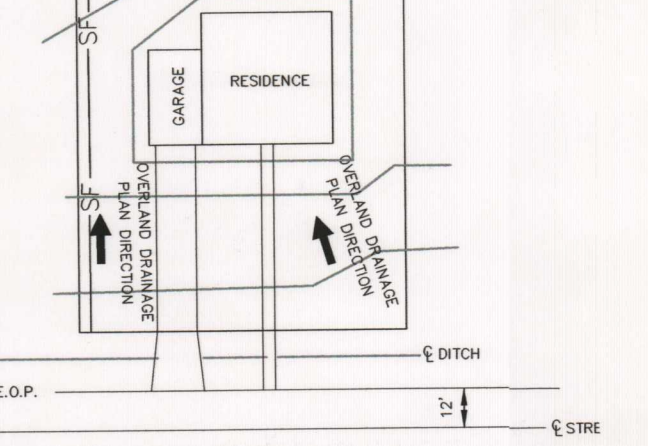
MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the sack gabions are in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Sack Gabions should remain in place and operational until the drainage area is stabilized.

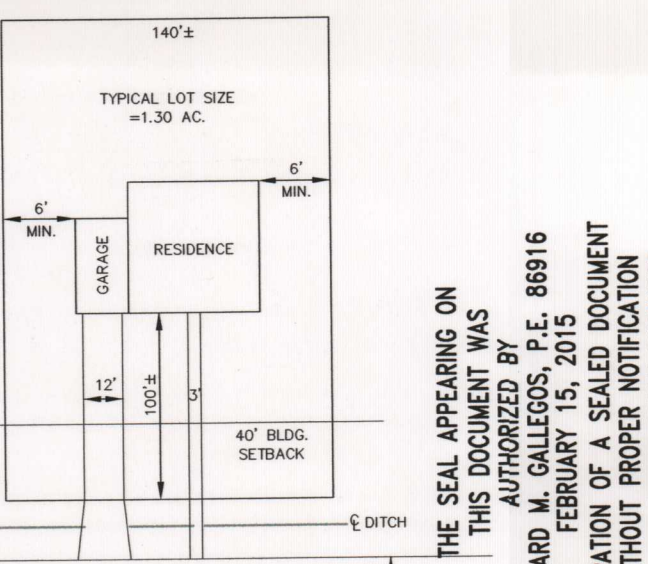
Physical Property	Requirements
Grab Tensile Strength	220 lbs. (ASTM D4632)
Elongation Failure	60% (ASTM D4632)
Mullen Burst Strength	430 lbs. (ASTM D3796)
Puncture Strength	125 lbs. (ASTM D4833)
Equivalent Opening	Size 40-80 (US Std Sieve)(ASTM D4751)



GRAPHIC SCALE
(IN FEET)
1 inch = 400 ft.



TYPICAL LOT
EROSION/SEDIMENT
CONTROL DETAIL
NOT TO SCALE

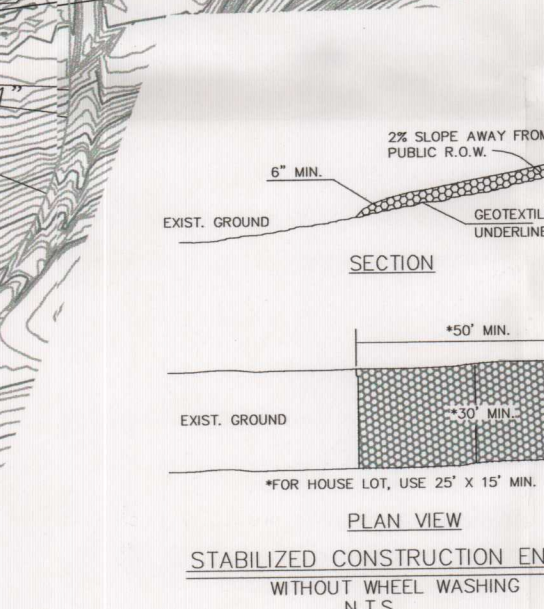


TYPICAL LOT DETAIL
NOT TO SCALE

IMPERVIOUS COVER CALCS.	
RESIDENCE	±2,000 S.F.
GARAGE	±430 S.F.
DRIVEWAY	±1,200 S.F.
WALK	±300 S.F.
TOTAL	±3,930 S.F.

SUBDIVISION TOTAL: 40 LOTS X 3,930 S.F. = 157,200 S.F.
STREET PAVEMENT TOTAL: 78,892 S.F.
TOTAL: 236,092 S.F. = 5.42 ACRES

- PLAN NOTES:
- SINCE DETERMINATION OF SLOPE STABILITY IS DIFFICULT ON THIS SITE PLAN, ALL SURFACES NOT PAVED SHALL BE SLOPE STABILIZED.
 - ULTIMATE GRADES SHALL ADHERE TO EXISTING GRADES SHOWN ON THIS SHEET.



SECTION
PLAN VIEW
STABILIZED CONSTRUCTION ENTRANCE/EXIT
WITHOUT WHEEL WASHING
N.T.S.

GENERAL NOTES:

- Clear all vegetation, roots and all other obstructions in preparation for grading.
- Prior to placing geotextile (filter fabric) make sure that the entrance is properly graded and compacted.
- To reduce maintenance and loss of aggregate place geotextile fabric (filter cloth) over the existing ground before placing the stone for the entrance.
- Stone should be placed to a depth of 6-inches or greater for the entire width and length.
- Width should be not less than full width of all points of ingress or egress. Place the entrance where it meets existing road to provide a turning radius.
- Periodic maintenance will be required to prevent tracking onto public right-of-way or any roadway. All sediment spilled, dropped, or tracked onto any public right-of-way must be removed immediately.

MATERIALS:

- Crushed stone 4-inches - 8-inches in diameter.
- Geotextile (filter fabric) with the properties listed below.

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

- 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 party for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person.
- 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 approved letter on-site.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system may be installed within 150 feet of a domestic, industrial, irrigation, or public water supply well.
- Prior to commencing construction, all temporary erosion and sedimentation (EAS) control measures must be properly installed, 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 inspectors 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.
- If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or concrete features by the next rain).
- Sediment must be removed from sediment traps or sedimentation ponds no later than when design capacity has been reduced by 50%. A permanent state must be provided that can indicate when the sediment occupies 50% of the basin volume.
- Liter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, posted or diked).
- All spoils (excavated materials) generated from the project site and stored on-site must have proper EAS controls installed.
- Stabilization measures shall be initiated as soon as practicable in portions of the site when 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.
- 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.
- The holder of any approved Contributing Zone plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
 - any physical or operational modification of any best management practices or structures, including but not limited to temporary or permanent ponds, dams, berms, sill fences, and diversionary structures;
 - any change in the nature or character of the regulated activity from that which was originally approved;
 - any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer and hydrologically connected surface water; or
 - any development of land previously identified in a contributing zone plan as undeveloped.

Austin Regional Office
2000 S. H 35, Suite 100
Austin, Texas 78704-8712
Phone (512) 339-2929
Fax (512) 339-3765/San Antonio Regional Office
14250 Judson Road
San Antonio, Texas 78233-4480
Phone (210) 490-3006
Fax (210) 545-4320

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

REVISIONS

NO.	DATE	DESCRIPTION	BY

PROJ. #:
DATE: 2/15/15
DWG. BY: R.M.G.
CHKD. BY: R.M.G.
APP. BY: R.M.G.

FIRM REGISTRATION # 440864

GALLEGOS ENGINEERING, INC.

SAN ANTONIO, TEXAS www.gallegoseng.com PH: 210.641.0812

REGISTERED PROFESSIONAL ENGINEER
RICHARD M. GALLEGOS
88916

SERENITY OAKS SUBDIVISION, UNIT 4
COMAL COUNTY, TEXAS
CZP SITE PLAN

CZP
SHEET CZP-2
OF 2



GALLEGOS ENGINEERING, INC.

P.O. BOX 690067
SAN ANTONIO, TEXAS 78269

210-641-0812 PH
210-641-2037 FAX

February 5, 2015

RECEIVED

FEB 17 2015

Michael Isley, P.E.
San Antonio Regional Office
Edwards Program
Texas Commission on Environmental Quality
14250 Judson Road,
San Antonio, TX 78233-4480

COUNTY ENGINEER

**Re: Response to January 20, 2015 Comments to Application for CZP
Serenity Oaks Subdivision, Unit 4, Comal County
File ID No. 13-14121501**

RECEIVED TCEQ
SAN ANTONIO
REGION
2015 FEB -5 PM 1:35

Dear Mr. Isley:

We are responding to your January 20, 2015 letter requesting revised/additional information in order to continue with the technical review. Specifically we offer the following direct responses to each of your numbered comments:

1. We have added slit fence temporary BMP along the eastern portion of Unit 4. The placement of the silt fence corresponds to being out of the 100-year flood plain boundary we are currently analyzing for this phase of the development. Please replace the original CZP-2 map dated December 8, 2014 found behind Tab "X" with the enclosed CZP-2 map dated February 2, 2015.
2. We have checked Attachment H of Form 602, Temporary Storm water Section page 3 of 4. Please replace the original page 3 of 4 found behind Tab "N" with the enclosed page 3 of 4. Also enclosed is Attachment "H" discussing the amount of construction area being smaller than 10 acres at any one time with no need for a temporary sediment pond. Please place this sheet behind Form 602, Tab "N".
3. We have enclosed Attachment I discussing the inspection and maintenance of the BMP's. Please place this attachment behind Attachment "H", Tab "N".

4. We have enclosed Attachment J discussing the schedule of interim and permanent soil stabilization practices. Please place this attachment behind Attachment "I", Tab "N".

Please let us know if you have any questions, comments or require any additional information.

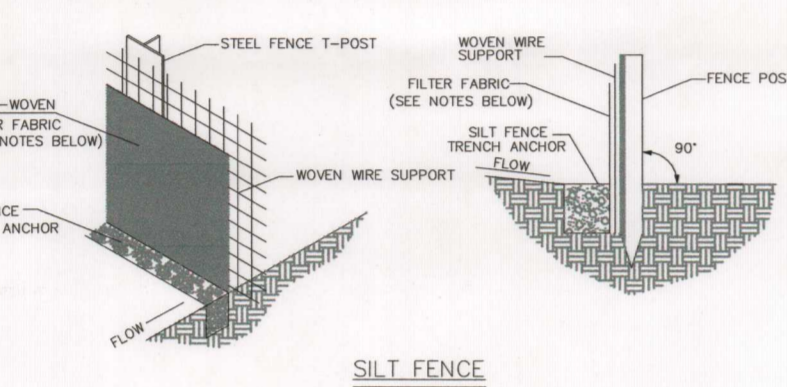
Sincerely,
GALLEGOS ENGINEERING, INC.

A handwritten signature in black ink, appearing to read 'R. Gallegos', with a long horizontal flourish extending to the right.

Richard M. Gallegos, P.E.
President



LOCATION MAP
NOT TO SCALE



SILT FENCE

GENERAL NOTES:

- The maximum height of the filter fabric should range between 18" and 36 inches above the ground surface (depending on the amount of upslope ponding expected).
- Posts should be spaced 8 to 10 feet apart when a woven wire support fence is used and not more than 6 feet apart when extra strength filter fabric (without a woven wire support fence) is used. The posts should be embedded a minimum of 18 inches.
- A trench should be excavated 4 to 8 inches wide and 4 to 12 inches deep along the upslope side of the line of posts.
- If standard strength filter fabric is to be used, the optional woven wire support fence should be fastened to the upslope side of the posts. Extend the woven wire support to the bottom of the trench. The filter fabric should be fastened using 4 evenly spaced staples or 1-ribs to the woven wire support fence, and 8 to 20 inches of the fabric should extend into the trench.
- Extra strength filter fabric does not require a woven wire support fence. Fastened the filter fabric directly to the posts and extend 8 to 20 inches of the fabric into the trench.
- Where joints in the filter fabric are required, the filter fabric should be spliced together only at a support post, with a minimum 6-inch overlap and securely sealed.
- Do not attach filter fabric to trees.
- Backfill the anchor trench with compacted soil or 0.75 inch minimum diameter gravel placed over the filter fabric.
- Remove silt fence when the construction site is completely stabilized.
- Inspect silt fences daily during periods of prolonged rainfall, immediately after each rainfall event, and weekly during periods of no rainfall. Make any required repairs immediately.
- Sediment must be removed when it reaches a depth of 6". Take care to avoid damaging the fence during cleanup.
- Silt fences should not be removed until the upslope area has been permanently stabilized. Contaminated sediment deposits must be removed and disposed of off-site in accordance with applicable regulations. Uncontaminated sediment deposits remaining in place after the silt fence has been removed should be dressed to conform with the existing grade, and stabilized.
- Place silt fence along a line of uniform elevation, perpendicular to the direction of flow.

MATERIALS:

- Fence posts may be either 4" min. steel or wood posts spaced at 6' to 8'. Softwood shall be 3" min. dia. or nominal 2" x 4". Hard wood posts shall have a min. cross section 1.5" x 1.5".
- Synthetic filter fabric should be a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn conforming to the requirements below.

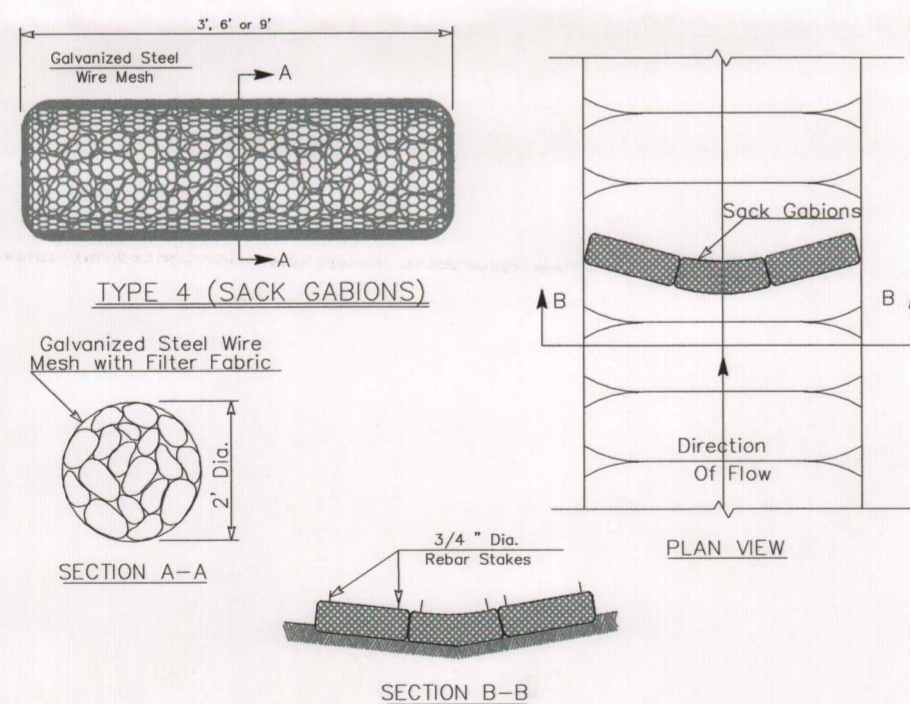
SYNTHETIC FILTER FABRIC REQUIREMENTS

Physical Property	Requirements
Minimum Weight	3.5 ounces per square yard (ASTM 3776-84)
Min. Mullen Burst Strength	200 lbs per square foot (ASTM 3785-87)
Maximum Flow Through Rate	100 GPM/2' of frontal area (ASTM 4493-82)

- Burp of 10 ounces per square yard of fabric can also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.

MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the measure is in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Inset protection should remain in place and operational until the drainage area is stabilized.



TYPE 4 (SACK GABIONS)

PLAN VIEW

SECTION B-B

GENERAL NOTES:

- The top of the sack gabions should be level and oriented perpendicular to the direction of flow.
- Filter fabric material shall be fastened to woven wire support.
- Filter fabric material should meet the following specifications: Resistant to ultraviolet light, Fabric should be non-woven geotextile with minimum weight of 3.5 ounces per square yard, minimum mullen burst strength of 200 pounds per square inch and a flow through rate of 120 gallons per minute per square foot of frontal area.
- Stone size: 3/4" - 8" open graded crushed limestone.
- Inspect weekly or after each rainfall event and repair or replace as needed.
- When silt reaches a depth of 6 inches or more above natural ground, silt shall be removed and disposed in an approved manner that will not contribute to resiltation. Contaminated sediment must be removed and disposed of off-site in accordance with applicable regulations.
- Remove sack gabions after construction site is completely stabilized.

INSTALLATION:

- Layout perpendicular to flow direction.
- Clear the area of debris, rocks or plants that will interfere with installation.
- Place wire mesh and filter fabric on the ground along the proposed installation with enough overlap to completely encircle the finished size of the berm.
- Place the rock along the center of the woven wire mesh taking care not to damage the filter fabric.
- Wrap the structure with the previously placed woven wire mesh secure enough so that when walked across the structure retains its shape.
- Secure with tie wire.

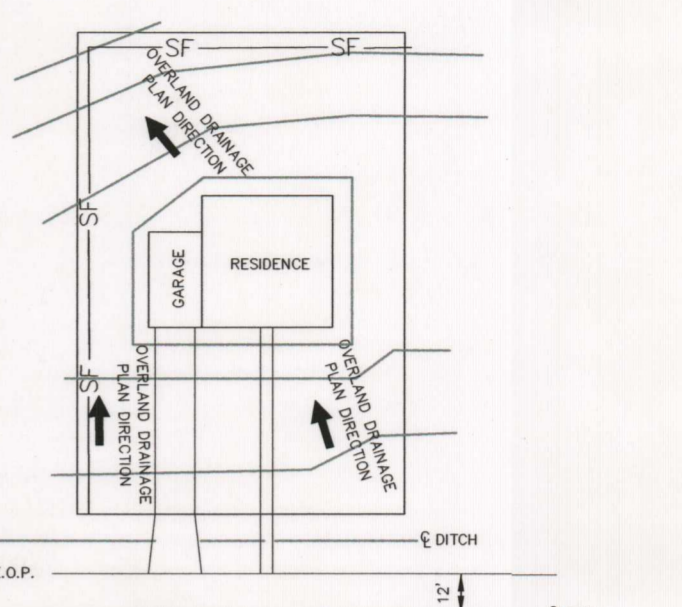
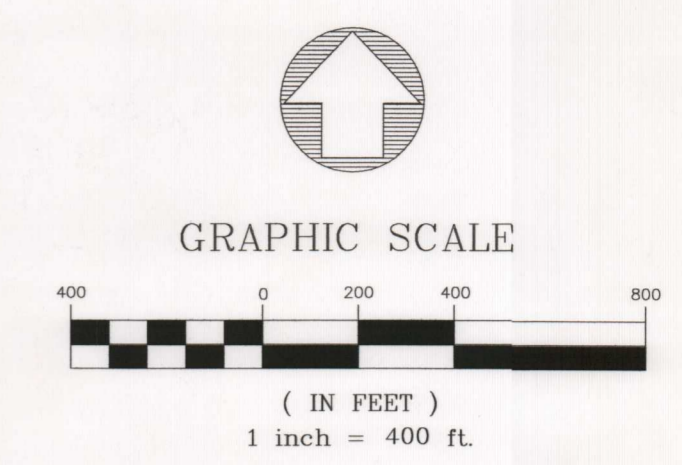
MATERIALS:

- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 70% strength retained after 500 hours.
- Burp of 10 ounces per square yard of fabric may also be used.
- The filter fabric should be purchased in continuous rolls to minimize joints.
- Woven wire support sheathing shall be a minimum 20 gauge with 1 inch openings.

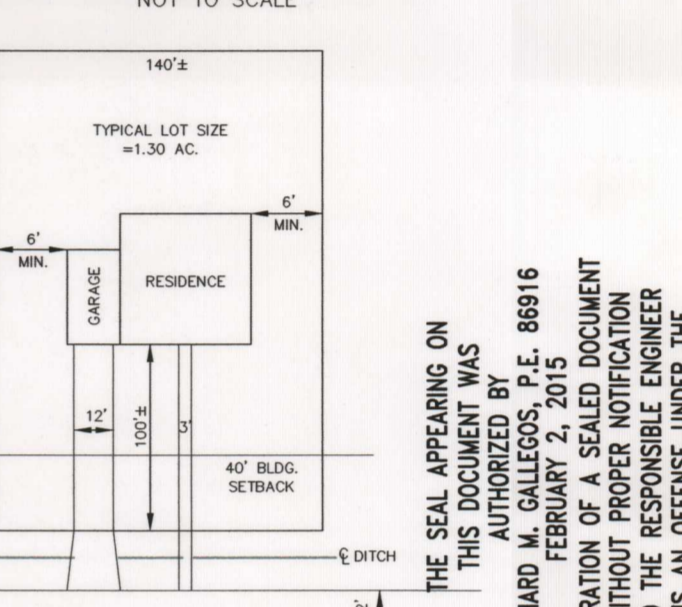
MAINTENANCE:

- Inspect regularly and after every storm. Make any repairs necessary to ensure the sack gabions are in good working order.
- Sediment should be removed and the structure restored to its original dimensions when sediment has accumulated to a depth of 6".
- Clean or remove and replace the stone filter or filter fabric if they become clogged.
- Sack Gabions should remain in place and operational until the drainage area is stabilized.

Physical Property	Requirements
Grab Tensile Strength	220 lbs. (ASTM D4632)
Elongation Failure	60% (ASTM D4632)
Mullen Burst Strength	430 lbs. (ASTM D3786)
Puncture Strength	125 lbs. (ASTM D4833)
Equivalent Opening	Size 40-80 (US Std Sieve)(ASTM D4751)



TYPICAL LOT EROSION/SEDIMENT CONTROL DETAIL
NOT TO SCALE



TYPICAL LOT DETAIL
NOT TO SCALE

IMPERVIOUS COVER CALCS.

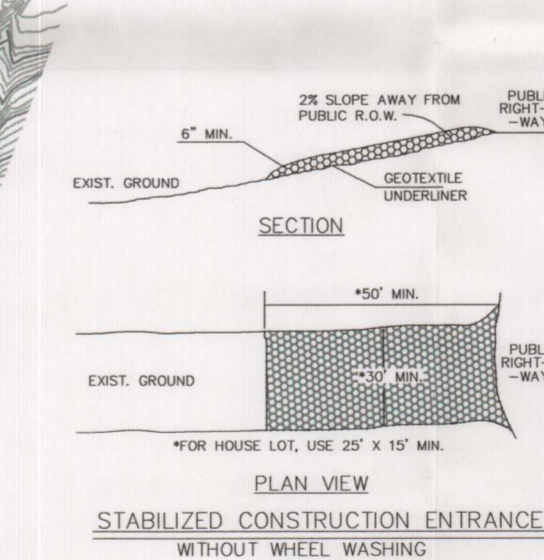
RESIDENCE	±2,000 S.F.
GARAGE	±430 S.F.
DRIVEWAY	±1,200 S.F.
WALK	±300 S.F.
TOTAL	±3,930 S.F.

SUBDIVISION TOTAL: 40 LOTS X 3,930 S.F. = 157,200 S.F.
STREET PAVEMENT TOTAL: 78,892 S.F.
TOTAL: 236,092 S.F. = 5.42 ACRES

- PLAN NOTES:
- SINCE DETERMINATION OF SLOPE STABILITY IS DIFFICULT ON THIS SITE PLAN, ALL SURFACES NOT PAVED SHALL BE SLOPE STABILIZED.
 - ULTIMATE GRADES SHALL ADHERE TO EXISTING GRADES SHOWN ON THIS SHEET.

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

- 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.
- 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 should keep copies of the approved plan and approved letter on-site.
- No temporary aboveground hydrocarbon and hazardous substance storage tank system may be installed within 100 feet of a domestic, industrial, irrigation, or public water supply well.
- 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.
- If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize adverse impacts to water quality (e.g., fugitive sediment is stored being washed into surface streams or sensitive features by the next rain).
- Sediment must be removed from sediment traps or sedimentation ponds not later than when sediment occupies 50% of the basin volume. A permanent stake must be provided that can indicate when the sediment occupies 50% of the basin volume.
- Liter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outlets, picked up daily).
- All spills (accumulated material) generated from the project site and stored on-site must have proper E&S controls installed.
- 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.
- The following records should be maintained and made available to the TCEQ upon request: the notes 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.
- The holder of any approved Contributing Zone plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
 - any physical or operational modification of any best management practices or structures), including but not limited to temporary or permanent ponds, dikes, berms, all fences, and driveway structures;
 - any change in the nature or character of the regulated activity from that which was originally approved;
 - any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer and hydrologically connected surface water; or
 - any development of land previously identified in a contributing zone plan as undeveloped.



SECTION
PLAN VIEW
STABILIZED CONSTRUCTION ENTRANCE/EXIT
WITHOUT WHEEL WASHING
N.T.S.

GENERAL NOTES:

- Clear all vegetation, roots and all other obstructions in preparation for grading.
- Prior to placing geotextile (filter fabric) make sure that the entrance is properly graded and compacted.
- To reduce maintenance and loss of aggregate place geotextile fabric (filter cloth) over the existing ground before placing the stone for the entrance.
- Stone should be placed to a depth of 6-inches or greater for the entire width and length.
- Width should be not less than full width of all points of ingress or egress. Flare the entrance where it meets existing road to provide a turning radius.
- Periodic maintenance will be required to prevent tracking onto public right-of-way or any roadway. All sediment spilled, dropped, or tracked onto any public right-of-way must be removed immediately.

MATERIALS:

- Crushed stone 4-inches - 8-inches in diameter.
- Geotextile (filter fabric) with the properties listed below.

NO.	DATE	DESCRIPTION	BY

FIRM REGISTRATION # 440864
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SAN ANTONIO, TEXAS www.gallegoseng.com PH: 210.641.0812



COMAL COUNTY, TEXAS
SERENITY OAKS SUBDIVISION, UNIT 4
CZP SITE PLAN
CZP
SHEET CZP-2
OF 2

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.

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 has 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 provided as at the end of this form. **See Attachment H behind this form.**
12. **ATTACHMENT I - Inspection and Maintenance for BMPs.** A plan for the inspection of temporary BMPs and measures and for their timely maintenance, repairs, and, if necessary, retrofit is provided at the end of this form. A description of documentation procedures and recordkeeping practices is included in the plan. **See Attachment I behind this form.**
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 at the end of this form. **See Attachment J behind this form.**
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.



GALLEGOS ENGINEERING, INC.

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February 2, 2015

**TEMPORARY STORMWATER SECTION
ATTACHMENT H
TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS
SERENITY OAKS, UNIT 4**

The Developer and contractor will not disturb more than 10 acres at any one time. The total roadway acres are 2 to 3 acres, no mass grading will occur and the homes will be built in phases. Given this information there will not be any temporary sediment ponds required for this phase of the development.

ATTACHMENT H



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February 2, 2015

**TEMPORARY STORMWATER SECTION
ATTACHMENT I
INSPECTION AND MAINTENANCE FOR BMP'S
SERENITY OAKS, UNIT 4**

Best Management Practices

Section 8

Best Management Practices (BMPs) Erosion and Sediment Controls

Part III Section F.2.a.(i)-(ii) and F.2. (c)

Description of Erosion and Sediment Controls designed to retain sediment. Add as many rows as needed.

BMPs Installed	Location(s) On-Site	Inspection/Maintenance Schedule	Modifications/Replacement Activities
Silt Fence	Full ROW South Ends Of Resless Wind	Bi-weekly & after each 2" or great Rain Event.	Replace all damaged & washed out fence.
Rock Berms	Southern Boundary of Lot 146	Monthly	Replace when blocked by sediment to a depth of 1'.
Stabilized Construction Entrance/Exit	The Northern Entrance by way of Serenity Pass at Rayner Ranch Blvd.	Weekly	Replace when silt reaches the top course of aggregate.
Rock Berm	Exit Pt of Main Channel @ S.E. Prop. Cor.	Monthly	Replace when blocked by sediment to a depth of 1'.

Are there sedimentation basins or traps?* <i>If yes, list the measures taken to reduce the pollutants transported off-site by pumping activities.</i>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Prevention Measure	Location	Implementation

<i>Are there sedimentation basins or traps? * If yes, list the measures taken to reduce the pollutants transported off-site by pumping activities.</i>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>On-Site</i>	<i>Date</i>
N/A		

* Part III Section F.6. (c) Sediment must be removed from sediment traps and basins no later than the time that the design capacity has been reduced by 50 percent.

Section 15

Inspection of Controls Worksheets/Report

Part III Section F.7.

Complete this worksheet every seven days; **OR**, every 14 days and within 24 hours of a 2 inch rainfall event, and retain in your SWP3.

Inspector (name/title): **Inspection Date:** **Day:** **Time:** **am/pm**

Scope of inspection: 14 Day Inspection or Weekly Inspection

Day of week normally conducted: _____ **0.5 inch Rainfall Event**

<i>Inspection Type:</i>	<i>Inspected? (Y/N)</i>	<i>Areas of Concern (Describe in detail in the narrative section)</i>
Disturbed Soil Areas	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Material Storage Areas	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Structural Controls	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Sediment & Erosion Controls	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Entrance(s) and Exit(s)	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Discharges:

<i>Nature of discharge (silt, gravel, sand, other pollutant)</i>	<i>Location on-site discharge</i>



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February 2, 2015

TEMPORARY STORMWATER SECTION ATTACHMENT J SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES SERENITY OAKS, UNIT 4

1. Stabilization practices may include but are not limited to the establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sodding, vegetative buffer strips, protection of existing trees and vegetation and other similar measures. Continuous interim on-site stabilization measures will include the following:
 - a. Minimizing soil disturbances by exposing only the smallest practical area of land required for clearing and grading activities as well as for construction activities for the shortest time possible.
 - b. Maximizing the use of natural vegetation including grass, weeds, trees, shrubs etc. by leaving these materials in place until construction necessitates the clearing for continuance of construction.
 - c. Trenching and backfilling for utilities and foundations shall be coordinated in order to minimize the time these areas are disturbed.
2. Permanent on-site stabilization measures which will be scheduled will include the following:
 - a. As soon as the subgrade compaction is acceptable, the exposed soil in the road will be covered with flexible base material, compacted and stabilized as quickly as possible prior to the placement of the finished pavement surface.
 - b. As soon as practical, all disturbed soil that will not be covered by construction of roads, houses or other types of impervious cover will be stabilized by applicable project specifications.
3. All stabilization measures will be initiated as soon as possible in those portions of the site where construction activities have either temporarily or permanently stopped. The stabilization measures shall be initiated within fourteen (14) days after the construction activity has ceased. Where construction activity on a portion of the site is temporarily stopped and earthwork activities will resume within twenty-one (21) days, the temporary stabilization methods do not have to be initiated on that area of the site.