

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 15, 2015

RECEIVED

SEP 24 2015

Mr. Mark L. Wauford
Westpointe G. P. LLC, the General Partner of Westpointe Commercial, LTD.
c/o The M L & E Company
P. O. Box 1390
Chester, Virginia 23832

COUNTY ENGINEER

Re: Edwards Aquifer, Comal County

NAME OF PROJECT: **Emerald Cottages**; Located west of the intersection of Oak Run Parkway and Independence Drive; New Braunfels, Texas

TYPE OF PLAN: Request for Approval of a **Water Pollution Abatement Plan (WPAP)**; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Investigation No. 1253037 Regulated Entity No. RN107936874; Additional ID No. 13-15051401

Dear Mr. Wauford:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the WPAP Application for the above-referenced project submitted to the San Antonio Regional Office by Bury-SAN, Inc. on behalf of Westpointe G. P. LLC, the General Partner of Westpointe Commercial LTD., on May 14, 2015. Final review of the WPAP was completed after additional material was received on August 25 and August 27, 2015. As presented to the TCEQ, the Temporary and Permanent Best Management Practices (BMPs) were selected and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are **hereby approved** subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer Protection Plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

The proposed multi-family residential development will have an area of approximately 19.32 acres. The proposed development includes construction of an access driveway, 18 buildings and associated

parking. Impervious cover for the site totals 11.32 acres (58.59 percent). Project wastewater will be disposed of by conveyance to the existing Gruene Road Water Recycling Center owned by New Braunfels Utilities.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, a partial sedimentation/filtration basin, designed using the TCEQ technical guidance document, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices (2005), will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 10,161 pounds of TSS generated from the 11.32 acres of impervious cover. The approved measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The total capture volume of the basin is 85,244 cubic feet (50,538 cubic feet required). The filtration system for the basin will consist of 6,806 square feet of sand (4,184 square feet required) meeting ASTM C-33, which is 18 inches thick and an underdrain piping system covered with a minimum two inch gravel layer. The required TSS removal is 10,161 pounds and the provided TSS removal is 10,161 pounds. The basin has been oversized for future development.

GEOLOGY

According to the geologic assessment included with the application, the site is located within the Buda Limestone, Del Rio Clay and Edwards Group. One sensitive manmade feature (S-6), a hand dug well, was noted in the assessment by the project geologist. The well will be properly plugged. The San Antonio Regional Office site assessment conducted on June 29, 2015 revealed that the site was generally as described in the application.

SPECIAL CONDITIONS

- I. The permanent pollution abatement measure shall be operational prior to occupancy of the facility.
- II. All sediment and/or media removed from the water quality basin during maintenance activities shall be properly disposed of according to 30 TAC 330 or 30 TAC 335, as applicable.

STANDARD CONDITIONS

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

Prior to Commencement of Construction:

4. 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 form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved WPAP is enclosed.
5. 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 WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
6. Modification to the activities described in the referenced WPAP 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.
7. 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 date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
8. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, 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.
9. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

10. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
11. 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. 6, above.
12. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent

must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

13. One hand dug well exists on the site which will be properly plugged. All water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
14. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
15. 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.
16. 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.
17. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

18. 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.
19. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. The regulated entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TCEQ-10263) is enclosed.
20. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
21. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50 percent of the total construction has not been completed within ten years

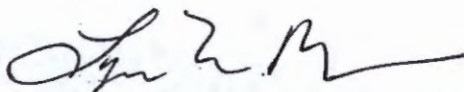
Mr. Mark L. Wauford
September 15, 2015
Page 5

from the initial approval of a plan. A new Edwards Aquifer protection 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.

22. 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 Dianne Pavlicek-Mesa, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210-403-4074.

Sincerely,



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

LB/DPM/eg

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

cc: Mr. Coy D. Armstrong, P.E., Bury-SAN, Inc.
Mr. Garry Ford, P.E., City of New Braunfels
Mr. Thomas H. Hornseth, P.E., Comal County Engineer
Mr. Roland Ruiz, Edwards Aquifer Authority
TCEQ Central Records, Building F, MC 212

SEP 04 2015

COUNTY ENGINEER

August 25, 2015

Project No.: R0110729-50002

Mr. Ricardo Macias, EIT
Texas Commission on Environmental Quality
14250 Judson Road
San Antonio, Texas 78233

Re: Edwards Aquifer, Comal County
Name of Project - Emerald Cottages, located west of the intersection of Oak
Run Parkway and Independence Drive, New Braunfels, Texas
Plan Type: Request for the Water Pollution Abatement Plan (WPAP),
30 Texas Administrative Code (TAC) Chapter 213
EAPP File No. 13-15061001

RECEIVED TCEQ
SAN ANTONIO
REGION
2015 AUG 27 4 10:05

Dear Mr. Macias:

This is our response to comments received from your office on August 11, 2015. We have reviewed these comments and respond in the following manner:

1. Comment. General Information - TCEQ 0587-Attachment C: Project Description;
 - a. The project description states that the Emerald Cottages project consists of 19.33 acres. The Comal County Appraisal district shows that the legal boundaries of the properties where regulated activities are being proposed is 20.307 acres. Those properties include Property ID #'s 383337 (19.272 ac), 72662 (0.805 ac), and 72833 (0.23 ac) respectively. Reconcile the differences and revise the applicable sections of the application.

Response: Subdivision plat "Emerald Cottages at WV" has been approved by the City of New Braunfels and is awaiting recordation. The plat defines the legal boundary of the tracts to encompass ±19.32 acres. A copy of the plat and approval letter are included with this response letter.

- b. The project description states that the water quality pond was designed to provide treatment of the Emerald Cottages site as well as to account for future developments on the west side of the property. It states that in "...addition to the 11.01 acre multi-family site at 80% impervious cover, the adjacent 8.32-acre tract is being accounted for at 85% impervious cover for the design of this BMP". Please be aware that the approximate 7.072 acres of impervious cover associated with the future development cannot be approved with this application submittal as the absence of all detail on the site plan indicates this area to be conceptual in nature. While the water quality pond may be oversized for future development, the assumed impervious cover must be removed from this application. The submission and approval of a WPAP modification will be required before commencing regulated activities within the future area. Revise the project description as appropriate, reconcile affected areas of the application, and resubmit the revised forms and/or attachments.

922 Isom Road
Suite 100
San Antonio, Texas
78216

P 210.525.9090
F 210.525.0529

Austin
San Antonio
Dallas
Houston
Temple

Response: The 5.536 acre tract that is not being developed at this time has been removed from the calculations for the water quality pond. Associated forms and attachments have been updated accordingly.

- c. Please be advised that the load to be treated from future areas must be calculated in accordance with technical guidance in affect at the time of application submittal. Any deficits in treatment capacity as a result of revisions to the executive director's technical guidance must be reconciled to demonstrate compliance with the 30 TAC 213.5(b)(4)(D)(ii)(I) requirement regarding TSS removal.

Response: Comment noted.

- d. The project description states that the project will include the construction of 17 buildings. Sheet C3.1 relating to the Overall Site Plan shows 18 buildings. Please reconcile the discrepancy and revise the project description or site plan, whichever is appropriate.

Response: Project description has been revised to state 18 buildings.

2. Comment: Geologic Assessment – TCEQ 0585 -

- a. Form Entry #14 discloses that one well is present on the site. Form Entry #20 of the WPAP Application TCEQ 0584 also discloses that one well is present on site. Both form entries indicated that the well is not in use and will be properly abandoned. The well was assessed as a sensitive feature (Feature #6) with a recommendation from the geologist that if the feature was not going to be preserved as part of the development on site, then it should be plugged and abandoned by a licensed water well driller prior to the commencement of development activities. Attachment D of the Temporary Storm Water Section (TCEQ-0602) states that the feature should be plugged and abandoned by a licensed water driller prior to the commencement of development activities. Attachment D of the Permanent Storm Water Section (TCEQ-0600) states that the feature should properly sealed by a Licensed Water Well Driller. Lastly, Attachment E of the Permanent Storm Water Section (TCEQ-0600) regarding a request to seal a feature also states that the feature should be sealed.
 - i. Please provide confirmation that the feature will be sealed prior to the commencement of regulated activities

Response: Feature 6 will be sealed prior to the commencement of regulated activities. See note on sheet C3.1 Overall Site Plan.

- ii. Please submit feature closure information such as diagrams, sketches, concrete strength, etc.

Response: Because the depth of the feature is not known at this time, we cannot provide accurate diagrams and/or sketches. We have provided a recommendation for sealing the well as indicated on sheet C3.1. Per our conversation with Mr. Macias, prior to the commencement of construction, a detailed plan by a licensed water well driller will be submitted to and approved of by TCEQ.

- iii. Please add the feature closure to the sequence of major activities.

Response: Feature closure has been added to the sequence of major activities.

- iv. Please revise the various attachments to ensure the language describing the closure is consistent.

Response: The necessary attachments have been revised.

3. Water Pollution Abatement Plan Application – TCEQ-0584

- a. Please revise Form Entry #'s 1, 2, 3, 4, and 13 (Attachment B) as appropriate to acknowledge the revisions to the site acreage, impervious cover totals, and any other disclosed information needing revision.

Response: The necessary forms have been revised.

- b. Revise the site plan to show the legal boundaries of the site. The area located at the NW corner of the intersection between Oak Run Parkway and Independence Drive was not included in the site boundaries but is part of the contiguous 19.272 acre lot.

Response: The site plan, C3.1, correctly shows the entire legal boundaries of the site. Also, see attached subdivision plat and approval letter from the City of New Braunfels.

4. Temporary Storm Water Section – TCEQ-0602

- a. Revise Attachment C as necessary to include the feature closure as a major sequence of activities.
 - i. Also revise the Total Site Area and Post-construction impervious cover values within Attachment C.

Response: Attachment C has been updated.

- b. Revise Attachment D as necessary to ensure the feature closure language is consistent with other form responses and attachments as necessary.

Response: The necessary forms have been revised.

- c. Attachment I regarding the Inspection and Maintenance for BMPs states in the 6th paragraph that "If one or more of the following conditions apply, the frequency of inspections shall be conducted at least once every month". It includes scenarios such as achieving temporary stabilization, winter conditions, and arid period.
 - i. Please be advised the Technical Guidance Manual (RG-348) does not allow for modification of inspection frequencies.
 - ii. Please remove the section from the attachment and submit the revised pages.

Response: The section of the attachment in question has been removed.

- iii. The last paragraph of Attachment I states that "Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. This language is not consistent with the maintenance triggers noted in the specific TBMP details in Attachment D. Specifically, the curb inlet protection, stabilized construction, and sediment filter require maintenance well before the 6 inch accumulation trigger is reached. Silt fencing cannot exceed 6 inches in accumulated sediment before requiring maintenance.
 - 1. Please revise Attachment I to be consistent with the TGM and manufacturer recommendations.

Response: The maintenance section of Attachment I has been revised.

- 5. Permanent Storm Water Section – TCEQ-0600
 - a. Please revise Attachment B relating to BMPs for Up-gradient Storm to note the revisions to the site area and impervious cover totals.

Response: Attachment B has been updated.

- b. Please revise Attachment C relating to BMPs for On-Site Storm Water to note the revision to the site area and impervious cover totals.

Response: Attachment C has been updated.

- c. Please revise Attachment D relating to BMPs for Surface Streams to note the timing and method of sealing for Feature 6.

Response: Attachment has been revised to note the timing and recommended method of sealing Feature 6.

- d. Please revise Attachment D relating to the Request to Seal a Feature to note the timing and method of sealing Feature 6.

Response: Attachment has been revised to note the timing and recommended method of sealing Feature 6.

- e. Please revise Attachment G relating to the Inspection, Maintenance, Repair, and Retrofit plan to include a note that if after the first year, more frequent inspections are needed, they will be conducted until the operational characteristics of the filter are known.

Response: Attachment G has been updated.

- f. Attachment C: Project Description, Attachment B: BMPs for Up-Gradient Storm Water, and Attachment C: BMPs for On-Site Storm Water all state that storm water runoff will be collected and conveyed to the water quality basin through the proposed storm sewer system.

- i. The storm sewer system is depicted on Sheet C3.1 (Overall Site Plan, Sheet C3.0 (Drainage Plan), and Sheet EX-2 (Proposed Drainage Area Map) to include surface conveyance through constructed storm ditches to basin inlets located NW and NE of the basin. Please confirm that underground storm sewers will not be constructed.
 1. Please disclose whether the storm ditches will be constructed of concrete or earth material.

Response: The conveyance channel shall be earthen in nature.

2. If earth material, please disclose the measure to be taken to ensure eroded materials to not contribute the required treatment load from regulated impervious cover.

Response: Disturbed soil shall be stabilized and seeded in accordance with the notes on the plans.

3. Modify Attachment G of the Inspection, Maintenance, Repair, and Retrofit plan to include periodic inspections of the conveyance system and subsequent repair and maintenance procedures as appropriate.

Response: Attachment G has been modified to include inspections and maintenance for the conveyance channel.

6. Sheet C2.1: Water Quality Pond Details
 - a. Revise the calculations to remove the unapproved future impervious cover values. Re-run the calculations and revise the plan sheet.

Response: Calculations have been revised as necessary.

- b. Revise the site area to reflect the actual area included within the legal boundaries of the site. Re-run the calculations and revise the plan sheet.

Response: Calculations have been revised as necessary.

- c. Ensure that offsite areas contributing flow to the basin have been properly calculated. Revise the plan sheet as appropriate.

Response: Offsite areas have been calculated properly.

- e. Ensure that the total drainage basin area values are accurate. Revise and re-run the calculation as appropriate. Re-submit a revised plan sheet as appropriate.

Response: Basin area values have been calculated properly.

7. Sheet C3.1: Overall Site Plan

- a. Section 3.4.1(RG-348) General Requirements for Maintenance Access. Sheet C3.1 indicates that the location of the entrance to the water quality pond is centrally located yet the ramps are to either side of the berm dividing the detention pond and water quality pond. Please explain how vehicle and equipment traffic will access the maintenance ramps located on the opposite side.

Response: The location of the maintenance access for the ponds has been relocated to be in line with the top of the berm in between the ponds. Vehicles can access the ponds by driving along the top of the berm to the ramps leading to the bottom of each pond.

- b. Section 3.4.1 (11) (RG-348) indicates that the minimum width is 12 feet for a ramp into each basin of the facilities if the basin area is greater than 5,000 ft². The size of this basin is over 5,000 ft² but the ramp width is only 10 feet. Revise and re-submit a revised plan sheet as appropriate.

Response. The maintenance ramps have been revised to a width of 12'.

- *As per e-mail dated August 7, 2015.*

8. Comment: As a supplement to NOD1, please review the following comments regarding noted deficiencies with Sheet C3.1 titled "Overall Site Plan" and Sheet C1.0 titled "Existing Conditions, Demolition, and S.W.P.P.P."

1. In accordance with 30 TAC 213.5(b)(2)(C), the site plan must show the layout of the development showing existing and finished contours as appropriate, but not greater than ten foot contour intervals;
 - a. Please confirm that finished contours were provided for the entire layout. Be advised that the contour elevations on the Site Map were either to light or were not provided. Please make the final contours easily discernable from the existing contours.

Response. The finished contours were shown on the sheet, but were not very clear. The sheet has been revised with the finished contours showing up more clearly.

- b. The building layouts were not provided with sufficient enough detail to evaluate the final stabilization measures (if applicable) proposed for the pervious areas surrounding the building.

Response. All disturbed soil areas outside of paved areas and building footprints will be reseeded in accordance with the notes provided on the plans.

- c. Sheet C1.0 titled "Existing Conditions, Demolition, and S.W.P.P.P." did not appear to include any temporary BMPs for the building pad areas or for the final entrance/exit area. It appears that areas of primary storm water conveyance had no temporary measures to dissipate flow velocity. In addition, areas of soil disturbance and areas which will not be disturbed do not appear to be labeled and none were observed on the legend. Locations where stabilization practices are expected to occur were not observed on this sheet or Sheet C3.1.

Mr. Ricardo Macias

August 25, 2015

I:\110729\50002\AD Letters & Memos\2015 08 25 Macias (TCEQ).docx.mm

Response. Silt fence is provided on Sheet C1.0 as a temporary BMP for the entire site. The final entrance/exit does not require a temporary BMP as it is a permanent fixture to the development. Velocities in the conveyance channels are not anticipated to reach 6 feet per second during regular storm events to warrant temporary BMPs. Areas of soil disturbance and stabilization have been added to the Sheet C3.1.

- i. NOTE: Please also coordinate with the City of New Braunfels when installing the inlet protection devices on Oak Run Parkway. Inlet protection measures can quickly clog and cause flooding issues on well-traveled roads. Flooding is a safety concern that should be discussed with the local municipal separate storm sewer system (MS4) operator before final design. If the MS4 operator determines that proposed inlet protection measures are not appropriate, ensure that equivalent measures are provided.

Response. A note has been added to the sheet regarding coordination with the City of New Braunfels.

- d. Please revise the Sheet C3.1 to show finished contours and building pad detail so that the executive director may evaluate compliance with the applicable requirements of 30 TAC 213.5.

Response. Sheet C3.1 has been re-printed to better show finished contours and grading details around the building pads.

- e. Please revise Sheet C1.0 to include finished contours, locations of soil disturbance, locations where stabilization will occur, and the placement of temporary BMPs in the aforementioned areas. Ensure that TBMPs are proposed for the development entrance as well as its upgradient areas serving as final storm water conveyances. Revise the temporary section as appropriate to ensure temporary control measures are properly selected, installed, and maintained.

Response. Finished contours, locations of soil disturbance, and locations of soil stabilization are shown on C3.1. Sheet C1.0 is an existing conditions and storm water pollution prevention plan sheet.

2. CLARIFICATIONS:

- a. Comment 1(C) was a notice regarding future plan submittals.
- b. Comment 5(F)(i) is asking for confirmation that underground storm sewers will not be constructed to collect storm water from the building pad areas.
- c. Comment 5(F)(i)(2) is asking about stabilization measures if earthen conveyances will be used to direct post-construction storm water to the water quality basin.

Response. Comments noted.

Mr. Ricardo Macias
August 25, 2015

I:\110729\50002\AD Letters & Memos\2015 08 25 Macias (TCEQ).docx.mm

If you have any questions or require any additional information, please do not hesitate to contact our office.

Sincerely,



Matthew M. Hilbig, EIT
ENGINEER ASSOCIATE
Bury-SAN, Inc. TBPE F-1048

**INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
EMERALD COTTAGES
NEW BRAUNFELS, TEXAS**

The owner of the lot where a sedimentation/filtration basin is located is responsible for the inspection, maintenance, and repair of the water quality pond(s). The owner of the drainage conveyance system is responsible for periodic inspections and subsequent repair and maintenance to ensure system functions as designed.

- ***First year of operation.*** The sand filter BMPs will be inspected on a *quarterly basis and after large storms for the first year of operation*. If after the first year more frequent inspections are needed, they will be conducted until the operational characteristics of the filter are known.
- ***Inspections.*** BMP facilities will be inspected *at least twice a year (once during or immediately following wet weather)* to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP will be identified and repaired or re-vegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) will be identified and repaired immediately. Cracks, voids and undermining will be patched/filled to prevent additional structural damage. Trees and root systems will be removed to prevent growth in cracks and joints that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.
- ***Sediment Removal.*** Sediment will be removed from the inlet structure and sedimentation chamber *when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment will be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.*
- ***Media Replacement.*** Maintenance of the filter media will be performed *when the drawdown time exceeds 48 hours*. When this occurs, the upper layer of sand will be removed and replaced with new material meeting the original specifications. Any discolored sand will also be removed and replaced. In filters that have been regularly maintained, this will be limited to the top 2 to 3 inches.
- ***Debris and Litter Removal.*** Debris and litter that accumulates near the sedimentation basin outlet device will be removed *during regular mowing operations and inspections*. (Particular attention will be paid to floating debris that can eventually clog the control device or riser.)
- ***Filter Underdrain.*** The underdrain piping network will be cleaned to remove any sediment buildup *as needed* to maintain design drawdown time.

INSPECTIONS

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
4. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

The inspection shall be conducted by the responsible person at least once every seven (7) calendar days and within 24 hours after a storm providing 1/2 inches of rainfall or greater.

The information required within an inspection and maintenance report are as follows:

1. Summary of the scope of the inspection.
2. Name(s) and qualifications of personnel making the inspection.
3. The date(s) of the inspection.
4. Major observations relating to the implementation of the storm water pollution prevention plan.
5. Changes required to correct damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

1. The dates when selective clearing activities occur.
2. The dates when selective clearing activities permanently cease on a portion of the site.

Inspection and maintenance reports, as well as all records required by a Storm Water Pollution Prevention Plan (SWPPP), shall be included in the onsite SWPPP as part of the Texas Pollution Discharge Elimination System (TPDES) Report. Copies of example forms to be used for the inspection and maintenance reports along with their related records, will be included in the onsite SWPPP and are provided for reference.

MAINTENANCE

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing erosion controls need modification or additional erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed of when the depth of accumulation equals or exceeds the maintenance triggers as outlined in the TBMP details provided in Attachment I of the Temporary Storm Water Section of this report.

TEMPORARY BMPS

At the beginning of the project, Temporary Best Management Practices (BMPs) will be installed according to the attached Temporary BMP Details and placed as shown on the TBMP Site Plan.

The site is located northwest corner of Oak Run Parkway and Independence Drive intersection. Upgradient water from the undeveloped site of the proposed development will be captured through a storm channel and conveyed west to the proposed water quality pond and proposed detention pond.

On-site Water

Silt fencing will be placed along the boundary line of the tracts. Inlet protection will be placed as necessary to protect the proposed inlets onsite. These Temporary BMPs will be installed along the down-gradient boundary of the property to filter all runoff that originates on site as indicated in the report. A temporary sediment basin will be installed. The temporary construction entrance will be installed to prevent tracking materials offsite. Additionally, a concrete truck washout area will be placed onsite and be accessible to all existing traffic leaving the site. By this, the Temporary BMPs will prevent pollution of surface water that originates on-site due to the construction of the project.

The following sections were taken from the TNCC Manual, "Complying with Edward Aquifer Rules: Technical Guidance on Best Management Practices."

- Construction Exit should be used at all designated access points.
 - Silt Fence (interior) Areas of minor sheet flow. < ¼ acre/100 feet of fence < 20% slopes.
 - Silt Fence (exterior) Down slope borders of site; up slope border is necessary to divert offsite drainage. For larger areas use diversion swale or berm. < ¼ acre/100 feet of fence < 20% slopes.
 - Rock Berm Drainage swales and ditches with and below site. < 5 acres < 30% slopes.
 - Inlet Protection Prevent sediment from entering storm drain system. < 1 acre.
 - Spill Prevention Used on all sites to reduce spills.
 - Concrete Washout Use on all concrete pouring operations.
- A. A description of how BMPs and measures will prevent pollution of surface water, groundwater or storm water that originates upgradient from the site and flows across the site.
1. The upgradient storm water will be directed to the previously mentioned temporary BMPs.
- B. 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 storm water runoff from the site.
1. Silt fence and stabilized construction entrances shall be used to prevent pollution of surface water, groundwater or storm water that originates on-site or flows off-site by locating the TBMPs downstream of the flows leaving the site.

The TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released into the existing storm sewer system. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process.

All TBMPs will be maintained by the Contractor as will be described in the Contractor's Storm water Pollution Prevention Plan (SWPPP). The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating on-site to the greatest extent practicable.

- C. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - 1. By locating the TBMPs downstream of the flows leaving the site, the TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. All TBMPs will be maintained by the Contractor as will be described in the Contractor's SWPPP. The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating onsite to the greatest extent practicable.
- D. 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.
 - 1. There is one sensitive features on site according to the geologic assessment - Feature 6 of the Weston Geologic Assessment. The water well should be sealed by a licensed water well driller prior to commencement of development activities.

PROJECT DESCRIPTION

The Emerald Cottages project consists of ±19.32 acres located along Oak Run Parkway - northwest of Oak Run Parkway and Independence Drive intersection. The subject tract is within the full purpose jurisdiction of the City of New Braunfels, Comal County, Texas and it is located in the Edwards Aquifer Recharge Zone (EARZ), within the Guadalupe River Watershed by way of both Dry Comal Creek and Blieders Creek. Currently, the site is undeveloped with natural vegetation and trees and there is no existing impervious cover on site. The development includes the construction of an access driveway to the multi-family residential site, eighteen (18) buildings, a proposed water quality pond and detention pond with the associated drainage, private storm sewer, public and private water and wastewater utilities, and sewage collection system (SCS).

A partial sedimentation/filtration basin will be used as a Permanent Best Management Practices (BMPs) onsite to treat storm water generated from the proposed and future development. This BMP has been designed in accordance with TCEQ's Technical Guidance Manual to remove 80% of the increased Total Suspended Solids (TSS). The proposed water quality pond has been designed to provide treatment for the ±11.01-acre Emerald Cottages site as well as to account for future developments on the west side of the property. Moreover, storm water will be detained in a proposed detention pond prior to being released into the existing public drainage system. Lastly, ±2.58 acres of offsite storm water is being passed through the proposed BMP as undeveloped (pervious) property. The offsite area is currently undeveloped and would need to mitigate any future increase in impervious cover.

The accompanying SCS describes the measures taken to design the proposed onsite sanitary sewer system.

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	161,171	$\div 43,560 =$	3.70
Parking	222,592	$\div 43,560 =$	5.12
Other paved surfaces	108,987	$\div 43,560 =$	2.50
Total Impervious Cover	504,860	$\div 43,560 =$	11.32

Total Impervious Cover 11.32 \div Total Acreage 19.33 $\times 100 =$ 59% Impervious Cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. 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.

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

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

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 =$ _____ % impervious cover.

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

VOLUME AND CHARACTER OF STORM WATER

The project site is defined by five (5) minor existing drainage areas and they generally drain towards the west side of the property. The existing drainage area will produce a peak flow of ± 46 cubic feet per second (cfs) during a 100-year storm event. The table below shows the runoff values for this project. This existing drainage areas naturally convey storm water off-site via overland flow, eventually discharging into Blieders Creek. An Existing Drainage Area Map is within the site plan set. In the proposed conditions, storm water is to be captured via an onsite storm sewer system which will convey all water to the water quality and detention pond, and ultimately to Blieders Creek.

The proposed pond design consist of a partial sedimentation/filtration water quality pond which then discharges to the proposed detention pond; both located on the west side of the site. The proposed detention pond has been sized to detain the 100-year storm event and has been designed such that the proposed flows will not exceed the existing flows at the existing outfall. A Proposed Drainage Area Map is provided within this WPAP application package.

The water quality pond has been designed to treat four (4) drainage areas: DA-1, DA-2, DA-3 and DA-5. The proposed multi-family development consists of drainage areas DA-2, DA-3 and DA-4 which consist of ± 8.81 acres of impervious cover. Drainage area DA-1 is being considered for future land use. Impervious cover will be determined at time of development. DA-5 is 2.5 impervious acres accounting for the clay-lined ponds. The water quality pond and detention pond have been designed for ultimate development of all five drainage areas. However, impervious cover for future development of DA-1 is not included with this application.

Erosion Controls will be installed to decrease and/or prevent sediment runoff during construction. The TCEQ TSS Removal Calculations spreadsheet for the proposed site is located on the water quality pond sheet attached construction plans. Please reference the following sheets in the attached construction plans for more details on the drainage, pond calculations, and design:

Existing Drainage Area Map Exhibit
Proposed Drainage Area Map Exhibit
Water Quality Pond
Water Quality Pond Notes & Details

EXISTING AND PROPOSED CONDITIONS

Existing Drainage Areas	10-Yr	100-Yr	Proposed Drainage Areas	10-Yr	100-Yr
ALL	24	46	ALL	116	191.2

SEQUENCE OF MAJOR ACTIVITIES

The sequence of work described below will be accomplished through the timing of proposed work relating the maintenance of service (i.e. proposed utility installation as compared to the removal/abandonment of existing utilities). Below is a general sequence of events to be followed:

1. Obtain all required permits. Licensed professional to submit detailed design for sealing of sensitive features.
2. Seal sensitive features by licensed professional.
3. Install all Erosion Control Measures and Devices that can be installed prior to site clearing.
4. Clear site for streets and pond.
5. Install any remaining Control Measures and Devices that could not be installed prior to site clearing.
6. Grade site. Install Erosion Control around catch basins and Temporary Sediment Basin.
7. Set Sewage Collection System manholes and install all underground utilities and piping.
8. Install Erosion Control around catch basins.
9. Install pavement.
10. Install commercial structures.
11. Inspect and maintain all erosion control measures until all disturbed offsite and onsite areas have been hydro-mulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
12. Clear site for proposed ponds.
13. Inspect and maintain all erosion control measures until all disturbed offsite and on-site areas have been hydromulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
14. The environmental project manager will schedule a mid-construction conference to coordinate changes in the construction schedule and evaluate effectiveness of the erosion control plan after possible construction alterations to the site. Participants shall include the city inspector, project engineer, general contractor and environmental project manager. The anticipated completion date and final construction sequence and inspection schedule will be coordinated with the appropriate City Inspector.

TOTAL SITE AREA/TOTAL DISTURBED AREA

The total area of the site is ± 19.33 acres. Excavation, grading, or other activities throughout the construction process will disturb approximately ± 15 acres. Post-construction impervious coverage will total ± 11.32 acres.

BMPs FOR ON-SITE STORM WATER

Storm water runoff arising from the development of this project will be conveyed and collected through the proposed storm sewer system which will convey the storm water runoff to the proposed sedimentation/filtration pond and proposed detention pond located on the west side of the project site. The detention pond will then discharge into the existing storm sewer drain.

The water quality calculations are based on a total area of ± 13.79 acres draining to the sedimentation/filtration pond at an ultimate build out of 80% impervious cover, ± 8.81 acres, for the proposed development and 90% impervious cover, ± 2.5 acres, for the water quality and detention pond lot. The impervious cover of the multi-family tract is determined by the combination of the building roof and paved areas (asphalt and concrete). The water quality pond and detention pond have been designed for ultimate development of the ± 19.33 acres. However, impervious cover for future development of DA-1 is not included with this application.

Please refer to the attached construction plans for the detailed pond design and calculations. The detention pond adjacent to the water quality pond will ultimately discharge the site runoff to an existing storm sewer system, equal to pre-developed run-off rates. The water quality pond and detention pond are designed in accordance with TCEQ requirements and City of New Braunfels requirements.

BMPs FOR ON-SITE STORM WATER

Storm water runoff arising from the development of this project will be conveyed and collected through the proposed storm sewer system which will convey the storm water runoff to the proposed sedimentation/filtration pond and proposed detention pond located on the west side of the project site. The detention pond will then discharge into the existing storm sewer drain.

The water quality calculations are based on a total area of ± 13.79 acres draining to the sedimentation/filtration pond at an ultimate build out of 80% impervious cover, ± 8.81 acres, for the proposed development and 90% impervious cover, ± 2.5 acres, for the water quality and detention pond lot. The impervious cover of the multi-family tract is determined by the combination of the building roof and paved areas (asphalt and concrete). The water quality pond and detention pond have been designed for ultimate development of the ± 19.33 acres. However, impervious cover for future development of DA-1 is not included with this application.

Please refer to the attached construction plans for the detailed pond design and calculations. The detention pond adjacent to the water quality pond will ultimately discharge the site runoff to an existing storm sewer system, equal to pre-developed run-off rates. The water quality pond and detention pond are designed in accordance with TCEQ requirements and City of New Braunfels requirements.

SURFACE STREAMS

The water quality pond designed in accordance with RG-348 will serve to mitigate and reduce pollutants from ultimately entering any surface streams downstream from the site. The hand dug well/cistern identified in the Geologic Assessment as Sensitive Feature 6 should be properly sealed and backfilled with min. 2500-psi concrete by a Licensed Water Well Driller in accordance to the Texas Administrative Code (TAC) Title 16, Chapter 76.10, TCEQ RG-347 Landowner's Guide to Plugging Abandoned Water Wells, and TCEQ RG-348, Technical Guidance on Best Management Practice Chapter 5 prior to the commencement of any development activity. Licensed water well driller to submit more detailed sealing information to TCEQ for review and approval prior to sealing of the well.

REQUEST TO SEAL A FEATURE

The hand dug water well mentioned in the Geologic Assessment should be sealed and backfilled with min. 2500-psi concrete by a Licensed Water Well Driller in accordance to the Texas Administrative Code (TAC) Title 16, Chapter 76.10, TCEQ RG-347 Landowner's Guide to Plugging Abandoned Water Wells, and TCEQ RG-348, Technical Guidance on Best Management Practice Chapter 5 prior to the commencement of any development activity. Licensed water well driller to submit more detailed sealing information to TCEQ for review and approval prior to sealing of the well.

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	161,171	$\div 43,560 =$	3.70
Parking	222,592	$\div 43,560 =$	5.12
Other paved surfaces	108,987	$\div 43,560 =$	2.50
Total Impervious Cover	504,860	$\div 43,560 =$	11.32

Total Impervious Cover 11.32 \div Total Acreage 19.33 $\times 100 =$ 59% Impervious Cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. 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.

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

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

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 =$ _____ % impervious cover.

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

TRAPDN

DATE: 8/21/2015
TIME: 12:22 PM
INDEX

FORTY SIX HYDROLOGIC / CIVIL COMPUTER PROGRAMS COPYRIGHT © 1997 HAHN HAUS SOFTWARE MANNINGS FORMULA FOR TRAPIZODIAL CHANNELS SOLVING FOR FRICTIONAL DEPTH

PROJECT: EMERALD COTTAGES CONVEYANCE CHANNEL

INSTRUCTIONS

ENTER ACTUAL FLOW DISCHARGE IN CFS
ENTER BOTTOM WIDTH IN FEET
ENTER LEFT SIDE SLOPE
ENTER RIGHT SIDE SLOPE
ENTER FLOW LINE SLOPE IN FT/FT
ENTER MANNINGS N-VALUE
ENTER "V" DEPTH IN BOTTOM, IN FT.

Qact= 65 ACTUAL FLOW IN CFS
BW= 10 BOTTOM WIDTH IN FEET
L S.S.= 3 LEFT SIDE SLOPE
R S.S.= 3 RIGHT SIDE SLOPE
SFL= 0.025 FL SLOPE IN FT/FT
N= 0.035 MANNING'S N-VALUE
Vd= 0 V-DEPTH IN CEN. SEC. IN. FT.



RESULTS

Dn= 0.923 FEET
(NOTE: Dn MEASURED FROM TOE OF SLOPE.)
A= 11.79 SQ. FT.
V= 5.51 FPS
Hv= 0.471 FT.
E= 1.394 FT.
FN= 1.1148 FROUDE NO.

Qcal= 3.51E-05
64.99996 CAL. FLOW IN CFS
D= 0.923223 DEPTH OF FLOW IN FEET
A= 11.78925 AREA IN SQ. FT.
Pw= 15.83897 WETTED PERIMETER IN FT.
R= 0.744319 HYDRAULIC RADIUS IN FT.
R(2/3)= 0.821308 HYDRAULIC RADIUS TO (2/3)
AR(2/3)= 9.682608 AREA*HYDRA. RAD. TO (2/3)
K= 411.0959 CONVEYANCE
TW= 15.53934 TOP WIDTH AT FLOW DEPTH
Va= 0 V-AREA IN SQ. FT.
PwBOTT= 10 WET. PERIMETER BOTTOM, FT

ENTER FREEBOARD DEPTH FB, IN FEET

FB= 0.5 FREEBOARD DEPTH IN FEET
TW2= 18.54 TOP WIDTH AT FREEBOARD

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	161,171	$\div 43,560 =$	3.70
Parking	222,592	$\div 43,560 =$	5.12
Other paved surfaces	108,987	$\div 43,560 =$	2.50
Total Impervious Cover	504,860	$\div 43,560 =$	11.32

Total Impervious Cover $\underline{11.32} \div$ Total Acreage $\underline{19.33} \times 100 = \underline{59\%}$ Impervious Cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. 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.

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

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

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 =$ _____ % impervious cover.

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

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



RECEIVED TCEQ
SAN ANTONIO
REGION

2015 AUG 27 AM 10:06

May 8, 2015

Bury
Attn: Gary Freeland
922 Isom Road
Suite 100
San Antonio, TX 78216

Re: Approved plat

To Whom It May Concern:

The Planning Commission, on May 5, 2015 approved the below referenced final plat.

Emerald Cottages at WV Subdivision, with a waiver to allow the plat scale at 1" = 200' and with the following requirement prior to plat recordation:

1. Remove plat note #9.

The subject property is located in Service Area 1 of the Roadway Impact Fee Map. Roadway Impact Fees for commercial uses will be calculated at the time of building permit (2014 Roadway Impact Fee fee schedule) and will be determined by the type of commercial use and number of service units.

Approval or conditional approval of a preliminary plat or a final plat shall be effective for five years, if progress toward completion is being made. The final plat shall expire and be void within five years of approval by the Commission if progress toward completion is not being made (See Sec. 118-26 g. and Sec. 118-32 j. and k. New Braunfels Code of Ordinances). **In addition to the required corrections reference above, a Response Letter must be submitted to specifically address any changes that have been made to the plat post Planning Commission approval. Significant changes may require further staff review and result in a delay of recordation or require submittal of a new application for consideration by the Planning Commission.**

Please submit **ALL** of the following documents when submitting the plat for signature and recordation:

1. Comal County: Three full size and one 11" x 17" mylars.
2. A check or checks payable to the county clerk in the amount of the recordation fee for filing the final plat. Please call the applicable County Clerk's office to determine the appropriate fee.

3. An original tax certificate showing that no City, county and school district taxes are currently due or delinquent against the property. The certificates must be dated (issued) within 30 days of the plats being recorded. (Per County Clerk)
4. Digital plat, which may be e-mailed to planning@nbtexas.org or submitted on a CD. (NAD 1983 StatePlane Texas South Central FIPS 4204 (Feet), to scale, and georeferenced to three points. Submissions must be in .dwg.)

If any additional information is needed, do not hesitate to call the Planning Department at (830) 221-4050.

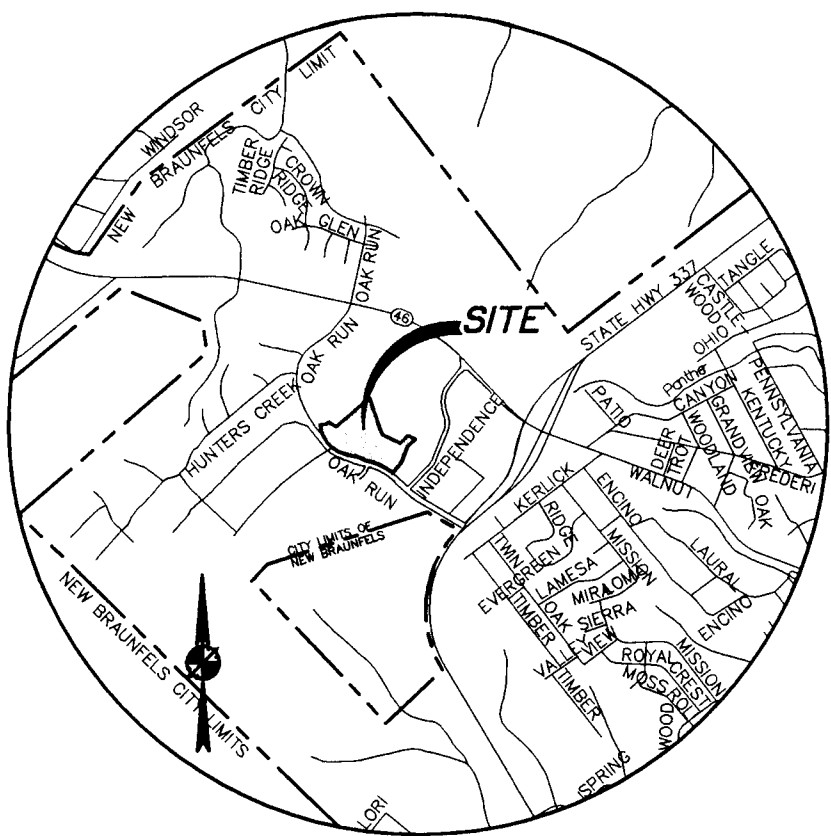
Sincerely,



Matt Greene, CFM
Planning Division
(830) 221-4053
mgreene@nbtexas.org

FINAL PLAT ESTABLISHING
EMERALD COTTAGES AT WV

A 19.32 ACRE TRACT CONSISTING OF A 8.316 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, AND THE REMAINING PORTION OF THAT CERTAIN 1.661 ACRE, CALLED TRACT II, BOTH TRACTS CONVEYED TO WESTPOINTE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS, 11.002 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, CONVEYED TO WESTPOINTE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.



VICINITY MAP

N.T.S.
NEW BRAUNFELS, TEXAS

OWNER'S ACKNOWLEDGMENT:
COMMONWEALTH OF VIRGINIA
COUNTY OF CHESTERFIELD

I (WE) THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE EMERALD COTTAGES AT WV TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED.

WESTPOINTE COMMERCIAL, LTD.
C/O WESTPOINTE G.P., LLC
6700 COURT YARD ROAD
CHESTER, VA 23831

MARK L. WAUFORD
MANAGER OF WESTPOINTE G.P., LLC
THE GENERAL PARTNER OF
WESTPOINTE COMMERCIAL, LTD.

COMMONWEALTH OF VIRGINIA
COUNTY OF CHESTERFIELD

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS DAY OF _____, 2015, BY MARK L. WAUFORD, THE MANAGER OF WESTPOINTE G.P., LLC, THE GENERAL PARTNER OF WESTPOINTE COMMERCIAL, LTD.

NOTARY PUBLIC
MY COMMISSION EXPIRES: _____
REGISTRATION NO. _____

STATE OF TEXAS
COUNTY OF BEXAR

KNOW ALL MEN BY THESE PRESENTS:

I, THE UNDERSIGNED, HAL B. LANE III, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFIES THAT THIS PLAT WAS CREATED IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

HAL LANE, R.P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
TEXAS REGISTRATION NO. 4690
922 ISOM ROAD, SUITE 100
SAN ANTONIO, TX 78216

APPROVED THIS THE _____ DAY OF _____, 2015, BY THE
PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

CHAIRMAN
APPROVED FOR ACCEPTANCE

DATE _____ PLANNING DIRECTOR

DATE _____ CITY ENGINEER

DATE _____ NEW BRAUNFELS UTILITY

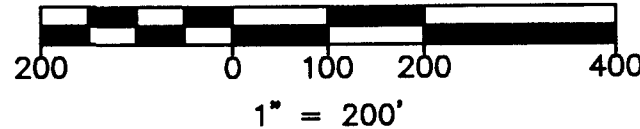
STATE OF TEXAS
COUNTY OF COMAL

I, _____, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS, DOCUMENT NO. _____ OF COMAL COUNTY, TEXAS, ON THE _____ DAY OF _____, A.D. 2015, AT _____ M.

WITNESS MY HAND AND OFFICIAL SEAL, THIS _____ DAY OF _____, A.D. 2015.

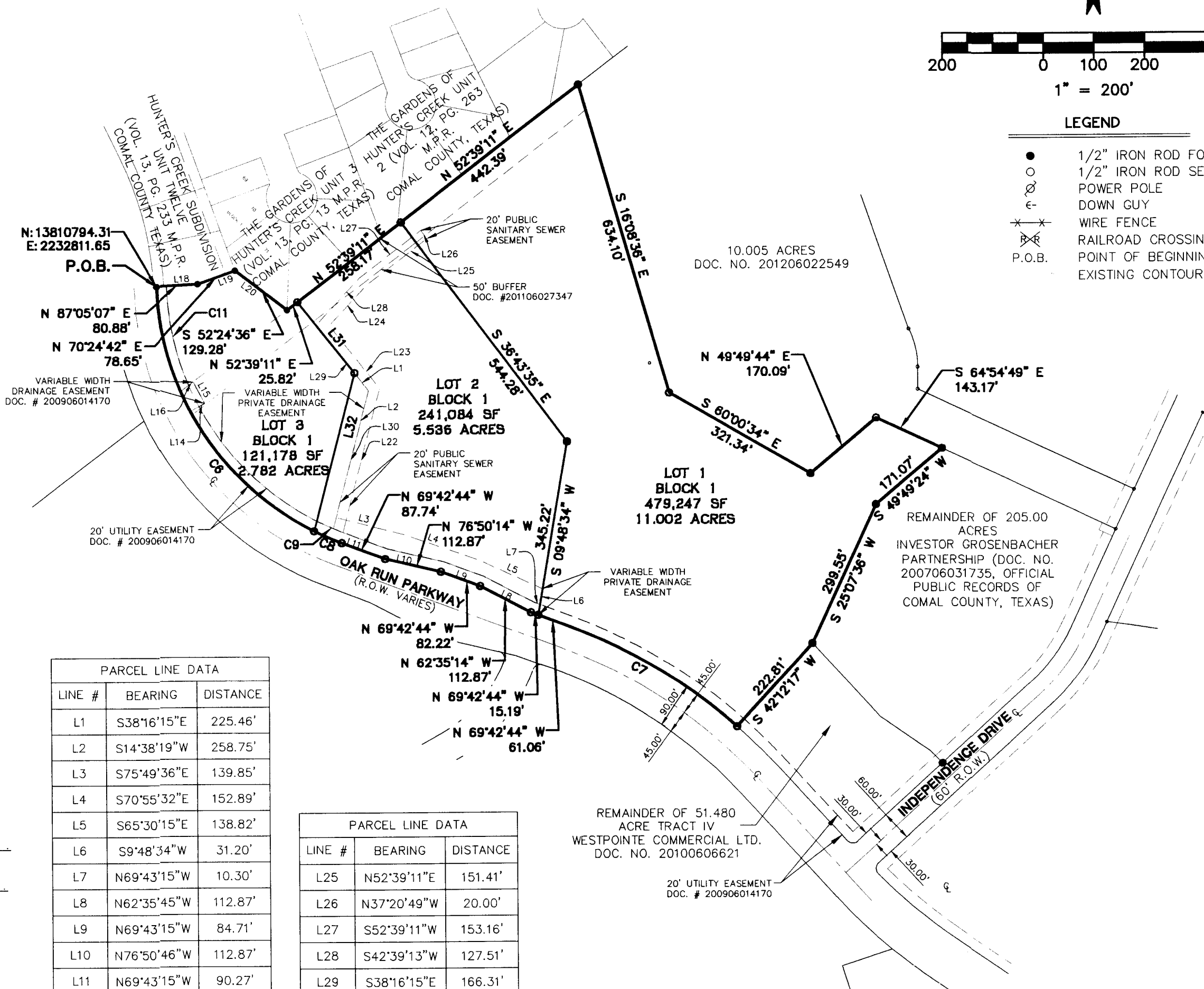
COUNTY CLERK, COMAL COUNTY, TEXAS

DEPUTY



LEGEND

- 1/2" IRON ROD FOUND
- 1/2" IRON ROD SET
- POWER POLE
- DOWN GUY
- WIRE FENCE
- RAILROAD CROSSING
- POINT OF BEGINNING
- P.O.B.
- EXISTING CONTOUR



PARCEL LINE DATA		
LINE #	BEARING	DISTANCE
L1	S38°16'15"E	225.46'
L2	S14°38'19"W	258.75'
L3	S75°49'36"E	139.85'
L4	S70°55'32"E	152.89'
L5	S65°30'15"E	138.82'
L6	S9°48'34"W	31.20'
L7	N69°43'15"W	10.30'
L8	N62°35'45"W	112.87'
L9	N69°43'15"W	84.71'
L10	N76°50'46"W	112.87'
L11	N69°43'15"W	90.27'
L14	N61°47'34"E	13.16'
L15	N28°12'26"W	48.08'
L16	S52°38'34"W	11.05'
L18	N87°05'07"E	61.04'
L19	N70°24'42"E	78.65'
L20	S52°24'36"E	129.28'
L22	N14°38'19"E	293.56'
L23	N38°16'15"W	159.20'
L24	N42°39'13"E	108.70'

PARCEL LINE DATA		
LINE #	BEARING	DISTANCE
L25	N52°39'11"E	151.41'
L26	N37°20'49"W	20.00'
L27	S52°39'11"W	153.16'
L28	S42°39'13"W	127.51'
L29	S38°16'15"E	166.31'
L30	S14°38'19"W	281.09'
L31	S38°16'15"E	180.33'
L32	S14°38'19"W	322.06'

PARCEL CURVE DATA					
CURVE #	LENGTH	RADIUS	DELTA	CHORD LENGTH	BEARING
C6	604.87'	555.00'	62°26'37"	575.37'	N32° 22' 53.82"W
C7	392.68'	1045.00'	21°31'47"	390.37'	N58° 56' 50.58"W
C8	59.17'	555.00'	6°06'32"	59.15'	N66° 39' 28.35"W
C9	365.80'	535.00'	39°10'33"	358.72'	N47° 30' 07.41"W
C11	204.16'	535.00'	21°51'50"	202.92'	N12° 00' 49.79"W

GENERAL NOTES:

- PLAT PREPARED MARCH 2015
- FEMA NOTE: THE TRACT SHOWN HEREON LIES WITHIN ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS IDENTIFIED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, AS SHOWN ON MAP NO. 48091C0435F, DATED SEPT. 2, 2009, FOR COMAL COUNTY. NO PORTION OF ANY LOT ON THIS PLAT IS WITHIN A SPECIAL FLOOD HAZARD ZONE.
- WATER, SANITARY SEWER, AND ELECTRIC SERVICE PROVIDED BY NEW BRAUNFELS UTILITIES. TELEPHONE SERVICE PROVIDED BY AT&T. CABLE SERVICE PROVIDED BY TIME WARNER CABLE.
- MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT OR ANY PORTION OF IT, INCLUDING LANDSCAPING OR DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT, MUST NOT ENDANGER OR MATERIALLY OR UNREASONABLY INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
- UTILITIES WILL POSSESS A 5-FOOT WIDE SERVICE EASEMENT TO THE DWELLING ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.
- UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.
- EACH TRACT IS SUBJECT TO FLOATING GUY WIRE EASEMENT/S AND ITS DIMENSIONS SHALL BE DETERMINED BY THE NEED OF THE UTILITIES.
- BEARINGS ARE BASED ON NORTH AMERICAN DATUM 1983, TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, FROM GPS OBSERVATION, UTILIZING TX-DOT CORS STATIONS TXAN, TXJC TXSM AND TXUV. DISTANCES MAY BE CONVERTED TO GRID BY DIVIDING BY A COMBINED SCALED FACTOR OF 1.0001700.
- MAINTENANCE OF DRAINAGE EASEMENTS DESIGNATED WITHIN A LOT SHALL BE RESPONSIBILITY OF THE PROPERTY OWNER AND SHALL REMAIN FREE FROM ALL OBSTRUCTIONS.
- SHARED DRIVEWAYS CONSTRUCTED FOR THE USE BY TWO ADJACENT LOTS SHALL BE ALLOWED WITHIN THIS SUBDIVISION.
- DO NOT COMBINE ANY NEW UTILITY EASEMENTS (UE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN UTILITY EASEMENTS (UE) WITHOUT WRITTEN APPROVAL FROM NEW BRAUNFELS UTILITIES.
- THIS SUBDIVISION FALLS WITHIN THE NEW BRAUNFELS INDEPENDENT SCHOOL DISTRICT.
- THIS DEVELOPMENT IS SUBJECT TO A 50 FOOT BUFFER AS REQUIRED IN ORDINANCE NO. 2007-72 DATED SEPTEMBER 24, 2007.
- THE DEVELOPMENT IS BOUND BY EXISTING 10 FOOT SIDEWALKS ON OAK RUN PARKWAY.
- THE CITY RESERVES THE RIGHT TO RESTRICT TRAFFIC MOVEMENTS BASED ON FUTURE DEVELOPMENT.
- FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.
- NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASE THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS (AND THE COUNTY) SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTOR'S ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENT AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.
- UNLESS OTHERWISE NOTED, ALL CORNERS WILL BE SET WITH 1/2" IRON ROD WITH PLASTIC CAPS STAMPED "BURY."
- THIS SUBDIVISION IS SUBJECT TO THE CITY OF NEW BRAUNFELS PARK LAND DEDICATION AND DEVELOPMENT ORDINANCE. AT SUCH TIME THAT RESIDENTIAL DWELLING UNITS ARE TO BE CONSTRUCTED WITHIN THIS SUBDIVISION, THE OWNER(S) SHALL CONTACT THE CITY OF NEW BRAUNFELS AND COMPLY WITH THE ORDINANCE FOR EACH NEW DWELLING UNIT.
- LOT 3 BLOCK 1 TO BE MAINTAINED BY PROPERTY OWNER OF RECORD AND NO HABITABLE STRUCTURES WILL BE ALLOWED ON THIS LOT. LOT 3 SHALL BE USED ONLY FOR WATER QUALITY AND DETENTION PONDS AND ASSOCIATED DRAINAGE STRUCTURES.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2015

THE GARDENS OF HUNTER'S CREEK UNIT 3
(VOL. 13, PG. 18 M.P.R., COMAL COUNTY, TEXAS)

HUNTER'S CREEK SUBDIVISION
(VOL. 13, PG. 23 EXAS)

LOT 1 BLOCK 1
479,247 SF
11.002 ACRES

LOT 2 BLOCK 1
241,084 SF
5.536 ACRES

LOT 3 BLOCK 1
121,178 SF
2.782 ACRES

OAK RUN PARKWAY
(R.O.W. VARIES)

LEGEND

EXISTING	PROPOSED	DESCRIPTION
●	○	1/2" IRON ROD FOUND
○	○	1/2" IRON PIPE FOUND
○	○	BENCHMARK
○	○	FIRE DEPARTMENT CONNECTION
○	○	LIGHT POLE
○	○	POWER POLE
○	○	DRAINAGE INLET
○	○	CURB INLET
○	○	STAND UP CURB
○	○	HANDICAPPED PARKING SPACE
○	○	SIGN
○	○	TRANSFORMER PAD
○	○	ELECTRIC METER
○	○	OVER HEAD ELEC. LINE
○	○	STORM SEWER LINE
○	○	WATER LINE
○	○	FIRE WATER LINE
○	○	DOMESTIC WATER LINE
○	○	LANDSCAPE WATER LINE
○	○	WASTEWATER LINE
○	○	UNDERGROUND ELECTRIC
○	○	UNDERGROUND TELEPHONE
○	○	GAS LINE
○	○	PROPERTY LINE
○	○	CONTOUR
○	○	SPOT ELEVATION
○	○	FLOW DIRECTION
○	○	CONCRETE SURFACE
○	○	RETAINING WALL
○	○	LIMITS OF CONSTRUCTION
○	○	TO BE REMOVED
○	○	SILT FENCE (SEE DETAIL C1.1.1)
○	○	TREE PROTECTION (SEE DETAIL C1.1.8)
○	○	INLET PROTECTION (SEE DETAIL C1.1.4 & C1.1.5)
○	○	STABILIZED CONSTRUCTION ENTRANCE (SEE DETAIL C1.1.3)
○	○	STAGING AREA (SEE DETAIL C1.1.7)
○	○	CONCRETE TRUCK WASHOUT PIT (SEE DETAIL C1.1.6)
○	○	ROCK BERM (SEE DETAIL C1.1.2)
○	○	TREE TO BE REMOVED
○	○	TREE TO REMAIN

BENCHMARKS:

- BM JL-03 - SQUARE CUT ON THE SOUTHERLY CURB RETURN AT THE INTERSECTION OF HUNTER'S TRACE AND OAK RUN PARKWAY. ELEVATION = 893.67 FEET. (NOT SHOWN)
- TBM 1A-A - CUT "X" ON NORTH FLANGE BOLT OF A FIRE HYDRANT LOCATED IN THE NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±375' SOUTHWEST OF STATE HIGHWAY 46. ELEV=893.59'
- TBM 1A-B - CUT "SQUARE" ON LIGHT STANDARD CONCRETE BASE LOCATED ±78' NORTHWEST OF INDEPENDENCE DRIVE, ±321' SOUTHWEST OF STATE HIGHWAY 46. ELEV=890.59'
- TBM M - PK NAIL SET AT THE BACK OF CURB IN THE NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±507' SOUTHWEST OF STATE HIGHWAY 46. ELEV=894.10'
- TBM M1 - PK NAIL SET AT THE BACK OF CURB IN THE SCHLOTZSKY'S PARKING LOT ±910' NORTHWEST OF INDEPENDENCE DRIVE AND ±501' SOUTHWEST OF STATE HIGHWAY 46. ELEV=891.14'

LEGAL DESCRIPTION:

A 19.32 ACRE TRACT CONSISTING OF A 8.316 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, AND THE REMAINING PORTION OF THAT CERTAIN 1.681 ACRE, CALLED TRACT II, BOTH TRACTS CONVEYED TO WESTPOINTE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS, 11.002 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, CONVEYED TO WESTPOINTE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

NOTE: CONTRACTOR TO COORDINATE WITH THE CITY OF NEW BRAUNFELS WHEN INSTALLING INLET PROTECTION DEVICES ON OAK RUN PARKWAY TO ENSURE APPROPRIATE MEASURES ARE BEING TAKEN TO AVOID FLOODING.



- ## BENCHMARKS:

BM JL-03 - SQUARE CUT ON THE SOUTHERLY CURB RETURN
AT THE INTERSECTION OF HUNTER'S TRACE AND OAK RUN
PARKWAY
ELEVATION = 893.67 FEET. (NOT SHOWN)

TBM 1A-A CUT "X" ON NORTH FLANGE BOLT OF A FIRE
HYDRANT LOCATED IN THE NORTHWESTERLY RIGHT OF WAY OF
INDEPENDENCE DRIVE, ±375' SOUTHWEST OF STATE HIGHWAY
46.
ELEV=893.59'

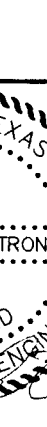
TBM 1A-B CUT "SQUARE" ON LIGHT STANDARD CONCRETE
BASE LOCATED $\pm 78'$ NORTHWEST OF INDEPENDENCE DRIVE,
 $\pm 321'$ SOUTHWEST OF STATE HIGHWAY 46.
ELEV=890.59'

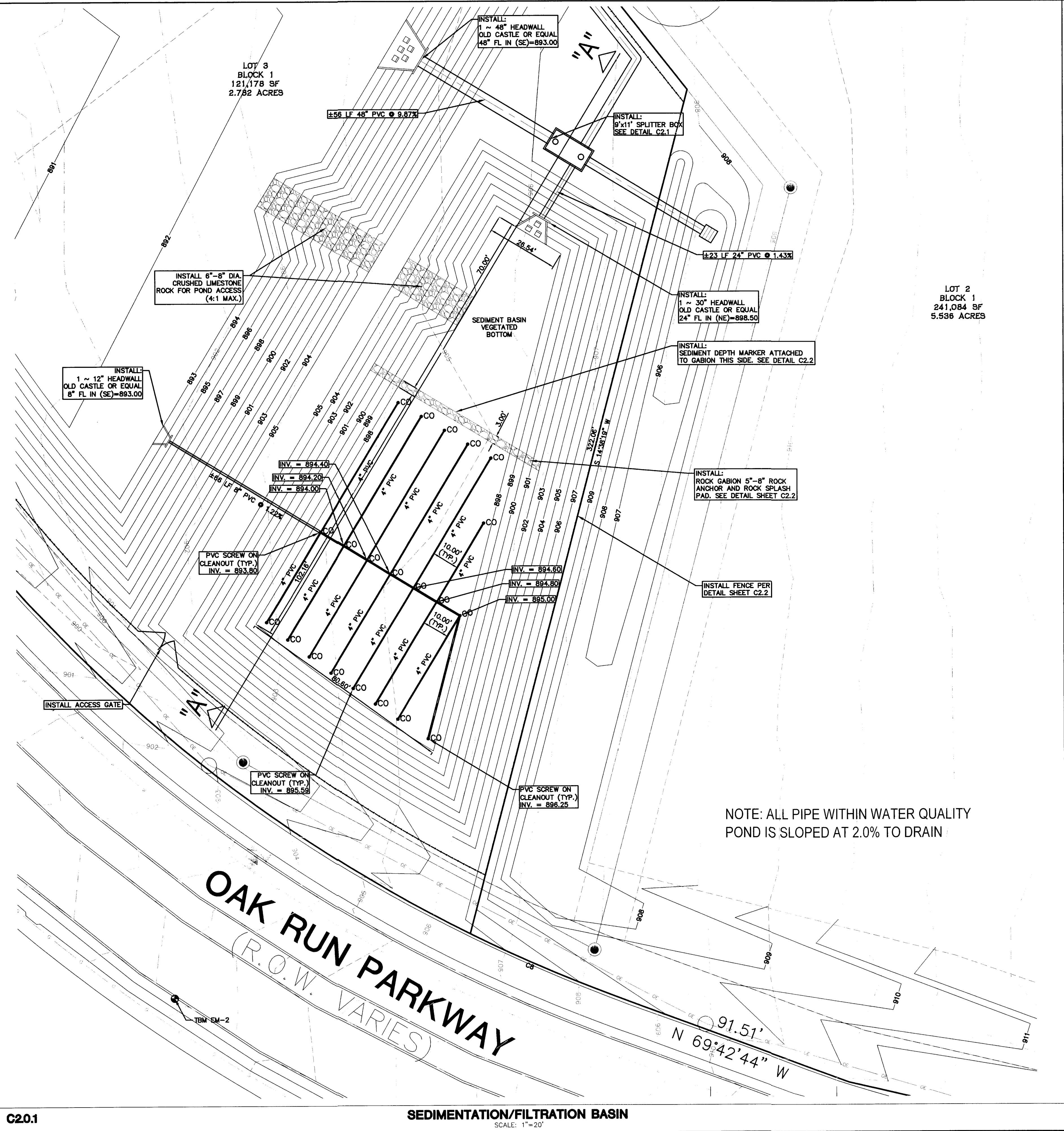
TBM M PK NAIL SET AT THE BACK OF CURB IN THE
NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±50'
SOUTHWEST OF STATE HIGHWAY 46.
ELEV=894.10'

FBM M1 PK NAIL SET AT THE BACK OF CURB IN THE
SCHLOTZSKY'S PARKING LOT $\pm 910'$ NORTHWEST OF
INDEPENDENCE DRIVE AND $\pm 501'$ SOUTHWEST OF STATE
HIGHWAY 46.
ELEV=891.14'

LEGAL DESCRIPTION:

19.32 ACRE TRACT CONSISTING OF A 8.316 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, OF THE REMAINING PORTION OF THAT CERTAIN 65.671 ACRE CALLED TRACT I, BEING CONVEYED TO WESTPINE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS, 11.002 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, CONVEYED TO WESTPINE COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS,

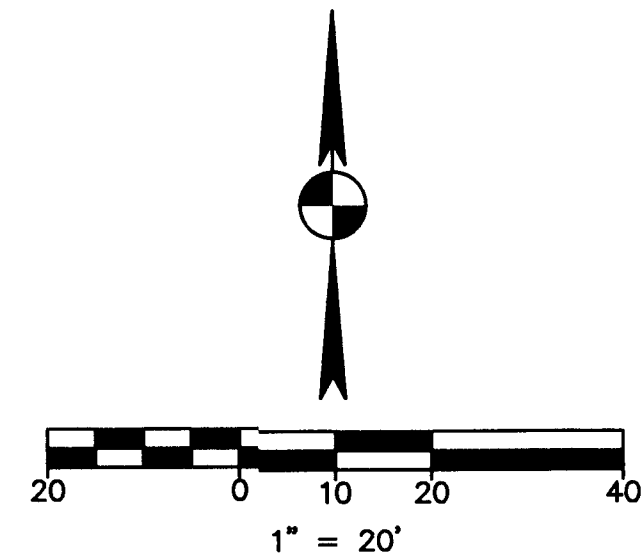
PLOTING SCALE: AS NOTED		EMERALD COTTAGES	EXISTING CONDITIONS, DEMOLITION, AND S.W.P.P.P.	08/25/2015		REVISION	APPROVAL
DATE REVISED: August 25, 2015							
FILE: C:\10729\10000\10729\107290200.dwg							
DRAWN BY: ENW							
DESIGNED BY: CDA							
REVIEWED BY: CDA		OAK RUN & INDEPENDENCE DRIVE NEW BRAUNFELS, TEXAS					
PROJECT NO.: R0110729-50002		BURY					



C20.1

SEDIMENTATION/FILTRATION BASIN
SCALE: 1"=20'

NOTE: ALL PIPE WITHIN WATER QUALITY POND IS SLOPED AT 2.0% TO DRAIN



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST 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 AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.
5. PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION 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.
6. 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 SENSITIVE FEATURES BY THE NEXT RAIN).
7. 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.
8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER DISCHARGES (E.G., SCREENING OUTFALLS, PICKED UP DAILY).
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE:
 1. CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL AND CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
 2. THE FOLLOWING RECORDS SHALL 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.
 3. THE HOLDER OF ANY APPROVED EDWARDS AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
 - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
 - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
 - C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

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

THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

BMP CALCULATION SUMMARY

WATERSHED AREA = 21.07 ACRES
RUNOFF DEPTH = 15 INCHES
BASIN STORMWATER DEPTH = 4.90 FEET
SAND FILTER AREA REQUIRED: = 4,184 S.F.
SAND FILTER AREA PROVIDED: = 6,806 S.F.
SEDIMENTATION AREA REQUIRED: = 1,046 S.F.
SEDIMENTATION AREA PROVIDED: = 2,583 S.F.
CAPTURE VOLUME REQUIRED: = 50,538 C.F.
CAPTURE VOLUME PROVIDED: = 85,244 C.F.
Q100 = 175.0 CFS

BURY		APPROVAL	
892 Ross Road, Suite 100 San Antonio, TX 78216 Tel: (210) 595-8090 Fax: (210) 525-9529 TBP# Registration Number F-1048 Copyright © 2015		REVISION	
STATE OF TEXAS COY D. ARMSTRONG 78761 LICENSED PROFESSIONAL ENGINEER		NO.	
08/25/2015		DATE	
EMERALD COTTAGES		SHEET	
OAK RUN & INDEPENDENCE DRIVE NEW BRAUNFELS, TEXAS		C2.0	
PLOTING SCALE: AS NOTED		DATE REVISED: August 25, 2015	
FILE: G:\110723\10002\CD DWG\11072302POND.dwg		DRAWN BY: ENW	
DESIGNED BY: CDA		REVIEWED BY: CDA	
PROJECT NO.: R0110729-50002			

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = 50538 cubic feet
Minimum filter basin area = 2325 square feet
Maximum sedimentation basin area = 20922 square feet For minimum water depth of 2 feet
Minimum sedimentation basin area = 5231 square feet For maximum water depth of 6 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = 50538 cubic feet
Minimum filter basin area = 4184 square feet
Maximum sedimentation basin area = 16738 square feet For minimum water depth of 2 feet
Minimum sedimentation basin area = 1046 square feet For maximum water depth of 6 feet

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:

$L_{M \text{ TOTAL PROJECT}}$ = 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 = 19.32 acres
Predevelopment impervious area within the limits of the plan = 0.00 acres
Total post-development impervious area within the limits of the plan = 11.32 acres
Total post-development impervious cover fraction = 0.59
P = 33 inches
11.32 AC. = 11.02 AC. * 0.80 + 2.78 AC. * 0.90

$L_{M \text{ TOTAL PROJECT}}$ = 10161 lbs.

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

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

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

Drainage Basin/Outfall Area No. = 1

Total drainage basin/outfall area = 21.91 acres
Predevelopment impervious area within drainage basin/outfall area = 0.00 acres
Post-development impervious area within drainage basin/outfall area = 11.32 acres
Post-development impervious fraction within drainage basin/outfall area = 0.52
 $L_{M \text{ THIS BASIN}}$ = 10161 lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 89 percent

Aqualogic Cartridge Filter
Bioretention
Cortech 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 = 21.43 acres
 A_i = 11.32 acres
 A_p = 10.11 acres
 L_R = 11664 lbs

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

Desired $L_M \text{ THIS BASIN}$ = 10161 lbs.

F = 0.87

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

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 1.44 inches
Post Development Runoff Coefficient = 0.37
On-site Water Quality Volume = 41845 cubic feet

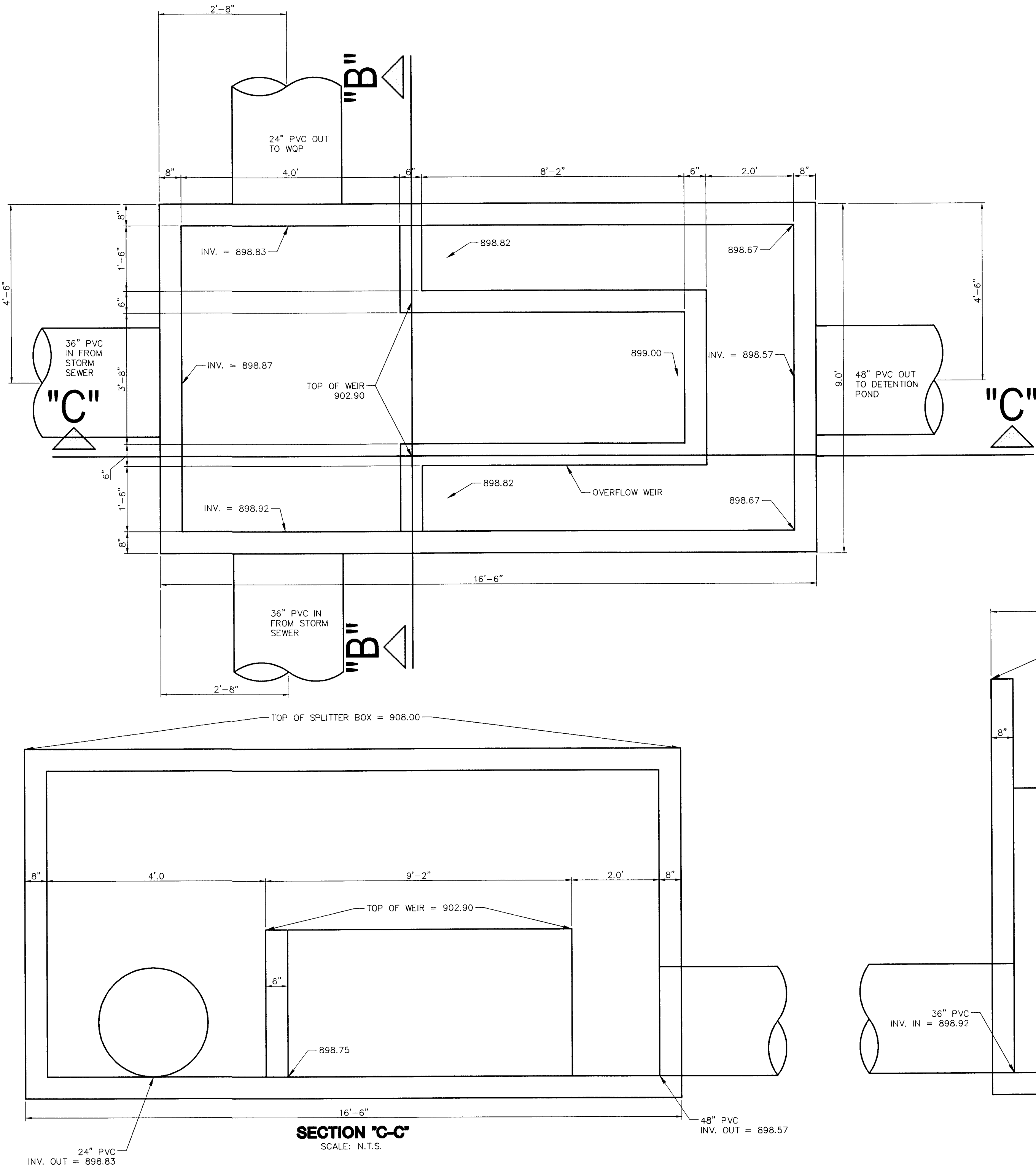
Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 2.58 acres
Off-site impervious cover draining to BMP = 0.00 acres
Impervious fraction of off-site area = 0.00
Off-site Runoff Coefficient = 0.02
Off-site Water Quality Volume = 270 cubic feet

Storage for Sediment = 8423

Total Capture Volume (required water quality volume(s) x 1.20) = 50538 cubic feet

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



SHARP CRESTED RECTANGULAR WEIR CALCULATION

$$L_w = Q / (C * H^{3/2})$$

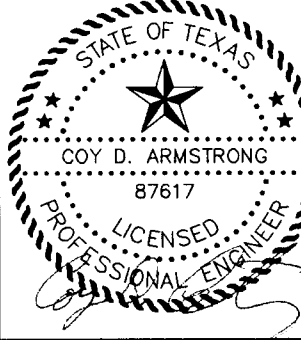
Q100 = 175.0 CFS
C = 3.33 WEIR COEFFICIENT
H = 2.0 FT

Lw = 18.58 FT REQUIRED
Lw = 23 FT PROVIDED

NOTE: SPLITTER BOX TO BE STRUCTURALLY DESIGNED BY LICENSED PROFESSIONAL STRUCTURAL ENGINEER.

BURY

922 Leon Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-0090 Fax: (210) 525-0529
TBPB Registration Number F-1048
Copyright © 2015



08/25/2015

WATER QUALITY POND DETAILS

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: August 25, 2015
FILE: G:\1101029\10002\CD DWS\1101029002.dwg
DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R010729-50002

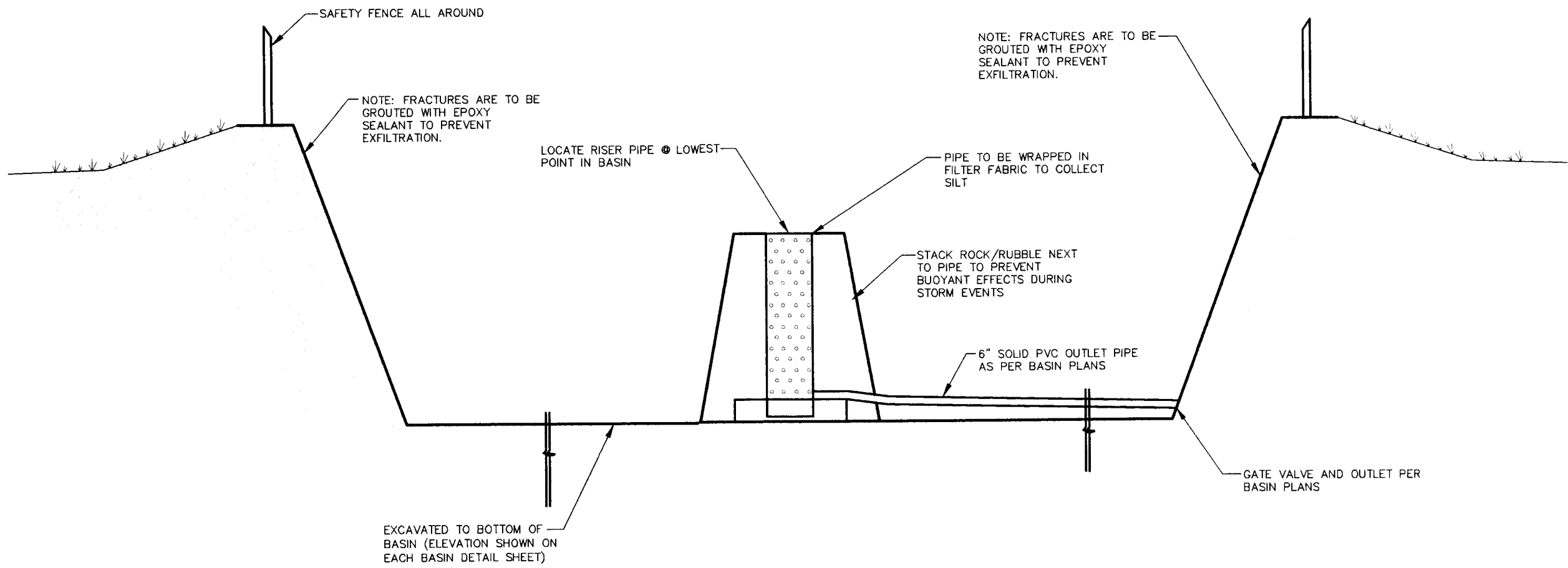
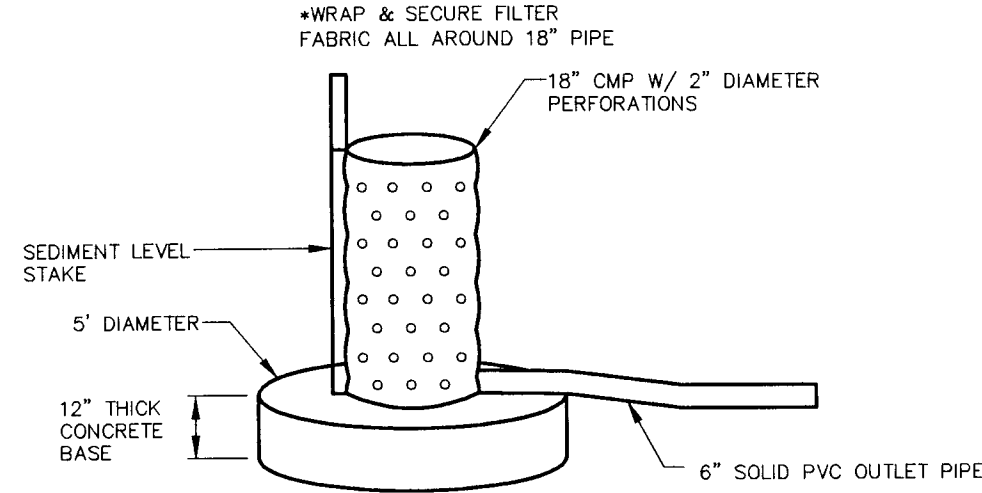
SHEET

C2.1

Date: Aug 25, 2015, 02:26PM User ID: mhlbig
File: G:\110729\50002\CD DWG\11072902PND.DWG

- TEMPORARY SEDIMENTATION BASIN NOTES:
1. CONTRACTOR TO CONSTRUCT BASINS IN ACCORDANCE WITH CONSTRUCTION PLANS FOR PERMANENT SEDIMENTATION/FILTRATION WITH THE EXCEPTION OF THE GRAVEL DRAIN LAYER AND SAND FILTER LAYERS.
 2. INSTALL PERMANENT STAKE TO INDICATE SEDIMENT LEVEL IN THE BASIN. STAKE SHOULD BE MARKED TO INDICATE WHEN SEDIMENT OCCUPIES 50% OF THE VOLUME OF THE BASIN.
 3. SEDIMENT WILL BE REMOVED WHEN MORE THAN 50% OF THE BASIN CAPACITY IS EXCEEDED.
 4. CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.
 5. CONTRACTOR TO SECURE PIPE TO BOTTOM OF BASIN TO PREVENT BUOYANCY DURING A RAIN EVENT. A CONCRETE ANCHOR MAY BE USED.
 6. DISCHARGE PIPE TO BE INSTALLED SO AS TO BE IN PLACE FOR PERMANENT STRUCTURE.

- TEMPORARY SEDIMENTATION BASIN CALCULATIONS:
1. THE TEMPORARY SEDIMENTATION BASIN WILL BE LOCATED WHERE THE PROPOSED WATER QUALITY WILL BE CONSTRUCTED.
 2. TOTAL DISTURBED AREA IS 11.5 ACRES
 3. $11.5 \text{ AC} \times (3,600 \text{ CF VOLUME} / \text{ACRE}) = 41,400 \text{ CF}$ OF WATER VOLUME TO BE CAPTURED IN THE TEMPORARY SEDIMENTATION BASIN
 4. TOTAL CAPACITY AVAILABLE FROM WATER QUALITY POND IS 85,244. THEREFORE, THE TOTAL VOLUME AVAILABLE FROM THE WATER QUALITY POND IS ADEQUATE FOR THE TEMPORARY SEDIMENTATION BASINS.



C23.1

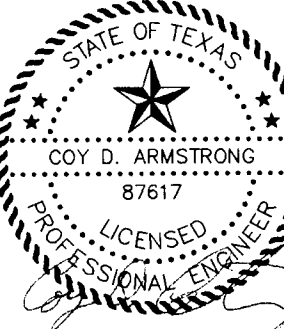
TEMPORARY SEDIMENTATION BASIN

SCALE: N.T.S.

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: August 25, 2015
FILE: G:\110729\50002\CD DWG\11072902PND.DWG
DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R0110729-50002

SHEET
C2.3

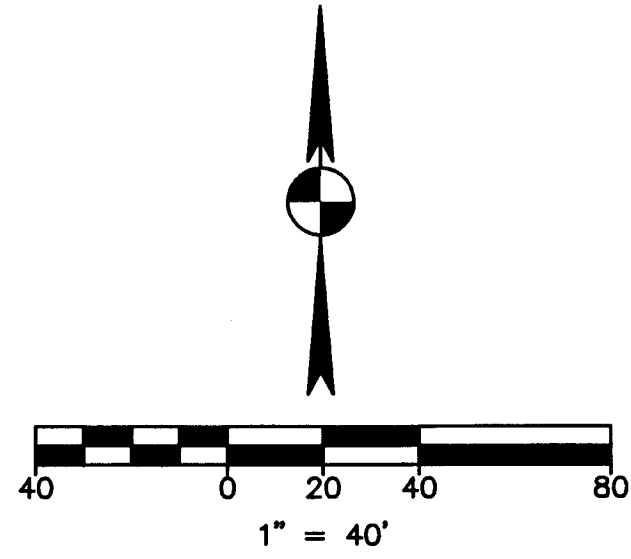
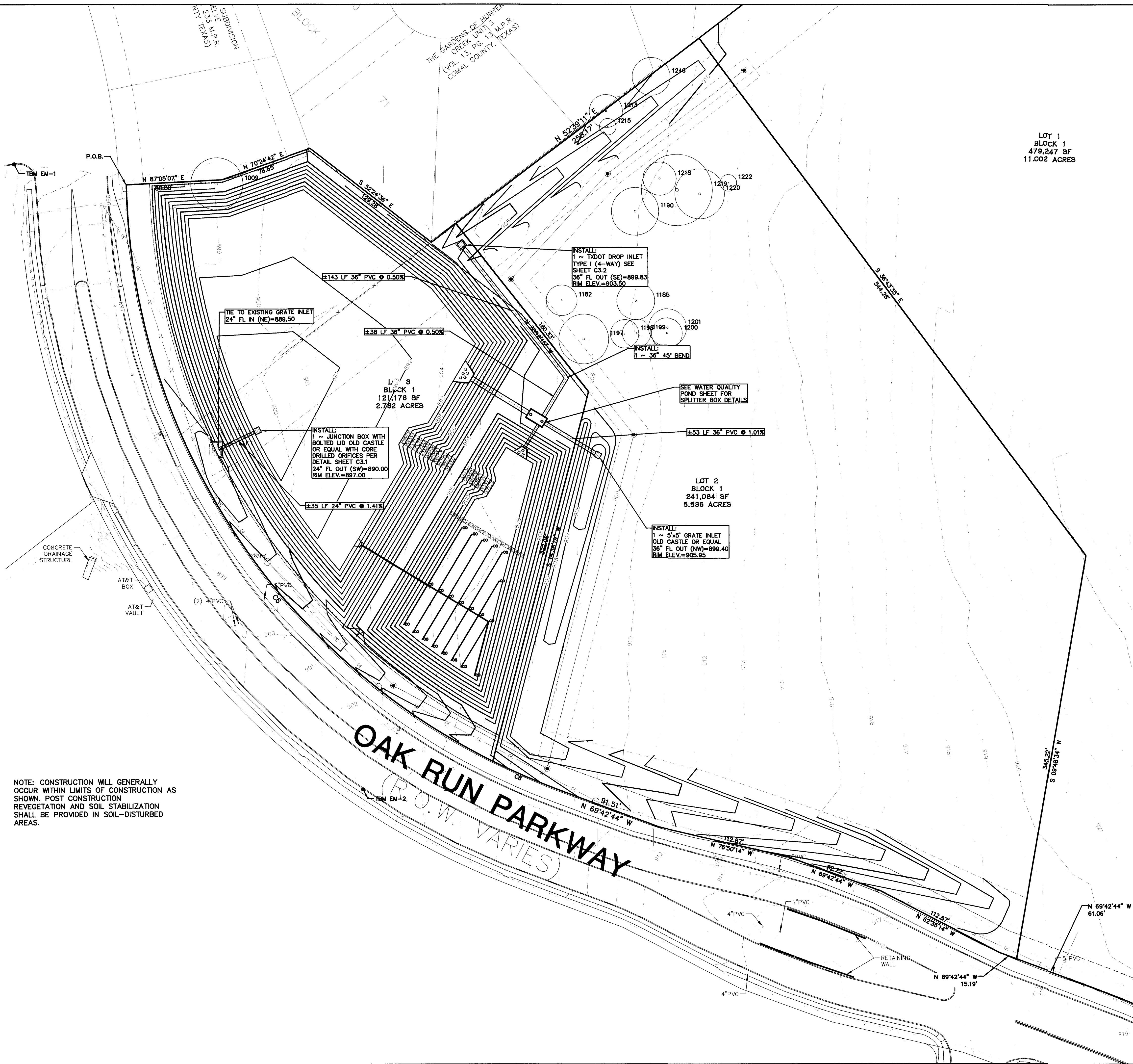


08/25/2015

WATER QUALITY POND
DETAILS

BURY
822 Iron Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-0090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2015

NOTE: CONSTRUCTION WILL GENERALLY OCCUR WITHIN LIMITS OF CONSTRUCTION AS SHOWN. POST CONSTRUCTION REVEGETATION AND SOIL STABILIZATION SHALL BE PROVIDED IN SOIL-DISTURBED AREAS.



LEGEND

EXISTING PROPOSED

- | | |
|---|----------------------------|
| ● | 1/2" IRON ROD FOUND |
| ○ | 1/2" IRON ROD SET |
| ○ | IRON PIPE FOUND |
| ○ | BENCHMARK |
| ○ | FIRE DEPARTMENT CONNECTION |
| ○ | LIGHT POLE |
| ○ | POWER POLE |
| ○ | DOWN GUY |
| ○ | FIRE HYDRANT |
| ○ | WATER VALVE |
| ○ | WATER METER |
| ○ | GAS METER |
| ○ | GAS VALVE |
| ○ | WASTEWATER MANHOLE |
| ○ | STORMSEWER MANHOLE |
| ○ | DRAINAGE INLET |
| ○ | CURB INLET |
| ○ | STAND UP CURB |
| ○ | HANDICAPPED PARKING SPACE |
| ○ | SIGN |
| ○ | TRANSFORMER PAD |
| ○ | ELECTRIC METER |
| ○ | OVER HEAD ELEC. LINE |
| ○ | STORM SEWER LINE |
| ○ | WATER LINE |
| ○ | FIRE WATER LINE |
| ○ | DOMESTIC WATER LINE |
| ○ | LANDSCAPE WATER LINE |
| ○ | WASTEWATER LINE |
| ○ | UNDERGROUND ELECTRIC |
| ○ | UNDERGROUND TELEPHONE |
| ○ | GAS LINE |
| ○ | PROPERTY LINE |
| ○ | CONTOUR |
| ○ | SPOT ELEVATION |
| ○ | FLOW DIRECTION |
| ○ | CONCRETE SURFACE |
| ○ | RETAINING WALL |
| ○ | LIMITS OF CONSTRUCTION |

THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

BENCHMARKS:

BM JL-03 - SQUARE CUT ON THE SOUTHERLY CURB RETURN AT THE INTERSECTION OF HUNTER'S TRACE AND OAK RUN PARKWAY
ELEVATION = 893.67 FEET. (NOT SHOWN)

TBM 1A-A CUT "X" ON NORTH FLANGE BOLT OF A FIRE HYDRANT LOCATED IN THE NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±375' SOUTHWEST OF STATE HIGHWAY 46.
ELEV=893.59'

TBM 1A-B CUT "SQUARE" ON LIGHT STANDARD CONCRETE BASE LOCATED ±78' NORTHWEST OF INDEPENDENCE DRIVE, ±321' SOUTHWEST OF STATE HIGHWAY 46.
ELEV=890.59'

TBM M PK NAIL SET AT THE BACK OF CURB IN THE NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±507' SOUTHWEST OF STATE HIGHWAY 46.
ELEV=894.10'

TBM M1 PK NAIL SET AT THE BACK OF CURB IN THE SCHLOTZSKY'S PARKING LOT ±910' NORTHWEST OF INDEPENDENCE DRIVE AND ±501' SOUTHWEST OF STATE HIGHWAY 46.
ELEV=891.14'

LEGAL DESCRIPTION:

A 19.32 ACRE TRACT CONSISTING OF A 8.316 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, AND THE REMAINING PORTION OF THAT CERTAIN 1.661 ACRE, CALLED TRACT II, BOTH TRACTS CONVEYED TO WESTPOINT COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS, 11.002 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURVEY NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, CONVEYED TO WESTPOINT COMMERCIAL, LTD. BY DEED OF RECORD IN DOCUMENT NO. 201006016621 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

APPROVAL			08/25/2015
REVISION	NO.		
DATE			
PLOTING SCALE: AS NOTED			
DATE REVISED: August 25, 2015		FILE: G:\10729\100021\CD DWG\1072900255.DWG	
DRAWN BY: ENW		DESIGNED BY: CDA	
REVIEWED BY: CDA		PROJECT NO.: ROT10729-50002	
SHEET		C3.0	

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

DRAINAGE PLAN

BURY

922 Iron Road, Suite 100
New Braunfels, TX 78130
Tel: (210) 225-9090 Fax: (210) 225-0939
TPE Registration Number F-1048
Copyright © 2015

Bryan W. Shaw, Ph.D., *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

January 7, 2015

RECEIVED

JAN 08 2015

COUNTY ENGINEER

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: Edwards Aquifer, Comal County
PROJECT NAME: **Emerald Cottages**, located east of the Oak Run Parkway and Hunters Trace intersection, New Braunfels, Texas

PLAN TYPE: Application for Approval of **Water Pollution Abatement Plan (WPAP)** 30
Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program
EAPP Additional ID: 13-15010601

Dear Mr. Hornseth:

The referenced application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by February 7, 2015.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

A handwritten signature in blue ink, appearing to read "Todd Jones".

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

BURY

RECEIVED

JAN 08 2015

WATER POLLUTION ABATEMENT PLAN

COUNTY ENGINEER

*Emerald Cottages
New Braunfels, Comal County, Texas*

December 2014

TBPE F-1048



I:\110729\50002\AD Reports\WPAP\December 2014\Cover (2).doc.mmm

LET'S SOLVE IT.

RECEIVED
SAN ANTONIO
2015 JAN -6 AM 10:15

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 if not withdrawn the application will be denied and 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 to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- 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 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 effected 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: Emerald Cottages				2. Regulated Entity No.:			
3. Customer Name: Westpointe Commercial, LTD.				4. Customer No.: 604362186			
5. Project Type: (Please circle/check one)	<input checked="" type="radio"/> New	Modification		Extension		Exception	
6. Plan Type: (Please circle/check one)	<input checked="" type="radio"/> WPAP	<input type="radio"/> CZP	<input type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT
7. Land Use: (Please circle/check one)	<input checked="" type="radio"/> Residential		<input type="radio"/> Non-residential		8. Site (acres):		21.07 Acres
9. Application Fee:	\$6,500.00	10. Permanent BMP(s):			Water Quality Pond & Detention Pond		
11. SCS (Linear Ft.):	N/A	12. AST/UST (No. Tanks):			N/A		
13. County:	Comal	14. Watershed:			Guadalupe River		

Application Distribution

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

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

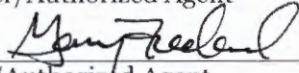
For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> 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.

Print Name of Customer/Authorized Agent
Gary W. Freeland, P.E.



12-29-14

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):



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)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Attachments Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Water Pollution Abatement (WPAP) Application		
3. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number (if issued)
CN 604362186		RN

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)			
6. Customer Role (Proposed or Actual) - as it relates to the Regulated Entity listed on this form. Please check only one of the following:			
<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Operator	<input type="checkbox"/> Owner & Operator	
<input type="checkbox"/> Occupational Licensee	<input type="checkbox"/> Responsible Party	<input type="checkbox"/> Voluntary Cleanup Applicant	<input type="checkbox"/> Other: _____
7. General Customer Information			
<input type="checkbox"/> New Customer	<input type="checkbox"/> Update to Customer Information	<input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State)	<input checked="" type="checkbox"/> No Change**		
**If "No Change" and Section I is complete, skip to Section III - Regulated Entity Information.			
8. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	<input type="checkbox"/> Sole Proprietorship- D.B.A
<input type="checkbox"/> City Government	<input type="checkbox"/> County Government	<input type="checkbox"/> Federal Government	<input type="checkbox"/> State Government
<input type="checkbox"/> Other Government	<input type="checkbox"/> General Partnership	<input type="checkbox"/> Limited Partnership	<input type="checkbox"/> Other: _____
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John)		If new Customer, enter previous Customer below	
		End Date:	
10. Mailing Address:			
City	State	ZIP	ZIP + 4
11. Country Mailing Information (if outside USA)		12. E-Mail Address (if applicable)	
13. Telephone Number () -		14. Extension or Code	
15. Fax Number (if applicable) () -			
16. Federal Tax ID (9 digits)	17. TX State Franchise Tax ID (11 digits)	18. DUNS Number (if applicable)	19. TX SOS Filing Number (if applicable)
20. Number of Employees		21. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No	

SECTION III: Regulated Entity Information

22. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information <input type="checkbox"/> No Change** (See below)	
**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.	
23. Regulated Entity Name (name of the site where the regulated action is taking place)	
Emerald Cottages	

24. Street Address of the Regulated Entity: (No P.O. Boxes)	N/A							
	Oak Run Parkway							
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4	
25. Mailing Address:	Westpointe Commercial, LTD							
	c/o The M L & E Company, PO Box 1390							
	City	Chesterfield	State	VA	ZIP	23832	ZIP + 4	9103
26. E-Mail Address:	N/A							
27. Telephone Number	28. Extension or Code		29. Fax Number (if applicable)					
(804) 414-3040	N/A		(804) 751-9891					
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)		32. Primary NAICS Code (5 or 6 digits)			33. Secondary NAICS Code (5 or 6 digits)		
1522	6513		236116			531110		
34. What is the Primary Business of this entity? (Please do not repeat the SIC or NAICS description.)								
Multi-family residential								

Questions 34 - 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	One (1) tract of land located near east of Oak Run Parkway and Hunters Trace, New Braunfels, Comal County, Texas							
36. Nearest City	County		State		Nearest ZIP Code			
New Braunfels	Comal		TX		78132			
37. Latitude (N) In Decimal:	29.7146			38. Longitude (W) In Decimal:	-98.1675			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
29	42	52.43	-98	10	2.95			

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input type="checkbox"/> Municipal Solid Waste
<input type="checkbox"/> New Source Review - Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V - Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input checked="" type="checkbox"/> Other: WPAP

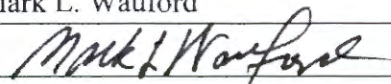
SECTION IV: Preparer Information

40. Name:	Gary W. Freeland	41. Title:	Senior Project Manager
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 525-9090		(210) 525-0529	gfreeland@buryinc.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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	Westpointe Commercial, LTD by Westpointe, G.P., LLC	Job Title:	Manager
Name (In Print):	Mark L. Wauford	Phone:	(804) 414-3040
Signature:		Date:	12-16-14

GENERAL INFORMATION FORM

General Information Form
For Regulated Activities on the
Edwards Aquifer Recharge and Transition Zones
and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B)
Effective June 1, 1999

REGULATED ENTITY NAME: Emerald Cottages
COUNTY: Comal STREAM BASIN: Blieders Creek

EDWARDS AQUIFER: ☒ RECHARGE ZONE
☐ TRANSITION ZONE

PLAN TYPE: ☒ WPAP ☐ AST ☐ EXCEPTION
☐ SCS ☐ UST ☐ MODIFICATION

CUSTOMER INFORMATION

1. Customer (Applicant):

Contact Person: Mark L. Wauford
Entity: Westpointe G.P LLC, The General Partner of Westpointe
Commercial LTD.
Mailing Address: 6700 Courtyard Road
City, State: Chester, Virginia 23831 Zip: 23831
Telephone: _____ FAX: _____

Agent/Representative (If any):

Contact Person: Gary Freeland, P.E.
Entity: Bury-SAN, Inc.
Mailing Address: 922 Isom Road, Suite 100
City, State: San Antonio, Texas Zip: 78216
Telephone: (210) 525-9090 FAX: 210-525-0529

2. ☒ This project is inside the city limits of City of New Braunfels.
☐ This project is outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____
☐ This project is not located within any city's limits or ETJ.

3. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The site is located east of the intersection of Oak Run Parkway and Independence Drive.

4. ☒ **ATTACHMENT A - ROAD MAP.** A road map showing directions to and the location of the project site is attached at the end of this form.
5. ☒ **ATTACHMENT B - USGS / EDWARDS RECHARGE ZONE MAP.** A copy of the official 7 1/2 minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards

Recharge Zone is attached behind this sheet. The map(s) should clearly show:

- ☒ Project site.
- ☒ USGS Quadrangle Name(s).
- ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- ☒ Drainage path from the project to the boundary of the Recharge Zone.

6. ☒ Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment. **The TCEQ must be able to inspect the project site or the application will be returned.**
7. ☒ **ATTACHMENT C - PROJECT DESCRIPTION.** Attached at the end of this form is a detailed narrative description of the proposed project.
8. 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/Uncleared)
 - ☐ Other: _____

PROHIBITED ACTIVITIES

9. ☒ I am aware that the following activities are prohibited on the **Recharge Zone** and are not proposed for this project:
- (1) waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
 - (2) new feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
 - (3) land disposal of Class I wastes, as defined in 30 TAC §335.1;
 - (4) the use of sewage holding tanks as parts of organized collection systems; and
 - (5) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
10. ☐ N/A I am aware that the following activities are prohibited on the **Transition Zone** and are not proposed for this project:
- (1) waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
 - (2) land disposal of Class I wastes, as defined in 30 TAC §335.1; and
 - (3) new municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

ADMINISTRATIVE INFORMATION

11. The fee for the plan(s) is based on:
- ☒ For a Water Pollution Abatement Plan, the total acreage of the site where regulated activities will occur.

- ☐ For an Organized Sewage Collection System Plans and Modifications, the total linear footage of all collection system lines.
- ☐ For a UST Facility Plan or an AST Facility Plan, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

12. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

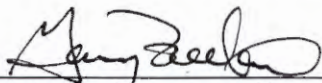
13. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

14. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

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 **GENERAL INFORMATION FORM** is hereby submitted for TCEQ review. The application was prepared by:

Gary Freeland, P.E.

Print Name of Customer/Agent



Signature of Customer/Agent

12-29-14

Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

ATTACHMENT A

ROAD MAP



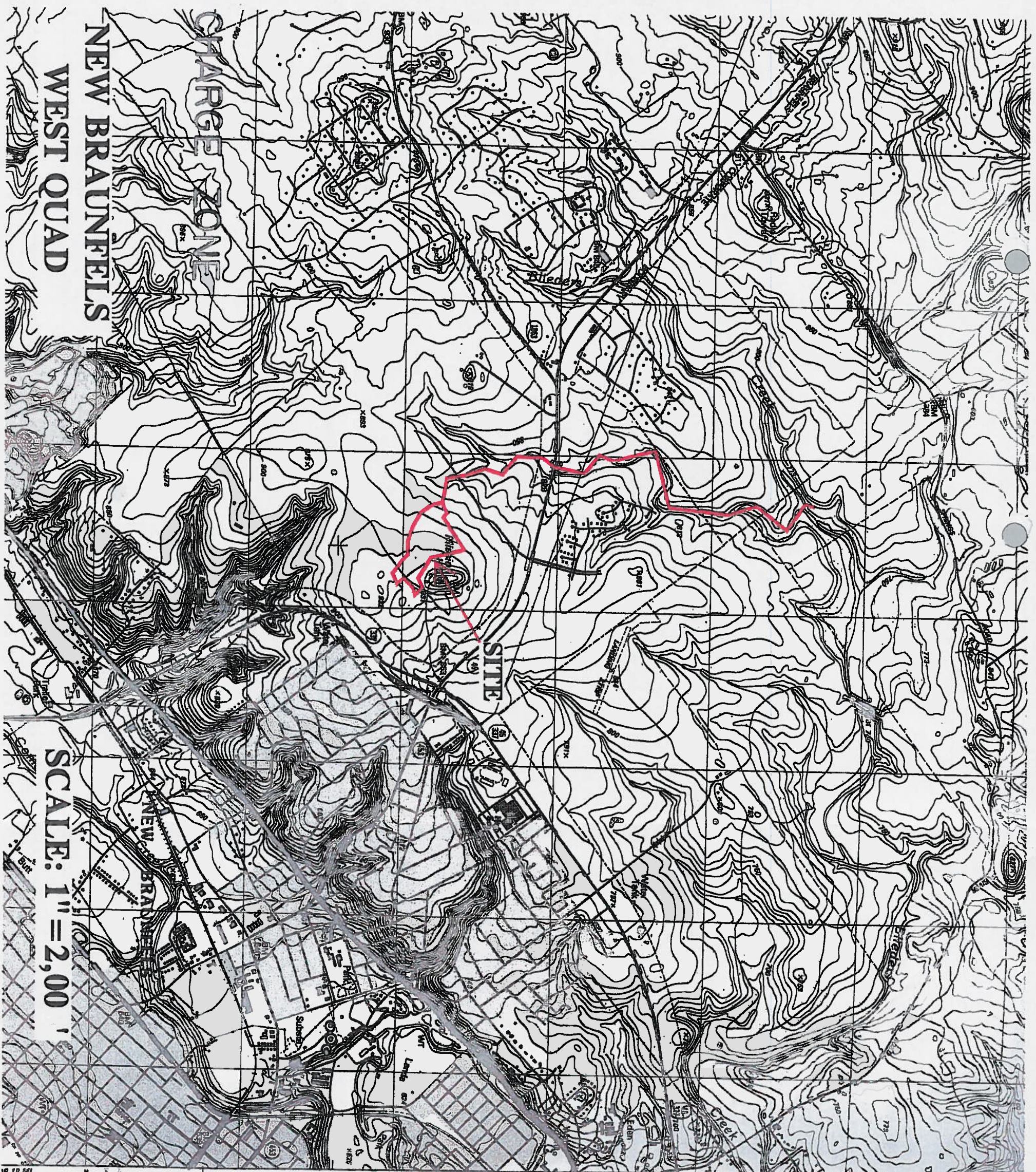
TBPE #F-1048
Copyright © 2014
www.buryinc.com

Date: 12/19/2014
File: Road Exhibit.mxd
Scale: 1 : 3,600
Tech: AJ
Project Number: R0110729-50002

ATTACHMENT B

USGS/EDWARDS RECHARGE ZONE MAP

(Scale 1" = 2,000')



ATTACHMENT C

PROJECT DESCRIPTION

PROJECT DESCRIPTION

The Emerald Cottages project consists of ±21.07 acres located along Oak Run Parkway - northwest of Oak Run Parkway and Independence Drive intersection. The subject tract is within the full purpose jurisdiction of the City of New Braunfels, Comal County, Texas and it is located in the Edwards Aquifer Recharge Zone (EARZ), within the Guadalupe River Watershed by way of both Dry Comal Creek and Blieders Creek. Currently, the site is undeveloped with natural vegetation and trees and there is no existing impervious cover on site. The development includes the construction of an access driveway to the multi-family residential site, seventeen (17) buildings, a proposed water quality pond and detention pond with the associated drainage, public and private storm sewer, public and private water and wastewater utilities, and sewage collection system (SCS).

A partial sedimentation/filtration basins will be used as a Permanent Best Management Practices (BMPs) onsite to treat storm water generated from the proposed development. These BMPs have been designed in accordance with TCEQ's Technical Guidance Manual to remove 80% of the increased Total Suspended Solids (TSS). The proposed water quality pond has been designed to provide treatment for the Emerald Cottages site as well as to account for future developments on the west and south side of the property which are also within the drainage basin. Moreover, storm water will be detained in a proposed detention pond prior being released into the existing public drainage system. In addition to the ±11.01-acre multi-family site at 72% impervious cover, the adjacent ±8.32-acres and ±1.74-acres are being accounted for at 85% impervious cover for the design of this pond. Lastly, ±2.98 acres of offsite storm water is being bypassed around this development. The offsite area is currently undeveloped and would need to mitigate any future increase in impervious cover.

The accompanying SCS describes the measures taken to design the proposed onsite sanitary sewer system.

NOTE

Please note, the Geological Assessment is for the overall Weston ±121-acre tract. The Emerald Cottages project is a small portion of the overall Weston ±121-acre tract. The project name Emerald Cottages will be the name noted on all the forms with the exception of the overall Geological Assessment forms.

GEOLOGIC ASSESSMENT

NOTE

Please note, the Geological Assessment is for the overall Weston ±121-acre tract. The Emerald Cottages project is a small portion of the overall Weston ±121-acre tract. The project name Emerald Cottages will be the name noted on all the forms with the exception of the overall Geological Assessment forms.



**GEOLOGIC ASSESSMENT
FOR THE
WESTON 121-ACRE TRACT**

Comal County, Texas

October 2007

Prepared for:

Investor Grosenbacher &
Integrated Realty Group
11202 Disco Drive
San Antonio, Texas 78216

Prepared by:

aci consulting
1001 Mopac Circle, Suite 100
Austin, Texas 78746

Geologic Assessment
For Regulated Activities
on The Edwards Aquifer Recharge/transition Zones
and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

REGULATED ENTITY NAME: Weston 121 acre Tract- Comal County, Texas

TYPE OF PROJECT: ☒ WPAP ☐ AST ☐ SCS ☐ UST

LOCATION OF PROJECT: ☒ Recharge Zone ☐ Transition Zone ☐ Contributing Zone within the Transition Zone

PROJECT INFORMATION

1. ☒ Geologic or manmade features are described and evaluated using the attached **GEOLOGIC ASSESSMENT TABLE**.
2. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (*Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986*). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Soil Units, Infiltration Characteristics & Thickness			* Soil Group Definitions (Abbreviated) A. Soils having a <u>high infiltration</u> rate when thoroughly wetted. B. Soils having a <u>moderate infiltration</u> rate when thoroughly wetted. C. Soils having a <u>slow infiltration</u> rate when thoroughly wetted. D. Soils having a <u>very slow infiltration</u> rate when thoroughly wetted.
Soil Name	Group*	Thickness (feet)	
Krum clay (Krb), 1 to 3 percent slopes	C	4-5	
Medlin-Eckrant association (MEC), undulating	D	1-2	
Medlin-Eckrant association (MED), hilly	D	4-5	
Rumple-Comfort association (RUD), undulating	D	2.5	

3. ☒ A **STRATIGRAPHIC COLUMN** is attached at the end of this form that shows formations, members, and thicknesses. The outcropping unit should be at the top of the stratigraphic column.
4. ☒ A **NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY** is attached at the end of this form. The description must include a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure, and karst characteristics of the site.
5. ☒ Appropriate **SITE GEOLOGIC MAP(S)** are attached:

The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1" : 400'

Applicant's Site Plan Scale	1" = <u>200'</u>
Site Geologic Map Scale	1" = <u>200'</u>
Site Soils Map Scale (if more than 1 soil type)	1" = <u>200'</u>

6. Method of collecting positional data:
☒ Global Positioning System (GPS) technology.
☐ Other method(s).
7. ☒ The project site is shown and labeled on the Site Geologic Map.
8. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
9. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
☐ Geologic or manmade features were not discovered on the project site during the field investigation.
10. ☐ The Recharge Zone boundary is shown and labeled, if appropriate.
11. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.):
☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
☐ The wells are not in use and have been properly abandoned.
☒ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC Chapter 76.
☐ There are no wells or test holes of any kind known to exist on the project site.

ADMINISTRATIVE INFORMATION

12. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

Date(s) Geologic Assessment was performed: September 13 and 17 and October 10, 2007
Date(s)

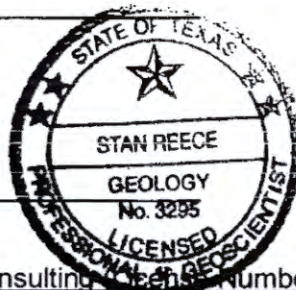
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Stan Reece, P.G.
Print Name of Geologist

(512) 347-9000
Telephone



Signature of Geologist



(512) 306-0974
Fax

12/9/14
Date

Representing: aci consulting (License Number: 50260)
(Name of Company)

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	SCOPE	3
3.0	INVESTIGATION METHOD	3
4.0	PROPOSED SURVEY AREA USE	4
5.0	REGIONAL AND SITE GEOLOGY	4
6.0	KARST FEATURES IN TRAVIS COUNTY, TEXAS	4
7.0	SITE SOILS	5
8.0	PREVIOUS SITE INVESTIGATIONS	6
9.0	DESCRIPTION OF SITE FEATURES	6
10.0	SUMMARY OF FINDINGS	8
11.0	RECOMMENDATIONS	8
12.0	REFERENCES	9

LIST OF TABLES

Table 1: Geologic Assessment Table

LIST OF FIGURES

Figure 1: Site Location
 Figure 2: Stratigraphic Column
 Figure 3: Topographic Map with Formation Outcrops
 Figure 4: Site Soils
 Figure 5: Feature Locations

October 17, 2007

Geologic Assessment for the Weston 121-acre Tract in Comal County, Texas

1.0 INTRODUCTION

The purpose of this task is to identify "karst" features during a pedestrian survey for the property known as the Weston 121-acre tract in New Braunfels, Comal County, Texas. The Weston 121-acre property, hereafter referred to as the subject area, is located at the northwest corner of State Loop 337 and Highway 46 in New Braunfels, Comal County, Texas (Figure 1).

2.0 SCOPE

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Water Pollution Abatement Plan (WPAP). The scope of the report consists of a site reconnaissance and field survey and review of existing data and reports. Features identified during the field survey are ranked utilizing the Texas Commission on Environmental Quality (TCEQ) matrix for Edwards Aquifer Recharge Zone Features. The ranking of the features determines their viability as a recharge feature.

3.0 INVESTIGATION METHOD

The following investigation methods and activities were used to develop this report:

- A review of existing files and literature to determine the regional geology and known caves associated with the property;
- A review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the property;
- A site reconnaissance performed by a registered professional geologist to identify and examine caves, recharge features, and other significant geological features; and,
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone.

4.0 PROPOSED SURVEY AREA USE

The site will be utilized for the construction of a commercial / retail complex.

5.0 REGIONAL AND SITE GEOLOGY

The site lies within the Edwards aquifer recharge zone as defined by the TCEQ (TCEQ 2001). The geologic strata associated with the Edwards aquifer include the Georgetown Formations overlying the Edwards Limestone Group, interfingering with the Comanche Peak Formation in Williamson County. These rocks are underlain by the Walnut Formation, which has members including the Whitestone Member, Keys Valley Marl Member, the Cedar Park Member, the Bee Cave Member and the Bull Creek Member. The Glen Rose Formation, another marine limestone, is located below the Walnut Formation. The dominant structural trend of known faults in the area is to the northeast on a bearing of approximately 40 to 50 degrees to the northeast (USGS, New Braunfels West Quadrangle, 1993).

Surface geology of the area is dominated by consistent outcrops of the Edwards Limestone Formation (Ked), Del Rio Clay (Kdr) and Buda Limestone (Kbu). Outcrops of the Edwards Limestone on the site occur as light-gray to gray, thick bedded limestone. Some outcrops are dolomitic in nature. Outcrops of Del Rio clay on the property appear as blocky medium-gray to light gray silty clay. Buda Limestone on the property outcrops as fine-grained dark to medium gray partially weathered limestone. Figure 2 depicts the stratigraphic column for the site. A topographic map with formation outcrops is included as Figure 3.

6.0 KARST FEATURES IN COMAL COUNTY, TEXAS

In limestone terrains, karst is expressed by erratically developed cavernous porosity and the manifestations of sinkholes, voids, and erratic surface drainage. Karst landscapes are typical of the Edwards Limestone, occurring across a vast region of Central Texas west of the Balcones Escarpment, and these processes are critical to understanding the Edwards Aquifer within its various segments. The features produced by karst processes (voids, holes, and solution layers) eventually provide conduits for surface water runoff and "point recharge" for the Edwards aquifer. The identification and protection of these features in established recharge areas is critical to maintaining groundwater quality and species habitat. The United States Fish and Wildlife Service (USFWS) and the TCEQ require protective strategies within these areas to ensure recharge and endangered species habitat protection prior to, during, and upon completion of construction activities. The subject area is located in Comal County which is not within an area where endangered karst invertebrates exist or may be known to exist.

7.0 SITE SOILS

The description of the site soils are derived from two sources:

- Utilization of the "Soil Survey of Comal County, Texas," January, 1984, compiled by the United States Department of Agriculture (USDA) Natural Resource Conservation Service; and,
- Field observations made during the site reconnaissance.

Four soil units are identified within the subject area:

Krum clay (Krb) – 1 to 3 percent slopes – These gently sloping soils occur on stream terraces and valley hills. Typically, the surface layer consists of dark gray clay about 16 inches thick with subsoil, to a depth of 58 inches, consisting of grayish, brown clay. This soil is typically well-drained with moderate permeability.

Medlin-Eckrant association, undulating (MEC) – This association consists of very shallow and deep soils on upland areas in the Edwards Plateau area. The typical surface layer of Medlin consists of nine inches of grayish, brown clay. The subsoil is olive clay to a depth of approximately 24 inches, and mottled pale olive and pale yellow clay to a depth of 38 inches. The Medlin soil is well-drained with rapid surface runoff and slow permeability.

The Eckrant soil consists of a surface layer of dark brown extremely stony clay approximately 17 inches thick with underlying material consisting of fractured limestone bedrock. The Eckrant soil is well drained with rapid surface runoff and moderately slow permeability.

Medlin-Eckrant association, hilly (MED) – This association consists of very shallow and deep soils in the Edwards Plateau area. Typically, the Medlin soils has a grayish brown surface layer about 11 inches thick that is stony clay in the upper part and clay in the lower part. The subsoil is a light yellowish brown clay that has yellowish brown and olive mottles. The underlying material is a light gray shaly clay that has yellow and olive yellow mottles. The Medlin soil is well-drained with rapid surface runoff and very slow permeability.

The surface layer of the Eckrant soil is very dark extremely stony clay about 16 inches in thickness with underlying material consisting of fractured limestone bedrock. The Eckrant soil is well drained with rapid surface runoff and moderately slow permeability.

Rumple-Comfort association (RUD), undulating – This association consists of shallow and moderately deep upland soils in the Edwards Plateau area. Rumple soils make up approximately 60 percent of the association, Comfort soils make up 20 percent, and other soils, mainly Tarpley soils, make up 20 percent. The typical surface layer of the Rumple soil consists of dark reddish-brown cherty clay loam about 10 inches thick. The subsoil to a depth of 28 inches is dark reddish-brown extremely stony clay.

The surface layer of the Comfort soil is dark brown, extremely stony clay to about 7 inches. The subsoil to a depth of 12 inches is dark, reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated non-calcareous fractured limestone throughout. All soils in this association are well-drained with moderate surface runoff.

A site soils map is included as Figure 4.

8.0 PREVIOUS SITE INVESTIGATIONS

There are no known previous site investigations conducted for this property according to information received from the property developer.

9.0 DESCRIPTION OF SITE FEATURES

All features listed below were identified and assessed by aci personnel during a site visit conducted on September 13 and 17, and October 10, 2007. A total of 5 geologic features and one hand dug water well/cistern were identified within the property boundaries during the reconnaissance for this geologic assessment. A feature location map is included as Figure 5. All feature descriptions are identified as follows:

Feature 1

GPS: N 29.71298 W -98.16708

This feature is a sinkhole with a length, width and vertical depth of 5 feet, 4 feet, and 1.5 feet, respectively. Infill material consists of cobbles, loose soil, leaf litter, and other organic material. The feature is located on a hillside, and the drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (17 points). The TCEQ Geologic Assessment sensitivity rating is 37.

Recommendations: No further activities are recommended for this feature.

Feature 2**GPS: N 29.71223 W -98.16835**

This feature is a series of six solution-enlarged cavities, the largest of which has a length, width and vertical depth of 2 feet, 1 foot, and greater than 4 feet, respectively. Infill material consists of cobbles, breakdown, sand, and gravel. Drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is intermediate (30 points). The TCEQ Geologic Assessment sensitivity rating is 50.

Recommendations: A minimum setback of 50-feet corresponding to the associated drainage area is recommended for this feature.

Feature 3**GPS: N 29.71187 W -98.16875**

This feature is a natural bedrock feature with a length, width and vertical depth of 20 feet, 5 feet, and 1 foot, respectively. The feature is located on a hillside, and the drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (15 points). The TCEQ Geologic Assessment sensitivity rating is 30.

Recommendations: No further activities are recommended for this feature.

Feature 4**GPS: N 29.71395 W -98.16253**

This feature consists of a solution cavity with a length, width and vertical depth of 1 foot, 0.75 foot, and 2 feet, respectively. The feature has a horizontal extent in excess of 5 feet. This feature also appears to be utilized as an animal burrow. Infill material consists of leaf litter and other organic material. This feature is located on a hillside, and the drainage area to the feature appears to be less than one acre. The relative infiltration rate is moderate (25 points) and the TCEQ sensitivity rating is 45.

Recommendations: Excavation of the feature to determine extent and recharge potential or installation of a minimum 50-foot setback corresponding to the drainage area.

Feature 5**GPS: N 29.71401 W -98.16268**

This feature is small collapsed sinkhole with a solution cavity. The solution cavity has a length, width and vertical depth of 1 foot, 1 foot, and 1.5 feet, respectively. The collapsed area has a length, width and vertical depth of 6 feet, 6 feet and 1.5 feet, respectively. Infill material within the solution cavity consists of soil, leaf litter, and other organic material. This feature is located on a hillside, and the drainage area for the

feature appears to be less than one acre. Infiltration rate is moderate (26 points) and the TCEQ sensitivity rating is 46.

Recommendations: Excavation of feature to determine extent and recharge potential or installation of a minimum 50-foot setback corresponding to the drainage area.

Feature 6

GPS: N 29.71452 W -98.16544

This feature is a manmade feature in bedrock (hand dug well/cistern). The depth of the feature is unknown as it was full of water. Infiltration rate is high (35 points) and the TCEQ sensitivity rating is 65.

Recommendations: If this feature is not going to be preserved as part of development on the site, then it should be plugged and abandoned by a licensed water well driller prior to commencement of development activities.

10.0 SUMMARY OF FINDINGS

A total of 6 geologic or manmade features identified within the subject area. Three of the features were rated as sensitive under TCEQ guidelines.

11.0 RECOMMENDATIONS

Recommendations for each feature are included below the individual feature descriptions.

12.0 REFERENCES

United States Geological Survey (USGS), New Braunfels West Quadrangle (1993),
Bureau of Economic Geology, The University of Texas at Austin.

Soil Conservation Service. 1984. Soil Survey of Comal County, Texas. United
States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer
Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone,
Contributing Zone, and Contributing Zone within the Transition Zone." Map.
Digital data. November 28, 2001. Austin, Texas.

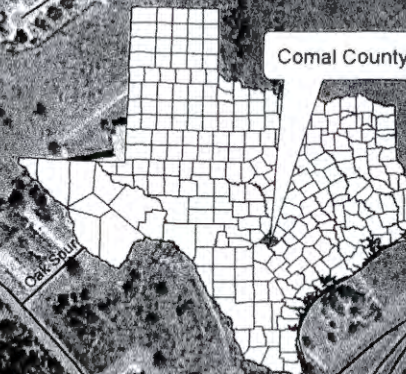
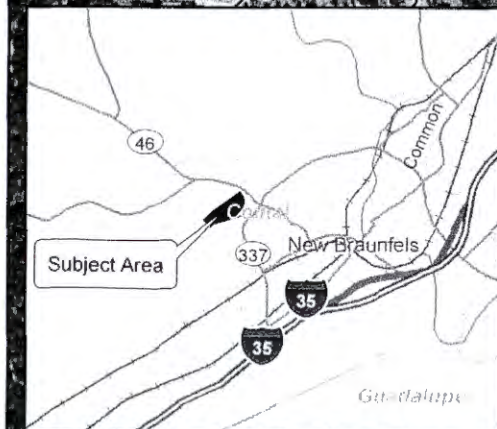
TABLE

FIGURES

Westin 121-acre Tract
Geologic Assessment
Figure 1: Subject Area
September 2007

400 200 0 400 800
Feet

This map is intended for planning purposes only. All
boundaries and designations are subject to confirmation.



Comal County

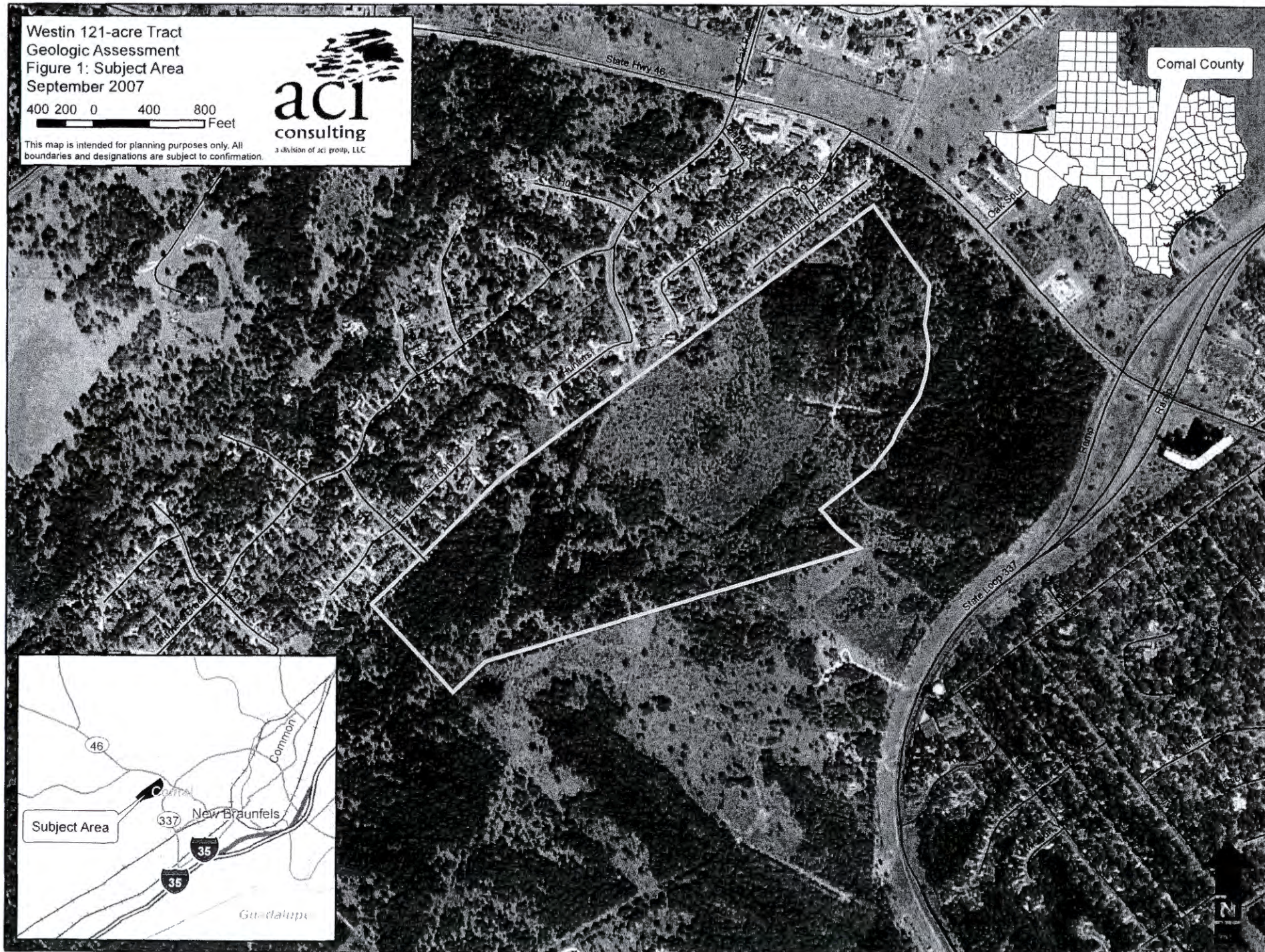
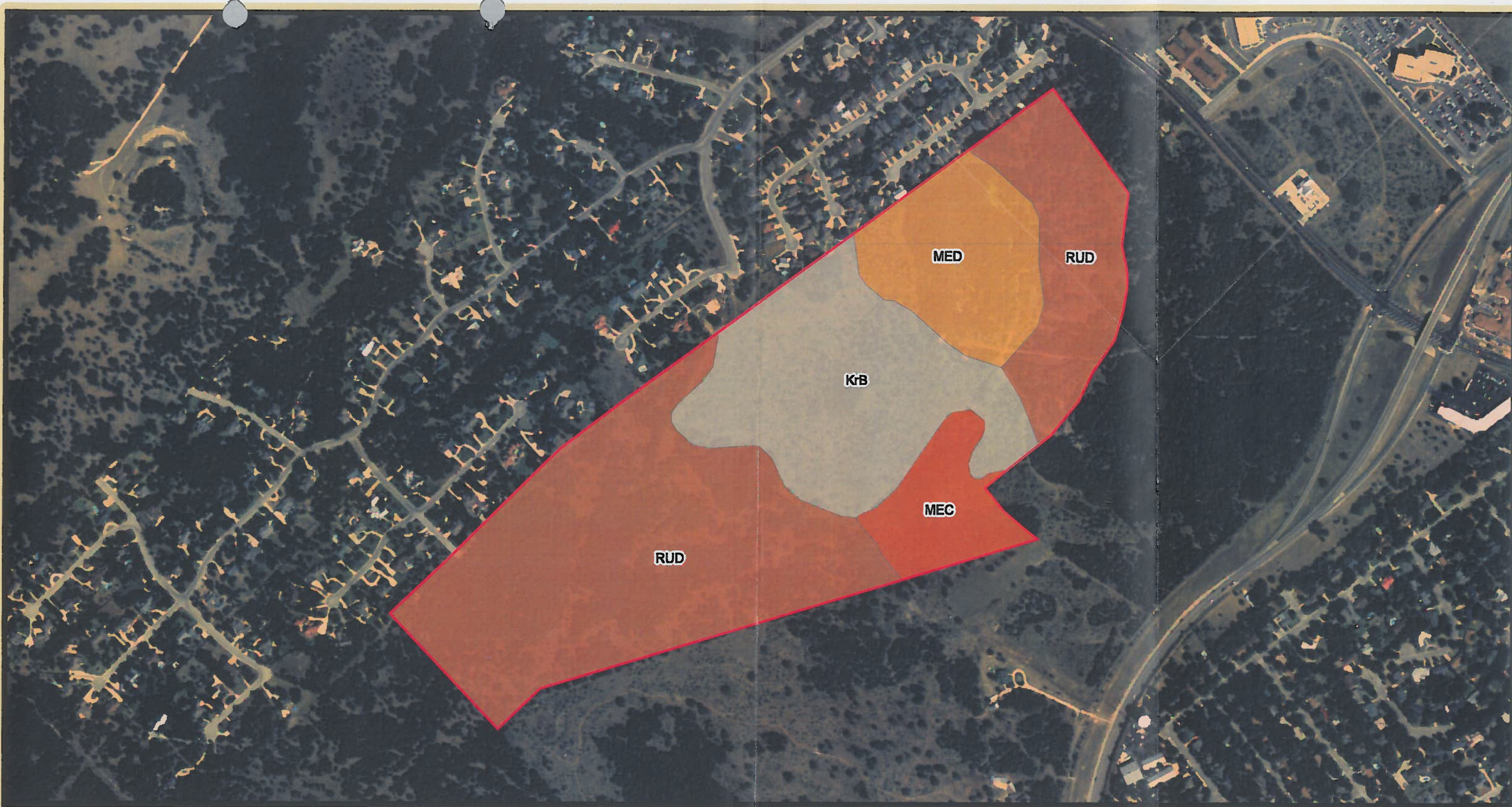
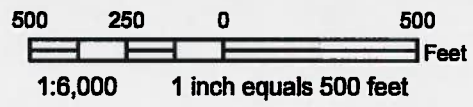


Figure 2
Stratigraphic Column
Weston Tract (121-acre portion)

System	Group or Formation	Thickness	Description
Upper Cretaceous	Buda Limestone (Kbu)	0 - 15 feet	Fine-grained, hard, pyritiferous, light tan to gray limestone. Scattered pelecypods noted during reconnaissance.
Lower Cretaceous	Del Rio Clay (Kdr)	Unknown	Dark gray to olive brown, calcareous clay, some pyretic.
Lower Cretaceous	Edwards Limestone (Ked)	Unknown	Mostly hard and dense, thin bedded, dark gray, fine to medium grained limestone, some dolomitic. Tree cover is sparse in western portion of formation.

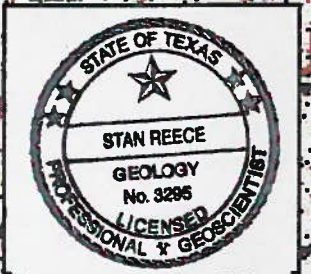
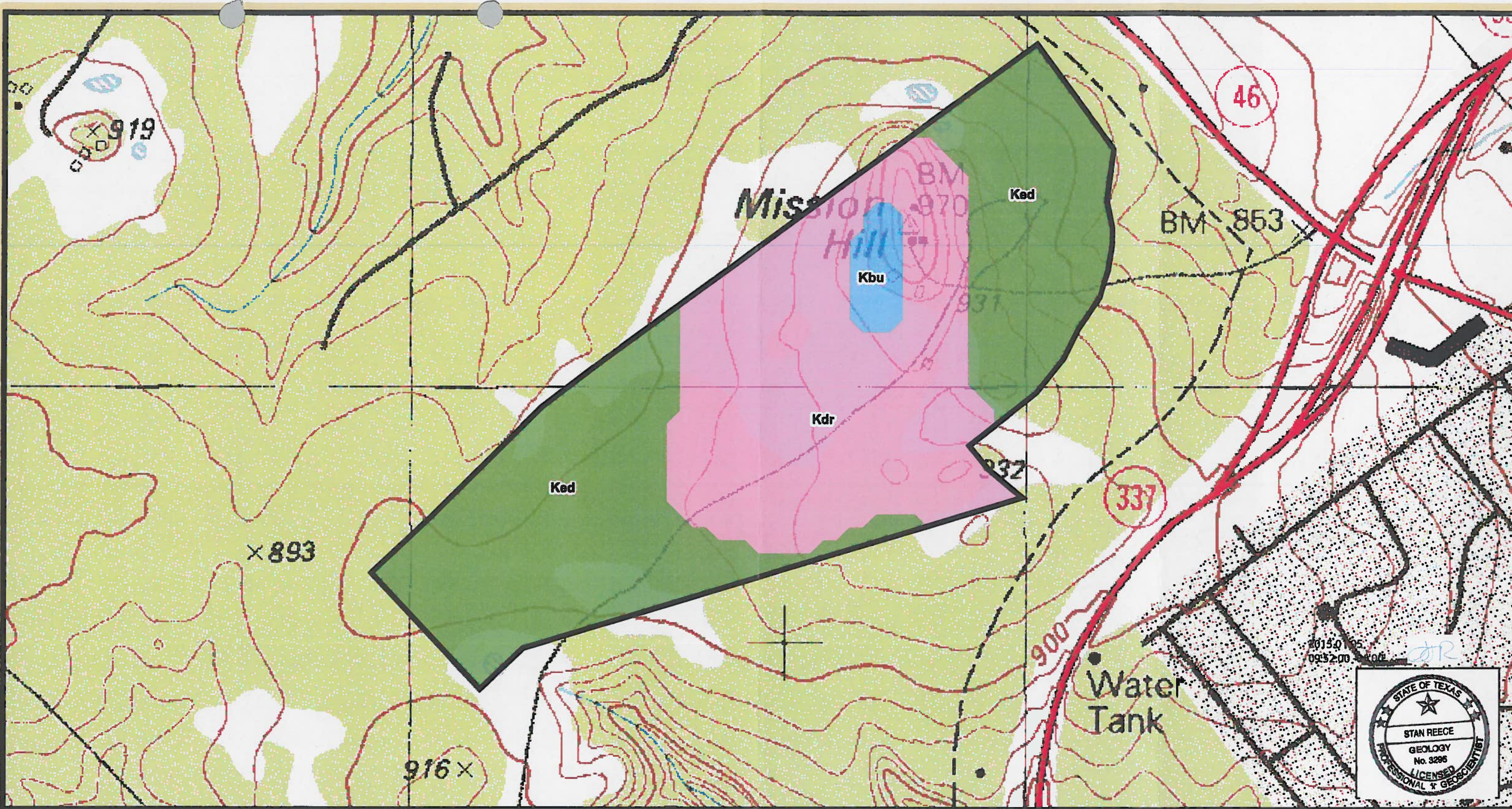


This map is intended for planning purposes only. All map data should be considered preliminary and all boundaries and designations are subject to confirmation.

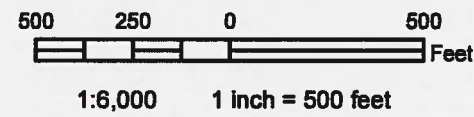



 Subject Area





This map is intended for planning purposes only. All map data should be considered preliminary and all boundaries and designations are subject to confirmation.



 Subject Area



Weston 121-Acre Tract Geologic Assessment
Figure 3: Topographic Map with Formation Outcrops

January 2015

Figure 5: Feature Locations
121-acre Weston Tract GA
Comal County, Texas
January 2015

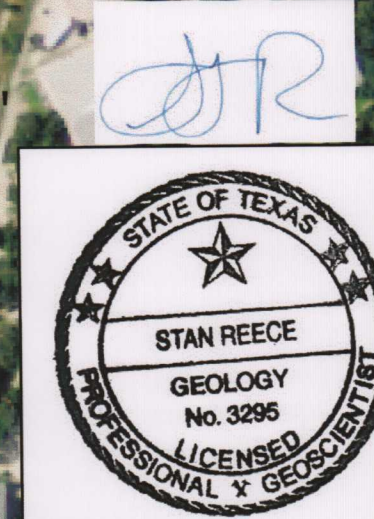


Disclaimer:
This map is intended for planning purposes. All boundaries
and designations are subject to confirmation.



400 200 0 400 Feet
1:2,400 1 inch = 200 Feet

2015 01 05
09:54:39 -06'00'



WATER POLLUTION ABATEMENT PLAN APPLICATION

Water Pollution Abatement Plan Application
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b), Effective June 1, 1999

REGULATED ENTITY NAME: Emerald Cottage

REGULATED ENTITY INFORMATION

1. The type of project is:
☐ Residential: # of Lots:
☒ Residential: # of Living Unit Equivalents: 68
☐ Commercial
☐ Industrial
☒ Other: Undetermined commercial/MF
2. Total site acreage (size of property): 21.07
3. Projected population: 102
4. The amount and type of impervious cover expected after construction are shown below:

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	116,783	÷ 43,560 =	2.68
Parking	162,123	÷ 43,560 =	3.72
Other paved impervious surfaces	436,471	÷ 43,560 =	10.02
Total Impervious Cover	694,782	÷ 43,560 =	16.425.95
Total Impervious Cover ÷ Total Acreage x 100 = (16.42 ÷ 21.07)X100			78%

5. ☒ **ATTACHMENT A - Factors Affecting Water Quality.** A description of any factors that could affect surface water and groundwater quality is provided at the end of this form.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

FOR ROAD PROJECTS ONLY (N/A)

Complete questions 7-12 if this application is exclusively for a road project.

7. 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.
8. Type of pavement or road surface to be used:
☐ Concrete
☐ Asphaltic concrete pavement
☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.
 Width of R.O.W.: _____ feet.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres}.$
10. Length of pavement area: _____ feet.
 Width of pavement area: _____ feet.
 $L \times W = \text{_____ Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} = \text{_____ acres}.$
 Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 = \text{_____ \%}$ impervious cover.
11. _____ A rest stop will be included in this project.
 _____ A rest stop will **not** be included in this project.
12. _____ 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

13. X **ATTACHMENT B - Volume and Character of Stormwater.** A description of the volume and character (quality) of the stormwater runoff which is expected to occur from the proposed project is provided at the end of this form. The estimates of stormwater runoff quality and quantity should be 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

14. The character and volume of wastewater is shown below:
- | | |
|------------------------------------|------------------------------|
| <u> 100 </u> % Domestic | <u> 7,140 </u> gallons/day |
| <u> </u> % Industrial | <u> </u> gallons/day |
| <u> </u> % Commingled | <u> </u> gallons/day |
| TOTAL <u> 7,140 </u> gallons/day | |
15. Wastewater will be disposed of by:
 N/A **On-Site Sewage Facility (OSSF/Septic Tank):**
 _____ **ATTACHMENT C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater. The appropriate licensing authority's (authorized agent) written approval is provided at the end of this form. It states that the land is suitable for the use of an on-site sewage facility or identifies areas that are not suitable.
 _____ 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.
- X **Sewage Collection System (Sewer Lines):**
 _____ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
 X Private service laterals from the wastewater generating facilities will be connected to a proposed SCS. **and ultimately be conveyed to an existing SCS.**

- ☒ The SCS was previously submitted on May 21, 2009.
☒ The SCS was submitted with this application.
☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the Gruene Wastewater Treatment Plant. The treatment facility is:

- ☒ existing.
☐ proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

SITE PLAN REQUIREMENTS

Items 17 through 27 must be included on the Site Plan.

17. The Site Plan must have a minimum scale of 1" = 400'.
Site Plan Scale: 1" = 200'.
18. 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):

Federal Emergency Management Agency Community Panel No. 48091C0435F, Effective Date September 25, 2009

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.
☐ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.
20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
☐ The wells are not in use and have been properly abandoned.
☒ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.
☐ There are no wells or test holes of any kind known to exist on the project site.
21. Geologic or manmade features which are on the site:
☒ All **sensitive** geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☒ No **sensitive** geologic or manmade features were identified in the Geologic Assessment.
☒ **ATTACHMENT D - Exception to the Required Geologic Assessment.** An exception to the Geologic Assessment requirement is requested and explained at the end of this form.
22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

23. X Areas of soil disturbance and areas which will not be disturbed.
24. X Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. X Locations where soil stabilization practices are expected to occur.
26. N/A Surface waters (including wetlands).
27. N/A Locations where stormwater discharges to surface water or sensitive features.
X There will be no discharges to surface water or sensitive features.

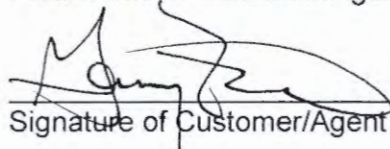
ADMINISTRATIVE INFORMATION

28. X Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
29. X Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

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 **WATER POLLUTION ABATEMENT PLAN APPLICATION FORM** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Gary Freeland, P.E.

Print Name of Customer/Agent


Signature of Customer/Agent

12-29-14
Date

ATTACHMENT A

FACTORS AFFECTING WATER QUALITY

FACTORS AFFECTING WATER QUALITY

DURING CONSTRUCTION

Non-Storm Water Discharges - The following non-storm water discharges may occur from the site during the construction period:

- Non-point discharge of paint and solvents
- Water used to wash vehicles or control dust
- Water from utility line flushing during initial line testing
- Petroleum drippings from vehicle movement
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation)
- Silt Runoff from soil disturbance
- Trash and Debris (Litter) and discarded Food and Tobacco Products

All non-storm water discharge will be directed to the Erosion and Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein. Material management practices will be utilized to reduce the risk of spills, or other accidental exposure of the materials listed above to storm water runoff. These and any other sources of pollutants that may affect storm water quality will be screened and filtered by temporary BMPs, which will be installed prior to the commencement of site clearing.

POST CONSTRUCTION

Non-Storm Water Discharges after construction has been completed which can affect water quality include:

- Lawn fertilizer and pesticides
- Petroleum drippings from vehicle movement
- Cleaning products used out-of-doors not captured in sanitary sewer
- Landscape Maintenance

Post-construction storm water discharges typically will transport sediment in the form of dirt and dust accumulated on streets and other impervious flatwork, rooftops and sediment from erosion of grassy areas. That material will be transported through the storm sewer system to the water quality pond, where most of the pollutants will be removed.

ATTACHMENT B

VOLUME AND CHARACTER OF STORM WATER

VOLUME AND CHARACTER OF STORM WATER

The project site is defined by four (4) minor existing drainage areas and they generally drain towards the west side of the property. The existing drainage area will produce a peak flow of ± 46 cubic feet per second (cfs) during a 100-year storm event. The table below shows the runoff values for this project. This existing drainage areas naturally convey storm water off-site via overland flow, eventually discharging into Blieders Creek. An Existing Drainage Area Map is within the site plan set. In the proposed conditions, storm water is to be captured via an onsite storm sewer system which will convey all water to the water quality and detention pond, and ultimately to Blieders Creek.

The proposed pond design consist of a partial sedimentation/filtration water quality pond which then discharges to the proposed detention pond; both located on the west side of the site. The proposed detention pond has been sized to detain the 100-year storm event and has been designed such that the proposed flows will not exceed the existing flows at the existing outfall. A Proposed Drainage Area Map is provided within this WPAP application package.

The water quality pond has been designed to treat four (4) drainage areas: DA-1, DA-2, DA-3 and DA-4. The proposed multi-family development consist of drainage areas DA-2 and DA-3 which consist of ± 4.65 acres at 67% impervious cover and ± 6.36 acres at 75% impervious cover respectively. Drainage areas DA-1 and DA-4 are being considered for future land use and consist of ± 8.32 at 85% impervious cover and ± 1.74 acres at 85% impervious cover respectively. The water quality pond and detention pond have been designed to treat and capture a total of ± 21.07 acres at 78% impervious cover.

Erosion Controls will be installed to decrease and/or prevent sediment runoff during construction. The TCEQ TSS Removal Calculations spreadsheet for the proposed site is located on the water quality pond sheet attached construction plans. Please reference the following sheets in the attached construction plans for more details on the drainage, pond calculations, and design.

Existing Drainage Area Map Exhibit
Proposed Drainage Area Map Exhibit
Water Quality Pond
Water Quality Pond Notes & Details

EXISTING AND PROPOSED CONDITIONS

Existing Drainage Areas	10-Yr	100-Yr	Existing Drainage Areas	10-Yr	100-Yr
ALL	24	46	ALL	131	216

ATTACHMENT C

SUITABILITY LETTER FROM AUTHORIZED AGENT
(Not Applicable)

ATTACHMENT D

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT
(Not Applicable)

TEMPORARY STORM WATER SECTION

Temporary Stormwater Section
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

REGULATED ENTITY NAME: Emerald Cottages

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:

N/A 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.

N/A 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.

N/A 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.

X Fuels and hazardous substances will not be stored on-site.
2. X **ATTACHMENT A - Spill Response Actions.** A description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is provided at the end of this form.
3. N/A 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. X **ATTACHMENT B - Potential Sources of Contamination.** Describe in an attachment at the end of this form any other activities or processes which may be a potential source of contamination.

N/A There are no other potential sources of contamination.

SEQUENCE OF CONSTRUCTION

5. X **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 provided at the end of this form. For each activity described, an estimate of the total area of the site to be disturbed by each activity is given.
6. X 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: Blieders 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. X **ATTACHMENT D - Temporary Best Management Practices and Measures.** A description of the TBMPs and measures that will be used during and after construction are provided at the end of this form. For each activity listed in the sequence of construction, include appropriate control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- X 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 has been provided in the attachment at the end of this form
- a. 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.
 - b. 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.
 - c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - d. 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.
- N/A **ATTACHMENT E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is provided at the end of this form. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
- X There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. X **ATTACHMENT F - Structural Practices.** Describe 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. Placement of structural practices in floodplains has been avoided.
10. X **ATTACHMENT G - Drainage Area Map.** A drainage area map is provided at the end of this form to support the following requirements.
- X For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
- N/A 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.
- N/A 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.

N/A 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. X **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.
12. X **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.
13. X 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. X 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. X 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. X 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. X **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.
18. X 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. X Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

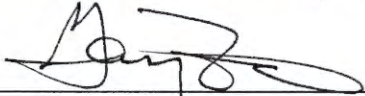
ADMINISTRATIVE INFORMATION

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

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:

Gary W. Freeland, P.E.

Print Name of Customer/Agent



Signature of Customer/Agent

12-29-14

Date

ATTACHMENT A

SPILL RESPONSE ACTIONS

SPILL RESPONSE ACTIONS

Potential Source:

Spills of Hydrocarbons or other hazardous substances and materials.

Preventative Measures:

The following practices will be used to reduce the risks associated with hazardous materials, if hazardous materials are needed for the work:

Education/General Measures

1. Products will be kept in original containers unless they are not re-sealable.
2. Original labels and material safety data will be retained.
3. Modify the Storm Water Pollution Prevention Plan to include the information dealing with, and the steps needed to correct, the encountered hazardous waste spill.
4. 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 available in 30 TAC 327.4 and 40 CFR 302.4.
5. Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
6. Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
7. Establish a continuing education program to indoctrinate new employees.
8. Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.
9. To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110,117, and 302, as well as sanitary and septic wastes should be contained and cleaned up immediately.
10. Store hazardous materials and wastes in covered containers and protect from vandalism.
11. Place a stockpile of spill cleanup materials where it will be readily accessible.
12. Train employees in spill prevention and cleanup.
13. Designate responsible individuals to oversee and enforce control measures.
14. Spills should be covered and protected from storm water run-on during rainfall to the extent that it doesn't compromise clean up activities.
15. Do not bury or wash spills with water.

16. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
17. 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.
18. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
19. 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.
20. 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.

If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal will be followed.

Spill Measures:

In the event that hazardous wastes are encountered, they will be disposed of in the manner specified by local or state regulations.

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

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

Spills of hazardous waste in amounts that equal or exceed Reportable Quantity (RQ), as defined by the EPA through issued regulations (40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302), will be handled in the following steps:

1. Notify the National Response Center immediately at 1-800-424-8802.
2. Notify TCEQ immediately at 1-210-490-3096 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.
3. Submit a written description of the release to the EPA Region 11 office providing the date and circumstances of the release and the steps to be taken to prevent another release:

Attn: Hazardous Waste Dept.
1445 Ross Ave. STE 1200
Dallas, TX 75202
1-214-665-2224 (Region 6 Emergency Line)
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.state.tx.us/response/spills.html>.

Vehicle Measures:

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 run-on of storm water 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 a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
5. Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
6. Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
7. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute storm water. Place the oil filter in a funnel over a 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.
8. Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all 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 drainage courses, to prevent the run-on of storm water 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 catch spills/leaks.

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

POTENTIAL SOURCES OF CONTAMINATION

Potential Source:	Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.
Preventative Measures:	Vehicle maintenance when possible will be performed within the construction staging area or at a local maintenance shop.
Potential Source:	Miscellaneous trash and litter from construction workers and material wrappings.
Preventative Measures:	Trash containers will be placed throughout the site to encourage proper trash disposal.
Potential Source:	Silt leaving the site; construction debris.
Preventative Measures:	Contractor will monitor all vehicles leaving the site to prevent tracking silt and mud onto public streets. The contractor will ensure that trucks will be washed down to minimize the amount of silt leaving the site.
Potential Source:	Connection to existing sewer lines.
Preventive Measures:	Contractor shall tie into existing sewer line per NBU Regulations and Standards via a sanitary sewer manhole. A manhole detail is provided by NBU and shown in the construction details. Any leakage of sewage from the existing wastewater line due to the connection will be cleaned up immediately.
Potential Source:	Construction related portable toilets.
Preventive Measures:	Any on-site portable toilets will be in good working order with no defects that cause leaks. All portable toilets will be maintained to ensure no overflowing of sewage.
Potential Source:	Concrete and asphalt products.
Preventive Measures:	Shall be hauled in a manner consistent with the manufacturer's recommendations. Disposal of waste material shall be in conformance with All State and Local Laws.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

SEQUENCE OF MAJOR ACTIVITIES

The sequence of work described below will be accomplished through the timing of proposed work relating the maintenance of service (i.e. proposed utility installation as compared to the removal/abandonment of existing utilities). Below is a general sequence of events to be followed:

1. Obtain all required permits.
2. Install all Erosion Control Measures and Devices that can be installed prior to site clearing.
3. Clear site for streets and pond.
4. Install any remaining Control Measures and Devices that could not be installed prior to site clearing.
5. Grade site. Install Erosion Control around catch basins and Temporary Sediment Basin.
6. Set Sewage Collection System manholes and install all underground utilities and piping.
7. Install Erosion Control around catch basins.
8. Install pavement.
9. Install commercial structures.
10. Inspect and maintain all erosion control measures until all disturbed offsite and onsite areas have been hydro-mulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
11. Clear site for proposed ponds.
12. Inspect and maintain all erosion control measures until all disturbed offsite and on-site areas have been hydromulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
13. The environmental project manager will schedule a mid-construction conference to coordinate changes in the construction schedule and evaluate effectiveness of the erosion control plan after possible construction alterations to the site. Participants shall include the city inspector, project engineer, general contractor and environmental project manager. The anticipated completion date and final construction sequence and inspection schedule will be coordinated with the appropriate City Inspector.

TOTAL SITE AREA/TOTAL DISTURBED AREA

The total area of the site is ± 21.07 acres. Excavation, grading, or other activities throughout the construction process will disturb approximately ± 15 acres. Post-construction impervious coverage will total ± 16.42 acres.

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

TEMPORARY BMPS

At the beginning of the project, Temporary Best Management Practices (BMPs) will be installed according to the attached Temporary BMP Details and placed as shown on the TBMP Site Plan.

The site is located northwest corner of Oak Run Parkway and Independence Drive intersection. Upgradient water from the undeveloped site of the proposed development will be captured through a storm channel and conveyed west to the proposed water quality pond and proposed detention pond.

On-site Water

Silt fencing will be placed along the boundary line of the tracts. Inlet protection will be placed as necessary to protect the proposed inlets onsite. These Temporary BMPs will be installed along the down-gradient boundary of the property to filter all runoff that originates on site as indicated in the report. A temporary sediment basin will be installed. The temporary construction entrance will be installed to prevent tracking materials offsite. Additionally, a concrete truck washout area will be placed onsite and be accessible to all existing traffic leaving the site. By this, the Temporary BMPs will prevent pollution of surface water that originates on-site due to the construction of the project.

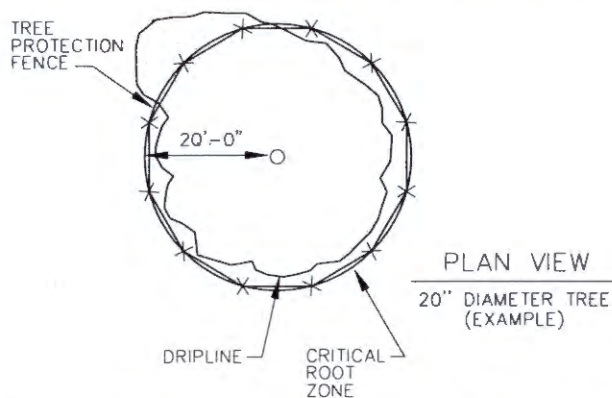
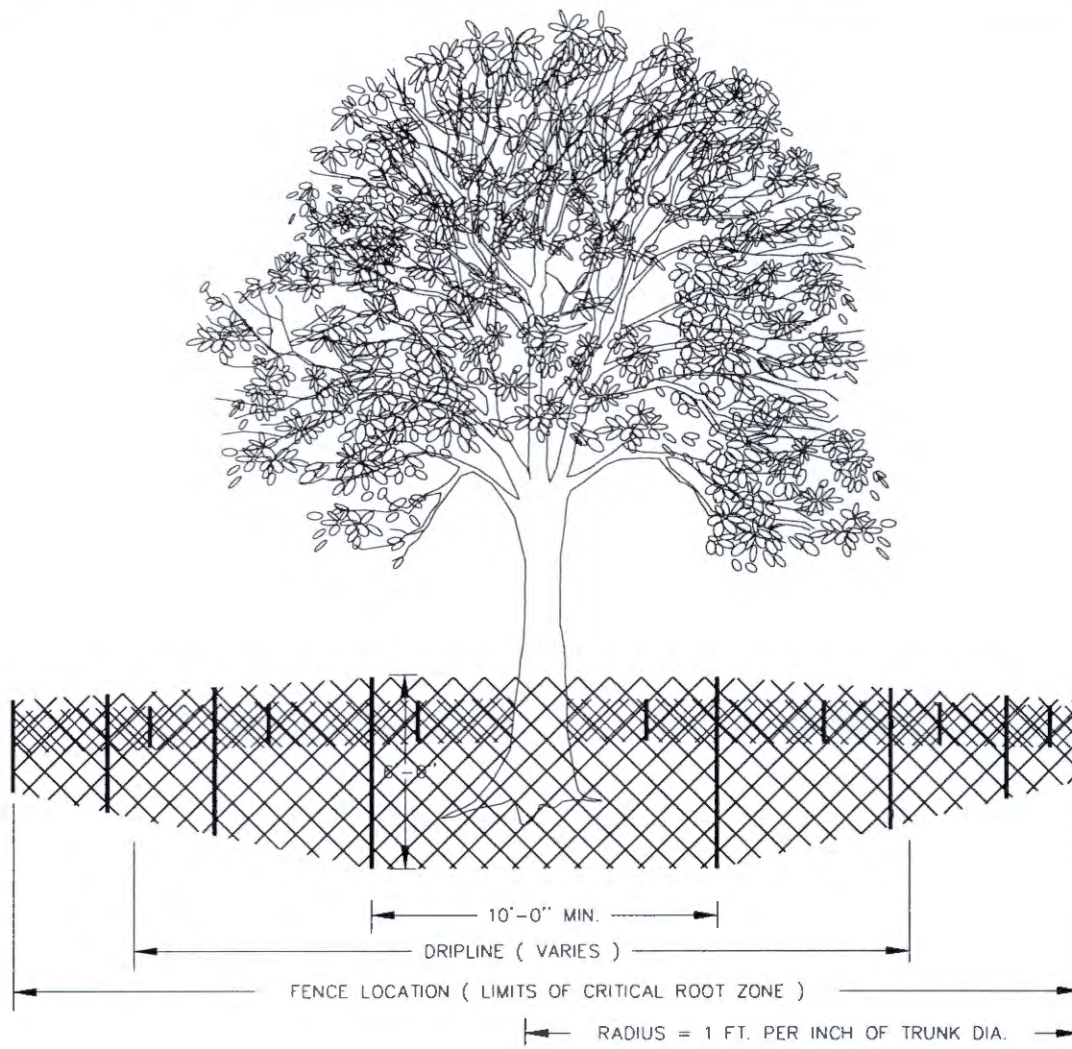
The following sections were taken from the TNCC Manual, "Complying with Edward Aquifer Rules: Technical Guidance on Best Management Practices."

- Construction Exit should be used at all designated access points.
 - Silt Fence (interior) Areas of minor sheet flow. < ¼ acre/100 feet of fence < 20% slopes.
 - Silt Fence (exterior) Down slope borders of site; up slope border is necessary to divert offsite drainage. For larger areas use diversion swale or berm. <¼ acre/100 feet of fence < 20% slopes.
 - Rock Berm Drainage swales and ditches with and below site. < 5 acres < 30% slopes.
 - Inlet Protection Prevent sediment from entering storm drain system. < 1 acre.
 - Spill Prevention Used on all sites to reduce spills.
 - Concrete Washout Use on all concrete pouring operations.
- A. A description of how BMPs and measures will prevent pollution of surface water, groundwater or storm water that originates upgradient from the site and flows across the site.
1. The upgradient storm water will be directed to the previously mentioned temporary BMPs.
- B. 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 storm water runoff from the site.
1. Silt fence and stabilized construction entrances shall be used to prevent pollution of surface water, groundwater or storm water that originates on-site or flows off-site by locating the TBMPs downstream of the flows leaving the site.

The TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released into the existing storm sewer system. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process.

All TBMPs will be maintained by the Contractor as will be described in the Contractor's Storm water Pollution Prevention Plan (SWPPP). The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating on-site to the greatest extent practicable.

- C. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - 1. By locating the TBMPs downstream of the flows leaving the site, the TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. All TBMPs will be maintained by the Contractor as will be described in the Contractor's SWPPP. The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating onsite to the greatest extent practicable.
- D. 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.
 - 1. There is one sensitive features on site according to the geologic assessment - Feature 6 of the Weston Geologic Assessment. The water well should be plugged and abandoned by a licensed water well driller prior to commencement of development activities.



TREE PROTECTION CONSTRUCTION FENCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B1

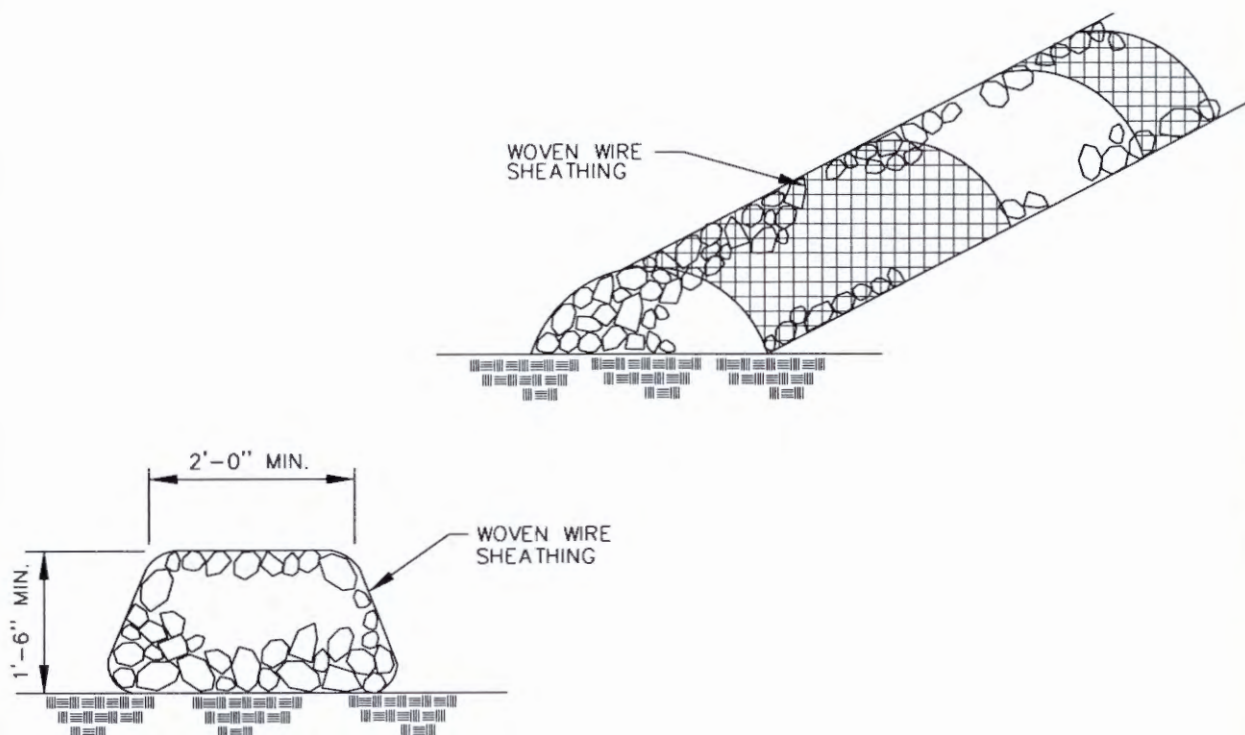
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: C:\110729\50002\EXHIBITS\TPOES_Details.dwg

PROJECT No. R0110729-50002



NOTES:

1. USE ONLY OPEN GRADED ROCK 4-8 INCH DIAMETER FOR STREAMFLOW 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 OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
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 ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE 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.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B2

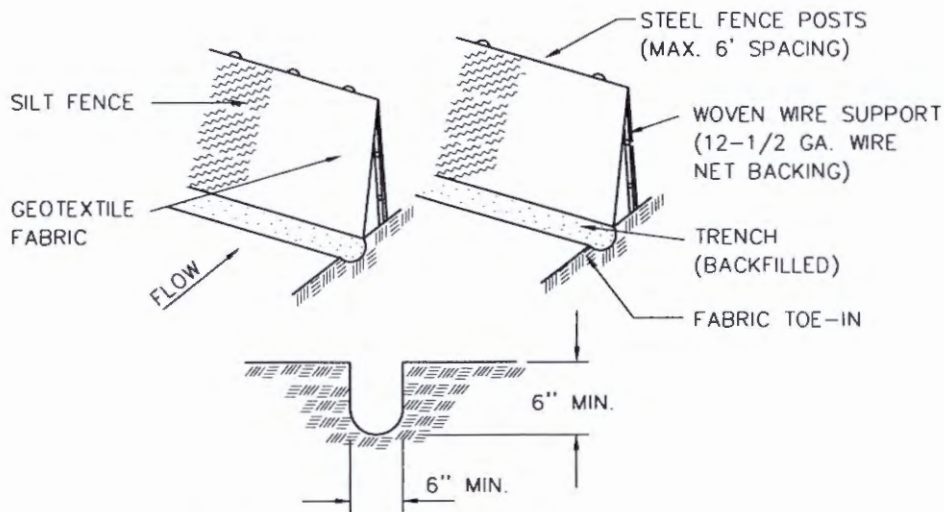
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\CD\B15\TPDCS Details.dwg

PROJECT No. R0110729-50002



TRENCH CROSS-SECTION

GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CAN NOT BE TREATED IN (e.g. pavement) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POSTS OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

SILT FENCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B3

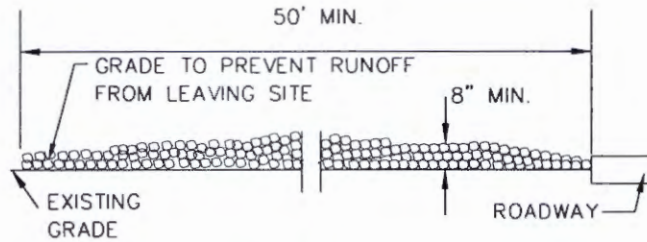
DATE: Dec 09, 2014

SCALE: NTS

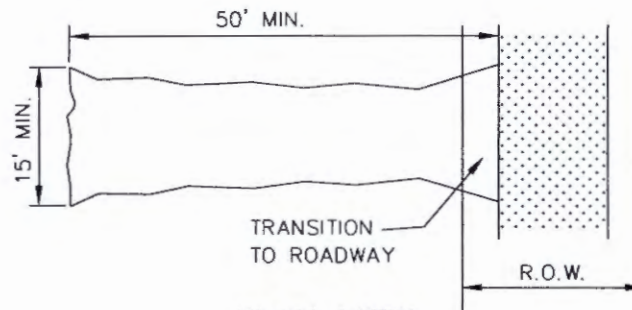
DRAWN BY: ENW

FILE: C:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002



PROFILE
N.T.S.



PLAN VIEW
N.T.S.

GENERAL NOTES:

1. STONE SIZE- 3 TO 5 INCH OPEN GRADED ROCK.
2. LENGTH- AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS- NOT LESS THAN 8 INCHES.
4. WIDTH- NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING- WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE- ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B4

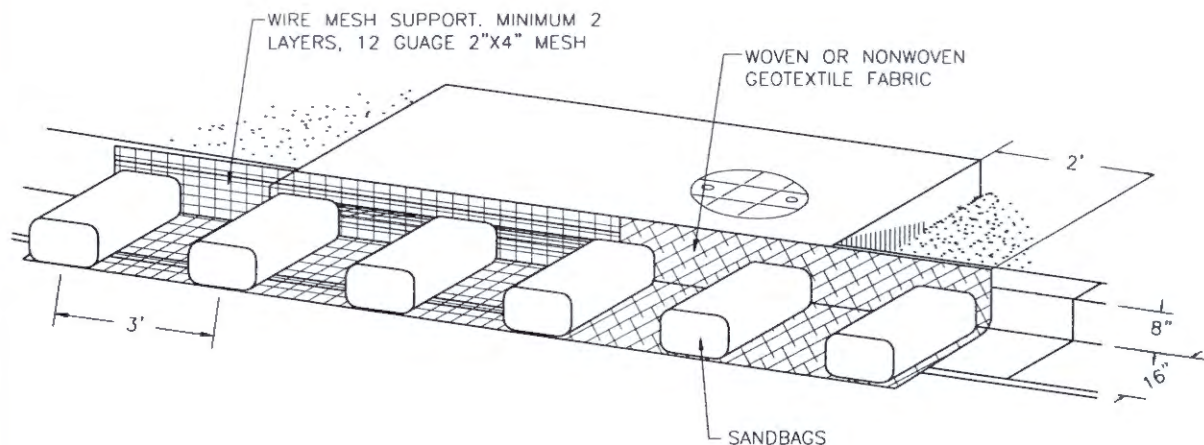
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002



NOTES:

1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CHORD.
2. INLET PROTECTION SHALL BE PLACED OVER THE MOUTH OF THE INLET WITH A 2 FOOT OVERLAP ONEITHER SIDE.
3. THE FABRIC COVER AND SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE.
4. THE SKIRT SHALL BE WEIGHTED WITH ONE 18"x24"x6" SANDBAG EVERY 3 FEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF FOUR INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
7. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 6 ABOVE.

CURB INLET PROTECTION BARRIER

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B5

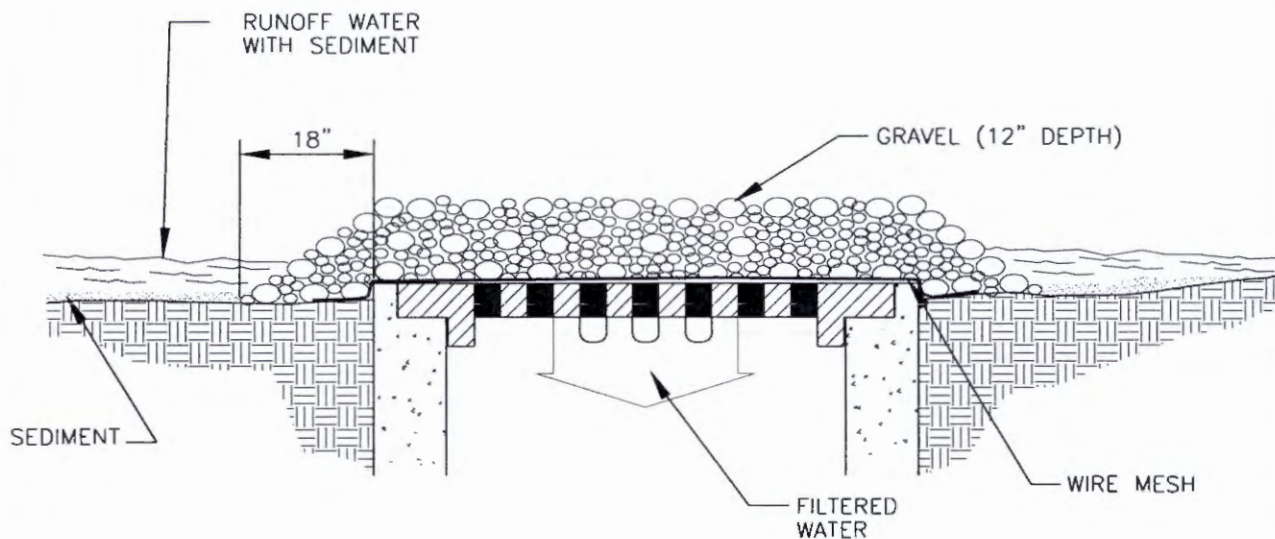
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002



NOTE:

- A. WIRE MESH SHALL BE LAID OVER THE DROP INLET SO THAT THE WIRE EXTENDS MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS AND MINIMUM WIRE DIAMETER OF 24 GAUGE SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
- B. AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ABOVE. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
- C. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS IT'S FUNCTION, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED.

INLET PROTECTION/SEDIMENT FILTER

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B6

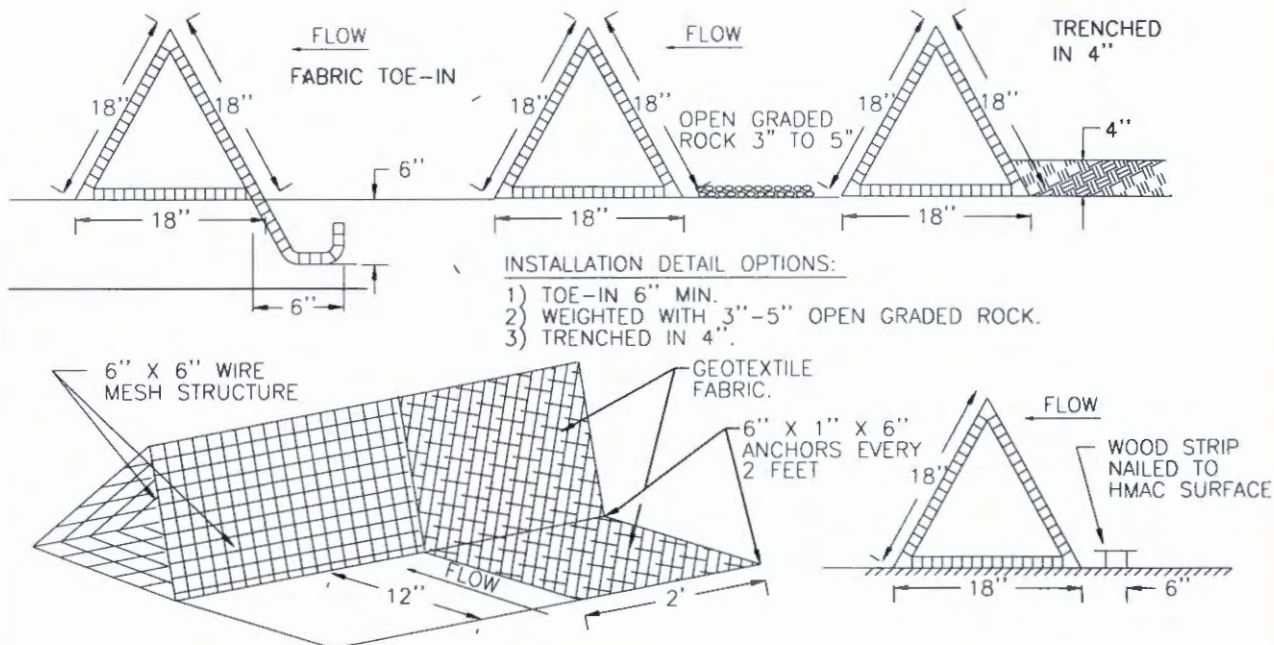
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE:G:\110729\50002\ERD\B6\TS\TPDES Details.dwg

PROJECT No. R0110729-50002



NOTES:

1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 3"-5" OPEN GRADED ROCK, OR TOED-IN 6" WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 4" INCHES.
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 6 INCH WIRE STAPLES ON 2 FOOT CENTERS ON BOTH EDGES AND SKIRT, OR STAKED USING 3/8 INCH DIAMETER REBAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 6 INCHES TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE 6 GA. 6" X 6" WIRE MESH, 18 INCHES ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF SIX INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 8 ABOVE.

TRIANGULAR FILTER DIKE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B7

DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002

CONSTRUCTION SEQUENCE

1. OBTAIN REQUIRED PERMITS.
2. INSTALL ALL EROSION CONTROL MEASURES AND DEVICES THAT CAN BE INSTALLED PRIOR TO SITE CLEARING.
3. CLEAR SITE.
4. INSTALL ANY REMAINING CONTROL MEASURES AND DEVICES THAT COULD NOT BE INSTALLED PRIOR TO SITE CLEARING.
5. GRADE SITE.
6. INSTALL ALL UNDERGROUND UTILITIES. INSTALL EROSION CONTROL AROUND CATCH BASINS AND INLETS.
7. INSTALL PAVEMENT.
8. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED OFFSITE & ONSITE AREAS HAVE BEEN HYDROMULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLAN AND A MOWABLE STAND OF GRASS IS ACHIEVED.

EROSION AND SEDIMENTATION CONTROL NOTES

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS FOR THIS PROJECT AS WELL AS THE CITY'S GENERAL REQUIREMENTS, WHICH PERTAIN TO THIS PROJECT.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURE OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED. (IN ACCORDANCE WITH LANDSCAPE PLANS)
3. BRUSH BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS, SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. ADDITIONAL MEASURES MAY BE REQUIRED IF, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE CITY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

TPDES REQUIREMENT NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING NOTICE OF INTENT (NOI) TO TCEQ FOR THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) 48 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, OR POSTING A CONSTRUCTION SITE NOTICE 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES.
2. CONTRACTOR SHALL HAVE THIS PLAN AND THE TPDES STORM WATER POLLUTION PREVENTION PLAN ON SITE AT ALL TIMES THROUGHOUT DURATION OF PROJECT.
3. ALL DISTURBED AREAS NOT ADDRESSED BY LANDSCAPE ARCHITECT SHALL BE HYDROMULCHED PER SPECIFICATION DESCRIBED IN THE GENERAL NOTES.
4. CONTRACTOR SHALL PROVIDE TRIANGULAR SEDIMENT FILTER DIKE PER EXHIBIT B7 WHERE SILT FENCE IS REQUIRED BUT NOT INSTALLABLE.
5. CONTRACTOR SHALL SUBMIT NOTICE OF TERMINATION (NOT) TO THE TCEQ UPON PROJECT COMPLETION AS DESCRIBED IN THE PROJECT TPDES STORM WATER POLLUTION PREVENTION PLAN. IF PROJECT IS A PHASE I PROJECT (> 5 ACRES), ELSE STABILIZE PROJECT TO WITHIN 10% OR COMPLETE CONSTRUCTION.
6. CONTRACTOR TO RETAIN THE TPDES STORM WATER POLLUTION PREVENTION PLAN ALONG WITH ALL COMPLETED INSPECTION REPORTS AND PLAN MODIFICATIONS DOCUMENTATION FOR A PERIOD OF THREE (3) YEARS FROM DATE OF FINAL STABILIZATION, AS REQUIRED BY THE TCEQ.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B8

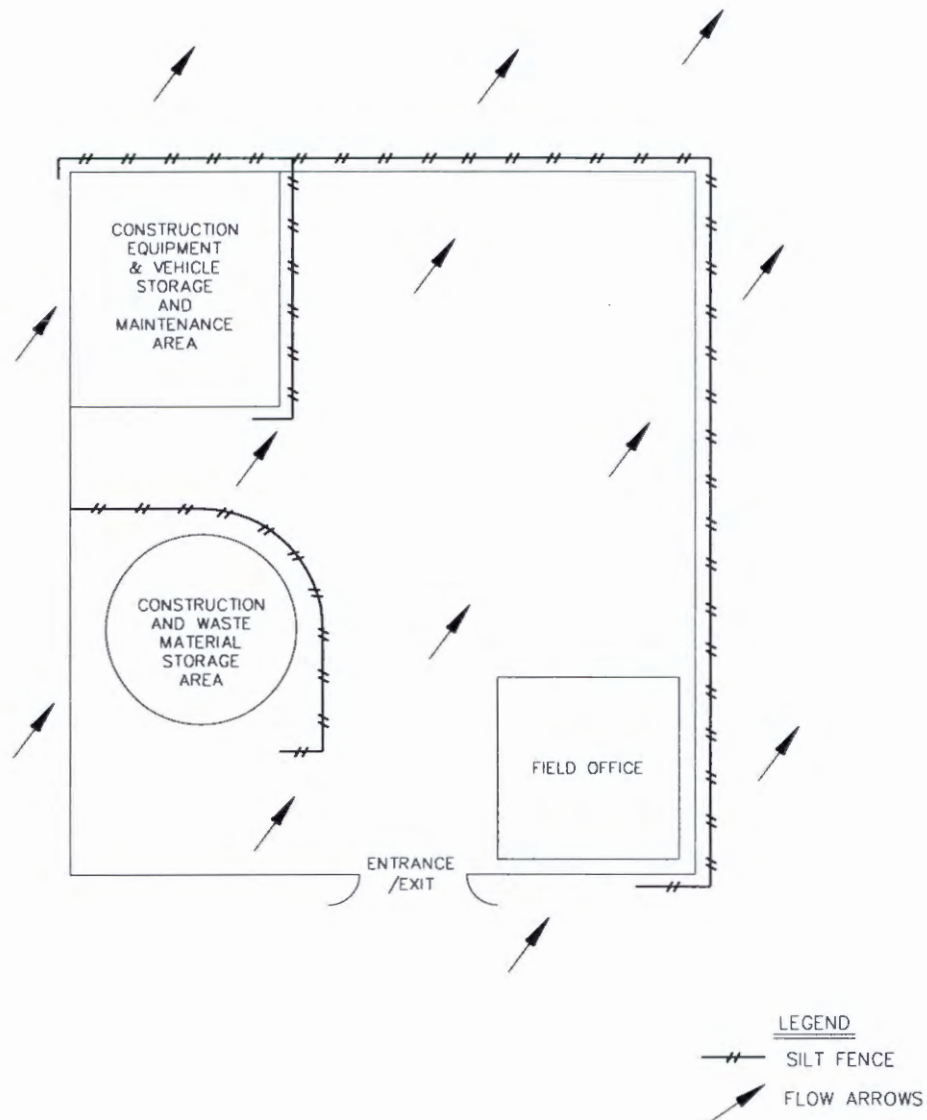
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002



TYPICAL CONSTRUCTION STAGING AREA

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B9

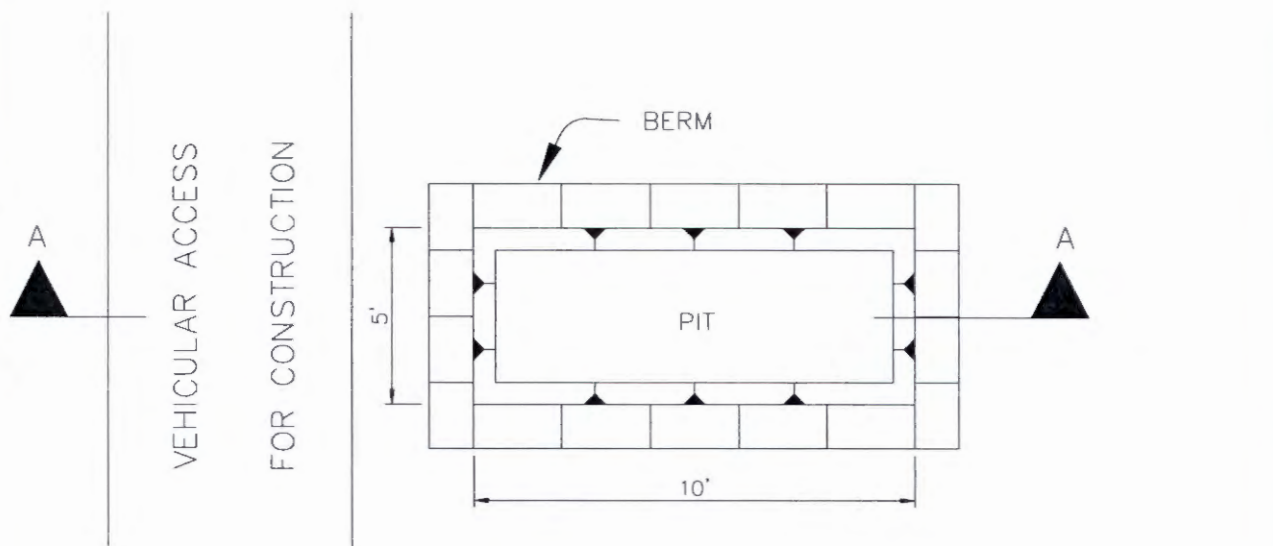
DATE: Dec 09, 2014

SCALE: NTS

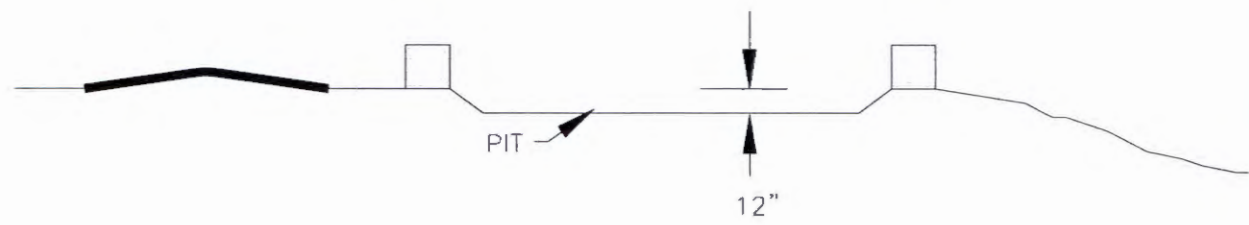
DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPOES Details.dwg

PROJECT No. R0110729-50002



PLAN



SECTION A-A

GENERAL NOTES:

1. DETAIL ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. PIT SHALL BE INSTALLED WITH IMPERMEABLE LINER PER TCEQ REQUIREMENTS..

CONCRETE TRUCK WASHOUT PIT

<div>BURY</div> <div>922 Isom Road, Suite 100 San Antonio, TX 78216 Tel (210) 525-9090 Fax (210) 525-0529 TBPE Registration Number F-1048 Copyright © 2014</div>	EMERALD COTTAGES		EXHIBIT B10
	NEW BRAUNFELS, TEXAS		
DATE: Dec 09, 2014	SCALE: NTS	DRAWN BY: ENW	FILE: C:\110729\50002\EXHIBITS\TPDES Details.dwg
			PROJECT No. R0110729-50002

ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE
(Not Applicable)

ATTACHMENT F

STRUCTURAL PRACTICES

STRUCTURAL PRACTICES

Silt fencing, triangular sediment filter dikes, inlet protection devices, a temporary sediment basin and stabilized construction entrances will be incorporated as temporary erosion control devices and will be removed after the permanent stabilization is established.

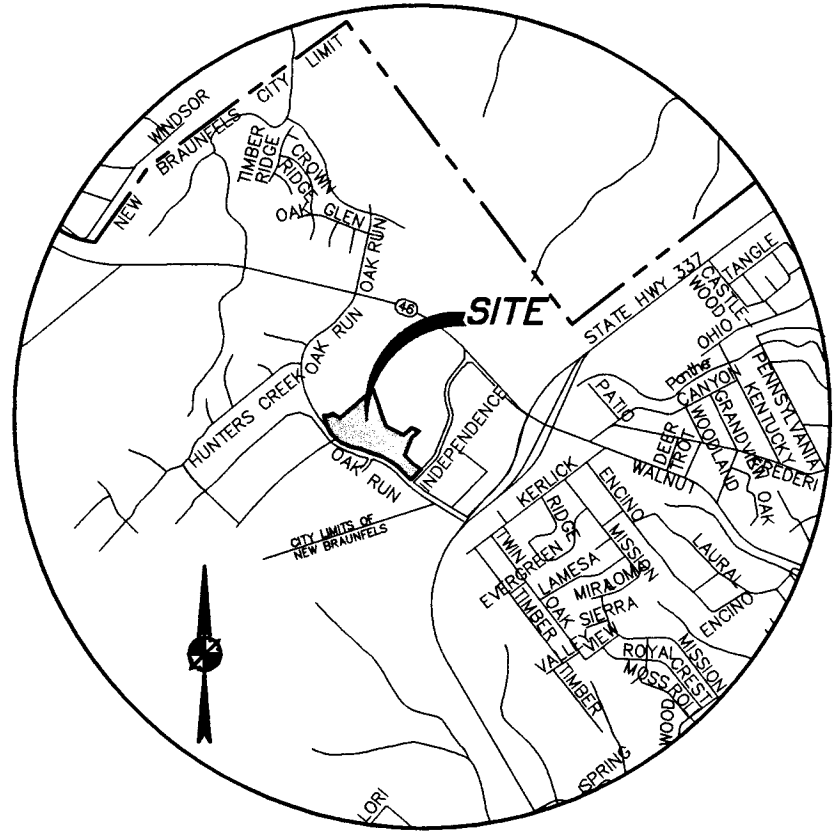
Silt fencing shall be incorporated throughout the construction process. The placement of the silt fencing shall be perpendicular to runoff flow. Refer to project construction documents for quantity and actual locations of these erosion control devices. In areas where silt fencing is to be situated but is non-installable, triangular filter dikes shall be incorporated. The temporary sediment basin shall be installed at the location of the permanent detention pond.

Stabilized construction entrances will be employed during the construction of this site to help minimize vehicle tracking of sediments. Paved streets adjacent to these site entrances shall be cleaned and/or swept regularly to remove any excess mud, dirt or rock tracked from the site. Refer to the project construction documents for actual locations of these erosion control devices. Staging areas will be utilized in locations as decided by the project general contractor and validated by the civil engineer. If the contractor determines the need for additional stabilized construction entrances, construction staging areas or pits, their locations shall be agreed upon by the contractor and the engineer and annotated in the Storm Water Pollution Prevention Plan (SWPPP) posted on the site during construction.

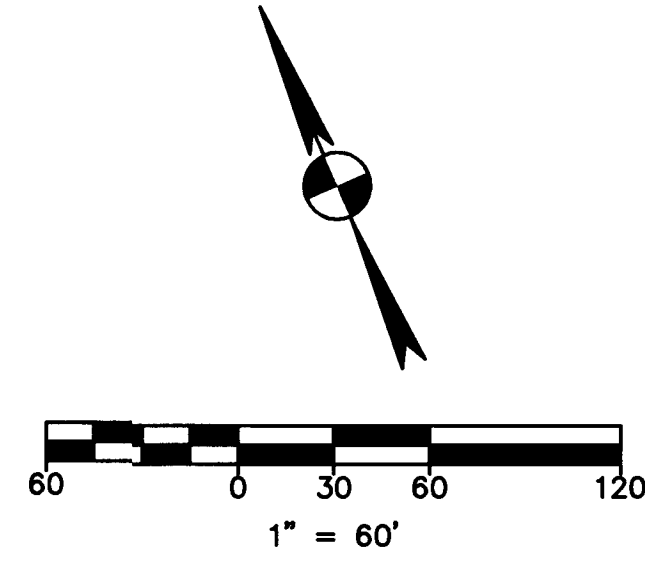
ATTACHMENT G

DRAINAGE AREA MAP

Date: Dec 30, 2014, 09:29PM User: ID: newford
File: G:\110729\50002\EXHIBITS\EXH-DAM-EX.dwg



VICINITY MAP
N.T.S.
NEW BRAUNFELS, TEXAS



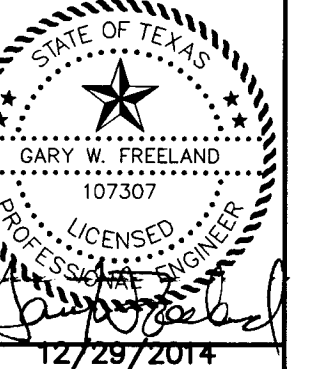
DRAINAGE AREAS:

DRAINAGE AREA	AREA	IMPERVIOUS AREA	PERCENT
EXISTING	21.07 AC.	0.00 AC	0%
OFF-SITE	2.98 AC.	0.00 AC	0%

LEGEND

EXISTING	PROPOSED	DESCRIPTION
	— 676 —	PROPERTY (R.O.W.) LINE
	— — —	CONTOUR
	DA-X XXX AC.	DRAINAGE AREA NUMBER
	— — —	DRAINAGE DIVIDE
	— — —	DIRECTION OF FLOW
	— — —	EARTHEN SWALE

BURY
922 Iron Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014



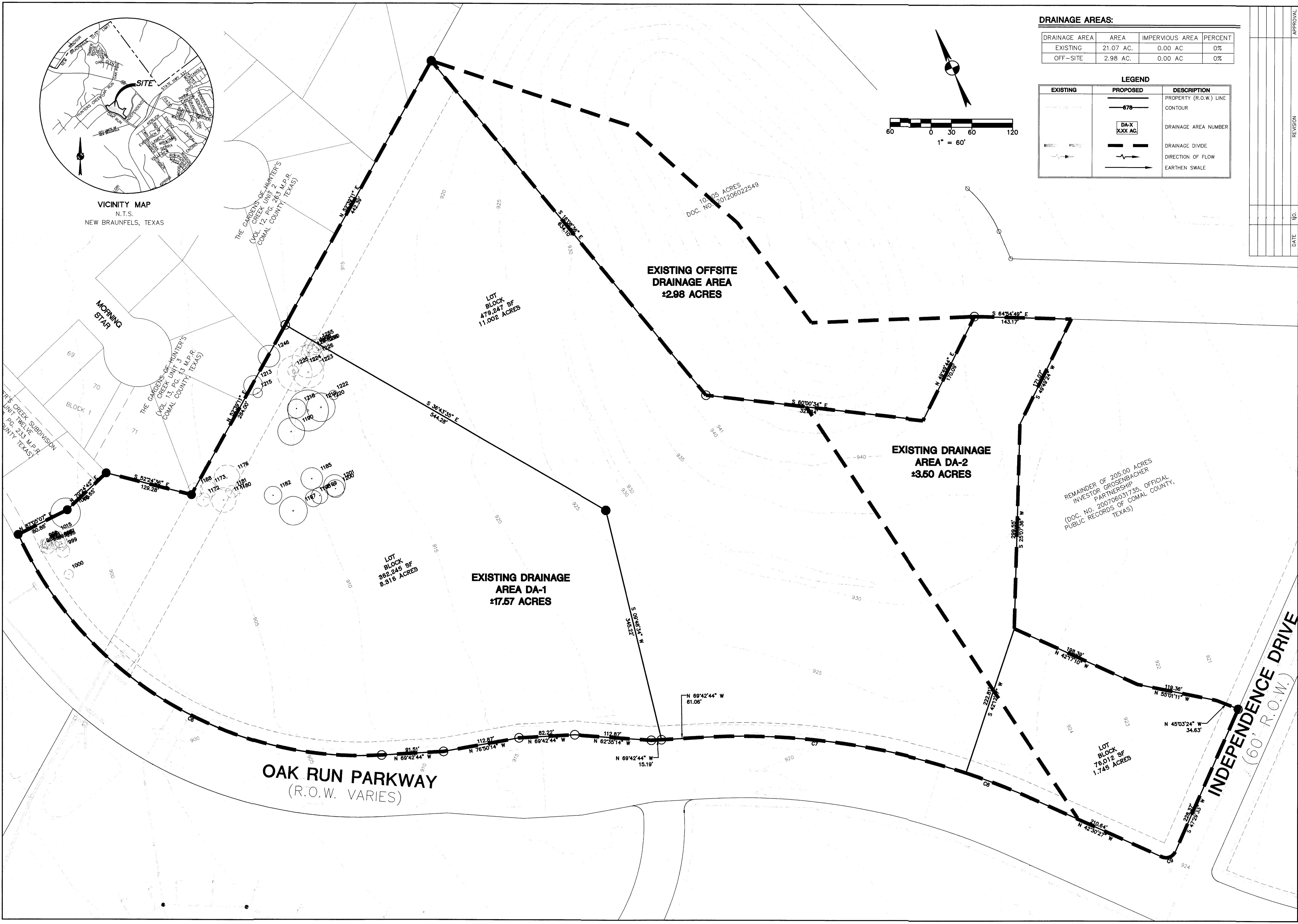
EXISTING DRAINAGE AREA MAP

EMERALD COTTAGES

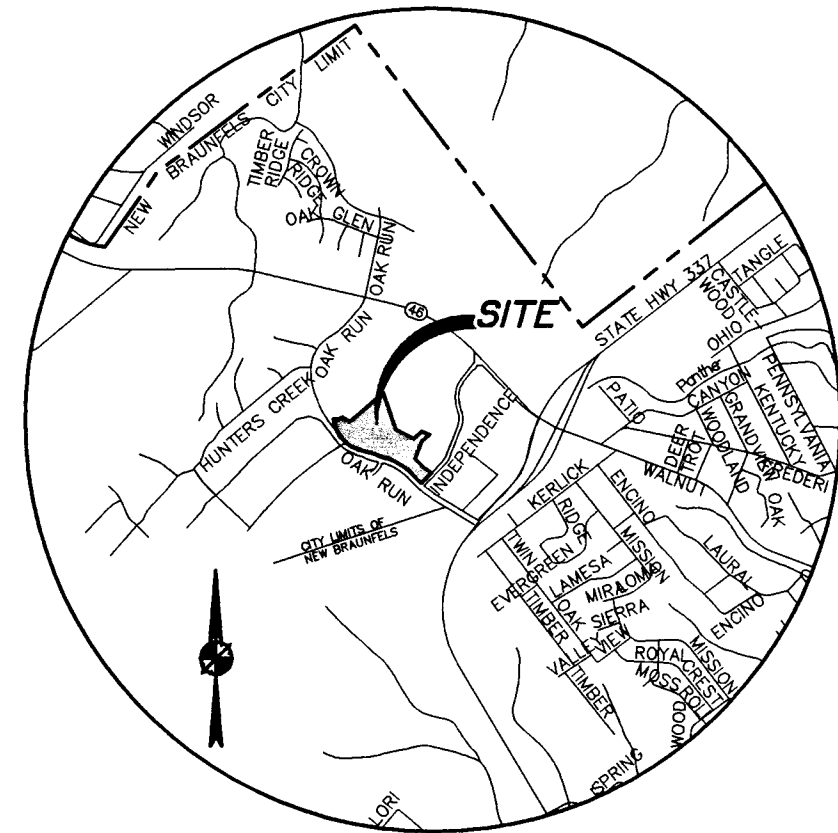
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: 1" = 60'
DATE REVISED: December 30, 2014
FILE: G:\110729\50002\EXHIBITS\EXH-DAM-EX.dwg
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R0110729-50002

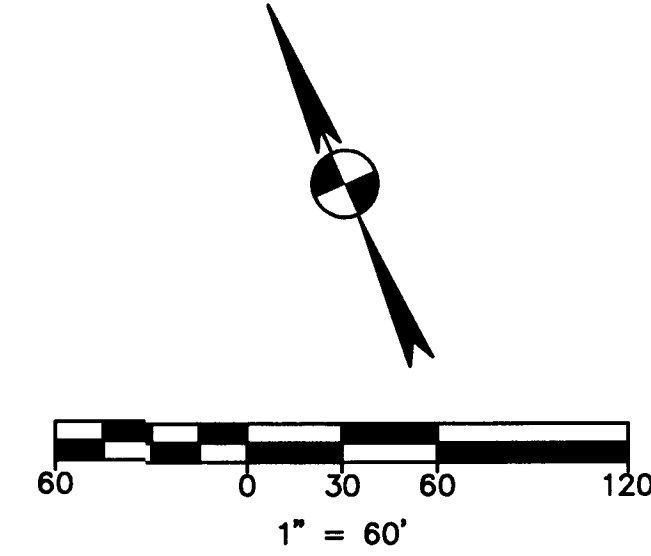
SHEET
EX-1



Date: Dec 30, 2014, 09:29PM User: ID: emwrfcd
File: G:\110729\60002\EXHIBITS\EXH-04-DRAIN.DWG



VICINITY MAP
N.T.S.
NEW BRAUNFELS, TEXAS



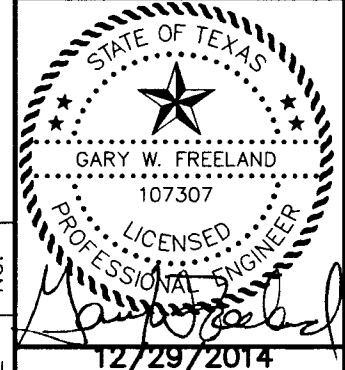
DRAINAGE AREAS:

DRAINAGE AREA	AREA	IMPERVIOUS AREA	PERCENT
PROPOSED	21.07 AC.	16.42 AC	78%
OFF-SITE	2.98 AC.	0.00 AC	0%

LEGEND

EXISTING	PROPOSED	DESCRIPTION
	— 678 —	PROPERTY (R.O.W.) LINE
		CONTOUR
	DA-X XXX AC.	DRAINAGE AREA NUMBER
	—	DRAINAGE DIVIDE
	→	DIRECTION OF FLOW
	—	EARTHEN SWALE

BURY
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPPE Registration Number F-1048
Copyright © 2014



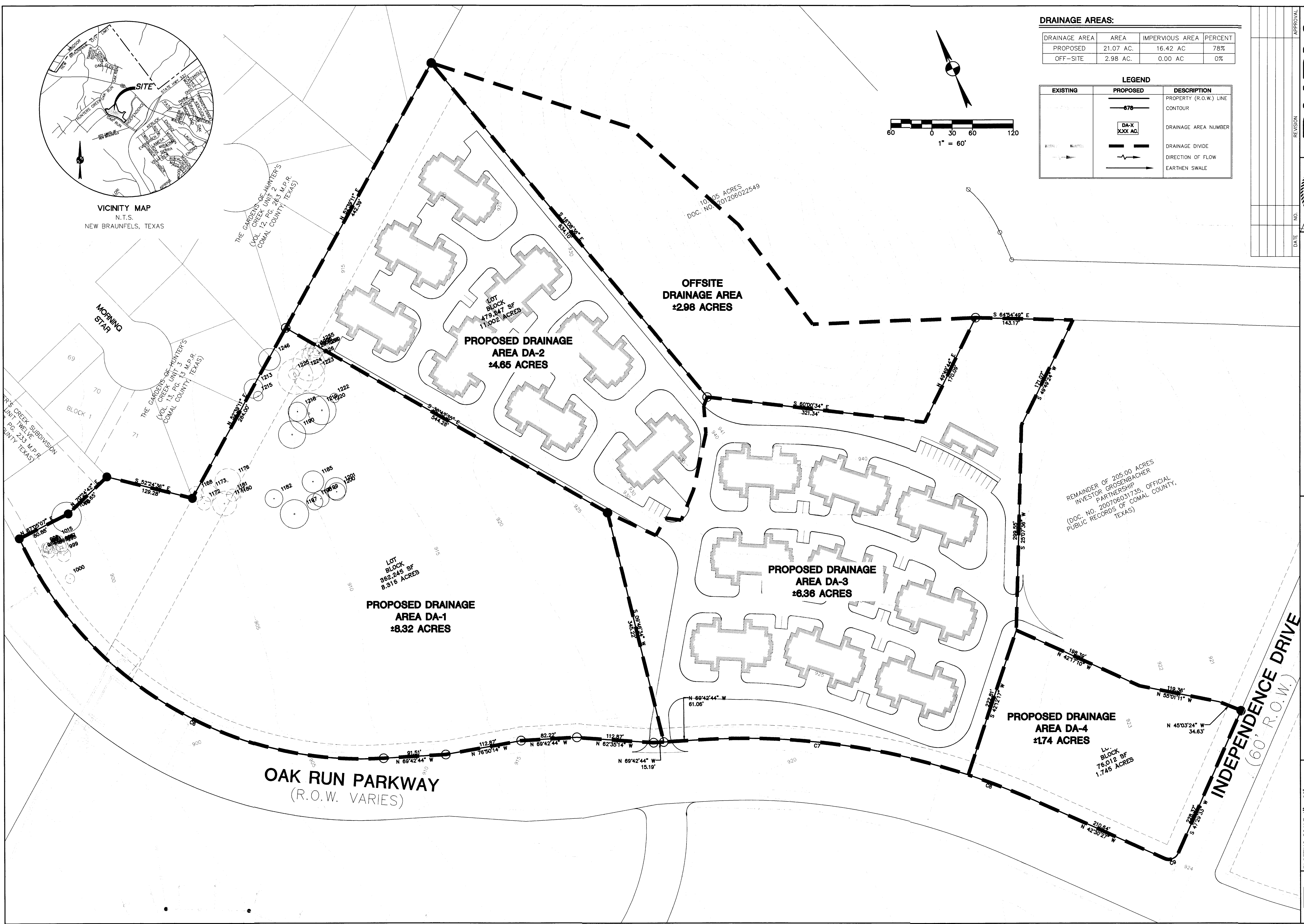
PROPOSED DRAINAGE AREA MAP

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: 1" = 60'
DATE REVISED: December 30, 2014
FILE: G:\110729\60002\EXHIBITS\EXH-04-DRAIN-PR.dwg
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R010729-50002

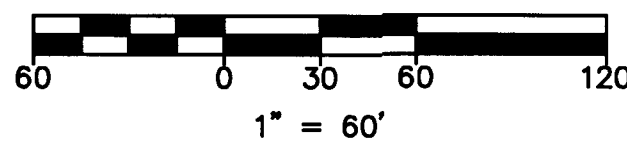
SHEET
EX-2



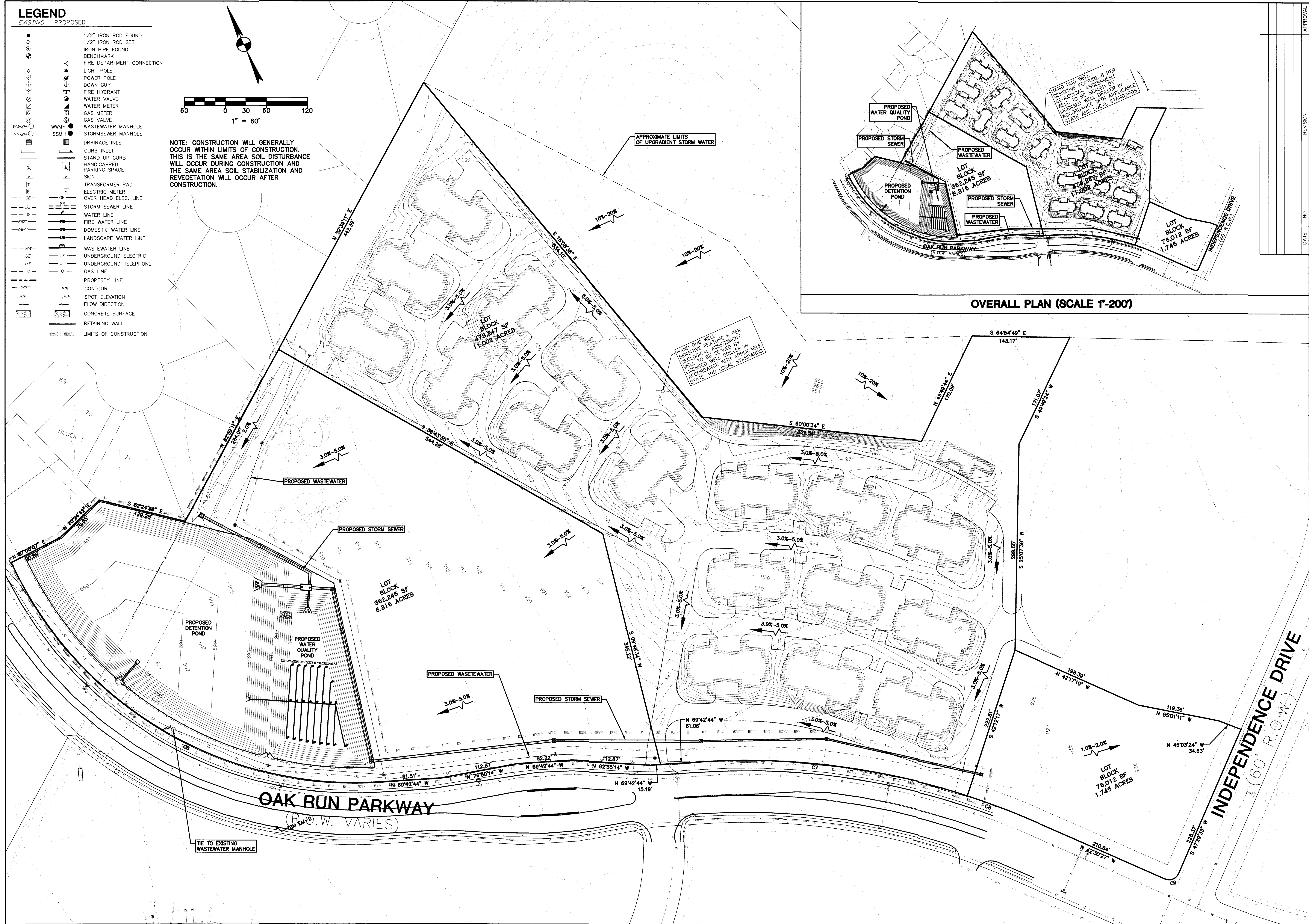
Date: Jan 05, 2015, 05:53PM User ID: ewarford
File: G:\110729\50002\CD.DWG\110729002MSPN.DWG

EXISTING	PROPOSED
----------	----------

EXISTING	PROPOSED
●	1/2" IRON ROD FOUND
○	1/2" IRON ROD SET
○	IRON PIPE FOUND
●	BENCHMARK
⊕	FIRE DEPARTMENT CONNECTION
☆	LIGHT POLE
⬇	POWER POLE
⬇	DOWN GUY
⬇	FIRE HYDRANT
○	WATER VALVE
☑	WATER METER
⊗	GAS METER
⊗	GAS VALVE
WWMM ○	WASTEWATER MANHOLE
SSMM ○	STORMSEWER MANHOLE
▢	DRAINAGE INLET
▢	CURB INLET
▢	STAND UP CURB
▢	HANDICAPPED PARKING SPACE
▢	SIGN
▢	TRANSFORMER PAD
▢	ELECTRIC METER
—OE—	OVER HEAD ELEC. LINE
—SS—	STORM SEWER LINE
—W—	WATER LINE
—FWB—	FIRE WATER LINE
—DW—	DOMESTIC WATER LINE
—LW—	LANDSCAPE WATER LINE
—WW—	WASTEWATER LINE
—UE—	UNDERGROUND ELECTRIC
—UT—	UNDERGROUND TELEPHONE
—G—	GAS LINE
—	PROPERTY LINE
—678—	CONTOUR
—704—	SPOT ELEVATION
→	FLOW DIRECTION
▢	CONCRETE SURFACE
▢	RETAINING WALL
—	LIMITS OF CONSTRUCTION



NOTE: CONSTRUCTION WILL GENERALLY OCCUR WITHIN LIMITS OF CONSTRUCTION. THIS IS THE SAME AREA SOIL DISTURBANCE WILL OCCUR DURING CONSTRUCTION AND THE SAME AREA SOIL STABILIZATION AND REVEGETATION WILL OCCUR AFTER CONSTRUCTION.



EMERALD COTTAGES
RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: January 05, 2015
FILE: &\\10729\\50002\\CD DWG\\1107290202.dwg
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R0110729-50002

SHEET
C3.1

OVERALL SITE PLAN

EMERALD COTTAGES

**RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS**

PLOTTING SCALE: AS NOTED
DATE REVISED: January 05, 2015
FILE: &\\10729\\50002\\CD DWG\\1107290202.dwg
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R0110729-50002

SHEET
C3.1

BURY

San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048

STATE OF TEXAS
GARY W. FREELAND
107307
LICENSED
PROFESSIONAL ENGINEER
01/05/2015

01/05/2015

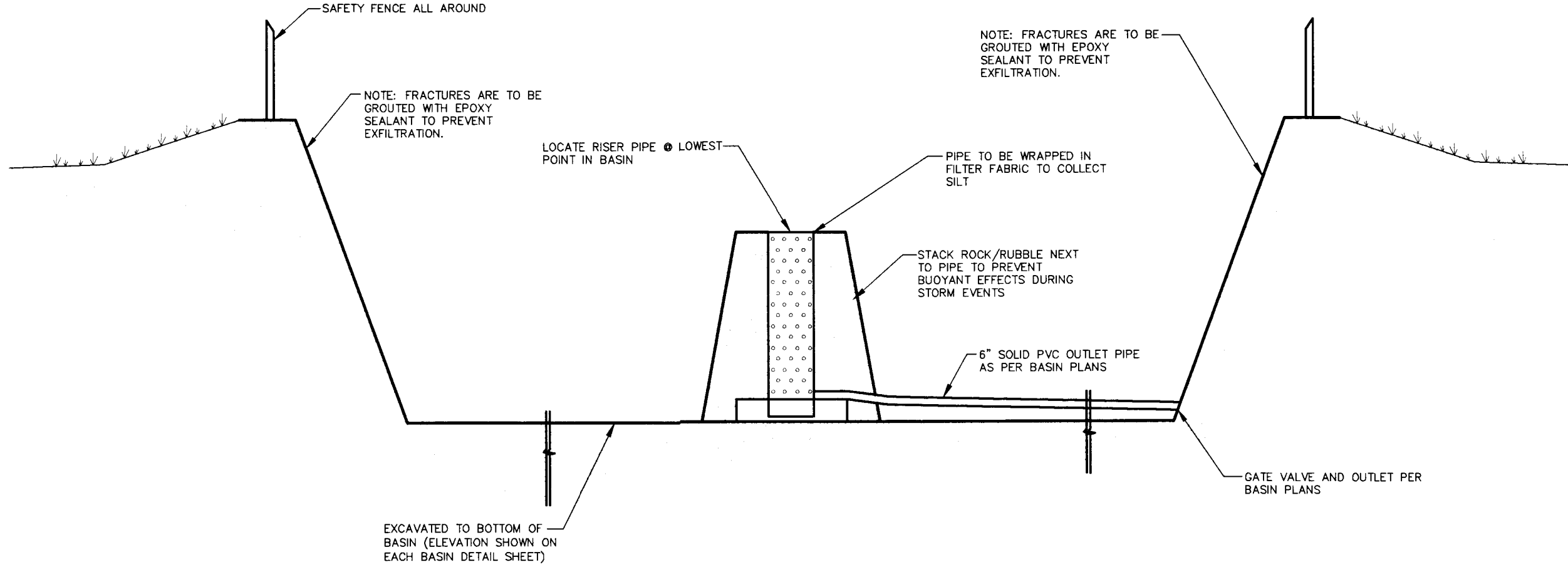
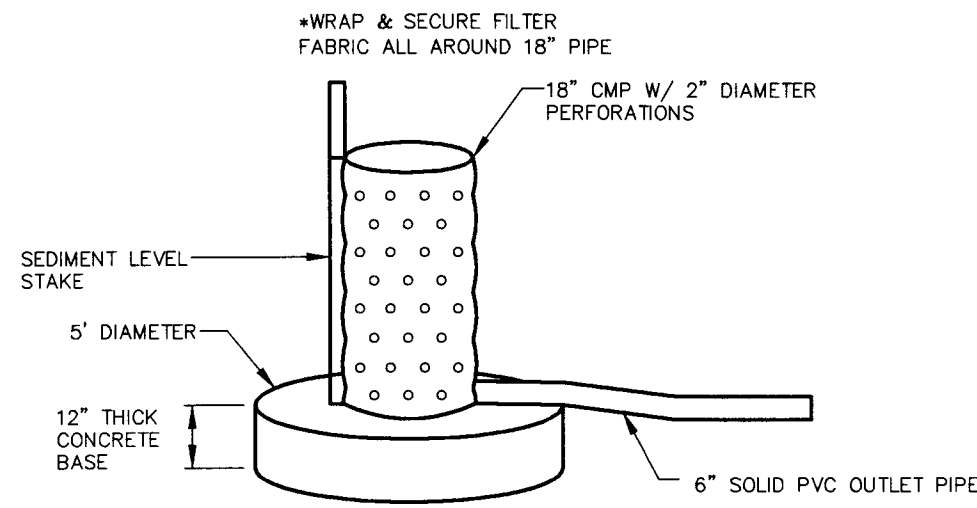
ATTACHMENT H

TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

Date: Dec 30, 2014, 08:52PM User ID: ewarford
File: G:\1101729\50002\CD DWG\110172902PH01.DWG

- TEMPORARY SEDIMENTATION BASIN NOTES:
1. CONTRACTOR TO CONSTRUCT BASINS IN ACCORDANCE WITH CONSTRUCTION PLANS FOR PERMANENT SEDIMENTATION/FILTRATION WITH THE EXCEPTION OF THE GRAVEL DRAIN LAYER AND SAND FILTER LAYERS.
 2. INSTALL PERMANENT STAKE TO INDICATE SEDIMENT LEVEL IN THE BASIN. STAKE SHOULD BE MARKED TO INDICATE WHEN SEDIMENT OCCUPIES 50% OF THE VOLUME OF THE BASIN.
 3. SEDIMENT WILL BE REMOVED WHEN MORE THAN 50% OF THE BASIN CAPACITY IS EXCEEDED.
 4. CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.
 5. CONTRACTOR TO SECURE PIPE TO BOTTOM OF BASIN TO PREVENT BUOYANCY DURING A RAIN EVENT. A CONCRETE ANCHOR MAY BE USED.
 6. DISCHARGE PIPE TO BE INSTALLED SO AS TO BE IN PLACE FOR PERMANENT STRUCTURE.

- TEMPORARY SEDIMENTATION BASIN CALCULATIONS:
1. THE TEMPORARY SEDIMENTATION BASIN WILL BE LOCATED WHERE THE PROPOSED WATER QUALITY WILL BE CONSTRUCTED.
 2. TOTAL DISTURBED AREA IS 21.07 ACRES
 3. $21.07 \text{ AC} \times (3,600 \text{ CF VOLUME} / \text{ACRE}) = 75,852 \text{ CF OF WATER VOLUME TO BE CAPTURED IN THE TEMPORARY SEDIMENTATION BASIN}$
 4. TOTAL CAPACITY AVAILABLE FROM WATER QUALITY POND IS 84,262 THEREFORE, THE TOTAL VOLUME AVAILABLE FROM THE WATER QUALITY POND IS ADEQUATE FOR THE TEMPORARY SEDIMENTATION BASINS.



C23.1

TEMPORARY SEDIMENTATION BASIN

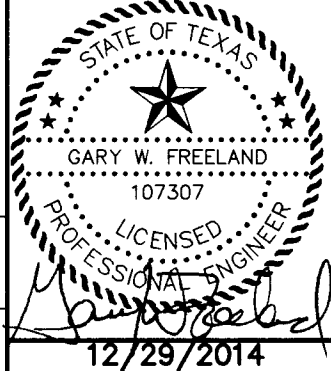
SCALE: N.T.S.

PLOTTING SCALE: AS NOTED
DATE REVISED: December 30, 2014
FILE: G:\1101729\50002\CD DWG\110172902PH01.DWG
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R0110729-50002

SHEET
C2.3

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

WATER QUALITY POND
DETAILS



BURY
922 Hom Road, Suite 100
San Antonio, TX 78216
Tel: 210-526-0929
Fax: 210-526-0928
TEPE Registration Number F-1046
Copyright © 2014

APPROVAL
REVISION
NO.
DATE

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMPS

INSPECTIONS

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
4. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

The inspection shall be conducted by the responsible person at least once every seven (7) calendar days and within 24 hours after a storm providing 1/2 inches of rainfall or greater. If one or more of the following conditions apply, the frequency of inspections shall be conducted at least once every month:

1. The site has been temporarily stabilized.
2. Where runoff is unlikely due to winter conditions (i.e. site is covered with snow, ice, or where frozen ground exists).
3. During seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches).

The information required within an inspection and maintenance report are as follows:

1. Summary of the scope of the inspection.
2. Name(s) and qualifications of personnel making the inspection.
3. The date(s) of the inspection.
4. Major observations relating to the implementation of the storm water pollution prevention plan.
5. Changes required to correct damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

1. The dates when selective clearing activities occur.
2. The dates when selective clearing activities permanently cease on a portion of the site.

Inspection and maintenance reports, as well as all records required by a Storm Water Pollution Prevention Plan (SWPPP), shall be included in the onsite SWPPP as part of the Texas Pollution Discharge Elimination System (TPDES) Report. Copies of example forms to be used for the

inspection and maintenance reports along with their related records, will be included in the onsite SWPPP and are provided for reference.

MAINTENANCE

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing erosion controls need modification or additional erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. The temporary sediment basin sediment accumulation will be removed when it reaches 50% capacity as noted in the design plans. If sediment accumulation is found to be contaminated, its disposal shall be off-site in a manner which conforms to the appropriate applicable regulations.

EMERALD COTTAGES
Oak Run Parkway
New Braunfels, Texas

Responsible Party Form and Schedule

Prevention Pollution Measure	Responsible Party Company Name									
	Start Date	Estimated Duration (Days)								
BEST MANAGEMENT PRACTICES										
Silt fences										
Rock berms										
Drain inlet protection										
Gravel filter bags										
Vehicle exits (offsite tracking)										
Concrete washout pit (leaks, failure)										
Temporary vegetation										
Permanent vegetation										
Sediment control basin										
Other structural controls										
Material storage areas (leakage)										
Equipment areas (leaks, spills)										
Construction debris										
General site cleanliness										
Trash receptacles										
Natural vegetation buffer strips										
Inspections										
SWP3 Modification & Records										
POTENTIAL EROSION SOURCES										
Clearing										
Grading										
Excavation										
Drainage Construction										
Utility Construction										
Roadway or Parking Lot Construction										
Foundation Construction										
Building Construction										
Landscaping Activities										
Identify responsible parties and indicate responsible party for each pollution prevention item listed above by marking an X under the Responsible Party Name.										

EMERALD COTTAGES

Oak Run Parkway

New Braunfels, Texas

Inspection Report

Prevention Pollution Measure	Inspected in Compliance (Y/N)	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
BEST MANAGEMENT PRACTICES			
Silt fences			
Rock berms			
Drain inlet protection			
Gravel filter bags			
Vehicle exits (offsite tracking)			
Concrete washout pit (leaks, failure)			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Other structural controls			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Construction debris			
General site cleanliness			
Trash receptacles			
Natural vegetation buffer strips			
EVIDENCE OF EROSION			
Site preparation			
Roadway or Parking Lot Construction			
Utility Construction			
Drainage Construction			
Building Construction			
MAJOR OBSERVATIONS			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

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

Inspector's Name (Superintendent)

Inspector's Signature

Date

Name of Owner/Operator (Firm)

Authorized Signature

Date

Note: If there is a "NO" answer in the second column, the right columns will need to be completed and action is required within 7 days. Use additional sheets if necessary.

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

During Construction:

The methodology for handling pollution of on-site or up-gradient storm water during construction will include the following:

1. Silt fencing and rock berms will be used as a temporary erosion and sedimentation controls.
2. Stabilized construction entrances/exits will be put into place to reduce the dispersion of sediment from the site, and to aid in accessibility to the site.
3. A Temporary Sediment Basin will be used to accumulate sediment.
4. A construction staging area will also be put into place for material stockpiles, machinery storage, and machinery maintenance.
5. Concrete truck washout pits will be put into place to prevent contamination of storm water runoff and to aid in the removal of sediments from the site.
6. As required by the TCEQ General Permit, disturbed areas on which construction activity has ceased (temporarily or permanently) and which will be exposed for more than 21 days shall be stabilized within 14 days. Areas receiving less than 20 inches of annual rainfall should be stabilized as soon as practicable and only to pre-project conditions.
7. If construction stops for more than 14 days, hydro-seeding, sod or other TCEQ approved method will be applied to re-stabilize vegetation.

After Construction:

This site will provide the following permanent pollution abatement measures to prevent the pollution of storm water originating on-site or upgradient from the project site:

1. Storm water will be directed to grate inlets via curbing and grading and discharged into the sedimentation/filtration basins. The sedimentation/filtration basins have been designed to capture and filter the required runoff from the individual watersheds. The basin has been designed in accordance with the TCEQ Technical Guidance Manual. Each basin will be constructed as that particular phase is built.
2. Native grasses will be used on-site to help reduce the use of fertilizers and this will in turn reduce the levels of phosphates present in the storm water runoff.
3. Where possible drainage will be directed across vegetated areas to provide some pretreatment prior to discharge into the filtration basin.

Permanent Erosion Control:

1. All disturbed areas shall be restored as noted below:
 - A minimum of 4" of topsoil shall be placed in all drainage channels (except rock) and between the curb and R.O.W. property lines.
2. Broadcast Seeding:
 - From September 15 to March 1, seeding shall be with a combination of 2 pounds per 1,000 SF of unhulled Bermuda and 7 pounds per 1000 SF of Winter Rye with a purity of 95% with 90% germination.
 - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 2 pounds per 1000 SF with a purity of 95% with 85% germination.
3. Fertilizer shall be a pelleted or granular slow release with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1 pound per 1,000 SF.
4. Hydraulic Seeding:
 - From September 15 to March 1, seeding shall be with a combination of 1 pound per 1,000 SF of unhulled Bermuda and 7 pounds per 1,000 SF of Winter Rye with a purity of 95% with 90% germination.
 - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 7 pounds per 1,000 SF with a purity of 95% with 85% germination.
5. Fertilizer shall be a water soluble fertilizer with an analysis of 15-15-15 at a rate of 1 to 1.5 pounds per 1,000 SF (45-65 pounds per acre).
6. Mulch type used shall be hay, straw, or mulch applied at a rate of 45 pounds per 1,000 SF with a soil tackifier at a rate of 1.4 pounds per 1,000 SF.
7. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil but will sufficiently soak the soil to a depth of 6". The irrigation shall occur at ten-day intervals during the first two months. Rainfall occurrences of $\frac{1}{2}$ " or more shall postpone the watering schedule for one week.
8. Restoration shall be acceptable when the grass has grown at least 1V2" high with 95% coverage, provided no bare spots larger than 16 square feet exist.

PERMANENT STORM WATER SECTION

Permanent Stormwater Section
for Regulated Activities
on the Edwards Aquifer Recharge Zone
and Relating to 30 TAC §213.5(b)(4)(C), (D)(li), (E), and (5), Effective June 1, 1999

REGULATED ENTITY NAME: Emerald Cottages

Permanent best management practices (BMPs) and measures that will be used during and after construction is completed.

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

X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
N/A 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 provided below:

3. X 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.
4. N/A 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.

N/A This site will be used for low density single-family residential development and has 20% or less impervious cover.
N/A This site will be used for low density single-family residential development but has more than 20% impervious cover.
X This site will not be used for low density single-family residential development.
5. N/A 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.

- N/A **ATTACHMENT A - 20% or Less Impervious Cover Waiver.** This 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 found at the end of this form.
- X This site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
- N/A This site will not be used for multi-family residential developments, schools, or small business sites.

6. **ATTACHMENT B - BMPs for Upgradient Stormwater.**

- X 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 identified as **ATTACHMENT B** at the end of this form.
- If no surface water, groundwater or stormwater originates upgradient from the site and flows across the site, an explanation is provided as **ATTACHMENT B** at the end of this form.
- If 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, an explanation is provided as **ATTACHMENT B** at the end of this form.

7. **ATTACHMENT C - BMPs for On-site Stormwater.**

- X 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 identified as **ATTACHMENT C** at the end of this form.
- If 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, an explanation is provided as **ATTACHMENT C** at the end of this form.

8. X **ATTACHMENT D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is provided at the end of this form. Each feature identified in the Geologic Assessment as "sensitive" has been addressed.

9. X The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

N/A The permanent sealing of or diversion of flow from a naturally-occurring "sensitive" or "possibly sensitive" feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed for any naturally-occurring "sensitive" or "possibly sensitive" features on this site.

X **ATTACHMENT E - Request to Seal Features.** A request to seal a naturally-occurring "sensitive" or "possibly sensitive" feature, that includes a justification as to why no reasonable and practicable alternative exists, is found at the end of this form. A request and justification has been provided for each feature.

10. X **ATTACHMENT F - 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. All construction plans and design information have been signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed permanent BMPs and

measures are provided at the end of this form. Design Calculations, TCEQ Construction Notes, all man-made or naturally occurring geologic features, all proposed structural measures, and appropriate details must be shown on the construction plans.

11. X **ATTACHMENT G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is provided at the end of this form. The plan has been prepared and certified by the engineer designing the permanent BMPs and measures. The plan has been signed by the owner or responsible party. The plan includes procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofits as well as a discussion of record keeping procedures.
12. X The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.
N/A Pilot-scale field testing (including water quality monitoring) may be required for BMPs that are not contained in technical guidance recognized by or prepared by the executive director.
— **ATTACHMENT H - Pilot-Scale Field Testing Plan.** A plan for pilot-scale field testing is provided at the end of this form.
13. N/A **ATTACHMENT I -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 provided at the end of this form. 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 results in water quality degradation.

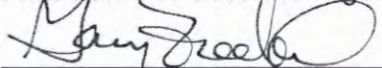
Responsibility for maintenance of permanent BMPs and measures after construction is complete.

14. X 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.
15. X 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.

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 **PERMANENT STORMWATER SECTION** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Gary W. Freeland, P.E.

Print Name of Customer/Agent


Signature of Customer/Agent

12-29-2014
Date

ATTACHMENT A

**20% OR LESS IMPERVIOUS COVER WAIVER
(Not Applicable)**

ATTACHMENT B

BMPs FOR UPGRADIENT STORM WATER

BMPS FOR UPGRADIENT STORM WATER

The permanent BMPs for this project will incorporate the design calculations for the proposed development on the site. An approximately 2.98 acre area upgradient to this site is being diverted around the site.

The portion of the up-gradient site not accounted for in this water quality pond will need to treat their own increase in impervious cover if ever developed.

ATTACHMENT C

BMPs FOR ON-SITE STORM WATER

BMPs FOR ON-SITE STORM WATER

Storm water runoff arising from the development of this project will be conveyed and collected through the proposed storm sewer system which will convey the storm water runoff to the proposed sedimentation/filtration pond and proposed detention pond located on the west side of the project site. The detention pond will then discharge into the existing storm sewer drain.

The water quality calculations are based on a total area of ± 21.07 acres draining to the sedimentation/filtration pond at an ultimate build out of 78% impervious cover, ± 16.42 acres. The impervious cover will be a combination of building roof and paved areas (asphalt and concrete) of the multi-family tract and the future land use of the adjacent drainage areas; these are to be accounted as 85% impervious cover. The water quality pond and detention pond have been designed to treat and capture a total of ± 21.07 acres at 78% impervious cover (± 16.42 acres).

Please refer to the attached construction plans for the detailed pond design and calculations. The detention pond adjacent to the water quality pond will ultimately discharge the site runoff to an existing storm sewer system, equal to pre-developed run-off rates. The water quality pond and detention pond are designed in accordance with TCEQ requirements and City of New Braunfels requirements.

ATTACHMENT D
BMP's FOR SURFACE STREAMS

SURFACE STREAMS

The water quality pond designed in accordance with RG-348 will serve to mitigate and reduce pollutants from ultimately entering any surface streams downstream from the site. The hand dug well/cistern identified in the Geologic Assessment as Sensitive Feature 6 should be properly sealed by a Licensed Water Well Driller in accordance to the Texas Administrative Code (TAC) Title 16, Chapter 76.10, TCEQ RG-347 Landowner's Guide to Plugging Abandoned Water Wells, and TCEQ RG-348, Technical Guidance on Best Management Practice Chapter 5.

ATTACHMENT E

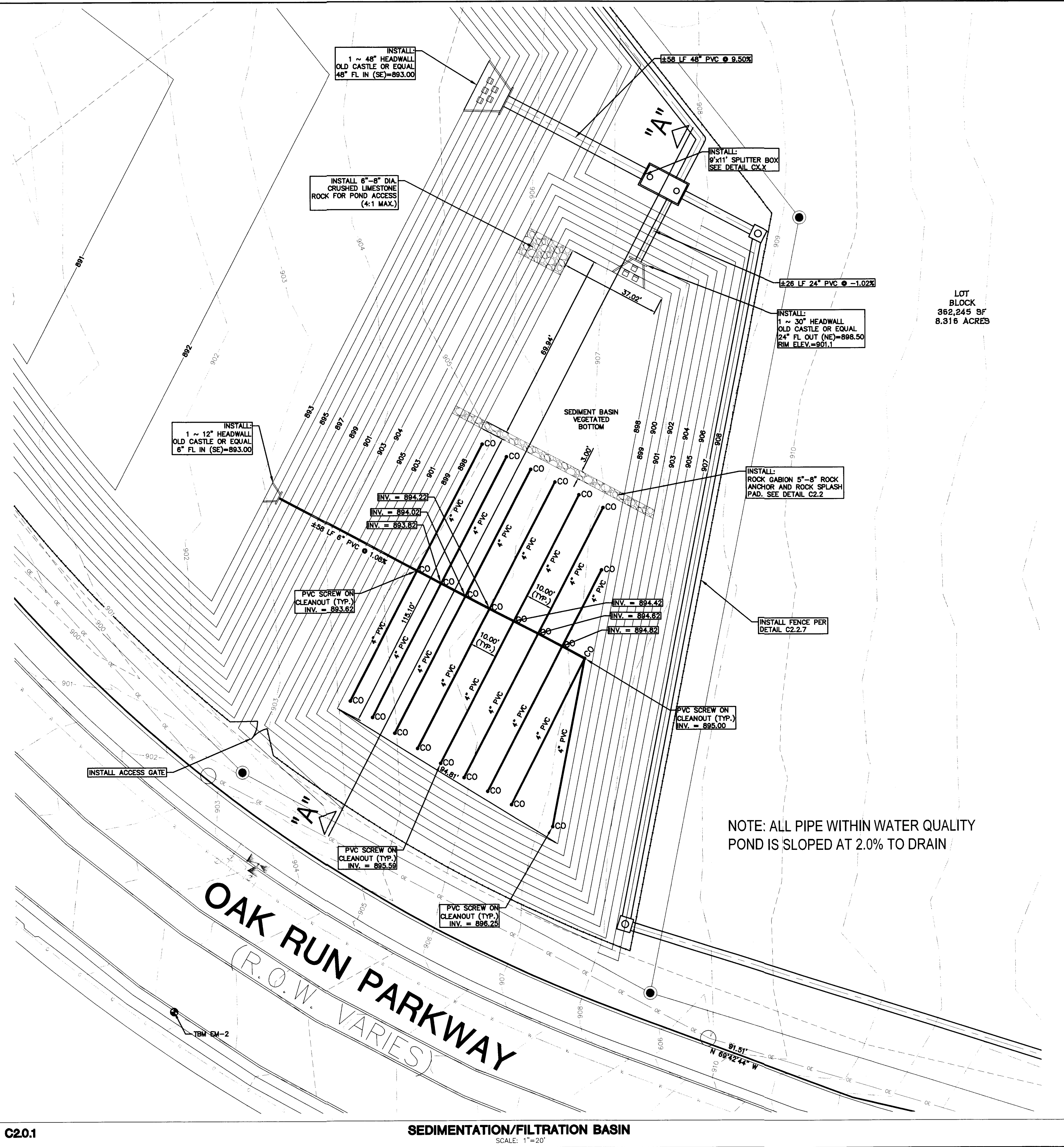
REQUEST TO SEAL A FEATURE

REQUEST TO SEAL A FEATURE

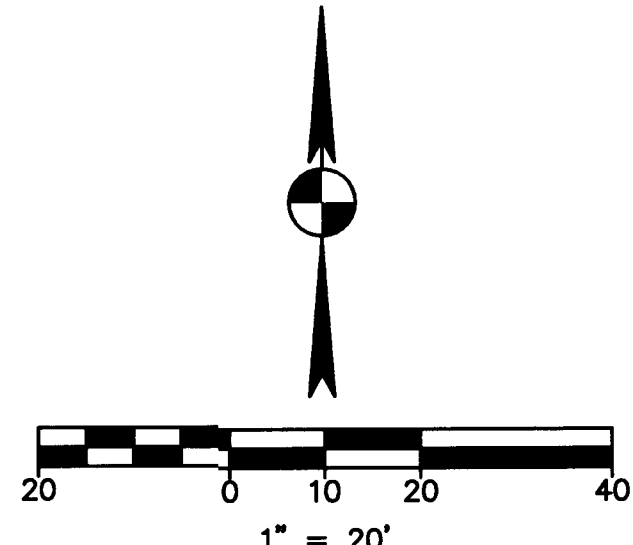
The hand dug water well mentioned in the Gologic Assessment should be sealed by a Licensed Water Well Driller in accordance with applicable TCEQ standards.

ATTACHMENT F
CONSTRUCTION PLANS

Date: Dec 30, 2014, 08:58PM User ID: ewarford
File: C:\110729\150002\CD DWG\110729002PH02.DWG



C20.1
SEDIMENTATION/FILTRATION BASIN
SCALE: 1"=20'



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST 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 AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.
5. PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION 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.
6. 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 SENSITIVE FEATURES BY THE NEXT RAIN).
7. 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.
8. 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).
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE AND DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE:
 1. CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE, WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
 2. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
11. THE FOLLOWING RECORDS SHALL 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.
12. THE HOLDER OF ANY APPROVED EDWARDS AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
 - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURES, INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
 - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
 - C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

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

THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

BMP CALCULATION SUMMARY

WATERSHED AREA =	21.07 ACRES
RUNOFF DEPTH =	15 INCHES
BASIN STORMWATER DEPTH =	4.90 FEET
SAND FILTER AREA REQUIRED:	= 6,812 S.F.
SAND FILTER AREA PROVIDED:	= 9,143 S.F.
SEDIMENTATION AREA REQUIRED:	= 1,703 S.F.
SEDIMENTATION AREA PROVIDED:	= 3,313 S.F.
CAPTURE VOLUME REQUIRED:	= 82,121 C.F.
CAPTURE VOLUME PROVIDED:	= 84,262 C.F.
Q100	= 215.74 CFS

* VOLUME OF POND PROVIDED TO ACCOUNT FOR DEVELOPMENT OF UP TO 16.42 ACRES OF IMPERVIOUS COVER ON 21.07 ACRE TRACT

PLOTTING SCALE: AS NOTED

DATE REVISED: December 30, 2014

FILE: C:\110729\150002\CD DWG\110729002PH02.DWG

DRAWN BY: ENW

DESIGNED BY: GWF

REVIEWED BY: GWF

PROJECT NO.: R0110729-50002

DATE

NO.

REVISION

APPROVAL

DATE

NO.

REVISION

APPROVAL

STATE OF TEXAS

GARY W. FREELAND

107307

PROFESSIONAL ENGINEER

12/29/2014

BURY

922 Leon Road, Suite 100

San Antonio, TX 78216

Tel: (210) 525-9090 Fax: (210) 525-0529

TBPE Registration Number F-1048

Copyright © 2014

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE

NEW BRAUNFELS, TEXAS

SHEET

C20.0

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 =	21.07	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	16.42	acres
Total post-development impervious cover fraction =	0.78	
P =	33	inches

L_M TOTAL PROJECT = 14739 ^ lbs.

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

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

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

Drainage Basin/Outfall Area No. = 1 ^

Total drainage basin/outfall area =	21.07	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	16.38	acres
Post-development impervious fraction within drainage basin/outfall area =	0.78	
L_M THIS BASIN =	14703	^ lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter ^
Removal efficiency = 89 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 =	21.07	acres
A_i =	16.38	acres
A_p =	4.69	acres
L_R =	16720	^ lbs.

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

Desired L_M THIS BASIN = 14739 ^ lbs.

F = 0.88 ^

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

Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth =	1.50	inches
Post Development Runoff Coefficient =	0.59	
On-site Water Quality Volume =	66119	cubic feet

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

Off-site area draining to BMP =	2.89	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0.00	
Off-site Runoff Coefficient =	0.02	
Off-site Water Quality Volume =	315	cubic feet

Storage for Sediment = 13687

Total Capture Volume (required water quality volume(s) x 1.20) = 82121 cubic feet

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

9. Filter area for Sand Filters

Designed as Required in RG-348

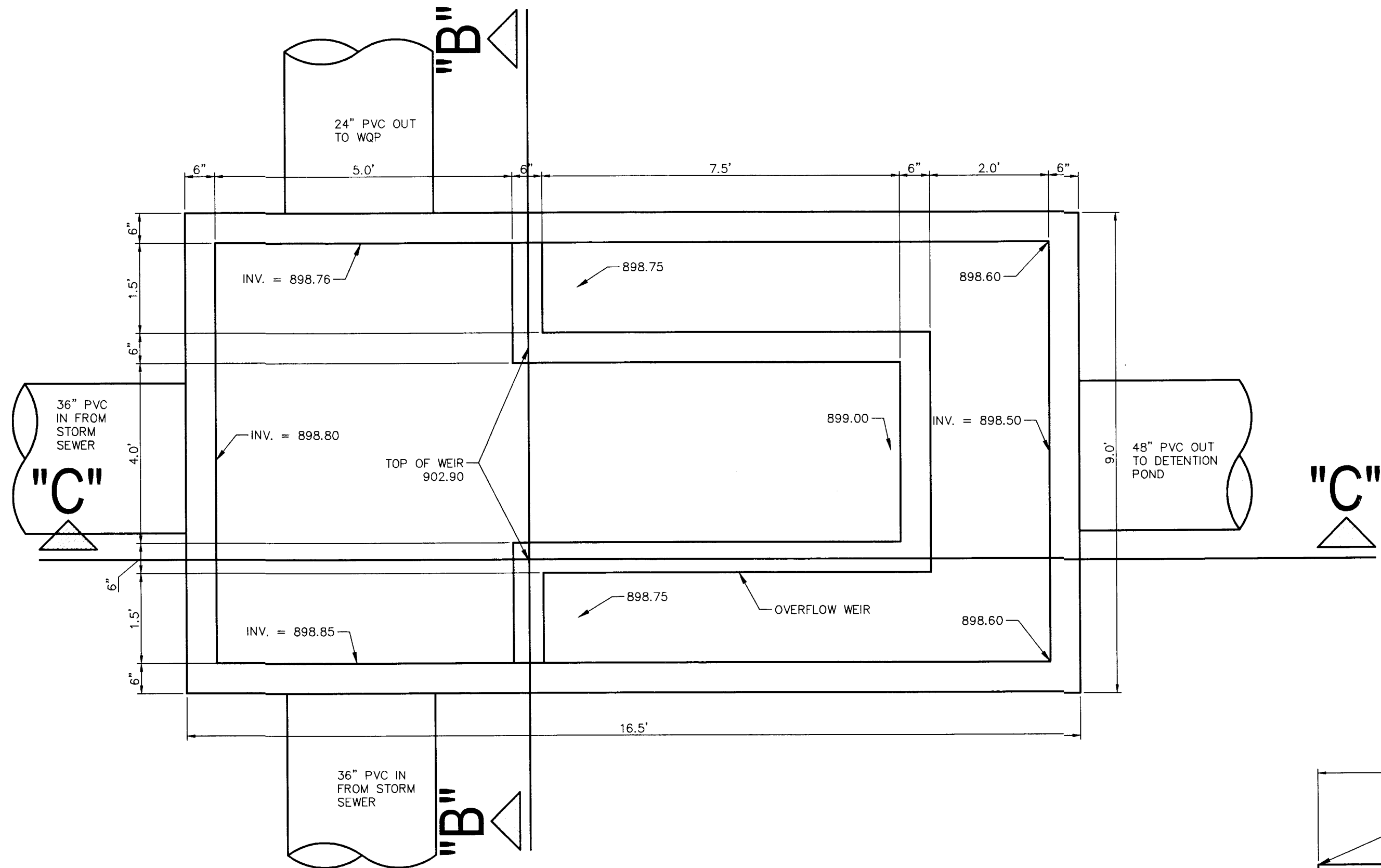
Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin =	82121	cubic feet
Minimum filter basin area =	3784	^ square feet
Maximum sedimentation basin area =	34060	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	8515	square feet For maximum water depth of 8 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins =	82121	cubic feet
Minimum filter basin area =	6812	^ square feet
Maximum sedimentation basin area =	27248	square feet For minimum water depth of 2 feet
Minimum sedimentation basin area =	1703	square feet For maximum water depth of 8 feet



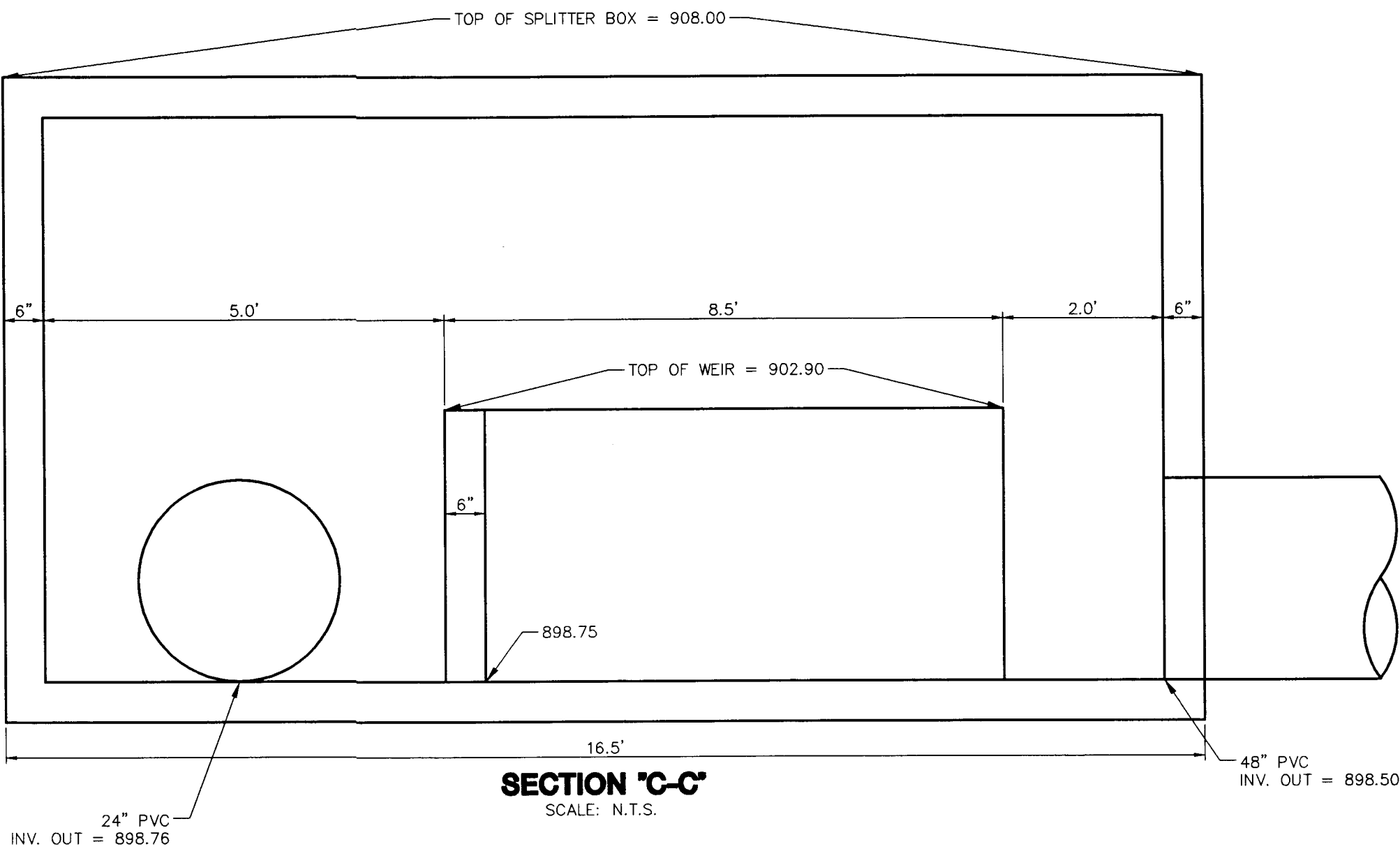
SHARP CRESTED RECTANGULAR WEIR CALCULATION

$$L_w = Q / (C * H^{3/2})$$

$Q_{100} = 215.74$ CFS
 $C = 3.33$ WEIR COEFFICIENT
 $H = 2.0$ FT

$L_w = 21.59$ FT REQUIRED
 $L_w = 22$ FT PROVIDED

NOTE: SPLITTER BOX TO BE STRUCTURALLY DESIGNED BY LICENSED PROFESSIONAL STRUCTURAL ENGINEER.

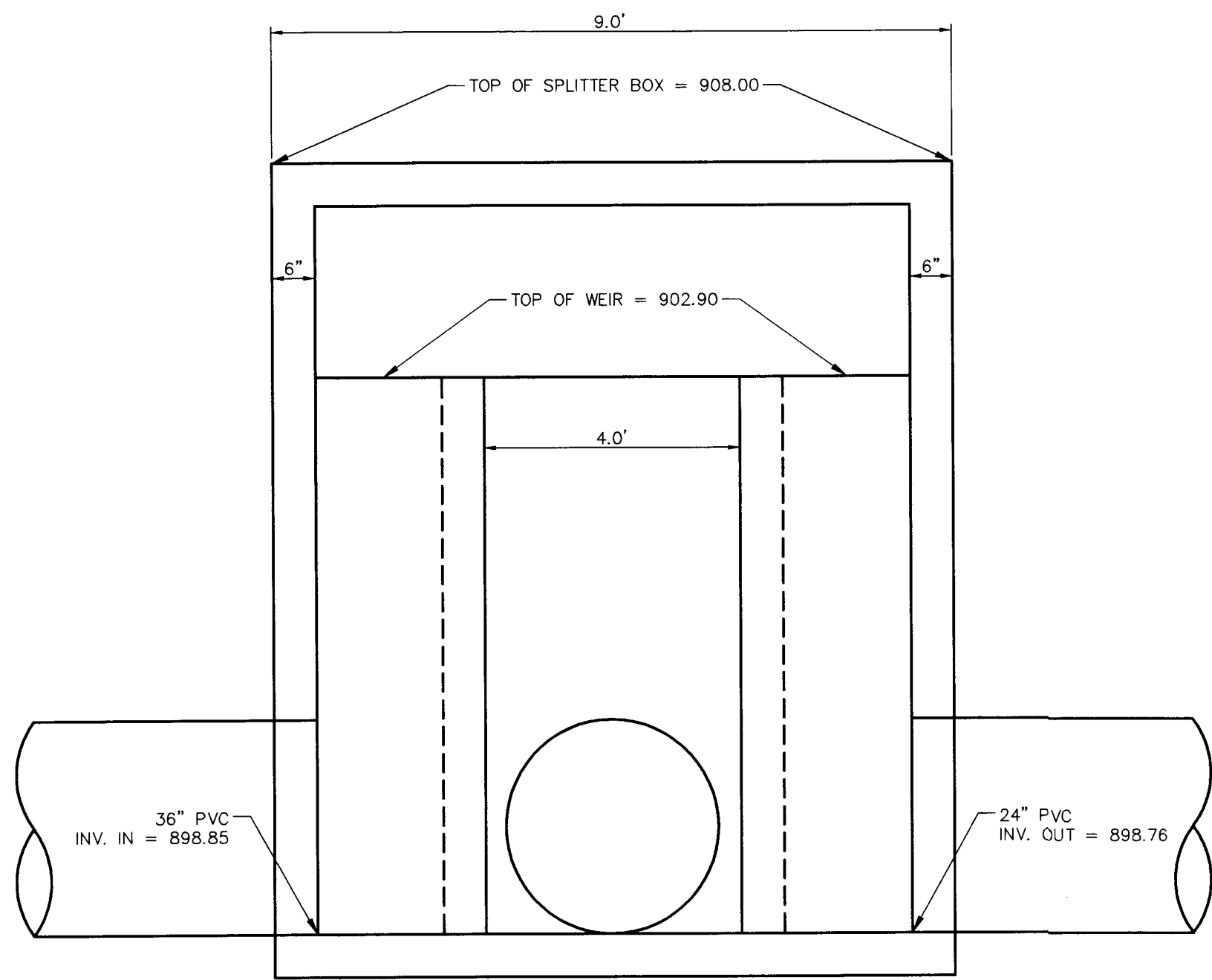


SECTION 'C-C'

SCALE: N.T.S.

SPLITTER BOX DETAILS

SCALE: N.T.S.

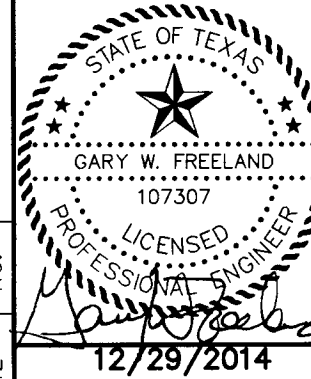


SECTION 'B-B'

SCALE: N.T.S.

APPROVAL
REVISION
NO.
DATE

BURY
92210m Road, Suite 100
San Antonio, Texas 78216
(210) 525-0929
TSPE Registration Number F-1048
Copyright © 2014

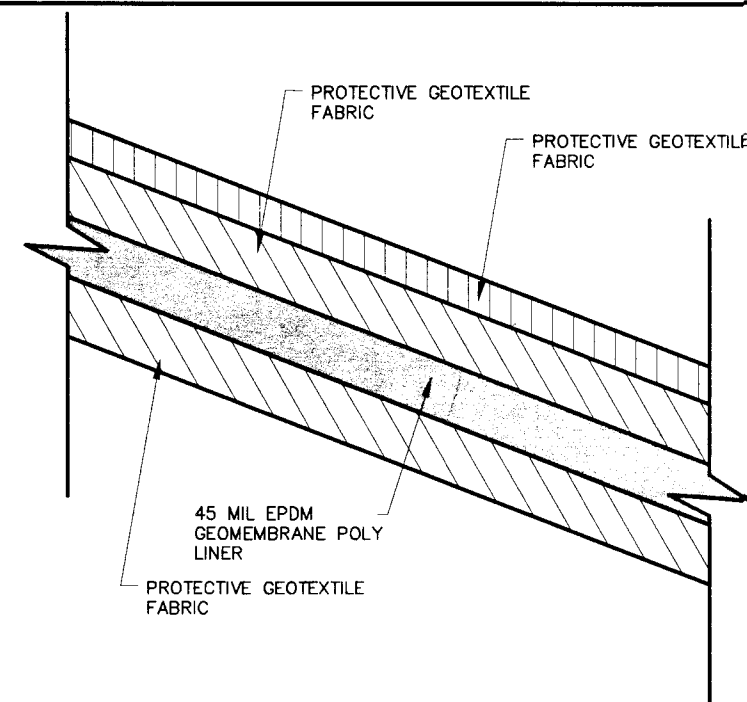


WATER QUALITY POND DETAILS

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: December 30, 2014
FILE: G:\110729\50002\CD DWG\110729002PMD.DWG
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R010729-50002

SHEET
C2.1



SHEET
C2.2

ATTACHMENT G

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
EMERALD COTTAGES
NEW BRAUNFELS, TEXAS

The owner of the lot where a sedimentation/filtration basin is located is responsible for the inspection, maintenance, and repair of the water quality pond(s).

- ***First year of operation.*** The sand filter BMPs will be inspected on a *quarterly basis and after large storms for the first year of operation.*
- ***Inspections.*** BMP facilities will be inspected *at least twice a year (once during or immediately following wet weather)* to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP will be identified and repaired or re-vegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) will be identified and repaired immediately. Cracks, voids and undermining will be patched/filled to prevent additional structural damage. Trees and root systems will be removed to prevent growth in cracks and joints that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.
- ***Sediment Removal.*** Sediment will be removed from the inlet structure and sedimentation chamber *when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment will be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.*
- ***Media Replacement.*** Maintenance of the filter media will be performed *when the drawdown time exceeds 48 hours.* When this occurs, the upper layer of sand will be removed and replaced with new material meeting the original specifications. Any discolored sand will also be removed and replaced. In filters that have been regularly maintained, this will be limited to the top 2 to 3 inches.
- ***Debris and Litter Removal.*** Debris and litter that accumulates near the sedimentation basin outlet device will be removed *during regular mowing operations and inspections.* (Particular attention will be paid to floating debris that can eventually clog the control device or riser.)
- ***Filter Underdrain.*** The underdrain piping network will be cleaned to remove any sediment buildup *as needed* to maintain design drawdown time.

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
EMERALD COTTAGES
NEW BRAUNFELS, TEXAS

- **Mowing.** Grass areas in and around sand filters will be mowed *at least twice annually* to limit vegetation height to 18 inches. Vegetation on the pond embankments will be mowed as appropriate to prevent the establishment of woody vegetation.
- **Rock Gabion.** Rock gabion structures, when used, will be removed from pond prior to filter media replacement, cleaned and returned to the original location after the filter media replacement is complete.
- **Nuisance Control.** Most public agencies surveyed indicate that control of insects, weeds, odors, and algae may be needed in some water quality ponds. Nuisance control is probably the most frequent maintenance item demanded by local residents. If the ponds are properly sized and vegetated, these problems should be rare in water quality ponds except under extremely dry weather conditions. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). Biological friendly methods of control are preferable to chemical applications.

Non-Routine Maintenance

- **Structural Repairs and Replacement.** Eventually, the various inlet/outlet and riser works in the water quality basins will deteriorate and must be replaced. Some public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 years, while concrete barrels and risers may last from 50 to 75 years. The actual life depends on the type of soil, pH of runoff, and other factors. Polyvinyl chloride (PVC) pipe is a corrosion resistant alternative to metal and concrete pipes. Structural repair and/or replacement may be necessary for any structural objects with signs of corrosion or loss of structural integrity.

Westpointe Commercial Ltd
By ~~Mark L. Wauford~~ Westpointe G.P. LLC
Name of Owner/Agent

Mark L. Wauford
Signature of Owner/Agent, Manager

12-16-14
Date

ATTACHMENT H

**PILOT-SCALE FIELD TESTING PLAN
(Not Applicable)**

ATTACHMENT I

**MEASURES FOR MINIMIZING
SURFACE STREAM CONTAMINATION
(Not Applicable)**

AUTHORIZATION AND APPLICATION FORMS

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

I Mark L. Wauford,
Print Name
Manager,
Title - Owner/President/Other
of Westpointe, G.P., LLC, General Partner of Westpointe Commercial, LTD.,
Corporation/Partnership/Entity Name
have authorized Gary W. Freeland, P.E.
Print Name of Agent/Engineer
of Bury-SAN, Inc.
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Westpointe Commercial Ltd
By: Westpointe C.P. LLC

Mark L. Wainford
Applicant's Signature, manager

12-76-14
Date

THE STATE OF Virginia §

County of Chesapeake §

BEFORE ME, the undersigned authority, on this day personally appeared Mark L. Wainford known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 17th day of December, 2014.



Maria Theresa Fultz
NOTARY PUBLIC
Maria Theresa Fultz
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 6/30/17

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Form

NAME OF PROPOSED REGULATED ENTITY: Emerald Cottages
REGULATED ENTITY LOCATION: East of Oak Run Parkway and Independence Drive
NAME OF CUSTOMER: Westpointe GP, LLC
CONTACT PERSON: Mark L. Wauford PHONE: 830-414-3040

(Please Print)

Customer Reference Number (if issued): CN 604362186 (nine digits)

Regulated Entity Reference Number (if issued): RN _____ (nine digits)

Austin Regional Office (3373)

☐ Hays

☐ Travis

☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar

☒ Comal

☐ Medina

☐ Kinney

☐ Uvalde

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 (Check One):

☐ **Austin Regional Office**

☒ **San Antonio Regional Office**

☐ **Mailed to TCEQ:**

TCEQ – Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ **Overnight Delivery to TCEQ:**

TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
512/239-1278

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	N/A Acres	\$ N/A
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	21.07 Acres	\$ 6,500.00
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	N/A Acres	\$ N/A
Sewage Collection System	N/A L.F.	\$ N/A
Lift Stations without sewer lines	N/A Acres	\$ N/A
Underground or Aboveground Storage Tank Facility	N/A Tanks	\$ N/A
Piping System(s)(only)	N/A Each	\$ N/A
Exception	N/A Each	\$ N/A
Extension of Time	N/A Each	\$ N/A

Signature

Date

If you have questions on how to fill out this form or about the Edwards Aquifer protection program, please contact us at 210/490-3096 for projects located in the San Antonio Region or 512/339-2929 for projects located in the Austin Region.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512/239-3282.

**Texas Commission on Environmental Quality
Edwards Aquifer Protection Program
Application Fee Schedule
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	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$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

Westpointe Commercial Ltd

Vendor No: TCEQ01 / Name: TEX' COMMISSION ON ENVIRONMENTAL

1266

1266

Invoice	Ref	Inv Date	Inv Amt	Discount	Adj Amt	Amt Paid
121714	WPAP FEE	12/17/14	6500.00	0.00	0.00	6500.00

Acct:

10100

Check Date 12/17/14

Total

6500.00

Westpointe Commercial Ltd325 Brown Street
Petersburg, VA 23803**IBC BANK**

San Antonio, TX

IBC Voice - (210) 518-2525

30-1328-1140

1266

1266

***Six Thousand Five Hundred & No/100 Dollars

DATE

AMOUNT

12/17/14

\$6,500.00

PAY
TO THE
ORDER
OFTEXAS COMMISSION ON ENVIRONMENTAL
QUALITY
MAIL CODE 214 PO BOX 13088
AUSTIN, TX 78711-3088
AUTHORIZED SIGNATURE

Security features. Details on back.



⑈001266⑈ ⑆114013284⑆2410741266⑈

Bryan W. Shaw, Ph.D., *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

May 18, 2015

Mr. Thomas H. Hornseth, P.E.
Comal County Engineer
195 David Jonas Drive
New Braunfels TX 78132-3710

Re: PROJECT NAME: **Emerald Cottages**, located east of the Oak Run Parkway and Hunters Trace intersection, New Braunfels, Texas

PLAN TYPE: Application for a **Water Pollution Abatement Plan (WPAP)**, 30 Texas Administration Code (TAC) Chapter 213; Edwards Aquifer Protection Program

Dear Mr. Hornseth:

The referenced application is being forwarded to you pursuant to the Edwards Aquifer Rules. The Texas Commission on Environmental Quality (TCEQ) is required by 30 TAC Chapter 213 to provide copies of all applications to affected incorporated cities and underground water conservation districts for their comments prior to TCEQ approval. More information regarding this project may be obtained from the TCEQ Central Registry website at http://www.tceq.state.tx.us/permitting/central_registry/.

Please forward your comments to this office by June 18, 2015.

The Texas Commission on Environmental Quality appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions regarding these matters, please feel free to contact the San Antonio Region Office at (210) 490-3096.

Sincerely

A handwritten signature in blue ink, appearing to read "Todd Jones".

Todd Jones
Water Section Work Leader
San Antonio Regional Office

TJ/eg

RECEIVED

MAY 21 2015

COUNTY ENGINEER

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

March 11, 2015

Mr. Mark L. Wauford
Westpointe G.P. LLC, the General Partner of Westpointe Commercial LTD.
c/o The M L & E Company, P. O. Box 1390
Chesterfield, Virginia 23832-9103

Re: Edwards Aquifer, Comal County

Name of Plan: **Emerald Cottages; Located east of the intersection of Oak Run Parkway and Independence Drive; New Braunfels, Texas**

TYPE OF PLAN: Request for Approval of a **Water Pollution Abatement Plan (WPAP)**; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Regulated Entity No. RN107936874; Investigation No. 1218087; Additional ID No. 13-15010601

Dear Mr. Wauford:

The Texas Commission on Environmental Quality (TCEQ) received notice by email from Mr. Gary Freeland, P.E., with Bury-SAN, Inc. on March 9, 2015, to withdraw the above-referenced application from review on your behalf. As requested, the application fee of \$6,500 will be held by the regional office for future submittal of the WPAP application.

If you have any questions or require additional information, please contact Dianne Pavlicek-Mesa, P.G., of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4074.

Sincerely,

A handwritten signature in black ink, appearing to read "Todd Jones".

Todd Jones, Water Section Work Leader
San Antonio Regional Office

TJ/DPM/eg

cc: Mr. Gary Freeland, P.E., Bury-SAN, Inc.
Mr. Roland Ruiz, Edwards Aquifer Authority
Mr. James C. Klein, P.E., City of New Braunfels
Mr. Thomas H. Hornseth, P.E., Comal County
TCEQ Central Records, Building F, MC 212

RECEIVED

MAR 13 2015

COUNTY ENGINEER

RECEIVED

MAY 21 2015

TCEQ-R13

MAY 14 2015

COUNTY ENGINEER

SAN ANTONIO

BURY

WATER POLLUTION ABATEMENT PLAN

*Emerald Cottages
New Braunfels, Comal County, Texas*

*December 2014
(Revised May 2015)*

TBPE F-1048



Coy D. Armstrong
05/14/15

LET'S SOLVE IT.

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 mared 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 if not withdrawn the application will be denied and 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 to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- 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 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 effected 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: Emerald Cottages				2. Regulated Entity No.:			
3. Customer Name: Westpointe Commercial, LTD.				4. Customer No.: 604362186			
5. Project Type: (Please circle/check one)	<input checked="" type="radio"/> New	Modification		Extension		Exception	
6. Plan Type: (Please circle/check one)	<input checked="" type="radio"/> WPAP	<input type="radio"/> CZP	<input type="radio"/> SCS	<input type="radio"/> UST	<input type="radio"/> AST	<input type="radio"/> EXP	<input type="radio"/> EXT
7. Land Use: (Please circle/check one)	<input checked="" type="radio"/> Residential		<input type="radio"/> Non-residential		8. Site (acres):		19.33 Acres
9. Application Fee:	\$6,500.00	10. Permanent BMP(s):			Water Quality Pond & Detention Pond		
11. SCS (Linear Ft.):	N/A	12. AST/UST (No. Tanks):			N/A		
13. County:	Comal	14. Watershed:			Guadalupe River		

Application Distribution

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

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

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

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> 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.

Print Name of Customer/Authorized Agent
Coy D. Armstrong, P.E.

Signature of Customer/Authorized Agent

Date

05/14/15

****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):



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)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Attachments Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Water Pollution Abatement (WPAP) Application		
3. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number (if issued)
CN 604362186		RN

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy)			
6. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check only one of the following:			
<input checked="" type="checkbox"/> Owner	<input type="checkbox"/> Operator	<input type="checkbox"/> Owner & Operator	
<input type="checkbox"/> Occupational Licensee	<input type="checkbox"/> Responsible Party	<input type="checkbox"/> Voluntary Cleanup Applicant	<input type="checkbox"/> Other: _____
7. General Customer Information			
<input type="checkbox"/> New Customer	<input type="checkbox"/> Update to Customer Information	<input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State)	<input checked="" type="checkbox"/> No Change**		
**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.			
8. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	<input type="checkbox"/> Sole Proprietorship- D.B.A
<input type="checkbox"/> City Government	<input type="checkbox"/> County Government	<input type="checkbox"/> Federal Government	<input type="checkbox"/> State Government
<input type="checkbox"/> Other Government	<input type="checkbox"/> General Partnership	<input type="checkbox"/> Limited Partnership	<input type="checkbox"/> Other: _____
9. Customer Legal Name (If an individual, print last name first: ex: Doe, John)		If new Customer, enter previous Customer below	
		End Date:	
10. Mailing Address:			
City	State	ZIP	ZIP + 4
11. Country Mailing Information (if outside USA)		12. E-Mail Address (if applicable)	
13. Telephone Number		14. Extension or Code	
() -		() -	
15. Fax Number (if applicable)			
() -			
16. Federal Tax ID (9 digits)	17. TX State Franchise Tax ID (11 digits)	18. DUNS Number (if applicable)	19. TX SOS Filing Number (if applicable)
20. Number of Employees		21. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No	

SECTION III: Regulated Entity Information

22. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)			
<input checked="" type="checkbox"/> New Regulated Entity	<input type="checkbox"/> Update to Regulated Entity Name	<input type="checkbox"/> Update to Regulated Entity Information	<input type="checkbox"/> No Change** (See below)
**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.			
23. Regulated Entity Name (name of the site where the regulated action is taking place)			
Emerald Cottages			

24. Street Address of the Regulated Entity: (No P.O. Boxes)	N/A						
	Oak Run Parkway						
	City	New Braunfels	State	TX	ZIP	78132	ZIP + 4
25. Mailing Address:	Westpointe Commercial, LTD						
	c/o The M L & E Company, PO Box 1390						
	City	Chesterfield	State	VA	ZIP	23832	ZIP + 4 9103
26. E-Mail Address:	N/A						
27. Telephone Number	28. Extension or Code		29. Fax Number (if applicable)				
(804) 414-3040	N/A		(804) 751-9891				
30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)		33. Secondary NAICS Code (5 or 6 digits)			
1522	6513	236116		531110			
34. What is the Primary Business of this entity? (Please do not repeat the SIC or NAICS description.)							
Multi-family residential							

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	One (1) tract of land located near east of Oak Run Parkway and Hunters Trace, New Braunfels, Comal County, Texas					
36. Nearest City	County		State		Nearest ZIP Code	
New Braunfels	Comal		TX		78132	
37. Latitude (N) In Decimal:	29.7146			38. Longitude (W) In Decimal:	-98.1675	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
29	42	52.43	-98	10	2.95	

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input type="checkbox"/> Municipal Solid Waste
<input type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge
<input type="checkbox"/> Stormwater	<input type="checkbox"/> Title V – Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input checked="" type="checkbox"/> Other: WPAP

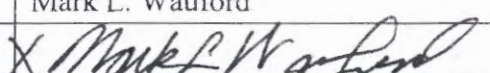
SECTION IV: Preparer Information

40. Name:	Coy D. Armstrong	41. Title:	Principal
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(210) 525-9090		(210) 525-0529	carmstrong@buryinc.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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	Westpointe Commercial, LTD by Westpointe, G.P., LLC	Job Title:	Manager
Name (In Print):	Mark L. Wauford	Phone:	(804) 414-3040
Signature:		Date:	5/12/15

GENERAL INFORMATION FORM

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) 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.

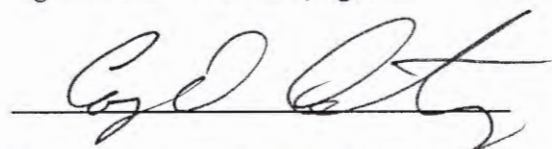
Signature

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 **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Coy D. Armstrong, PE

Date: 5/14/15

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Emerald Cottages
2. County: Comal
3. Stream Basin: Blieders Creek
4. Groundwater Conservation District (If applicable): _____
5. Edwards Aquifer Zone:
☒ Recharge Zone
☐ Transition Zone
6. Plan Type:
☒ WPAP
☐ SCS
☐ Modification

- ☐ AST
☐ UST
☐ Exception Request

7. Customer (Applicant):

Contact Person: Mark L. Wauford

Entity: Westpointe, G.P., LLC, The General Partner of Westpointe Commercial, LTD.

Mailing Address: c/o The M L & E Company, P.O. Box 1390

City, State: Chesterfield, Virginia

Zip: 23832-9103

Telephone: (804) 414-3040

FAX: (804) 751-9891

Email Address: _____

8. Agent/Representative (If any):

Contact Person: Coy D. Armstrong

Entity: Bury-SAN, Inc.

Mailing Address: 922 Isom Road, Suite 100

City, State: San Antonio, Texas

Zip: 78216

Telephone: (210) 525-9090

FAX: (210) 525-0529

Email Address: carmstrong@buryinc.com

9. Project Location:

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

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The site is located west of the intersection of Oak Run Parkway and Independence Drive.

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

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

- ☒ Project site boundaries.
☒ USGS Quadrangle Name(s).
☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: June 4, 2014.

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. 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

15. 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/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☐ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - ☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
 - ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
 - ☐ A request for an extension to a previously approved plan.
19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:
- ☐ TCEQ cashier
 - ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 - ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

ATTACHMENT A

ROAD MAP



BURY

922 Isom Road, Suite 100
San Antonio, Texas 78216
(210) 525-9090, Phone

TBPE #F-1048
Copyright © 2015
www.buryinc.com

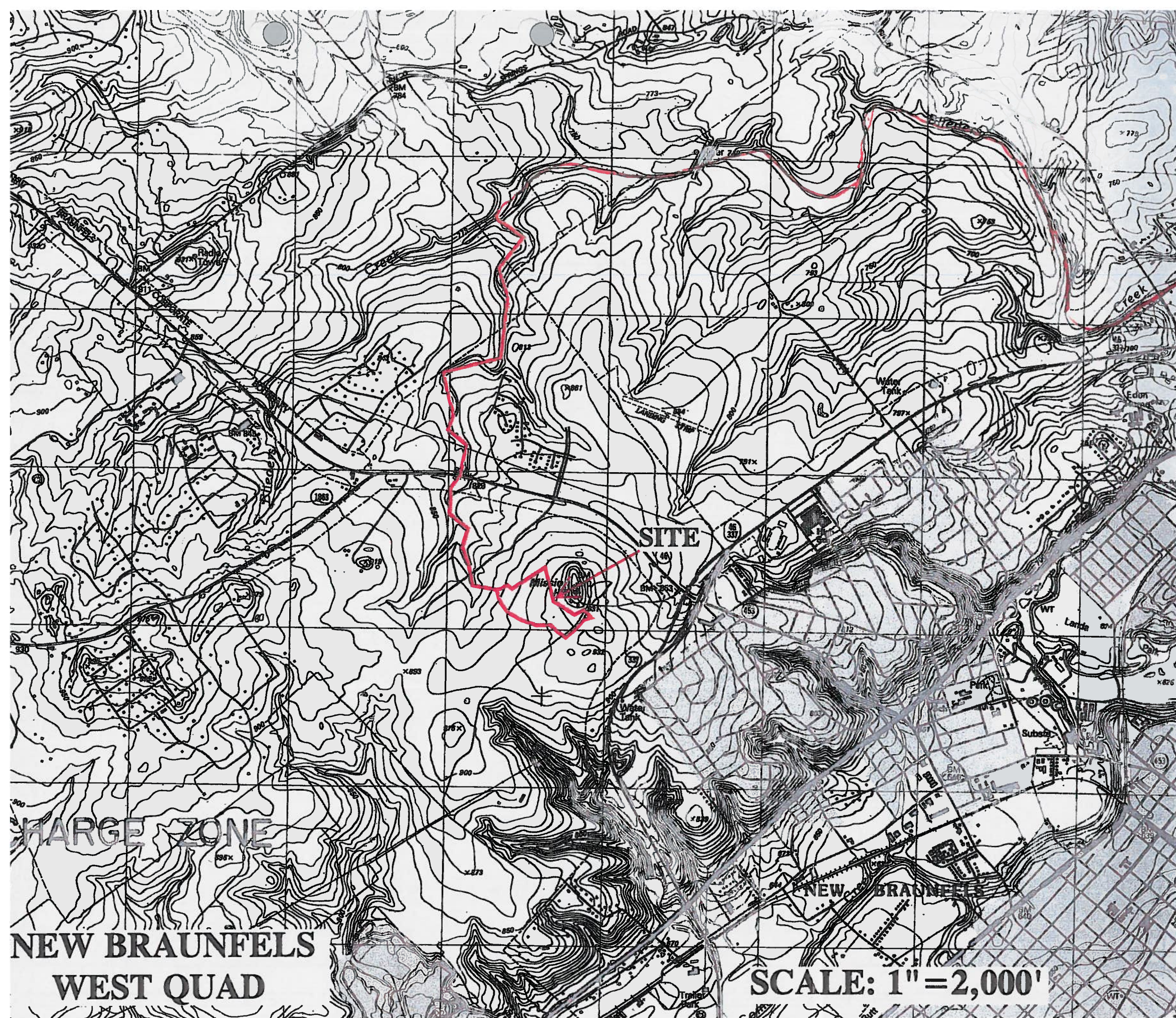
Road Map
Emerald Cottages
Westpointe Commercial LTD.

Date: May 5, 2015
File: Road Map.mxd
Scale: 1 : 2,468
Tech: AG
Project Number: R0110729-50002

ATTACHMENT B

USGS/EDWARDS RECHARGE ZONE MAP

(Scale 1" = 2,000')



SCALE: 1"=2,000'



ATTACHMENT C

PROJECT DESCRIPTION

PROJECT DESCRIPTION

The Emerald Cottages project consists of ± 19.33 acres located along Oak Run Parkway - northwest of Oak Run Parkway and Independence Drive intersection. The subject tract is within the full purpose jurisdiction of the City of New Braunfels, Comal County, Texas and it is located in the Edwards Aquifer Recharge Zone (EARZ), within the Guadalupe River Watershed by way of both Dry Comal Creek and Blieders Creek. Currently, the site is undeveloped with natural vegetation and trees and there is no existing impervious cover on site. The development includes the construction of an access driveway to the multi-family residential site, seventeen (17) buildings, a proposed water quality pond and detention pond with the associated drainage, private storm sewer, public and private water and wastewater utilities, and sewage collection system (SCS).

A partial sedimentation/filtration basin will be used as a Permanent Best Management Practices (BMPs) onsite to treat storm water generated from the proposed and future development. This BMP has been designed in accordance with TCEQ's Technical Guidance Manual to remove 80% of the increased Total Suspended Solids (TSS). The proposed water quality pond has been designed to provide treatment for the Emerald Cottages site as well as to account for future developments on the west side of the property. Moreover, storm water will be detained in a proposed detention pond prior to being released into the existing public drainage system. In addition to the ± 11.01 -acre multi-family site at 80% impervious cover, the adjacent ± 8.32 -acre tract is being accounted for at 85% impervious cover for the design of this BMP. Lastly, ± 2.58 acres of offsite storm water is being passed through the proposed BMP as undeveloped (pervious) property. The offsite area is currently undeveloped and would need to mitigate any future increase in impervious cover.

The accompanying SCS describes the measures taken to design the proposed onsite sanitary sewer system.

NOTE

Please note, the Geological Assessment is for the overall Weston ±121-acre tract. The Emerald Cottages project is a small portion of the overall Weston ±121-acre tract. The project name Emerald Cottages will be the name noted on all the forms with the exception of the overall Geological Assessment forms.

GEOLOGIC ASSESSMENT

Memo

To: Albert Gutierrez, P.E.
Bury, Inc.
922 Isom Road, Suite 100,
San Antonio, Texas 78216

From: Mark Adams, P.G. aci consulting

Subject: Geologic Assessment Memo Addendum for the Westpointe Outparcel Tract

Date: February 20, 2015

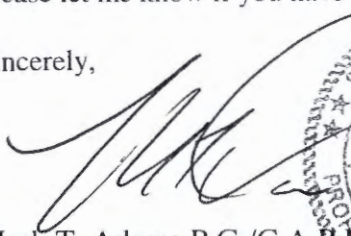
Albert,

The Geologic Assessment (GA) for the Westpointe Outparcel that aci consulting conducted in 2011 should be considered an addendum to the overall Weston 121-acre Tract GA that was conducted by aci consulting in 2007.

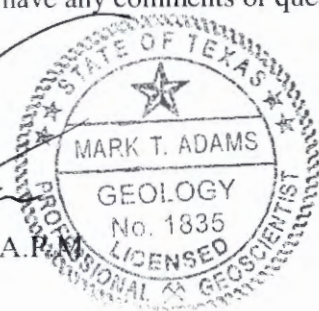
The Westpointe Outparcel tract is located adjacent to the Weston 121-acre Tract. The Westpointe Outparcel GA was conducted for the overall development, not as its own tract. Therefore, the Westpointe Outparcel GA was always intended as an addendum to the overall Weston 121-acre Tract GA.

Please let me know if you have any comments or questions.

Sincerely,



Mark T. Adams P.G./C.A.P.M.
Senior Geologist



**GEOLOGIC ASSESSMENT
FOR THE
WESTON 121-ACRE TRACT**

Comal County, Texas

October 2007

Prepared for:

Investor Grosenbacher &
Integrated Realty Group
11202 Disco Drive
San Antonio, Texas 78216

Prepared by:

aci consulting
1001 Mopac Circle, Suite 100
Austin, Texas 78746

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), 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. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Stan Reece

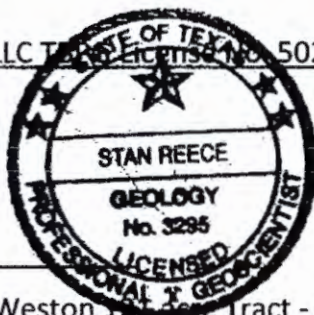
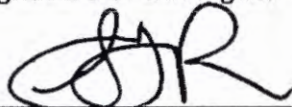
Telephone: 512-347-9000

Date: May 13, 2015

Fax: 512-306-0974

Representing: aci Group LLC TCEQ License No. 50260 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Weston 1st Tract - Comal County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: September 13 and 17 and October 10, 2007

2. Type of Project:

☒ WPAP

☐ AST

☒ SCS

☐ UST

3. Location of Project:

☒ Recharge Zone

☐ Transition Zone

☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Krum clay (Krb), 1 to 3 percent slopes	C	4-5
Medlin-Eckrant association (MEC), undulating	D	1-2
Medlin-Eckrant association (MED), hilly	D	4-5

Soil Name	Group*	Thickness(feet)
Rumple-Comfort association (RUD), undulating	D	2.5

** Soil Group Definitions (Abbreviated)*

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1" = 400'
- Applicant's Site Plan Scale: 1" = 200'
- Site Geologic Map Scale: 1" = 200'
- Site Soils Map Scale (if more than 1 soil type): 1" = 500'

9. Method of collecting positional data:

- ☒ Global Positioning System (GPS) technology.
☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

- ☐ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

- ☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)

☐ The wells are not in use and have been properly abandoned.

☒ The wells are not in use and will be properly abandoned.

☐ The wells are in use and comply with 16 TAC Chapter 76.

- ☐ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	SCOPE	3
3.0	INVESTIGATION METHOD.....	3
4.0	PROPOSED SURVEY AREA USE.....	4
5.0	REGIONAL AND SITE GEOLOGY	4
6.0	KARST FEATURES IN TRAVIS COUNTY, TEXAS	4
7.0	SITE SOILS	5
8.0	PREVIOUS SITE INVESTIGATIONS.....	6
9.0	DESCRIPTION OF SITE FEATURES	6
10.0	SUMMARY OF FINDINGS	8
11.0	RECOMMENDATIONS	8
12.0	REFERENCES	9

LIST OF TABLES

Table 1: Geologic Assessment Table

LIST OF FIGURES

Figure 1: Site Location
 Figure 2: Stratigraphic Column
 Figure 3: Topographic Map with Formation Outcrops
 Figure 4: Site Soils
 Figure 5: Feature Locations

October 17, 2007

Geologic Assessment for the Weston 121-acre Tract in Comal County, Texas

1.0 INTRODUCTION

The purpose of this task is to identify "karst" features during a pedestrian survey for the property known as the Weston 121-acre tract in New Braunfels, Comal County, Texas. The Weston 121-acre property, hereafter referred to as the subject area, is located at the northwest corner of State Loop 337 and Highway 46 in New Braunfels, Comal County, Texas (Figure 1).

2.0 SCOPE

This report is intended to satisfy the requirements for a Geologic Assessment, which shall be included as a component of a Water Pollution Abatement Plan (WPAP). The scope of the report consists of a site reconnaissance and field survey and review of existing data and reports. Features identified during the field survey are ranked utilizing the Texas Commission on Environmental Quality (TCEQ) matrix for Edwards Aquifer Recharge Zone Features. The ranking of the features determines their viability as a recharge feature.

3.0 INVESTIGATION METHOD

The following investigation methods and activities were used to develop this report:

- A review of existing files and literature to determine the regional geology and known caves associated with the property;
- A review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the property;
- A site reconnaissance performed by a registered professional geologist to identify and examine caves, recharge features, and other significant geological features; and,
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone.

4.0 PROPOSED SURVEY AREA USE

The site will be utilized for the construction of a commercial / retail complex.

5.0 REGIONAL AND SITE GEOLOGY

The site lies within the Edwards aquifer recharge zone as defined by the TCEQ (TCEQ 2001). The geologic strata associated with the Edwards aquifer include the Georgetown Formations overlying the Edwards Limestone Group, interfingering with the Comanche Peak Formation in Williamson County. These rocks are underlain by the Walnut Formation, which has members including the Whitestone Member, Keys Valley Marl Member, the Cedar Park Member, the Bee Cave Member and the Bull Creek Member. The Glen Rose Formation, another marine limestone, is located below the Walnut Formation. The dominant structural trend of known faults in the area is to the northeast on a bearing of approximately 40 to 50 degrees to the northeast (USGS, New Braunfels West Quadrangle, 1993).

Surface geology of the area is dominated by consistent outcrops of the Edwards Limestone Formation (Ked), Del Rio Clay (Kdr) and Buda Limestone (Kbu). Outcrops of the Edwards Limestone on the site occur as light-gray to gray, thick bedded limestone. Some outcrops are dolomitic in nature. Outcrops of Del Rio clay on the property appear as blocky medium-gray to light gray silty clay. Buda Limestone on the property outcrops as fine-grained dark to medium gray partially weathered limestone. Figure 2 depicts the stratigraphic column for the site. A topographic map with formation outcrops is included as Figure 3.

6.0 KARST FEATURES IN COMAL COUNTY, TEXAS

In limestone terrains, karst is expressed by erratically developed cavernous porosity and the manifestations of sinkholes, voids, and erratic surface drainage. Karst landscapes are typical of the Edwards Limestone, occurring across a vast region of Central Texas west of the Balcones Escarpment, and these processes are critical to understanding the Edwards Aquifer within its various segments. The features produced by karst processes (voids, holes, and solution layers) eventually provide conduits for surface water runoff and "point recharge" for the Edwards aquifer. The identification and protection of these features in established recharge areas is critical to maintaining groundwater quality and species habitat. The United States Fish and Wildlife Service (USFWS) and the TCEQ require protective strategies within these areas to ensure recharge and endangered species habitat protection prior to, during, and upon completion of construction activities. The subject area is located in Comal County which is not within an area where endangered karst invertebrates exist or may be known to exist.

7.0 SITE SOILS

The description of the site soils are derived from two sources:

- Utilization of the "Soil Survey of Comal County, Texas," January, 1984, compiled by the United States Department of Agriculture (USDA) Natural Resource Conservation Service; and,
- Field observations made during the site reconnaissance.

Four soil units are identified within the subject area:

Krum clay (Krb) – 1 to 3 percent slopes – These gently sloping soils occur on stream terraces and valley hills. Typically, the surface layer consists of dark gray clay about 16 inches thick with subsoil, to a depth of 58 inches, consisting of grayish, brown clay. This soil is typically well-drained with moderate permeability.

Medlin-Eckrant association, undulating (MEC) – This association consists of very shallow and deep soils on upland areas in the Edwards Plateau area. The typical surface layer of Medlin consists of nine inches of grayish, brown clay. The subsoil is olive clay to a depth of approximately 24 inches, and mottled pale olive and pale yellow clay to a depth of 38 inches. The Medlin soil is well-drained with rapid surface runoff and slow permeability.

The Eckrant soil consists of a surface layer of dark brown extremely stony clay approximately 17 inches thick with underlying material consisting of fractured limestone bedrock. The Eckrant soil is well drained with rapid surface runoff and moderately slow permeability.

Medlin-Eckrant association, hilly (MED) – This association consists of very shallow and deep soils in the Edwards Plateau area. Typically, the Medlin soils has a grayish brown surface layer about 11 inches thick that is stony clay in the upper part and clay in the lower part. The subsoil is a light yellowish brown clay that has yellowish brown and olive mottles. The underlying material is a light gray shaly clay that has yellow and olive yellow mottles. The Medlin soil is well-drained with rapid surface runoff and very slow permeability.

The surface layer of the Eckrant soil is very dark extremely stony clay about 16 inches in thickness with underlying material consisting of fractured limestone bedrock. The Eckrant soil is well drained with rapid surface runoff and moderately slow permeability.

Rumple-Comfort association (RUD), undulating – This association consists of shallow and moderately deep upland soils in the Edwards Plateau area. Rumple soils make up approximately 60 percent of the association, Comfort soils make up 20 percent, and other soils, mainly Tarpley soils, make up 20 percent. The typical surface layer of the Rumple soil consists of dark reddish-brown cherty clay loam about 10 inches thick. The subsoil to a depth of 28 inches is dark reddish-brown extremely stony clay.

The surface layer of the Comfort soil is dark brown, extremely stony clay to about 7 inches. The subsoil to a depth of 12 inches is dark, reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated non-calcareous fractured limestone throughout. All soils in this association are well-drained with moderate surface runoff.

A site soils map is included as Figure 4.

8.0 PREVIOUS SITE INVESTIGATIONS

There are no known previous site investigations conducted for this property according to information received from the property developer.

9.0 DESCRIPTION OF SITE FEATURES

All features listed below were identified and assessed by aci personnel during a site visit conducted on September 13 and 17, and October 10, 2007. A total of 5 geologic features and one hand dug water well/cistern were identified within the property boundaries during the reconnaissance for this geologic assessment. A feature location map is included as Figure 5. All feature descriptions are identified as follows:

Feature 1

GPS: N 29.71298 W -98.16708

This feature is a sinkhole with a length, width and vertical depth of 5 feet, 4 feet, and 1.5 feet, respectively. Infill material consists of cobbles, loose soil, leaf litter, and other organic material. The feature is located on a hillside, and the drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (17 points). The TCEQ Geologic Assessment sensitivity rating is 37.

Recommendations: No further activities are recommended for this feature.

Feature 2**GPS: N 29.71223 W -98.16835**

This feature is a series of six solution-enlarged cavities, the largest of which has a length, width and vertical depth of 2 feet, 1 foot, and greater than 4 feet, respectively. Infill material consists of cobbles, breakdown, sand, and gravel. Drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is intermediate (30 points). The TCEQ Geologic Assessment sensitivity rating is 50.

Recommendations: A minimum setback of 50-feet corresponding to the associated drainage area is recommended for this feature.

Feature 3**GPS: N 29.71187 W -98.16875**

This feature is a natural bedrock feature with a length, width and vertical depth of 20 feet, 5 feet, and 1 foot, respectively. The feature is located on a hillside, and the drainage area appears to be less than 1.6 acres. Relative infiltration rate of this feature is low (15 points). The TCEQ Geologic Assessment sensitivity rating is 30.

Recommendations: No further activities are recommended for this feature.

Feature 4**GPS: N 29.71395 W -98.16253**

This feature consists of a solution cavity with a length, width and vertical depth of 1 foot, 0.75 foot, and 2 feet, respectively. The feature has a horizontal extent in excess of 5 feet. This feature also appears to be utilized as an animal burrow. Infill material consists of leaf litter and other organic material. This feature is located on a hillside, and the drainage area to the feature appears to be less than one acre. The relative infiltration rate is moderate (25 points) and the TCEQ sensitivity rating is 45.

Recommendations: Excavation of the feature to determine extent and recharge potential or installation of a minimum 50-foot setback corresponding to the drainage area.

Feature 5**GPS: N 29.71401 W -98.16268**

This feature is small collapsed sinkhole with a solution cavity. The solution cavity has a length, width and vertical depth of 1 foot, 1 foot, and 1.5 feet, respectively. The collapsed area has a length, width and vertical depth of 6 feet, 6 feet and 1.5 feet, respectively. Infill material within the solution cavity consists of soil, leaf litter, and other organic material. This feature is located on a hillside, and the drainage area for the

feature appears to be less than one acre. Infiltration rate is moderate (26 points) and the TCEQ sensitivity rating is 46.

Recommendations: Excavation of feature to determine extent and recharge potential or installation of a minimum 50-foot setback corresponding to the drainage area.

Feature 6

GPS: N 29.71452 W -98.16544

This feature is a manmade feature in bedrock (hand dug well/cistern). The depth of the feature is unknown as it was full of water. Infiltration rate is high (35 points) and the TCEQ sensitivity rating is 65.

Recommendations: If this feature is not going to be preserved as part of development on the site, then it should be plugged and abandoned by a licensed water well driller prior to commencement of development activities.

10.0 SUMMARY OF FINDINGS

A total of 6 geologic or manmade features identified within the subject area. Three of the features were rated as sensitive under TCEQ guidelines.

11.0 RECOMMENDATIONS

Recommendations for each feature are included below the individual feature descriptions.

12.0 REFERENCES

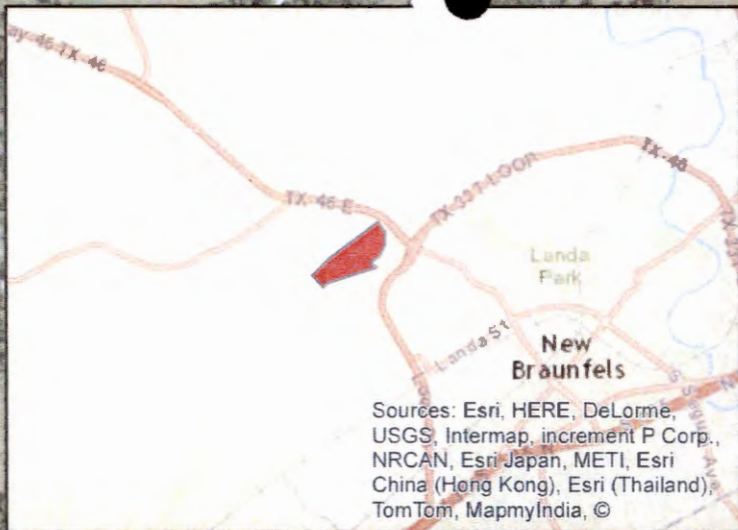
United States Geological Survey (USGS), New Braunfels West Quadrangle (1993),
Bureau of Economic Geology, The University of Texas at Austin.

Soil Conservation Service. 1984. Soil Survey of Comal County, Texas. United
States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer
Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone,
Contributing Zone, and Contributing Zone within the Transition Zone." Map.
Digital data. November 28, 2001. Austin, Texas.

TABLE

FIGURES



This map is intended for planning purposes only. All map data should be considered preliminary and all boundaries and designations are subject to confirmation.

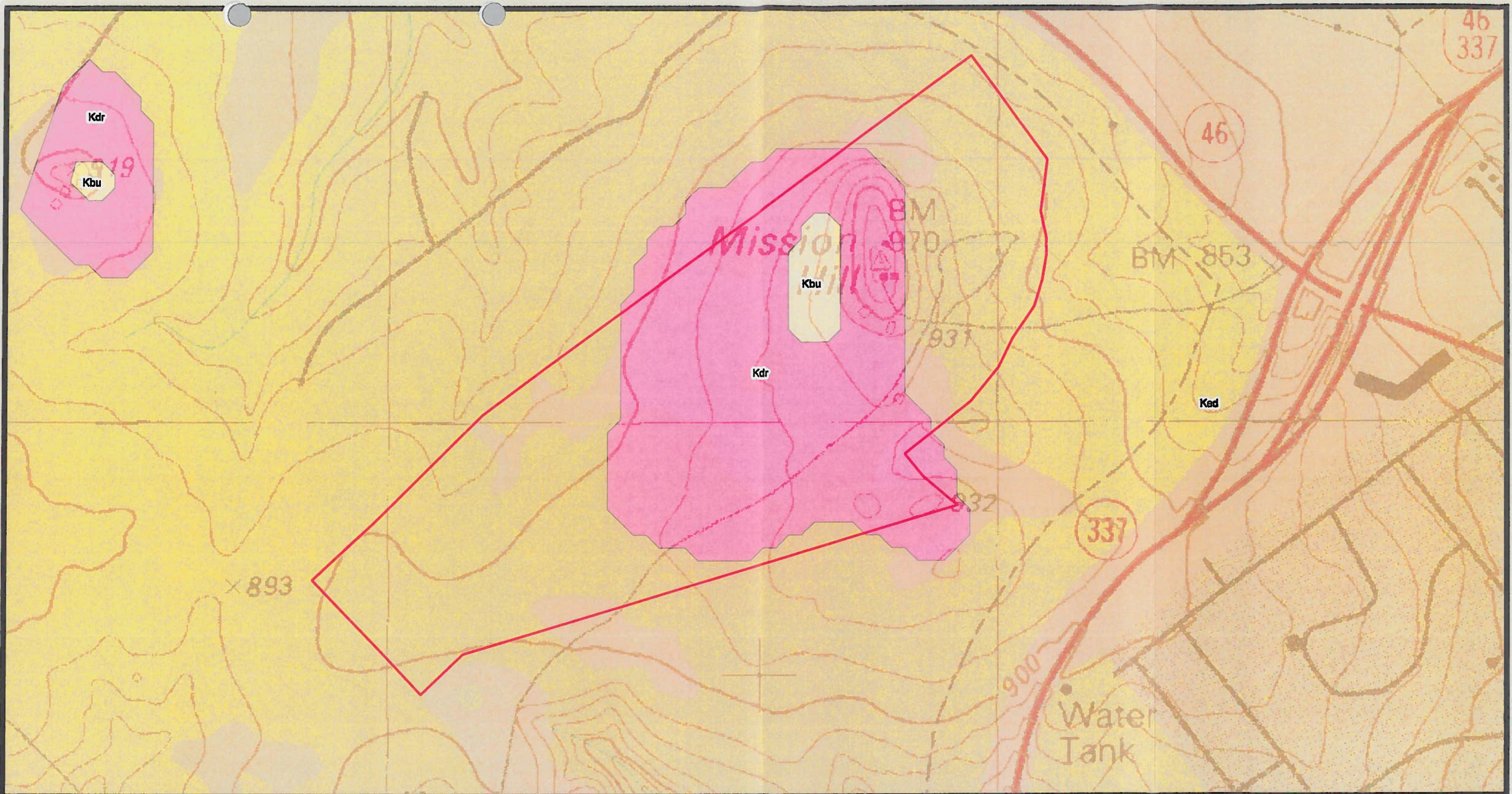


500
Ea

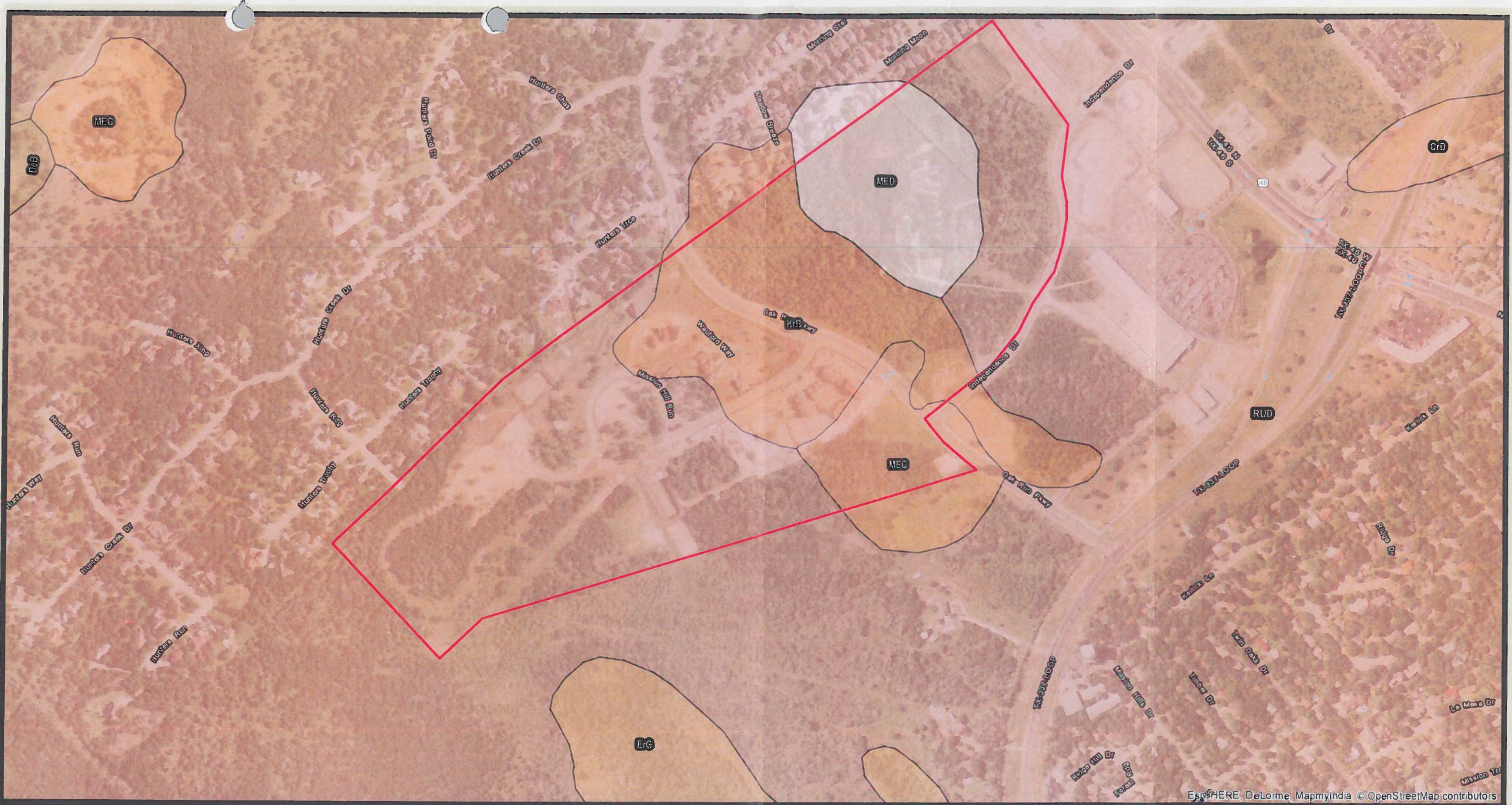
aci
consulting
austin • denver

Figure 2
Stratigraphic Column
Weston Tract (121-acre portion)

System	Group or Formation	Thickness	Description
Upper Cretaceous	Buda Limestone (Kbu)	0 - 15 feet	Fine-grained, hard, pyritiferous, light tan to gray limestone. Scattered pelecypods noted during reconnaissance.
Lower Cretaceous	Del Rio Clay (Kdr)	Unknown	Dark gray to olive brown, calcareous clay, some pyretic.
Lower Cretaceous	Edwards Limestone (Ked)	Unknown	Mostly hard and dense, thin bedded, dark gray, fine to medium grained limestone, some dolomitic. Tree cover is sparse in western portion of formation.

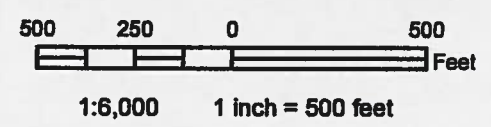


Weston 121-Acre Tract Geologic Assessment
Figure 3: Topographic Map with Formation Outcrops



Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

This map is intended for planning purposes only. All map data should be considered preliminary and all boundaries and designations are subject to confirmation.



Subject Area

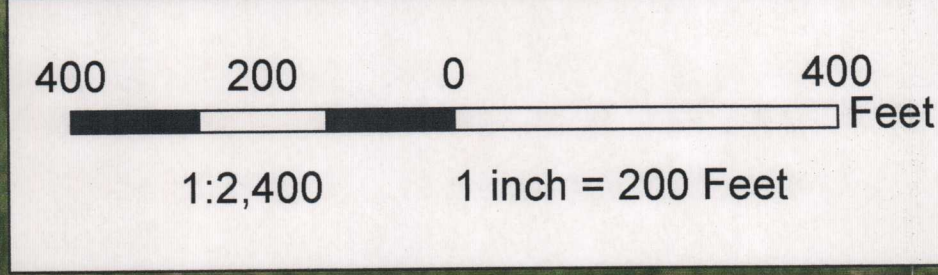


Weston 121-Acre Tract Geologic Assessment
Figure 4: Site Soils

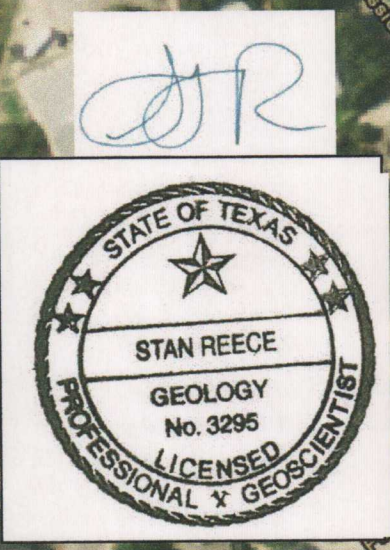
January 2015

Figure 5: Feature Locations
121-acre Weston Tract GA
Comal County, Texas
January 2015

Disclaimer:
This map is intended for planning purposes. All boundaries
and designations are subject to confirmation.



2015.01.05
09:54:39 -06'00'



**GEOLOGIC ASSESSMENT
FOR
WESTPOINTE OUTPARCEL**

Comal County, Texas

November 2011

Prepared for:

Westpointe Residential LTD.
11202 Disco Drive
San Antonio, Texas 78216

Prepared by:

aci consulting
1001 Mopac Circle
Austin, Texas 78746

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), 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. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Mark T. Adams

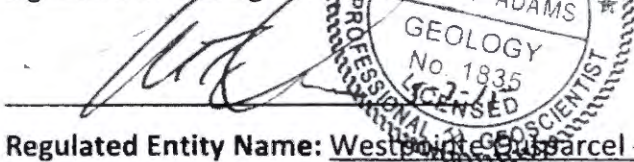
Telephone: 512-347-9000

Date: May 7, 2015

Fax: 512-306-0974

Representing: aci Group LLC TBPG License No. 50260 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Westpointe Ranch - Comal County, Texas

Project Information

1. Date(s) Geologic Assessment was performed: November 3, 2011

2. Type of Project:

☒ WPAP

☐ AST

☒ SCS

☐ UST

3. Location of Project:

☒ Recharge Zone

☐ Transition Zone

☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Krum clay (Krb), gently sloping	C	4-5
Rumple-Comfort association (RUD), undulating	D	2.5

Soil Name	Group*	Thickness(feet)

** Soil Group Definitions (Abbreviated)*

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'
- Applicant's Site Plan Scale: 1" = 200'
- Site Geologic Map Scale: 1" = 200'
- Site Soils Map Scale (if more than 1 soil type): 1" = 200'
9. Method of collecting positional data:
- ☒ Global Positioning System (GPS) technology.
 - ☐ Other method(s). Please describe method of data collection: _____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.
12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- ☐ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- ☐ The wells are not in use and have been properly abandoned.
- ☐ The wells are not in use and will be properly abandoned.
- ☐ The wells are in use and comply with 16 TAC Chapter 76.
- ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	SCOPE.....	1
3.0	INVESTIGATION METHOD	1
4.0	PROPOSED SURVEY AREA USE.....	1
5.0	REGIONAL AND SITE GEOLOGY	2
6.0	KARST FEATURES IN COMAL COUNTY, TEXAS.....	2
7.0	SITE SOILS	2
8.0	PREVIOUS SITE INVESTIGATIONS	3
9.0	DESCRIPTION OF SITE FEATURES	3
10.0	SUMMARY OF FINDINGS.....	4
11.0	RECOMMENDATIONS	4
12.0	REFERENCES.....	5

LIST OF TABLES

Table 1: Geologic Assessment Table

LIST OF FIGURES

Figure 1: Site Location
Figure 2: Stratigraphic Column
Figure 3: Topographic Map with Formation Outcrops
Figure 4: Site Soils
Figure 5: Feature Locations

November 2011

Geologic Assessment for Westpointe Outparcel, Comal County, Texas

1.0 INTRODUCTION

The purpose of this task is to identify "karst" features during a pedestrian survey for the site known as Westpointe Outparcel. The area is being assessed as part of the larger Westpointe Residential development. The approximate 0.64-acre Westpointe Outparcel site, hereafter referred to as the subject area is located on the southwest corner of Oak Run Parkway and Hunters Trace Drive in New Braunfels, Comal County, Texas (**Figure 1**).

2.0 SCOPE

This report is intended to satisfy the requirements for a Geologic Assessment (GA). This GA is for informational purposes only. The scope of the report consists of a field survey and review of existing data and reports. Features identified during the field survey are ranked utilizing the Texas Commission on Environmental Quality (TCEQ) matrix for Edwards Aquifer Recharge Zone Features. The ranking of the features determines their viability as a recharge feature.

3.0 INVESTIGATION METHOD

The following investigation methods and activities were used to develop this report:

- A review of existing files and literature to determine the regional geology and known caves associated with the property;
- A review of past geological field reports, cave studies, and correspondence regarding the existing geologic features on the property;
- A site reconnaissance performed by a registered professional geologist to identify and examine caves, recharge features, and other significant geological features; and,
- Evaluation of collected field data and a ranking of features using the TCEQ Ranking Table 0585 for the Edwards Aquifer Recharge Zone.

4.0 PROPOSED SITE AREA USE

The project area is part of a larger residential development.

5.0 REGIONAL AND SITE GEOLOGY

The site lies within the Edwards Aquifer Recharge Zone as defined by the TCEQ (TCEQ 2001). The geologic strata overlying the Edwards Aquifer in this area of Comal County include the Buda Limestone (Kbu) and the Del Rio Formation overlying the Edwards Aquifer units which include; the Georgetown Formation (Kgt), the Pearson Formation (Kep), the Kainer Formation (Kck) and Walnut Formation (Kw). The dominant structural trend of known faults in the area is to the northeast on a bearing of approximately 40 to 50 degrees to the northeast (USGS, New Braunfels West Quadrangle, 1993).

Surface geology of the site is identified as the Del Rio Formation (Kdr). Limited outcrops of the Del Rio Formation occurs on the site as dark gray to brown, calcareous clay. Some limestone outcrops are dolomitic in nature. **Figure 2** depicts the stratigraphic column for the site. A topographic map with formation outcrops is included as **Figure 3**.

6.0 KARST FEATURES IN COMAL COUNTY, TEXAS

In limestone terrains, karst is expressed by erratically developed cavernous porosity and the manifestations of sinkholes, voids, and erratic surface drainage. Karst landscapes are typical of the Edwards Group, occurring across a vast region of Central Texas west of the Balcones Escarpment, and these processes are critical to understanding the Edwards Aquifer within its various segments. The features produced by karst processes (voids, holes, and solution layers) eventually provide conduits for surface water runoff and "point recharge" for the Edwards aquifer. The identification and protection of these features in established recharge areas is critical to maintaining groundwater quality and species habitat. The United States Fish and Wildlife Service (USFWS) and the TCEQ require protective strategies within these areas to ensure recharge and endangered species habitat protection prior to, during, and upon completion of construction activities. The subject area is located in Comal County which is not within an area where endangered karst invertebrates exist or may be known to exist and there are no plans for any construction-related activities at this time.

7.0 SITE SOILS

The description of the site soils are derived from two sources:

- Utilization of the "Soil Survey of Comal County, Texas," January, 1984, compiled by the United States Department of Agriculture (USDA) Natural Resource Conservation Service; and,
- Field observations made during the site reconnaissance.

Two soil units are identified within the subject area:

Krum clay (Krb) – 1 to 3 percent slopes – These gently sloping soils occur on stream terraces and valley hills. Typically, the surface layer consists of dark gray clay about 16 inches thick with subsoil, to a depth of 58 inches, consisting of grayish, brown clay. This soil is typically well-drained with moderate permeability.

Rumple-Comfort association (RUD), undulating – This association consists of shallow to moderately deep upland soils in the Edwards Plateau area. Rumple soils make up approximately 60 percent of the association, Comfort soils make up 20 percent, and other soils, mainly Tarpley soils, make up 20 percent. The typical surface layer of the Rumple soil consists of dark reddish-brown cherty clay loam about 10 inches thick. The subsoil to a depth of 28 inches is dark reddish-brown extremely stony clay.

The surface layer of the Comfort soil is dark brown, extremely stony clay to about 7 inches. The subsoil to a depth of 12 inches is dark, reddish-brown, mildly alkaline, extremely stony clay. The underlying material is indurated non-calcareous fractured limestone throughout. All soils in this association are well-drained with moderate surface runoff.

A site soils map is included as **Figure 4**.

8.0 PREVIOUS SITE INVESTIGATIONS

The initial site visits and GA preparation for this property occurred on November 3, 2011. Prior to that, there are no known previous site investigations conducted for this property according to information received from the property developer.

9.0 DESCRIPTION OF SITE FEATURES

All features listed below were assessed by aci personnel during site visits conducted on November 3, 2011. There was one manmade feature identified at the site by aci personnel. A feature location map with geology overlay is included as **Figure 5**. The feature descriptions are as follows:

Feature WPO-1:



This is a manmade feature in bedrock and identified as a storm sewer. The feature appears to have been back filled in with local earthen material at the surface and presumably appropriate bedding material around the pipe. The feature is approximately 3 feet wide and extends across the site to the northeast. The infiltration rate is moderate (15 points). The TCEQ Geologic Assessment sensitivity rating is 45.

Recommendations: No further activities are recommended for this feature unless development occurs on the site which would require appropriate BMPs.

10.0 SUMMARY OF FINDINGS

One manmade feature was identified within the subject area.

11.0 RECOMMENDATIONS

No further activities are recommended for the feature that was found unless construction occurs.

12.0 REFERENCES

United States Geological Survey (USGS). 1993. New Braunfels West Quadrangle, Bureau of Economic Geology, The University of Texas at Austin.

Soil Conservation Service. 1984. Soil Survey of Comal County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.

(TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. November 28, 2001. Austin, Texas.

TABLES

FIGURES



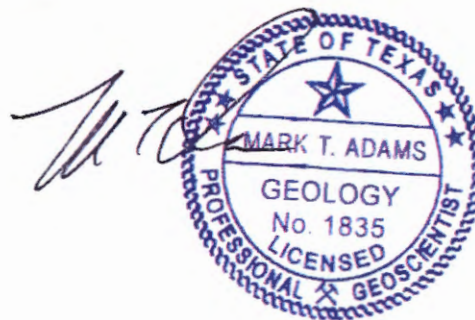
Westpointe Outparcel
Figure 1: Site Location

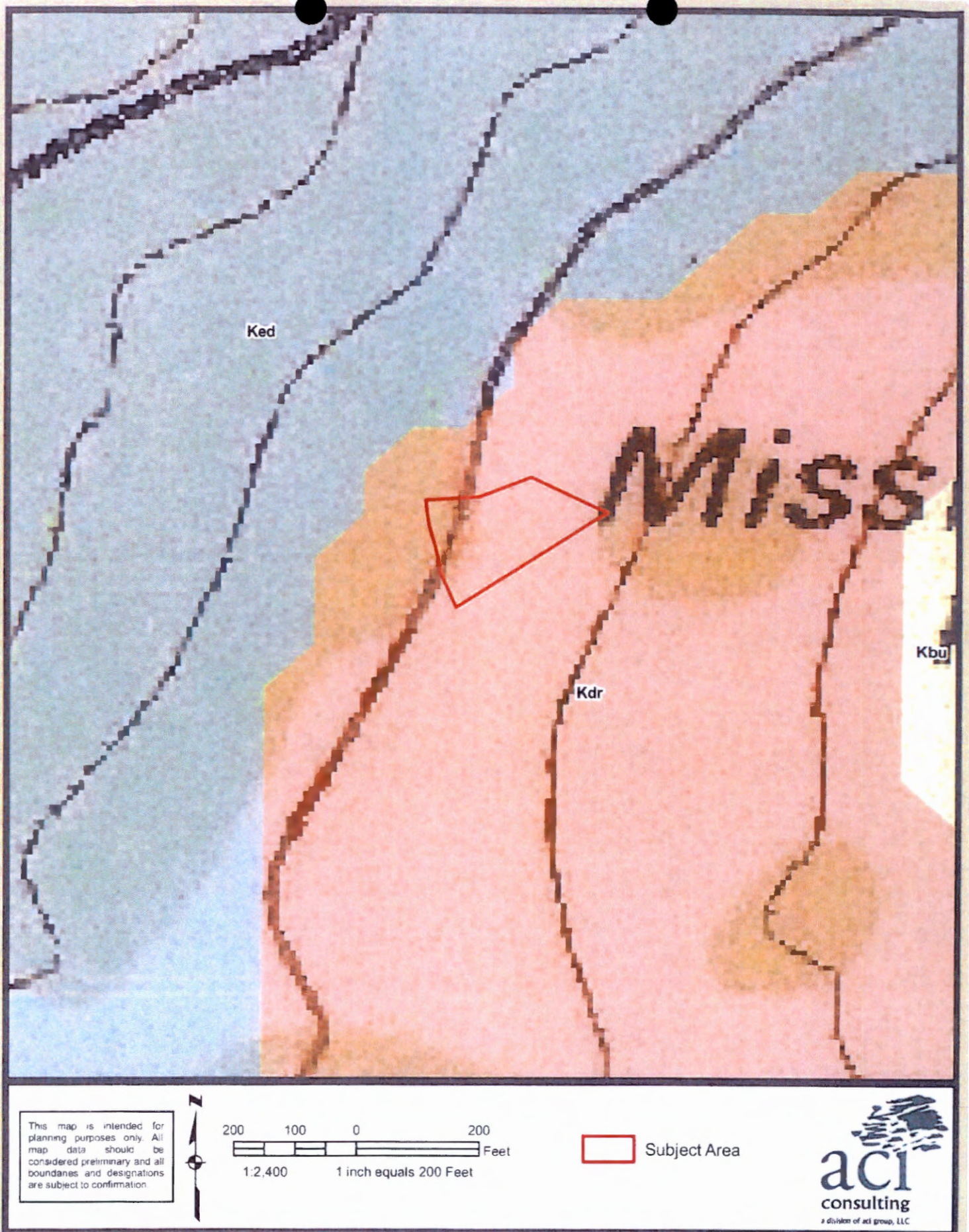
November 2011

Figure 2
Stratigraphic Column
Westpointe Outparcel

System	Group or Formation	Thickness	Description
Upper Cretaceous	Buda Limestone (Kbu)	0 - 15 feet	Fine-grained, hard, pyritiferous, light tan to gray limestone. Scattered pelecypods noted during reconnaissance.
Lower Cretaceous	*Del Rio Clay (Kdr)	Unknown	Dark gray to olive brown, calcareous clay, some pyretic.
Lower Cretaceous	Edwards Limestone (Ked)	Unknown	Mostly hard and dense, thin bedded, dark gray, fine to medium grained limestone, some dolomitic. Tree cover is sparse in western portion of formation.

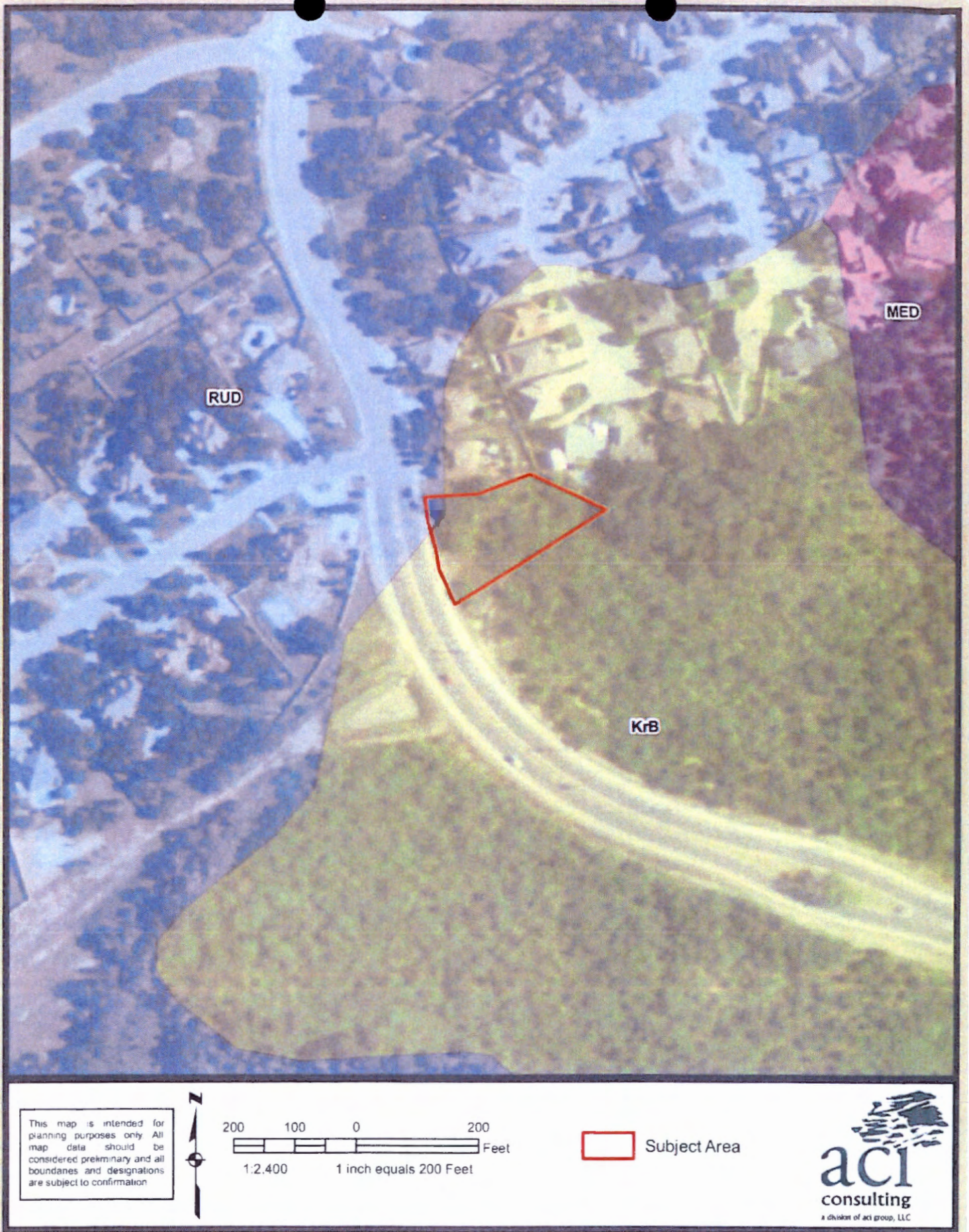
* Reported surface unit. No outcrops identified.





Westpointe Outparcel
Figure 3: Topographic Map and Formation Outcrops

November 2011

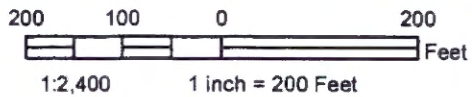


Westpointe Outparcel
Figure 4: Site Soils

November 2011



This map is intended for planning purposes only. All map data should be considered preliminary and all boundaries and designations are subject to confirmation.



- Feature
- Subject Area



WATER POLLUTION ABATEMENT PLAN APPLICATION

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), 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.

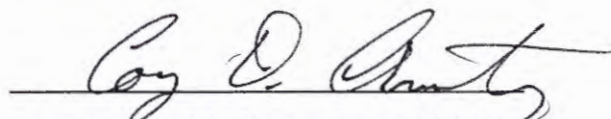
Signature

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 **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Coy D. Armstrong, P.E.

Date: 5/14/15

Signature of Customer/Agent:



Regulated Entity Name: Emerald Cottage

Regulated Entity Information

1. The type of project is:

- ☐ Residential: Number of Lots: _____
- ☒ Residential: Number of Living Unit Equivalents: 68
- ☐ Commercial
- ☐ Industrial
- ☒ Other: Undetermined Commercial/Multi-Family

2. Total site acreage (size of property): 19.33

3. Estimated projected population: 102

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	151,997	$\div 43,560 =$	3.49
Parking	209,900	$\div 43,560 =$	4.82
Other paved surfaces	308,056	$\div 43,560 =$	7.07
Total Impervious Cover	669,953	$\div 43,560 =$	15.38

Total Impervious Cover $15.38 \div$ Total Acreage $19.33 \times 100 = 80\%$ Impervious Cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. 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.

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

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

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 =$ _____ % impervious cover.

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

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

12. ☐ 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

13. ☒ **Attachment B - 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 the 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

14. The character and volume of wastewater is shown below:

<u>100</u> % Domestic	<u>7,140</u> Gallons/day
<u> </u> % Industrial	<u> </u> Gallons/day
<u> </u> % Commingled	<u> </u> Gallons/day
TOTAL gallons/day <u>7,140</u>	

15. Wastewater will be disposed of by:

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

☐ **Attachment C - 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):

☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

☒ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

☒ The SCS was previously submitted on May 21, 2009.

☒ The SCS was submitted with this application.

☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

- ☒ The sewage collection system will convey the wastewater to the Gruene Wastewater (name) Treatment Plant. The treatment facility is:

- ☒ Existing.
☐ Proposed.

16. ☒ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

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

Site Plan Scale: 1" = 200 '.

18. 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): Federal Emergency Management Agency Community Panel No. 48091C0435F, Effective Date September 25, 2009.

19. ☒ 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, open space, etc. are shown on the plan.

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

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

- ☒ There are 1 (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

- ☐ The wells are not in use and have been properly abandoned.

- ☒ The wells are not in use and will be properly abandoned.

- ☐ The wells are in use and comply with 16 TAC §76.

- ☐ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

- ☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

- ☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

- ☐ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.
22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☐ Surface waters (including wetlands).
- ☒ N/A
27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.
- ☒ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

ATTACHMENT A

FACTORS AFFECTING WATER QUALITY

FACTORS AFFECTING WATER QUALITY

DURING CONSTRUCTION

Non-Storm Water Discharges - The following non-storm water discharges may occur from the site during the construction period:

- Non-point discharge of paint and solvents
- Water used to wash vehicles or control dust
- Water from utility line flushing during initial line testing
- Petroleum drippings from vehicle movement
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from dewatering of excavation)
- Silt Runoff from soil disturbance
- Trash and Debris (Litter) and discarded Food and Tobacco Products

All non-storm water discharge will be directed to the Erosion and Sedimentation Controls (Best Management Practices) to remove any suspended solids contained therein. Material management practices will be utilized to reduce the risk of spills, or other accidental exposure of the materials listed above to storm water runoff. These and any other sources of pollutants that may affect storm water quality will be screened and filtered by temporary BMPs, which will be installed prior to the commencement of site clearing.

POST CONSTRUCTION

Non-Storm Water Discharges after construction has been completed which can affect water quality include:

- Lawn fertilizer and pesticides
- Petroleum drippings from vehicle movement
- Cleaning products used out-of-doors not captured in sanitary sewer
- Landscape Maintenance

Post-construction storm water discharges typically will transport sediment in the form of dirt and dust accumulated on streets and other impervious flatwork, rooftops and sediment from erosion of grassy areas. That material will be transported through the storm sewer system to the water quality pond, where most of the pollutants will be removed.

ATTACHMENT B

VOLUME AND CHARACTER OF STORM WATER

VOLUME AND CHARACTER OF STORM WATER

The project site is defined by four (4) minor existing drainage areas and they generally drain towards the west side of the property. The existing drainage area will produce a peak flow of ± 46 cubic feet per second (cfs) during a 100-year storm event. The table below shows the runoff values for this project. This existing drainage areas naturally convey storm water off-site via overland flow, eventually discharging into Blieders Creek. An Existing Drainage Area Map is within the site plan set. In the proposed conditions, storm water is to be captured via an onsite storm sewer system which will convey all water to the water quality and detention pond, and ultimately to Blieders Creek.

The proposed pond design consist of a partial sedimentation/filtration water quality pond which then discharges to the proposed detention pond; both located on the west side of the site. The proposed detention pond has been sized to detain the 100-year storm event and has been designed such that the proposed flows will not exceed the existing flows at the existing outfall. A Proposed Drainage Area Map is provided within this WPAP application package.

The water quality pond has been designed to treat three (3) drainage areas: DA-1, DA-2 and DA-3. The proposed multi-family development consist of drainage areas DA-2, DA-3 and DA-4 which consist of ± 8.31 acres of impervious cover. Drainage area DA-1 is being considered for future land use and consist of ± 8.32 at 85% impervious cover. The water quality pond and detention pond have been designed to treat and capture a total of ± 19.33 acres at 80% impervious cover.

Erosion Controls will be installed to decrease and/or prevent sediment runoff during construction. The TCEQ TSS Removal Calculations spreadsheet for the proposed site is located on the water quality pond sheet attached construction plans. Please reference the following sheets in the attached construction plans for more details on the drainage, pond calculations, and design:

Existing Drainage Area Map Exhibit
Proposed Drainage Area Map Exhibit
Water Quality Pond
Water Quality Pond Notes & Details

EXISTING AND PROPOSED CONDITIONS

Existing Drainage Areas	10-Yr	100-Yr	Proposed Drainage Areas	10-Yr	100-Yr
ALL	24	46	ALL	116	191.2

ATTACHMENT C

SUITABILITY LETTER FROM AUTHORIZED AGENT
(Not Applicable)

ATTACHMENT D

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT
(Not Applicable)

TEMPORARY STORM WATER SECTION

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.

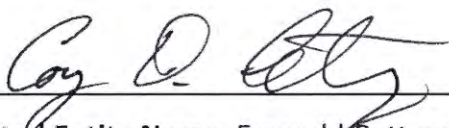
Signature

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: Coy D. Armstrong, PE

Date: 5/14/15

Signature of Customer/Agent:



Regulated Entity Name: Emerald Cottages

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: Blieders 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.

ATTACHMENT A

SPILL RESPONSE ACTIONS

SPILL RESPONSE ACTIONS

Potential Source:

Spills of Hydrocarbons or other hazardous substances and materials.

Preventative Measures:

The following practices will be used to reduce the risks associated with hazardous materials, if hazardous materials are needed for the work:

Education/General Measures

1. Products will be kept in original containers unless they are not re-sealable.
2. Original labels and material safety data will be retained.
3. Modify the Storm Water Pollution Prevention Plan to include the information dealing with, and the steps needed to correct, the encountered hazardous waste spill.
4. 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 available in 30 TAC 327.4 and 40 CFR 302.4.
5. Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
6. Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
7. Establish a continuing education program to indoctrinate new employees.
8. Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.
9. To the extent that the work can be accomplished safely, spills of oil, petroleum products, and substances listed under 40 CFR parts 110, 117, and 302, as well as sanitary and septic wastes should be contained and cleaned up immediately.
10. Store hazardous materials and wastes in covered containers and protect from vandalism.
11. Place a stockpile of spill cleanup materials where it will be readily accessible.
12. Train employees in spill prevention and cleanup.
13. Designate responsible individuals to oversee and enforce control measures.
14. Spills should be covered and protected from storm water run-on during rainfall to the extent that it doesn't compromise clean up activities.
15. Do not bury or wash spills with water.

16. Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.
17. 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.
18. Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.
19. 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.
20. 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.

If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal will be followed.

Spill Measures:

In the event that hazardous wastes are encountered, they will be disposed of in the manner specified by local or state regulations.

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

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

Spills of hazardous waste in amounts that equal or exceed Reportable Quantity (RQ), as defined by the EPA through issued regulations (40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302), will be handled in the following steps:

1. Notify the National Response Center immediately at 1-800-424-8802.
2. Notify TCEQ immediately at 1-210-490-3096 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.
3. Submit a written description of the release to the EPA Region 11 office providing the date and circumstances of the release and the steps to be taken to prevent another release:

Attn: Hazardous Waste Dept.
1445 Ross Ave. STE 1200
Dallas, TX 75202
1-214-665-2224 (Region 6 Emergency Line)
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.state.tx.us/response/spills.html>.

Vehicle Measures:***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 run-on of storm water 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 a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
5. Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.
6. Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.
7. Oil filters disposed of in trashcans or dumpsters can leak oil and pollute storm water. Place the oil filter in a funnel over a 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.
8. Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all 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 drainage courses, to prevent the run-on of storm water 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 catch spills/leaks.

ATTACHMENT B

POTENTIAL SOURCES OF CONTAMINATION

POTENTIAL SOURCES OF CONTAMINATION

Potential Source:	Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle dripping.
Preventative Measures:	Vehicle maintenance when possible will be performed within the construction staging area or at a local maintenance shop.
Potential Source:	Miscellaneous trash and litter from construction workers and material wrappings.
Preventative Measures:	Trash containers will be placed throughout the site to encourage proper trash disposal.
Potential Source:	Silt leaving the site; construction debris.
Preventative Measures:	Contractor will monitor all vehicles leaving the site to prevent tracking silt and mud onto public streets. The contractor will ensure that trucks will be washed down to minimize the amount of silt leaving the site.
Potential Source:	Connection to existing sewer lines.
Preventive Measures:	Contractor shall tie into existing sewer line per NBU Regulations and Standards via a sanitary sewer manhole. A manhole detail is provided by NBU and shown in the construction details. Any leakage of sewage from the existing wastewater line due to the connection will be cleaned up immediately.
Potential Source:	Construction related portable toilets.
Preventive Measures:	Any on-site portable toilets will be in good working order with no defects that cause leaks. All portable toilets will be maintained to ensure no overflowing of sewage.
Potential Source:	Concrete and asphalt products.
Preventive Measures:	Shall be hauled in a manner consistent with the manufacturer's recommendations. Disposal of waste material shall be in conformance with All State and Local Laws.

ATTACHMENT C

SEQUENCE OF MAJOR ACTIVITIES

SEQUENCE OF MAJOR ACTIVITIES

The sequence of work described below will be accomplished through the timing of proposed work relating the maintenance of service (i.e. proposed utility installation as compared to the removal/abandonment of existing utilities). Below is a general sequence of events to be followed:

1. Obtain all required permits.
2. Install all Erosion Control Measures and Devices that can be installed prior to site clearing.
3. Clear site for streets and pond.
4. Install any remaining Control Measures and Devices that could not be installed prior to site clearing.
5. Grade site. Install Erosion Control around catch basins and Temporary Sediment Basin.
6. Set Sewage Collection System manholes and install all underground utilities and piping.
7. Install Erosion Control around catch basins.
8. Install pavement.
9. Install commercial structures.
10. Inspect and maintain all erosion control measures until all disturbed offsite and onsite areas have been hydro-mulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
11. Clear site for proposed ponds.
12. Inspect and maintain all erosion control measures until all disturbed offsite and on-site areas have been hydromulched or sodded in accordance with the landscape plan and a mowable stand of grass is achieved.
13. The environmental project manager will schedule a mid-construction conference to coordinate changes in the construction schedule and evaluate effectiveness of the erosion control plan after possible construction alterations to the site. Participants shall include the city inspector, project engineer, general contractor and environmental project manager. The anticipated completion date and final construction sequence and inspection schedule will be coordinated with the appropriate City Inspector.

TOTAL SITE AREA/TOTAL DISTURBED AREA

The total area of the site is ± 19.33 acres. Excavation, grading, or other activities throughout the construction process will disturb approximately ± 15 acres. Post-construction impervious coverage will total ± 15.38 acres.

ATTACHMENT D

TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

TEMPORARY BMPS

At the beginning of the project, Temporary Best Management Practices (BMPs) will be installed according to the attached Temporary BMP Details and placed as shown on the TBMP Site Plan.

The site is located northwest corner of Oak Run Parkway and Independence Drive intersection. Upgradient water from the undeveloped site of the proposed development will be captured through a storm channel and conveyed west to the proposed water quality pond and proposed detention pond.

On-site Water

Silt fencing will be placed along the boundary line of the tracts. Inlet protection will be placed as necessary to protect the proposed inlets onsite. These Temporary BMPs will be installed along the down-gradient boundary of the property to filter all runoff that originates on site as indicated in the report. A temporary sediment basin will be installed. The temporary construction entrance will be installed to prevent tracking materials offsite. Additionally, a concrete truck washout area will be placed onsite and be accessible to all existing traffic leaving the site. By this, the Temporary BMPs will prevent pollution of surface water that originates on-site due to the construction of the project.

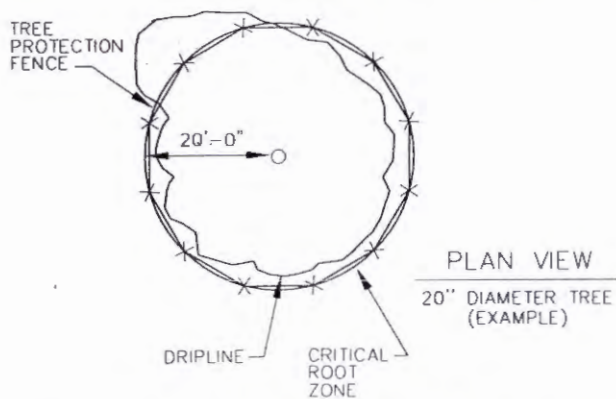
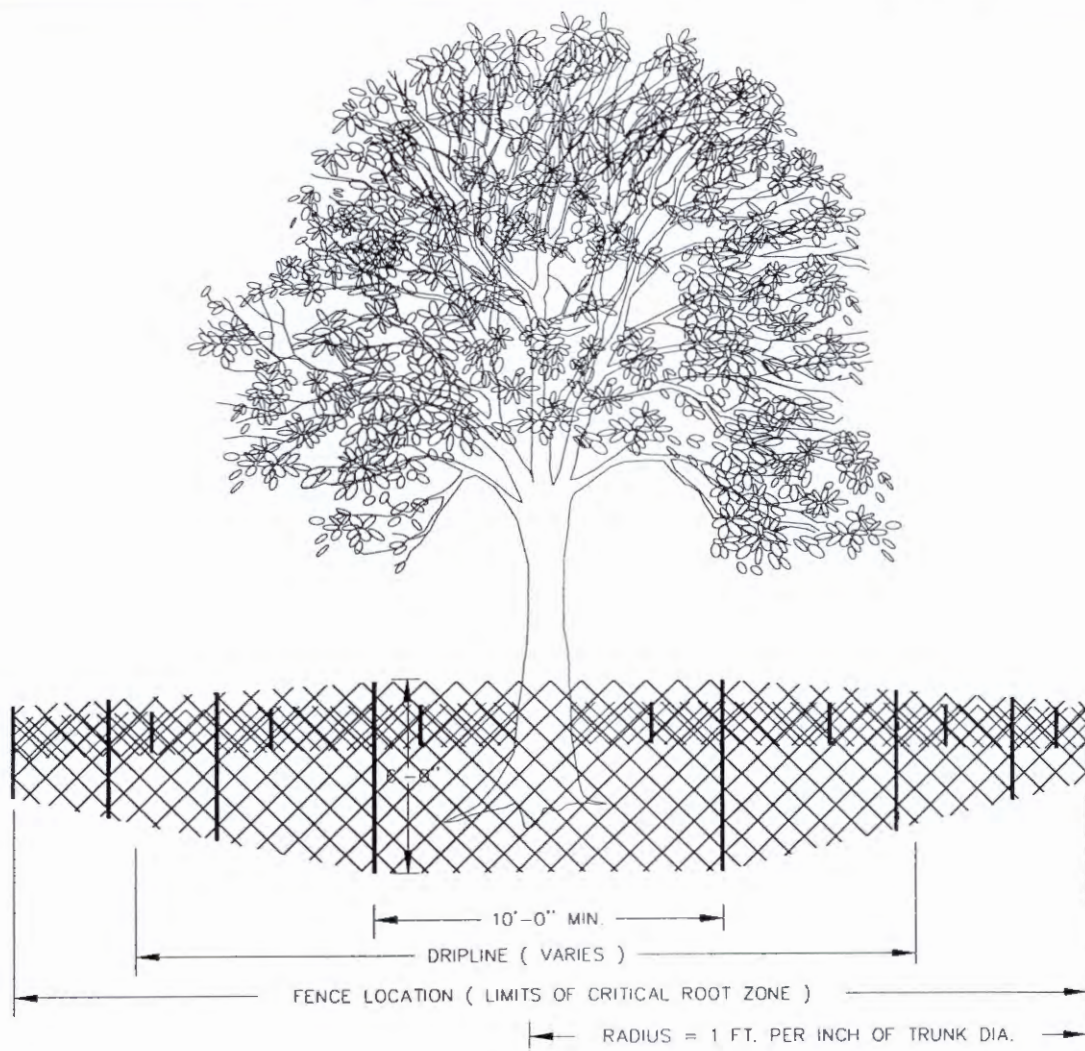
The following sections were taken from the TNCC Manual, "Complying with Edward Aquifer Rules: Technical Guidance on Best Management Practices."

- Construction Exit should be used at all designated access points.
 - Silt Fence (interior) Areas of minor sheet flow. < ¼ acre/100 feet of fence < 20% slopes.
 - Silt Fence (exterior) Down slope borders of site; up slope border is necessary to divert offsite drainage. For larger areas use diversion swale or berm. < ¼ acre/100 feet of fence < 20% slopes.
 - Rock Berm Drainage swales and ditches with and below site. < 5 acres < 30% slopes.
 - Inlet Protection Prevent sediment from entering storm drain system. < 1 acre.
 - Spill Prevention Used on all sites to reduce spills.
 - Concrete Washout Use on all concrete pouring operations.
- A. A description of how BMPs and measures will prevent pollution of surface water, groundwater or storm water that originates upgradient from the site and flows across the site.
1. The upgradient storm water will be directed to the previously mentioned temporary BMPs.
- B. 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 storm water runoff from the site.
1. Silt fence and stabilized construction entrances shall be used to prevent pollution of surface water, groundwater or storm water that originates on-site or flows off-site by locating the TBMPs downstream of the flows leaving the site.

The TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released into the existing storm sewer system. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process.

All TBMPs will be maintained by the Contractor as will be described in the Contractor's Storm water Pollution Prevention Plan (SWPPP). The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating on-site to the greatest extent practicable.

- C. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - 1. By locating the TBMPs downstream of the flows leaving the site, the TBMPs will reduce the amount of contaminated runoff leaving the site by acting as a filter for sediment before the flows are released. Also included is a stabilized construction entrance to reduce the amount of mud tracked onto surrounding streets by construction vehicles. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. All TBMPs will be maintained by the Contractor as will be described in the Contractor's SWPPP. The initial installation of Erosion and Sedimentation Controls, will act as a sediment trap, and help to prevent pollution of surface waters from runoff originating onsite to the greatest extent practicable.
- D. 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.
 - 1. There is one sensitive features on site according to the geologic assessment - Feature 6 of the Weston Geologic Assessment. The water well should be plugged and abandoned by a licensed water well driller prior to commencement of development activities.



TREE PROTECTION CONSTRUCTION FENCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B1

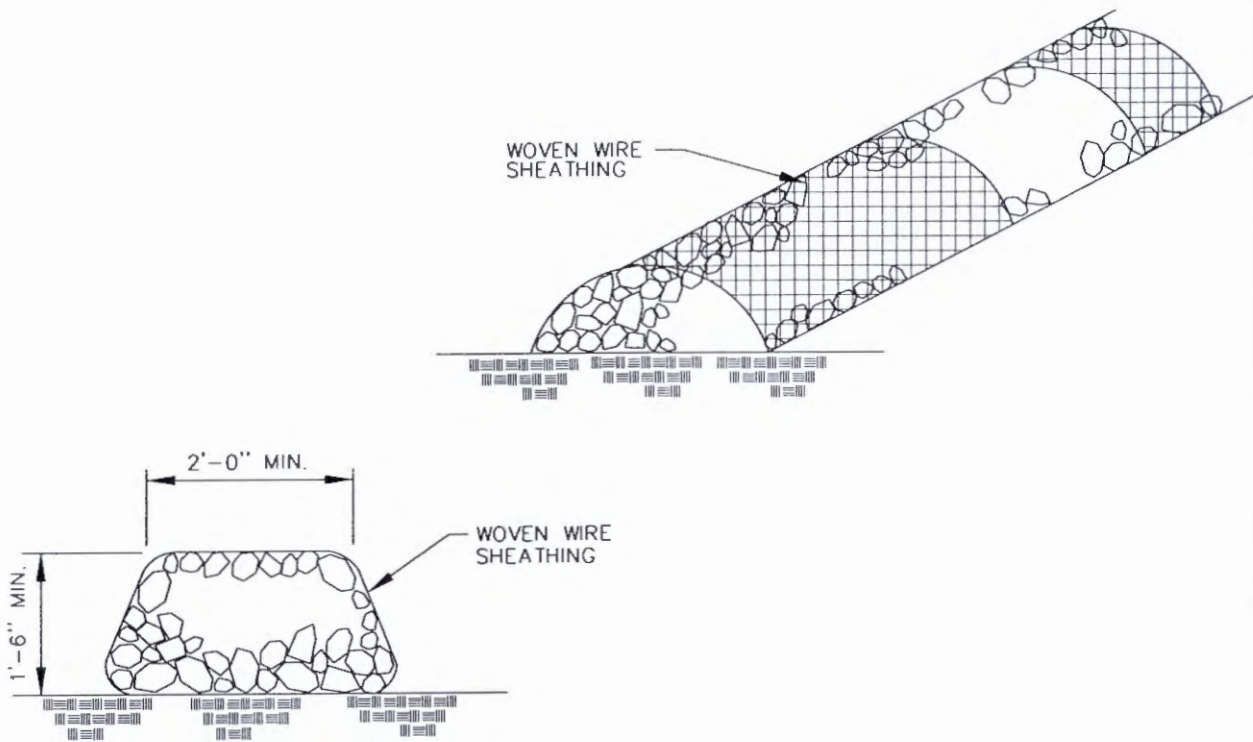
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\10729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No R0110729-50002



NOTES:

1. USE ONLY OPEN GRADED ROCK 4-8 INCH DIAMETER FOR STREAMFLOW 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 OPENINGS AND MINIMUM WIRE DIAMETER OF 20 GAUGE.
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 ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CREATE A SILTATION PROBLEM.
5. DAILY INSPECTION SHALL BE MADE ON SEVERE 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.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B2

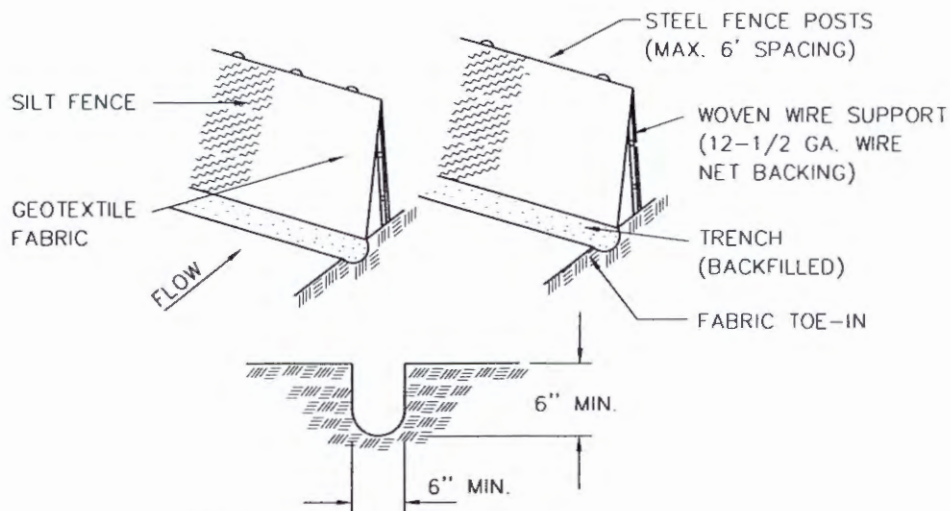
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: C:\110729\50002\EMERALD\15\TPOES Details.dwg

PROJECT No. R0110729-50002



TRENCH CROSS-SECTION

GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CAN NOT BE TREATED IN (e.g. pavement) WEIGHT FABRIC FLAP WITH WASHED GRAVEL ON UPHILL SIDE TO PREVENT FLOW UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POSTS OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6 INCHES. THE SILT SHALL BE DISPOSED OF IN AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

SILT FENCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B3

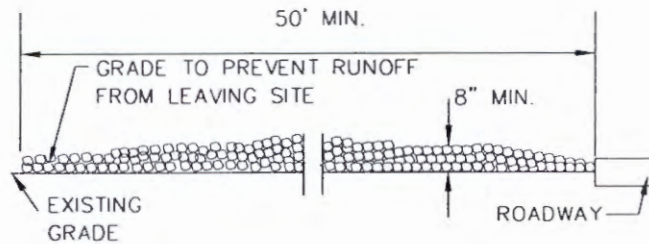
DATE: Dec 09, 2014

SCALE: NTS

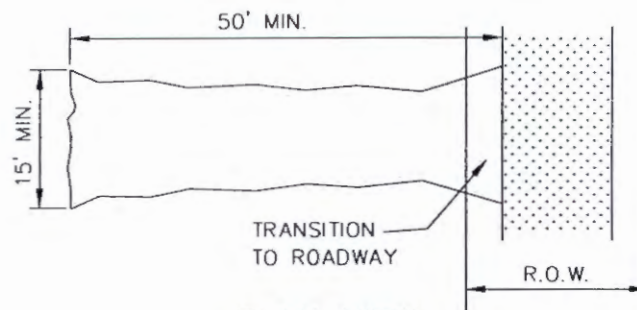
DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPE'S Details.dwg

PROJECT No: R0110729-50002



PROFILE
N.T.S.



PLAN VIEW
N.T.S.

GENERAL NOTES:

1. STONE SIZE- 3 TO 5 INCH OPEN GRADED ROCK.
2. LENGTH- AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS- NOT LESS THAN 8 INCHES.
4. WIDTH- NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING- WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE- ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B4

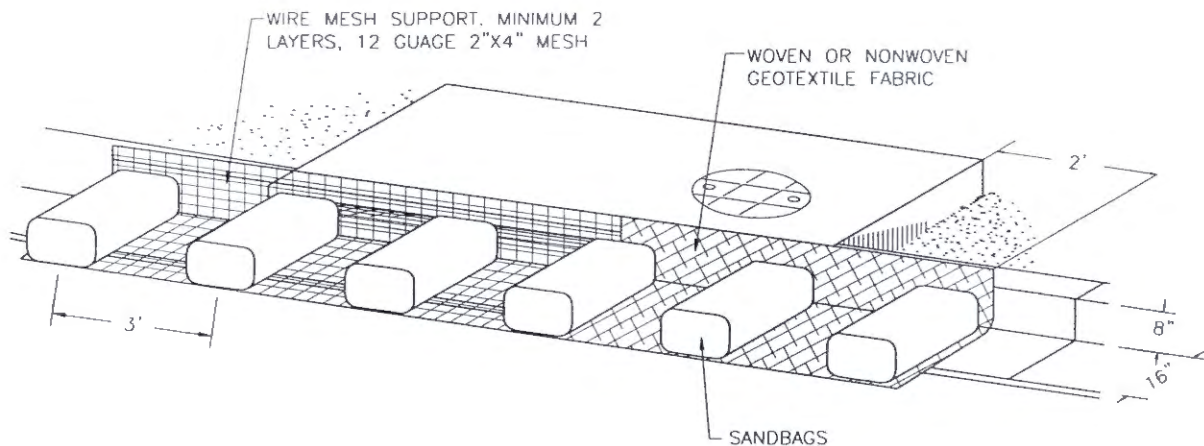
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES_Details.dwg

PROJECT No. R0110729-50002



NOTES:

1. WHEN A SANDBAG IS FILLED WITH MATERIAL, THE OPEN END OF THE SANDBAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CHORD.
2. INLET PROTECTION SHALL BE PLACED OVER THE MOUTH OF THE INLET WITH A 2 FOOT OVERLAP ONEITHER SIDE.
3. THE FABRIC COVER AND SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE.
4. THE SKIRT SHALL BE WEIGHTED WITH ONE 18"x24"x6" SANDBAG EVERY 3 FEET.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
6. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF FOUR INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
7. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 6 ABOVE.

CURB INLET PROTECTION BARRIER

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B5

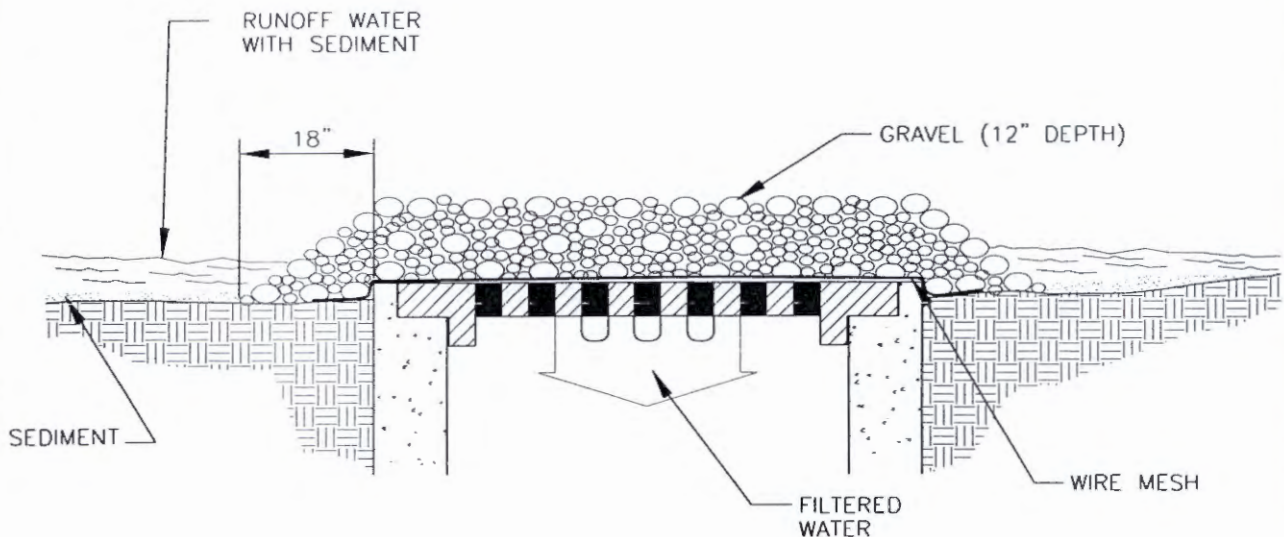
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No: R0110729-50002



NOTE:

- A. WIRE MESH SHALL BE LAID OVER THE DROP INLET SO THAT THE WIRE EXTENDS MINIMUM OF 1 FOOT BEYOND EACH SIDE OF THE INLET STRUCTURE. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS AND MINIMUM WIRE DIAMETER OF 24 GAUGE SHALL BE USED. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, THE STRIPS SHALL BE OVERLAPPED.
- B. AGGREGATE SHALL BE PLACED OVER THE WIRE MESH AS INDICATED ABOVE. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. THE STONE SHALL EXTEND BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
- C. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS IT'S FUNCTION, THE STONES MUST BE PULLED AWAY FROM THE INLET, CLEANED AND REPLACED.

INLET PROTECTION/SEDIMENT FILTER

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B6

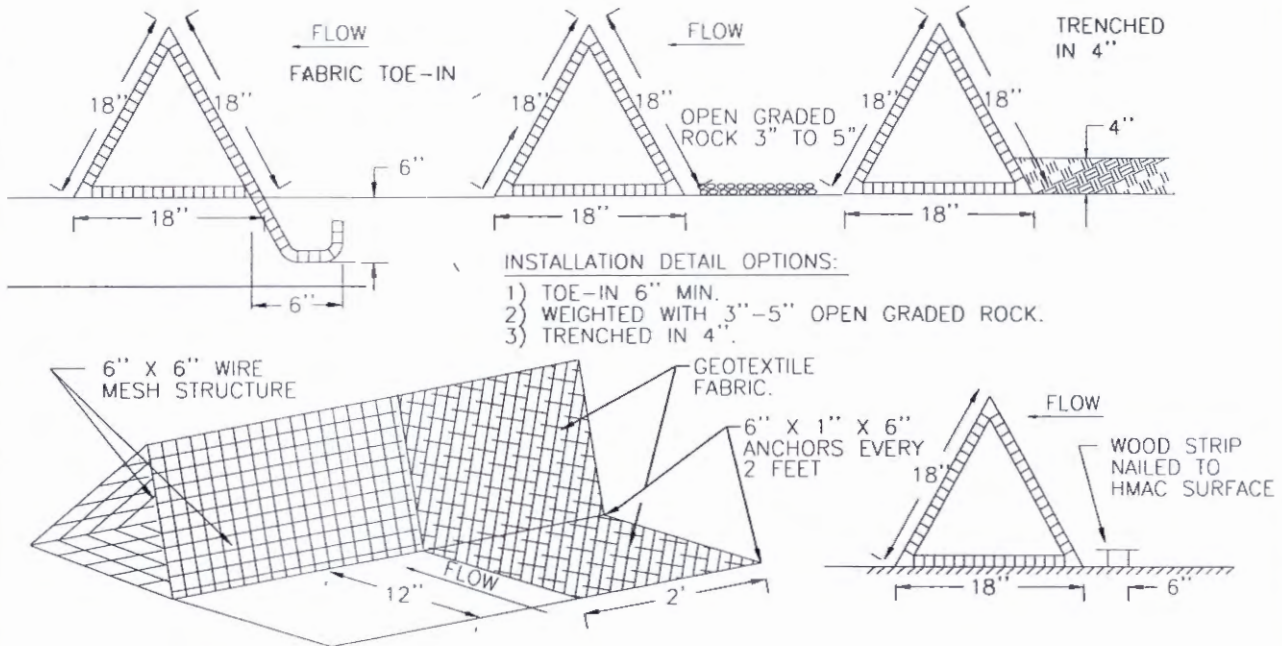
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\LEAD\TS\1PDES Details.dwg

PROJECT No R0110729-50002



NOTES:

1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 3"-5" OPEN GRADED ROCK, OR TOED-IN 6" WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 4" INCHES.
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 6 INCH WIRE STAPLES ON 2 FOOT CENTERS ON BOTH EDGES AND SKIRT, OR STAKED USING 3/8 INCH DIAMETER REBAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 6 INCHES TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE 6 GA. 6" X 6" WIRE MESH, 18 INCHES ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF SIX INCHES, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN NOTE 8 ABOVE.

TRIANGULAR FILTER DIKE

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B7

DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES_Details.dwg

PROJECT No: R0110729-50002

CONSTRUCTION SEQUENCE

1. OBTAIN REQUIRED PERMITS.
2. INSTALL ALL EROSION CONTROL MEASURES AND DEVICES THAT CAN BE INSTALLED PRIOR TO SITE CLEARING.
3. CLEAR SITE.
4. INSTALL ANY REMAINING CONTROL MEASURES AND DEVICES THAT COULD NOT BE INSTALLED PRIOR TO SITE CLEARING.
5. GRADE SITE.
6. INSTALL ALL UNDERGROUND UTILITIES. INSTALL EROSION CONTROL AROUND CATCH BASINS AND INLETS.
7. INSTALL PAVEMENT.
8. INSPECT AND MAINTAIN ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED OFFSITE & ONSITE AREAS HAVE BEEN HYDROMULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLAN AND A MOWABLE STAND OF GRASS IS ACHIEVED.

EROSION AND SEDIMENTATION CONTROL NOTES

1. EROSION CONTROL MEASURES, SITE WORK AND RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS FOR THIS PROJECT AS WELL AS THE CITY'S GENERAL REQUIREMENTS, WHICH PERTAIN TO THIS PROJECT.
2. ALL SLOPES SHALL BE SODDED OR SEEDED WITH APPROVED GRASS, GRASS MIXTURE OR GROUND COVER SUITABLE TO THE AREA AND SEASON IN WHICH THEY ARE APPLIED. (IN ACCORDANCE WITH LANDSCAPE PLANS)
3. BRUSH BERMS, SEDIMENTATION BASINS AND SIMILARLY RECOGNIZED TECHNIQUES AND MATERIALS, SHALL BE EMPLOYED DURING CONSTRUCTION TO PREVENT POINT SOURCE SEDIMENTATION LOADING OF DOWNSTREAM FACILITIES. ADDITIONAL MEASURES MAY BE REQUIRED IF, THEY ARE WARRANTED.
4. ALL TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL FINAL INSPECTION AND APPROVAL OF THE PROJECT BY THE CITY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL TEMPORARY EROSION CONTROL STRUCTURES AND TO REMOVE EACH STRUCTURE AS APPROVED BY THE CITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.

TPDES REQUIREMENT NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING NOTICE OF INTENT (NOI) TO TCEQ FOR THE TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM (TPDES) 48 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, OR POSTING A CONSTRUCTION SITE NOTICE 48 HOURS PRIOR TO CONSTRUCTION ACTIVITIES.
2. CONTRACTOR SHALL HAVE THIS PLAN AND THE TPDES STORM WATER POLLUTION PREVENTION PLAN ON SITE AT ALL TIMES THROUGHOUT DURATION OF PROJECT.
3. ALL DISTURBED AREAS NOT ADDRESSED BY LANDSCAPE ARCHITECT SHALL BE HYDROMULCHED PER SPECIFICATION DESCRIBED IN THE GENERAL NOTES.
4. CONTRACTOR SHALL PROVIDE TRIANGULAR SEDIMENT FILTER DIKE PER EXHIBIT B7 WHERE SILT FENCE IS REQUIRED BUT NOT INSTALLABLE.
5. CONTRACTOR SHALL SUBMIT NOTICE OF TERMINATION (NOT) TO THE TCEQ UPON PROJECT COMPLETION AS DESCRIBED IN THE PROJECT TPDES STORM WATER POLLUTION PREVENTION PLAN. IF PROJECT IS A PHASE I PROJECT (> 5 ACRES), ELSE STABILIZE PROJECT TO WITHIN 10% OR COMPLETE CONSTRUCTION.
6. CONTRACTOR TO RETAIN THE TPDES STORM WATER POLLUTION PREVENTION PLAN ALONG WITH ALL COMPLETED INSPECTION REPORTS AND PLAN MODIFICATIONS DOCUMENTATION FOR A PERIOD OF THREE (3) YEARS FROM DATE OF FINAL STABILIZATION, AS REQUIRED BY THE TCEQ.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B8

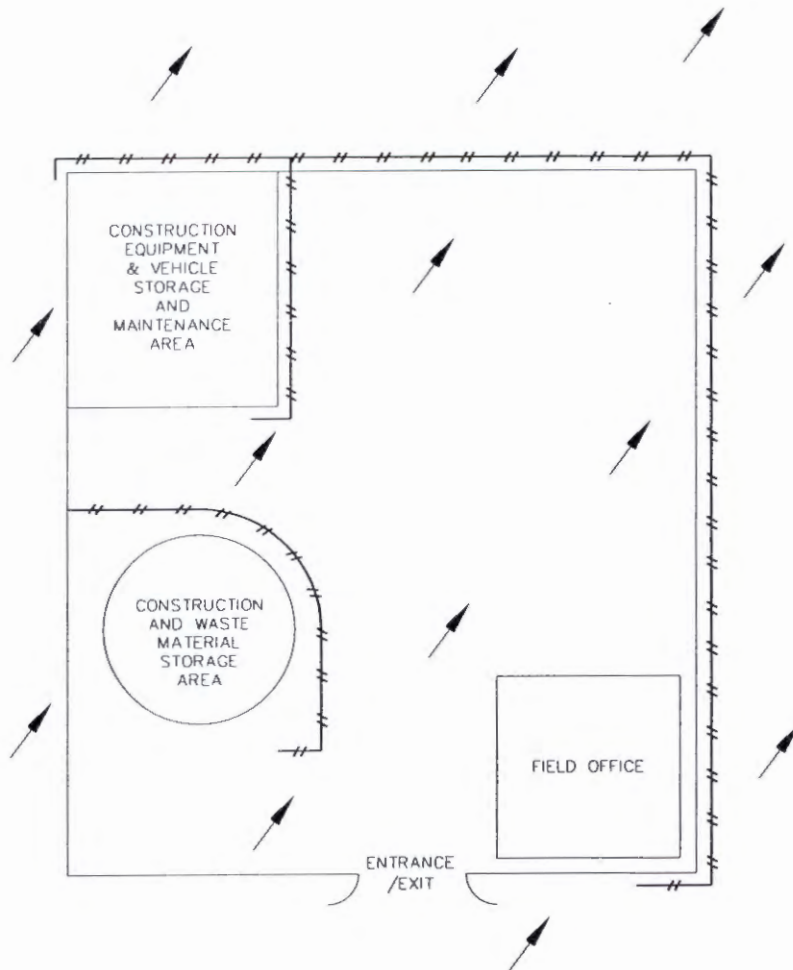
DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: G:\110729\50002\EXHIBITS\TPDES Details.dwg

PROJECT No. R0110729-50002



TYPICAL CONSTRUCTION STAGING AREA

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B9

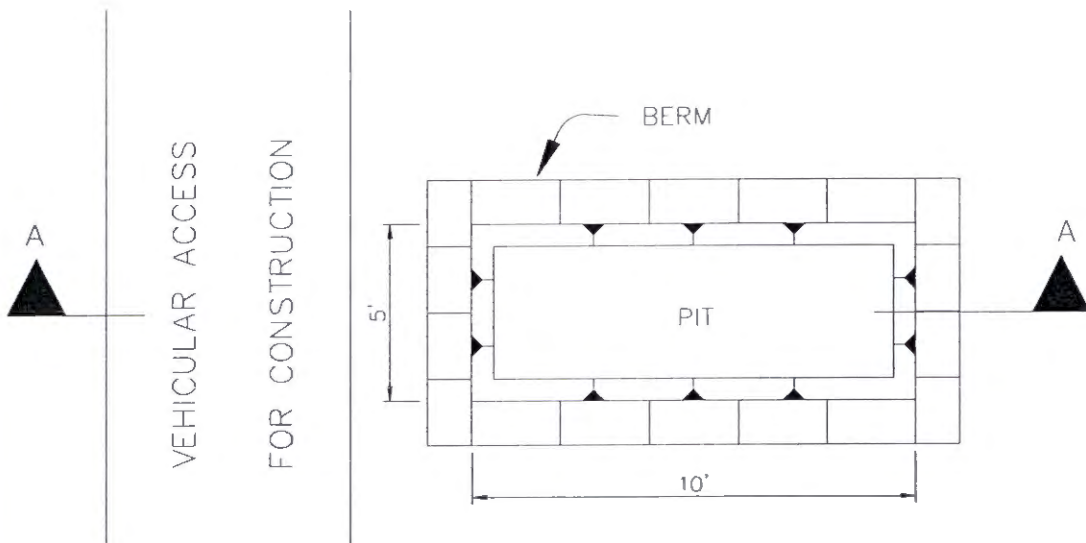
DATE: Dec 09, 2014

SCALE: NTS

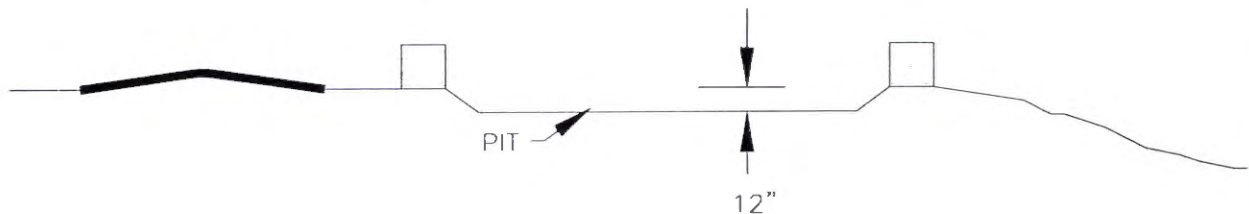
DRAWN BY: ENW

FILE: G:\10729\50002\CD\BTS\TPDES Details.dwg

PROJECT No. R0110729-50002



PLAN



SECTION A-A

GENERAL NOTES:

1. DETAIL ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.
2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.
3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.
4. PIT SHALL BE INSTALLED WITH IMPERMEABLE LINER PER TCEQ REQUIREMENTS..

CONCRETE TRUCK WASHOUT PIT

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel (210) 525-9090 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2014

EMERALD COTTAGES

NEW BRAUNFELS, TEXAS

EXHIBIT B10

DATE: Dec 09, 2014

SCALE: NTS

DRAWN BY: ENW

FILE: C:\110729\50002\EXHIBITS\IPDES Details.dwg

PROJECT No. R0110729-50002

ATTACHMENT E

REQUEST TO TEMPORARILY SEAL A FEATURE
(Not Applicable)

ATTACHMENT F

STRUCTURAL PRACTICES

STRUCTURAL PRACTICES

Silt fencing, triangular sediment filter dikes, inlet protection devices, a temporary sediment basin and stabilized construction entrances will be incorporated as temporary erosion control devices and will be removed after the permanent stabilization is established.

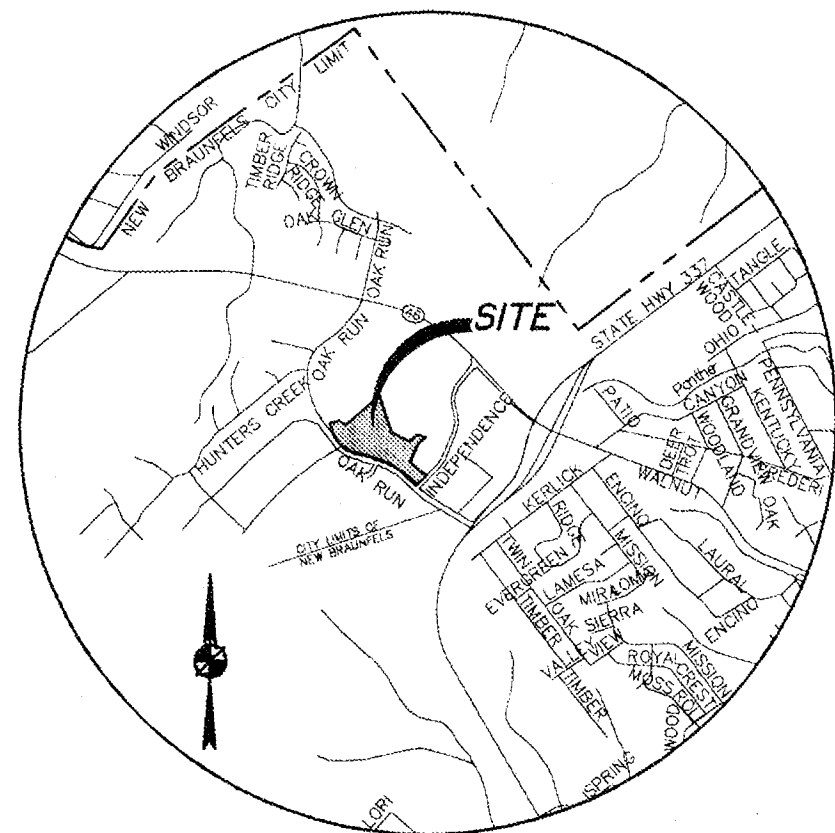
Silt fencing shall be incorporated throughout the construction process. The placement of the silt fencing shall be perpendicular to runoff flow. Refer to project construction documents for quantity and actual locations of these erosion control devices. In areas where silt fencing is to be situated but is non-installable, triangular filter dikes shall be incorporated. The temporary sediment basin shall be installed at the location of the permanent detention pond.

Stabilized construction entrances will be employed during the construction of this site to help minimize vehicle tracking of sediments. Paved streets adjacent to these site entrances shall be cleaned and/or swept regularly to remove any excess mud, dirt or rock tracked from the site. Refer to the project construction documents for actual locations of these erosion control devices. Staging areas will be utilized in locations as decided by the project general contractor and validated by the civil engineer. If the contractor determines the need for additional stabilized construction entrances, construction staging areas or pits, their locations shall be agreed upon by the contractor and the engineer and annotated in the Storm Water Pollution Prevention Plan (SWPPP) posted on the site during construction.

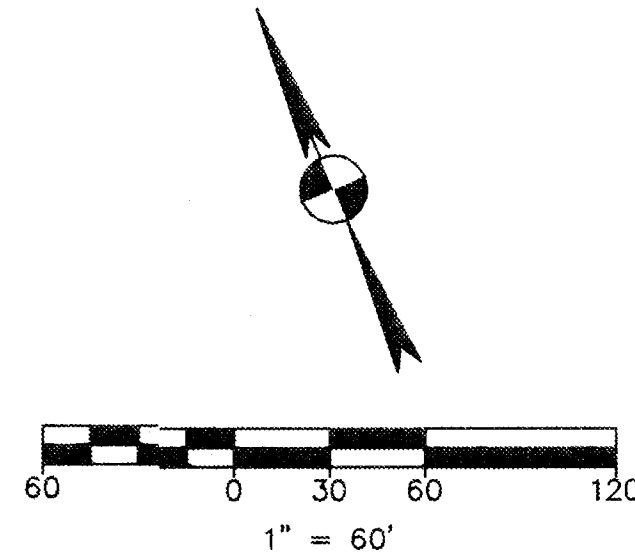
ATTACHMENT G

DRAINAGE AREA MAP

Date: May 13, 2015, 02:29PM User: ID: nwarford
File: G:\110729\50002\EXHIBITS\EXH-DAM-EX.DWG



VICINITY MAP
N.T.S.
NEW BRAUNFELS, TEXAS



DRAINAGE AREAS:

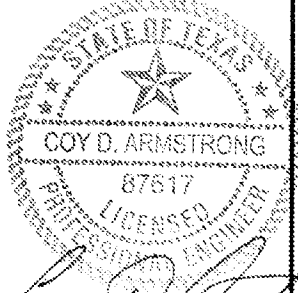
DRAINAGE AREA	AREA	IMPERVIOUS AREA	PERCENT
EXISTING	19.33 AC.	0.00 AC	0%
OFF-SITE	2.58 AC.	0.00 AC	0%

LEGEND

EXISTING	PROPOSED	DESCRIPTION
---	---	PROPERTY (R.O.W.) LINE
---	---	CONTOUR
DA-X XXX AC.	---	DRAINAGE AREA NUMBER
---	---	DRAINAGE DIVIDE
---	---	DIRECTION OF FLOW
---	---	EARTHEN SWALE

BURY

922 Fern Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-0900 Fax: (210) 525-0529
TBPB Registration Number F-1046
Copyright © 2010



5/14/15

EXISTING DRAINAGE AREA MAP

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

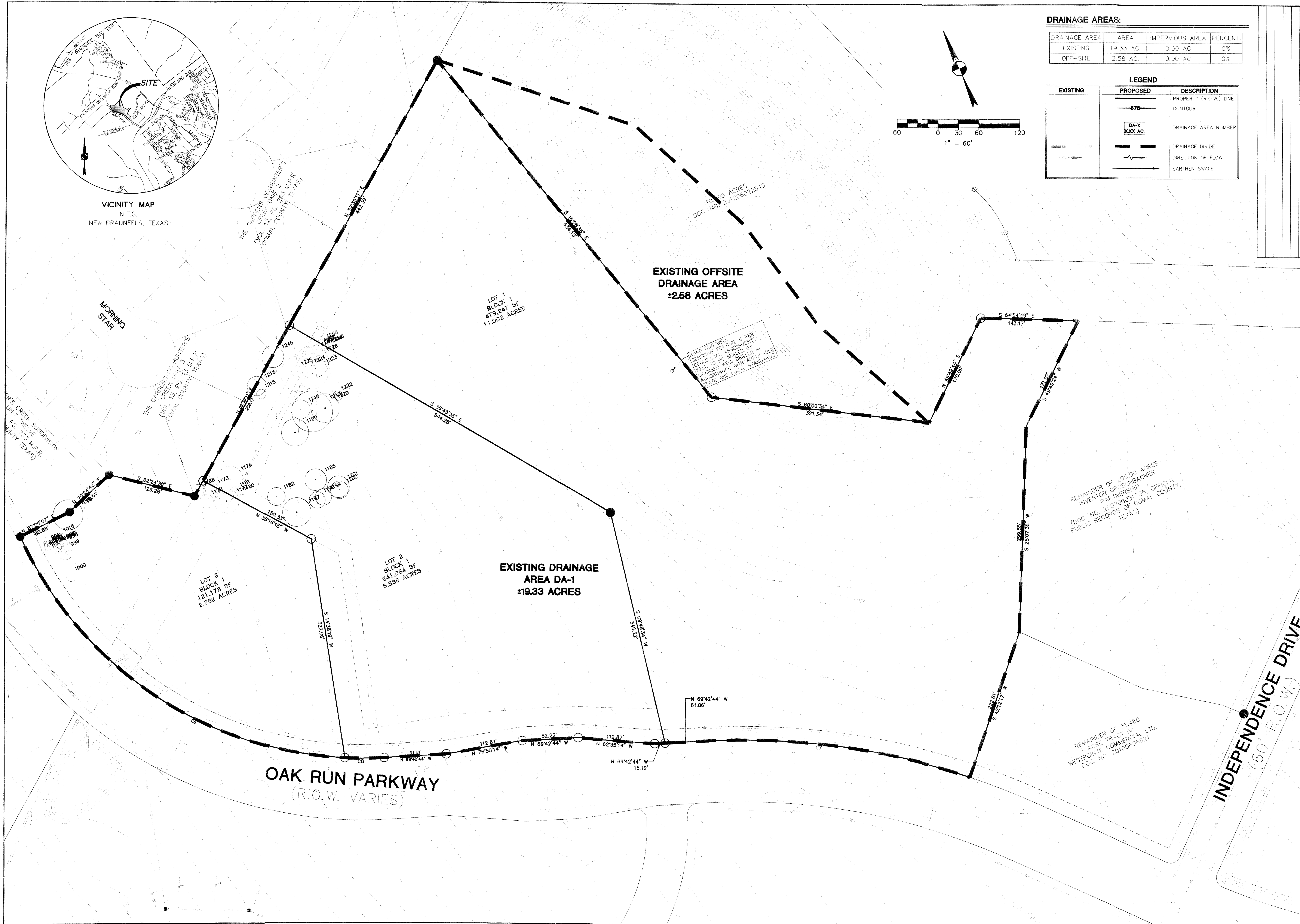
PLOTTING SCALE: 1" = 60'
DATE REVISED: May 13, 2015
FILE: G:\110729\50002\EXHIBITS\EXH-DAM-EX.dwg

DRAWN BY: ENW

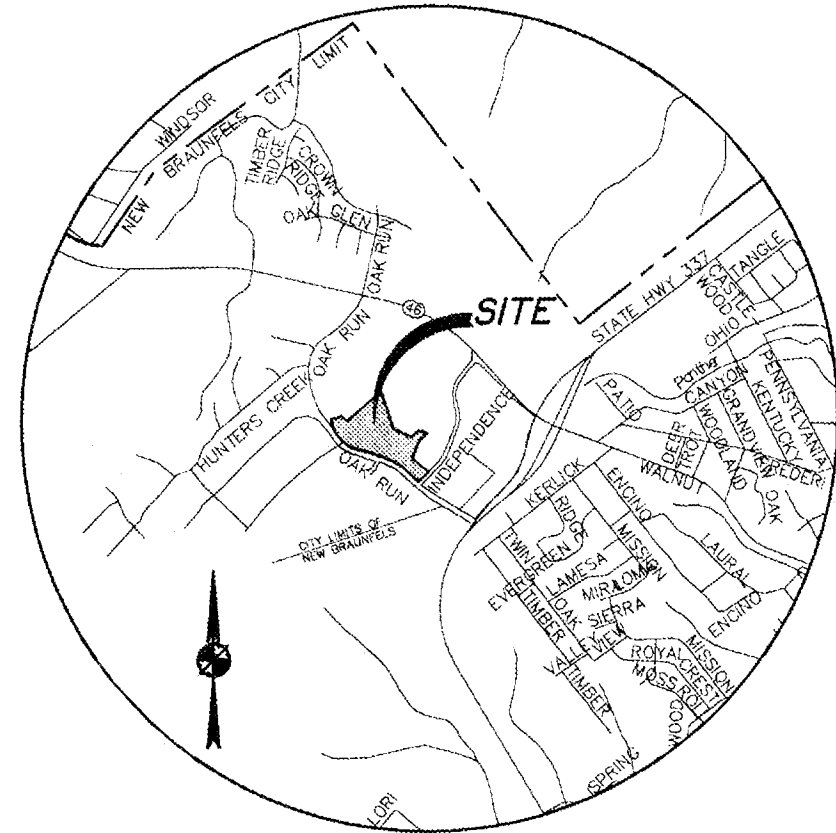
DESIGNED BY: GWF

REVIEWED BY: GWF

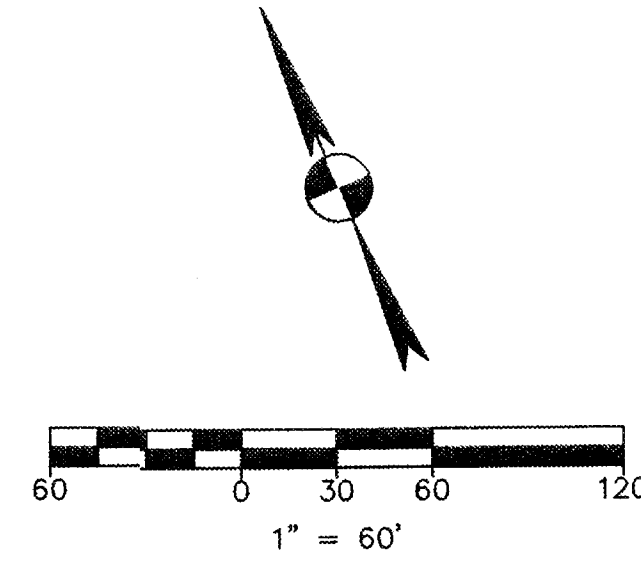
SHEET
EX-1



Date: May 13, 2015, 08:14PM User: ID: 100454
File: G:\110729\10002\EXHIBITS\EXH-DA-PR.dwg



VICINITY MAP
N.T.S.
NEW BRAUNFELS, TEXAS



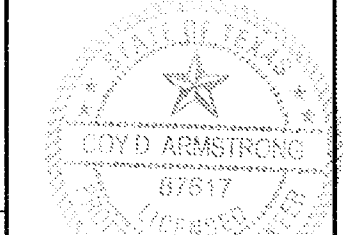
DRAINAGE AREAS:

DRAINAGE AREA	AREA	IMPERVIOUS AREA	PERCENT
PROPOSED	19.33 AC.	15.38 AC	78%
OFF-SITE	2.58 AC.	0.00 AC	0%

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY (R.O.W.) LINE
		CONTOUR
		DRAINAGE AREA NUMBER
		DRAINAGE DIVIDE
		DIRECTION OF FLOW
		EARTHEN SWALE

APPROVAL
REVISION
NO.
DATE



5/14/15

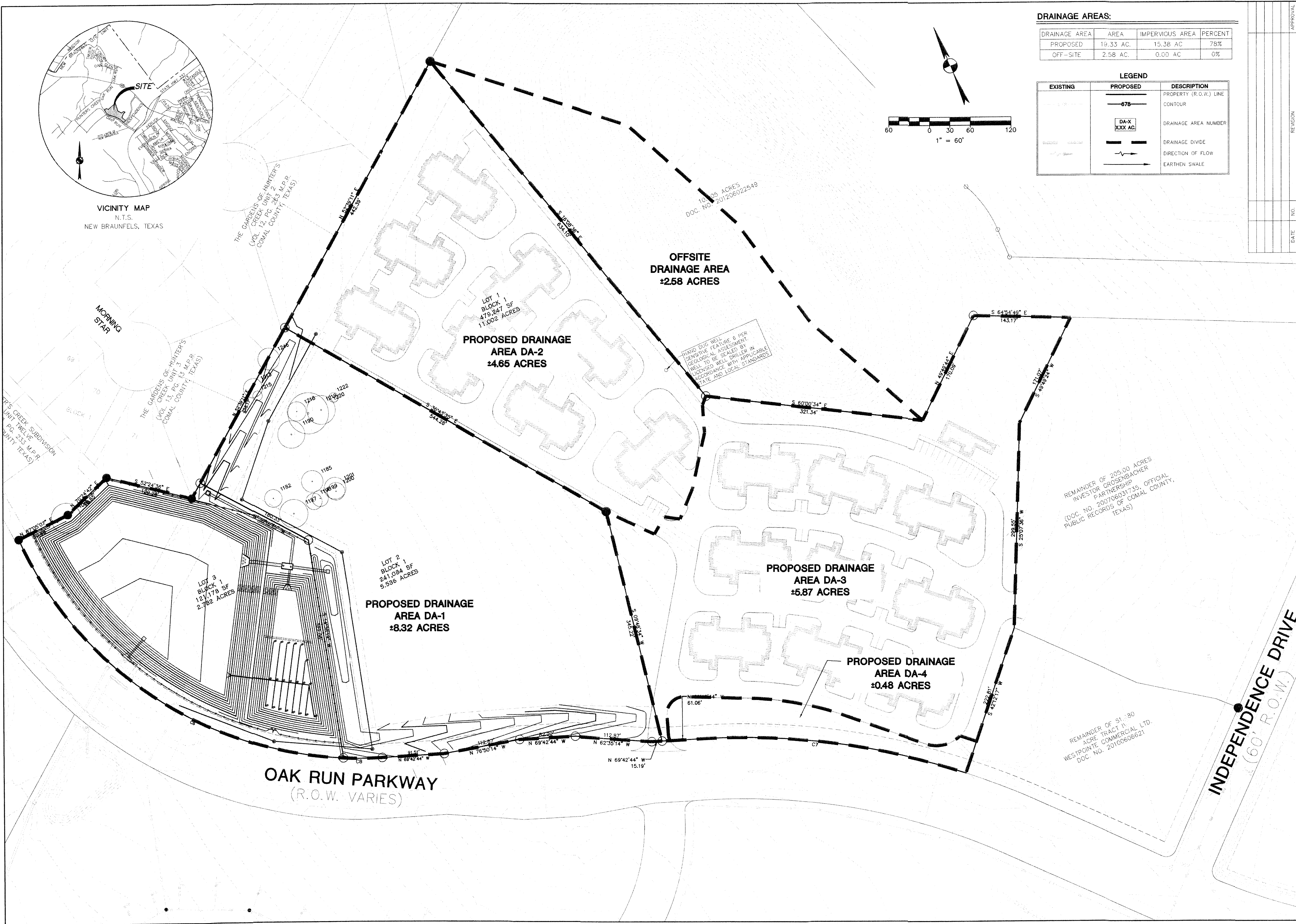
PROPOSED DRAINAGE AREA MAP

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: 1" = 60'
DATE REVISED: May 13, 2015
FILE: G:\110729\10002\EXHIBITS\EXH-DA-PR.dwg
DRAWN BY: ENW
DESIGNED BY: GWF
REVIEWED BY: GWF
PROJECT NO.: R0110729-50002

SHEET
EX-2



ATTACHMENT H

TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

322 Isom Road, Suite 100
San Antonio, TX 78216
Tel. (210) 525-9390 Fax (210) 525-0529
TBPE Registration Number F-1048
Copyright © 2015



**EXISTING CONDITIONS,
DEMOLITION, AND S.W.P.P.P.**

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED

FILE: G:\110729\30002\CD DWG\110729002D08

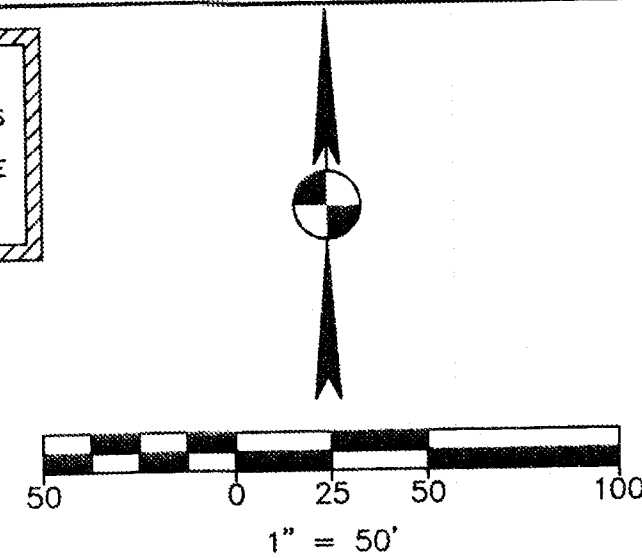
DRAWN BY: ENW

DESIGNED BY: CDA
REVIEWED BY: CDA

PROJECT NO.: R0110729-50002

SHEET
C1.0

THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.



LEGEND

EXISTING	PROPOSED
----------	----------

- | | | |
|----------------------------------|----------------------------------|----------------------------------|
| ● | 1/2" IRON ROD FOUND | |
| ○ | 1/2" IRON ROD SET | |
| ○ | IRON PIPE FOUND | |
| ● | BENCHMARK | |
| + | FIRE DEPARTMENT CONNECTION | |
| ⊙ | LIGHT POLE | |
| ⊙ | POWER POLE | |
| ↓ | DOWN GUY | |
| ⊙ | FIRE HYDRANT | |
| ⊙ | WATER VALVE | |
| ⊙ | WATER METER | |
| ⊙ | GAS METER | |
| ⊙ | GAS VALVE | |
| WWMH | WWMH | WASTEWATER MANHOLE |
| SSMH | SSMH | STORMSEWER MANHOLE |
| ⊙ | DRAINAGE INLET | |
| ⊙ | CURB INLET | |
| ⊙ | STAND UP CURB | |
| ⊙ | HANDICAPPED PARKING SPACE | |
| ⊙ | SIGN | |
| ⊙ | TRANSFORMER PAD | |
| ⊙ | ELECTRIC METER | |
| ⊙ | OVER HEAD ELEC. LINE | |
| SS | SS | STORM SEWER LINE |
| W | W | WATER LINE |
| FW | FW | FIRE WATER LINE |
| DW | DW | DOMESTIC WATER LINE |
| LDW | LDW | LANDSCAPE WATER LINE |
| WW | WW | WASTEWATER LINE |
| UE | UE | UNDERGROUND ELECTRIC |
| UT | UT | UNDERGROUND TELEPHONE |
| G | G | GAS LINE |
| 670 | 670 | PROPERTY LINE |
| CONTOUR | CONTOUR | CONTOUR |
| SPOT ELEVATION | SPOT ELEVATION | SPOT ELEVATION |
| FLOW DIRECTION | FLOW DIRECTION | FLOW DIRECTION |
| CONCRETE SURFACE | CONCRETE SURFACE | CONCRETE SURFACE |
| RETAINING WALL | RETAINING WALL | RETAINING WALL |
| LIMITS OF CONSTRUCTION | LIMITS OF CONSTRUCTION | LIMITS OF CONSTRUCTION |
| TO BE REMOVED | TO BE REMOVED | TO BE REMOVED |
| SILT FENCE | SILT FENCE | SILT FENCE |
| (SEE DETAIL C1.1.1) | (SEE DETAIL C1.1.1) | (SEE DETAIL C1.1.1) |
| TREE PROTECTION | TREE PROTECTION | TREE PROTECTION |
| (SEE DETAIL C1.1.8) | (SEE DETAIL C1.1.8) | (SEE DETAIL C1.1.8) |
| INLET PROTECTION | INLET PROTECTION | INLET PROTECTION |
| (SEE DETAIL C1.1.4 & C1.1.5) | (SEE DETAIL C1.1.4 & C1.1.5) | (SEE DETAIL C1.1.4 & C1.1.5) |
| STABILIZED CONSTRUCTION ENTRANCE | STABILIZED CONSTRUCTION ENTRANCE | STABILIZED CONSTRUCTION ENTRANCE |
| (SEE DETAIL C1.1.3) | (SEE DETAIL C1.1.3) | (SEE DETAIL C1.1.3) |
| STAGING AREA | STAGING AREA | STAGING AREA |
| (SEE DETAIL C1.1.7) | (SEE DETAIL C1.1.7) | (SEE DETAIL C1.1.7) |
| CONCRETE TRUCK WASHOUT PIT | CONCRETE TRUCK WASHOUT PIT | CONCRETE TRUCK WASHOUT PIT |
| (SEE DETAIL C1.1.6) | (SEE DETAIL C1.1.6) | (SEE DETAIL C1.1.6) |
| ROCK BERM | ROCK BERM | ROCK BERM |
| (SEE DETAIL C1.1.2) | (SEE DETAIL C1.1.2) | (SEE DETAIL C1.1.2) |
| TREE TO BE REMOVED | TREE TO BE REMOVED | TREE TO BE REMOVED |
| TREE TO REMAIN | TREE TO REMAIN | TREE TO REMAIN |

BENCHMARKS:

BM JL-03 - SQUARE CUT ON THE SOUTHERLY CURB RETURN
AT THE INTERSECTION OF HUNTER'S TRACE AND OAK RUN
PARKWAY
ELEVATION = 893.67 FEET. (NOT SHOWN)

TBM 1A-A CUT "X" ON NORTH FLANGE BOLT OF A FIRE
HYDRANT LOCATED IN THE NORTHWESTERLY RIGHT OF WAY OF
INDEPENDENCE DRIVE, $\pm 375'$ SOUTHWEST OF STATE HIGHWAY
46.
ELEV=893.59'

TBM 1A-B CUT "SQUARE" ON LIGHT STANDARD CONCRETE
BASE LOCATED $\pm 78'$ NORTHWEST OF INDEPENDENCE DRIVE,
 $\pm 321'$ SOUTHWEST OF STATE HIGHWAY 46.
ELEV=890.59'

TBM M PK NAIL SET AT THE BACK OF CURB IN THE
NORTHWESTERLY RIGHT OF WAY OF INDEPENDENCE DRIVE, ±50'
SOUTHWEST OF STATE HIGHWAY 46.
ELEV=894.10'

TBM M1 PK NAIL SET AT THE BACK OF CURB IN THE
SCHLOTZSKY'S PARKING LOT ±910' NORTHWEST OF
INDEPENDENCE DRIVE AND ±501' SOUTHWEST OF STATE
HIGHWAY 46.
ELEV=891.14'

LEGAL DESCRIPTION:

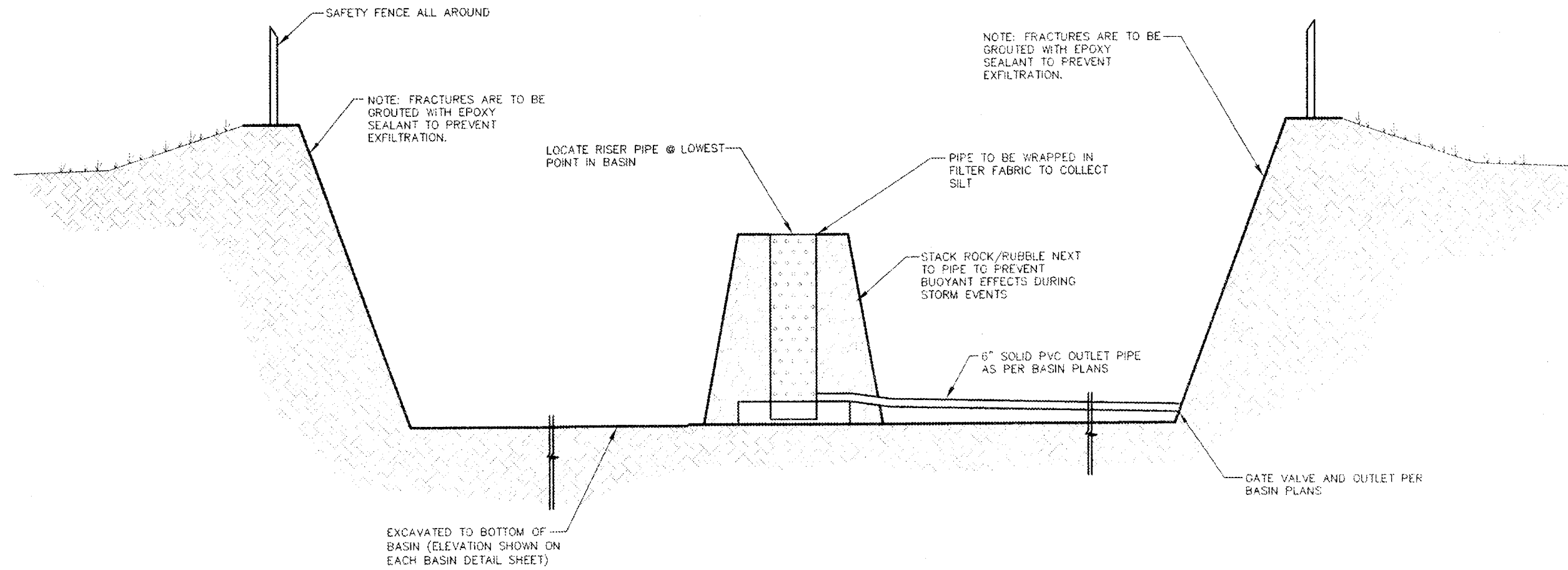
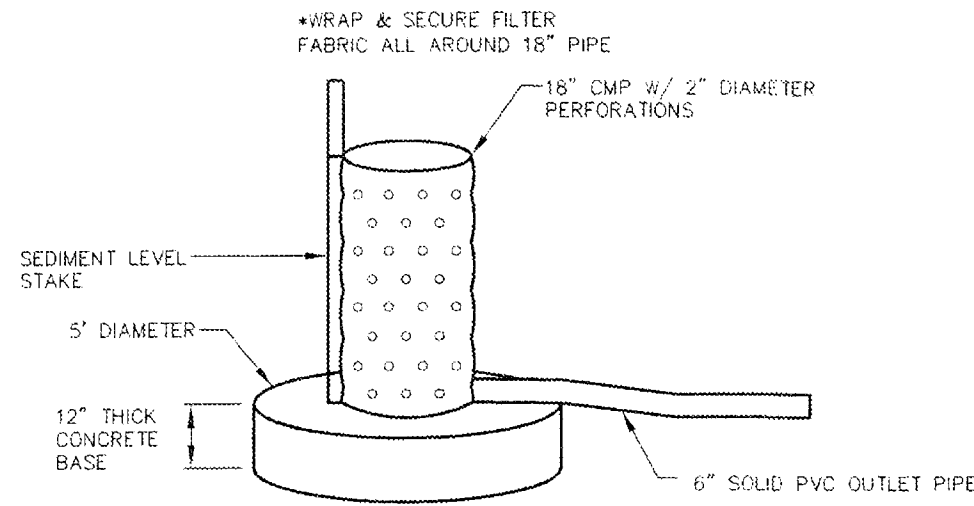
A 19.32 ACRE TRACT CONSISTING OF A 0.3186 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURV. NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, AND THE REMAINING PORTION OF THAT CERTAIN 1.661 ACRE, CALLED TRACT II, BOTH TRACTS CONVEYED TO HESTPONTE COUNTY, TEXAS, BY DEEDS OF RECORD, IN DOCUMENT NO. 2010G0016821 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS, 11.002 ACRE TRACT OF LAND SITUATED IN THE CITY OF NEW BRAUNFELS, COMAL COUNTY, TEXAS, BEING OUT OF THE ANDRES SANCHEZ SURV. NO. 286, AND BEING A PORTION OF THAT CERTAIN 51.480 ACRE TRACT CALLED TRACT IV, AND THE REMAINING PORTION OF THAT CERTAIN 1.661 ACRE, CALLED TRACT II, BOTH TRACTS CONVEYED TO HESTPONTE COUNTY, TEXAS, BY DEEDS OF RECORD, IN DOCUMENT NO. 2010G0016821 OF THE OFFICIAL RECORDS OF COMAL COUNTY, TEXAS.

Date: May 13, 2015, 09:52AM User ID: ewarford
File: G:\110729\50002\CD DWG\110729002DEM.DWG

DATE: May 13, 2015, 08:18PM, User: G:_newford
FILE: G:\110729-50002\CD DWG\1107290250.DWG

- TEMPORARY SEDIMENTATION BASIN NOTES:
1. CONTRACTOR TO CONSTRUCT BASINS IN ACCORDANCE WITH CONSTRUCTION PLANS FOR PERMANENT SEDIMENTATION/FILTRATION WITH THE EXCEPTION OF THE GRAVEL DRAIN LAYER AND SAND FILTER LAYERS.
 2. INSTALL PERMANENT STAKE TO INDICATE SEDIMENT LEVEL IN THE BASIN. STAKE SHOULD BE MARKED TO INDICATE WHEN SEDIMENT OCCUPIES 50% OF THE VOLUME OF THE BASIN.
 3. SEDIMENT WILL BE REMOVED WHEN MORE THAN 50% OF THE BASIN CAPACITY IS EXCEEDED.
 4. CONTRACTOR MAY USE SEED IMPREGNATED STRAW MATTING FOR SLOPE STABILIZATION. MATTING MATERIAL TO BE APPROVED BY ENGINEER.
 5. CONTRACTOR TO SECURE PIPE TO BOTTOM OF BASIN TO PREVENT BUOYANCY DURING A RAIN EVENT. A CONCRETE ANCHOR MAY BE USED.
 6. DISCHARGE PIPE TO BE INSTALLED SO AS TO BE IN PLACE FOR PERMANENT STRUCTURE.

- TEMPORARY SEDIMENTATION BASIN CALCULATIONS:
1. THE TEMPORARY SEDIMENTATION BASIN WILL BE LOCATED WHERE THE PROPOSED WATER QUALITY WILL BE CONSTRUCTED.
 2. TOTAL DISTURBED AREA IS 15 ACRES
 3. $15 \text{ AC} \times (3,600 \text{ CF VOLUME / ACRE}) = 54,000 \text{ CF}$ OF WATER VOLUME TO BE CAPTURED IN THE TEMPORARY SEDIMENTATION BASIN.
 4. TOTAL CAPACITY AVAILABLE FROM WATER QUALITY POND IS 89,244. THEREFORE, THE TOTAL VOLUME AVAILABLE FROM THE WATER QUALITY POND IS ADEQUATE FOR THE TEMPORARY SEDIMENTATION BASINS.



C23.1

TEMPORARY SEDIMENTATION BASIN

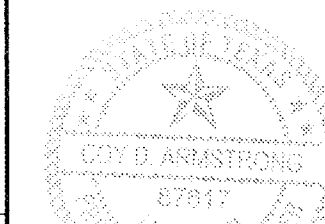
SCALE: N.T.S.

PLOTTING SCALE: AS NOTED
DATE REVISED: May 13, 2015
FILES: G:\110729-50002\CD DWG\1107290250.dwg

DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R0110729-50002

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

WATER QUALITY POND
DETAILS



5/14/15

BURY
922 Ison Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-5000 Fax: (210) 525-0559
TBPB Registration Number F-1048
Copyright © 2015

ATTACHMENT I

INSPECTION AND MAINTENANCE FOR BMPS

INSPECTIONS

Each contractor will designate a qualified person (or persons) to perform the following inspections:

1. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.
2. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.
3. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
4. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

The inspection shall be conducted by the responsible person at least once every seven (7) calendar days and within 24 hours after a storm providing 1/2 inches of rainfall or greater. If one or more of the following conditions apply, the frequency of inspections shall be conducted at least once every month:

1. The site has been temporarily stabilized.
2. Where runoff is unlikely due to winter conditions (i.e. site is covered with snow, ice, or where frozen ground exists).
3. During seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches).

The information required within an inspection and maintenance report are as follows:

1. Summary of the scope of the inspection.
2. Name(s) and qualifications of personnel making the inspection.
3. The date(s) of the inspection.
4. Major observations relating to the implementation of the storm water pollution prevention plan.
5. Changes required to correct damages or deficiencies in the control measures.

In addition to the required routine inspections, the following record of information will also be maintained:

1. The dates when selective clearing activities occur.
2. The dates when selective clearing activities permanently cease on a portion of the site.

Inspection and maintenance reports, as well as all records required by a Storm Water Pollution Prevention Plan (SWPPP), shall be included in the onsite SWPPP as part of the Texas Pollution Discharge Elimination System (TPDES) Report. Copies of example forms to be used for the

inspection and maintenance reports along with their related records, will be included in the onsite SWPPP and are provided for reference.

MAINTENANCE

Based on the results of the inspection, any changes required to correct damages or deficiencies in the control measures shall be made within seven (7) calendar days after the inspection. If existing erosion controls need modification or additional erosion controls are necessary, implementation shall be achieved prior to the next anticipated storm event. If, however, the execution of this requirement becomes impractical, then the implementation will occur as soon as possible, with the incident duly noted with an explanation of the impracticality, in the inspection report.

Sediment accumulation at each control will be removed and properly disposed when the depth of accumulation equals or exceeds six (6) inches. The temporary sediment basin sediment accumulation will be removed when it reaches 50% capacity as noted in the design plans. If sediment accumulation is found to be contaminated, its disposal shall be off-site in a manner which conforms to the appropriate applicable regulations.

EMERALD COTTAGES

Oak Run Parkway

New Braunfels, Texas

Responsible Party Form and Schedule

Prevention Pollution Measure	Responsible Party Company Name									
	Start Date	Estimated Duration (Days)								
BEST MANAGEMENT PRACTICES										
Silt fences										
Rock berms										
Drain inlet protection										
Gravel filter bags										
Vehicle exits (offsite tracking)										
Concrete washout pit (leaks, failure)										
Temporary vegetation										
Permanent vegetation										
Sediment control basin										
Other structural controls										
Material storage areas (leakage)										
Equipment areas (leaks, spills)										
Construction debris										
General site cleanliness										
Trash receptacles										
Natural vegetation buffer strips										
Inspections										
SWP3 Modification & Records										
POTENTIAL EROSION SOURCES										
Clearing										
Grading										
Excavation										
Drainage Construction										
Utility Construction										
Roadway or Parking Lot Construction										
Foundation Construction										
Building Construction										
Landscaping Activities										
Identify responsible parties and indicate responsible party for each pollution prevention item listed above by marking an X under the Responsible Party Name.										

EMERALD COTTAGES

Oak Run Parkway

New Braunfels, Texas

Inspection Report

Prevention Pollution Measure	Inspected in Compliance (Y/N)	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
BEST MANAGEMENT PRACTICES			
Silt fences			
Rock berms			
Drain inlet protection			
Gravel filter bags			
Vehicle exits (offsite tracking)			
Concrete washout pit (leaks, failure)			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Other structural controls			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Construction debris			
General site cleanliness			
Trash receptacles			
Natural vegetation buffer strips			
EVIDENCE OF EROSION			
Site preparation			
Roadway or Parking Lot Construction			
Utility Construction			
Drainage Construction			
Building Construction			
MAJOR OBSERVATIONS			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

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

Inspector's Name (Superintendent)

Inspector's Signature

Date

Name of Owner/Operator (Firm)

Authorized Signature

Date

Note: If there is a "NO" answer in the second column, the right columns will need to be completed and action is required within 7 days. Use additional sheets if necessary.

ATTACHMENT J

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION

During Construction:

The methodology for handling pollution of on-site or up-gradient storm water during construction will include the following:

1. Silt fencing and rock berms will be used as a temporary erosion and sedimentation controls.
2. Stabilized construction entrances/exits will be put into place to reduce the dispersion of sediment from the site, and to aid in accessibility to the site.
3. A Temporary Sediment Basin will be used to accumulate sediment.
4. A construction staging area will also be put into place for material stockpiles, machinery storage, and machinery maintenance.
5. Concrete truck washout pits will be put into place to prevent contamination of storm water runoff and to aid in the removal of sediments from the site.
6. As required by the TCEQ General Permit, disturbed areas on which construction activity has ceased (temporarily or permanently) and which will be exposed for more than 21 days shall be stabilized within 14 days. Areas receiving less than 20 inches of annual rainfall should be stabilized as soon as practicable and only to pre-project conditions.
7. If construction stops for more than 14 days, hydro-seeding, sod or other TCEQ approved method will be applied to re-stabilize vegetation.

After Construction:

This site will provide the following permanent pollution abatement measures to prevent the pollution of storm water originating on-site or upgradient from the project site:

1. Storm water will be directed to grate inlets via curbing and grading and discharged into the sedimentation/filtration basins. The sedimentation/filtration basins have been designed to capture and filter the required runoff from the individual watersheds. The basin has been designed in accordance with the TCEQ Technical Guidance Manual. Each basin will be constructed as that particular phase is built.
2. Native grasses will be used on-site to help reduce the use of fertilizers and this will in turn reduce the levels of phosphates present in the storm water runoff.
3. Where possible drainage will be directed across vegetated areas to provide some pretreatment prior to discharge into the filtration basin.

Permanent Erosion Control:

1. All disturbed areas shall be restored as noted below:
 - A minimum of 4" of topsoil shall be placed in all drainage channels (except rock) and between the curb and R.O.W. property lines.
2. Broadcast Seeding:
 - From September 15 to March 1, seeding shall be with a combination of 2 pounds per 1,000 SF of unhulled Bermuda and 7 pounds per 1000 SF of Winter Rye with a purity of 95% with 90% germination.
 - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 2 pounds per 1000 SF with a purity of 95% with 85% germination.
3. Fertilizer shall be a pelleted or granular slow release with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1 pound per 1,000 SF.
4. Hydraulic Seeding:
 - From September 15 to March 1, seeding shall be with a combination of 1 pound per 1,000 SF of unhulled Bermuda and 7 pounds per 1,000 SF of Winter Rye with a purity of 95% with 90% germination.
 - From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 7 pounds per 1,000 SF with a purity of 95% with 85% germination.
5. Fertilizer shall be a water soluble fertilizer with an analysis of 15-15-15 at a rate of 1 to 1.5 pounds per 1,000 SF (45-65 pounds per acre).
6. Mulch type used shall be hay, straw, or mulch applied at a rate of 45 pounds per 1,000 SF with a soil tackifier at a rate of 1.4 pounds per 1,000 SF.
7. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil but will sufficiently soak the soil to a depth of 6". The irrigation shall occur at ten-day intervals during the first two months. Rainfall occurrences of $\frac{1}{2}$ " or more shall postpone the watering schedule for one week.
8. Restoration shall be acceptable when the grass has grown at least 1.5" high with 95% coverage, provided no bare spots larger than 16 square feet exist.

PERMANENT STORM WATER SECTION

Permanent 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)(C), (D)(ii), (E), and (5), 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.

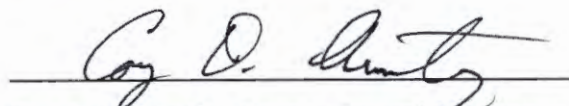
Signature

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 **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Coy D. Armstrong, PE

Date: 5/14/15

Signature of Customer/Agent



Regulated Entity Name: Emerald Cottages

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
☐ N/A
2. ☒ 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
3. ☒ 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
4. 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.
5. 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 A - 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.
6. ☒ **Attachment B - 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.
7. ☒ **Attachment C - 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.
8. ☒ **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- ☐ N/A
9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- ☐ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
- ☒ **Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. ☒ **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- ☒ Design calculations (TSS removal calculations)
- ☒ TCEQ construction notes
- ☒ All geologic features
- ☒ All proposed structural BMP(s) plans and specifications
- ☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
 - ☒ Signed by the owner or responsible party
 - ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
 - ☒ A discussion of record keeping procedures
- ☐ N/A
12. ☐ **Attachment H - 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
13. ☐ **Attachment I - 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 results in water quality degradation.
- ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ 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.
- ☐ N/A
15. ☒ 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.
- ☐ N/A

ATTACHMENT A

20% OR LESS IMPERVIOUS COVER WAIVER
(Not Applicable)

ATTACHMENT B

BMPs FOR UPGRADIENT STORM WATER

BMPs FOR ON-SITE STORM WATER

Storm water runoff arising from the development of this project will be conveyed and collected through the proposed storm sewer system which will convey the storm water runoff to the proposed sedimentation/filtration pond and proposed detention pond located on the west side of the project site. The detention pond will then discharge into the existing storm sewer drain.

The water quality calculations are based on a total area of ± 19.33 acres draining to the sedimentation/filtration pond at an ultimate build out of 80% impervious cover, ± 15.38 acres. The impervious cover will be a combination of building roof and paved areas (asphalt and concrete) of the multi-family tract and the future land use of the adjacent drainage area; this is to be accounted as 85% impervious cover. The water quality pond and detention pond have been designed to treat and capture a total of ± 19.33 acres at 80% impervious cover (± 15.38 acres).

Please refer to the attached construction plans for the detailed pond design and calculations. The detention pond adjacent to the water quality pond will ultimately discharge the site runoff to an existing storm sewer system, equal to pre-developed run-off rates. The water quality pond and detention pond are designed in accordance with TCEQ requirements and City of New Braunfels requirements.

ATTACHMENT C

BMPs FOR ON-SITE STORM WATER

BMPs FOR ON-SITE STORM WATER

Storm water runoff arising from the development of this project will be conveyed and collected through the proposed storm sewer system which will convey the storm water runoff to the proposed sedimentation/filtration pond and proposed detention pond located on the west side of the project site. The detention pond will then discharge into the existing storm sewer drain.

The water quality calculations are based on a total area of ± 19.33 acres draining to the sedimentation/filtration pond at an ultimate build out of 80% impervious cover, ± 15.38 acres. The impervious cover will be a combination of building roof and paved areas (asphalt and concrete) of the multi-family tract and the future land use of the adjacent drainage area; this is to be accounted as 85% impervious cover. The water quality pond and detention pond have been designed to treat and capture a total of ± 19.33 acres at 80% impervious cover (± 15.38 acres).

Please refer to the attached construction plans for the detailed pond design and calculations. The detention pond adjacent to the water quality pond will ultimately discharge the site runoff to an existing storm sewer system, equal to pre-developed run-off rates. The water quality pond and detention pond are designed in accordance with TCEQ requirements and City of New Braunfels requirements.

ATTACHMENT D

BMPs FOR SURFACE STREAMS

SURFACE STREAMS

The water quality pond designed in accordance with RG-348 will serve to mitigate and reduce pollutants from ultimately entering any surface streams downstream from the site. The hand dug well/cistern identified in the Geologic Assessment as Sensitive Feature 6 should be properly sealed by a Licensed Water Well Driller in accordance to the Texas Administrative Code (TAC) Title 16, Chapter 76.10, TCEQ RG-347 Landowner's Guide to Plugging Abandoned Water Wells, and TCEQ RG-348, Technical Guidance on Best Management Practice Chapter 5.

ATTACHMENT E

REQUEST TO SEAL A FEATURE

REQUEST TO SEAL A FEATURE

The hand dug water well mentioned in the Gologic Assessment should be sealed by a Licensed Water Well Driller in accordance with applicable TCEQ standards.

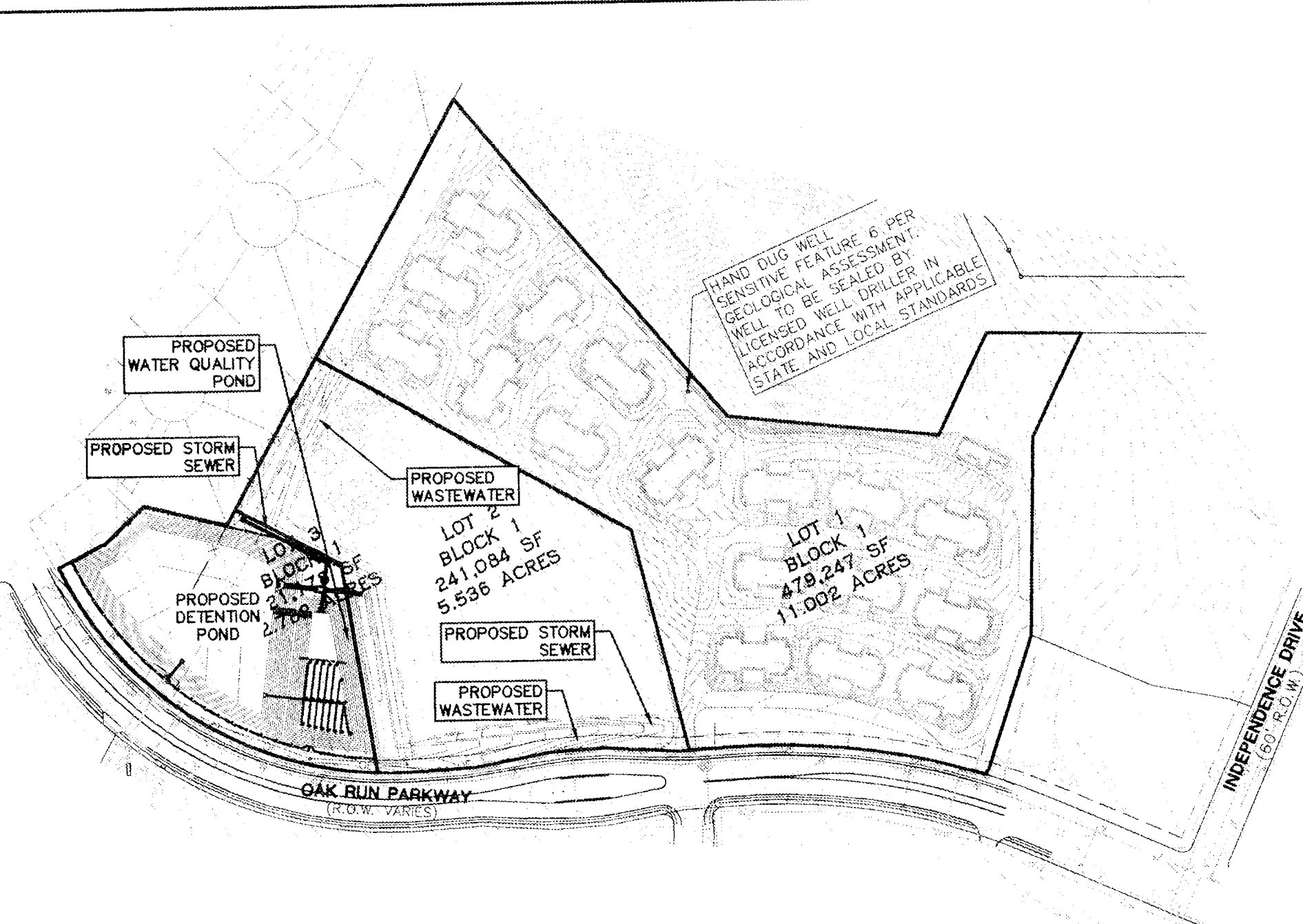
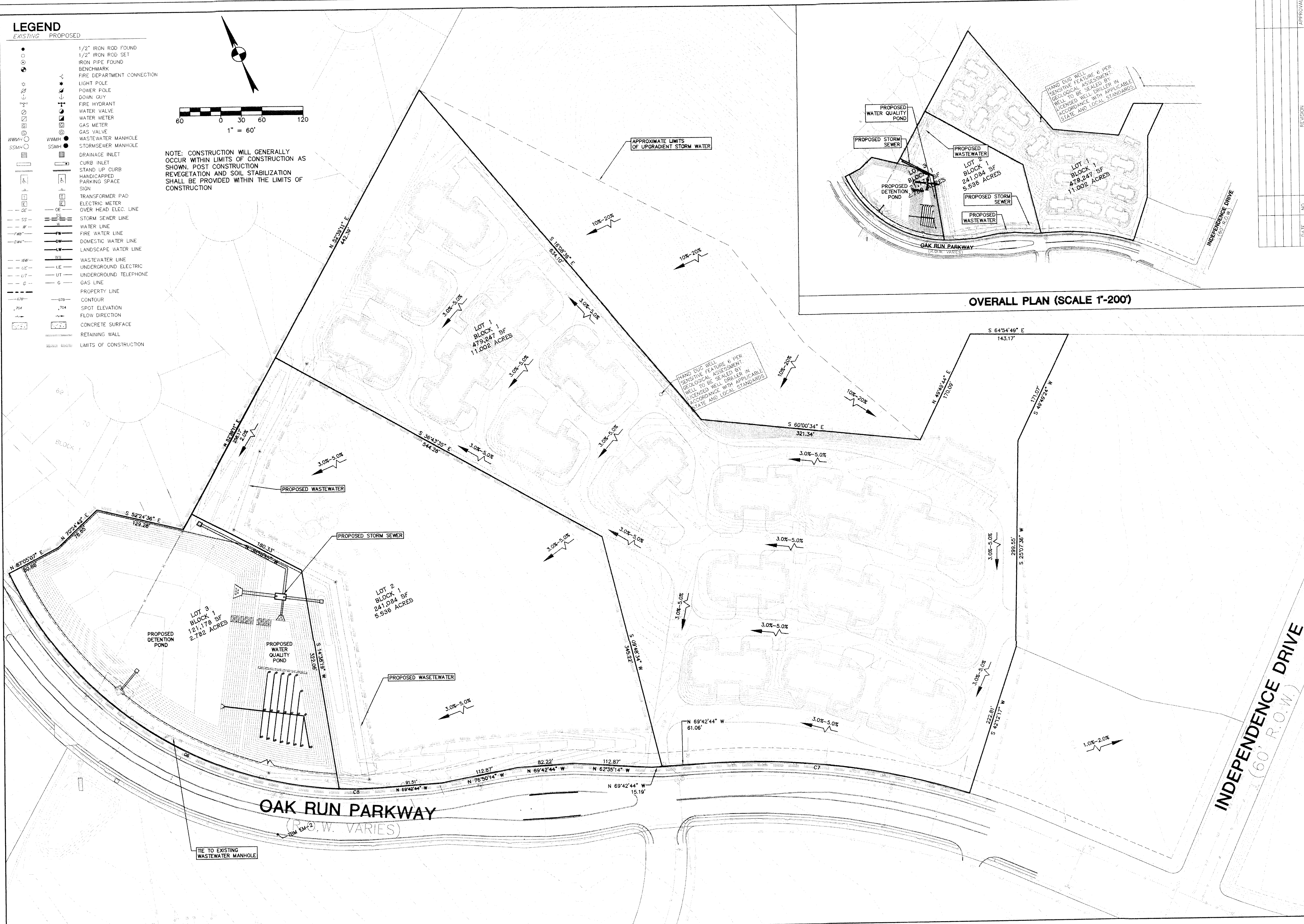
ATTACHMENT F

CONSTRUCTION PLANS

- LEGEND**
- EXISTING PROPOSED
- 1/2" IRON ROD FOUND
 - 1/2" IRON ROD SET
 - IRON PIPE FOUND
 - BENCHMARK
 - FIRE DEPARTMENT CONNECTION
 - LIGHT POLE
 - POWER POLE
 - DOWN GUY
 - FIRE HYDRANT
 - WATER VALVE
 - WATER METER
 - GAS METER
 - GAS VALVE
 - WASTEWATER MANHOLE
 - STORMSEWER MANHOLE
 - DRAINAGE INLET
 - CURB INLET
 - STAND UP CURB
 - HANDICAPPED PARKING SPACE
 - SIGN
 - TRANSFORMER PAD
 - ELECTRIC METER
 - OVER HEAD ELEC. LINE
 - SS - STORM SEWER LINE
 - W - WATER LINE
 - FW - FIRE WATER LINE
 - DW - DOMESTIC WATER LINE
 - LW - LANDSCAPE WATER LINE
 - WW - WASTEWATER LINE
 - UE - UNDERGROUND ELECTRIC
 - UT - UNDERGROUND TELEPHONE
 - G - GAS LINE
 - PROPERTY LINE
 - CONTOUR
 - SPOT ELEVATION
 - FLOW DIRECTION
 - CONCRETE SURFACE
 - RETAINING WALL
 - LIMITS OF CONSTRUCTION

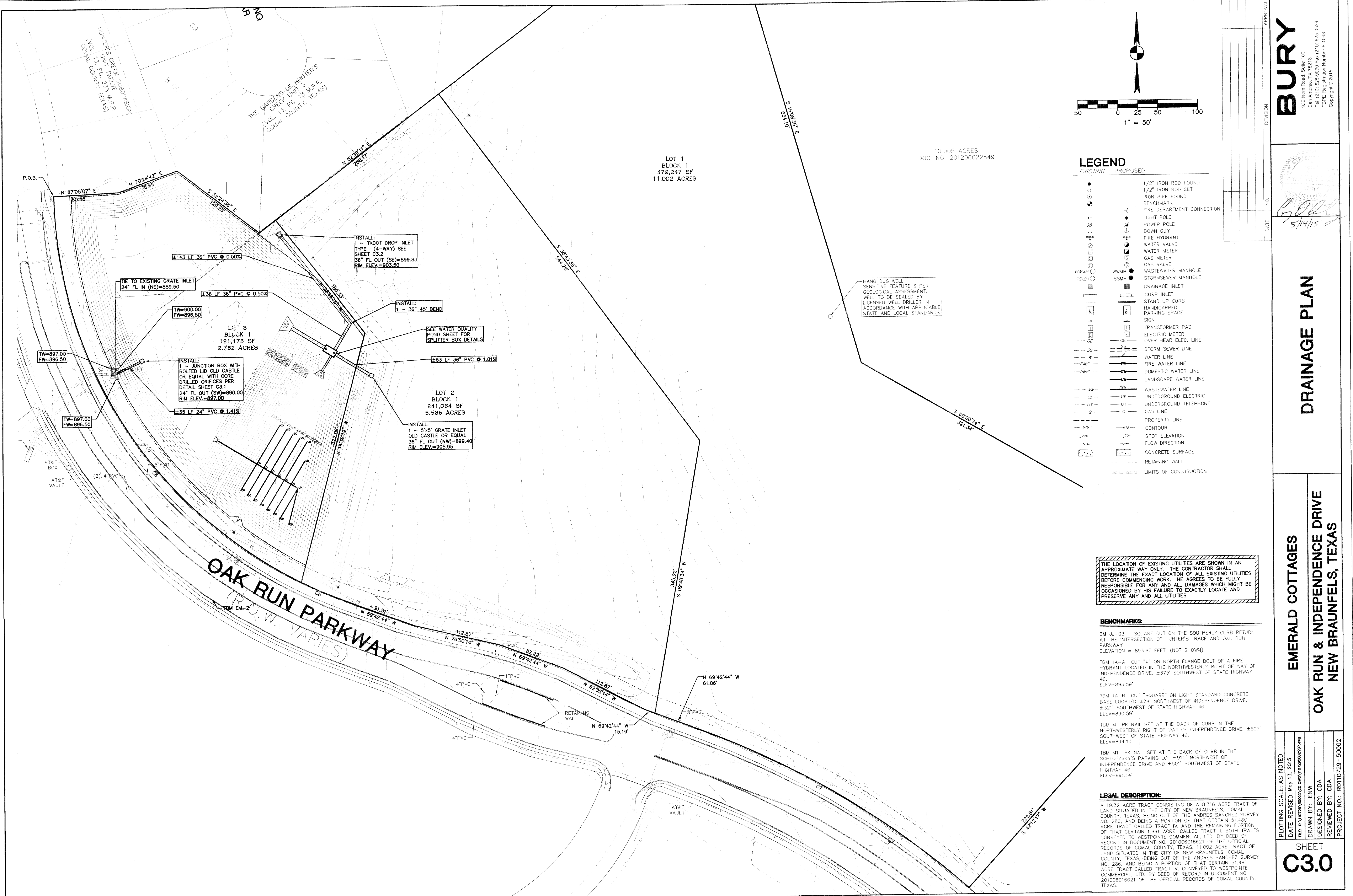
NOTE: CONSTRUCTION WILL GENERALLY OCCUR WITHIN LIMITS OF CONSTRUCTION AS SHOWN. POST CONSTRUCTION REVEGETATION AND SOIL STABILIZATION SHALL BE PROVIDED WITHIN THE LIMITS OF CONSTRUCTION

60 0 30 60 120
1" = 60'



BURY 922 Isom Road, Suite 100 San Antonio, TX 78216 Tel: (210) 525-9090 Fax: (210) 525-0529 TBE Registration Number F-1048 Copyright © 2015	
OVERALL SITE PLAN	
EMERALD COTTAGES	
OAK RUN & INDEPENDENCE DRIVE	
NEW BRAUNFELS, TEXAS	
PLOTTING SCALE: AS NOTED	DATE REVISED: May 13, 2015
FILE: s:\110729\50002\CD DWG\110729020500.dwg	DRAWN BY: ENW
DESIGNED BY: CDA	REVIEWED BY: CDA
PROJECT NO.: R0110729-50002	SHEET C3.1

Date: May 13, 2015, 04:32PM User: ID: emrnfdrd
File: G:\110729\50002\CD DWG\1107295002SSP.DWG



BURY
922 Isom Road, Suite 103
San Antonio, TX 78216
Tel. (210) 925-9090 Fax (210) 525-0039
TBPE Registration Number F-1048
Copyright © 2015

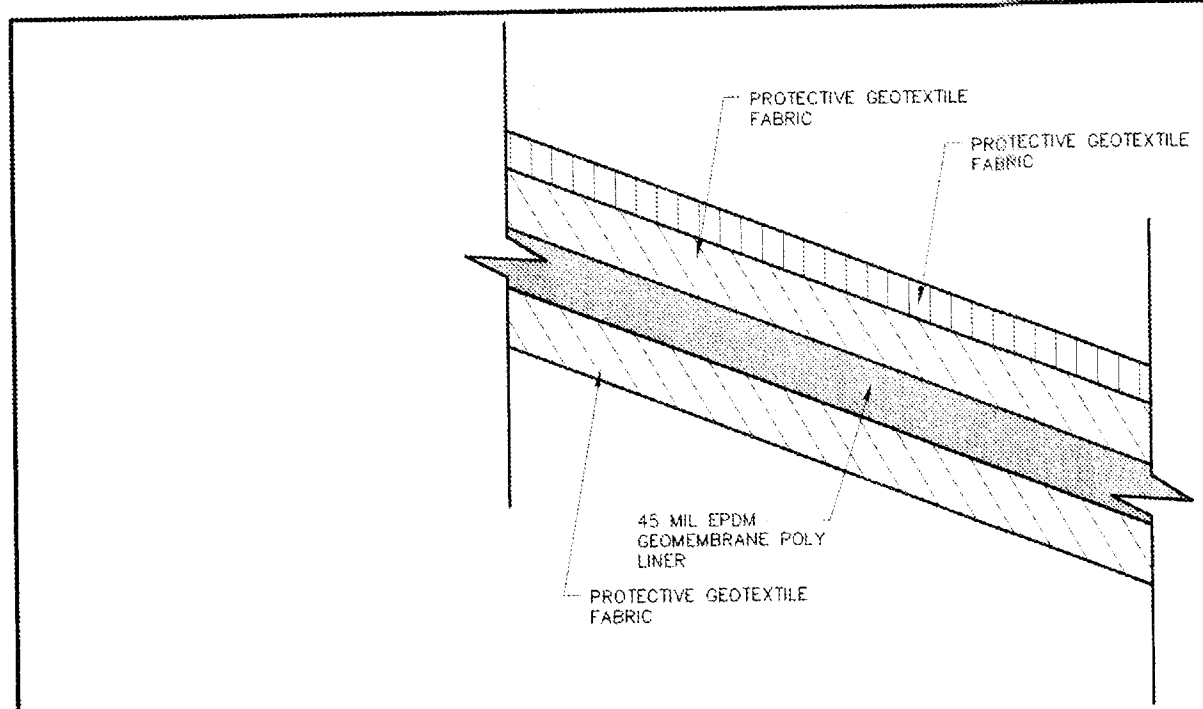
DRAINAGE PLAN

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: May 13, 2015
FILE: G:\110729\50002\CD DWG\1107295002SSP.dwg
DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R0110729-50002

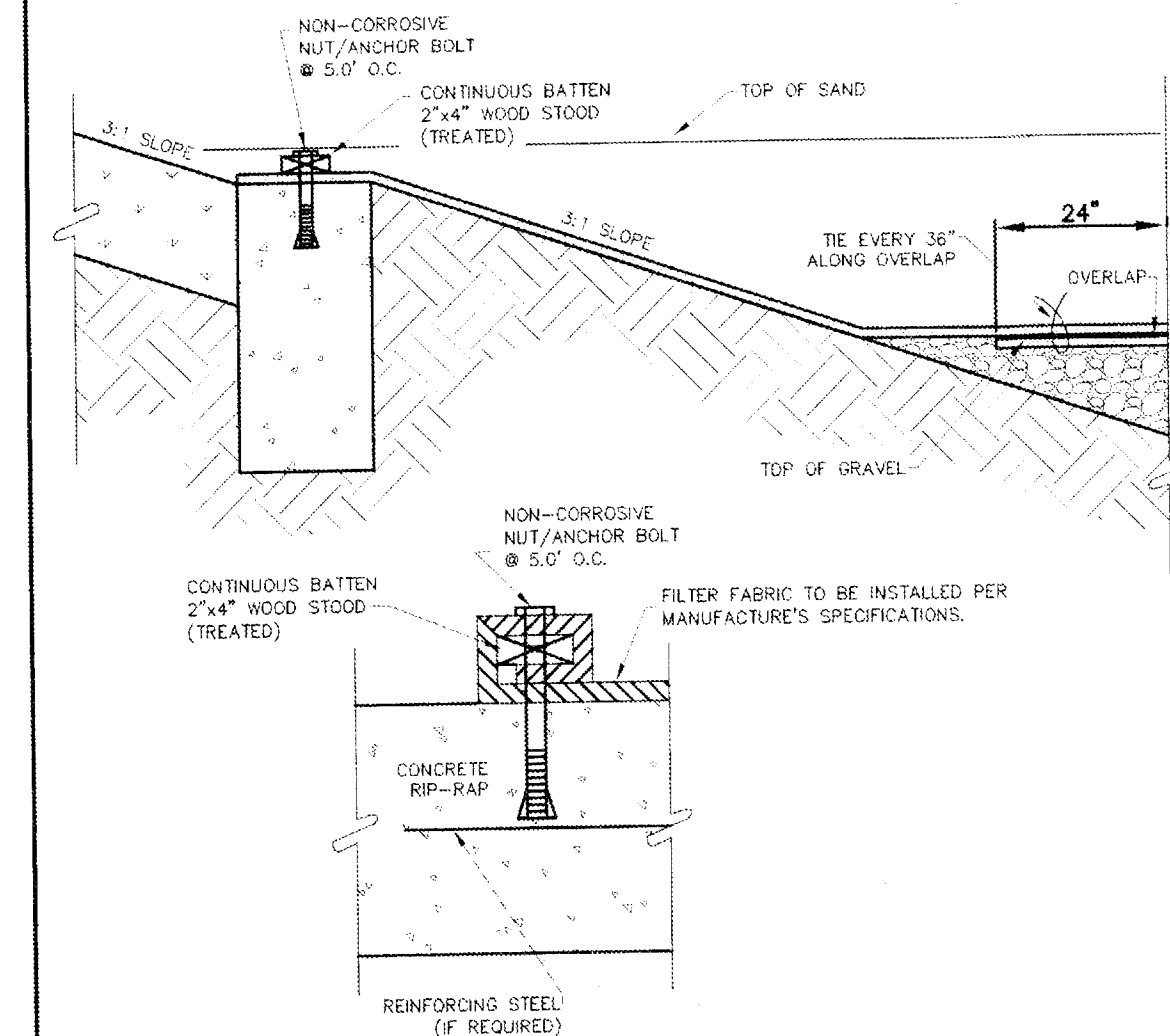
SHEET
C3.0

Date: May 13, 2015, 08:10PM User: ID: mwf002
File: G:\10729\50002\CD DWG\11072922END.DWG

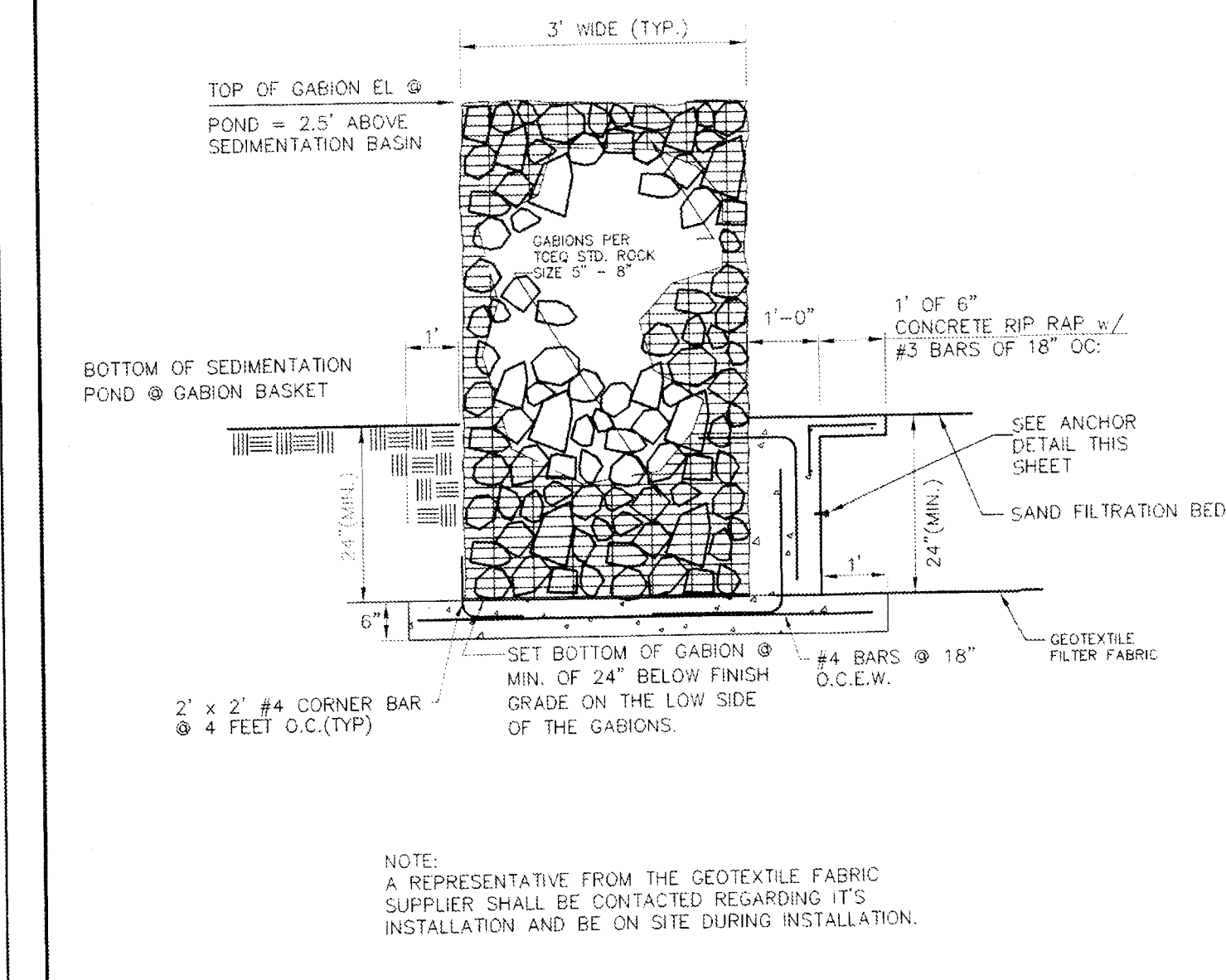


- GEOMEMBRANE POLY LINER SPECIFICATION**
- ULTRAVIOLET RESISTANT
 - THICKNESS = 45 MIL MINIMUM
 - JOINTS SHALL BE WATER TIGHT AT SEAMS.
 - ANCHOR TO WALLS
 - WATERTIGHT SEAL BETWEEN POLY LINER AND TRANSITION SURFACES.
 - BEDDING MATERIAL SHALL BE SUITABLE COMPACTED MATERIAL (NOT SAND) IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.
 - PROTECTIVE GEOTEXTILE FABRIC TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - GEOTEXTILE SHOULD BE NONWOVEN GEOTEXTILE FABRIC

C22.1 LINER DETAIL
SCALE: N.T.S.



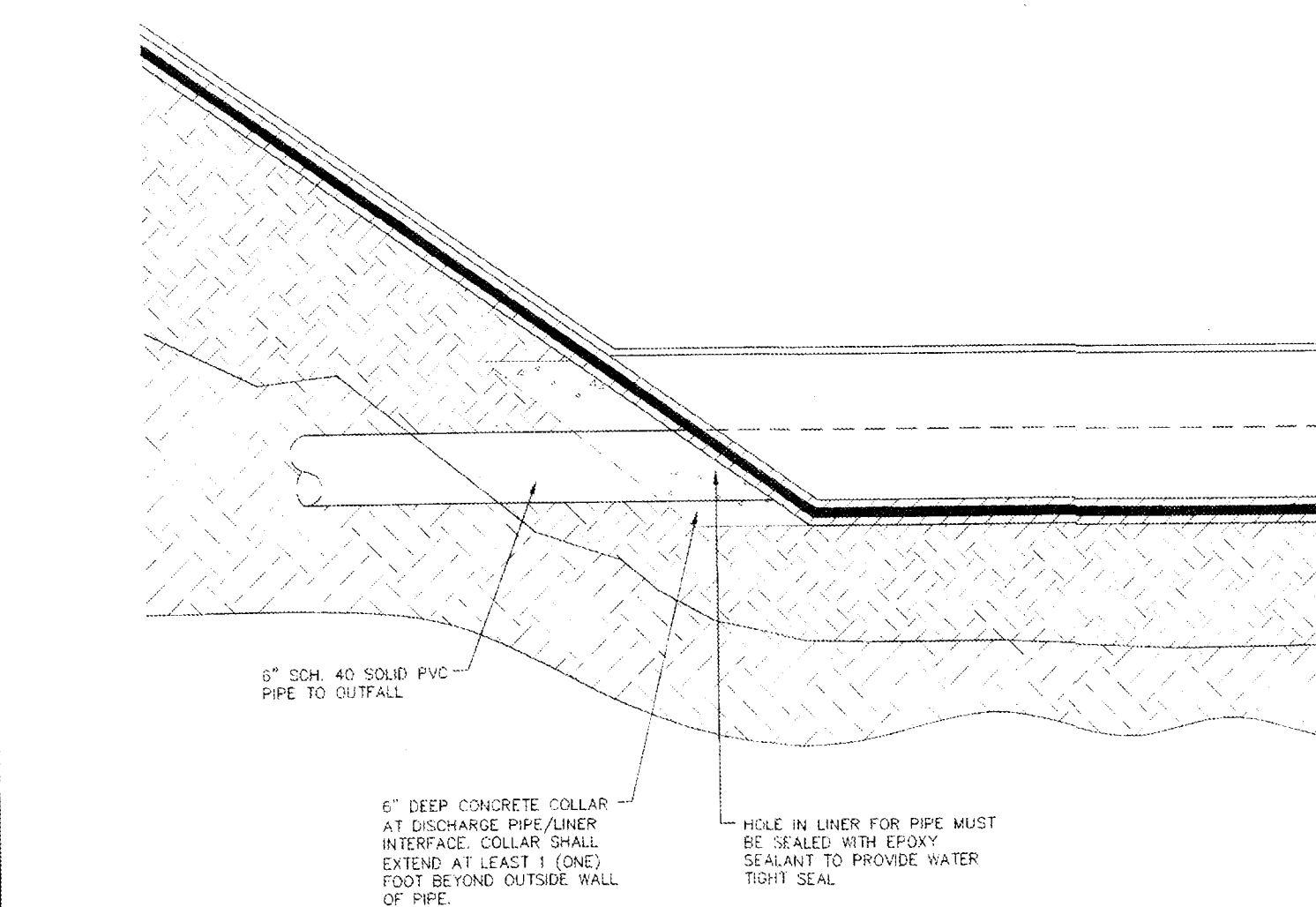
C22.5 FILTER FABRIC & ANCHORING DETAIL
SCALE: N.T.S.



C22.9 GABION BASKET WALL DETAIL
SCALE: N.T.S.

C22.2 NOT USED
SCALE: N.T.S.

C22.6 NOT USED
SCALE: N.T.S.



C22.10 OUTFALL DETAIL
SCALE: N.T.S.

GEOTEXTILE FABRIC SHALL MEET THE FOLLOWING SPECIFICATIONS:

PROPERTY	TEST METHOD	UNIT	SPECS.
MATERIAL			NONWOVEN GEOTEXTILE
UNIT WEIGHT	ASTM D-5261	OZ/SQ YD.	8 (MIN.)
FILTRATION RATE	ASTM D-4491	IN/SEC	0.20 (MIN.)
PUNCTURE STRENGTH	ASTM D-4833	LB.	125 (MIN.)
MULLEN BURST STRENGTH	ASTM D-3786	PSI	400 (MIN.)
TENSILE STRENGTH	ASTM D-4832	LB.	200 (MIN.)
EQUIV. OPENING SIZE	US STANDARD SIEVE	NO.	80 (MIN.)

SAND BED AND GEOTEXTILE FABRIC
THE TWO LAYERS MUST BE SEPARATED FROM EACH OTHER USING SUITABLE GEOTEXTILE FABRIC MEETING THE FOLLOWING SPECIFICATIONS:

FIRST (TOP) LAYER- FINE SAND, 0.02-0.04 INCH, 18 INCH DEPTH, TEST METHOD ASTM C-33
SECOND LAYER- 1/2-2 INCH GRAVEL, AT LEAST 1 INCH DEPTH TO 2 INCH DEPTH SURROUNDING UNDERDRAIN PIPING

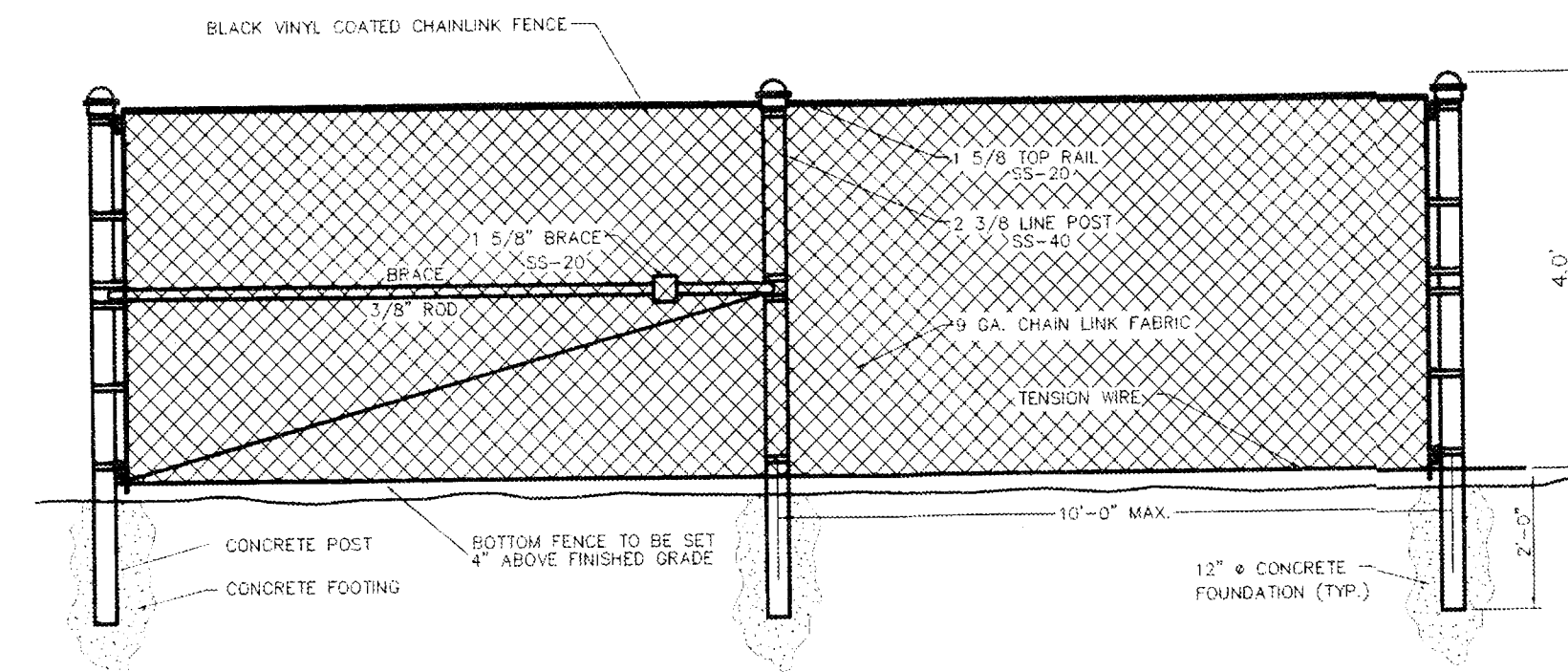
FOR SEDIMENTATION AND FILTRATION PONDS
CLAY LINERS SHALL MEET THE FOLLOWING SPECIFICATIONS:

TABLET 1-7
CLAY LINER SPECIFICATION

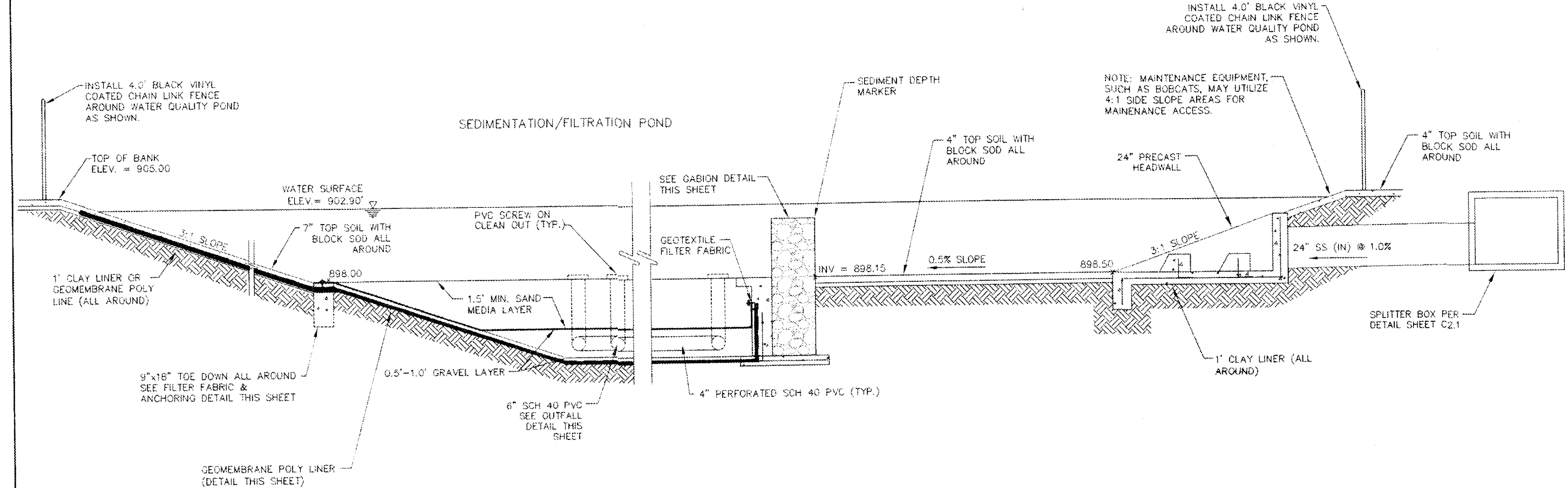
PROPERTY	TEST METHOD	UNIT	SPECS.
PERMEABILITY	ASTM D-2434	Cm/Sec	1×10^{-8}
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY

THE CLAY LINER SHALL HAVE A MINIMUM THICKNESS OF 12 INCHES.

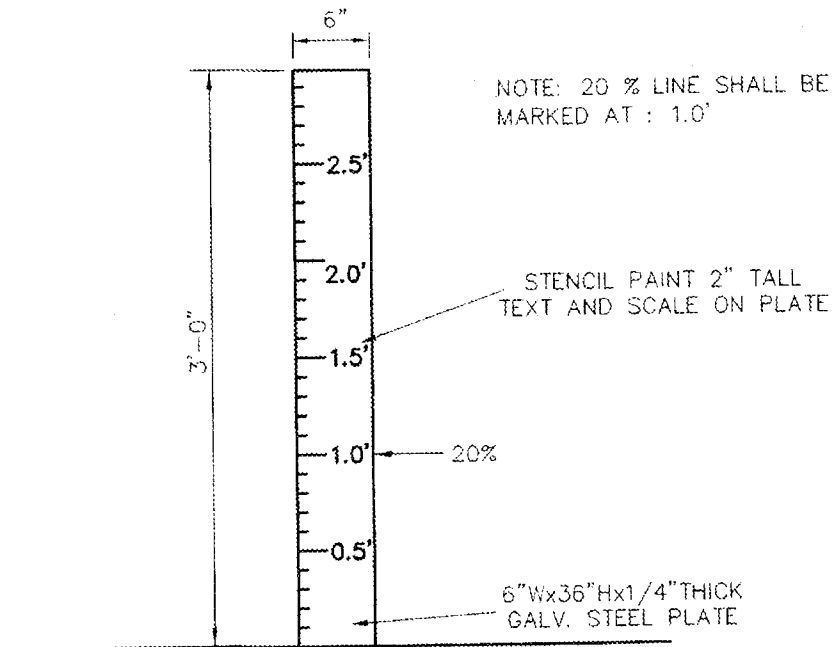
C22.3 FILTRATION POND SAND BED
SCALE: N.T.S.



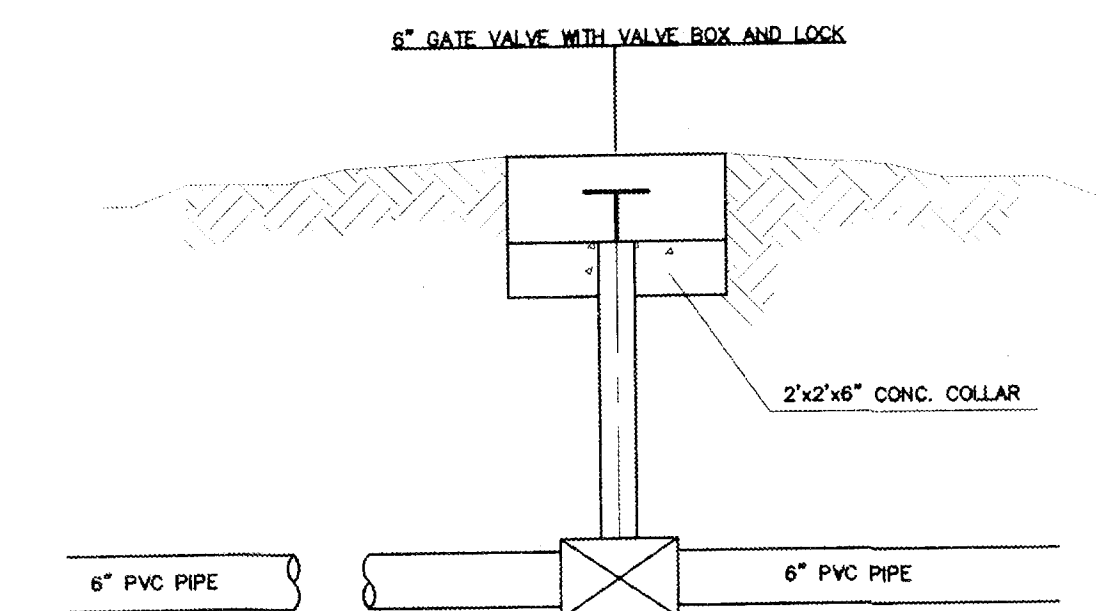
C22.7 CHAIN LINK FENCE
SCALE: N.T.S.



C22.11 SECTION 'A-A'
SCALE: N.T.S.



C22.4 SEDIMENT DEPTH MARKER
SCALE: N.T.S.



C22.8 6" GATE VALVE DETAIL
SCALE: N.T.S.

BURY
922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 325-9699 Fax: (210) 525-0639
TEBE Professional Services, Inc.
Number F-1048
Copyright © 2015

APPROVAL

REVISION

NO

DATE

5/14/15

5/14/15

WATER QUALITY POND DETAILS

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: May 13, 2015
FILE: G:\10729\50002\CD DWG\11072922END.DWG

DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R010729-50002

SHEET C2.2

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	acres
Total project area included in plan =	19.33	acres
Predevelopment impervious area within the limits of the plan =	0.00	acres
Total post-development impervious area within the limits of the plan =	15.38	acres
Total post-development impervious cover fraction =	0.80	
P =	33	inches

L_M TOTAL PROJECT = 13805 lbs.

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

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

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

Drainage Basin/Outfall Area No. =	1	
Total drainage basin/outfall area =	21.91	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	15.38	acres
Post-development impervious fraction within drainage basin/outfall area =	0.70	
L_M THIS BASIN =	13805	lbs

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Sand Filter
Removal efficiency = 89 percent

Aquatic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Impingement
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 = 21.43 acres
 A_i = 15.38 acres
 A_p = 6.05 acres
 L_R = 15725 lbs

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

Desired L_M THIS BASIN = 13805 lbs.

F = 0.88

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

Rainfall Depth = 1.50 inches
Post Development Runoff Coefficient = 0.52
On-site Water Quality Volume = 61129 cubic feet

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

Off-site area draining to BMP = 2.58 acres
Off-site impervious cover draining to BMP = 0.00 acres
Impervious fraction of off-site area = 0.00
Off-site Runoff Coefficient = 0.02
Off-site Water Quality Volume = 281 cubic feet

Storage for Sediment = 12282
Total Capture Volume (required water quality volume(s) x 1.20) = 73692 cubic feet

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

9. Filter area for Sand Filters

Designed as Required in RG-348

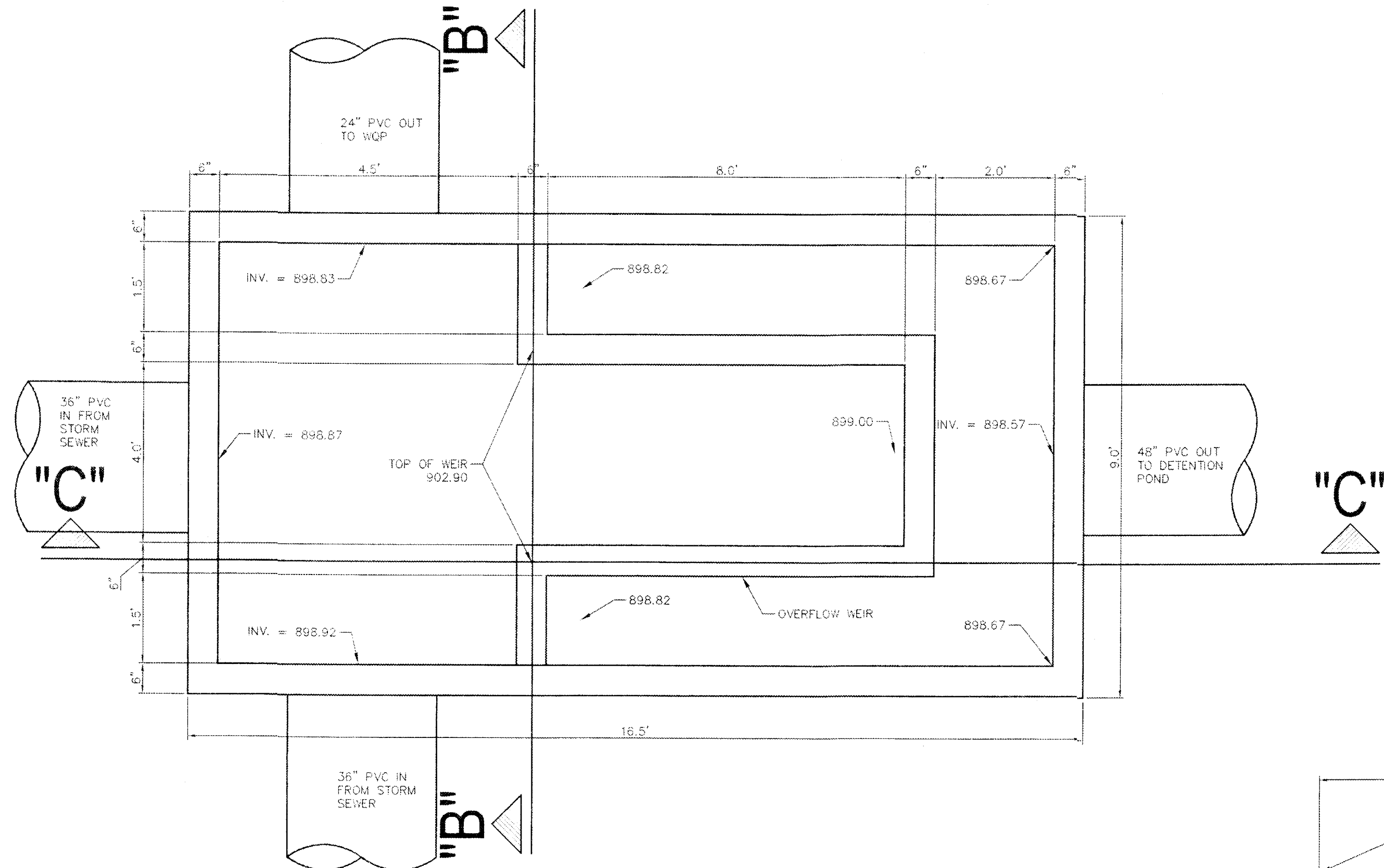
Pages 3-58 to 3-63

9A. Full Sedimentation and Filtration System

Water Quality Volume for sedimentation basin = 73692 cubic feet
Minimum filter basin area = 3396 square feet
Maximum sedimentation basin area = 30565 square feet For minimum water depth of 2 feet
Minimum sedimentation basin area = 7641 square feet For maximum water depth of 5 feet

9B. Partial Sedimentation and Filtration System

Water Quality Volume for combined basins = 73692 cubic feet
Minimum filter basin area = 6113 square feet
Maximum sedimentation basin area = 24452 square feet For minimum water depth of 2 feet
Minimum sedimentation basin area = 1528 square feet For maximum water depth of 5 feet



SHARP CRESTED RECTANGULAR WEIR CALCULATION

$$L_w = Q / (C * H^{(3/2)})$$

Q100 = 191.2 CFS

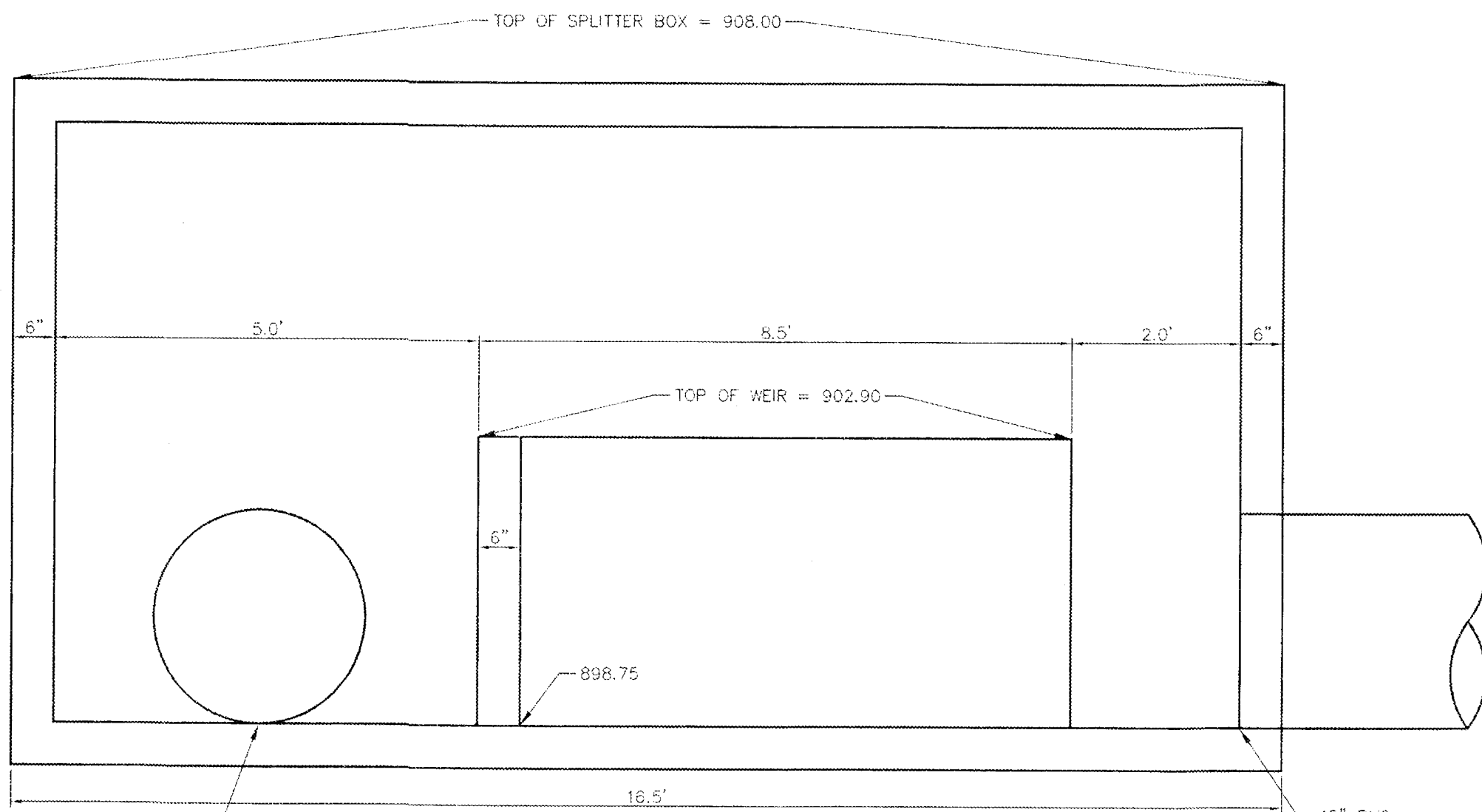
C = 3.33 WEIR COEFFICIENT

H = 2.0 FT

Lw = 22.90 FT REQUIRED

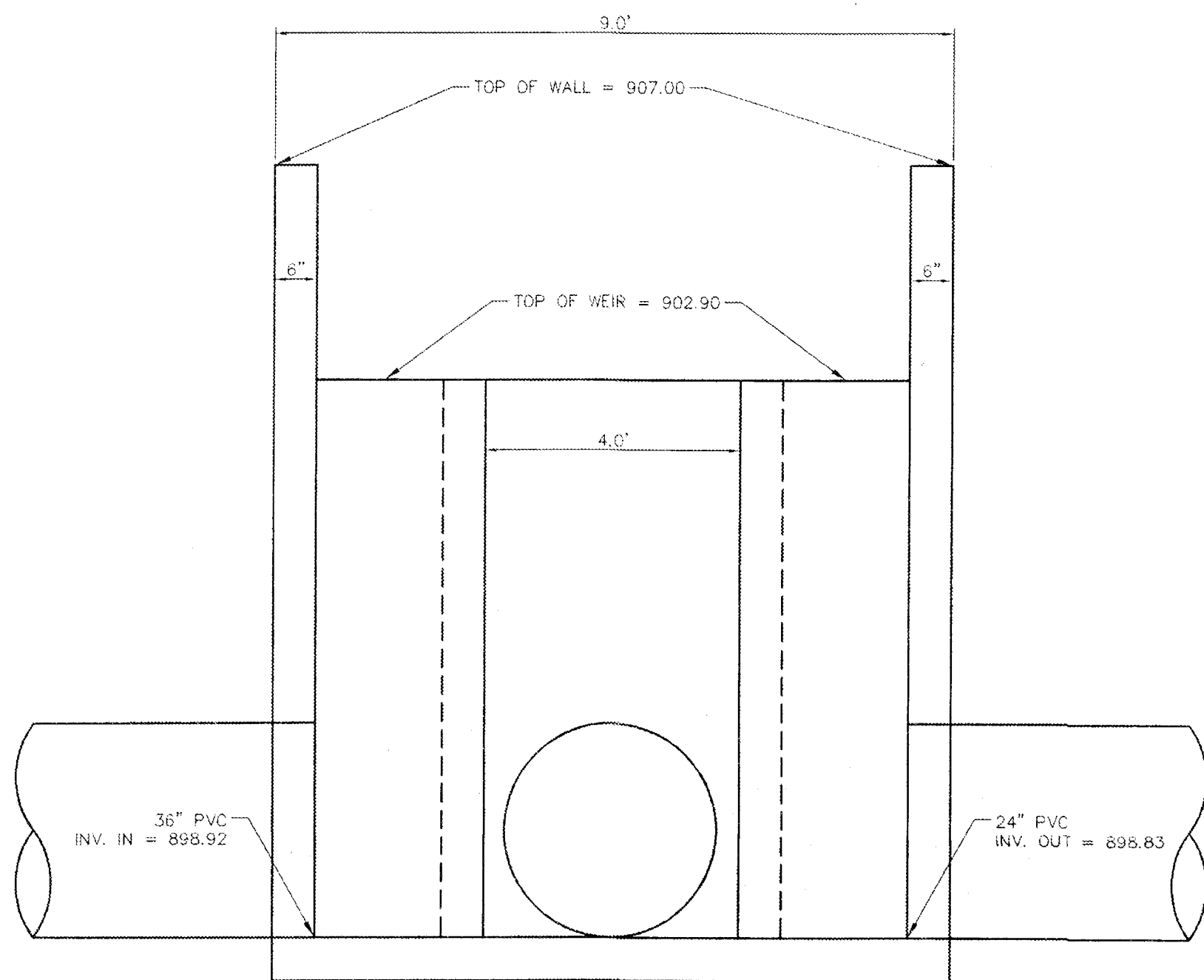
Lw = 23 FT PROVIDED

NOTE: SPLITTER BOX TO BE STRUCTURALLY DESIGNED BY LICENSED PROFESSIONAL STRUCTURAL ENGINEER.



SECTION 'C-C'

SCALE: N.T.S.



SECTION 'B-B'

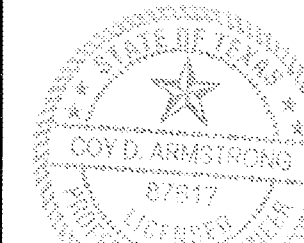
SCALE: N.T.S.

SPLITTER BOX DETAILS

SCALE: N.T.S.

BURY

922 Isom Road, Suite 100
San Antonio, TX 78216
Tel: (210) 525-9090 Fax: (210) 525-0929
TBE Registration Number F-1048
Copyright © 2015



5/14/15

WATER QUALITY POND DETAILS

EMERALD COTTAGES
OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

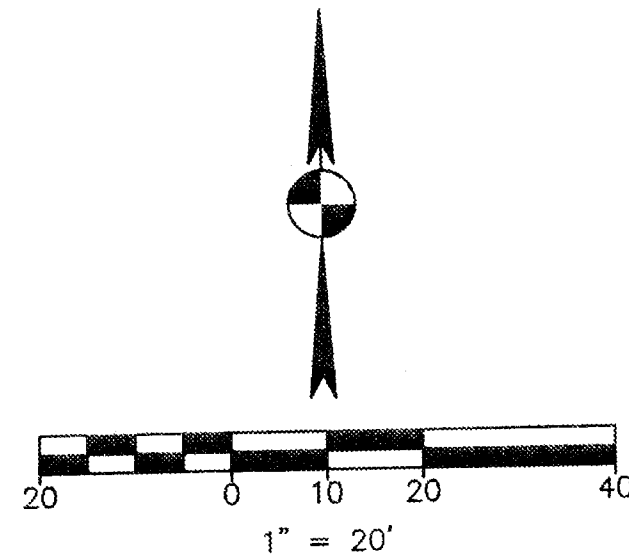
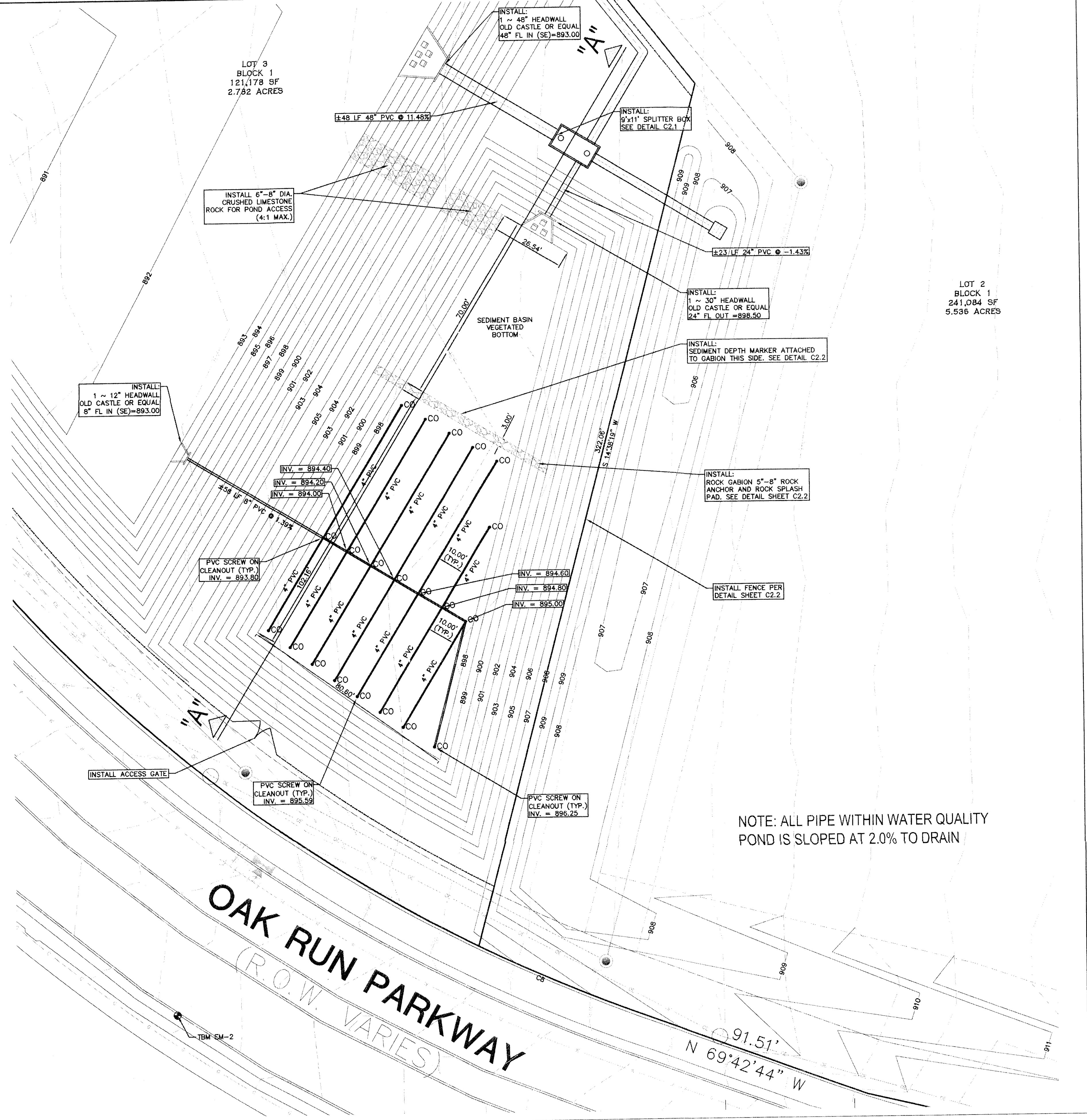
PLOTTING SCALE: AS NOTED
DATE REVISED: May 13, 2015
FILES: C:\110729\00002\CD Dwg\1107290002.dwg
DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R010729-50002

SHEET
C2.1

Date: May 13, 2015, 08:19:44 User: ID: eartford
File: G:\110729\150002 CO DWG\110729002P04.DWG

C2.0.1

SEDIMENTATION/FILTRATION BASIN
SCALE: 1" = 20'



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER POLLUTION ABATEMENT PLAN
GENERAL CONSTRUCTION NOTES

1. WRITTEN CONSTRUCTION NOTIFICATION MUST BE GIVEN TO THE APPROPRIATE TCEQ REGIONAL OFFICE NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF THE REGULATED ACTIVITY. INFORMATION MUST 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 AND THE NAME AND TELEPHONE NUMBER OF THE CONTACT PERSON.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
3. IF ANY SENSITIVE FEATURE IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. THE REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MAY NOT PROCEED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE METHODS PROPOSED TO PROTECT THE SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM ANY POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED. 500 FEET OF A DOMESTIC INDUSTRIAL IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.
5. PRIOR TO COMMENCEMENT OF 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 TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION 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.
6. 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).
7. 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.
8. 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).
9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE:
 1. CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS. TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
 11. THE FOLLOWING RECORDS SHALL 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.
 12. THE HOLDER OF ANY APPROVED EDWARDS AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
 - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMES, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
 - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
 - C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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

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

BMP CALCULATION SUMMARY

WATERSHED AREA = 21.07 ACRES
RUNOFF DEPTH = 15 INCHES
BASIN STORMWATER DEPTH = 4.90 FEET
SAND FILTER AREA REQUIRED: = 6,113 S.F.
SAND FILTER AREA PROVIDED: = 6,806 S.F.
SEDIMENTATION AREA REQUIRED: = 1,528 S.F.
SEDIMENTATION AREA PROVIDED: = 2,583 S.F.
CAPTURE VOLUME REQUIRED: = 73,692 C.F.
CAPTURE VOLUME PROVIDED: = 85,244 C.F.
Q100 = 191.20 CFS
* VOLUME OF POND PROVIDED TO ACCOUNT FOR DEVELOPMENT OF UP TO 16.42 ACRES OF IMPERVIOUS COVER ON 21.07 ACRE TRACT

EMERALD COTTAGES

OAK RUN & INDEPENDENCE DRIVE
NEW BRAUNFELS, TEXAS

PLOTTING SCALE: AS NOTED
DATE REVISED: May 13, 2015
FILE: G:\110729\150002 CO DWG\110729002P04.DWG
DRAWN BY: ENW
DESIGNED BY: CDA
REVIEWED BY: CDA
PROJECT NO.: R0110729-S0002

SHEET
C2.0

WATER QUALITY POND

BURY
922 Beam Road, Suite 100
San Antonio, TX 78216
Tel: (210) 545-8900 Fax: (210) 545-2529
TBE Registration Number F-1048
Copyright © 2015

COY D. ARMSTRONG
7/5/17
5/14/15

ATTACHMENT G

INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

**INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
EMERALD COTTAGES
NEW BRAUNFELS, TEXAS**

The owner of the lot where a sedimentation/filtration basin is located is responsible for the inspection, maintenance, and repair of the water quality pond(s).

- **First year of operation.** The sand filter BMPs will be inspected on a *quarterly basis and after large storms for the first year of operation.*
- **Inspections.** BMP facilities will be inspected *at least twice a year (once during or immediately following wet weather)* to evaluate facility operation. During each inspection, erosion areas inside and downstream of the BMP will be identified and repaired or re-vegetated immediately. With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, retaining walls, etc.) will be identified and repaired immediately. Cracks, voids and undermining will be patched/filled to prevent additional structural damage. Trees and root systems will be removed to prevent growth in cracks and joints that can cause structural damage. The inspections should be carried out with as-built pond plans in hand.
- **Sediment Removal.** Sediment will be removed from the inlet structure and sedimentation chamber *when sediment buildup reaches a depth of 6 inches or when the proper functioning of inlet and outlet structures is impaired. Sediment will be cleared from the inlet structure at least every year and from the sedimentation basin at least every 5 years.*
- **Media Replacement.** Maintenance of the filter media will be performed *when the drawdown time exceeds 48 hours.* When this occurs, the upper layer of sand will be removed and replaced with new material meeting the original specifications. Any discolored sand will also be removed and replaced. In filters that have been regularly maintained, this will be limited to the top 2 to 3 inches.
- **Debris and Litter Removal.** Debris and litter that accumulates near the sedimentation basin outlet device will be removed *during regular mowing operations and inspections.* (Particular attention will be paid to floating debris that can eventually clog the control device or riser.)
- **Filter Underdrain.** The underdrain piping network will be cleaned to remove any sediment buildup *as needed* to maintain design drawdown time.

**INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN
FOR
EMERALD COTTAGES
NEW BRAUNFELS, TEXAS**

- **Mowing.** Grass areas in and around sand filters will be mowed *at least twice annually* to limit vegetation height to 18 inches. Vegetation on the pond embankments will be mowed as appropriate to prevent the establishment of woody vegetation.
- **Rock Gabion.** Rock gabion structures, when used, will be removed from pond prior to filter media replacement, cleaned and returned to the original location after the filter media replacement is complete.
- **Nuisance Control.** Most public agencies surveyed indicate that control of insects, weeds, odors, and algae may be needed in some water quality ponds. Nuisance control is probably the most frequent maintenance item demanded by local residents. If the ponds are properly sized and vegetated, these problems should be rare in water quality ponds except under extremely dry weather conditions. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.). Biological friendly methods of control are preferable to chemical applications.

Non-Routine Maintenance

- **Structural Repairs and Replacement.** Eventually, the various inlet/outlet and riser works in the water quality basins will deteriorate and must be replaced. Some public works experts have estimated that corrugated metal pipe (CMP) has a useful life of about 25 years, while concrete barrels and risers may last from 50 to 75 years. The actual life depends on the type of soil, pH of runoff, and other factors. Polyvinyl chloride (PVC) pipe is a corrosion resistant alternative to metal and concrete pipes. Structural repair and/or replacement may be necessary for any structural objects with signs of corrosion or loss of structural integrity.

Westpointe Commercial, Ltd
Mark L. Wauford

Name of Owner/Agent

Westpointe Commercial, Ltd
By: Westpointe G.P. Inc.

By: Mark L. Wauford
Signature of Owner/Agent

Mark L. Wauford, Manager

5/12/15
Date

ATTACHMENT H

PILOT-SCALE FIELD TESTING PLAN (Not Applicable)

ATTACHMENT I

**MEASURES FOR MINIMIZING
SURFACE STREAM CONTAMINATION
(Not Applicable)**

AUTHORIZATION AND APPLICATION FORMS

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

I Mark L. Wauford,
Print Name

Manager,
Title - Owner/President/Other

of Westpointe, G.P., LLC, General Partner of Westpointe Commercial, LTD.,
Corporation/Partnership/Entity Name

have authorized Coy D. Armstrong, P.E.,
Print Name of Agent/Engineer

of Bury-SAN, Inc.,
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Westpointe Commercial, Ltd
By: Westpointe G.P. LLC

By Mark L. Waufer
Applicant's Signature

Mark L. Waufer, Manager

Date 5/12/15

THE STATE OF Virginia §

County of Cheslerfield §



BEFORE ME, the undersigned authority, on this day personally appeared Mark Waufer 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 12th day of May, 2015.

Maria Theresia Fultz
NOTARY PUBLIC

Maria Theresia Fultz
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 6/30/17

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Emerald Cottages

Regulated Entity Location: West of Oak Run Parkway and Independence Drive

Name of Customer: Westpointe GP, LLC

Contact Person: Mark L. Wauford

Phone: (830) 414-3040

Customer Reference Number (if issued): CN 604362186

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

☒ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

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	N/A Acres	\$ N/A
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	19.33 Acres	\$ 6,500
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	N/A Acres	\$ N/A
Sewage Collection System	N/A L.F.	\$ N/A
Lift Stations without sewer lines	N/A Acres	\$ N/A
Underground or Aboveground Storage Tank Facility	N/A Tanks	\$ N/A
Piping System(s)(only)	N/A Each	\$ N/A
Exception	N/A Each	\$ N/A
Extension of Time	N/A Each	\$ N/A

Signature: 

Date: 5-14-15

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

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

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150

Westpointe Commercial Ltd
325 Brown Street
Petersburg, VA 23803

 **IBC BANK.**
San Antonio, TX IBC Voice - (210) 518-2525
30-1328-1140

1266

1266

***Six Thousand Five Hundred & No/100 Dollars

DATE

AMOUNT

12/17/14

\$6,500.00

PAY
TO THE
ORDER
OF

TEXAS COMMISSION ON ENVIRONMENTAL
QUALITY
MAIL CODE 214 PO BOX 13088
AUSTIN, TX 78711-3088


AUTHORIZED SIGNATURE

⑈001266⑈ ⑆114013284⑆2410741266⑈

"RECEIVED TCEQ"
SAN ANTONIO
REGION

2015 JAN -6 AM 8:33