



**US Army Corps
of Engineers ®**
Fort Worth District

Public Notice

Applicant: Bexar County Public Works

Project No.: SWF-2013-00274

Date: March 13, 2014

The purpose of this public notice is to inform you of a proposal for work in which you might be interested. It is also to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. We hope you will participate in this process.

Regulatory Program

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources. Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce. An important part of our mission today is the protection of the nation's waterways through the administration of the U.S. Army Corps of Engineers Regulatory Program.

Section 10

The U.S. Army Corps of Engineers is directed by Congress under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) to regulate *all work or structures in or affecting the course, condition or capacity of navigable waters of the United States*. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

Section 404

The U.S. Army Corps of Engineers is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the *discharge of dredged and fill material into all waters of the United States, including wetlands*. The intent of the law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical and biological integrity.

Contact

Name: Mr. Eric Dephouse, Project Manager

Phone Number: 817-886-1820

JOINT PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

AND

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUBJECT: Application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States associated with the expansion of Perrin Beitel Bridge SC-9 and associated floodplain improvements in the city of San Antonio, Bexar County, Texas.

APPLICANT: Bexar County Public Works

APPLICATION NUMBER: SWF-2013-00274

DATE ISSUED: March 13, 2014

LOCATION: The project area encompasses Perrin Beitel Road from 900 feet south IH 410 to Austin Highway; Vicar Drive from Beitel Creek to Perrin Beitel Road; Briarglen Road from Perrin Beitel Road to east of Windover Drive; and 2,548 linear feet of Beitel Creek from Vicar Drive to approximately 980 feet upstream from the confluence at Salado Creek in the city of San Antonio, Bexar County, Texas. The proposed project would be located approximately at UTM coordinates 557207.536175807 East and 3264675.58365221 North (Zone 14) on the TX-Longhorn 7.5-minute USGS quadrangle map in the 8-digit USGS Hydrologic Unit 12100301.

OTHER AGENCY AUTHORIZATIONS: State Water Quality Certification

PROJECT DESCRIPTION: The applicant proposes to discharge approximately 270 cubic yards of dredged and fill material (20 cubic yards of clean fill, 77 cubic yards of concrete riprap, and 173 cubic yards of concrete flexmat) into approximately 1.15 acres of waters of the United States in conjunction with the expansion of Perrin Beitel Bridge SC-9 and associated floodplain improvements. Total proposed impacts to waters of the U.S. include 0.36 acre of permanent impacts consisting of 0.06 acre of non-forested wetlands, 0.23 acre (590 linear feet) of intermittent stream, and 0.07 acre of ephemeral stream. In addition, 0.79 acre (1,153 linear feet) of temporary intermittent stream impacts would occur.

The proposed project consists of channel improvements along a 0.5-mile (2,548-linear foot) segment of Beitel Creek from Salado Creek to Vicar Drive. In addition, a 1,189-linear foot bypass channel would be constructed north of Beitel Creek to provide additional capacity during storm events. Beitel Creek improvements include the grading and reshaping of 680 linear feet (including a 90-linear foot in-stream wetland) of Beitel Creek creating an 85-foot wide

trapezoidal channel lined with flexible concrete matting (known as Flexamat) and concrete riprap for stability. In addition, the applicant proposes to grade and reshape two different segments (upstream and downstream) of Beitel Creek into an earthen channel using natural channel design principles for a total of 1,833 linear feet of improvements.

The project purpose is to provide flooding relief to twelve homes in the Village North Subdivision and to remove Perrin Beitel Road from the 1% chance (100-year) storm event to provide access unencumbered by floodwaters.

ALTERNATIVE SITE LOCATIONS AND ALTERNATIVE LAYOUTS:

Because of localized flooding of the existing Perrin Beitel road crossing of Beitel Creek and concerns of public safety associated with nearby residences, alternative locations were not determined to be practicable and were therefore not explored. The alternatives considered for the SC-9 Perrin Beitel Bridge Expansion Project are as follows:

Alternative 1 - No Action Alternative

Alternative 2 - Full Channel Improvements

Alternative 3 - Preferred Alternative- Partial Channel Improvements with Construction of Bypass Channel

Parameters that were compared for each alternative include:

Logistical - cost, construction duration, land acquisition, utility relocation, traffic improvements.

Environmental Impacts - tree removal, Ordinary High Water Mark (OHWM) disturbance, impacts to existing aquatic and terrestrial habitat.

Alternative 1 - No Action Alternative. Under the No Action Alternative, the project area would remain in its current condition. In its current condition, the storm water levels at Beitel Creek overtop the stream banks and inundate Perrin Beitel Road during all storm events equal to or greater than the 5-year frequency event. The depth of flow over Perrin Beitel Road during the 100-year frequency event exceeds seven feet. Additionally, twelve habitable structures are within the Beitel Creek floodplain in the project area. Floodwater depths and velocities on the roadway reach levels that present an extreme danger to the public. These high velocities increase erosion along the already incised stream banks. Consequently, the further instability of the banks and resulting in increased sediment loads and aggradation would continue to adversely affect water quality and channel morphology downstream. Alternative 1 would achieve the goals of removing the Perrin Beitel Road and the Village North homes from the 1% chance storm event and would provide access unencumbered by floodwaters. There would be no construction costs associated with this alternative, nor would there be a need for land acquisition or utility relocation; however, the cost to maintain the roadway, perform regular channel maintenance, and compensate for flood damage would likely continue to accumulate. Environmental impacts to the project area would be minimal under this alternative; however, leaving the channel in its current condition would likely decrease the quality of aquatic habitat downstream over time as a result of

channel aggradation. Additionally, under the No Action Alternative there would be no improvement to public safety during storm events. Substantial public safety concerns exist with flood events and the 5-year recurrence interval. Based on this factor in addition to the material threat to human safety, and recurring economic damages associated with road and structure repairs, Alternative 1 is considered impractical and is not a viable alternative for the applicant.

Alternative 2 - Full Channel Improvements. Alternative 2 would consist of constructing approximately 3,000 linear feet of major channel improvements along Beitel Creek, including widening and deepening the stream from its confluence with Salado Creek to Vicar Drive. Under this alternative, the existing Perrin Beitel Bridge would remain in place. However, to the extent practicable, the section of Perrin Beitel Road located north of the Perrin Beitel Bridge would be raised and reconstructed. Other improvements include demolition of the roadway connection of Vicar Drive from Perrin Beitel Road to the left bank of Beitel Creek. This alternative would also include reconstruction of a portion of Briarglen Road to tie the roadway in with the raised elevation of Perrin Beitel Road and installment of a traffic light at the new intersection to increase mobility. Channel improvements would include the grading and reshaping of 680 linear feet of Beitel Creek, creating an 85-foot wide trapezoidal channel lined with cellular blocks known as Flexamat (450 linear feet) and concrete riprap (230 linear feet) for stability. In addition, this alternative proposes the grading and reshaping of the remaining 2,320 linear feet of Beitel Creek into a trapezoidal natural channel (100 feet wide) with a 10 foot to 20-foot wide pilot channel.

This alternative would successfully achieve the project goals by decreasing the 100-year peak water level at Perrin Beitel Road by 6.6 feet, removing all structures and the Perrin Beitel roadway in the project area from the Beitel Creek 100-year floodplain. This alternative would not adversely impact peak flows, water surface elevations upstream along Beitel Creek, or surface water elevations within Salado Creek. The estimated cost of these improvements would be \$4.62 million, not including the cost of utility relocation or right-of-way (ROW) acquisition, both of which would be required for this alternative. ROW acquisition would be minimal and associated with the purchase of additional drainage easement. The estimated construction timeline of the project would be approximately nine to twelve months.

As part of this alternative, approximately 3,150 cubic yards would need to be excavated from below the plane of the OHWM. Materials to be placed below the OHWM of Beitel Creek and its adjacent ephemeral tributaries would include 77 cubic yards of concrete riprap and 173 cubic yards of Flexamat. An estimated 405 trees would be removed along the stream banks, 32 of which would be heritage trees located in the riparian corridor on the right bank of Beitel Creek. The tree removal along the right bank of Beitel Creek would be necessary to create a wider channel and increase floodplain connectivity along the channel.

Some long-term benefits may be derived from this alternative because the natural channel segments would likely reestablish aquatic habitat features over time. The natural channel design features of this alternative could serve as an extension of the City of San Antonio linear park system, which currently exists along Salado Creek, creating a recreational amenity for the community. Other benefits to widening the channel would include the resulting decrease of high

flow velocities that contribute to sedimentation and degradation of water quality within the watershed.

Adverse impacts resulting from this alternative would include the temporary loss of the existing aquatic resources located within the stream and additional losses of terrestrial habitat associated with the removal of quality heritage trees that have established along the right bank of Beitel Creek. The project would also result in the loss of 0.06 acre of in-channel wetlands. This alternative would meet the project goals; however, it would result in substantial aquatic resource impacts with very little preservation of existing natural resources, resulting in intensive efforts to create compensatory mitigation. For these reasons, this alternative was not selected as the preferred alternative.

Alternative 3 – Partial Channel Improvements/Construction of Bypass Channel/Existing Perrin Beitel Bridge (Applicant's Preferred Alternative). Alternative 3 is similar to the design outlined in Alternative 2, consisting of channel improvements that would include the widening and deepening the stream from near Salado Creek to Vicar Drive. Under this alternative the existing Perrin Beitel Bridge would remain in place, and the section of Perrin Beitel located north of the Perrin Beitel Bridge would be reconstructed and elevated to the extent practicable. Additional design components would include the reconstruction of a portion of Briarglen Road to tie the roadway with the section of Perrin Beitel Road proposed to be raised. This alternative would incorporate construction of a 1,189-linear foot bypass natural channel situated north of Beitel Creek. This bypass channel would provide additional storm water capacity while allowing for a minimization of impacts caused by channelization of the entire reach of Beitel Creek in the project area.

Similar to Alternative 2, channel improvements would include the grading and reshaping of 680 linear feet of Beitel Creek, creating an 85-foot wide trapezoidal channel lined with Flexamat (450 linear feet) and concrete riprap (230 linear feet) for stability. The channel widening would be necessary to create additional flood capacity and accommodate the high volume storm flows that currently result in hazardous flood conditions. The placement of concrete lining (both Flexamat and riprap) would provide the channel stability required to accommodate the anticipated high velocity flows in the trapezoidal channel segment. A 10-foot to 20-foot wide pilot channel would be constructed into the concrete-lined segments to provide continuous flow under normal stream conditions. The majority of this concrete lining would consist of Flexamat and would allow some vegetation to re-establish between the blocks. The portions around Perrin Beitel Bridge would be lined with impervious concrete riprap to provide additional stability for the bridge structure. In addition, this alternative would propose grading and reshaping of two different segments of Beitel Creek (upstream [359 linear feet] and downstream [794 linear feet]) into a constructed earthen channel with a 50-foot to 60-foot wide bench width and a 10-foot to 20-foot wide pilot channel for a total of 1,833 linear feet of improvements to Beitel Creek. The proposed 1,189-linear foot by pass channel would allow for 715 linear feet of stream to be preserved and enhanced.

This alternative would successfully achieve the project goals by decreasing the 100-year peak water levels at Perrin Beitel Road and removing all habitable structures from the Beitel Creek

floodplain without adversely impacting peak flows or water surface elevations upstream along Beitel Creek or downstream within Salado Creek. The estimated cost of these improvements would be \$5.6 million, not including the cost of utility relocation or ROW acquisition, both of which would be required for this alternative. The project area is owned by the City of San Antonio, thus ROW acquisition would be minimal and associated with additional drainage easement. The estimated construction timeline of the project would be approximately twelve to eighteen months.

The adverse effects associated with the applicant's preferred alternative would include temporary and permanent losses of aquatic habitat, tree removal, and loss of a 0.06-acre wetland. The type of impacts would be similar to Alternative 2; however, the quantity of impact to the existing water resources would be significantly less as demonstrated in the comparison of impacts in Table 1 below. For this reason, Alternative 3 was selected as the applicant's preferred alternative.

Table 1 - Comparison of Impacts

Type of Impact	Alternative 1	Alternative 2	Alternative 3 Applicant's Preferred Alternative
Length of Beitel Creek in Project Area (LF)	0	3,000	2,548
OHWM Disturbance to Beitel Creek (LF)	0	3,000	1,743
Excavation Below OHWM (CY)	0	3,150	1,850
Volume Fill Below OHWM (CY)	0	20	20
Volume of Flexamat below OHWM (CY)	0	173	173
Wetland Impacts (Ac)	0	0.06 (90 LF)	0.06 (90 LF)
Wetland Creation (Ac)	0	0	0.1
Tree Removal (Total Trees)	0	405	300
Heritage Tree Removal	0	32	26

In addition to the minimization of impacts, Alternative 3 would create additional wetland habitat and increase the overall quality of the project area. This alternative would preserve an approximately 2.5-acre stand of riparian corridor that could later be used to connect to the linear park system along Salado Creek, and would provide for the preservation seven heritage trees that would be lost under Alternative 2. On-site Permittee Responsible Mitigation (PRM) would be required for the preferred alternative and would consist of preservation in perpetuity of sections of Beitel Creek, emergent wetland creation, invasive species removal at the 2.5-acre tree stand, and planting of wetland vegetation along select areas of Beitel Creek.

COMPENSATORY MITIGATION: BCPW-FCCIP proposes to perform on-site compensatory mitigation for the unavoidable adverse impacts caused by the proposed project. The Texas Rapid Assessment Method (TXRAM) was used to measure the condition of the existing stream and of the proposed channel improvements. The Fort Worth Stream Mitigation Method (SMM) (as defined in the USACE Public Notice CESWF-13-MIT-1) was used to determine the mitigation strategy. The goal of the compensatory mitigation proposed in this plan is to preserve (in perpetuity) and enhance 1,868 linear feet of Beitel Creek through a combination of in-channel and riparian uplift. The proposed mitigation would compensate for the partial loss of function of the upstream segment of Beitel Creek and its tributaries that would occur as a result of the proposed project improvements.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-332, the Regulatory Program of the U. S. Army Corps of Engineers (USACE), and other pertinent laws, regulations, and executive orders. Our evaluation will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including its cumulative effects. Among the factors addressed are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE in determining whether to issue, issue with modifications, or conditions, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

STATE WATER QUALITY CERTIFICATION: This project would result in a direct impact of greater than three acres of waters of the state or 1,500 linear feet of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project. Therefore, Texas Commission on Environmental Quality (TCEQ) certification is required. Concurrent with USACE processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act, and Title 30, Texas

Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the USACE and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. **Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087.** The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. The proposed project would be located in a county where threatened and endangered species are known to occur or may occur as migrants. Our initial review indicates that the proposed work would have no effect on federally-listed endangered or threatened species.

NATIONAL REGISTER OF HISTORIC PLACES: The area of the proposed work was surveyed for the presence of standing structures and for prehistoric cultural resources. No archeological sites were identified and no standing structures of historical importance were identified. No previously identified historic or prehistoric sites eligible for, or listed on, the National Register of Historic Places were present prior to the survey work. The Texas Historical Commission concurred with the standing structures survey in June, 2013, and with the archeological survey results in March, 2013.

FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

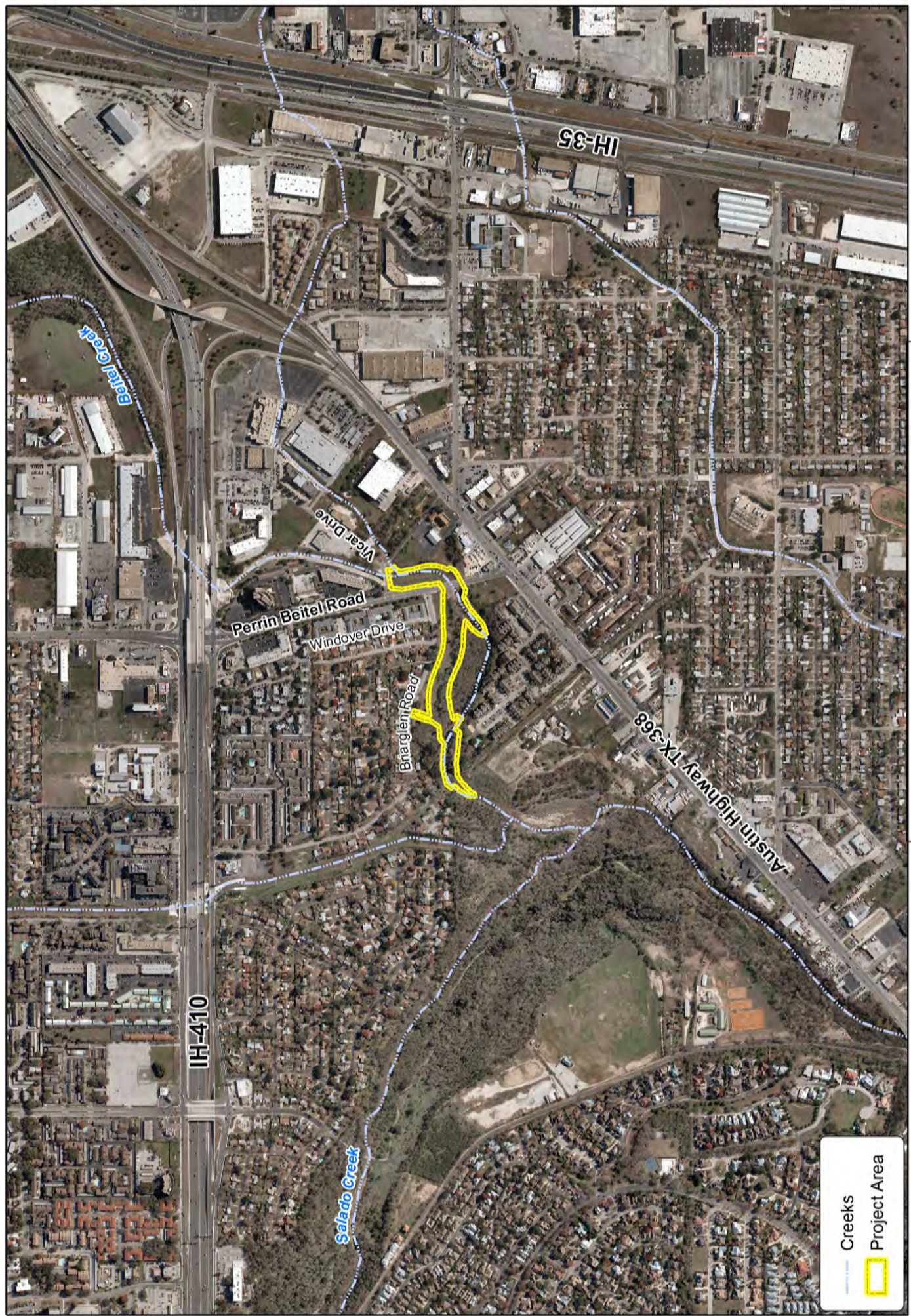
SOLICITATION OF COMMENTS: The public notice is being distributed to all known interested persons in order to assist in developing fact upon which a decision by the USACE may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his

permit decision. If a public hearing is warranted, all known interested persons will be notified of the time, date, and location.

CLOSE OF COMMENT PERIOD: All comments pertaining to this Public Notice must reach this office on or before Monday, April 14, 2014, which is the close of the comment period. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. If no comments are received by that date, it will be considered that there are no objections. Comments and requests for additional information should be submitted to Mr. Eric Dephouse, Project Manager, Regulatory Division, CESWF-DE-RE, U. S. Army Corps of Engineers, Post Office Box 17300, Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1820. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

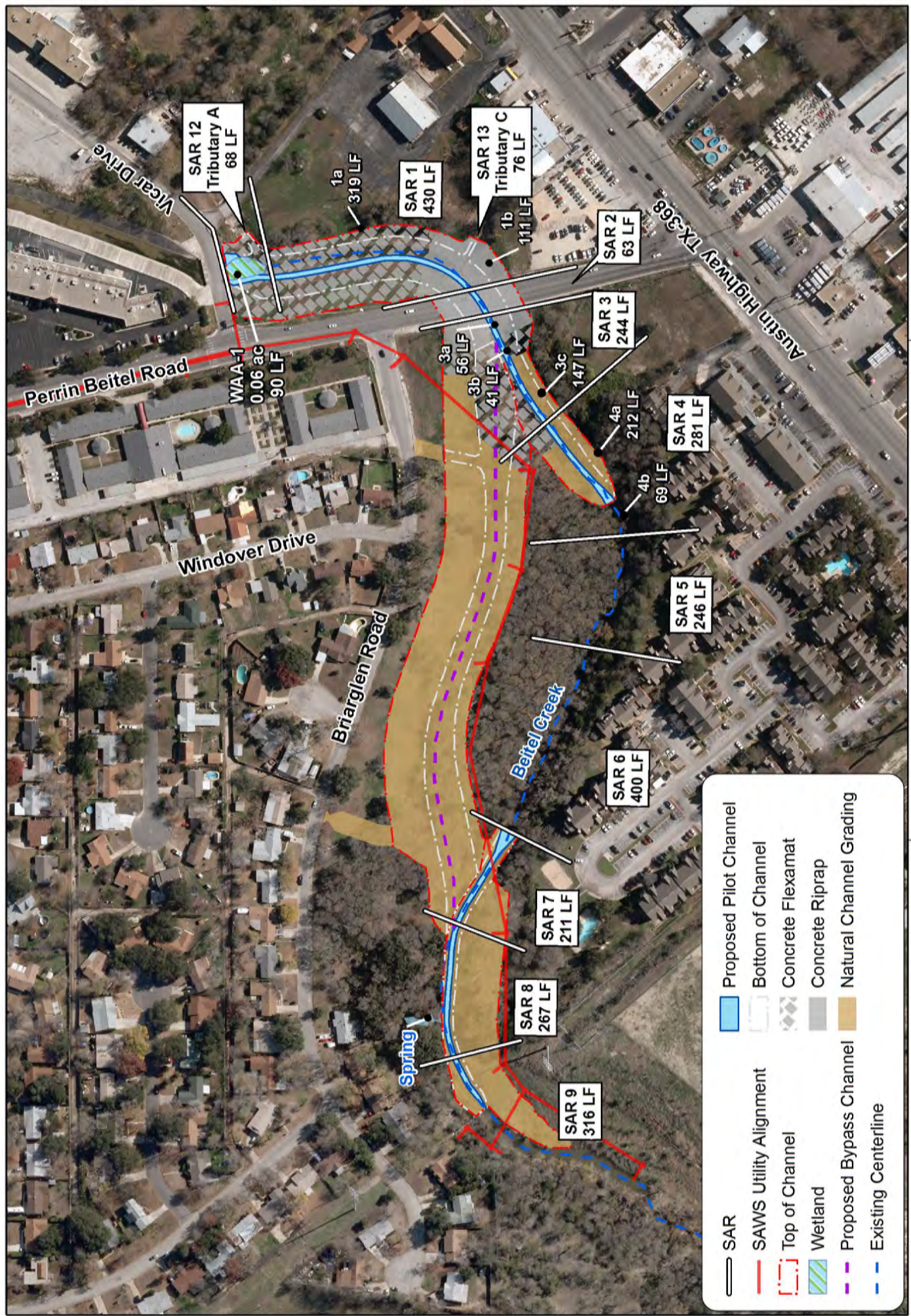
DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS



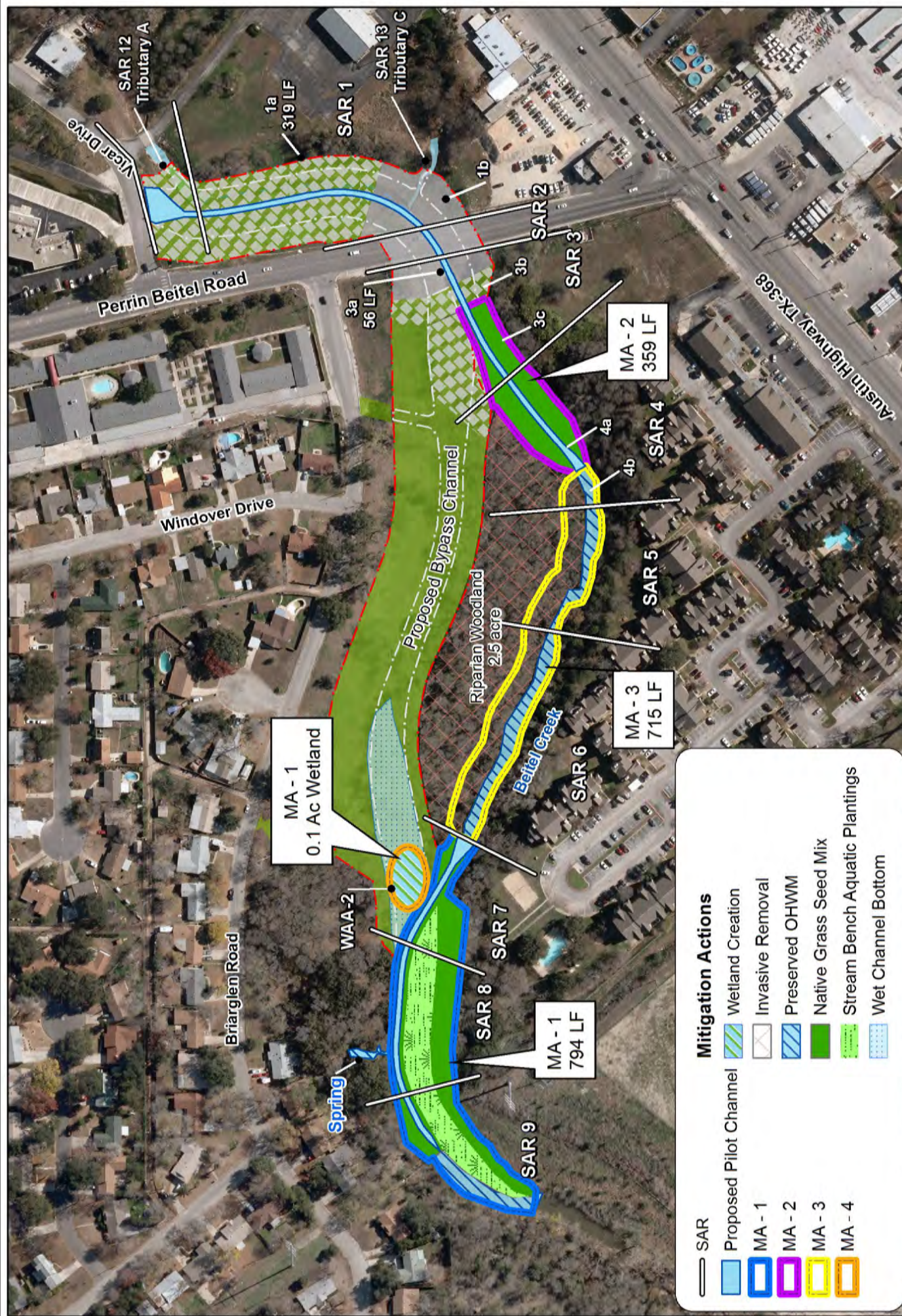
Vicinity Map Perrin Beitel Bridge Expansion (SC-9)







Project Overview Map
Perrin Beitel Bridge Expansion (SC-9)



LEGEND

- WASTE WATER
- WATER
- BURIED GAS
- UNDERGROUND TEL
- OH ELEC
- OH ELEC/OH TEL/OH CABLE
- EXIST FENCE
- OVERHEAD CABLE
- WATER METER
- WATER VALVE
- TELE PEDESTAL
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- MAIL BOX
- CLEAN OUT
- FIRE HYDRANT
- AT&T
- STORM DRAINAGE
- SANITARY SEWER
- TREE
- RES CONC DRIVEWAY
- CONC SIDEWALK
- COMM CONC DRIVEWAY
- MATCH EXIST PAVEMENT
- BUS STOP PAD
- 2" MILL AND OVERLAY

THIS DOCUMENT IS FOR INTERIM REVIEW, BIDDING, PERMIT OR OTHER UNAUTHORIZED PURPOSES. THESE DOCUMENTS/PLANS WERE AUTHORIZED TO BE RELEASED.

BY: BRYAN J. SPINA, P.E.
LICENSE NO. 103776 DATE: 1/23/2014



SC-9 PERRIN-BEITEL BRIDGE EXPANSION

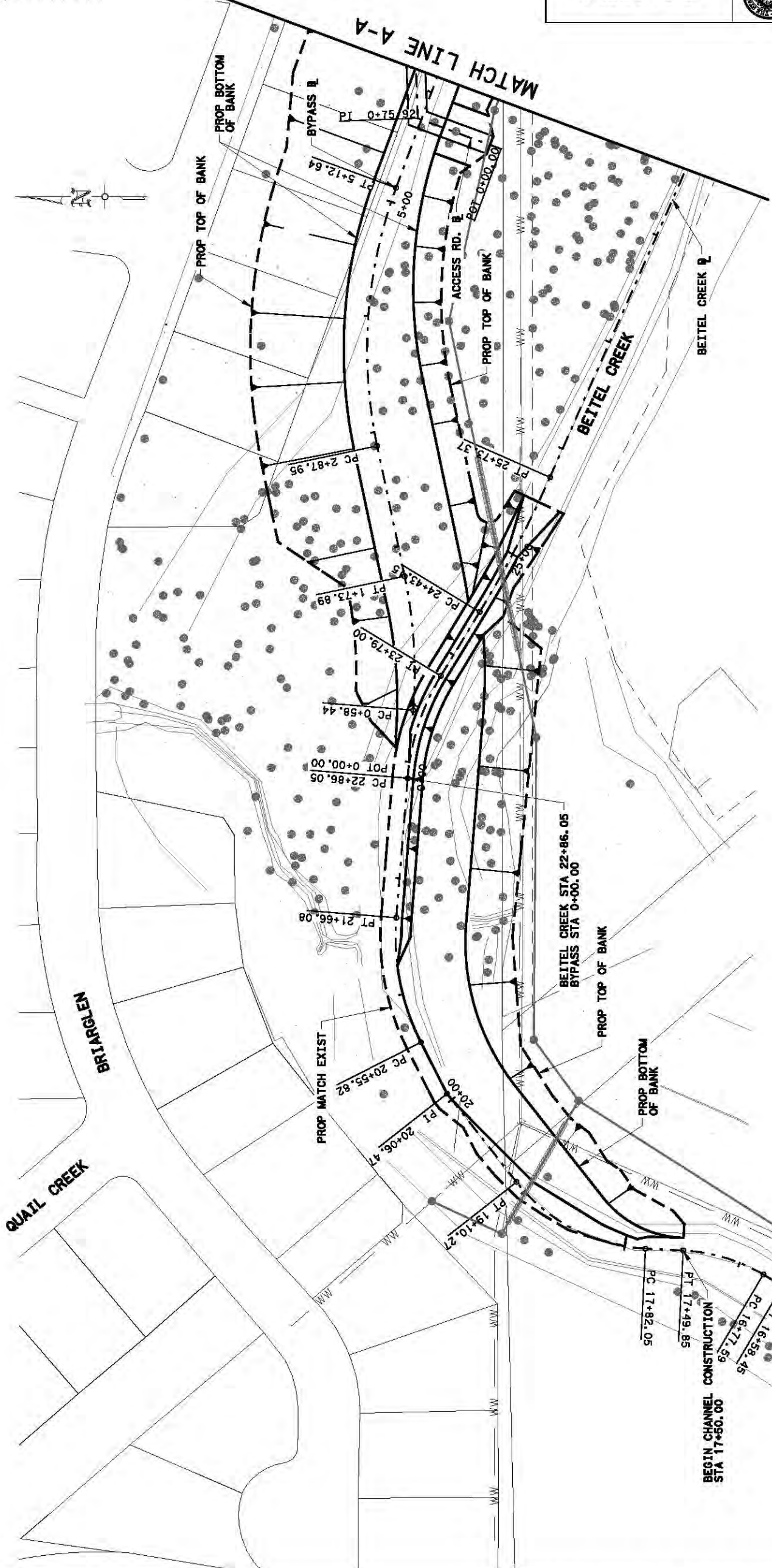
PROJECT LAYOUT
SHEET 1 OF 2

HORIZ. SCALE: 1"=100'

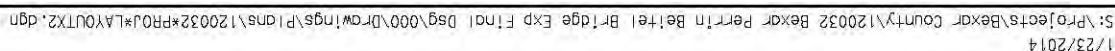


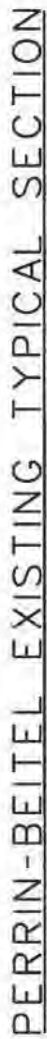
TYPE FRI NO. F-309
8010 TENDRO DRIVE
SAN ANTONIO, TEXAS 78217

DRAWN	CHECKED	DATE	SHEET NO.
CH	CH	TX	3A



BYPASS CURVE DATA			
PI STATION	DELTA	DEGREE OF CURVE	TANGENT
1+16.57	16° 32'	16.18" (LT)	26.20"
DEGREE OF CURVE	14° 19'	26.20" (RT)	
TANGENT	58.13		
LENGTH	115.46		
RADIUS	400.00		
PC STATION	0+58.44		
PT STATION	1+73.89		
BEITEL CREEK CURVE DATA			
PI STATION	DELTA	DEGREE OF CURVE	TANGENT
18+50.37	48° 58'	35.09" (RT)	58° 17' 11.30"
DEGREE OF CURVE	38° 11'	49.87" (RT)	
TANGENT	68.32		
LENGTH	128.22		
RADIUS	150.60		
PC STATION	17+22.05		
PT STATION	19+10.27		
BEITEL CREEK CURVE DATA (CONT.)			
PI STATION	DELTA	DEGREE OF CURVE	TANGENT
32+03.48	64° 18'	25.51" (LT)	51.56"
DEGREE OF CURVE	31° 49'	51.56" (LT)	
TANGENT	31.13		
LENGTH	202.03		
RADIUS	180.00		
PC STATION	30+90.33		
PT STATION	32+92.36		





STA 4+83.87 TO STA 6+71.15

STA 2+50.00	TO STA 4+62.50
STA 9+50.00	TO STA 10+35.00

BY: BRYAN J. SPINA, P.E.

LICENSE NO.: 103776 DATE: 6/13/2013

[illegible]

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

PERRIN-BEITEL EXISTING TYPICAL SECTIONS

SCALE: N.T.S.



5918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

DONE				
CHK DONE				
DONE	STATE	COUNTY	SHEET NO.	
CHK DONE	TEXAS	BEXAR	79	

BRIDGE

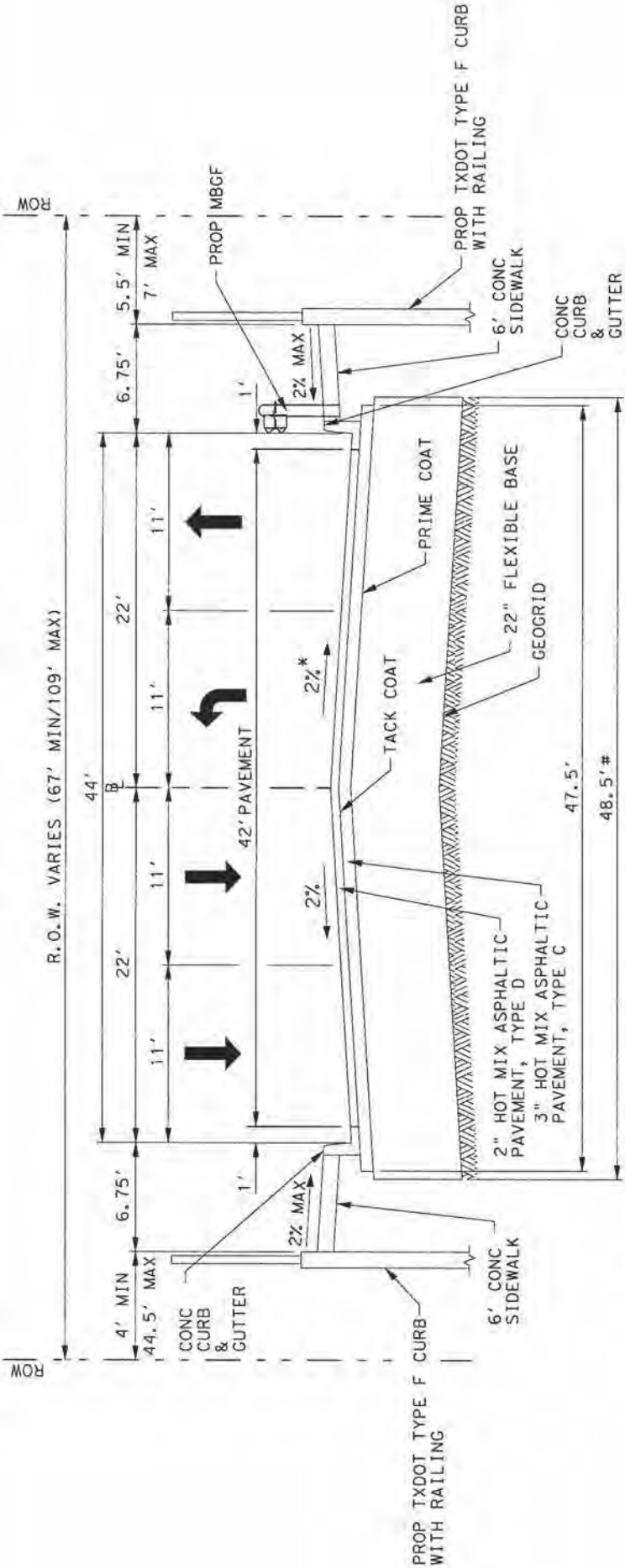
STA 4+83.87 TO STA 6+71.18

TRANSITION

STA 9+00.00 TO STA 12+00.00

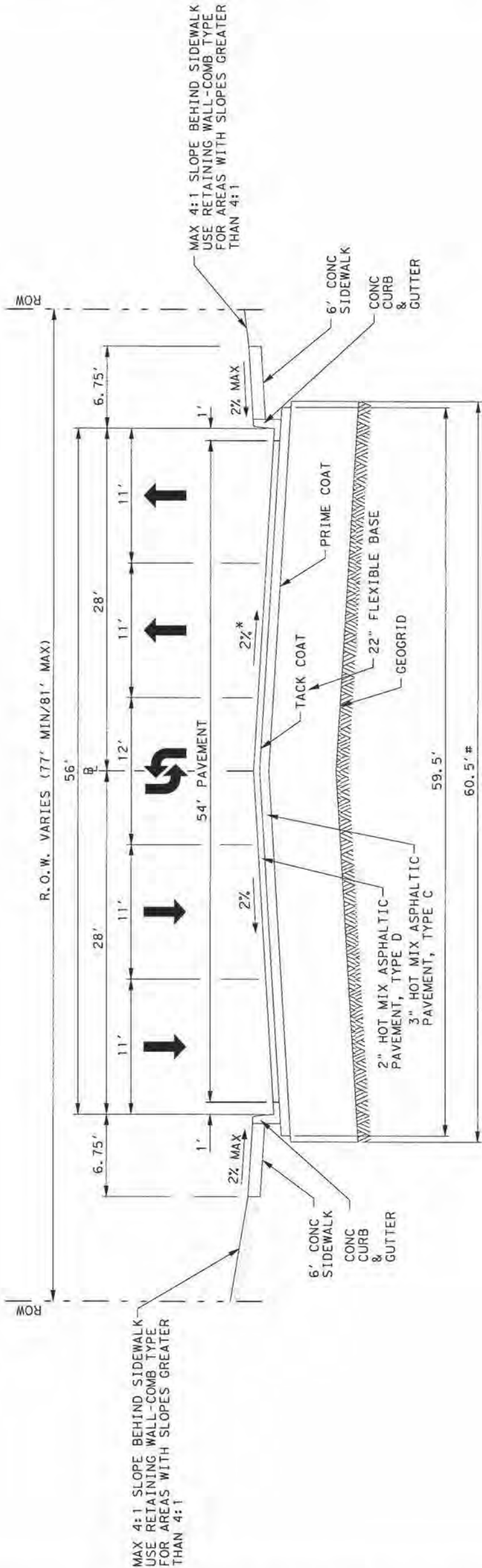
NOTES

- # MOISTURE CONDITION TOP SIX (6) INCHES OF SUBGRADE TO WITHIN PLUS OR MINUS 3% OF OPTIMUM MOISTURE AND COMPACT TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY PER TXDOT 144-E.
- * NORTH BOUND CROSS SLOPE TRANSITIONS FROM 2% TO 4% FROM STA 8+00 TO STA 9+00, REMAINS 4% TO STA 12+00, THEN TRANSITIONS FROM 4% TO 2% FROM STA 12+00 TO STA 13+00



PERRIN-BEITEL PROPOSED TYPICAL SECTION

STA 6+75.00 TO STA 9+00.00



PERRIN-BEITEL PROPOSED TYPICAL SECTION

STA 12+00.00 TO STA 15+70.00

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By: BRYAN J. SPINA P.E.
LICENSE NO. 103776 DATE: 6/13/2013



BEXAR COUNTY
PUBLIC WORKS DEPARTMENT
FLOOD CONTROL DIVISION

NO	DATE	DESCRIPTION	REVISIONS	DWG	CHK

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

PERRIN-BEITEL
PROPOSED TYPICAL SECTIONS

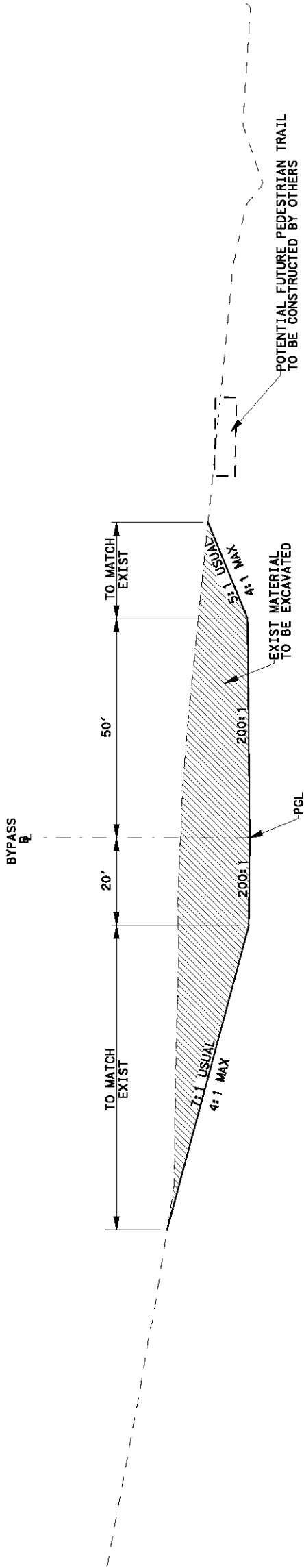


818 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

DATE					
CHK					
DWG					
BY					
STATE	TEXAS	COUNTY	BEXAR	SHEET NO.	81

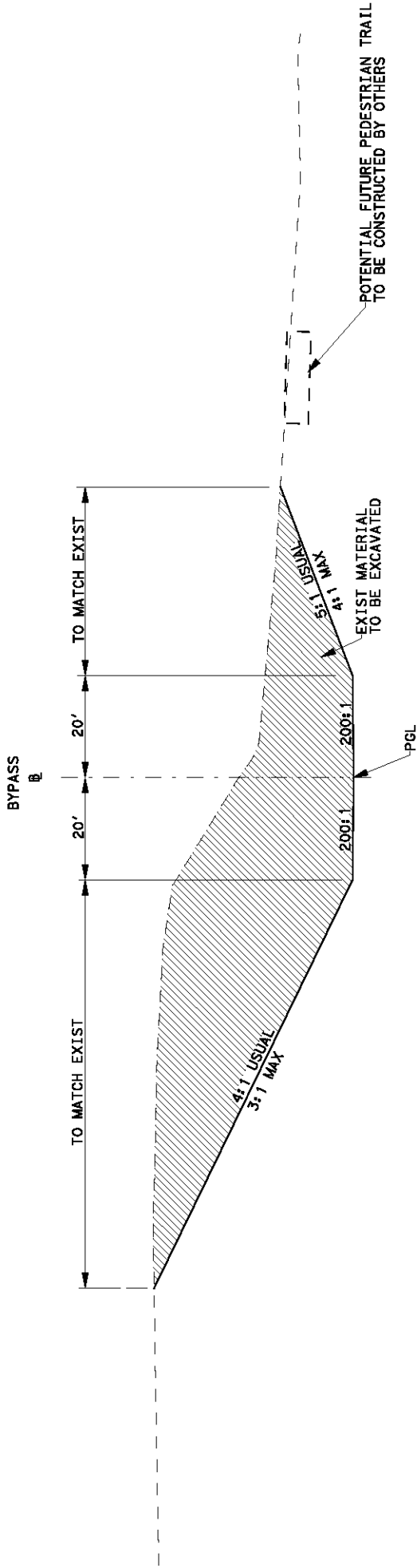
TRANSITIONS

STA 2+87.95 TO STA 5+68.96
STA 9+13.95 TO STA 12+13.45



BYPASS CHANNEL PROPOSED TYPICAL SECTION

STA 0+72.59 TO STA 2+87.95



BYPASS CHANNEL PROPOSED TYPICAL SECTION

STA 5+68.96 TO STA 9+13.95

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BEXAR COUNTY
PUBLIC WORKS DEPARTMENT
FLOOD CONTROL DIVISION



NO	DATE	DESCRIPTION	DWG	CHK
		REVISIONS		

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

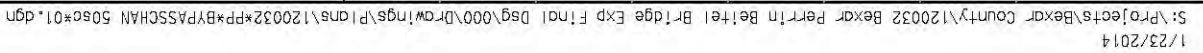
BYPASS CHANNEL PROPOSED
TYPICAL SECTION
SHEET 1 OF 1

SCALE: N.T.S.

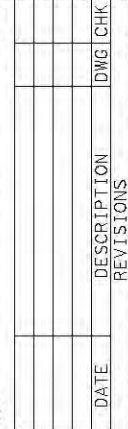


TYPE FIRM NO. F-388
8818 TERNORO DRIVE
SAN ANTONIO, TEXAS 78217

DRN				
CIV				
DRS				
DWG				
CHK				
DWG				
STATE	TEXAS	COUNTY	BEXAR	SHEET NO.
				151



BY: BRYAN J. SPINA, P.E.
LICENSE NO.: 103776 DATE: 1/23/2014

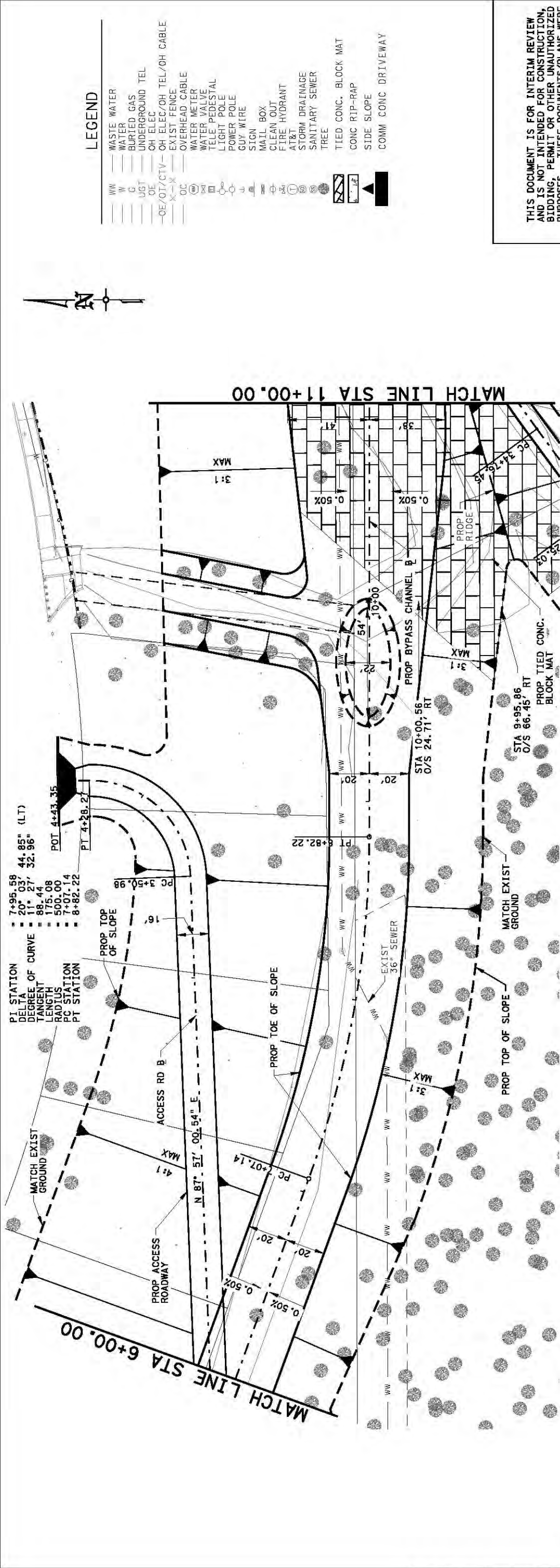


VERT. SCALE: 1"=50'
SCALE IN FEET



			SHEET NO.	152
		STATE	COUNTY	
		TEXAS	BEXAR	

March 13, 2013



LEGEND

- WASTE WATER
- WATER
- BURIED GAS
- UGT
- OE
- OH ELEC/OH TEL/OH CABLE
- OE/OT/CTV
- EXIST FENCE
- OVERHEAD CABLE
- WATER METER
- WATER VALVE
- TELE PEDESTAL
- LIGHT POLE
- POWER POLE
- GUY WIRE
- STORM DRAINAGE
- SANITARY SEWER
- TREE
- TIED CONC. BLOCK MAT
- CONC RIP-RAP
- SIDE SLOPE
- COMM CONC DRIVEWAY

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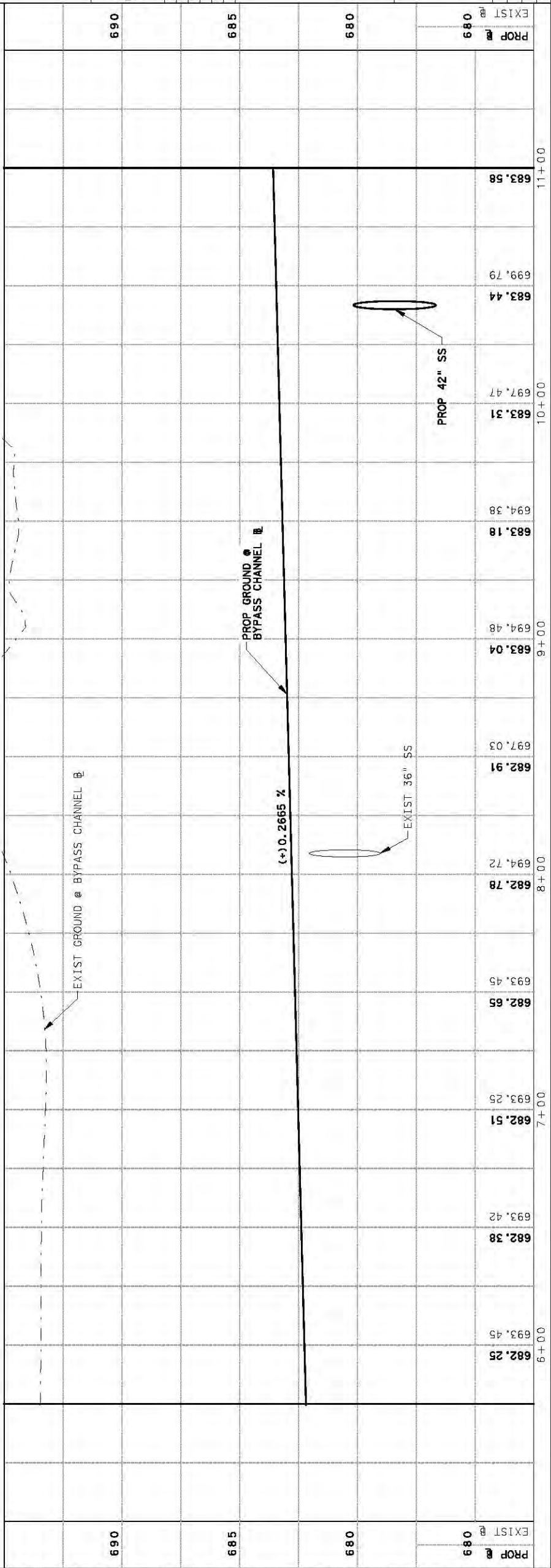


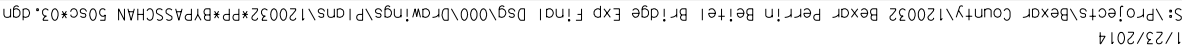
SC-9 PERRIN-BEITEL BRIDGE EXPANSION
BYPASS CHANNEL
6+00 TO STA 11+00
PLAN & PROFILE
SHEET 2 OF 3

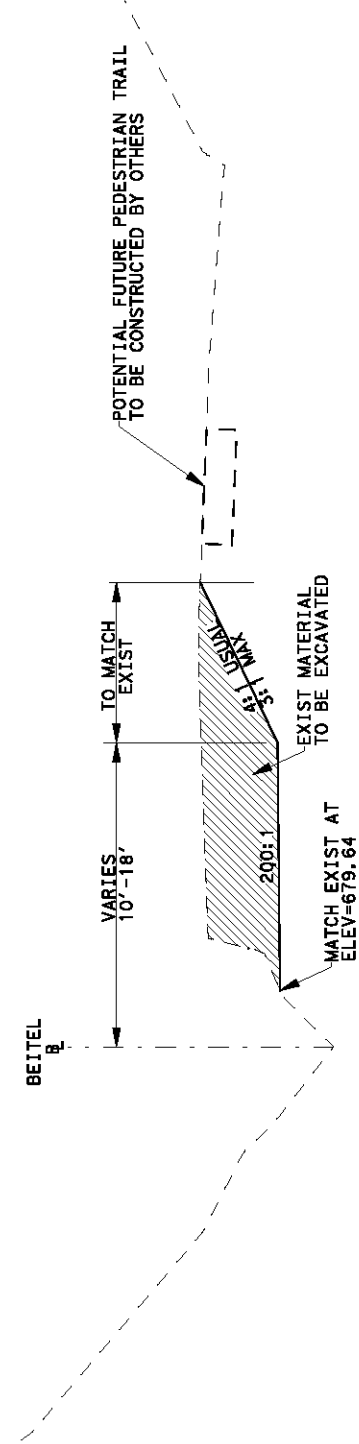
HORIZ. SCALE: 1"=50' VERT. SCALE: 1"=5'
0 25 50
SCALE IN FEET



DATE	STATE	COUNTY	SHEET NO.
1/23/2014	TEXAS	BEXAR	153

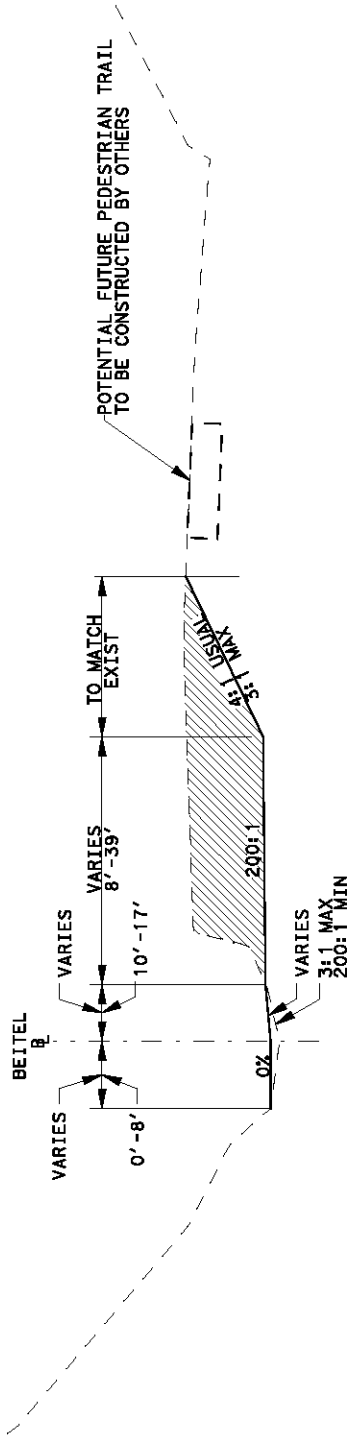






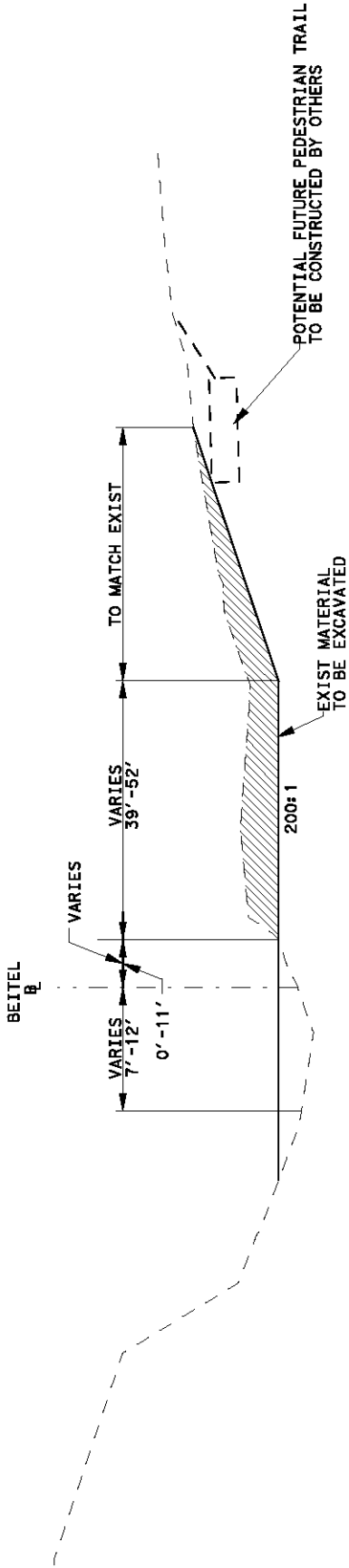
BEITEL CREEK PROPOSED TYPICAL SECTION

STA 17+50.00 TO STA 18+00.00



BEITEL CREEK PROPOSED TYPICAL SECTION

STA 18+00.00 TO STA 19+00.00



BEITEL CREEK PROPOSED TYPICAL SECTION

STA 19+00.00 TO STA 20+00.00

TRANSITIONS
STA 19+50.00 TO STA 20+00.00
STA 21+50.00 TO STA 22+00.00

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LICENSE NO. 103776 DATE: 1/23/2014



NO	DATE	DESCRIPTION	DWG	CHK
		REVISIONS		

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

BEITEL CREEK PROPOSED
TYPICAL SECTIONS
SHEET 1 OF 3

SCALE: N.T.S.



TYPE FROM NO. F-308

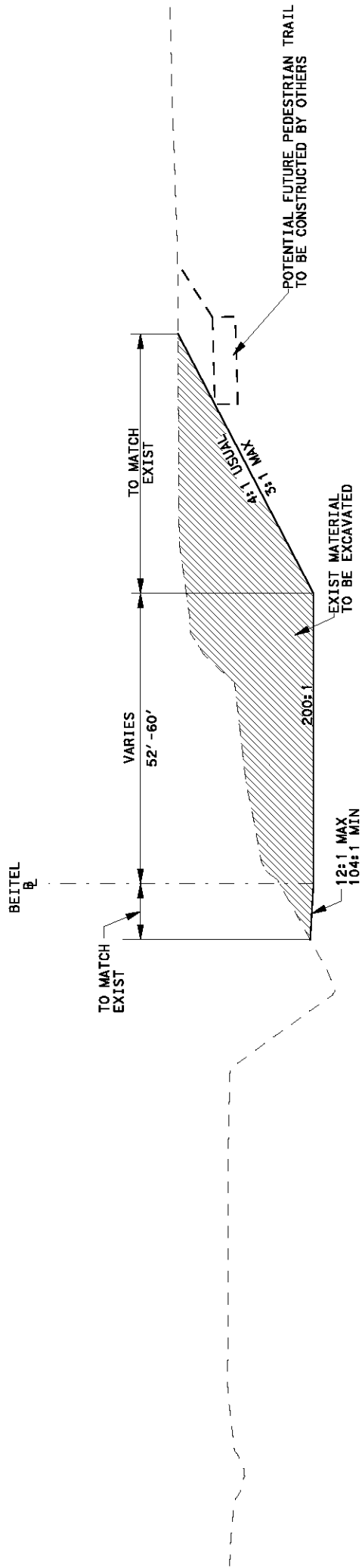
8810 TERNADO DRIVE

SAN ANTONIO, TEXAS 78217

DATE	STATE	COUNTY	SHEET NO.
1/23/2014	TEXAS	BEXAR	143

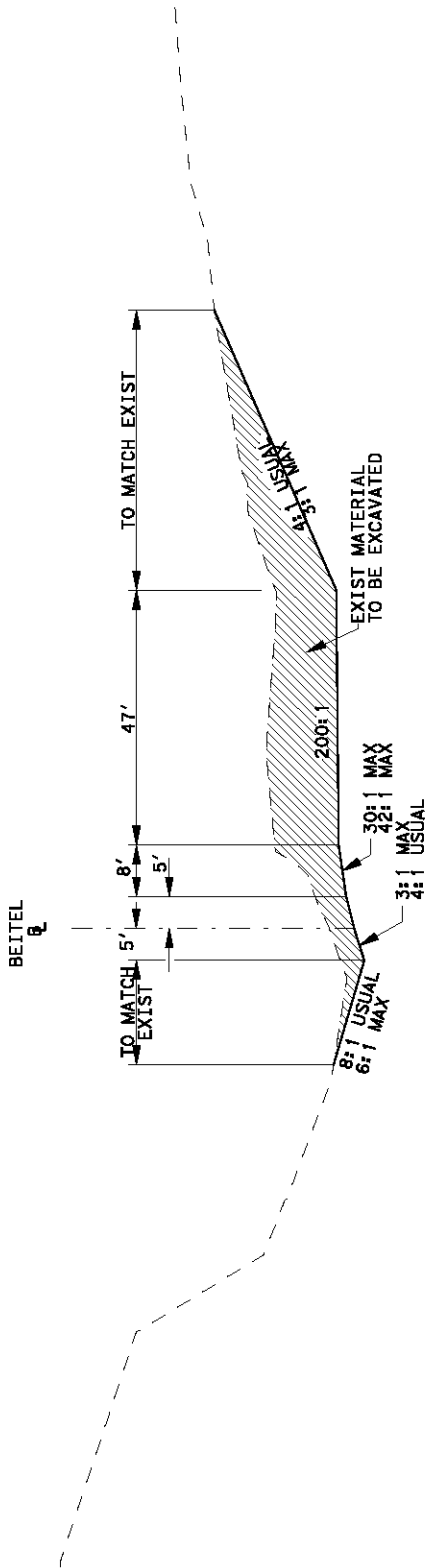
TRANSITIONS

STA 21+00.00	TO STA 22+00.00
STA 23+00.00	TO STA 25+50.00
STA 32+00.00	TO STA 33+50.00



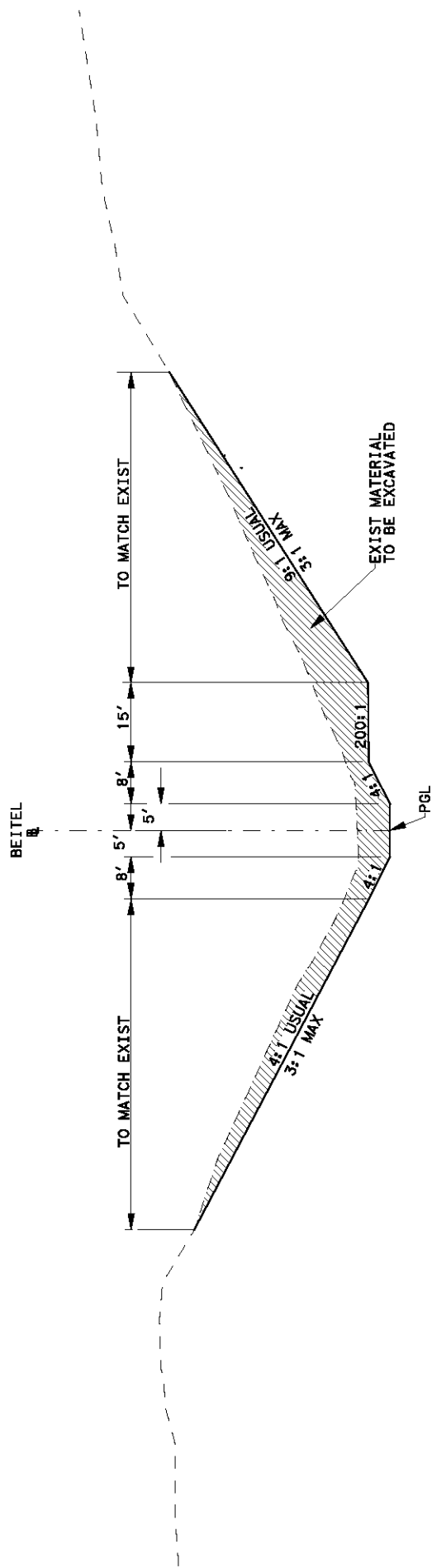
BEITEL CREEK PROPOSED TYPICAL SECTION

STA 20+00.00 TO STA 21+00.00



BEITEL CREEK PROPOSED TYPICAL SECTION

STA 22+00.00 TO STA 23+00.00



BEITEL CREEK PROPOSED TYPICAL SECTION

STA 33+50.00 TO STA 34+30.00

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BY: BRYAN J. SPINA P.F.

LICENSE NO.: 103776 DATE: 1/23/2014



**BEXAR COUNTY
PUBLIC WORKS DEPARTMENT
FLOOD CONTROL DIVISION**

NO	DATE	DESCRIPTION	DWG	CHK

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

**BEITEL CREEK PROPOSED
TYPICAL SECTIONS
SHEET 2 OF 3**

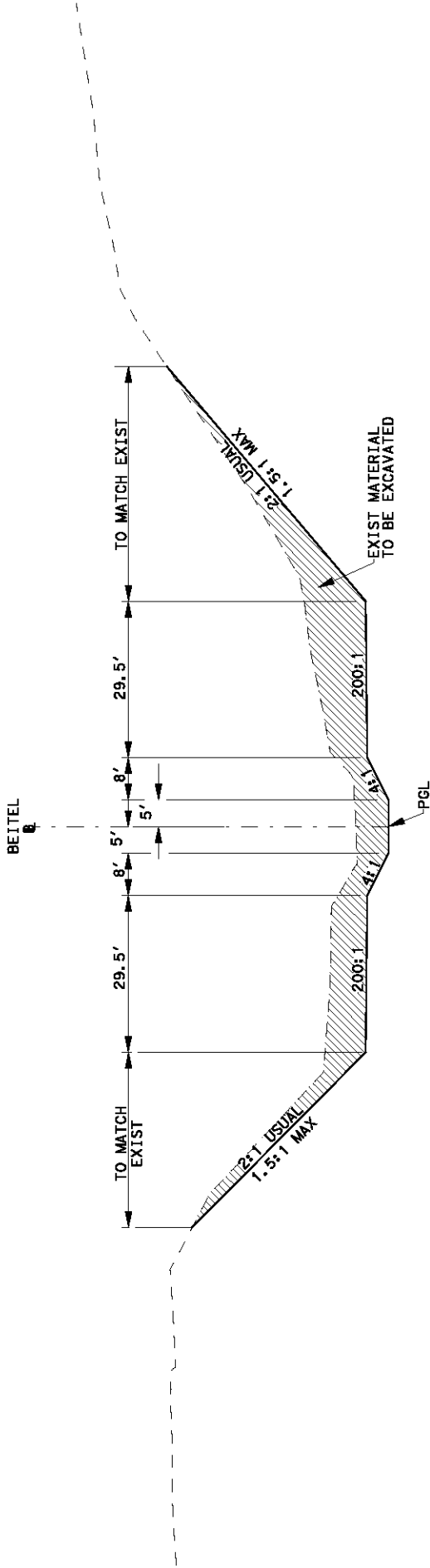
SCALE: N.T.S.



O. F-368
8618 TEBORO DRIVE
SAN ANTONIO, TEXAS 78217

DOI#			
CHK DOI#			
DWG#	STATE	COUNTY	SHEET NO.
CHK DWG#	TEXAS	BEXAR	144

TRANSITIONS
STA 42+00.00 TO STA 42+62.78



BEITEL CREEK PROPOSED TYPICAL SECTION

STA 36+98.55 TO STA 42+00.00

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BY: BRYAN J. SPINA _____, P.E.
LICENSE NO. 103776 DATE: 1/23/2014



BEXAR COUNTY
PUBLIC WORKS DEPARTMENT
FLOOD CONTROL DIVISION

NO	DATE	DESCRIPTION	DWG	CHK
REVISIONS				

SC-9 PERRIN-BEITEL BRIDGE EXPANSION

BEITEL CREEK PROPOSED
TYPICAL SECTIONS
SHEET 3 OF 3

SCALE: N.T.S.



DRAWN				
CHECKED				
DATE				
STATE	TEXAS	COUNTY	BEXAR	SHEET NO.
DWG				145

BEITEL CREEK @ STA 22+86.05
EXIST CREEK @ STA 7+86.05

PROF BEITEL CREEK @

PROF TOP OF SLOPE

PROF TOE OF SLOPE

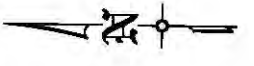
PROF TOE OF SLOPE

PROF TOE OF SLOPE

PROF TOE OF SLOPE

PROF TOE OF SLOPE

PROF TOE OF SLOPE



LEGEND

- WASTE WATER
- WATER
- BURIED GAS
- UNDERGROUND TEL
- UGT
- OE
- OH ELEC
- OH ELEC/OH TEL/OH CABLE
- OE/OT/CTV
- EXIST FENCE
- OC
- OVERHEAD CABLE
- WATER METER
- WATER VALVE
- TELE PEDESTAL
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SION
- MAIL BOX
- CLEAN OUT
- FIRE HYDRANT
- AT&T
- STORM DRAINAGE
- SANITARY SEWER
- TREE
- TIED CONC. BLOCK MAT
- CONC RIP-RAP
- SIDE SLOPE

MATCH LINE STA 23+00.00

EXIST 36" SEWER

PROP 8' CHAIN LINK FENCE

MATCH EXIST GROUND

PROP TOP OF SLOPE

EXIST 36" SEWER

PI STATION

DELTA

DEGREE OF CURVE

TANGENT

LENGTH

RADIUS

PC STATION

PT STATION

PI STATION

DELTA

DEGREE OF CURVE

TANGENT

LENGTH

RADIUS

PC STATION

PT STATION

PI STATION

DELTA

DEGREE OF CURVE

TANGENT

LENGTH

RADIUS

PC STATION

PT STATION

PI STATION

DELTA

DEGREE OF CURVE

TANGENT

LENGTH

RADIUS

PC STATION

PT STATION

STA = 19+00.00
EL = 679.64'

STA 18+00.00
MATCH EXIST
CREEK FLOW LINE

STA = 19+75.00
EL = 679.84'

PROP GROUND @
BEITEL CREEK @

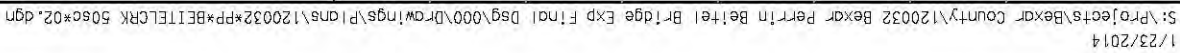
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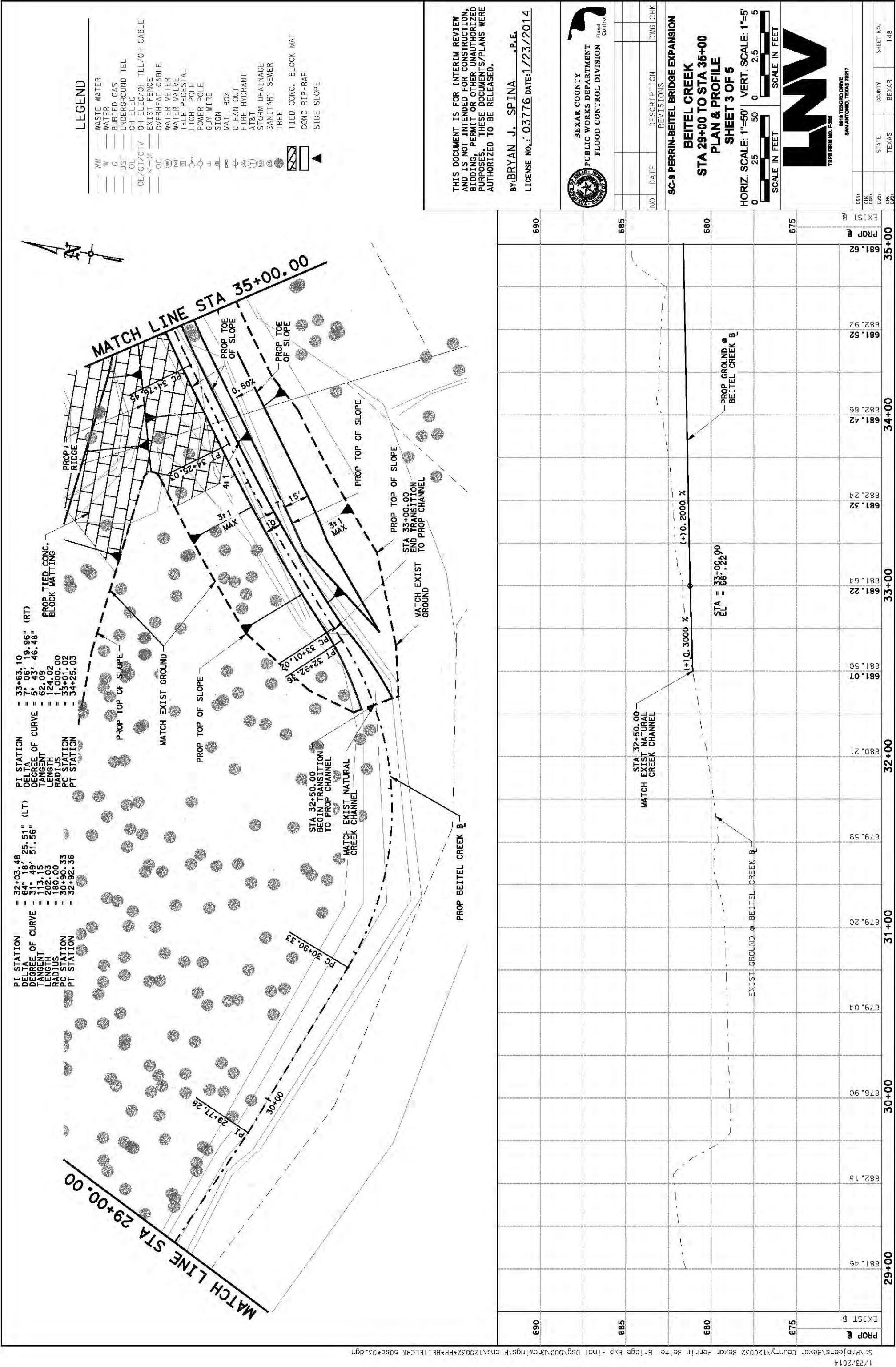
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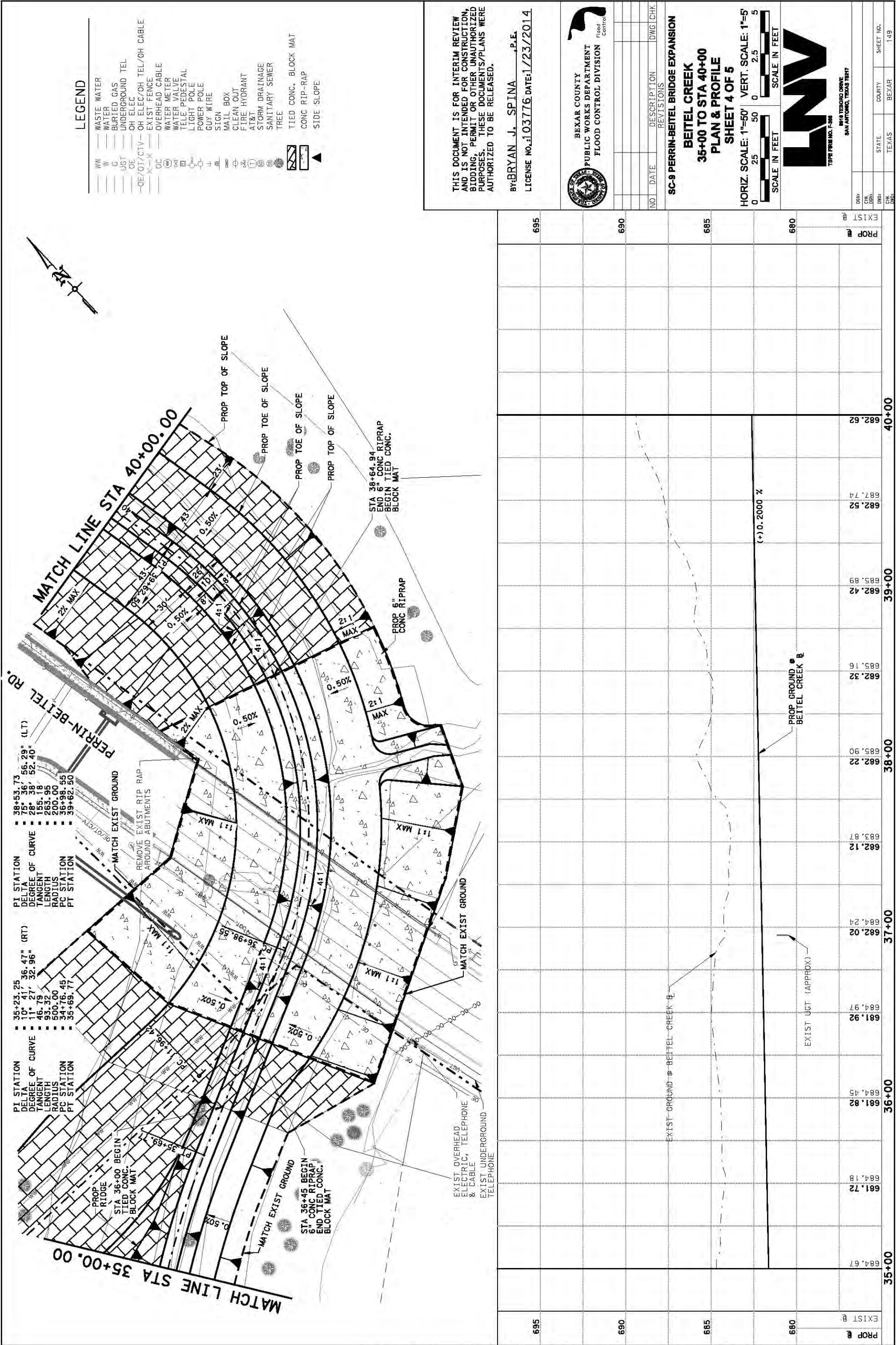
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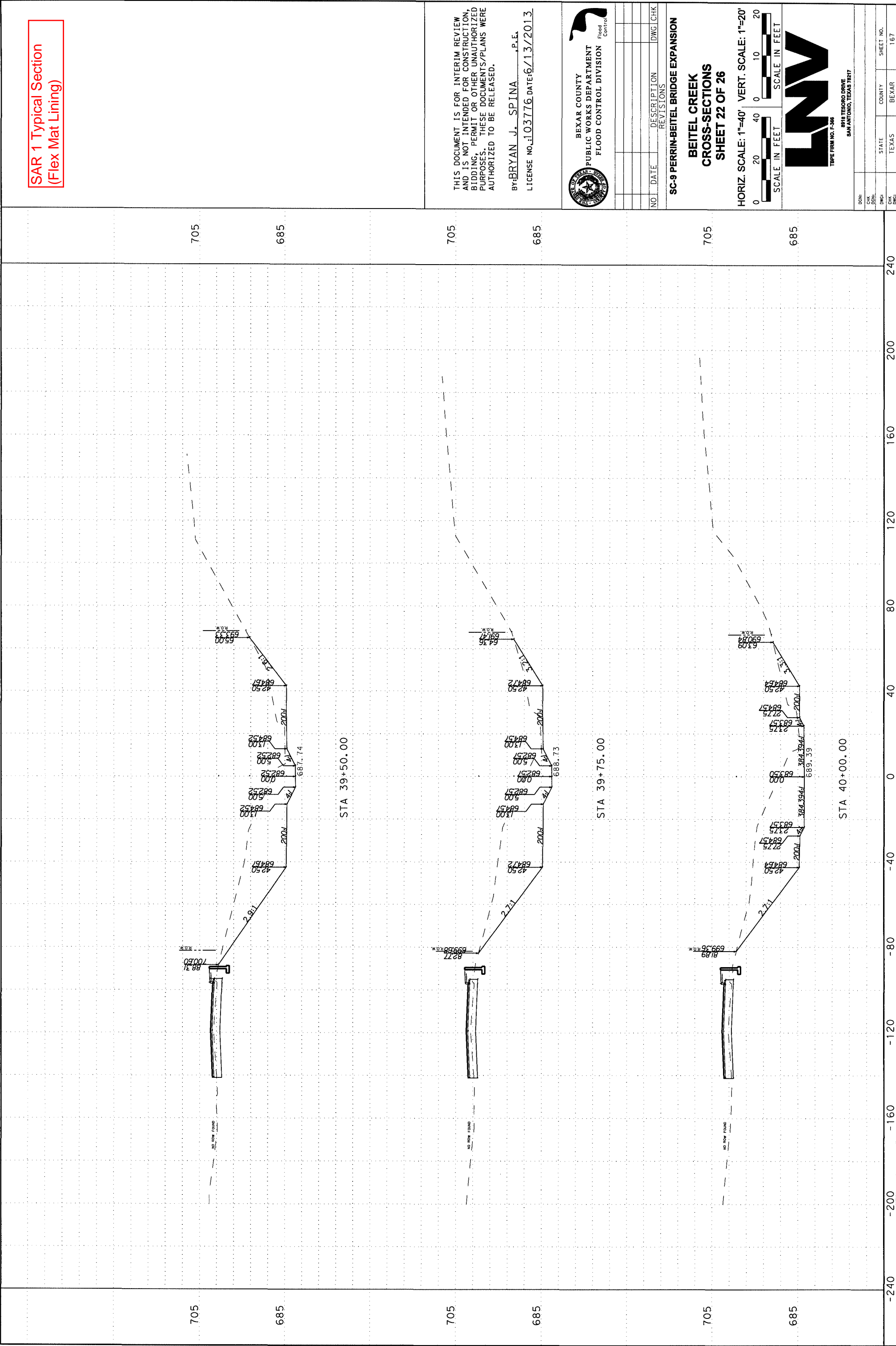
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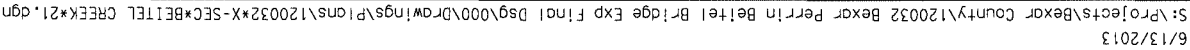
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BY: BRYAN J. SPINA , P.E.
LICENSE NO.: 103776 DATE: 6/13/2013

[illegible]

SC-9 PERRIN-BEITEL BRIDGE EXPANSION
BEITEL CREEK
CROSS-SECTIONS
SHEET 15 OF 26

HORIZ. SCALE: 1"=40'



SCALE IN FEET

VERT. SCALE: 1"=20'

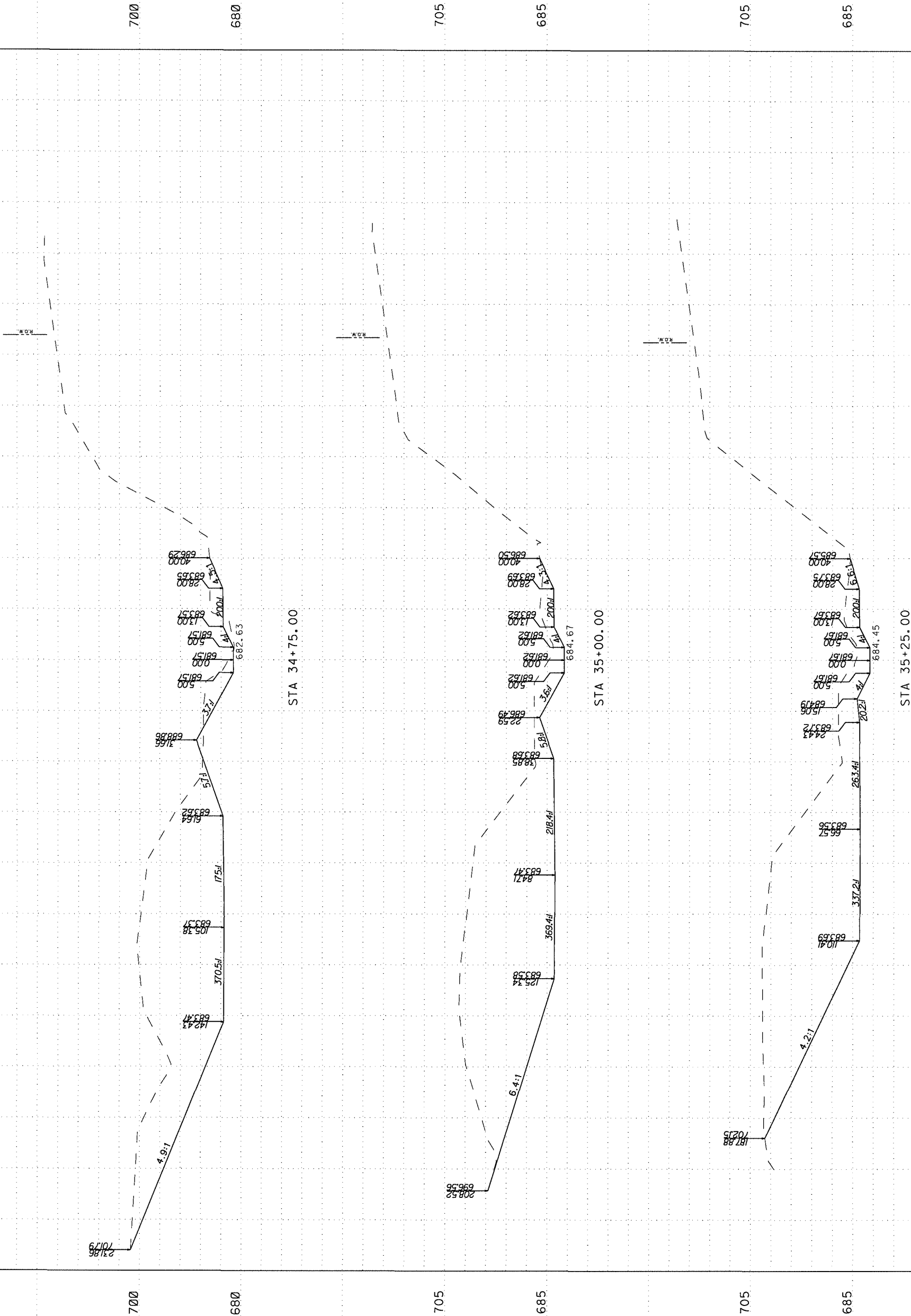


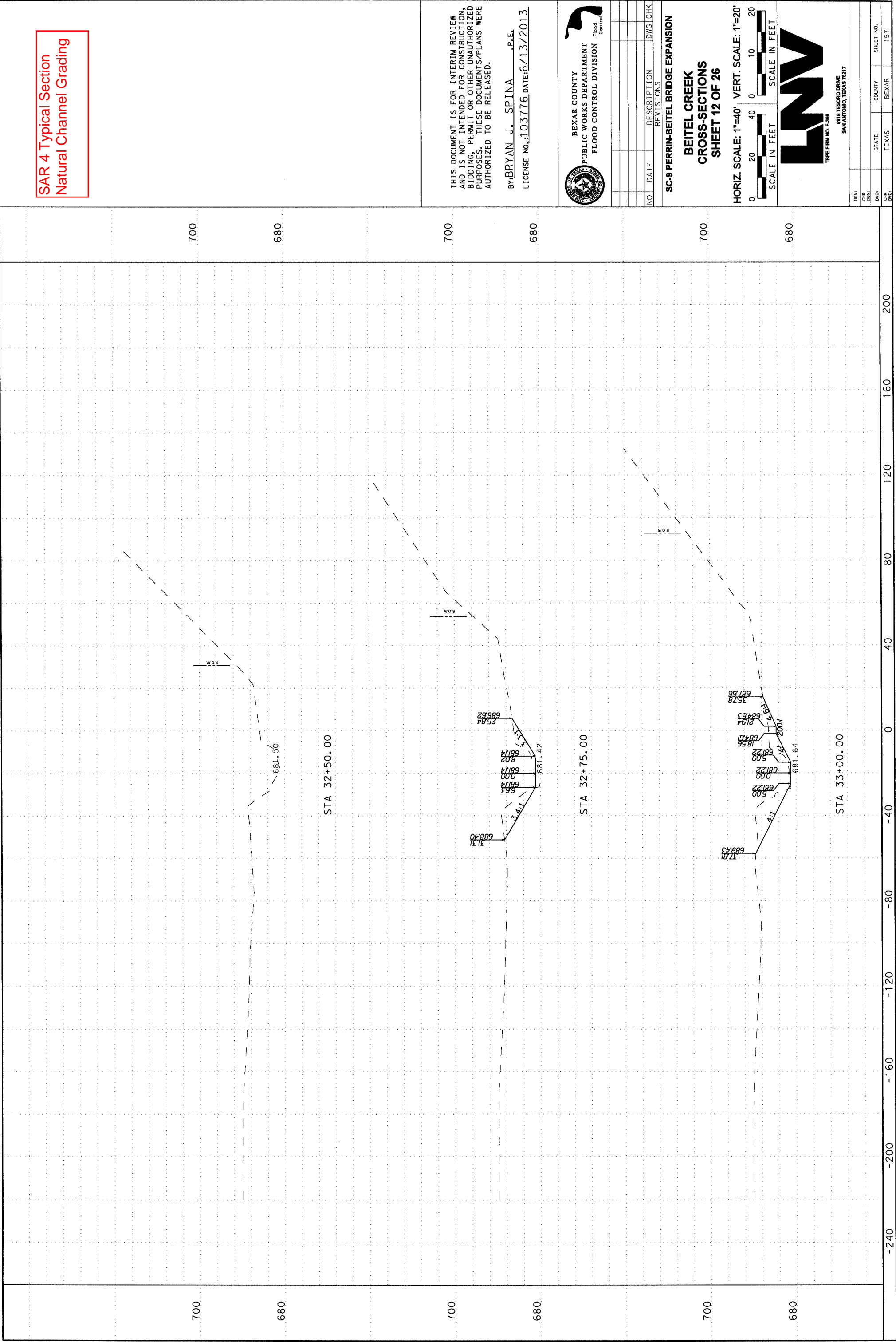
SCALE IN FEET



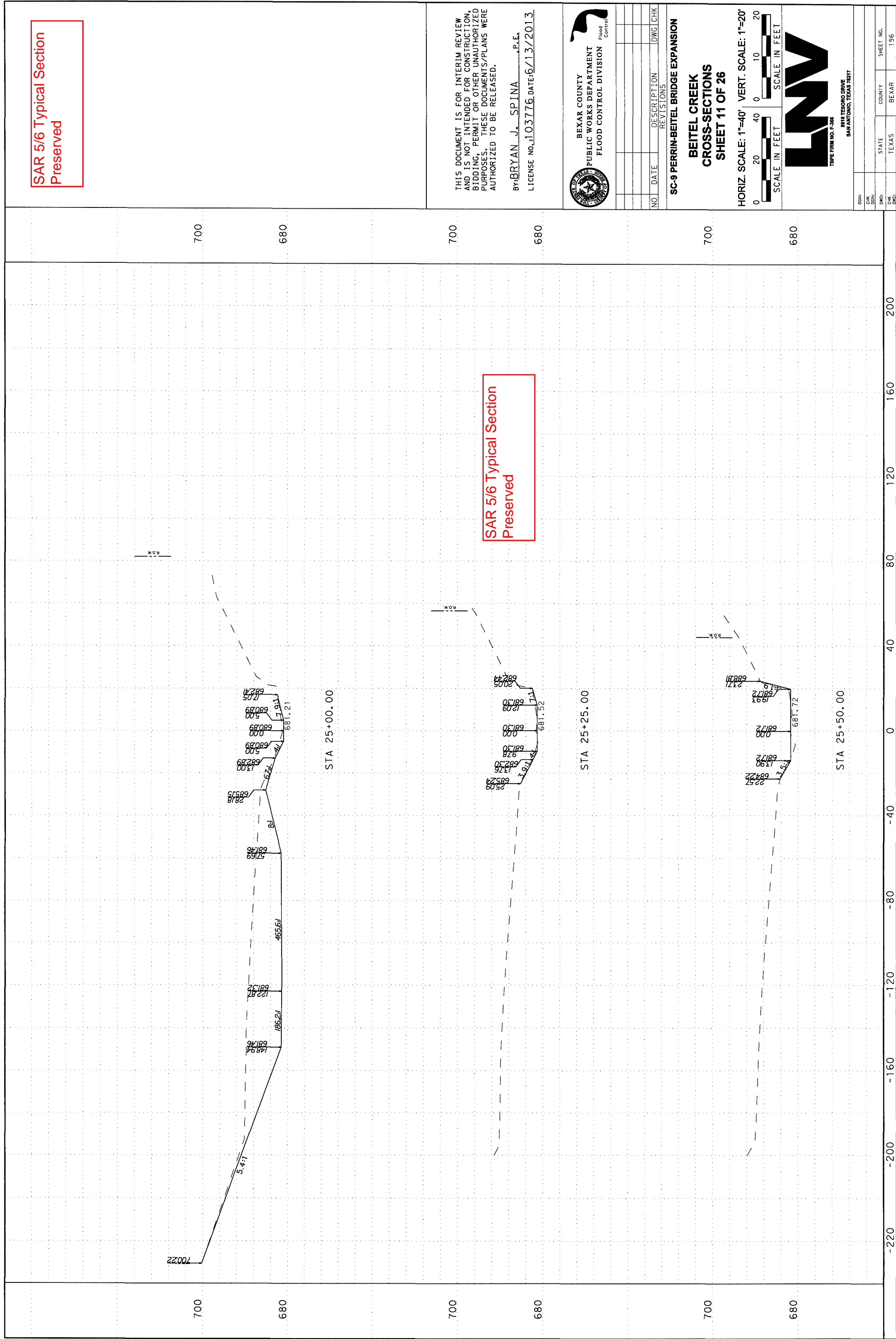
TYPE FIRM NO. F-366
8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

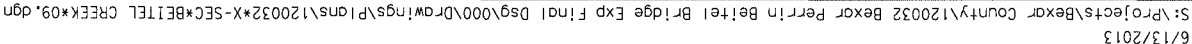
DONE			SHEET NO.
CHEK DONE		COUNTY	BEXAR
DWG:	STATE	Texas	160
CHEK DWG			





S:\Projects\Bexar County\120032 Bexar Perrin Beitel Bridge Exp Final Dsg\000\Drawings\Plans\120032*X-SEC*BEITEL CREEK*12.dgn 6/13/2013





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**BEXAR COUNTY
PUBLIC WORKS DEPARTMENT
FLOOD CONTROL DIVISION**

[illegible]

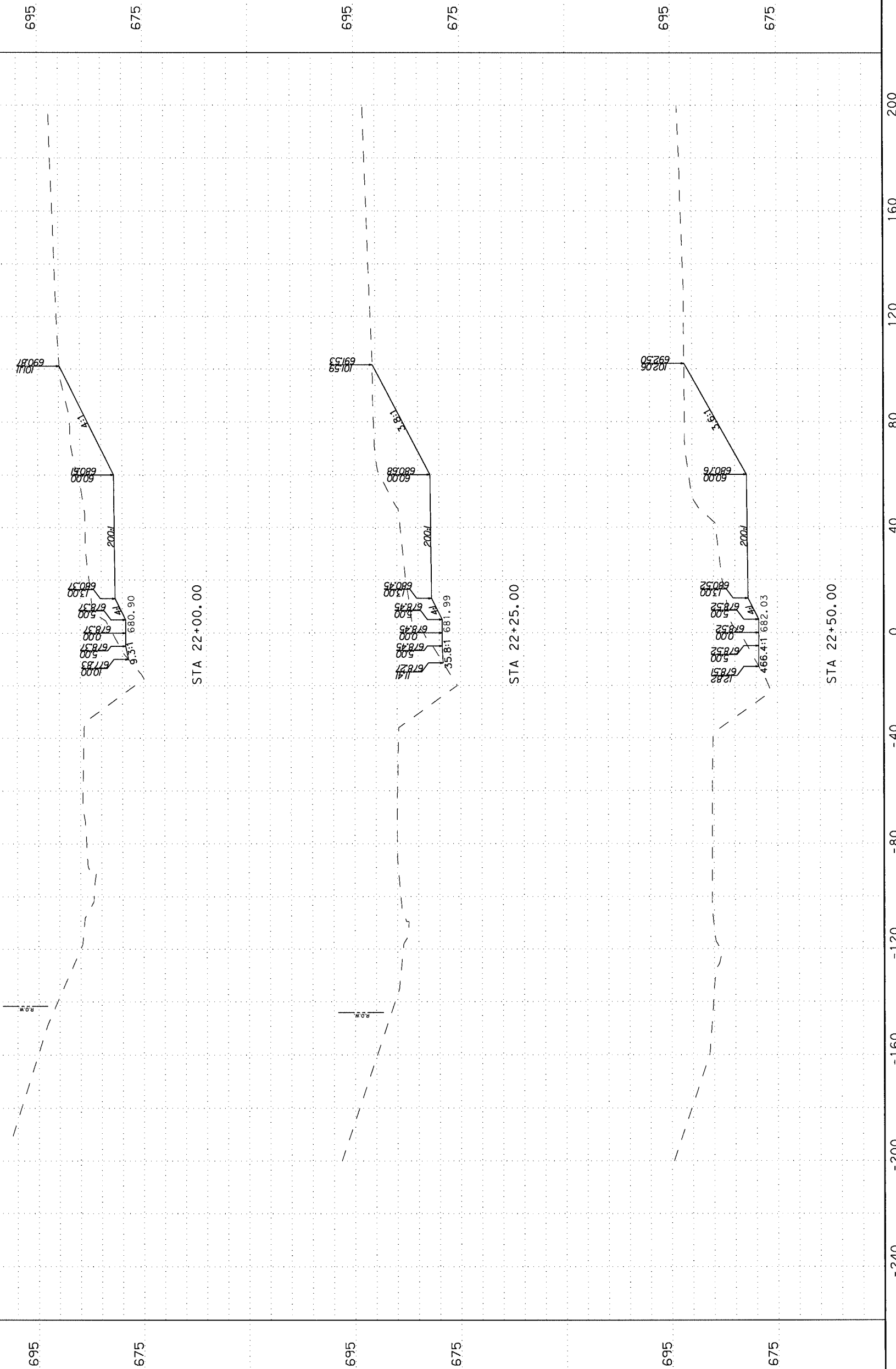
**BEITEL CREEK
CROSS-SECTIONS
SHEET 7 OF 26**

HORIZ SCALE 1"=40', VERT SCALE 1"=20'



NO. F-366
8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

DCM:			
CHK			
DCM:			
OWG:	STATE	COUNTY	SHEET NO.
CHK	TEXAS	BEXAR	152
DCM:			




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 LICENSE NO.: 103776 DATE: 6/13/2013

[illegible]


C-9 PERRIN-BEITEL BRIDGE EXPANSION

HORIZ. SCALE: 1"=40'



0 20 40
SCALE IN FEET

VERT. SCALE: 1"=20'



0 10 20
SCALE IN FEET



TEBPE FIRM NO. F-366
8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

DONE				
CHK				
DONE				
DWG:	STATE	COUNTY	SHEET NO.	
CHK	TEXAS	BEXAR	150	

