



Partners for a Better Quality of Life

7/13/2015

Development Services Department (DSD)
City of San Antonio (COSA)
1901 S. Alamo
San Antonio, Texas 78204

RE: San Antonio River Outfall (SARO) Project 2B
A/P Not Provided
Unified Development Code (UDC) 35-523
Environmental Variance

Dear COSA DSD,

The San Antonio Water System (SAWS) will be constructing the proposed SARO Pipeline Project that consists of a sanitary sewer line beginning at the SAWS Salado Creek Water Recycling Center and ending at the intersection of Old Corpus Christi Road and Henderson Court. The alignment is divided into three projects, Project 1, Project 2A and Project 2B. Project 2B consists of approximately 16,550 LF of 48" sanitary sewer line with proposed siphons at Heritage Oaks Subdivision, Mission Ditch Pass, and Old Corpus Christi Road. The Project 2B site is approximately 14.65 acres and is expected to advertise through the end of July. Attached are figures showing a tree inventory and preservation calculations.

Should you need additional information or have any questions, please contact Hugo Cabrera at 210-494-8004 or by email at hcabrera@cpyi.com.

Sincerely,

Hugo Cabrera, P.E., CP&Y

Attachments:

Tree Administrative Exception / Variance Request Review
Tree Permit Application Form
Habitat Compliance Form
Tree Inventory Plan Sheets

300 East Sonterra Boulevard, Suite 1250
San Antonio, Texas 78258
210.494.8004 • 210.494.8286 fax
www.cpyi.com





CITY OF SAN ANTONIO

DEVELOPMENT SERVICES DEPARTMENT

1901 S. Alamo, San Antonio, TX 78204

ADMINISTRATIVE EXCEPTION/VARIANCE REQUEST APPLICATION

Project Name:	San Antonio River Outfall (SARO) Project 2B
A/P # /PPR # /Plat #	A/P Not Provided
Date:	7/13/2015
Code Issue:	
Code Sections:	Unified Development Code (UDC) 35-523

Submitted By:	<input type="checkbox"/> Owner	<input type="checkbox"/> Owners Agent * (Requires notarized Letter of Agent)
Owners Name: Poconnor@saws.org		
Company: San Antonio Water System (SAWS)		
Address: 2800 U.S. Hwy 281 North		Zip Code: 78212
Tel #: 210-494-8004	Fax#	E-Mail: Poconnor@saws.org
Consultant: Hugo Cabrera, P.E.		
Company: CP&Y, Inc.		
Address: 300 E Sonterra Blvd, San Antonio, Texas		Zip Code: 78258
Tel #: 210-494-8004	Fax#	E-Mail: HCabrera@cpyi.com
Signature:		

Additional Information – Subdivision Plat Variances & Time Extensions

- ☐ Time Extension ☐ Sidewalk ☐ Floodplain Permit ☐ Completeness Appeal
☐ Other _____
- City Council District _____ Ferguson Map Grid _____ Zoning District _____
- San Antonio City Limits ☐ Yes ☐ No
- Edwards Aquifer Recharge Zone? ☐ Yes ☐ No
- Previous/existing landfill? ☐ Yes ☐ No
- Parkland Greenbelts or open space? Floodplain? ☐ Yes ☐ No



CITY OF SAN ANTONIO
CAPITAL IMPROVEMENT PROJECTS
TREE PERMIT APPLICATION

Date: July 13, 2015

A/P # _____	Permit Fee \$ _____
____ APPROVED ____ NOT APPROVED Inspector / Arborist _____ Date _____	

Project Address/Location: <u>Refer to Location Map</u>	District: <u>3</u>
Project Name: <u>San Antonio River Outfall Project</u>	Proj. Mgr: <u>Patrick O'Connor, P.E.</u>
Est. Project Starting Date: <u>Project. 2B April '15</u>	Acres: <u>Project 2B – 14.65 Acres</u>
Project Type (New): <input type="checkbox"/> Street <input type="checkbox"/> Drainage <input checked="" type="checkbox"/> Utility <input type="checkbox"/> Other (specify) _____	
Project Type (Existing): <input type="checkbox"/> Street <input type="checkbox"/> Drainage <input checked="" type="checkbox"/> Utility <input type="checkbox"/> Other (specify) _____	
Staff Contact: <u>Patrick O'Connor, P.E.</u>	Phone #: <u>210.233.3020</u> Fax #: <u>N/A</u>
Email Contact: <u>Poconnor@saws.org</u>	
Consultant: <u>Hugo Cabrera, P.E.</u>	Phone #: <u>210.494.8004</u> Fax #: <u>210.494.8286</u>
Email Contact: <u>HCabrera@cpvi.com</u>	

- ☐ 1. has no Significant, Heritage, or Historic trees as defined in Article V, section 35-523 of the U.D.C. (***Plan submittal not required***)
- ☐ 2. has Significant, or Heritage trees, but this work will in no way cause damage to or the destruction of said trees. (***Plan submittal required with tree preservation plan, site plan indicating location of trees, and tree protection specifications***)
- ☐ 3. **Not Applicable**
- ☒ 4. has Significant, or Heritage trees, that will be removed. (***Plan submittal required with tree preservation plan, site plan indicating location of trees, tree protection specifications with tree inventory***)

Environmentally Sensitive Area (30 ft Floodplain Buffer)		100-yr Floodplain		Uplands	
Significant	Heritage	Significant	Heritage	Significant	Heritage
70.41% Preserved	100.00% Preserved	55.83% Preserved	80.85% Preserved	73.47% Preserved	86.94% Preserved
80% Required	100% Required	80% Required	100% Required	25% Required	100% Required

Please submit plans to: Environmental Review Division • 1901 South Alamo Street • San Antonio, Texas • 78205



7/13/2015

Administrative Exception / Variance Request Review
c/o Development Services Staff
Development Services Department (DSD)
City of San Antonio (COSA)
1901 S. Alamo
San Antonio, Texas 78204

Re. San Antonio River Outfall (SARO) Project 2B
A/P Not Provided
Unified Development Code (UDC) 35-523
Environmental Variance

Dear COSA DSD,

The San Antonio Water System (SAWS) will be constructing the proposed SARO Pipeline Project that consists of a sanitary sewer line beginning at the SAWS Salado Creek Water Recycling Center and ending at the intersection of Old Corpus Christi Road and Henderson Court. The alignment is divided into three projects, Project 1, Project 2A, and Project 2B. Project 2B consists of approximately 16,550 LF of 48" sanitary sewer line with proposed siphons at Heritage Oaks Subdivision, Mission Ditch Pass, and Old Corpus Christi Road. The Project 2B site is approximately 14.65 acres and is expected to advertise through the end of July.

Design efforts were made to limit Project 2B's impact to Significant trees, however, given that the project is comprised of the replacement of an existing SAWS pipeline, certain impacts were unavoidable.

Acknowledging the 2010 Tree Preservation Ordinance – Unified Development Code (UDC) 35-523, SARO Project 2B is under the minimum tree preservation requirements as displayed in the following table:

Environmentally Sensitive Area (30 ft Floodplain Buffer)		100-yr Floodplain		Uplands	
Significant	Heritage	Significant	Heritage	Significant	Heritage
70.41% Preserved	100.00% Preserved	55.83% Preserved	80.85% Preserved	73.47% Preserved	86.94% Preserved
80% Required	100% Required	80% Required	100% Required	25% Required	100% Required

SAWS is requesting a variance for the ability to mitigate the outstanding inches with preserved undersized trees and trees preserved in excess of the minimum preservation requirements as allowed by the COSA Tree Ordinance. The mitigation fees are calculated separately for significant trees, heritage trees, environmentally sensitive areas, 100-year floodplain areas, and the uplands areas. The environmentally sensitive area for SARO Project 2B is defined as a 30-ft buffer from the floodplain. Per discussion with Ricardo Espinoza, from the City of San Antonio, the heritage trees shall be counted at a 1:1 ratio for mitigation purposes. Mitigation credit is obtained for all preserved un-protected native trees larger than 2.5 inches DBH and from every inch of DBH of protected native trees preserved over the required preservation limit. Floodplain, environmentally sensitive areas (30 foot buffer off 100 year floodplain), and uplands are calculated separately, as required per correspondence with the City of San Antonio.



Mitigation Fund Schedule												
	Environmentally Sensitive Area				Floodplain				Uplands			
	Significant		Heritage		Significant		Heritage		Significant		Heritage	
	Total	Removed	Total	Removed	Total	Removed	Total	Removed	Total	Removed	Total	Removed
Total (in)	98	29	61	0	206	91	177.5	34	2371	629	582	76
% Preserved	70.41%		100%		55.83%		80.85%		73.47%		86.94%	
	80% Required		100% Required		80% Required		100% Required		25% Required		100% Required	
Required Mitigation (Inches) in Environmentally Sensitive Areas					Required Mitigation (Inches) in 100-year Floodplain				Required Mitigation (Inches) in Uplands			
Mitigation of Heritage	0				34				76			
Mitigation of Significant	9.4				49.8				0			
Total	10				84				76			
Mitigation Credit (Inches)	29				93				1165			
Total Mitigation Required	0				0				0			
Tree ID's for Mitigation Credit	#181, 183, 234, & 238				# 185, 186, 187, 188, 189, 190, 191, 194, 221, 223, & 230				# 281, 283, 394, 412, 537			

In our professional opinion, the proposed administrative exception / variance remains in harmony with the spirit and intent of the UDC as it will not adversely affect the health, safety, or welfare of the public. For additional information or questions, contact Hugo Cabrera, P.E. at hcabrera@cpyi.com or 210-494-8004.

Sincerely,

Hugo Cabrera, P.E., CP&Y

For Office Use Only: AEVR #: _____ Date Received: _____

DSD – Director Official

APPROVED _____ APPROVED W/ COMMENTS _____ DENIED _____

Signature: _____ Date: _____

Printed Name: _____ Title: _____

Comments: _____





HABITAT COMPLIANCE FORM

Figure 35-B-133-1

1. Commentary:

For information on endangered species habitat within Bexar County as may be established, see 2008 Draft Recovery Plan for Bexar County Karst Invertebrates, available on US Fish and Wildlife Service's website, and Management Guidelines for the Golden-cheeked Warbler in Rural Landscapes by Texas Parks and Wildlife Department available on their website.

2. Applicant Contact Information:

Project Name: _____	
Property Owner: _____	E-mail: _____
Address: _____	Zip code: _____ Phone: _____
Agent: _____	E-mail: _____
Address: _____	Zip code: _____ Phone: _____
Contact Person Name: _____	E-mail: _____
Company: _____	Relationship to Owner: _____
Address: _____	Zip code: _____ Phone: _____

3. Property Location:

Property address or nearest street intersection if address not available: _____
Acres: _____ Ferguson map grid: _____ USGS Grid: _____

In addition to this form, please submit an aerial map designating property boundaries based on the most recently available imagery. Maps can be obtained from www.sanantonio.gov/dsd and saved into a PDF format.

4. Application Type (check one):

- | | |
|--|--|
| <input type="checkbox"/> Master Development Plan (MDP) | <input type="checkbox"/> Tree Permit |
| <input type="checkbox"/> Major Plat | <input type="checkbox"/> Planned Unit Development (PUD) Plan |
| <input type="checkbox"/> Development Plat | <input type="checkbox"/> Minor Plat |

5. Endangered Species Act Coverage (check one):

- ☐ The activity subject to the application to the City of San Antonio is covered under an existing Section 10(a) permit or a Section 7 Biological Opinion analyzing the activity as proposed, and the activity is identical or very similar to the activity proposed in permit and located in the same geographic location. Skip to section 7, no affidavit required.
- ☐ The activity subject to the application to the City of San Antonio is covered by participation in an approved Regional Habitat Conservation Plan. Skip to section 7, no affidavit required.
- ☐ The activity subject to the application to the City of San Antonio is not covered by an existing Section 10(a) permit or a Section 7 Biological Opinion nor participation in an approved Regional Habitat Conservation Plan. *(Complete sections 6, 7 and 8 (if applicable) below)*



HABITAT COMPLIANCE FORM

6. Description for Activities Without Coverage (check one box for both sections A and B):

A. Golden-cheeked Warbler Endangered Species	<input type="checkbox"/> There is no requirement for coverage of this listed species because no part of the tract subject to the application to the City of San Antonio contains habitat types that may be used by Golden-cheeked Warblers as set forth in <i>Management Guidelines for the Golden-cheeked Warbler in Rural Landscapes, Texas Parks and Wildlife Department, available on their website</i> . While this requirement applies throughout the jurisdiction of the City of San Antonio, based on the U.S. Fish & Wildlife Service Recovery Plan maps for Golden-cheeked Warblers, there is a rebuttable presumption that areas located inside of Loop 1604 that are within the jurisdiction of the City of San Antonio, as well as areas located to the south of U.S. Highway 90 and east of Interstate Highway 35, do not contain habitat. <input type="checkbox"/> The tract subject to the application to the City of San Antonio is within a presumptive habitat areas and an Endangered Species Survey has been completed within the last 3 years by a Biologist permitted by U.S. Fish and Wildlife and copies sent to: U.S. Fish and Wildlife (USFWS) Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, TX 78758 <input type="checkbox"/> The tract subject to the application to the City of San Antonio is within a presumptive habitat area and no Endangered Species Survey has been submitted to U.S. Fish and Wildlife. (Selecting this box requires the applicant to complete the Habitat Compliance Affidavit in Section 8 below.)
B. Karst Invertebrate Endangered Species	<input type="checkbox"/> There is no requirement for coverage of these listed species because no part of this tract subject to the application to the City of San Antonio is located within karst zone 1 or 2 of the areas in Bexar County identified as karst zones in the USFWS 2008 Draft Bexar County Karst Invertebrates Recovery Plan. <input type="checkbox"/> The tract or portions of the tract subject to the application to the City of San Antonio is located within Karst Zone 1 or 2 as identified in the U.S. Fish & Wildlife 2008 Draft Bexar County Karst Invertebrates Recovery Plan and an Endangered Species Survey has been completed by a Biologist permitted by U.S. Fish and Wildlife and copies sent to: U.S. Fish and Wildlife (USFWS) Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, TX 78758 <input type="checkbox"/> The tract or portions of the tract subject to the application to the City of San Antonio is located within Karst Zone 1 or 2 as identified in the U.S. Fish & Wildlife 2008 Draft Bexar County Karst Invertebrates Recovery Plan and no Endangered Species Survey has been submitted to U.S. Fish and Wildlife. (Selecting this box requires the applicant to complete the Habitat Compliance Affidavit in Section 8 below.)

7. Owner or Authorized Representative (form is considered incomplete without this section):

I certify that the information provided in this Habitat Compliance Form is true and accurate.	
Print Name: _____	Signature: _____
Address: _____ City: _____ State _____ ZipCode _____	
E-mail: _____	



HABITAT COMPLIANCE FORM

8. Affidavit of Compliance (required for properties in karst 1 or 2 or located in the area identified as potential habitat as set forth in *Management Guidelines for the Golden-cheeked Warbler in Rural Landscapes*, Texas Parks and Wildlife Department, available on their website when there is no Section 10(a) permit, Section 7 biological opinion, Regional Habitat Conservation Plan, nor endangered species survey submitted to US Fish and Wildlife):

Affidavit of Compliance

Before me, the undersigned authority, on this day personally appeared _____
("Affiant") who, being first duly sworn, upon his/her oath states:

My name is _____ and I am the owner of the property that is the subject of this
application to the City of San Antonio.

_____ A habitat assessment/survey was not conducted.

_____ A habitat assessment/survey was conducted by a biologist permitted by U.S. Fish & Wildlife
Service, _____ (name of individual and firm) #TE _____ (number), and
concluded that no species will be impacted by the activity subject to the application to the City
of San Antonio and I am relying on that assessment/survey.

Signed this _____ day of _____, _____.

Signature: _____

STATE OF TEXAS §

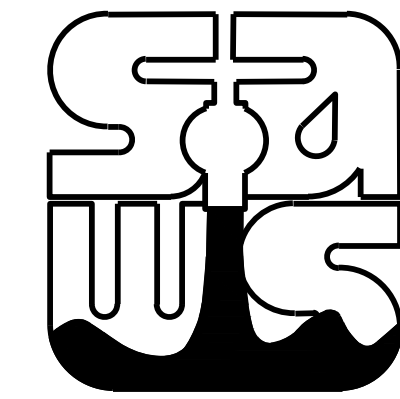
§

COUNTY OF BEXAR §

Sworn to and subscribed to before me on _____, by _____,

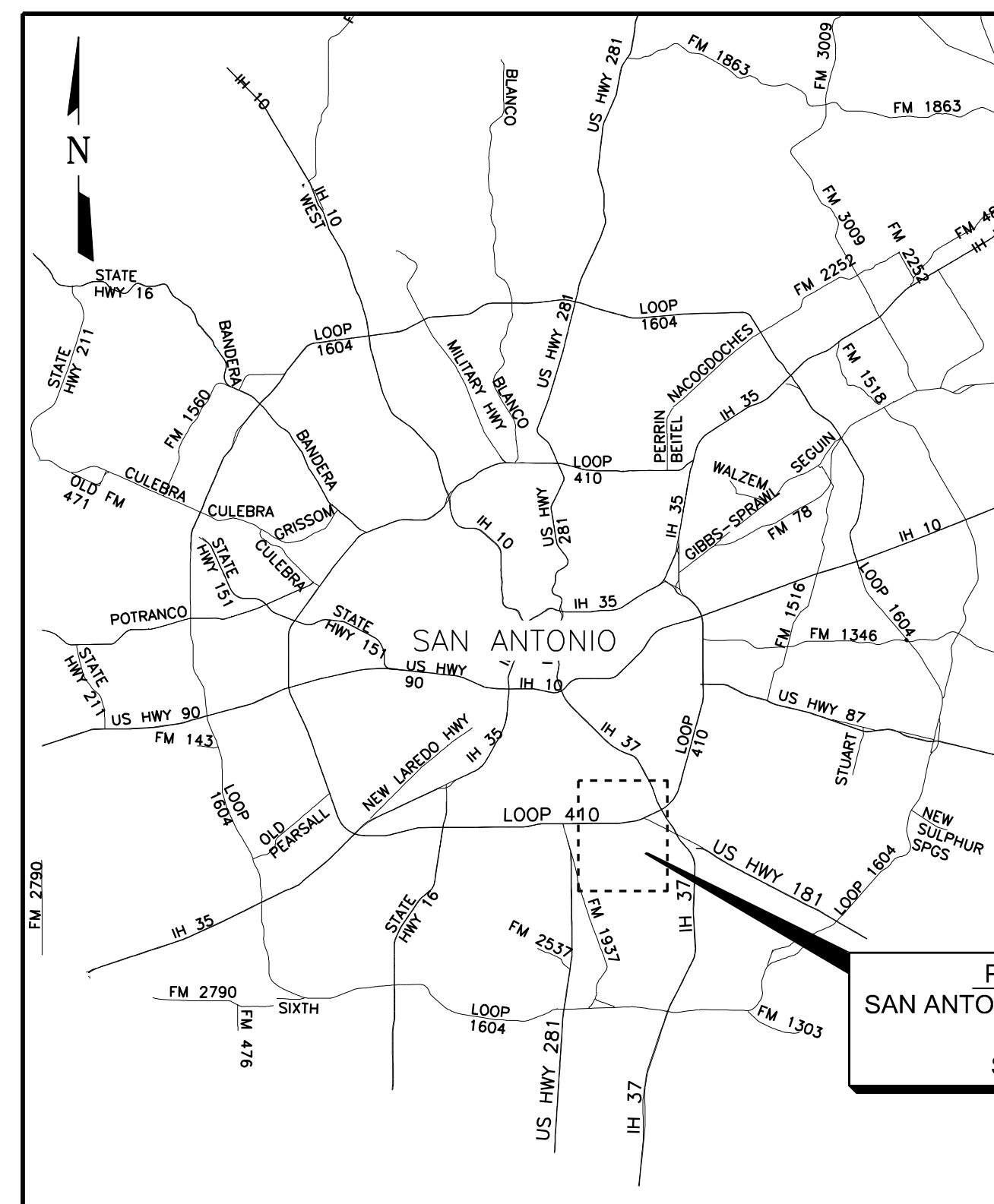
Notary Public, State of Texas

SAN ANTONIO WATER SYSTEM



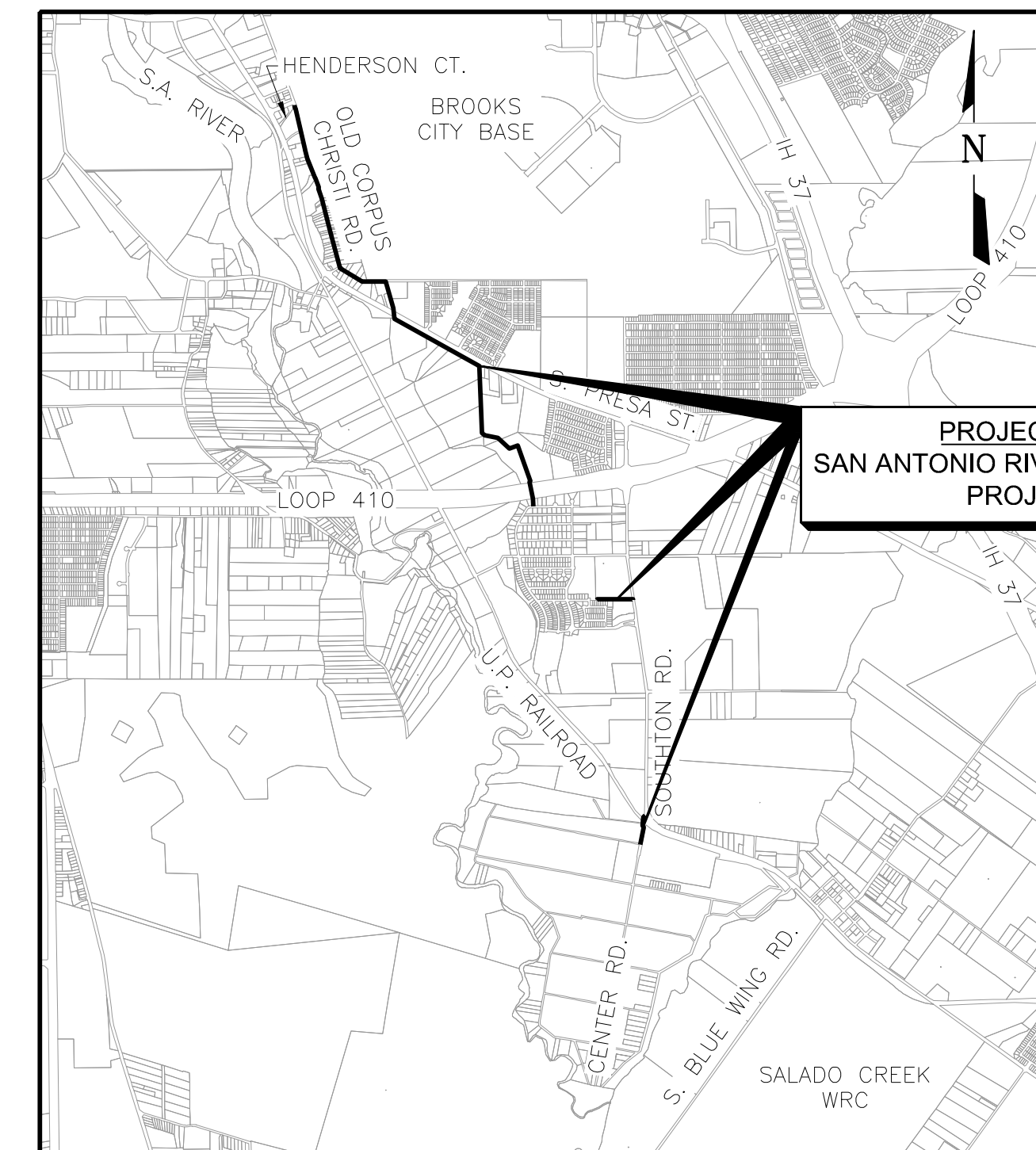
SAN ANTONIO RIVER OUTFALL PIPELINE PROJECT NO. 2B

SAWS JOB NO. 13-4510 (SS)
SAWS SOLICITATION NO.
CD-B-14-065-MR



VICINITY MAP
N.T.S.

PROJECT LOCATION
SAN ANTONIO RIVER OUTFALL PIPELINE
PROJECT NO. 2B
SEE LOCATION MAP



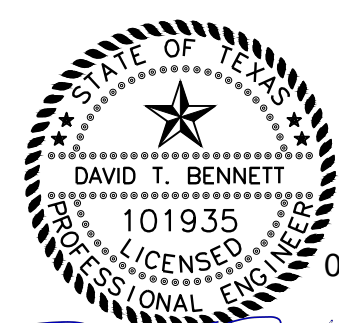
LOCATION MAP
N.T.S.

PROJECT LOCATION
SAN ANTONIO RIVER OUTFALL PIPELINE
PROJECT NO. 2B

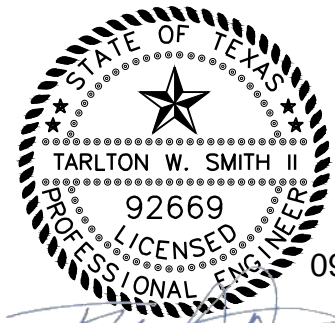


4040 Broadway Street, Suite 600
San Antonio, Texas 78209-6350
Phone - (210) 298-3800
Fax - (210) 298-3801

FNI PROJECT NO. SWB11467
SEPTEMBER 2014
BID DOCUMENTS



David T. Bennett



Tarlton W. Smith II

SITE DESCRIPTION

1. PROJECT LIMITS:
 - SEE SHEET G4 FOR LIMITS OF CONSTRUCTION AREAS
 - OTHER AREAS AS REQUIRED WILL HAVE SIMILAR EROSION CONTROL PRACTICES PROVIDED
 - AREAS AS REQUIRED FOR STOCKPILING OF MATERIALS TO BE REUSED WILL HAVE PERIMETER SILT FENCE PROVIDED
2. PROJECT DESCRIPTION
 - SAN ANTONIO RIVER OUTFALL PIPELINE PROJECT.
3. MAJOR SOIL DISTURBING ACTIVITIES
 - SOIL DISTURBING ACTIVITIES WILL INCLUDE CLEARING AND GRUBBING AND GRADING IN PREPARATION FOR INSTALLING IMPROVEMENTS, EROSION AND SEDIMENTATION CONTROLS, AND TOPSOIL WORK FOR FINAL PLANTING AND SEEDING.
4. TOTAL PROJECT AREA TO BE DISTURBED:
 - PROJECT 1--APPROXIMATELY 16.6 ACRES

TOTAL AREA TO BE DISTURBED:
 - PROJECT 1--APPROXIMATELY 16.6 ACRES
5. EXISTING CONDITION OF SOIL AND VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:
 - PROJECT 1--38% WOODS OR TREES AND 62% ROW/FLOODPLAIN
 - THE EXISTING SOILS ALONG THE ALIGNMENT CONSISTS OF:
 - PROJECT 1-- LORI CLAY LOAM--10.8%, ROCK OUTCROP--OLMOS COMPLEX--11.9%, ALTO CLAY LOAM--6.7%, PATRICK SOILS--23.8%, SAN ANTONIO CLAY LOAM--1.5%, SUNEV CLAY LOAM--38.7% AND WILLACY LOAM--7.3%. THE PHASE 1 PROJECT TO BE WORKED HAS A VEGETATIVE COVER OF 38%.
6. NAME OF RECEIVING WATERS:
 - PROJECT SITE DRAINS TO SAN ANTONIO RIVER.

OTHER

DISPOSAL AREAS, STOCKPILES, AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, WATER BODY, OR STREAMED, CONSTRUCTION STAGING AREAS AND HAULS ROADS SHALL BE CONSTRUCTED IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS, ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICAL OF TEMPORARY EMBANKMENT, TEMPORARY BRIDGES, MATTING, FALSE WORK, PILING,DEBRIS OR OTHER OBSTRUCTIONS PLACED DURING CONSTRUCTION OPERATIONS THAT ARE NOT A PART OF THE FINISHED WORK.

OFFSITE VEHICLE TRACKING:

- ☒ HAUL ROADS DAMPENED FOR DUST CONTROL.
- ☒ LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- ☒ EXCESS DIRT ON ROAD REMOVED AT DIRECTION OF THE OWNER
- ☒ STABILIZED CONSTRUCTION ENTRANCE

SOIL STABILIZATION PRACTICES

- ☒ TEMPORARY SEEDING
- ☒ PERMANENT PLANTING, SODDING, OR SEEDING
- ☒ MULCHING
- ☐ SOIL RETENTION BLANKET
- ☐ BUFFER ZONE
- ☒ PRESERVATION OF NATURAL RESOURCES

STORM WATER POLLUTION PREVENTION NOTES

1. CONTRACTOR SHALL OBTAIN A STORM WATER POLLUTION PREVENTION PERMIT FOR SAN ANTONIO RIVER OUTFALL PIPELINE PROJECT. THE DISTURBED AREA SHALL BE ASSUMED TO EXCEED:
 - PROJECT 1--APPROXIMATELY 16.6 ACRES
2. STORM WATER POLLUTION PREVENTION MEASURES SHOWN ARE THE MINIMUM REQUIREMENTS OF THE CONTRACT. IF ADDITIONAL MEASURES OTHER THAN THOSE SHOWN ARE REQUIRED AS A CONDITION OF THE PERMIT OR TO CONTROL RUN-OFF FROM SPECIFIC CONSTRUCTION ACTIVITIES, SUCH MEASURES SHALL BE IMPLEMENTED AT NO ADDITIONAL COST.
3. SILT FENCING SHALL BE INSTALLED AROUND ALL DIRT STOCKPILE AREAS.

NARRATIVE – SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT ACTIVITIES)

THE ORDER OF ACTIVITIES SHALL BE AS FOLLOWS:

1. INSTALL STRUCTURAL CONTROLS AT THE BASE OF SLOPES PRIOR TO DISTURBANCE OF EXISTING TOPSOIL.
2. INSTALL ORANGE SILT FENCES
 - A. AROUND TOPSOIL STOCKPILES AND AT EMBANKMENT AND EXCAVATION LOCATIONS.
 - B. AROUND EXISTING INLETS AFFECTED BY CONSTRUCTION.
 - C. AREAS SHOWN ON THE PLAN.
3. CLEAR AND GRUB VARIOUS STAGES OF THE PROJECT TO MINIMIZE DISTURBANCE AS MUCH AS PRACTICABLE. TEMPORARY SEED OR MULCH THE DISTURBED AREAS UNLESS CONSTRUCTION ACTIVITY IS TO RESUME WITHIN 21 DAYS.
4. CONSTRUCT IMPROVEMENTS WITHIN THE VARIOUS CONSTRUCTION ZONES AND APPLY PERMANENT SEEDING WHEN CONSTRUCTION IS COMPLETE IN THAT ZONE.
5. WHEN ALL CONSTRUCTION ACTIVITY IS COMPLETE AND THE SITE IS STABILIZED AND APPROVED BY SAWS, REMOVE ALL TEMPORARY STRUCTURAL CONTROLS, REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT AND RE-SEED ANY AREAS DISTURBED BY THEIR REMOVAL. PERIMETER CONTROLS SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION OF THE AREA UPSTREAM.

OTHER

DISTURBED PROJECT AREAS ON WHICH CONSTRUCTION ACTIVITY HAS CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITIES ARE SCHEDULED TO RESUME AND DO SO WITHIN 21 DAYS.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE:

ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT SHALL BE DONE AT THE EARLIEST DATE POSSIBLE, BUT NO LATER THAN 7 CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT. THE AREAS ADJACENT TO CREEKS AND DRAINAGE WAYS SHALL HAVE PRIORITY FOLLOWED BY DEVICES PROTECTING STORM SEWER INLETS.

INSPECTION:

AN INSPECTION SHALL BE PERFORMED BY THE CONTRACTOR EVERY WEEK AS WELL AS AFTER EVERY RAIN OF ONE-HALF INCH OR MORE (AS RECORDED IN A RAIN GAUGE TO BE INSTALLED BY THE CONTRACTOR AT THE PROJECT SITE). AN INSPECTION AND MAINTENANCE REPORT WILL BE MADE PER EACH INSPECTION. BASED ON THE INSPECTION RESULTS, THE CONTROLS SHALL BE REVISED PER THE INSPECTION REPORT.

WASTE MATERIALS:

ALL WASTE MATERIALS SHALL BE COLLECTED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER SHALL MEET ALL STATE AND LOCAL CITY SOLID WASTE MANAGEMENT REGULATION. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER, THE DUMPSTER WILL BE EMPTIED AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION, AND THE TRASH SHALL BE HAULED TO AN APPROPRIATE DISPOSAL FACILITY. NO CONSTRUCTION WASTE MATERIAL SHALL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING):

AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS,ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY.

SANITARY WASTE:

ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

STRUCTURAL PRACTICES:

- ☒ ORANGE SILT FENCES
- ☐ HAY BALES
- ☐ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ☐ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ☐ PIPE SLOPE DRAINS
- ☐ PAVED FLUMES
- ☒ ROCK BEDDING AT CONSTRUCTION EXIT
- ☐ TIMBER MATTING AT CONSTRUCTION EXIT
- ☐ CHANNEL LINERS
- ☐ SEDIMENT TRAPS
- ☐ SEDIMENT BASIN
- ☒ STORM INLET SEDIMENT TRAP
- ☐ STONE OUTLET STRUCTURES
- ☐ CURBS AND GUTTERS
- ☐ STORM SEWERS
- ☐ VELOCITY CONTROL DEVICES
- ☒ ROCK BERMS

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, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CAN NOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FABRIC.
3. THE TRENCH MUST BE A MINIMUM OF 6’ DEEP AND 6” WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACK FILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE WHICH IS TURN ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE WEEKLY AND WITHIN 24 HOURS AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. EACH STRAW BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4”.
7. STRAW BALES SHALL BE SECURELY ANCHORED IN PLACE BY 2”x2” WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE, AND A DEPTH OF 6” ON THE STRAW BALES. THE SILT SHALL BE DISPOSED OF AT THE APPROVED SITE IN SUCH A MANNER AS NOT TO CONTRIBUTE TO ADDITIONAL SILTATION.
9. SILT FENCE AND STRAW BALES SHALL BE COMPLETELY REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE, STRAW BALES SHALL BE DISPOSED OF AT THE APPROVED SPOIL DISPOSAL SITE

App.		Freese And Nichols, Inc. Job No.
Revisions		SWB11467
Date		
No.		

CP&Y, Inc.
Texas Registered Engineering Firm F-1741

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CP&Y, Inc.
TBPE FIRM No. F-1741

SAWS Planning & Consulting
San Antonio, Texas 78209-4500
Phone - (210) 298-3800
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SAN ANTONIO
WATER SYSTEM

SAWS JOB NO. 13-4510 (SS)
SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
EROSION CONTROL NOTES

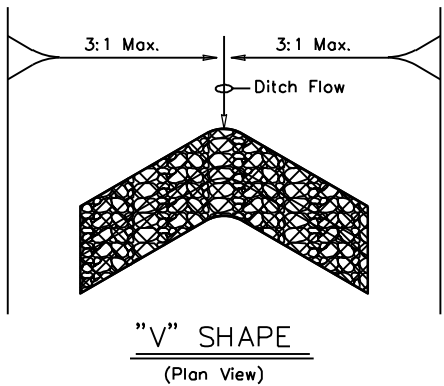
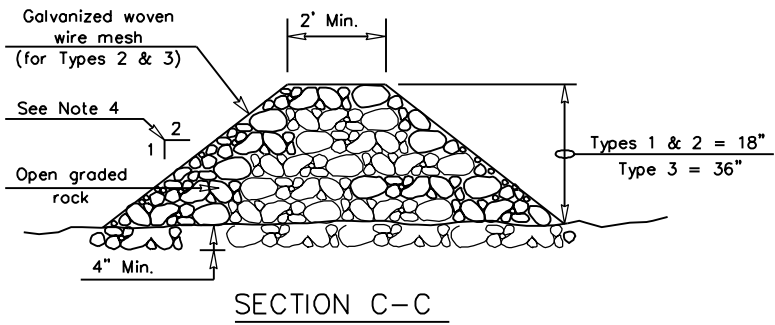
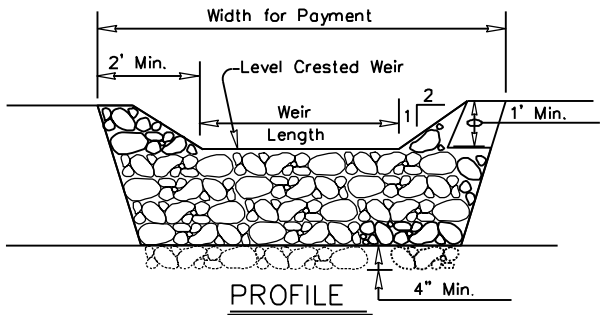
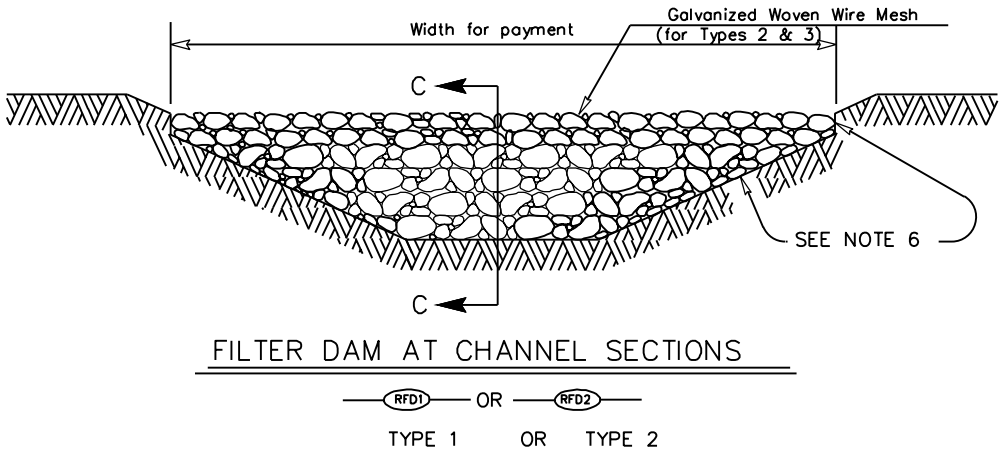
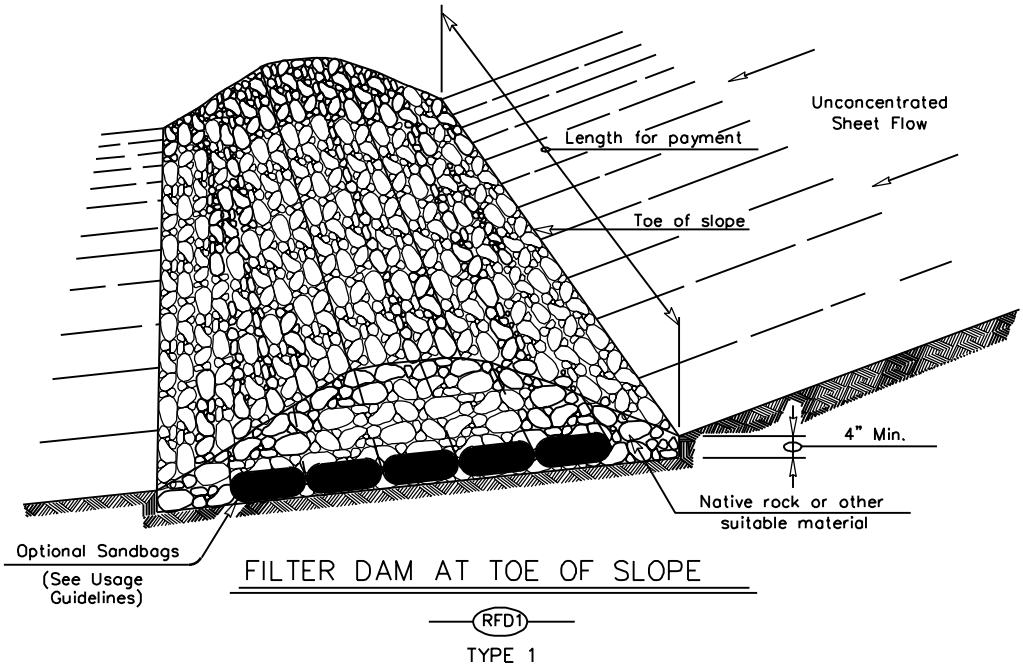
Sheet TG1

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT² of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approx. 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh): Type 2 may be used in ditches and at dike or swale outlets.



GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. In stream use the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
10. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLANS SHEET LEGEND

Type 1 Rock Filter Dam

RFD1

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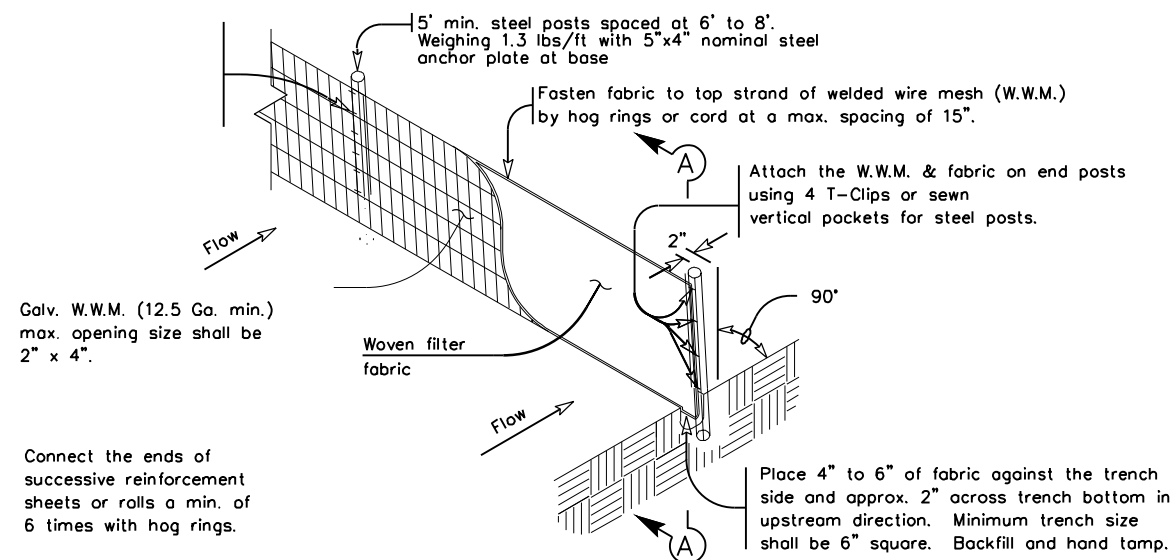
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SAWS
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EROSION CONTROL DETAILS I

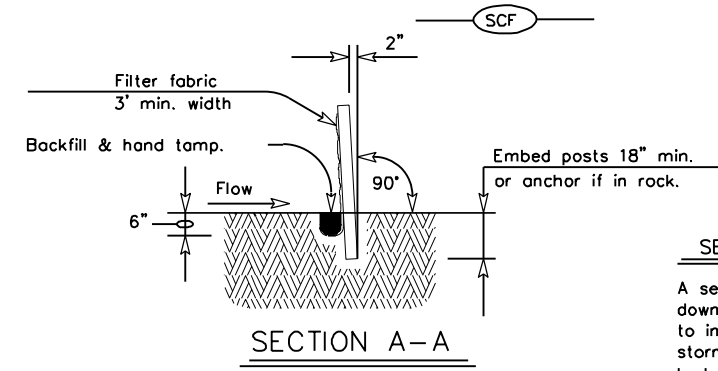
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EROSION CONTROL DETAILS I

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PROJECT NO. 2B
EROSION CONTROL DETAILS I

Sheet TG2



TEMPORARY SEDIMENT CONTROL FENCE



PLAN SHEET LEGEND

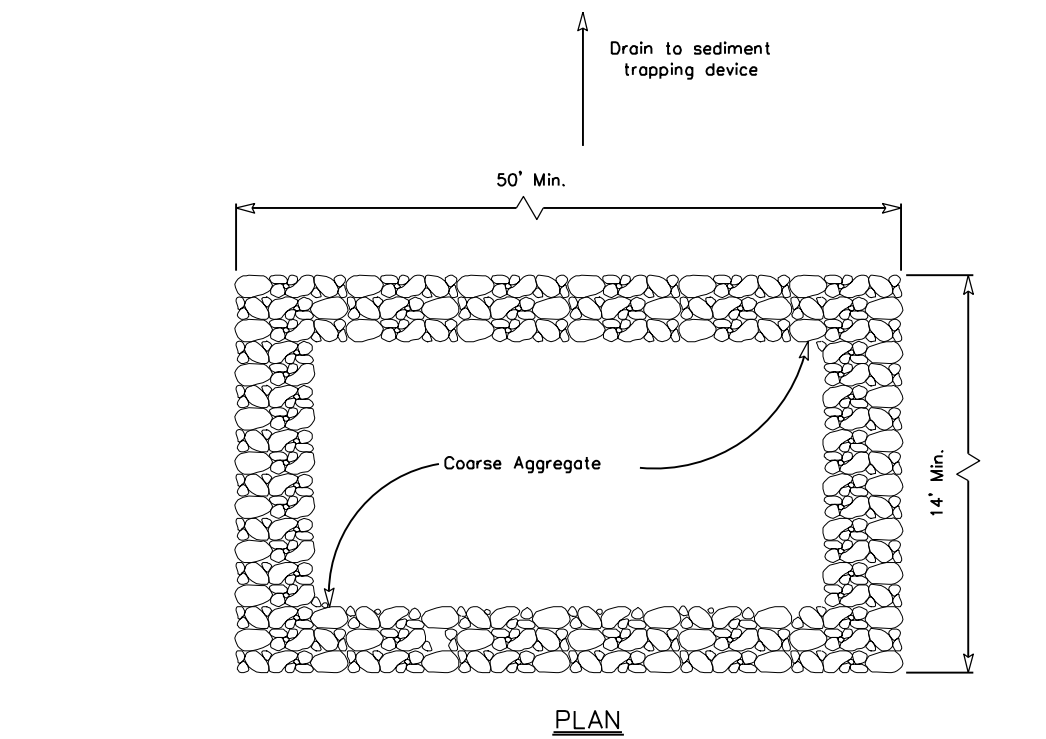
SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a max. flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.




GENERAL NOTES

1. The guidelines shown hereon are suggestions only and may be modified by the Engineer.



GENERAL NOTES

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

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 SAWS Planning & Engineering San Antonio, Texas 78209-4300 Phone - (210) 298-3800 Fax - (210) 298-3801		
SAN ANTONIO WATER SYSTEM		
SAWS JOB NO. 13-4510 (SS) SAN ANTONIO RIVER OUTFALL PIPELINE, PROJECT NO. 2B EROSION CONTROL DETAILS II		
Sheet TG3		

TREE PRESERVATION PLAN

THE PURPOSE OF THIS PLAN IS TO DEVELOP GUIDELINES TO BE FOLLOWED BY THE CONTRACTOR, WHICH OUTLINE ALLOWABLE CONSTRUCTION ACTIVITIES AS THEY RELATE TO TREE PROTECTION, TREE REMOVAL, AND TREE PRUNING WITH AN EMPHASIS ON TREE AND UNDERSTORY PRESERVATION. PRESERVATION AND MITIGATION REQUIREMENTS WILL BE APPLIED TO THE ENTIRE PROJECT. THE TREE PRESERVATION PLAN SHALL BE SUBMITTED FOR REVIEW TO SAWS AND NO CONSTRUCTION OR MOBILIZATION SHALL OCCUR PRIOR TO ACCEPTANCE OF THE PRESERVATION PLAN.

DEFINITIONS:

DIAMETER BREAST HEIGHT (DBH) OR DIAMETER INCHES: THE AVERAGE CROSS-SECTIONAL MEASUREMENT OF THE TRUNK OF AN EXISTING TREE AT FOUR AND ONE-HALF (4) FEET ABOVE GRADE. IF THE TREE IS ON A SLOPE, IT SHALL BE MEASURED FROM THE HIGH SIDE OF THE SLOPE. NEWLY PLANTED TREES SHALL BE MEASURED SIX (6) INCHES ABOVE GRADE FOR MULTI-TRUNK SPECIES. THIS MEASUREMENT WILL BE BASED ON THE MEASURED DIAMETER OF THE MAIN TRUNK TAKEN FOUR AND ONE-HALF (4) FEET ABOVE GRADE TOGETHER WITH ONE-HALF () OF THE DIAMETER OF THE REMAINING TRUNKS MEASURED AT THE SAME HEIGHT.

PROTECTED TREE: TREE DESIGNATED ON PLAN SHEET WITH NOTED LEGEND.

ROOT PROTECTION ZONE (RPZ): AN AREA WITH A RADIUS OF ONE FOOT FOR EACH INCH DBH OF TRUNK, OR IF BRANCHING OCCURS AT FOUR AND ONE-HALF (4) INCHES, THE DIAMETER IS MEASURED AT THE POINT WHERE THE SMALLEST DIAMETER CLOSEST TO THE BRANCHING OCCURS. THE ZONE NEED NOT BE EXACTLY CENTERED AROUND THE TREE OR CIRCULAR IN SHAPE, BUT IT SHOULD BE POSITIONED SO THAT NO DISTURBANCE OCCURS CLOSER TO THE TREE THAN ONE-HALF () OF THE RADIUS OF THE ZONE OR WITHIN FIVE (5) FEET OF THE TREE WHICHEVER IS LESS FOR ANY TREE OR GROUPS OF TREES, THE ZONE NEED NOT EXCEED ONE THOUSAND (1,000) SQUARE FEET IN SIZE. THE RADIAL ROOT PROTECTION ZONES OF TREES MAY OVERLAP ONE ANOTHER SO THAT THE AREA OF PROTECTION REQUIRED FOR ONE (1) TREE MAY BE SHARED BY THE AREA OF PROTECTION REQUIRED FOR ANOTHER TREE TO MINIMIZE THE TOTAL SQUARE FOOTAGE OF PROTECTED AREA WHERE POSSIBLE.

TREE: A PERENNIAL WOODY PLANT, SINGLE OR MULTIPLE TRUNK WITH FEW IF ANY BRANCHES ON ITS LOWER PART WHICH AT MATURITY WILL OBTAIN A MINIMUM SIX-INCH CALIPER.

TREE SURVEY

A TREE SURVEY OF TREES 6" DBH AND LARGER 20 FEET EITHER SIDE OF CENTERLINE HAS BEEN PERFORMED FOR THE PROJECT ROUTE PRESENTED HEREIN. TREE PRESERVATION SHALL BE APPLICABLE TO THE ENTIRE PROJECT. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS PRIOR TO BID SUBMISSION.

TREE REMOVAL

1. THE CONTRACTOR WILL BE ALLOWED TO CLEAR SITE AREA UNLESS A PARTICULAR TREE OR TREES IS DESIGNATED TO REMAIN.
2. ALL DEBRIS FROM TREE REMOVAL (TRUNKS, BRANCHES, ROOTS, ETC.) SHALL BE REMOVED AND DISPOSED OF OFF-SITE.
3. THE SAWS CONSTRUCTION INSPECTOR WILL BE REQUIRED TO KEEP AN INVENTORY OF ALL PROTECTED TREES REMOVED. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHOUT SAWS INSPECTOR AUTHORIZATION PENDING IDENTIFICATION, MEASUREMENT, AND DOCUMENTATION.
4. TREES LOCATED WITHIN CITY, COUNTY, OR STATE RIGHT-OF-WAYS SHALL NOT BE REMOVED WITHOUT APPROVAL FROM THE CITY ARBORIST'S OFFICE.

TREE PRUNING

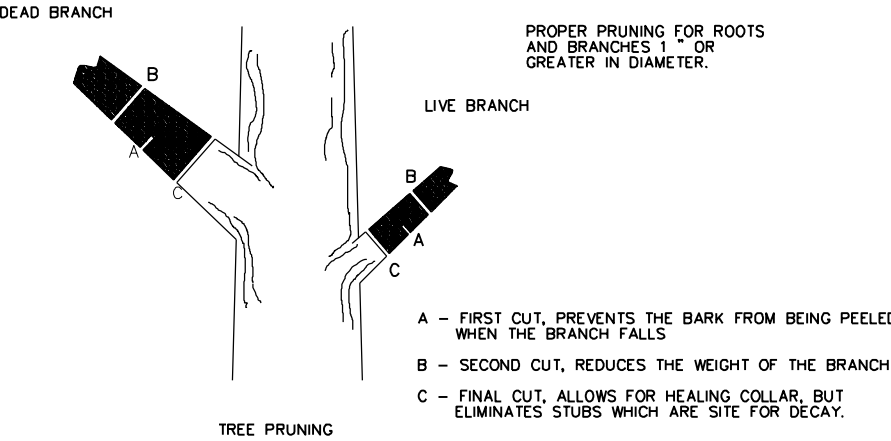
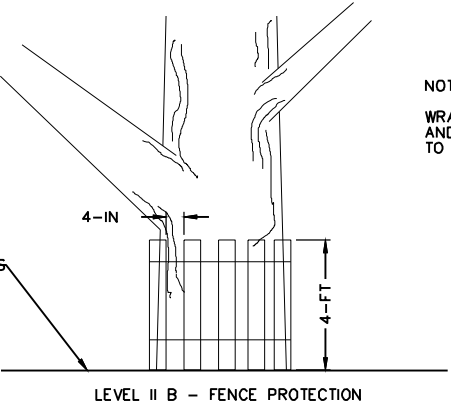
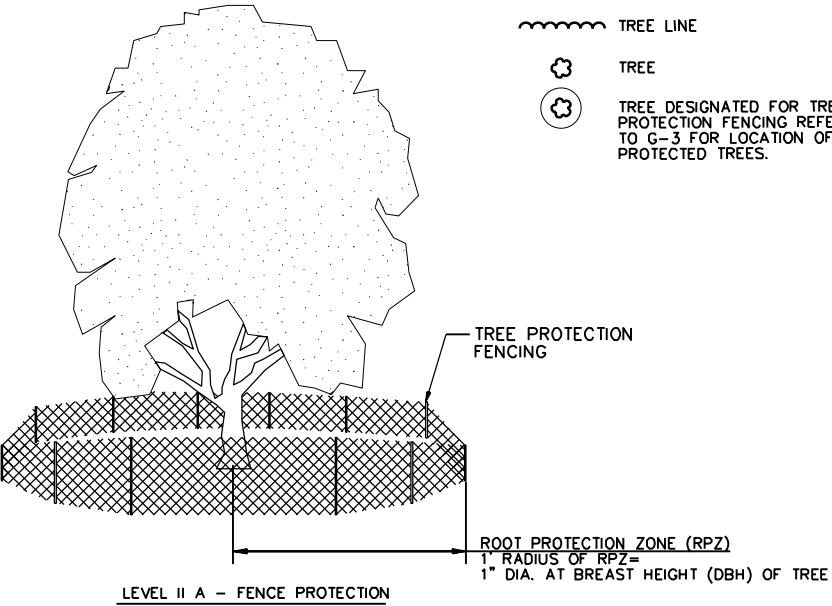
1. ALL PRUNING SHALL ADHERE TO THE STANDARD PRACTICES DESCRIBED BY THE AMERICAN NATIONAL STANDARD INSTITUTE ANSI A300.
2. PRUNING WILL BE ALLOWED WITHIN THE PERMANENT CONSTRUCTION AND/OR ACCESS EASEMENTS AS REQUIRED FOR CLEARANCE WITHIN THE CONSTRUCTION WORK ZONE, CLEARANCE FOR ACCESS OR JOBSITE SAFETY. NO OTHER PRUNING WILL BE ALLOWED WITHOUT AUTHORIZATION FROM THE SAWS CONSTRUCTION INSPECTOR.
3. PRUNING SHALL CONSIST OF MINOR BRANCH OR ROOT REMOVAL.
4. BRANCHES STUBS 6" IN DIAMETER OR GREATER SHALL BE PAINTED FOR TREE PROTECTION IF SAW-CUT.
5. BRANCHES OR ROOTS 6" IN DIAMETER OR GREATER SHALL NOT BE PRUNED WITHOUT PRIOR APPROVAL OF THE SAWS CONSTRUCTION INSPECTOR.
6. REPAIR PRESERVED TREES WHEN DAMAGED BY CONSTRUCTION OPERATIONS IN A MANNER ACCEPTABLE TO THE OWNER. REPAIR DAMAGED TREES PROMPTLY TO PREVENT PROGRESSIVE DETERIORATION CAUSED BY DAMAGE. ALL BROKEN BRANCHES AND EXPOSED ROOTS OF MITIGATION, PROTECTED, OR HERITAGE TREES SHALL BE CUT CLEANLY. IN CASE OF OAK SPECIES, IN ORDER TO PREVENT INFECTION BY OAK WILT SPORES, WOUNDS MUST BE PAINTED WITH AN ACCEPTABLE WOUND DRESSING WITHIN 30 MINUTES.
7. REPLACE TREES SCHEDULED TO REMAIN AND DAMAGED BEYOND REPAIR BY CONSTRUCTION OPERATIONS, AS DETERMINED BY THE OWNER, WITH TREES OF SIMILAR SIZE AND SPECIES.

TREE MITIGATION

1. MITIGATION FOR AUTHORIZED TREE REMOVAL WILL BE PERFORMED BY SAWS UNDER A SEPARATE CONTRACT. NO EXPENSE TO THE CONTRACTOR.
2. MITIGATION FOR UNAUTHORIZED TREE REMOVAL BY THE CONTRACTOR SHALL BE PAID BY THE CONTRACTOR IN AN AMOUNT EQUAL TO \$140.00 PER TREE INCH DIAMETER REMOVED OUTSIDE THE CONSERVATION EASEMENT AND \$250.00 PER TREE INCH DIAMETER REMOVED INSIDE THE CONSERVATION EASEMENT. PAYMENT OF CONTRACT OR MITIGATION WILL BE INVENTORIED BY THE SAWS CONSTRUCTION INSPECTOR AND SHALL BE WITHHELD FROM THE CONSTRUCTION CONTRACT PAYMENT.

TREE PROTECTION NOTES

1. PROTECT DESIGNATED EXISTING TREES AS SHOWN ON PLANS AND WITHIN ROW OR PROPOSED EASEMENT. ALL TREES TO BE PRESERVED AS PART OF THE PROJECT SHALL BE PROTECTED AGAINST INJURY OR DAMAGE, INCLUDING CUTTING, SOIL COMPACTION, BREAKING OR SKINNING OF ROOTS, TRUNKS, OR BRANCHES DURING CONSTRUCTION OPERATIONS BY FENCING AS DESCRIBED BELOW. THE TREE PROTECTION SHALL BE PLACED BEFORE ANY EXCAVATION OR GRADING BEGINS AND MAINTAINED FOR THE DURATION OF THE CONSTRUCTION WORK. PROTECTION WILL ENCOMPASS THE ROOT PROTECTION ZONE WHICH WILL BE, AT MINIMUM, ONE FOOT RADIUS PER INCH DIAMETER OF THE TREE TRUNK AT 4 FEET ABOVE GROUND. NO MATERIAL SHALL BE STORED OR CONSTRUCTION OPERATION SHALL BE CARRIED ON WITHIN THE TREE PROTECTION FENCING, UNLESS AUTHORIZED BY THE OWNER. THE PROTECTION SHALL REMAIN UNTIL ALL WORK IS COMPLETED.
2. PROTECT DESIGNATED TREES WITH A TEMPORARY MINIMUM 4 FEET HIGH ENCLOSURE. ENCLOSURE MAY BE CONSTRUCTED OF CHAIN LINK, ORANGE MESH OR A DOUBLE RAIL WOOD FENCE. INCREASE ENCLOSURE SIZE AS DIRECTED FOR LARGE TREES OR CLUSTERS OF TREES. ROOT PROTECTION ZONE (RPZ) FOR MULTIPLE TREES MAY OVERLAP.
3. ERECT TEMPORARY FENCING BEFORE COMMENCING SITE PREPARATION WORK. MAINTAIN FENCING DURING FULL CONSTRUCTION PERIOD. REMOVE TEMPORARY FENCING WHEN NO LONGER NEEDED OR WHEN ACCEPTABLE TO THE OWNER.
4. PROTECT ALL EXISTING LANDSCAPE AND TREES FROM CHANGES OF SOIL PH FACTOR BY PREVENTING DISPOSAL OF LIME BASED MATERIALS SUCH AS CONCRETE, PLASTER, LIME TREATMENT AT PAVEMENT SUBGRADE, AND APPURTENANCES IN OR IN PROXIMITY TO PRESERVED AREAS.
5. PROTECT ALL EXISTING TREES NEAR AREAS TO BE STABILIZED FROM UNDERGROUND CONTAMINANTS BY PLACING A 6 mil (0.15 mm) PLASTIC FILM BARRIER ALONG EXPOSED VERTICAL CUT EXTENDING A MINIMUM OF 12 INCHES (305 mm) INTO UNDISTURBED SUBGRADE BELOW DEPTH OF STABILIZATION.
6. NO SOIL SHALL BE SPREAD, SPOILED, OR OTHERWISE DISPOSED OF, NOR SHALL ANY SOIL BE REMOVED FROM UNDER ANY TREE WITHIN THE DRIP LINE.
7. PROTECT ALL EXISTING TREES FROM STRANGLING BY NOT TYING ROPES OR GUY WIRES TO TRUNKS OR LARGE BRANCHES.
8. INTERFERING BRANCHES OF PRESERVED TREES MAY BE REMOVED WHEN ACCEPTABLE TO THE OWNER.
9. BORE UNDER DESIGNATED SIGNIFICANT TREES AS SHOWN ON THE PLANS.
10. THE PROPOSED FINISHED GRADE AND ELEVATION OF LAND WITHIN THE ROOT PROTECTION ZONE OF ANY TREE TO BE PRESERVED SHALL NOT BE RAISED OR LOWERED MORE THAN THREE (3) INCHES UNLESS WELLING AND RETAINING METHODS ARE ALLOWED IN THE ROOT PROTECTION ZONE.
11. THE ROOT PROTECTION ZONE FOR EACH PRESERVED TREE MUST REMAIN PERVIOUS.
12. REPAIR AND REPLACEMENT OF PRESERVED TREES DAMAGED BY CONSTRUCTION OPERATIONS OR LACK OF ADEQUATE PROTECTION DURING CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
13. TREES SPECIFICALLY DESIGNATED TO REMAIN SHALL BE PRESERVED BY THE CONTRACTOR EVEN IF ALTERNATE CONSTRUCTION TECHNIQUES MUST BE UTILIZED. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR THIS INSTALLATION.
14. VEHICULAR AND EQUIPMENT PARKING AND MATERIAL STORAGE SHALL NOT BE LOCATED WITHIN THE RPZ OF PROTECTED TREES.
15. THE CONSTRUCTION EASEMENT IS PROVIDED TO THE CONTRACTOR FOR STAGING, ACCESS, ADDITIONAL OPERATING ROOM, AND SPOIL/MATERIAL STORAGE. TREE REMOVAL OF PROTECTED TREES WITHIN THE CONSTRUCTION EASEMENT WILL NOT BE ALLOWED UNLESS ACCESS IS NOT OTHERWISE ACHIEVABLE AS DETERMINED BY THE SAWS CONSTRUCTION INSPECTOR. A MEANDERING ACCESS ROUTE WILL BE PROMOTED TO AVOID TREE REMOVAL.
16. SAWS MUST ADHERE TO THE CITY'S TREE PRESERVATION ORDINANCE.



LEGEND

- SHRUB / HEDGE
- TREE LINE
- TREE
- TREE DESIGNATED FOR TREE PROTECTION FENCING REFER TO G-3 FOR LOCATION OF PROTECTED TREES.

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SWB11467

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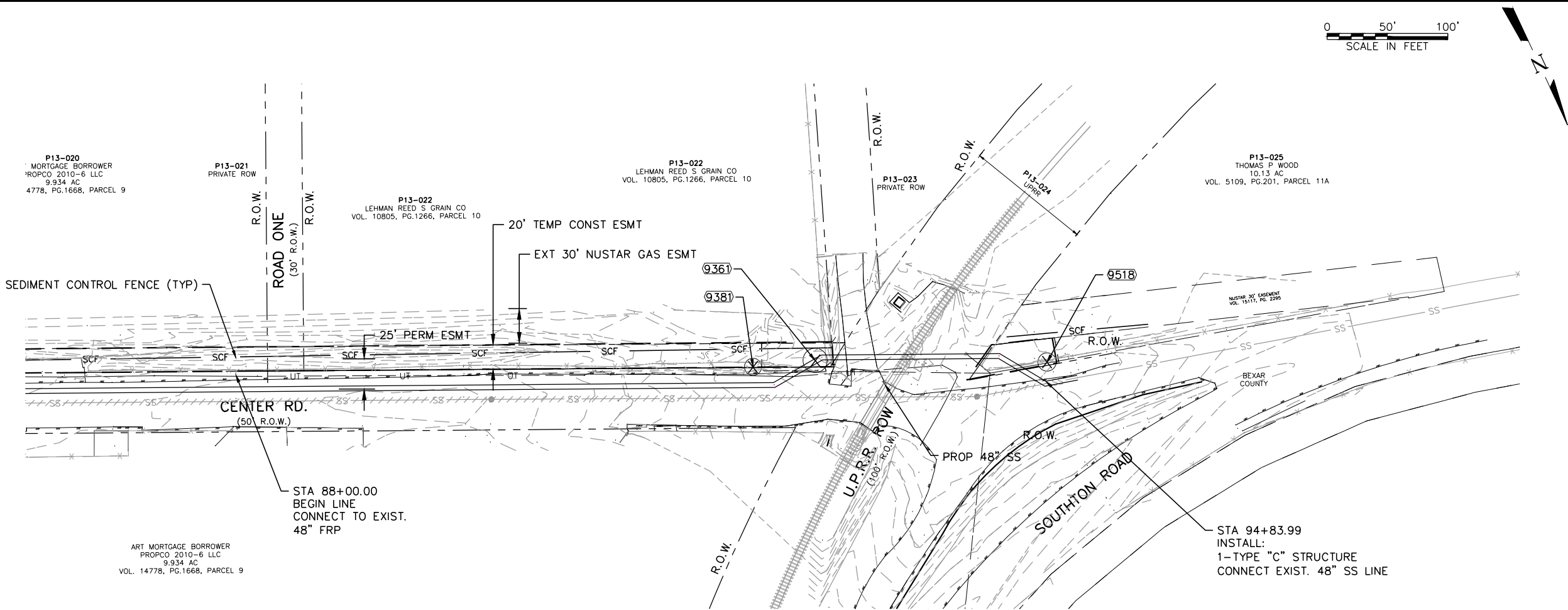
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SAN ANTONIO
WATER SYSTEM

SAWS JOB NO. 13-4510 (SS)
SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
TREE PROTECTION NOTES

Sheet TG4



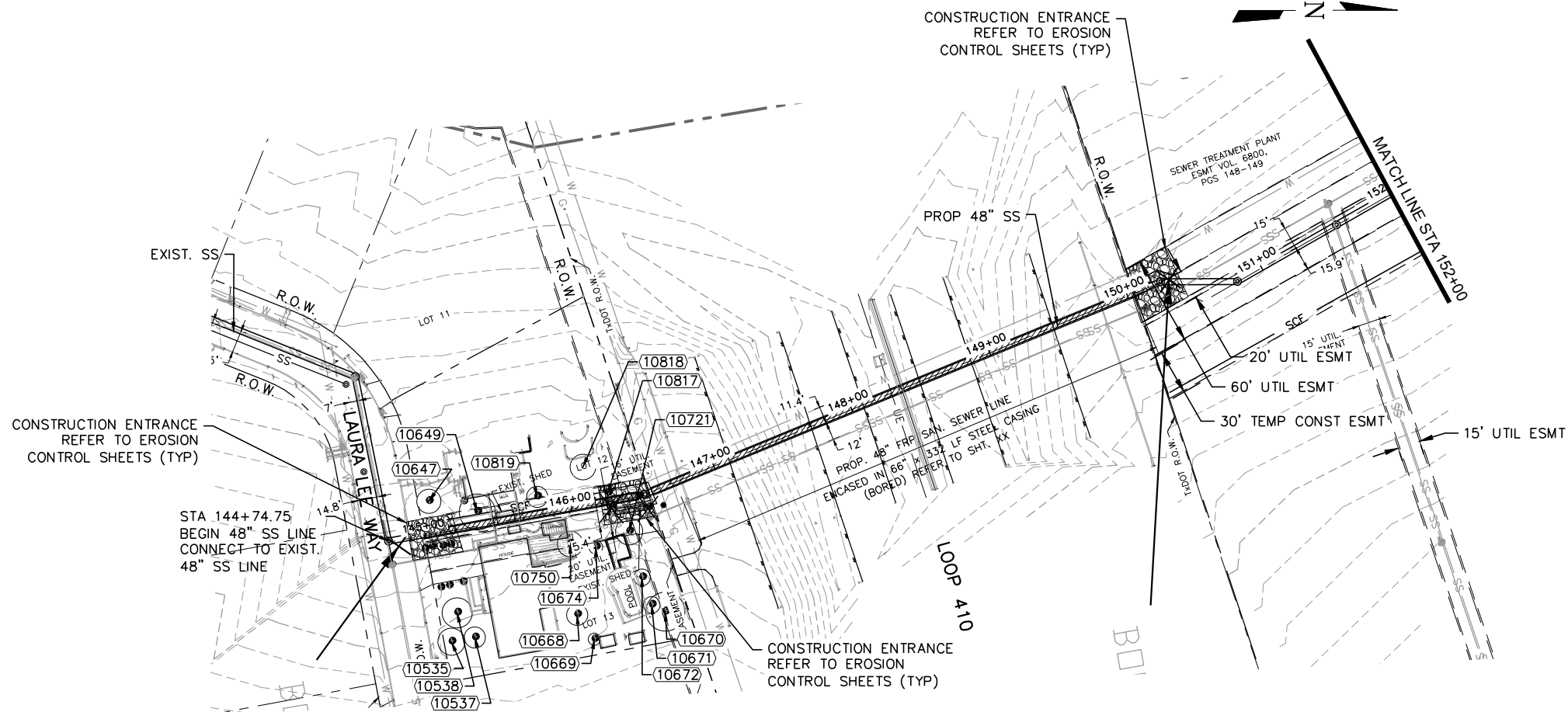
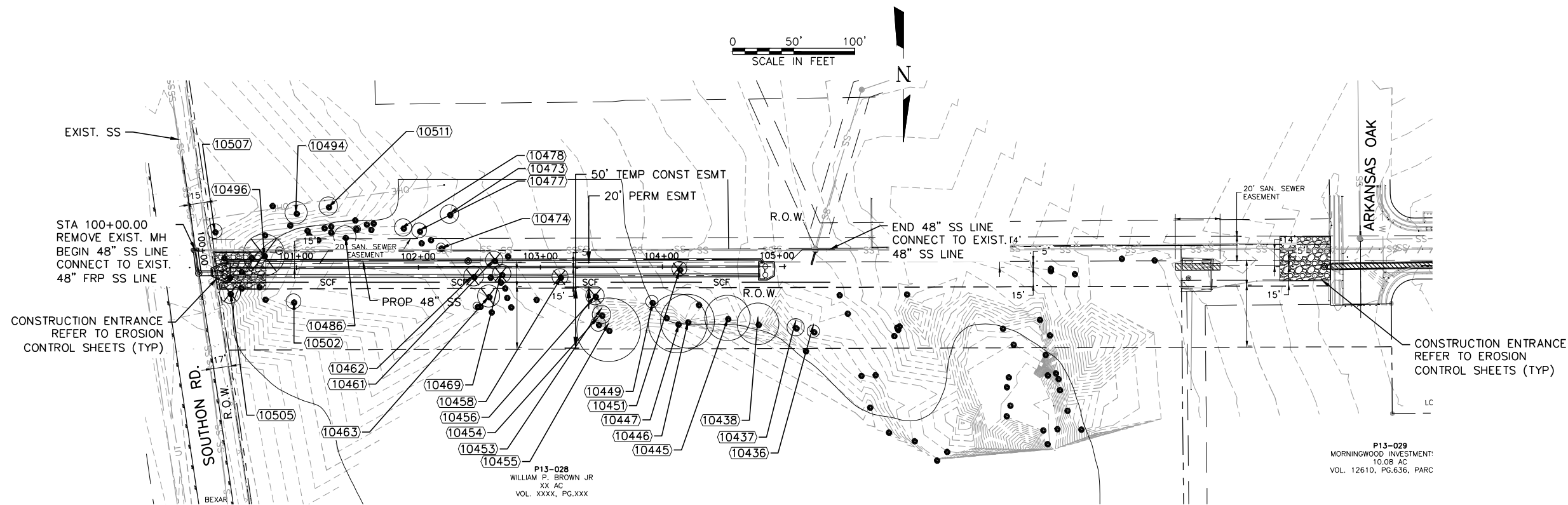
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SAWS JOB NO. 13-4510 (SS)
SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
TREE INVENTORY &
EROSION CONTROL LAYOUT 1

Sheet TS1

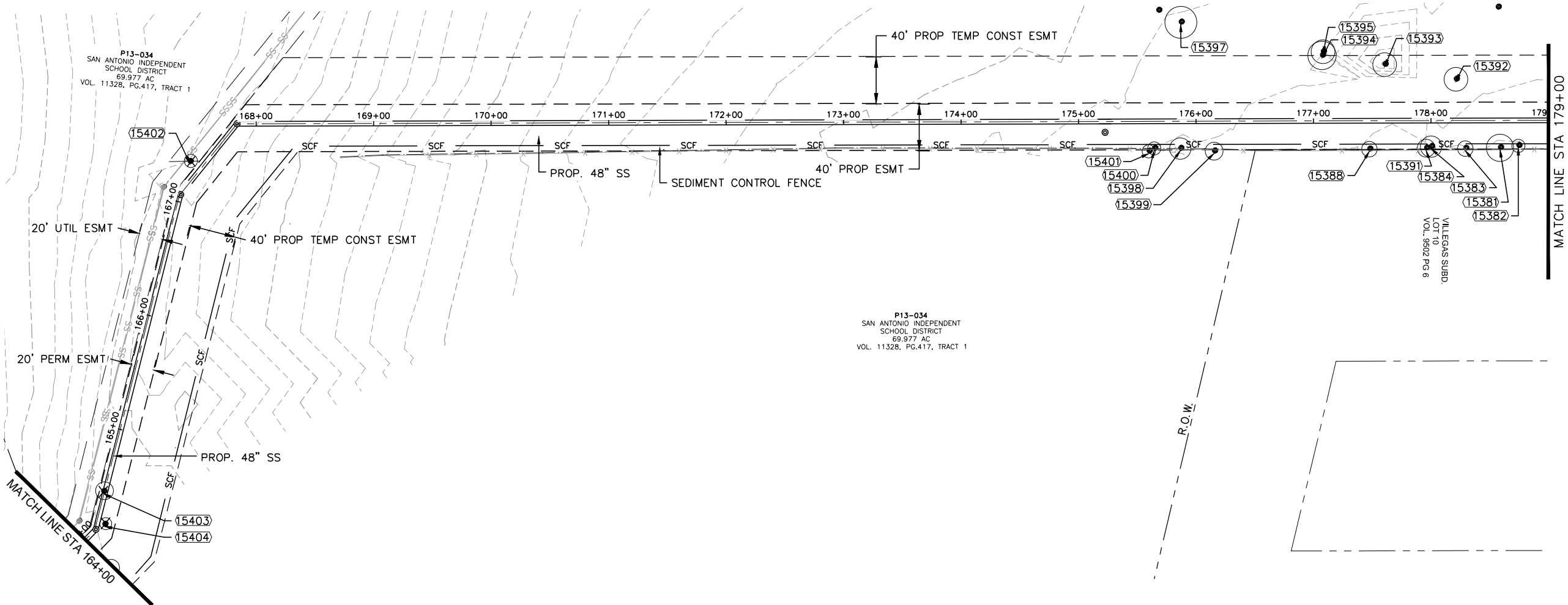
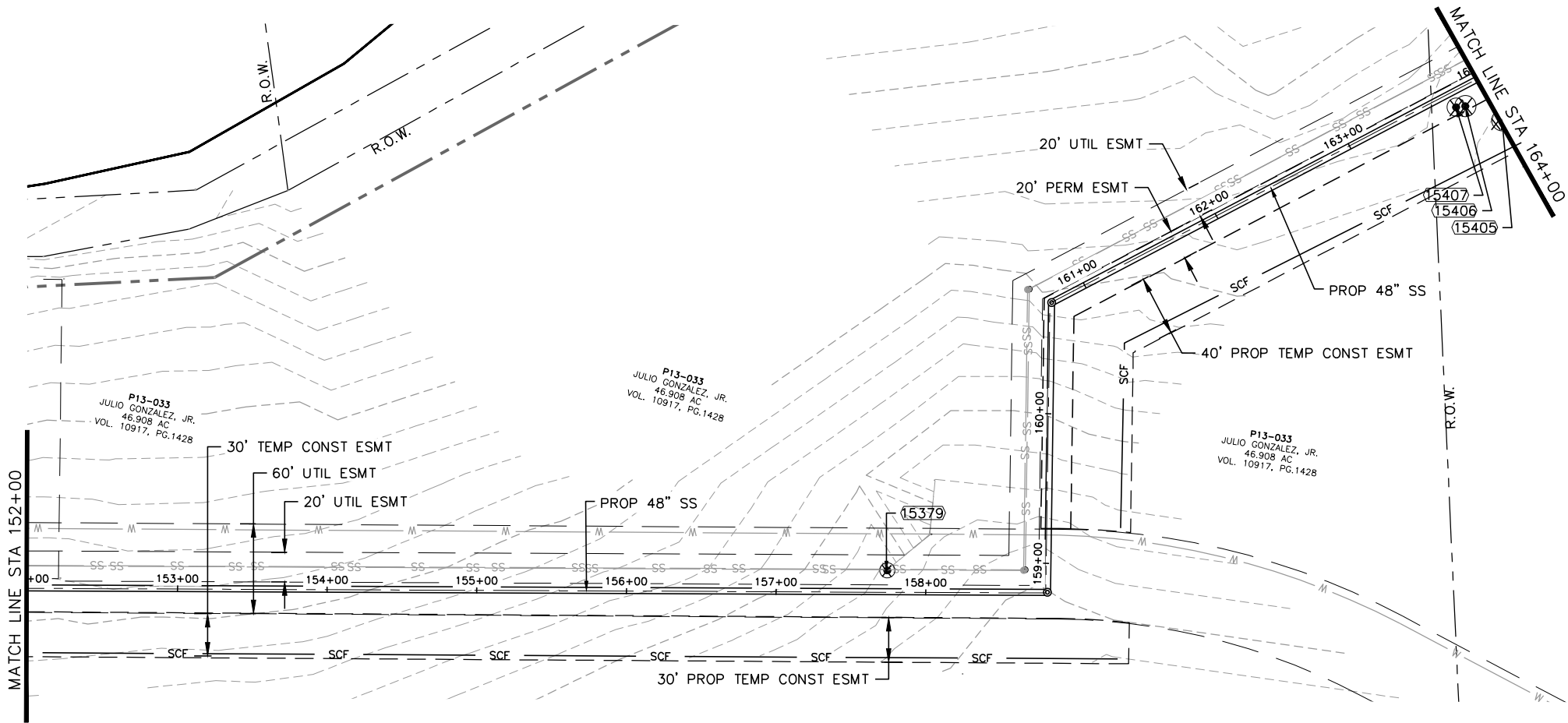


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SAWS JOB NO. 13-4510 (SS)
SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
TREE INVENTORY &
EROSION CONTROL LAYOUT 2



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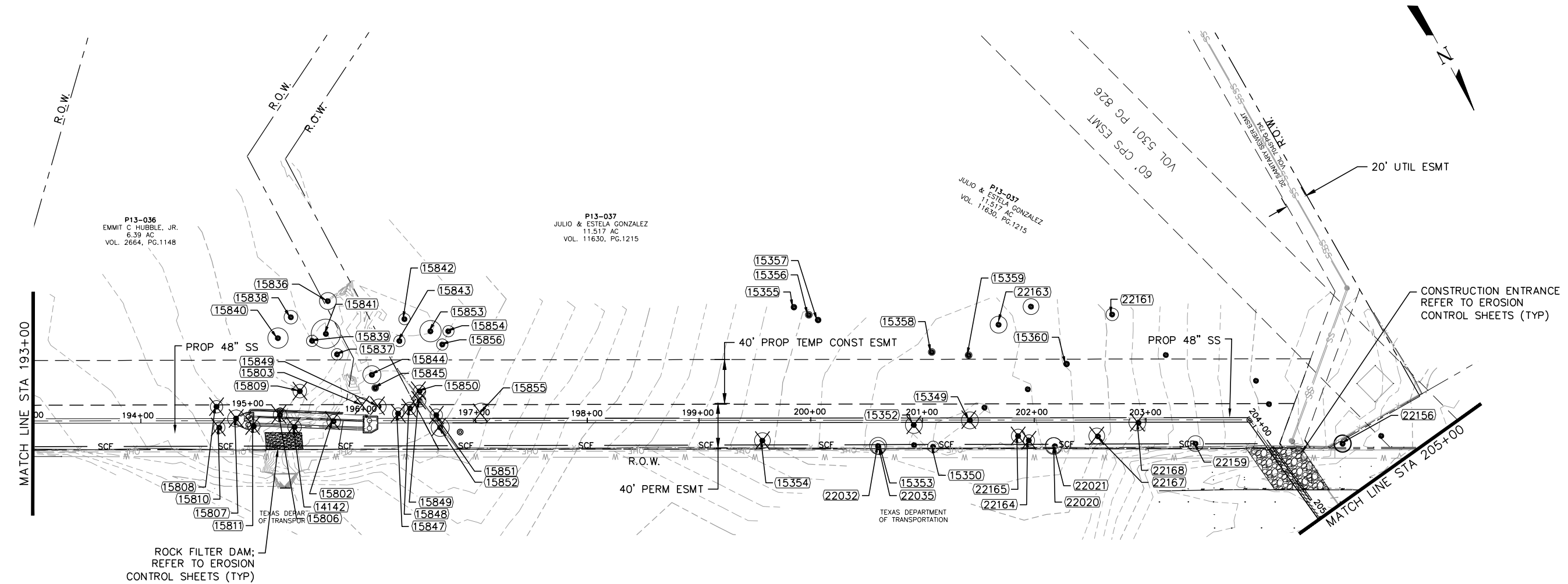
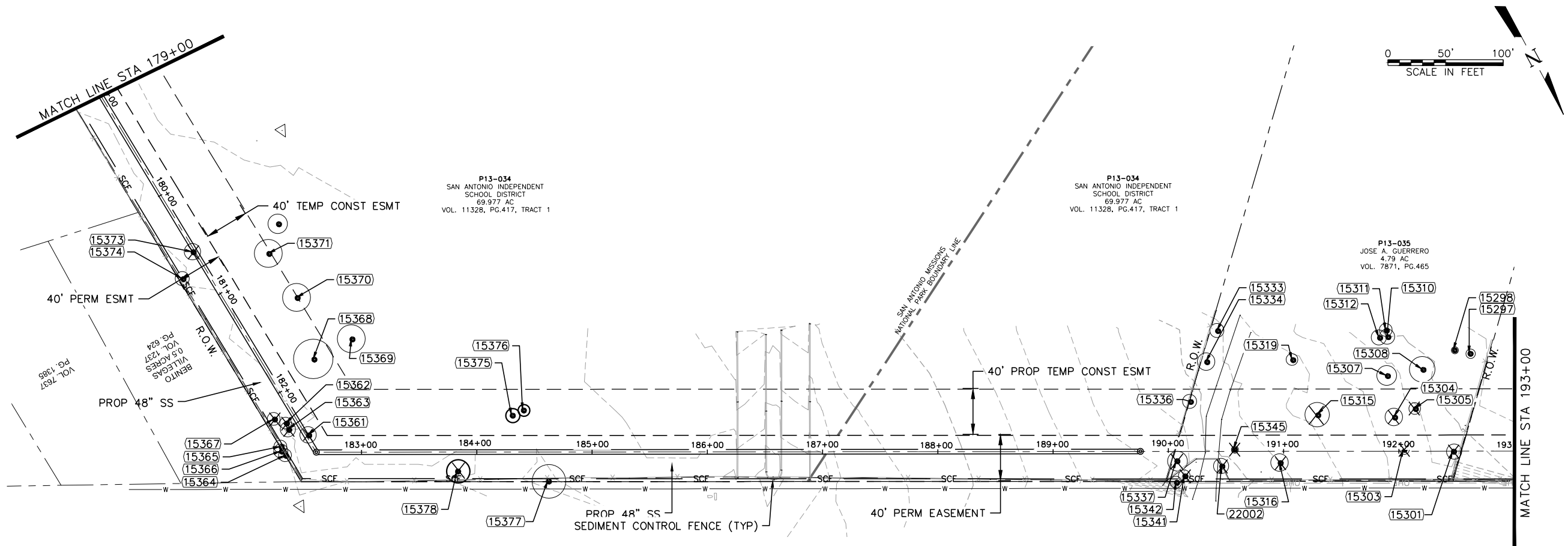
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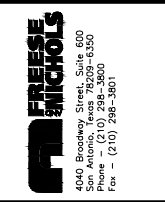


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SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
TREE INVENTORY &
EROSION CONTROL LAYOUT 3



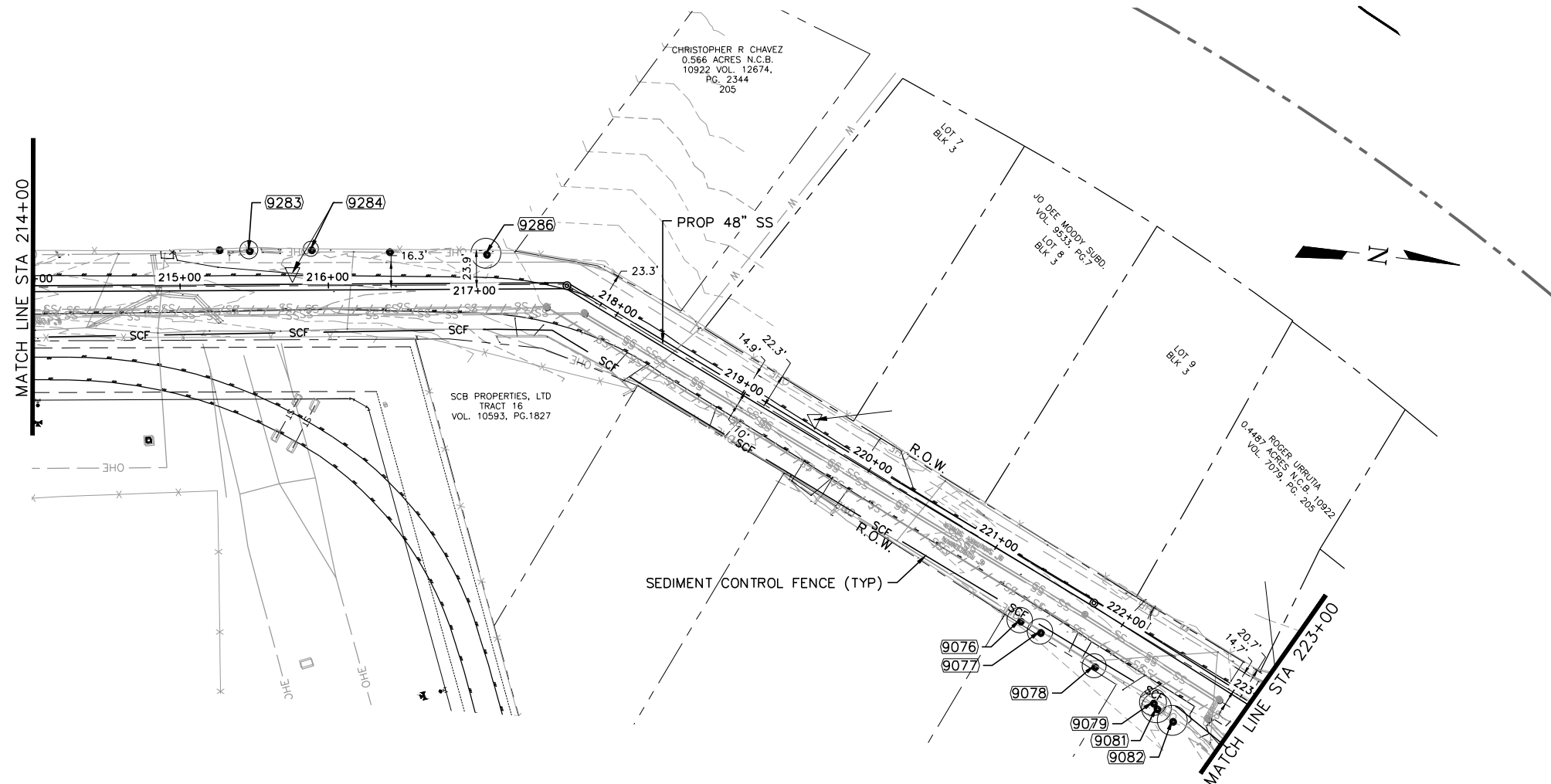
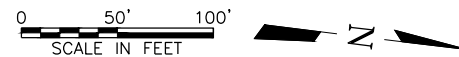
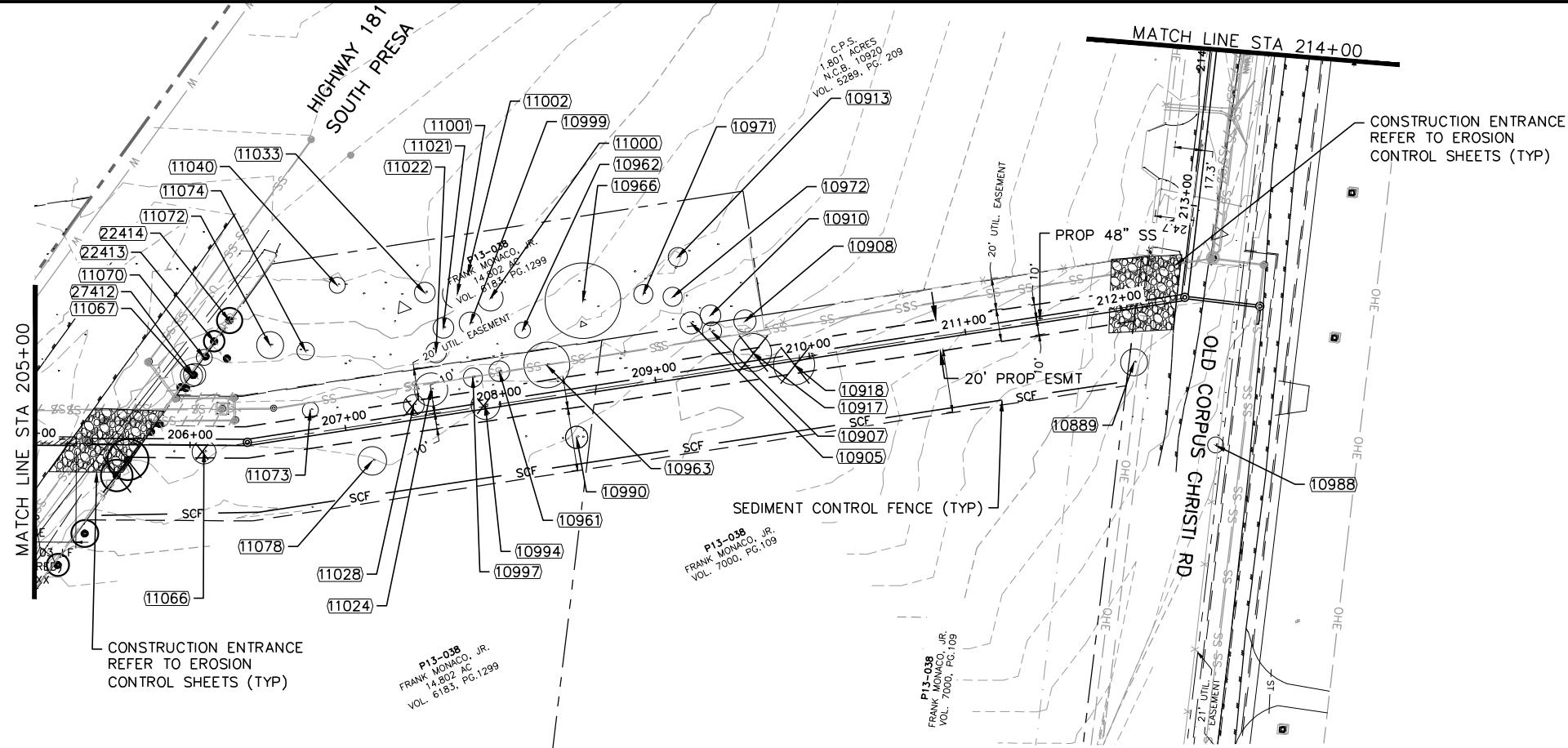
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SAN ANTONIO WATER SYSTEM

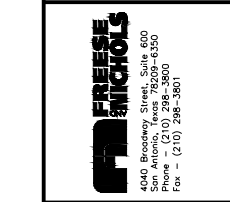
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 TREE INVENTORY &
 EROSION CONTROL LAYOUT 4



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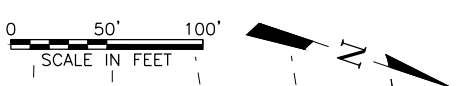
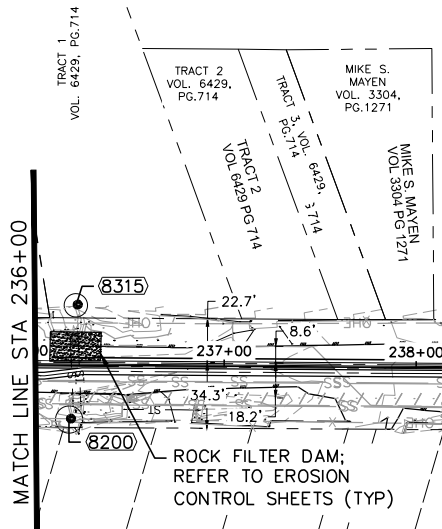
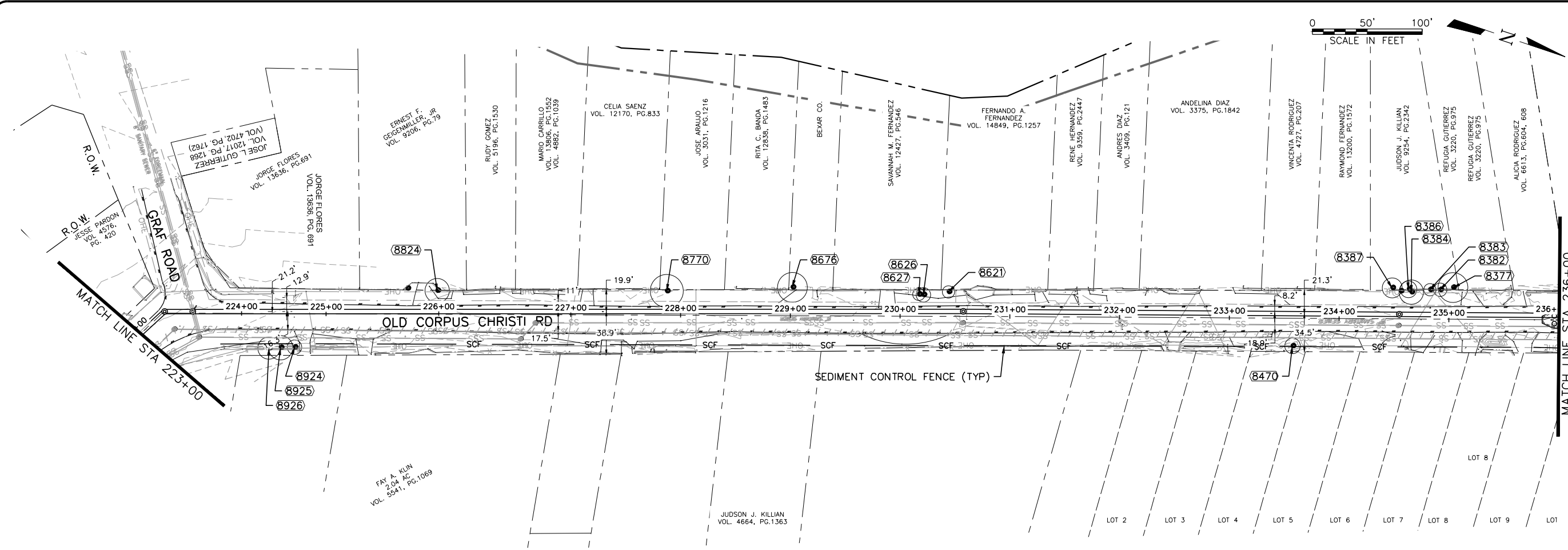
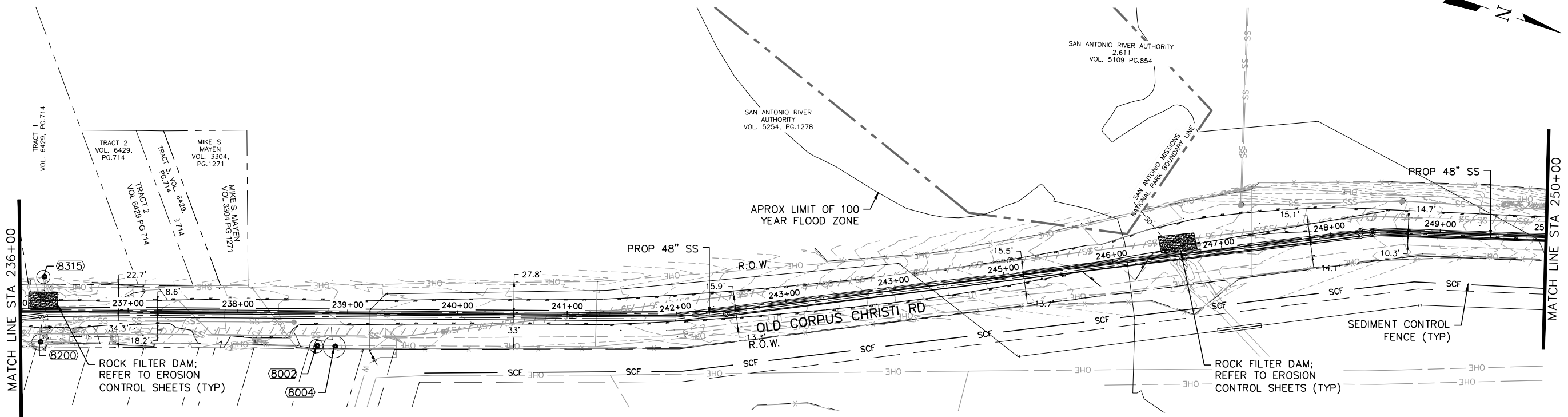
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SAN ANTONIO
WATER SYSTEM

SAWS JOB NO. 13-4510 (SS)
SAN ANTONIO RIVER OUTFALL PIPELINE,
PROJECT NO. 2B
TREE INVENTORY &
EROSION CONTROL LAYOUT 5

Sheet TS5

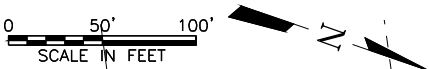
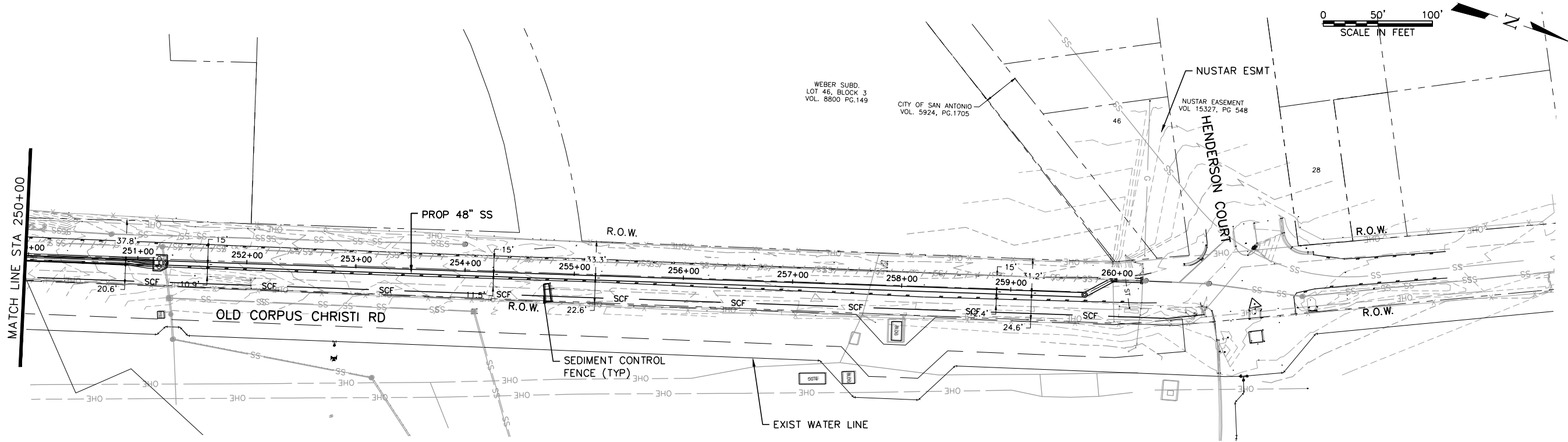


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SAN ANTONIO RIVER OUTFALL PIPELINE,
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TREE INVENTORY &
EROSION CONTROL LAYOUT 6



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PROJECT NO. 2B
TREE INVENTORY &
EROSION CONTROL LAYOUT 7

Sheet TS7

SHEET TS2											
TREE TABLE											
ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100 YR FLOODPLAIN	ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100 YR FLOODPLAIN
10507	MESQ	12	YES		30FT BUFFER	10451	HUT	12	YES	REMOVE	30FT BUFFER
10496	WILLOW	34	HERITAGE	REMOVE	YES	10447	OAK	24	HERITAGE		YES
10494	HUT	18	YES		30FT BUFFER	10446	OAK	44	HERITAGE		YES
10511	HUT	15	YES		30FT BUFFER	10445	OAK	37	HERITAGE		30FT BUFFER
10478	HACK	14	YES		YES	10438	OAK	24	HERITAGE		30FT BUFFER
10473	HUT	15	YES		YES	10437	HACK	14	YES		30FT BUFFER
10477	HUT	12	YES		YES	10436	HACK	10	YES		30FT BUFFER
10474	WILLOW	7	YES		YES	14125	HACK	25	HERITAGE		YES
10486	HUT	18	YES		YES	10649	OAK	25.5	HERITAGE		YES
10502	WILLOW	12	YES		YES	10535	OAK	18	YES		NO
10505	HACK	17	YES	REMOVE	30FT BUFFER	10538	OAK	20	YES		NO
10462	WILLOW	16	YES	REMOVE	YES	10537	OAK	14	YES		NO
10461	HUT	14	YES	REMOVE	YES	10750	MAG	17	YES		NO
10463	ELM	18	YES	REMOVE	YES	10668	OAK	14	YES		NO
10469	HUT	15	YES	REMOVE	YES	10669	OAK	8	YES		NO
10458	HUT	13	YES	REMOVE	YES	10674	OAK	9	YES		NO
10456	MESQ	15	YES	REMOVE	YES	10670	OAK	26	HERITAGE		NO
10454	HACK	12	YES		YES	10671	PINE	11	YES		NO
10453	HACK	15	YES		YES	10672	PINE	11	YES		NO
10455	OAK	25	HERITAGE		YES	10818	OAK	19	YES		NO
10449	HUT	10	YES		YES						
TREE INVENTORY SUMMARY (PROTECTED UPLANDS)						TREE INVENTORY SUMMARY (HERITAGE UPLANDS)					
SHEET TOTAL:					141	SHEET TOTAL:					26
INCHES BEING REMOVED:					0	INCHES BEING REMOVED:					0
INCHES REMAINING:					141	INCHES REMAINING:					26
TREE INVENTORY SUMMARY (PROTECTED FLOODPLAIN)						TREE INVENTORY SUMMARY (HERITAGE FLOODPLAIN)					
SHEET TOTAL:					206	SHEET TOTAL:					177.5
INCHES BEING REMOVED:					91	INCHES BEING REMOVED:					34
INCHES REMAINING:					115	INCHES REMAINING:					143.5
TREE INVENTORY SUMMARY (PROTECTED 30FT FLOODPLAIN BUFFER)						TREE INVENTORY SUMMARY (HERITAGE 30FT FLOODPLAIN BUFFER)					
SHEET TOTAL:					98	SHEET TOTAL:					61
INCHES BEING REMOVED:					29	INCHES BEING REMOVED:					0
INCHES REMAINING:					69	INCHES REMAINING:					61

SHEET TS1						
TREE TABLE						
ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100 YR FLOODPLAIN	
9361	HACK	27	HERITAGE	REMOVE	NO	
9381	MESQ	12.5	YES	REMOVE	NO	
9518	MESQ	14.5	YES	REMOVE	NO	
TREE INVENTORY SUMMARY (PROTECTED UPLANDS)						
SHEET TOTAL				27		
INCHES BEING REMOVED:				27		
INCHES REMAINING:				0		
TREE INVENTORY SUMMARY (HERITAGE UPLANDS)						
SHEET TOTAL				27		
INCHES BEING REMOVED:				27		
INCHES REMAINING:				0		

SHEET TS3						
TREE TABLE						
ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100 YR FLOODPLAIN	
15379	MESQ	14	YES	REMOVE	NO	
15407	HACK	12	YES	REMOVE	NO	
15406	HACK	14	YES	REMOVE	NO	
15405	HACK	14	YES	REMOVE	NO	
15402	HACK	11	YES	REMOVE	NO	
15403	HUT	15	YES	REMOVE	NO	
15404	HUT	10	YES	REMOVE	NO	
15397	HUT	27	HERITAGE		NO	
15395	HUT	20	YES		NO	
15394	HUT	24	HERITAGE		NO	
15393	HUT	29	HERITAGE		NO	
15392	HUT	20	YES		NO	
15401	HACK	11	YES		NO	
15400	MESQ	19	YES		NO	
15398	MESQ	25	HERITAGE		NO	
15399	MESQ	15	YES		NO	
15388	HACK	13	YES		NO	
15391	MESQ	15	YES		NO	
15384	HACK	18	YES		NO	
15383	HACK	13	YES		NO	
15381	MESQ	23	YES		NO	
15382	HACK	11	YES		NO	
TREE INVENTORY SUMMARY (PROTECTED UPLANDS)						
SHEET TOTAL				268		
INCHES BEING REMOVED:				90		
INCHES REMAINING:				178		
TREE INVENTORY SUMMARY (HERITAGE UPLANDS)						
SHEET TOTAL				105		
INCHES BEING REMOVED:				0		
INCHES REMAINING:				105		

SHEET TS5											
TREE TABLE						TREE TABLE					
ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100YR FLOODPLAIN	ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECTED	ACTION	100YR FLOODPLAIN
11040	HACK	10	YES		NO	11078	HACK	18	YES	REMOVE	NO
11074	HACK	11	YES		NO	11028	HACK	13	YES	REMOVE	NO
11072	HACK	21	YES		NO	11024	HACK	21	YES		NO
22414	HACK	16	YES		NO	10997	HACK	12	YES		NO
22413	HACK	13	YES		NO	10994	HACK	18	YES	REMOVE	NO
11070	HACK	10	YES		NO	10961	HACK	13	YES		NO
27412	HACK	27	HERITAGE		NO	10990	HACK	14	YES		NO
11067	HACK	14	YES		NO	10963	HACK	29	HERITAGE		NO
11033	HACK	16	YES		NO	10905	HACK	14	YES		NO
11022	HACK	13	YES		NO	10907	HACK	12	YES		NO
11021	HACK	13	YES		NO	10917	MESQ	24	HERITAGE	REMOVE	NO
11001	HACK	19	YES		NO	10918	HACK	26	HERITAGE	REMOVE	NO
11002	HACK	12	YES		NO	10889	HACK	17	YES		NO
10999	HACK	14	YES		NO	10988	MESQ	10	YES		NO
11000	HACK	16	YES		NO	9283	HACK	20	YES		NO
10962	HACK	10	YES		NO	9284	HACK	10	YES		NO
10966	HACK	24	HERITAGE		NO	9286	HACK	20	YES		NO
10971	HACK	12	YES		NO	9076	OAK	17	YES		NO
10913	HACK	12	YES		NO	9077	DOGWOOD	17	YES		NO
10972	HACK	12	YES		NO	9078	MESQ	16	YES		NO
10910	HACK	13	YES		NO	9079	MESQ	18	YES		NO
10908	MESQ	14	YES		NO	9080	MESQ	20	YES		NO
11066	HACK	15	YES	REMOVE	NO	9081	MESQ	20	YES		NO
11073	MESQ	10	YES	REMOVE	NO						
TREE INVENTORY SUMMARY (PROTECTED UPLANDS)											
SHEET TOTAL						616					
INCHES BEING REMOVED:						74					
INCHES REMAINING:						542					
TREE INVENTORY SUMMARY (HERITAGE UPLANDS)											
SHEET TOTAL						130					
INCHES BEING REMOVED:						50					
INCHES REMAINING:						80					

SHEET TS4											
TREE TABLE											
ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECT	ACTION	100 YR FLOODPLAIN	ID #	TREE TYPE	TREE SIZE (INCHES)	PROTECT	ACTION	100 YR FLOODPLAIN
15373	HUT	14	YES	REMOVE	NO	15837	HACK	10	YES		NO
15374	HACK	12	YES		NO	15844	MESQ	16	YES		NO
15367	HACK	11	YES	REMOVE	NO	15845	PER	6	YES	REMOVE	NO
15365	HACK	11	YES		NO	15850	HACK	11	YES		NO
15366	HACK	12	YES		NO	15842	HACK	10	YES		NO
15364	HACK	11	YES		NO	15843	HACK	10	YES		NO
15371	HUT	24	HERITAGE		NO	15853	PER	19	HERITAGE		NO
15370	HUT	24	HERITAGE		NO	15854	HACK	10	YES		NO
15368	MESQ	34	HERITAGE		NO	15856	HACK	10	YES		NO
15369	HUT	24	HERITAGE		NO	15855	HUT	18	YES	REMOVE	NO
15362	OAK	10	YES	REMOVE	NO	15357	PER	5	YES		NO
15363	HACK	13	YES	REMOVE	NO	15356	PER	6	YES		NO
15361	MESQ	14	YES	REMOVE	NO	15355	PER	5	YES		NO
15376	MESQ	10	YES		NO	15358	PER	6	YES		NO
15375	MESQ	12	YES		NO	15349	HUT	15	YES	REMOVE	NO
15378	MESQ	20	YES	REMOVE	NO	15352	HUT	15	YES	REMOVE	NO
15377	MESQ	29	HERITAGE		NO	15360	PER	5	YES		NO
15336	MESQ	12	YES		NO	22163	HUT	35	YES		NO
15337	MESQ	17	YES	REMOVE	NO	15359	PER	6	YES		NO
15333	MESQ	12	YES		NO	22161	HUT	21	YES		NO
15334	MESQ	15	YES		NO	22156	MESQ	23	YES		NO
15319	MESQ	10	YES		NO	15808	MESQ	11	YES	REMOVE	NO
15345	PINE	6	YES	REMOVE	NO	15810	HACK	12	YES	REMOVE	NO
15316	MESQ	15	YES	REMOVE	NO	15807	MESQ	15	YES	REMOVE	NO
22002	MESQ	13	YES	REMOVE	NO	15811	HACK	11	YES	REMOVE	NO
15311	MESQ	11	YES		NO	15802	HACK	12	YES	REMOVE	NO
15312	PER	13	HERITAGE		NO	14142	ELM	13	YES	REMOVE	NO
15310	MESQ	13	YES		NO	15806	HACK	12	YES	REMOVE	NO
15308	MESQ	22	YES		NO	15849	HACK	11	YES		NO
15307	MESQ	17	YES		NO	15848	MESQ	11	YES	REMOVE	NO
15315	MESQ	12	YES		NO	15847	HACK	10	YES	REMOVE	NO
15304	MESQ	15	YES		NO	15851	HACK	11	YES	REMOVE	NO
15305	HACK	10	YES		NO	15852	HACK	16	YES	REMOVE	NO
15303	PER	8	YES	REMOVE	NO	15354	HUT	14	YES	REMOVE	NO
15301	MESQ	13	YES	REMOVE	NO	15353	MESQ	15	YES		NO
15298	PER	6	YES		NO	22035	MESQ	12	YES		NO
15297	PER	8	YES		NO	22032	MESQ	12	YES		NO
15836	MESQ	15	YES		NO	15350	MESQ	14	YES		NO
15838	HACK	12	YES		NO	22165	MESQ	12	YES	REMOVE	NO
15840	PER	18	HERITAGE		NO	22164	HUT	22	YES	REMOVE	NO
15849	MESQ	13	YES	REMOVE	NO	22021	HUT	18	YES		NO
15803	HACK	13	YES	REMOVE	NO	22020	HUT	15	YES		NO
15809	HACK	12	YES		NO	22168	HUT	22	YES	REMOVE	NO
15841	PER	26	HERITAGE		NO	22167	HUT	16	YES		NO
15839	HACK	10	YES		NO	22159	MESQ	14	YES		NO
TREE INVENTORY SUMMARY (PROTECTED UPLANDS)											
SHEET TOTAL								1034			
INCHES BEING REMOVED:								438			
INCHES REMAINING:								596			
TREE INVENTORY SUMMARY (HERITAGE UPLANDS)											
SHEET TOTAL								211			
INCHES BEING REMOVED:								0			
INCHES REMAINING:								211			