



SAN ANTONIO WATER SYSTEM
CROSS MOUNTAIN TRAIL 24-INCH WATER TRANSMISSION MAIN PROJECT

SAWS JOB NUMBER 10-7003

ADDENDUM NO. 1
April 20th, 2012

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provided in submitted copies of the proposal.

SPECIFICATIONS:

Special Conditions

Add the following Sections:

1.7 The Traffic Control Plan provided in these construction documents are for Information Purposes only. Refer to Note 1 of the Traffic Control Plan, Sheet TC1. The Contractor shall be responsible for submitting a Traffic Control Plan signed and sealed by an eligible Professional Engineer in the State of Texas. The Traffic Control Plan is subject for approval by the Bexar County Traffic Engineering Division.

1.8 The total area width for the entire alignment is equal or more than 17-feet and all work shall be conducted within the right-of-way parkway and outside of the edge of pavement limits. Any work outside of these limits shall be approved by the Engineer and at no expense to the Owner. If the Contractor opts to request for more working area, it shall be at their behest and shall be subject to Bexar County approval. SAWS shall not be responsible for any damage to the existing roadway pavement subject to this change request.

PLANS:

Sheet MD1

Revised the Trench Details:

Revisions to the Trench Details to include Bexar County roadway design details, stabilization requirements, and trench detail on natural ground w/ concrete cap details.

See Exhibits D for plan sheets revision.

Sheets TP 1 through TP 3

Revised the Tree Canopy Delineation for Tree Permit Plans:

Revised the Tree Permit Protection Plan sheets which delineate the existing tree canopy along the public right-of-way for tree preservation and clearing purposes.

See Exhibits A for Plan Sheets revision.

Sheets EC2 through EC4

Revised the Erosion Control and Sedimentation Plan General Note No. 7:

Added the following note: "NO VEGETATION RESTORATION SHALL BE REQUIRED WHERE ROCK IS ABOVE GROUND AND WHERE THE AREAS ARE UNDISTURBED."

See Exhibits B for plan sheets revision.

Each bidder is requested to acknowledge receipt of this Addendum No. 1 by his/her signature affixed hereto and to file same with and attach to his/her bid.



4-20-12

A handwritten signature in black ink, appearing to read "Juan G. Rodriguez P.E.", written over a horizontal line.

Juan G. Rodriguez, P. E.
Project Engineer
Production & Transmission Engineering

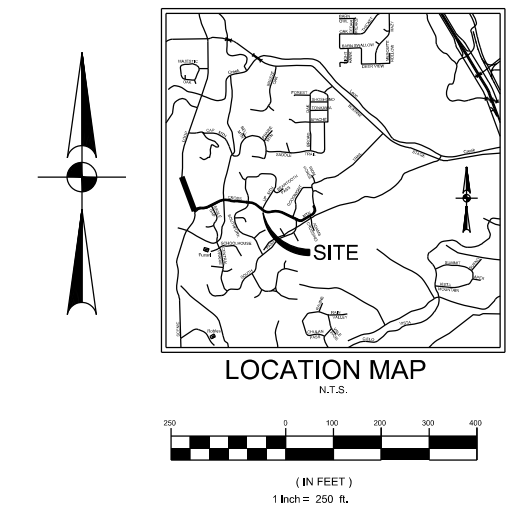
The undersigned acknowledges receipt of this Addendum No. 1 and the bid submitted herewith is in accordance with the information and stipulations set forth.

Date

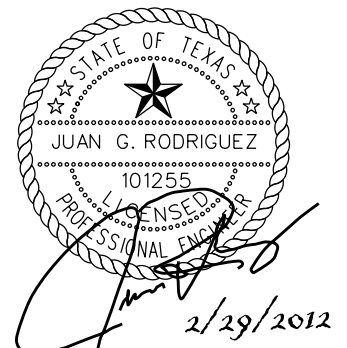
Signature of Bidder

This Addendum, including these two (2) pages, is twenty (20) pages with attachment in its entirety.

- Attachments:
- Exhibit A – Tree Permit Protection Plan, Sheets TP1-TP3
 - Exhibit B – Erosion Control and Sedimentation Plan, Sheets EC2 – EC4
 - Exhibit C – Contractor Questions and Clarifications
 - Exhibit D – Trench Excavation Detail Exhibit
 - Exhibit E – Project Location Map
 - Exhibit F – TxDOT Specification Item 316, Surface Treatments



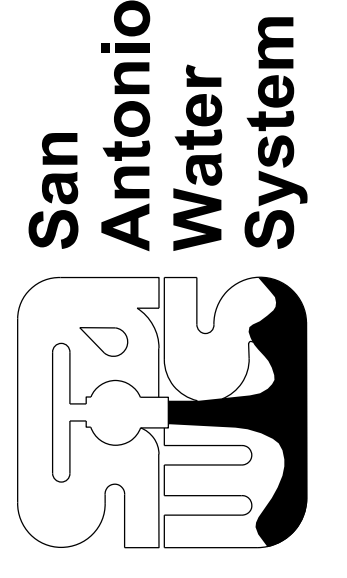
JOB NO.
10-7003



No.	Description	Drn.	Approved	Date
1	PER ADDENDUM No. 1	TMJ	JGR	4/20/2012

LEGEND	
	PROP. 24" WATER MAIN
	PROP. TREE PROTECT LIMITS
	R.O.W.
	SURVEYED TREES
	BORE PIT
	TREE PROTECTION FENCE

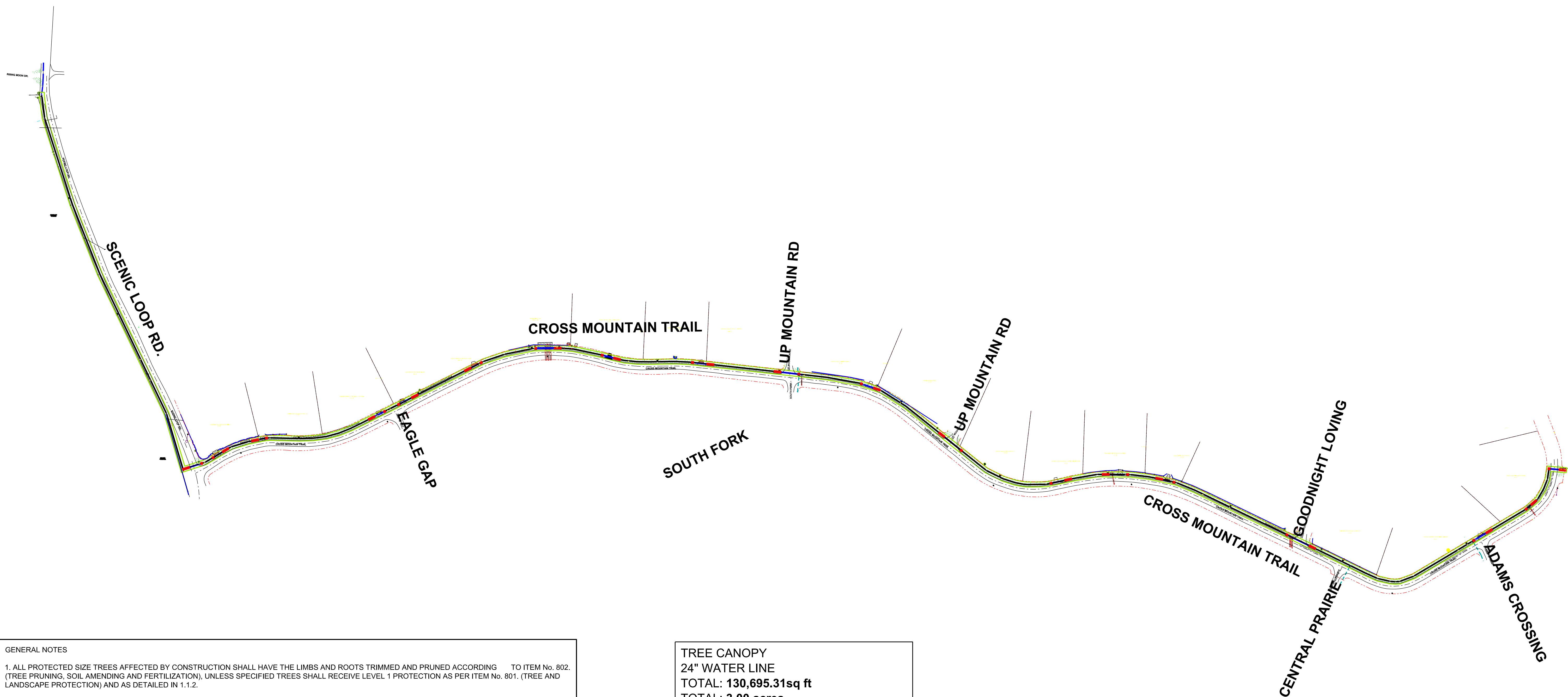
Date: 05/02/2011
 Drawn by: TMJ
 Designed by: TMJ
 Checked by: JGR
 Scale: AS NOTED ABOVE
 Approved by: JGR



SAWS JOB NO. 10-7003
 CROSS MOUNTAIN TRAIL
 24" WATER TRANSMISSION MAIN
 PROJECT

TREE PROTECTION PERMIT
 OVERALL LAYOUT

DRAWING NO.
TP1
24 OF 35

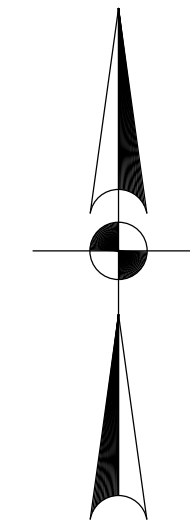
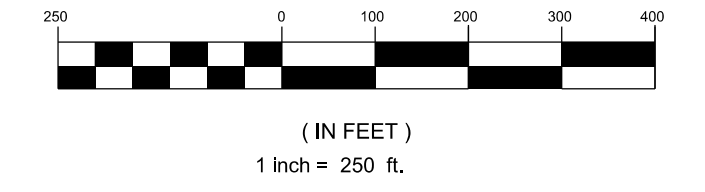
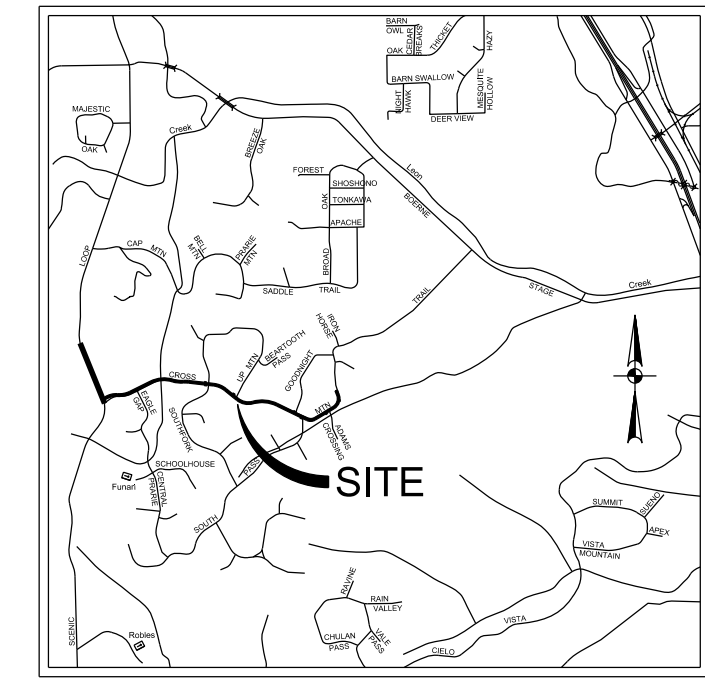
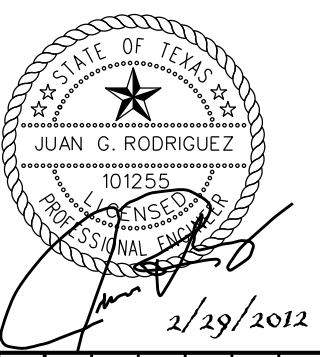


- GENERAL NOTES
- ALL PROTECTED SIZE TREES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802. (TREE PRUNING, SOIL AMENDING AND FERTILIZATION), UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 801. (TREE AND LANDSCAPE PROTECTION) AND AS DETAILED IN 1.1.2.
 - ALL TREES SHALL REMAIN UNLESS NOTED ON THE CITY APPROVED PLANS.
 - NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND PROTECTION MEASURES HAVE NOT BEEN COMPLETED AND APPROVED BY THE CITY ARBORIST OFFICE.
 - TREE PROTECTION FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
 - THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES (3") IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR IF ROOTS LARGER THAN THREE INCHES (3") WITHIN THE FIVE FOOT (5') ROOT PROTECTION ZONE NEED TO BE PRUNED.
 - THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS ONE FOOT (1') PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A TEN INCH (10") DIAMETER TREE WOULD HAVE A TEN FOOT (10') RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN TWENTY (20) MINUTES TO PREVENT OAK WILT.
 - NO DISTURBANCE SHALL OCCUR CLOSER TO THE TRUNK THAN HALF THE ROOT PROTECTION ZONE AREA.
 - TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND.
 - TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED.
 - EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
 - ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST OFFICE PRIOR TO ITS REMOVAL.

TREE CANOPY 24" WATER LINE TOTAL: 130,695.31sq ft TOTAL: 3.00 acres
TREE CANOPY IN NON FLOOD PLAIN TOTAL: 11,514.74sq ft TOTAL REMOVED: 9,433sq ft TOTAL PRESERVED: 22.07%
TREE CANOPY IN FLOOD PLAIN TOTAL: 0.00sq ft TOTAL REMOVED: 0.0sq ft TOTAL PRESERVED: 100%

**REVISED TREE PLAN TO INCLUDE
 TREE PRESERVATION AND CLEARING
 LIMITS AS PER ADDENDUM NO. 1**

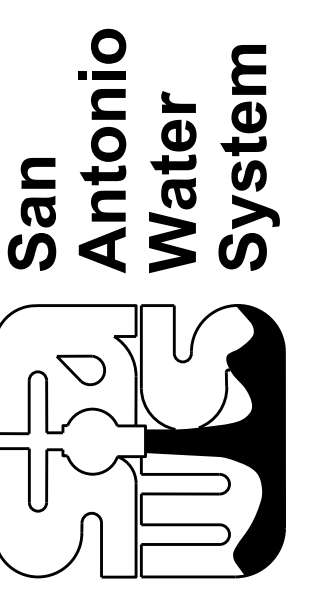
EXHIBIT "A"



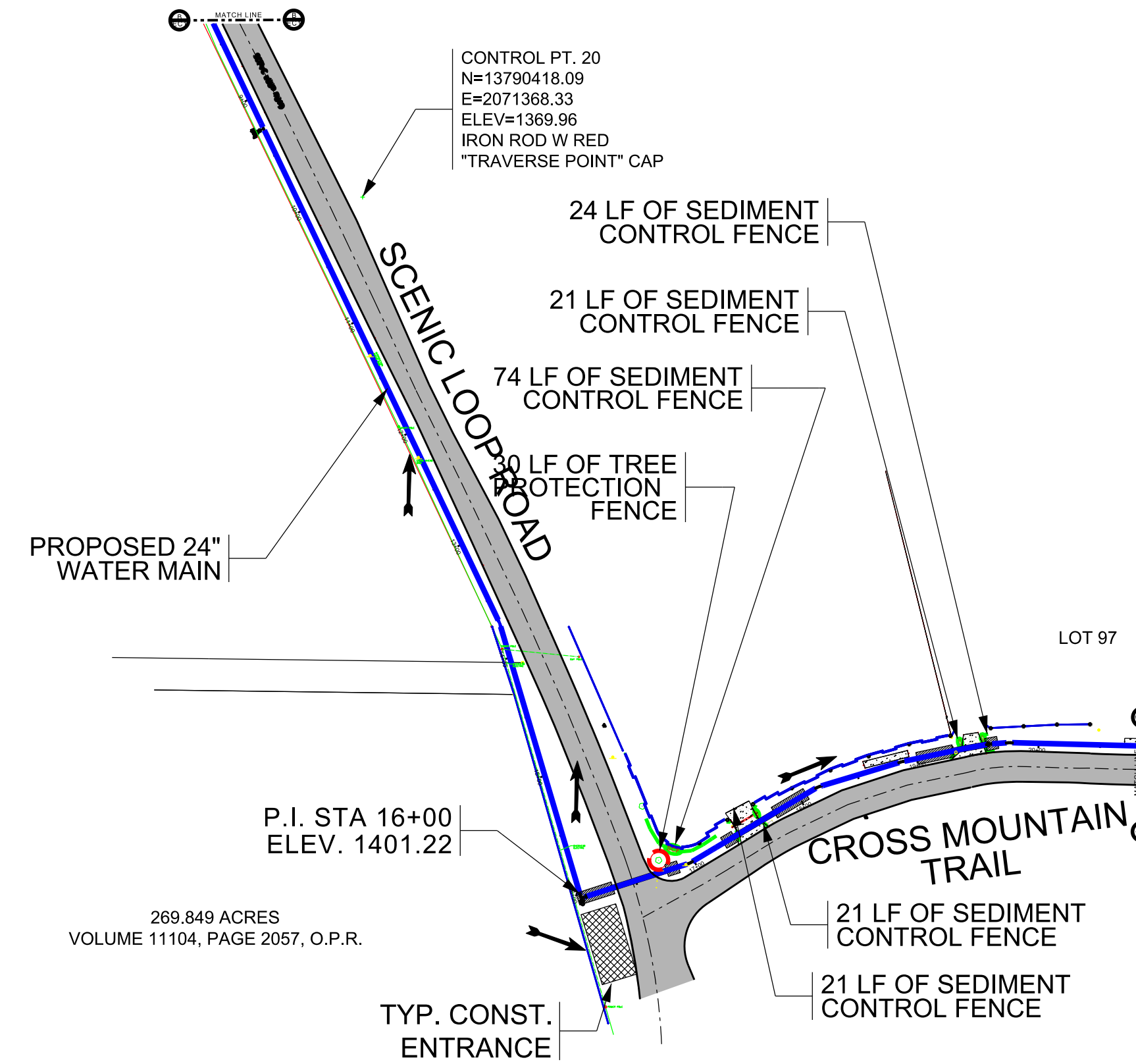
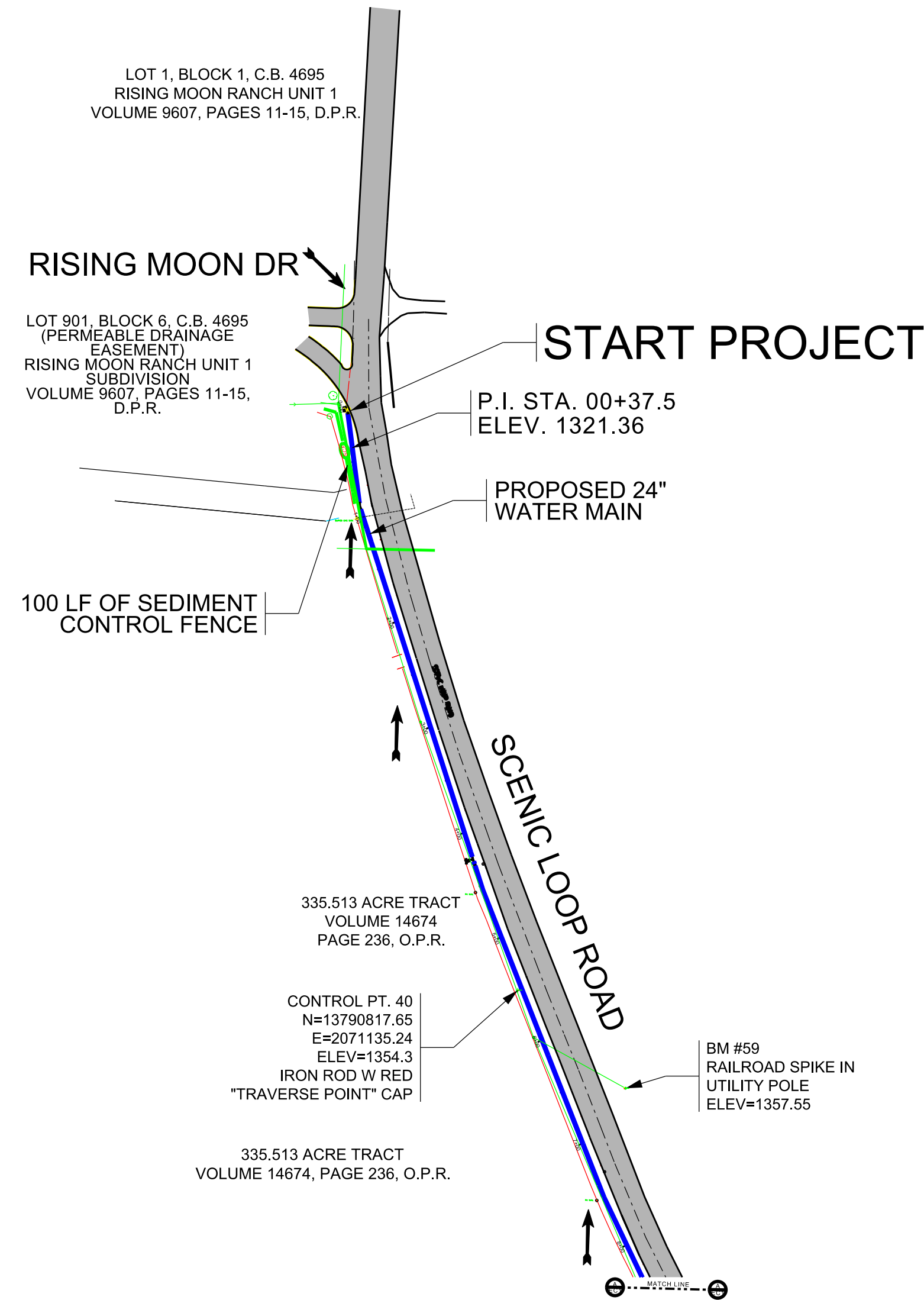
REVISIONS	Date	Appr. JGR	Drn. JGR
No. 1	4/19/12		
Description	PER ADDENDUM No. 1 RESPONSE		

INFORMATION
SEE LEGEND THIS SHEET

Date: 01/27/2011	Drawn by: TMJ
Designed by: TMJ	Checked by: JGR
Scale:	Approved by: JGR
Map No:	



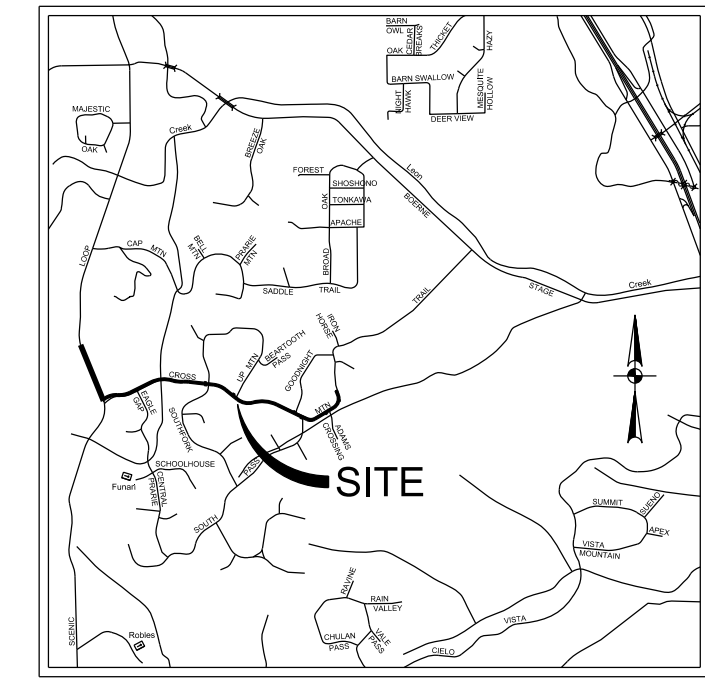
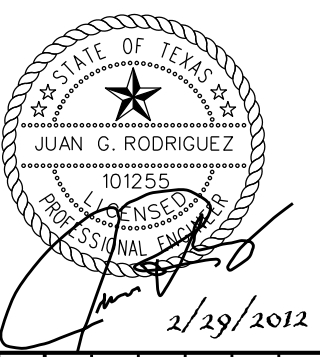
SAWS JOB NO. 10-7003
CROSS MOUNTAIN TRAIL
24" WATER TRANSMISSION MAIN
PROJECT
EROSION CONTROL & SEDIMENTATION PLAN



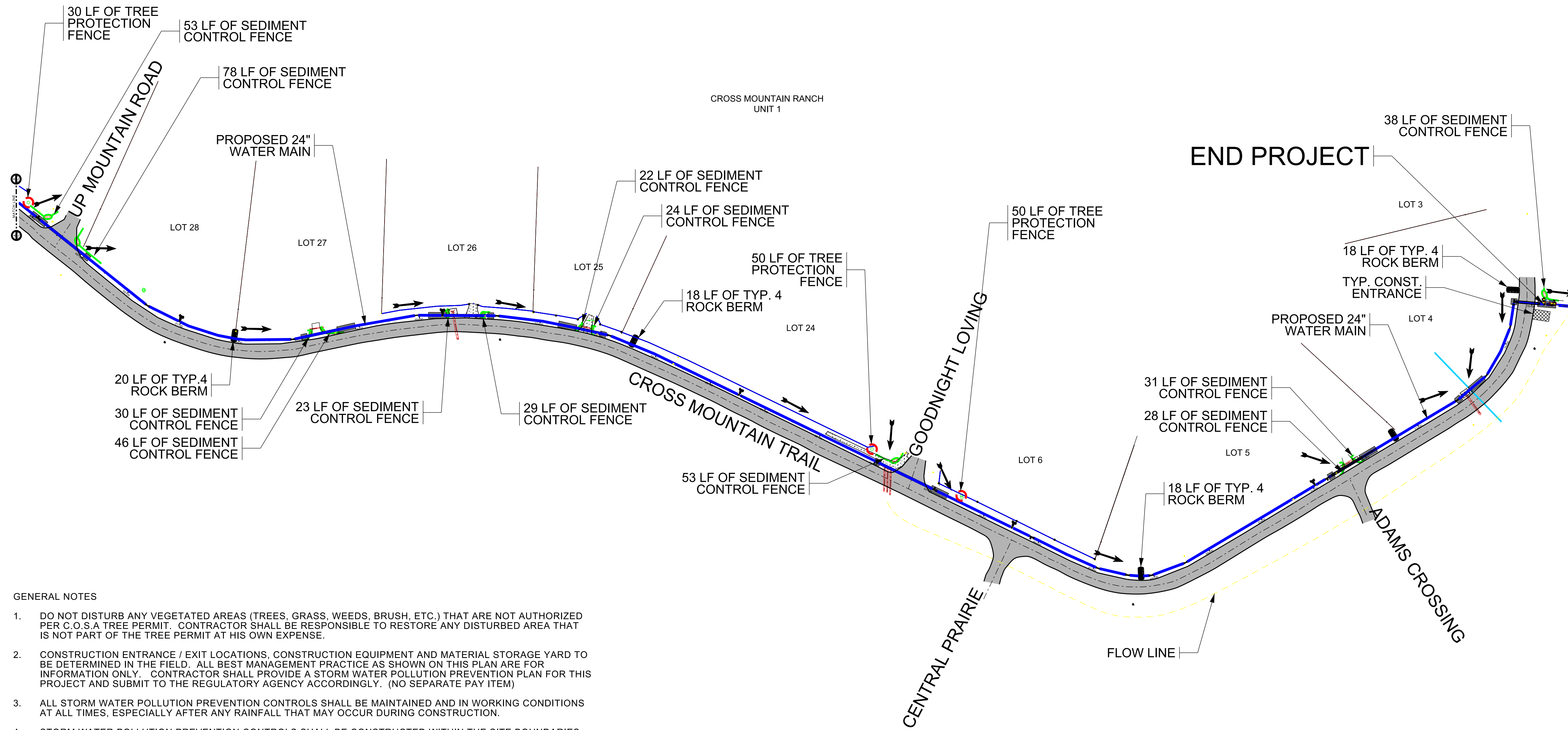
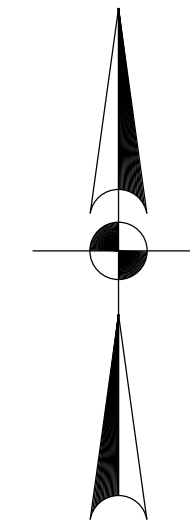
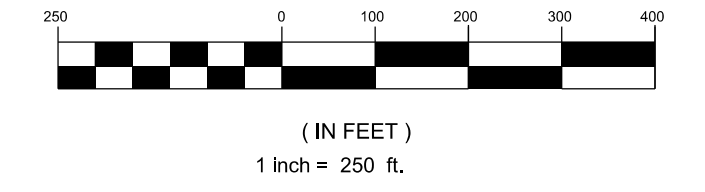
GENERAL NOTES

- DO NOT DISTURB ANY VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) THAT ARE NOT AUTHORIZED PER C.O.S.A TREE PERMIT. CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE ANY DISTURBED AREA THAT IS NOT PART OF THE TREE PERMIT AT HIS OWN EXPENSE.
- CONSTRUCTION ENTRANCE / EXIT LOCATIONS, CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD. ALL BEST MANAGEMENT PRACTICE AS SHOWN ON THIS PLAN ARE FOR INFORMATION ONLY. CONTRACTOR SHALL PROVIDE A STORM WATER POLLUTION PREVENTION PLAN FOR THIS PROJECT AND SUBMIT TO THE REGULATORY AGENCY ACCORDINGLY. (NO SEPARATE PAY ITEM)
- ALL STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES, ESPECIALLY AFTER ANY RAINFALL THAT MAY OCCUR DURING CONSTRUCTION.
- STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE CONSTRUCTED WITHIN THE SITE BOUNDARIES AND INSTALLED ACCORDINGLY. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES FOR VISUAL CLARITY.
- BEST MANAGEMENT PRACTICE APPURTENANCES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIEND AREAS. BEST MANAGEMENT PRACTICE APPURTENANCES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
- UPON COMPLETION OF THE PROJECT, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES.
- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS BY APPLYING HYDROMULCHING AND/OR PERMANENT PLANTING, SODDING, OR SEEDING TO RESTORE TO ITS NATURAL OR BETTER CONDITIONS. NO VEGETATION RESTORATION SHALL BE REQUIRED WHERE ROCK IS ABOVE GROUND ANDWHERE THE AREAS ARE UNDISTURBED.
- PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICE MEASURES WITHIN COUNTY RIGHT-OF-WAY WITH BEXAR CO., C.O.S.A. AND SAWS COI.
- CONTRACTOR SHALL PROVIDE A BEST MANAGEMENT APPURTENANCE FOR ANY STORED MATERIAL THAT MAY RELEASE POLLUTANTS OUT, EXISTING CREEKS, STREAMS, ECT.
- NO CHLORINATION DISCHARGE IS ALLOWED INTO ANY EXISTING CREEKS, STREAM, ETC. A DECHLORINATION STATION MUST BE PROVIDED FOR TESTING PURPOSES.
- REFER TO TEMPORARY EROSION CONTROL NOTES ON SHEET GN1 FOR ADDITIONAL INFORMATION.

LEGEND	
	CONSTRUCTION ENTRANCE/EXIT
	SEDIMENT CONTROL FENCE
	TREE PROTECTION FENCE
	ROCK FILTER DAM TYPE 4
	DRAINAGE ARROWS
	PROPOSED WATER MAIN



LOCATION MAP
N.T.S.



GENERAL NOTES

1. DO NOT DISTURB ANY VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) THAT ARE NOT AUTHORIZED PER C.O.S.A TREE PERMIT. CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE ANY DISTURBED AREA THAT IS NOT PART OF THE TREE PERMIT AT HIS OWN EXPENSE.
2. CONSTRUCTION ENTRANCE / EXIT LOCATIONS, CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD. ALL BEST MANAGEMENT PRACTICE AS SHOWN ON THIS PLAN ARE FOR INFORMATION ONLY. CONTRACTOR SHALL PROVIDE A STORM WATER POLLUTION PREVENTION PLAN FOR THIS PROJECT AND SUBMIT TO THE REGULATORY AGENCY ACCORDINGLY. (NO SEPARATE PAY ITEM)
3. ALL STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES, ESPECIALLY AFTER ANY RAINFALL THAT MAY OCCUR DURING CONSTRUCTION.
4. STORM WATER POLLUTION PREVENTION CONTROLS SHALL BE CONSTRUCTED WITHIN THE SITE BOUNDARIES AND INSTALLED ACCORDINGLY. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES FOR VISUAL CLARITY.
5. BEST MANAGEMENT PRACTICE APPURTENANCES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADE AREAS. BEST MANAGEMENT PRACTICE APPURTENANCES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.
6. UPON COMPLETION OF THE PROJECT, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES.
7. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS BY APPLYING HYDROMULCHING AND/OR PERMANENT PLANTING, SODDING, OR SEEDING TO RESTORE TO ITS NATURAL OR BETTER CONDITIONS. NO VEGETATION RESTORATION SHALL BE REQUIRED WHERE ROCK IS ABOVE GROUND ANDWHERE THE AREAS ARE UNDISTURBED.
8. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICE MEASURES WITHIN COUNTY RIGHT-OF-WAY WITH BEXAR CO., C.O.S.A. AND SAWS COI.
9. CONTRACTOR SHALL PROVIDE A BEST MANAGEMENT APPURTENANCE FOR ANY STORED MATERIAL THAT MAY RELEASE POLLUTANTS OUT, EXISTING CREEKS, STREAMS, ECT.
10. NO CHLORINATION DISCHARGE IS ALLOWED INTO ANY EXISTING CREEKS, STREAM, ETC. A DECHLORINATION STATION MUST BE PROVIDED FOR TESTING PURPOSES.
11. REFER TO TEMPORARY EROSION CONTROL NOTES ON SHEET GN1 FOR ADDITIONAL INFORMATION.

LEGEND	
	CONSTRUCTION ENTRANCE/EXIT
	SEDIMENT CONTROL FENCE
	TREE PROTECTION FENCE
	ROCK FILTER DAM TYPE 4
	DRAINAGE ARROWS
	PROPOSED WATER MAIN

EXHIBIT B.3

REVISIONS

No.	Description	Drn.	Approved	Date
1	PER APPENDIX No. 1 RESPONSE	JGR	JGR	4/19/12

INFORMATION

SEE LEGEND THIS SHEET

Date: 01/27/2011
 Drawn by: TMJ
 Designed by: TMJ
 Checked by: JGR
 Scale:
 Approved by: JGR
 Map No:

SAWS JOB NO. 10-7003
 CROSS MOUNTAIN TRAIL
 24" WATER TRANSMISSION MAIN
 PROJECT

EROSION CONTROL & SEDIMENTATION PLAN

DRAWING NO.
EC4
31 OF 35

Exhibit C

Contractor Questions and Clarifications

1. **Question:** Can SAWS clarify the tree clearing requirements as part of the tree permit plans?

Clarification: The tree clearing shall be conducted as illustrated on the revised tree permit plan sheets. See Exhibit A for Tree Permit Protection Plan Sheets TP1-TP3.

2. **Question:** What type of pipe material will be allowed for this project?

Clarification: Ductile Iron (D.I.), Polyvinyl Chlorine (PVC) or Steel Pipe material.

3. **Question:** Will the steel pipe require cathodic protection? Will the Ductile iron pipe require cathodic protection as well?

Clarification: As per the Special Conditions, Section 1.5: “If the Contractor shall bid this project with steel pipe as allowed on this contract, the Contractor shall provide Corrosion Protection for the entire project in accordance with manufacturer recommendations. (No Separate Pay Item)”

Ductile Iron pipe material does not require cathodic protection; however, the D.I. pipe shall be installed as per specification 02520, Ductile Iron Pipe and Fittings coating and encasement throughout the entire length of the pipe.

4. **Question:** Will the fittings require cathodic protection for all pipe materials allowed?

Clarification: See response for question #3.

5. **Question:** The construction documents states a trailer must be available on-site or near the project location. Is this required for this project?

Clarification: Due to the limited area within the public right-of-way and since it is a developed residential area, the contractor may choose to have an off-site office location or none at the project site. Contractor shall coordinate with the SAWS Construction Observer Inspector (COI) assigned for this project prior to construction.

6. **Question:** Will all the trees, specifically the small diameter cedar trees, allowed to be cleared or will bore be allowed for these areas?

Clarification: Clearing tree limits shall be in compliance with the tree permit plans included on the construction documents. No replanting trees shall be allowed within the public right-of-way as per Bexar County requirements.

7. **Question:** Will topsoil be required along with hydromulch seeding for the existing parkway and slopes where rock is encountered?

Clarification: *Note 8 of the plan and profile sheets notate the topsoil requirement for the entire disturbed area. The Erosion Control & Sedimentation Plans, Note 7 of the General Notes, specify that all disturbed areas will require hydromulching and/or permanent planting, sodding or seeding to restore to its natural or better conditions. An additional note was included to exclude the rock exposed areas and undisturbed areas.*

Bidder shall refer to revised Erosion Control & Sedimentation Plan, Sheets EC1 – EC3 included on this Addendum No. 1.

8. **Question:** On the paving application to be used, will it be a single or double course? What kind of oil is to be used?

Clarification: *The paving application shall be Single Course. Cross Mountain Trail is currently chip sealed. Bidder shall refer to the Texas Department of Transportation (TxDOT) Specification Item 316, Surface Treatment for chip sealed surfaces. See Exhibit F for Item 316 specification. Should a HMAC pavement be used as repair, details shall be sent to our office for review and acceptance.*

9. **Question:** Will the road require milling prior to an overlay for road restoration?

Clarification: *Yes, the County requires a 2" mill prior to overlay for road restoration.*

10. **Question:** Is this project in the City or County? Will lane closures be permitted along the route of the pipeline?

Clarification: *The project is located within the Bexar County right of way. This project allows for contractor to work primarily within the +/-18 foot parkway corridor and no lane closure is required.*

11. **Question:** There are a number of places on the plan views of the drawings showing a horizontal PI deflection of the pipeline. In many cases, these deflections will require fitting that is not shown or a number of short sections of pipe. Please have the engineer review and determine if additional fittings will be required?

Clarification: *The plan & profile sheets illustrate the pipeline alignment with all the necessary coordinates and points of intersections (PI) to establish all the horizontal and vertical deflections. The bidder shall provide the necessary number of fittings to complete these PI's throughout the entire project. This project will be Lump Sum contract.*

12. **Question:** If additional areas require bores, can you provide revised plans?

Clarification: *There will be no additional bore required for this project. Bidder shall refer to the revised Tree Permit Plans issued on this Addendum No. 1.*

13. **Question:** We would like to see the bore logs. Will you please tell us where we can get them?

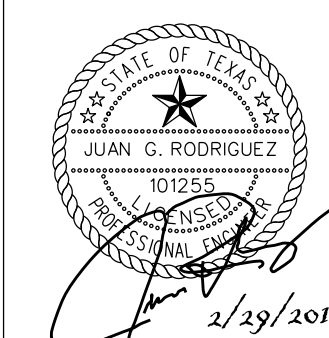
Clarification: *The geotechnical bore logs were included with the Specifications Manual as Appendix A.*

14. **Question:** Why is this project being bid as a “Lump Sum” project rather than by unit price?

Clarification: This project is being bid as a Lump Sum because it is the preferred contract method for the SAWS Production, Treatment and Recycling Department.

15. **Question:** We would like to know if this is a Tri-Lateral agreement contract or if this is with SAWS only?

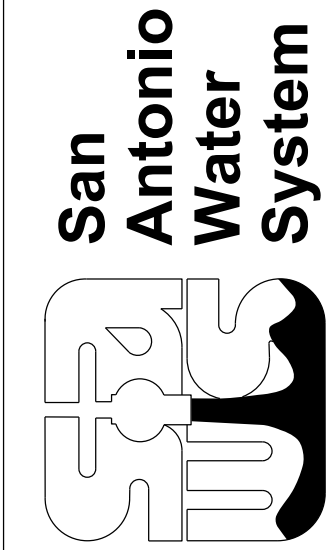
Clarification: This project is a Capital Improvements Project solely funded by SAWS.



Revisions	Date	Approved	Drn.
1	4/20/12	JGR	JGR

INFORMATION

Date: 12/17/2011	Drawn by: TMJ
Designed by: TMJ	Checked by: JGR
Scale: AS NOTED ABOVE	Approved by: JGR
Map No:	

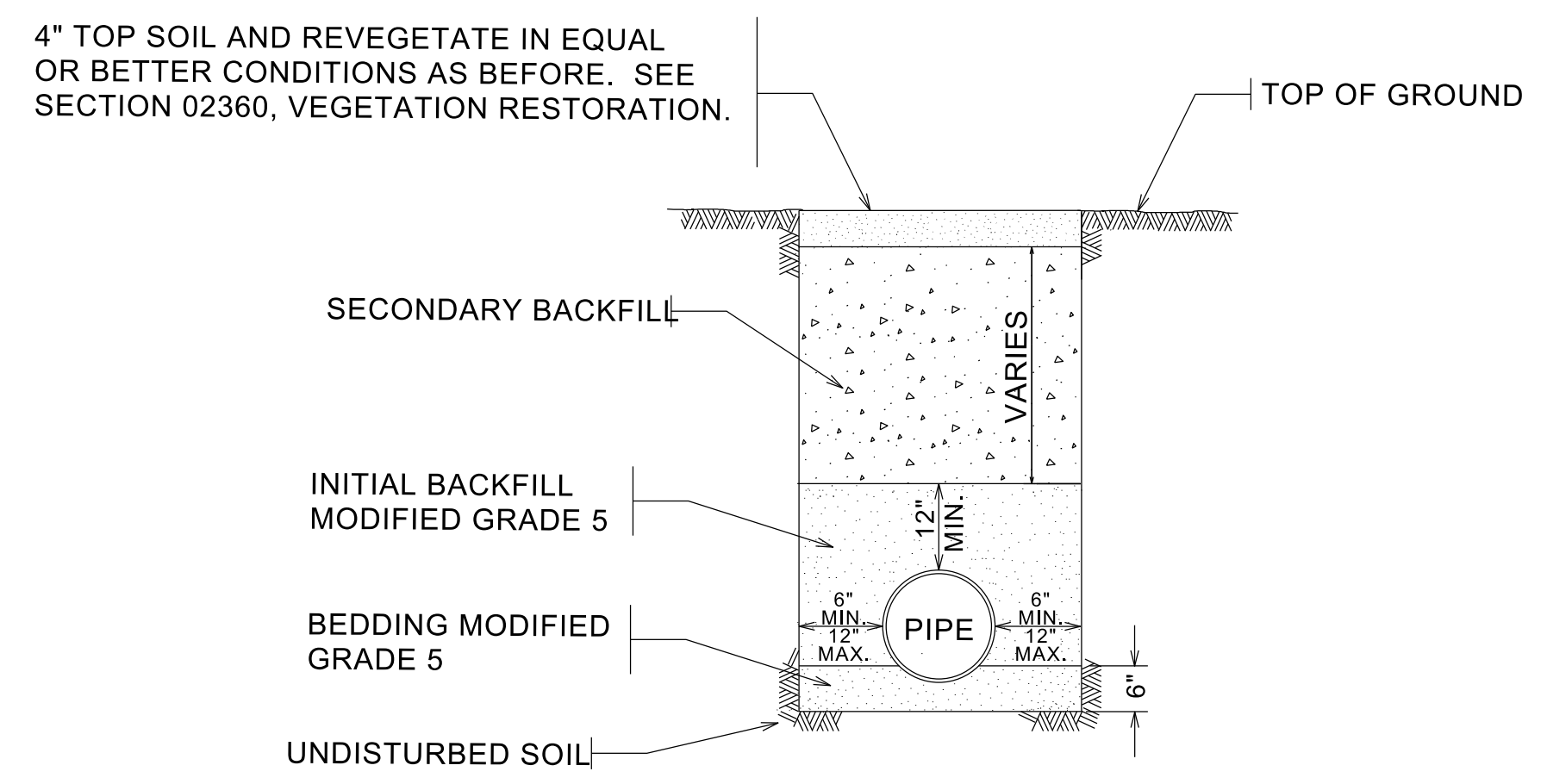


JOB NO. 10-7003
CROSS MOUNTAIN TRAIL
WATER TRANSMISSION MAIN
PROJECT

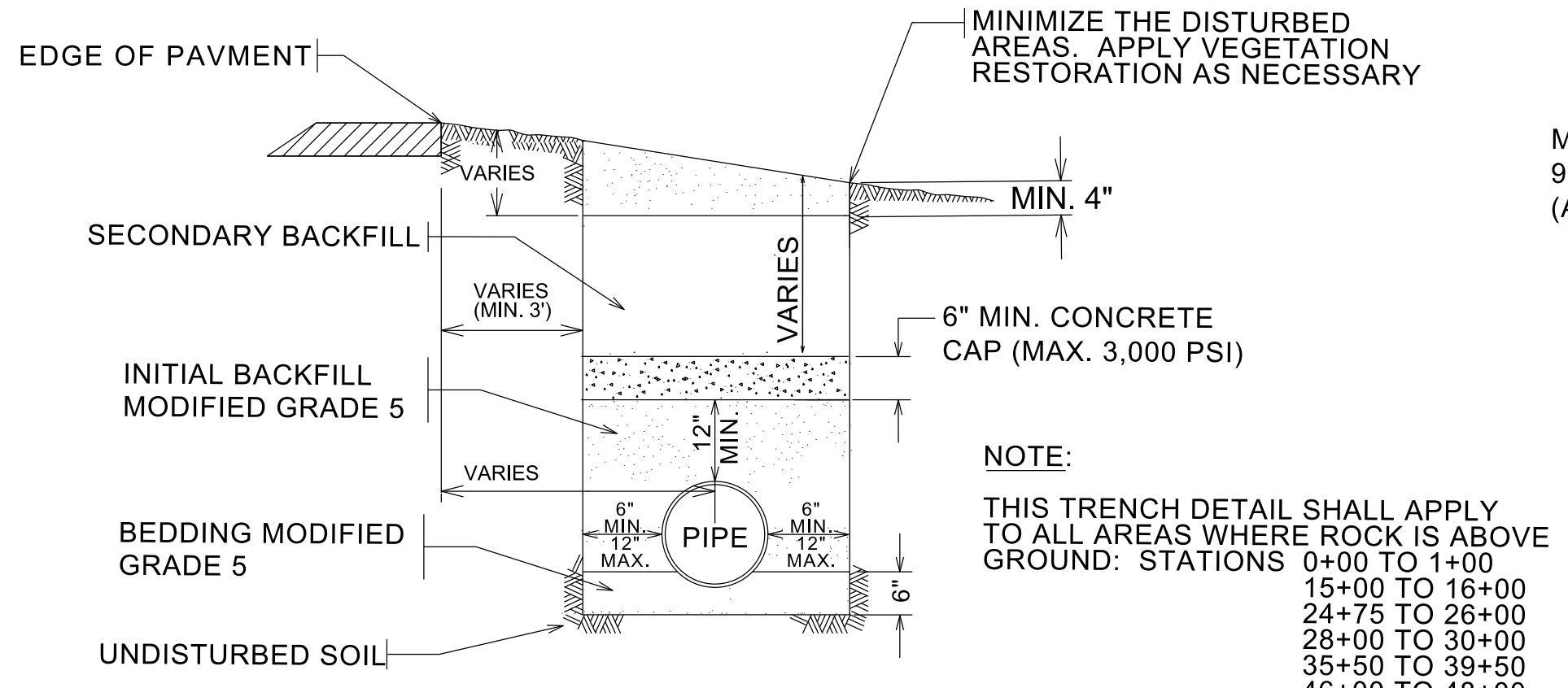
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MD1

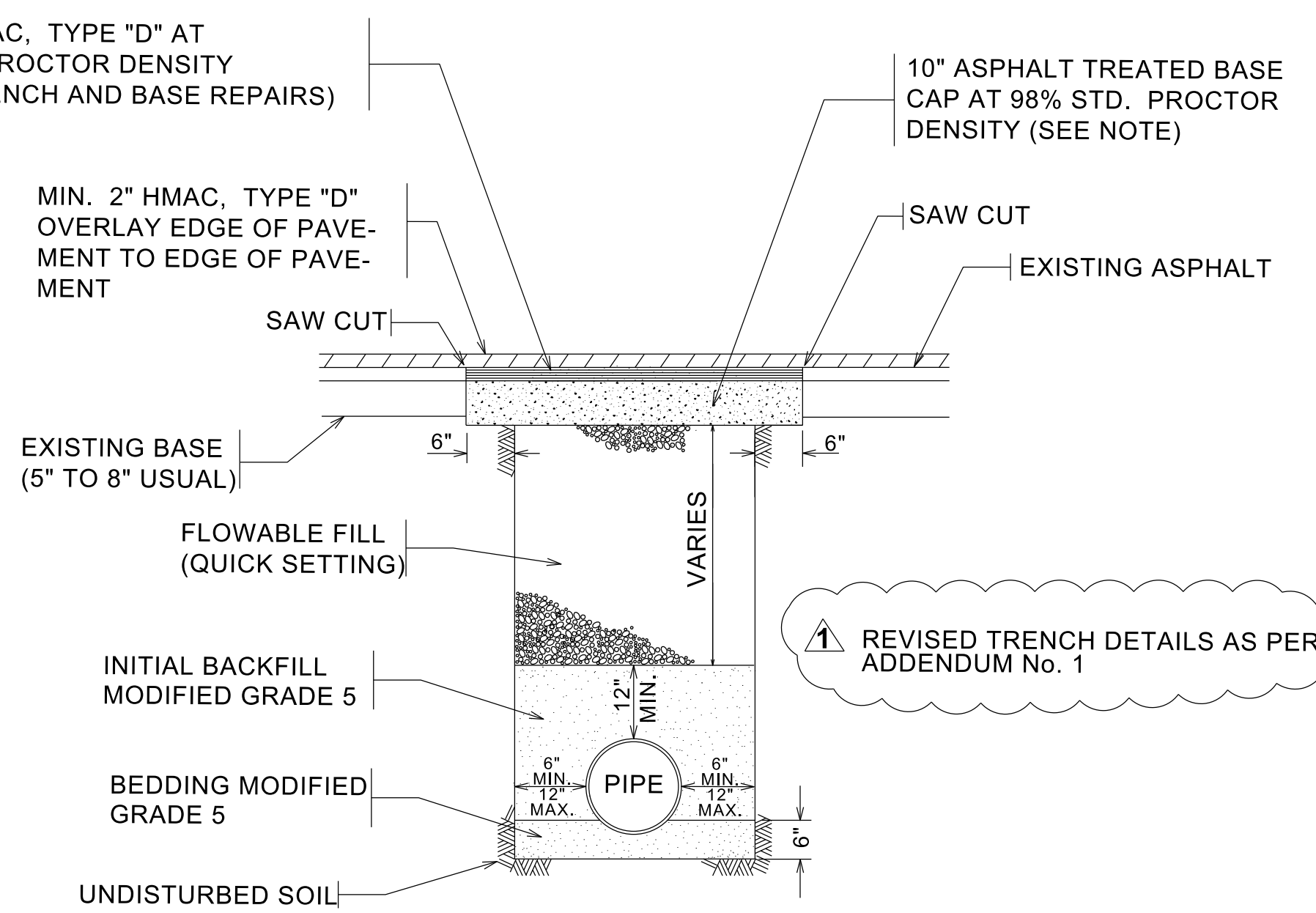
22 OF 35



TRENCH UNDER NATURAL GROUND
N. T. S.



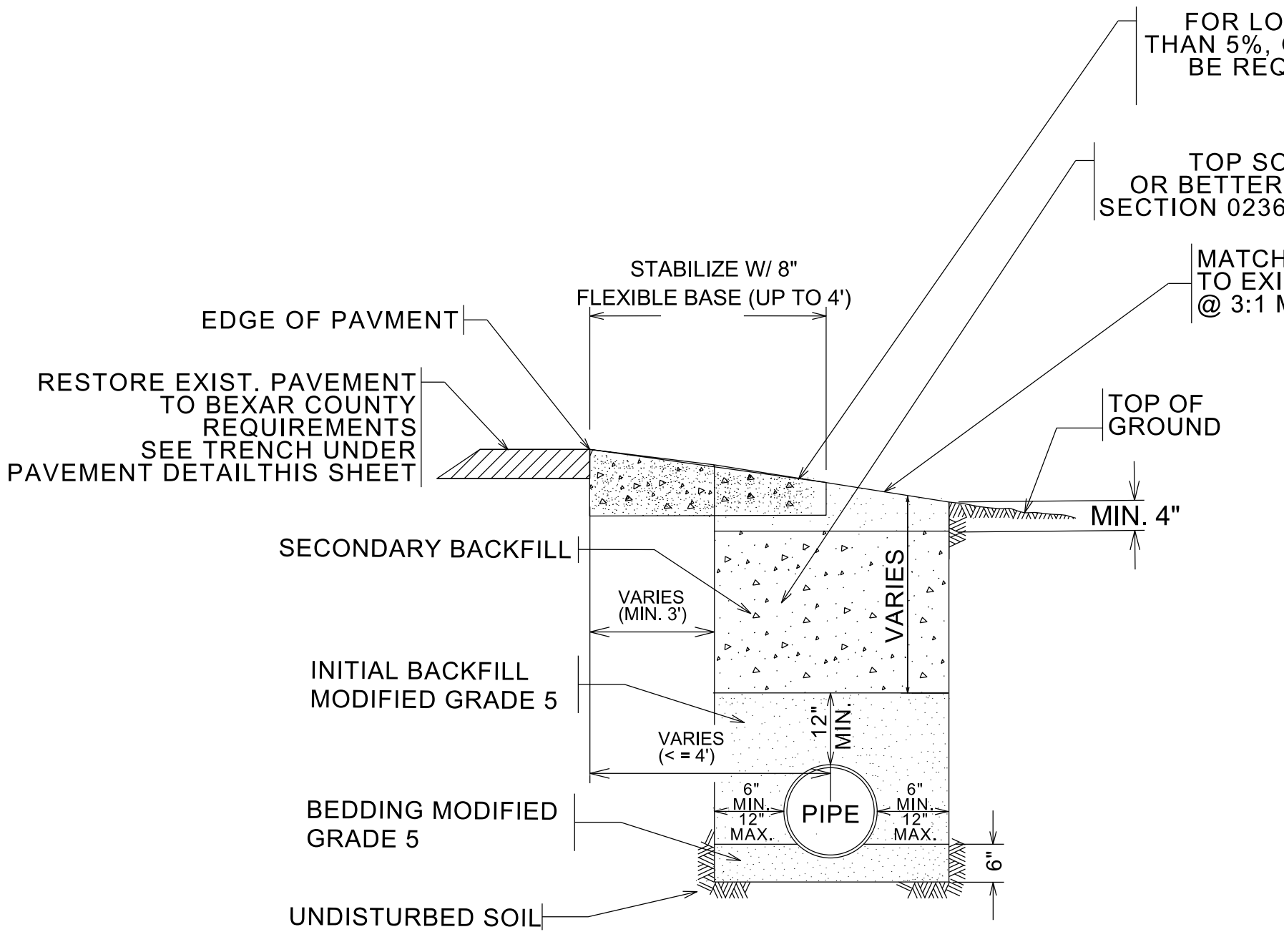
TRENCH UNDER NATURAL GROUND
ALONG SLOPED DITCH W/ CONCRETE CAP
(WHERE NO RESTORATION IS ESTABLISHED)
N. T. S.



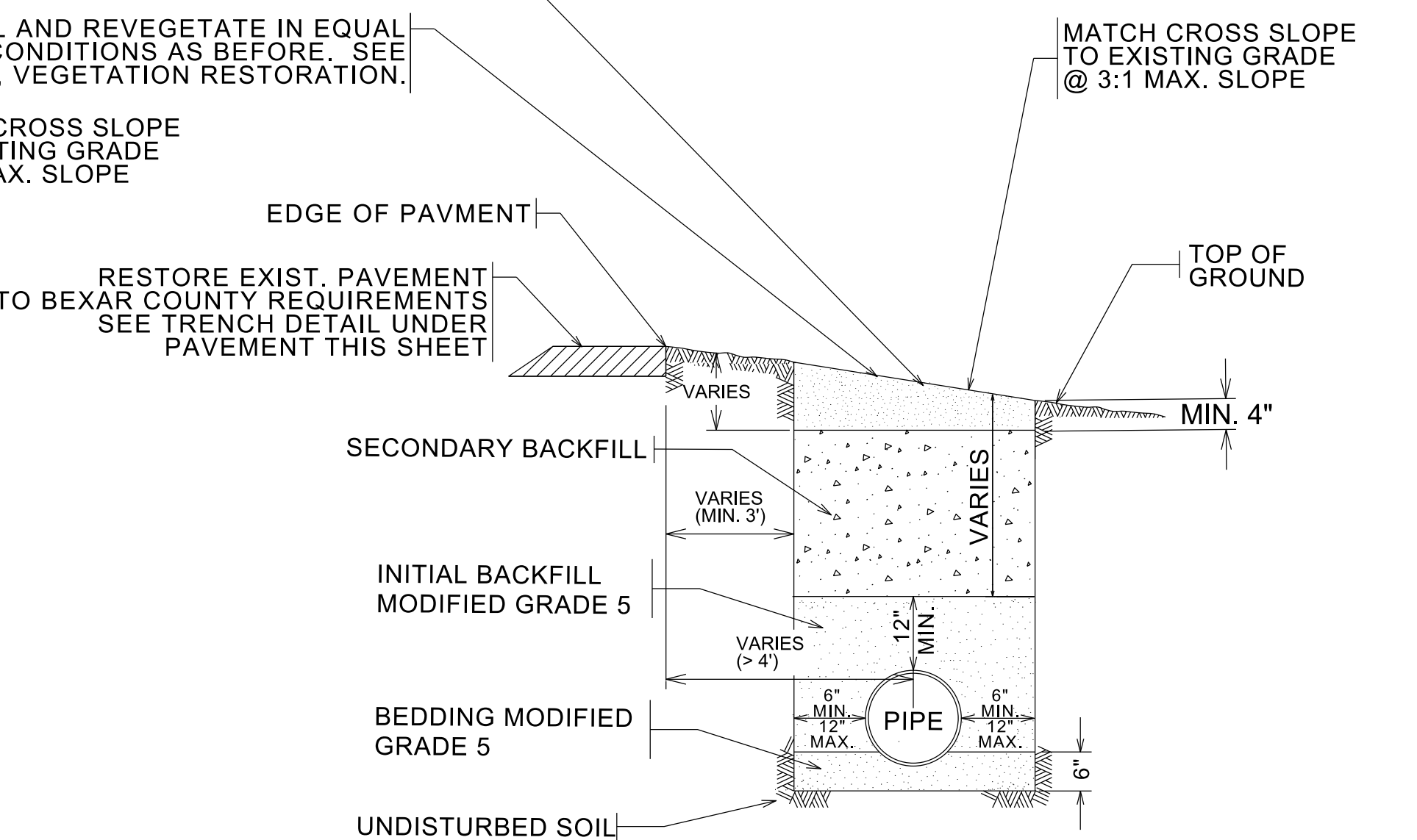
TRENCH UNDER PAVEMENT (IF APPLICABLE)
N. T. S.

NOTE:

- PAVING APPLICATION SHALL BE SINGLE COURSE. THE CROSS MOUNTAIN TRAIL IS CURRENTLY CHIP SEALED AND CONTRACTOR SHALL REFER TO TxDOT SPECIFICATION ITEM 316 "SURFACE TREATMENTS" FOR RESURFACING THE PAVEMENT. HMAC IS ACCEPTABLE SUBJECT TO BEXAR COUNTY APPROVAL.
- FOR STREET RECONSTRUCTION, 10" THICKNESS OF ASPHALT TREATED BASE, BENCHED 6 INCHES EACH SIDE OF TRENCH, WILL BE USED FOR THE FINAL LIFT OF THE TRENCH REPAIR AND FOR BASE FAILURE REPAIR. THE ASPHALT TREATED BASE, PLACED IN TWO LIFTS, WILL BE BROUGHT UP TO WITHIN 2 INCHES OF THE EXISTING PAVEMENT SURFACE.



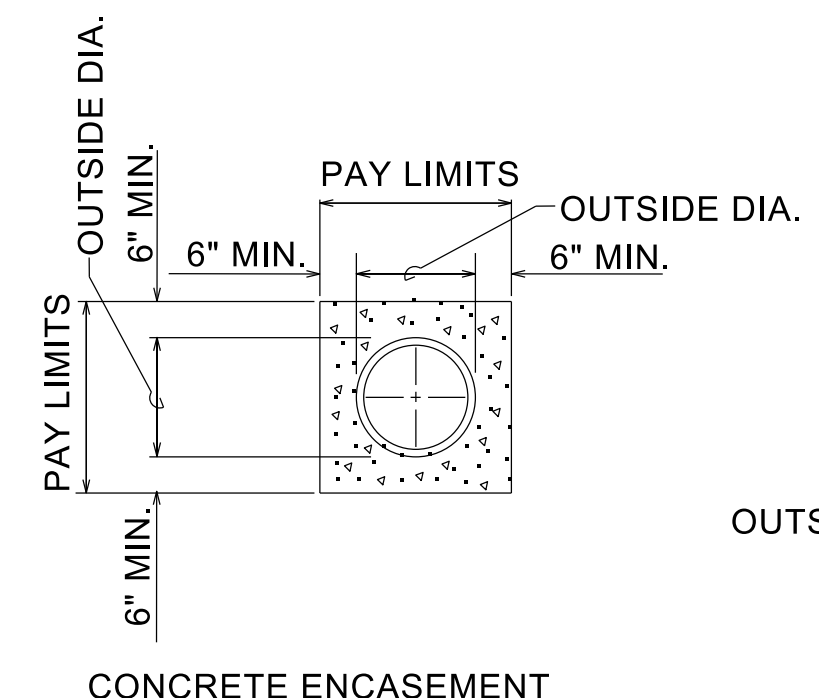
TRENCH UNDER NATURAL GROUND
ALONG SLOPED DITCH
(IF PIPE IS <= 4' FROM EDGE OF PAVEMENT)
N. T. S.



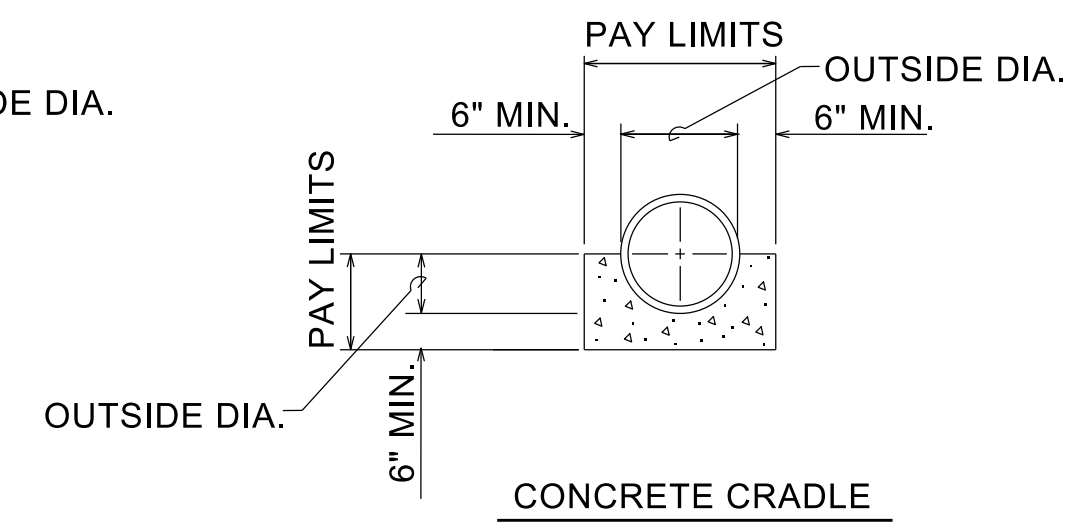
TRENCH UNDER NATURAL GROUND
ALONG SLOPED DITCH
(IF PIPE IS > 4' FROM EDGE OF PAVEMENT)
N. T. S.

NO SEPARATE PAY ITEM

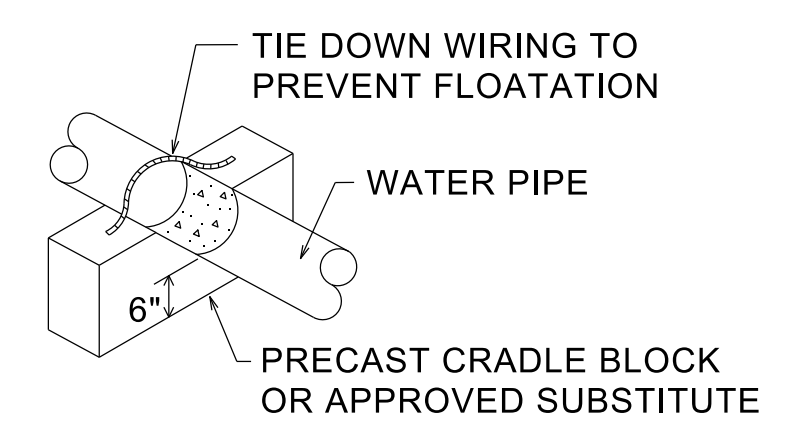
WHERE A SEWER CROSSES OVER A WATERLINE ALL PORTIONS OF THE SEWER WITHIN NINE FEET OF THE WATER LINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC PIPE WITH A PRESSURE RATING OF AT LEAST 150 P.S.I. USING APPROPRIATE ADAPTERS. IN LIEU OF THIS PROCEDURE THE NEW CONVEYANCE MAY BE ENCASED IN A JOINT OF 150 P.S.I. CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THE NEW CONVEYANCE, THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT 5 FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHOULD BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEAL.



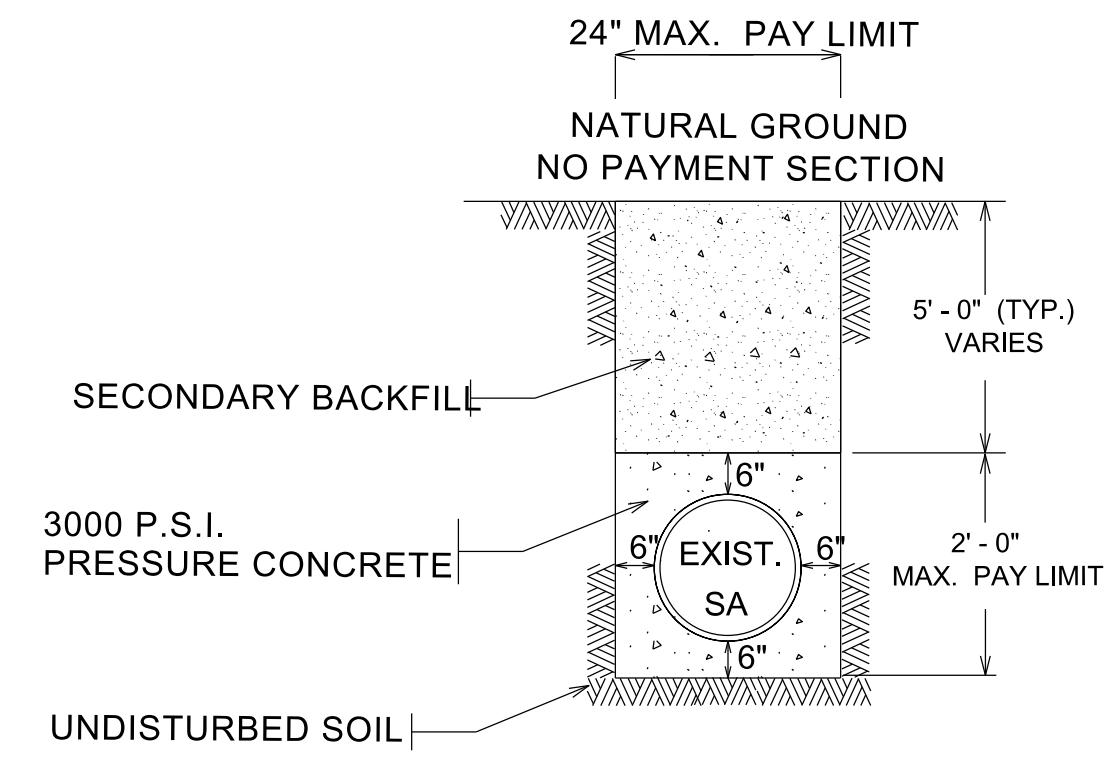
CONCRETE ENCASEMENT



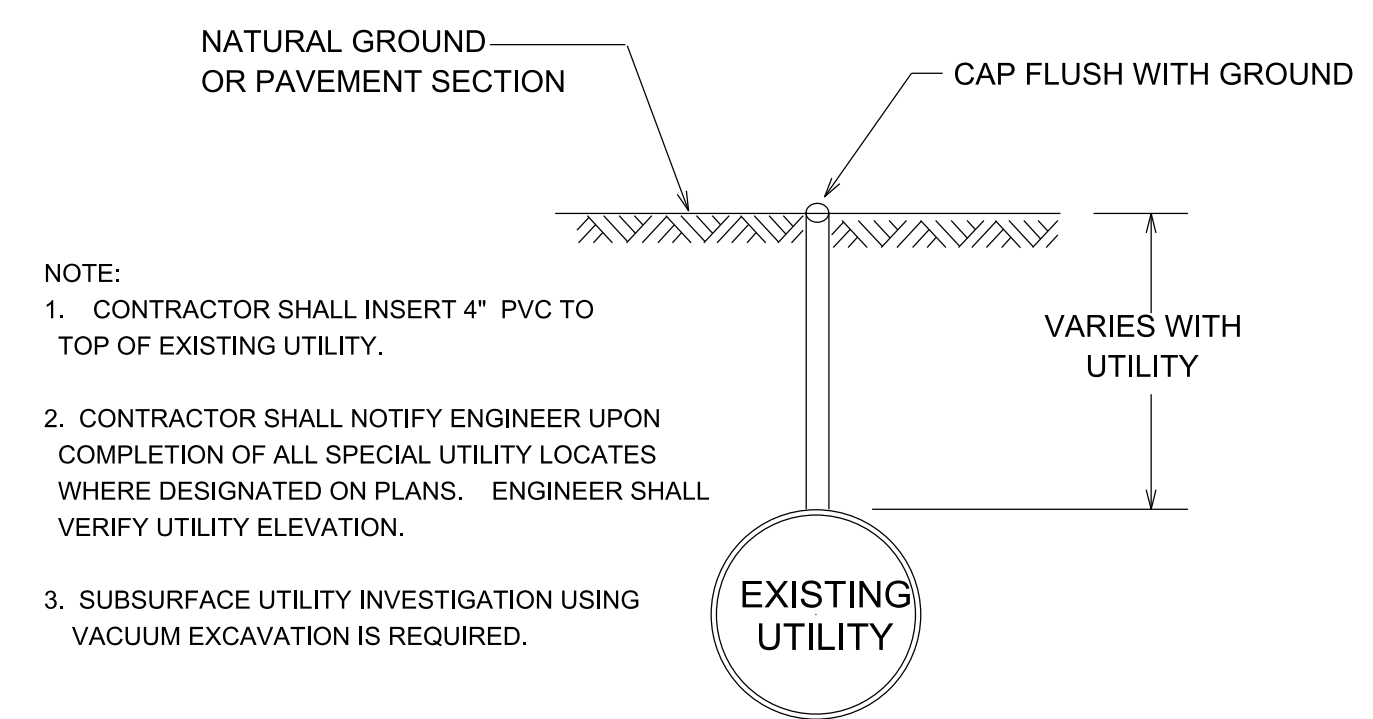
TYPICAL CONCRETE ENCASEMENT DETAILS
N. T. S.



SUPPORT FOR ENCASEMENT OR CRADLE



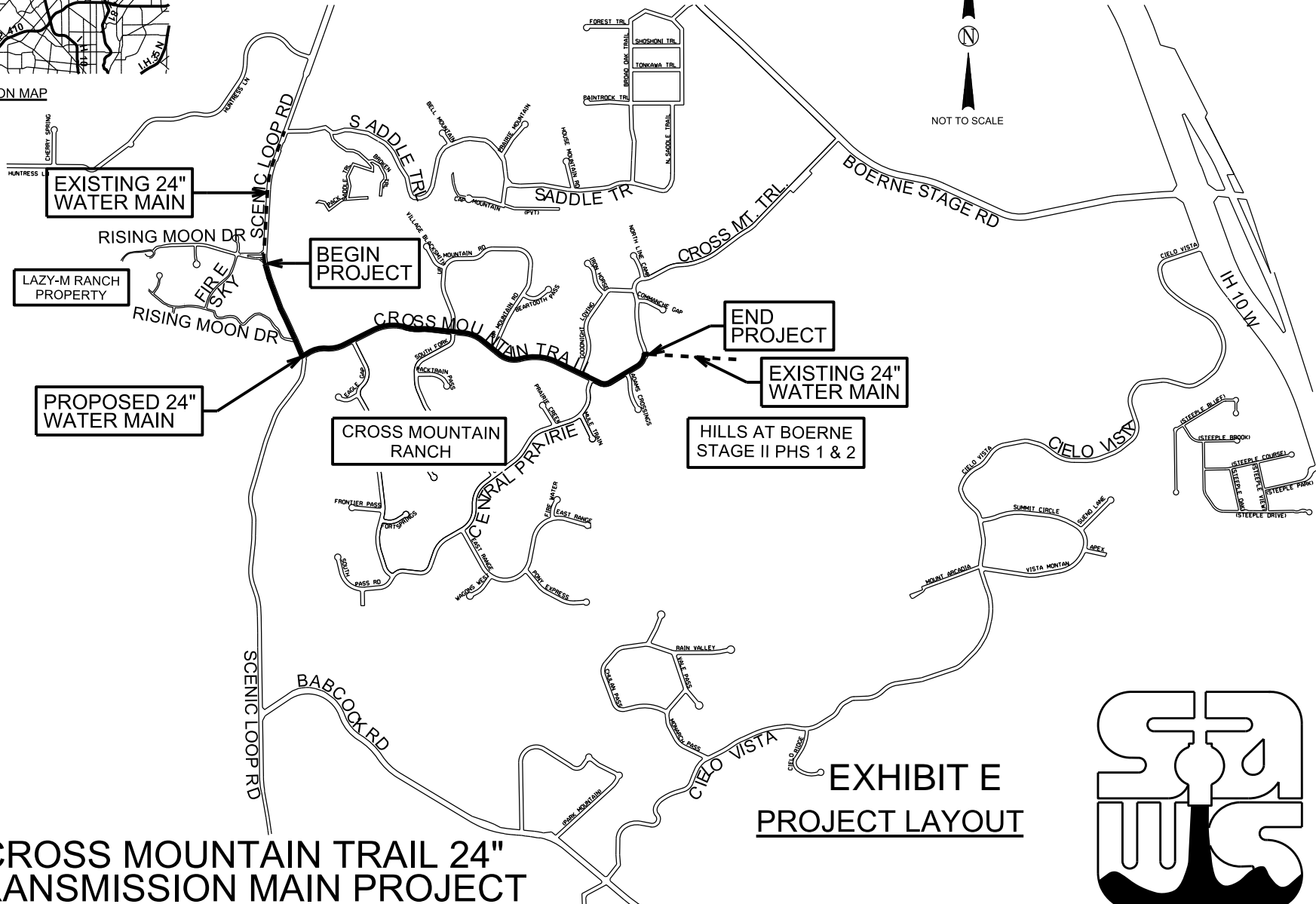
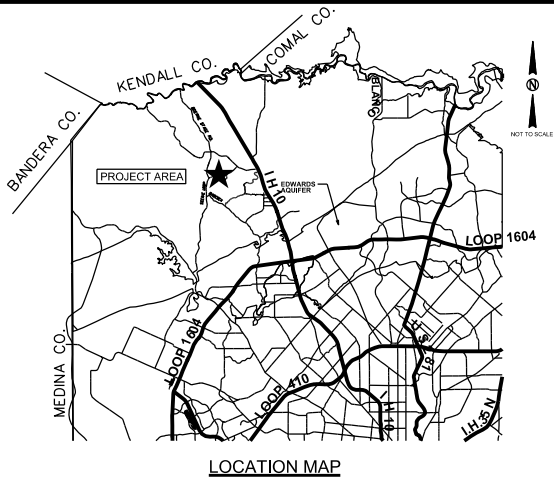
TYPICAL CONCRETE ENCASEMENT DETAIL
(IF APPLICABLE)
N. T. S.



- NOTE:
- CONTRACTOR SHALL INSERT 4" PVC TO TOP OF EXISTING UTILITY.
 - CONTRACTOR SHALL NOTIFY ENGINEER UPON COMPLETION OF ALL SPECIAL UTILITY LOCATES WHERE DESIGNATED ON PLANS. ENGINEER SHALL VERIFY UTILITY ELEVATION.
 - SUBSURFACE UTILITY INVESTIGATION USING VACUUM EXCAVATION IS REQUIRED.

SPECIAL MARKED UTILITY LOCATES
N. T. S.

EXHIBIT D



10-7003 CROSS MOUNTAIN TRAIL 24" WATER TRANSMISSION MAIN PROJECT

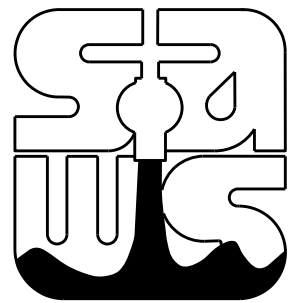


EXHIBIT F
TXDOT STANDARD SPECIFICATIONS MANUAL (2004)

315.3 to 316.2

315.3. Equipment. Provide applicable equipment in accordance with Article 316.3, "Equipment." Furnish the necessary facilities and equipment for determining the temperature of the mixture, regulating the application rate, and securing uniformity at the junction of 2 distributor loads.

315.4. Construction. Apply the mixture when the air temperature is 60°F and above, or above 50°F and rising. Measure the air temperature in the shade away from artificial heat. The Engineer will determine when weather conditions are suitable for application.

The Engineer will select the application temperature within the limits recommended in Item 300, "Asphalts, Oils, and Emulsions." Apply the material within 15°F of the selected temperature.

Distribute material at the rate shown on the plans or as directed.

Open the treated surface to traffic when directed. When an excessive quantity of asphalt is applied, furnish and uniformly distribute clean, fine sand on the surface to blot the excess. Maintain ingress and egress as directed by applying sand to freshly sealed areas.

315.5. Measurement. This Item will be measured by the gallon of emulsified asphalt used in the emulsified asphalt and water mixture.

315.6. Payment. The work performed and the materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Fog Seal" of the type and grade specified. This price is full compensation for materials, equipment, labor, tools, and incidentals. Blotter sand will not be paid for directly but will be subsidiary to this Item.

ITEM 316
SURFACE TREATMENTS

316.1. Description. Construct a surface treatment consisting of 1 or more applications of a single layer of asphalt material covered with a single layer of aggregate.

316.2. Materials. Furnish materials of the type and grade shown on the plans in accordance with the following:

- Item 300, "Asphalts, Oils, and Emulsions"
- Item 302, "Aggregates for Surface Treatments."

316.3 to 316.3

For final surfaces, unless otherwise shown on the plans, furnish aggregate with a surface aggregate classification of “B” or better.

316.3. Equipment.

A. Distributor. Furnish a distributor that will apply the asphalt material uniformly at the specified rate or as directed.

1. Transverse Variance Rate. When a transverse variance rate is shown on the plans, ensure that the nozzles outside the wheel paths will output a predetermined percentage more of asphalt material by volume than the nozzles over the wheel paths.

2. Calibration.

a. Transverse Distribution. Furnish a distributor test report, no more than 1 yr. old, documenting that the variation in output for individual nozzles of the same size does not exceed 10% when tested at the greatest shot width in accordance with Tex-922-K, Part III.

Include the following documentation on the test report:

- the serial number of the distributor,
- a method that identifies the actual nozzle set used in the test, and
- the fan width of the nozzle set at a 12-in. bar height.

When a transverse variance rate is required, perform the test using the type and grade of asphalt material to be used on the project. The Engineer may verify the transverse rate and distribution at any time. If verification does not meet the requirements, correct deficiencies and furnish a new test report.

b. Tank Volume. Furnish a volumetric calibration and strap stick for the distributor tank in accordance with Tex-922-K, Part I.

Calibrate the distributor within the previous 5 yr. of the date first used on the project. The Engineer may verify calibration accuracy in accordance with Tex-922-K, Part II.

3. Computerized Distributor. When paying for asphalt material by weight, the Engineer may allow use of the computerized distributor display to verify application rates. Verify application rate accuracy at a frequency acceptable to the Engineer.

316.4 to 316.4

- B. Aggregate Spreader.** Use a continuous-feed, self-propelled spreader to apply aggregate uniformly at the specified rate or as directed.
- C. Rollers.** Unless otherwise shown on the plans, furnish light pneumatic-tire rollers in accordance with Item 210, "Rolling."
- D. Broom.** Furnish rotary, self-propelled brooms.
- E. Asphalt Storage and Handling Equipment.** When the plans or the Engineer allows storage tanks, furnish a thermometer in each tank to indicate the asphalt temperature continuously.
Keep equipment clean and free of leaks. Keep asphalt material free of contamination.
- F. Aggregate Haul Trucks.** Unless otherwise authorized, use trucks of uniform capacity to deliver the aggregate. Provide documentation showing measurements and calculation in cubic yards. Clearly mark the calibrated level. Truck size may be limited when shown on the plans.
- G. Digital Measuring Instrument.** Furnish a vehicle with a calibrated digital-measuring instrument accurate to ± 6 ft. per mile.

316.4. Construction.

- A. General.** Asphalt application season will be as shown on the plans. Asphalt and aggregate rates shown on the plans are for estimating purposes only. The Engineer will adjust the rates for the existing conditions.
- B. Temporary Aggregate Stockpiles.** The Engineer will approve the location of temporary aggregate stockpiles on the right of way before delivery. Place stockpiles in a manner that will not:
 - obstruct traffic or sight distance,
 - interfere with the access from abutting property, or
 - interfere with roadway drainage.Locate stockpiles a minimum of 30 ft. from roadway when possible. Sign and barricade as shown on the plans.
- C. Aggregate Furnished by the Department.** When shown on the plans, the Department will furnish aggregate to the Contractor without cost. Stockpile locations are shown on the plans.
- D. Adverse Weather Conditions.** Do not place surface treatments when, in the Engineer's opinion, general weather conditions are unsuitable. Meet the requirements for air and surface temperature shown below.
 - 1. Standard Temperature Limitations.** Apply surface treatment when air temperature is above 50°F and rising. Do not apply

surface treatment when air temperature is 60°F and falling. In all cases, do not apply surface treatment when surface temperature is below 60°F.

2. Polymer-Modified Asphalt Cement Temperature Limitations.

When using materials described in Section 300.2.B, “Polymer Modified Asphalt Cement,” apply surface treatment when air temperature is above 70°F and rising. Do not apply surface treatment when air temperature is 80°F and falling. In all cases, do not apply surface treatment when surface temperature is below 70°F.

3. Asphalt Material Designed for Winter Use. When winter asphalt application is allowed, the Engineer will approve the air and surface temperature for asphalt material application. Apply surface treatment at air and surface temperatures as directed.

E. Surface Preparation. Remove existing raised pavement markers. Repair any damage incurred by removal as directed. Remove dirt, dust, or other harmful material before sealing. When shown on the plans, remove vegetation and blade pavement edges.

F. Rock Land and Shot.

1. Definitions.

- A “rock land” is the area covered at the aggregate rate directed with 1 truckload of aggregate.
- A “shot” is the area covered by 1 distributor load of asphalt material.

2. Setting Lengths. Calculate the lengths of both rock land and shot. Adjust shot length to be an even multiple of the rock land. Verify that the distributor has enough asphalt material to complete the entire shot length. Mark shot length before applying asphalt. When directed, mark length of each rock land to verify the aggregate rate.

G. Asphalt Placement.

1. General. The maximum shot width is the width of the current transverse distribution test required under Section 316.3.A.2, “Transverse Distribution,” or the width of the aggregate spreader box, whichever is less. Adjust the shot width so operations do not encroach on traffic or interfere with the traffic control plan, as directed. Use paper or other approved material at the beginning and end of each shot to construct a straight transverse joint and to prevent overlapping of the asphalt. Unless otherwise approved, match longitudinal joints with the lane lines. The Engineer may

316.4 to 316.4

require a string line if necessary to keep joints straight with no overlapping. Use sufficient pressure to flare the nozzles fully.

Select an application temperature, as approved, in accordance with Item 300, "Asphalts, Oils, and Emulsions." Uniformly apply the asphalt material at the rate directed, within 15°F of the approved temperature, and not above the maximum allowable temperature.

2. **Limitations.** Do not apply asphalt to the roadway until:
 - traffic control methods and devices are in place as shown on the plans or as directed,
 - the loaded aggregate spreader is in position and ready to begin,
 - haul trucks are loaded with enough aggregate to cover the shot area, and
 - haul trucks are in place behind the spreader box.
3. **Nonuniform Application.** Stop application if it is not uniform due to streaking, ridging, puddling, or flowing off the roadway surface. Verify equipment condition, operating procedures, application temperature, and material properties. Determine and correct the cause of nonuniform application. If the cause is high or low emulsion viscosity, replace emulsion with material that corrects the problem.
4. **Test Strips.** The Engineer may stop asphalt application and require construction of test strips at the Contractor's expense if any of the following occurs:
 - nonuniformity of application continues after corrective action;
 - on 3 consecutive shots, application rate differs by more than 0.03 gal. per square yard from the rate directed; or
 - any shot differs by more than 0.05 gal. per square yard from the rate directed.

The Engineer will approve the test strip location. The Engineer may require additional test strips until surface treatment application meets specification requirements.

- H. **Aggregate Placement.** As soon as possible, apply aggregate uniformly at the rate directed without causing the rock to roll over.
- I. **Rolling.** Start rolling operation on each shot as soon as aggregate is applied. Use sufficient rollers to cover the entire mat width in 1 pass, i.e., 1 direction. Roll in a staggered pattern. Unless otherwise shown on the plans, make a minimum of:

316.5 to 316.5

- 5 passes or
- 3 passes when the asphalt material is an emulsion.

If rollers are unable to keep up with the spreader box, stop application until rollers have caught up, or furnish additional rollers. Keep roller tires asphalt-free.

- J. Patching.** Before rolling, repair spots where coverage is incomplete. Repair can be made by hand spotting or other approved method. When necessary, apply additional asphalt material to embed aggregate.
- K. Brooming.** After rolling, sweep as soon as aggregate has sufficiently bonded to remove excess.
- L. Final Acceptance.** Maintain surface treatment until the Engineer accepts the work. Repair any surface failures. Before final project acceptance, remove all temporary stockpiles and restore the area to the original contour and grade.

316.5. Measurement.

- A. Asphalt Material.** Unless otherwise shown on the plans, asphalt material will be measured by one of the following methods:
- 1. Volume.** Asphalt material will be measured at the applied temperature by strapping the tank before and after road application and determining the net volume in gallons from the distributor's calibrated strap stick. The quantity to be measured for payment will be the number of gallons used, as directed, in the accepted surface treatment.
 - 2. Weight.** Asphalt material will be measured in tons using certified scales meeting the requirements of Item 520, "Weighing and Measuring Equipment," unless otherwise approved. The transporting truck must have a seal attached to the draining device and other openings. The Engineer may require random checking on public scales at the Contractor's expense to verify weight accuracy.

Upon work completion or temporary suspension, any remaining asphalt material will be weighed by a certified public weigher, or measured by volume in a calibrated distributor or tank and the quantity converted to tons at the measured temperature. The quantity to be measured will be the number of tons received minus the number of tons remaining after all directed work is complete and minus the amount used for other items.

316.6 to 318.2

- B. Aggregate.** Aggregate will be measured by the cubic yard in the trucks as applied on the road. The Engineer may require loaded aggregate to be struck off for accurate measurement.
- C. Loading, Hauling, and Distributing Aggregate.** When the Department furnishes the aggregate, the loading, hauling, and distributing will be measured by the cubic yard in the trucks as applied on the road.

316.6. Payment. The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit prices bid for “Asphalt,” “Aggregate,” and “Loading, Hauling, and Distributing Aggregate” of the types–grades specified. These prices are full compensation for surface preparation; furnishing, preparing, hauling, and placing materials; removing existing pavement markers and excess aggregate; rolling; cleaning up stockpiles; and equipment, labor, tools, and incidentals.

ITEM 318

HOT ASPHALT-RUBBER SURFACE TREATMENTS

318.1. Description. Construct a surface treatment consisting of 1 or more applications of a single layer of hot asphalt-rubber (A-R) binder covered with a single layer of aggregate.

318.2. Materials.

- A. Asphalt-Rubber Binder.** Furnish Type II or Type III A-R binder in accordance with Section 300.2.I, “Asphalt-Rubber Binders,” as shown on the plans. Furnish a blend design for approval. Include in the design, at a minimum, the following:
- manufacturer and grade of asphalt cement;
 - manufacturer and grade of crumb rubber;
 - manufacturer, type, and percentage of extender oil, if used;
 - test report on crumb rubber gradation in accordance with Tex-200-F, Part I;
 - design percentage of crumb rubber versus asphalt content;
 - blending temperature; and
 - test results on the properties at reaction times of 60, 90, 240, 360, and 1,440 min. in accordance with Section 300.2.I, “Asphalt-Rubber Binders.”