CITY OF KYLE

PLANS OF PROPOSED
STREET RECONSTRUCTION, DRAINAGE, AND UTILITY ADJUSTMENTS OF
N. BURLESON STREET

FULL STREET RECONSTRUCTION FROM MILLER STREET TO ROUND-ABOUT
ADD ALTERNATE FULL STREET CONSTRUCTION FROM ROUND-ABOUT TO IH-35 SB FRONTAGE RD
PAVEMENT MILL AND OVERLAY FROM ROUND-ABOUT TO FULL STREET RECONSTRUCTION CUL-DE-SAC
TOTAL ROADWAY LENGTH = 7311 FT, 1.39 MILES

HAYS COUNTY

CONSISTS OF GRADING, DRAINAGE, FLEXIBLE BASE, HMAC PAVMENT,
SIGNAGE, PAVEMENT MARKINGS, EROSION CONTROL, ADA SIDEWALKS & RAMPS,
WATERLINES, WASTEWATER IMPROVEMENT AND ADJUSTMENTS.

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

REGISTERED ACCESSIBILITY SPECIALIST (RAS)
INSPECTION REQUIRED TDLR NO.-

SUBMITTED FOR LETTING:

PROJECT MANAGER DATE

FREESE AND NICHOLS, INC.

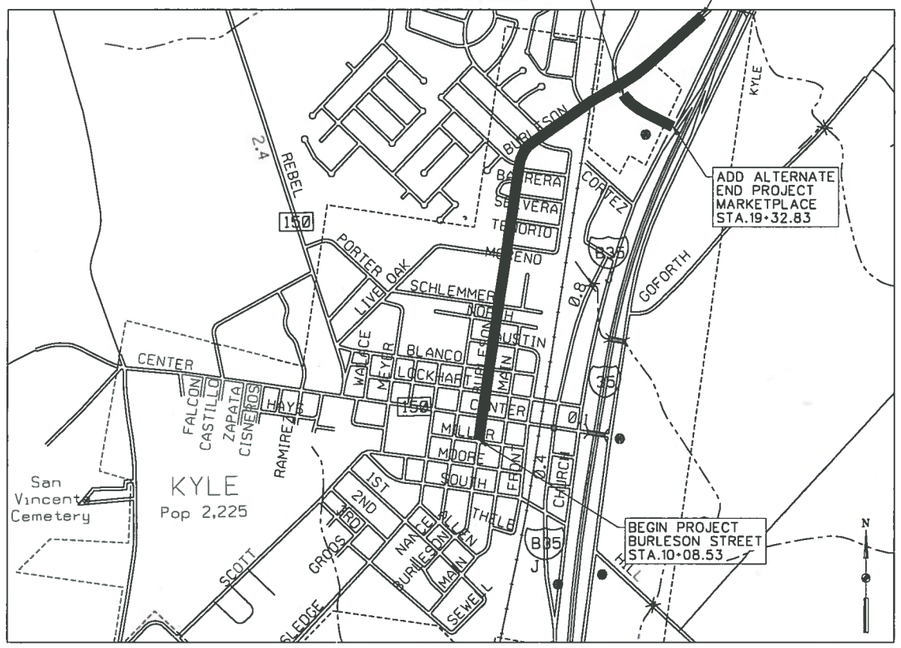
APPROVED FOR CONSTRUCTION:

CITY OF KYLE DATE
CITY ENGINEER

ADD ALTERNATE BEGIN PROJECT MARKETPLACE STA.11+32.10

END PROJECT BURLESON STREET STA.79+63.75

LOCATION MAP



SCALE = N.T.S.

DESIGN SPEED = 30 MPH FOR RECONSTRUCTION SECTION

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: 1

CITY COUNCIL	
TRAVIS MITCHELL	MAYOR
SCOTT SELLERS	CITY MANAGER
DEX ELLISON	COUNCIL MEMBER DISTRICT 1
TRACY SCHEEL	COUNCIL MEMBER DISTRICT 2
SHANE ARABIE	COUNCIL MEMBER DISTRICT 3
ALEX VILLALOBOS	COUNCIL MEMBER DISTRICT 4
DAMON FOGLEY	COUNCIL MEMBER DISTRICT 5
DAPHNE TENORIO	COUNCIL MEMBER DISTRICT 6
LEON BARBA	CITY ENGINEER
HARPER WILDER	DIRECTOR OF PUBLIC WORKS

STATE OF TEXAS
JESSICA N. RODRIGUEZ
69263
REGISTERED PROFESSIONAL ENGINEER
5/25/18

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING
FIRM F-2144

INDEX OF SHEETS

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "#" HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

SEAN D. BARRY, P.E. — DATE 5/22/2018

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "^" HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

KIMBERLY K. PATAK, P.E. — DATE 5/22/2018

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH A "*" HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

WADE ZEMLOCK, P.E. — DATE 5-22-18

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS · SEAN D. BARRY · 114177 · LICENSED PROFESSIONAL ENGINEER · 5/22/2018
FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

INDEX OF SHEETS

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED MJM
DRAWN MJM
REVISED
CHECKED SDB
FILE NAME CV-ALL-GN-INDEX.sht

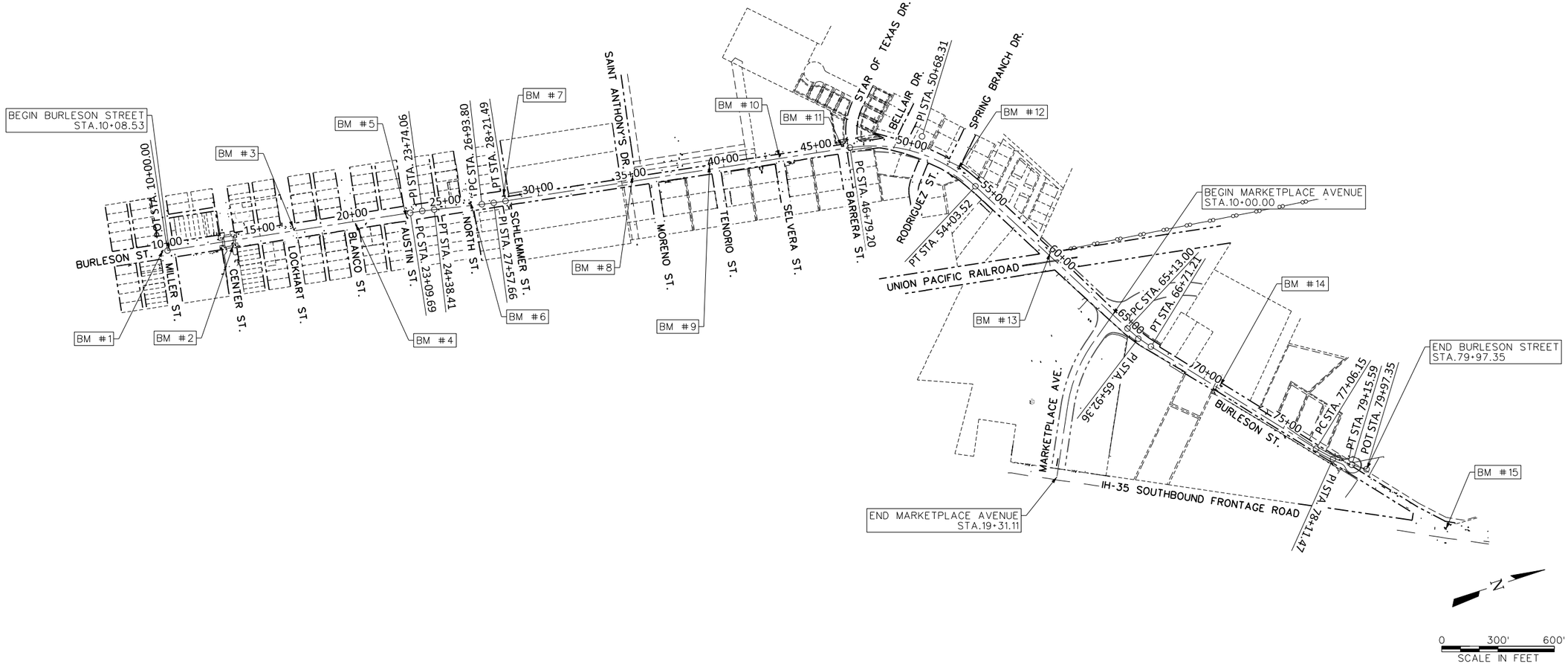
NO. ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 2

TOTAL 292

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM #1	13909835.8391	2324080.4062	727.364	MAGNETIC NAIL
BM #2	13910145.2684	2324153.9862	726.303	MAGNETIC NAIL
BM #3	13910532.8275	2324179.7211	722.943	IRON ROD W/ CAP
BM #4	13910855.8825	2324261.3897	722.582	IRON ROD W/ CAP
BM #5	13911125.8361	2324309.2757	720.767	IRON ROD W/ CAP
BM #6	13911474.3255	2324337.6883	719.826	IRON ROD W/ CAP
BM #7	13911650.5754	2324361.9095	720.665	IRON ROD W/ CAP
BM #8	13911998.4697	2324463.0661	714.055	MAGNETIC NAIL
BM #9	13912339.7453	2324472.2086	714.179	IRON ROD W/ CAP
BM #10	13912451.7353	2324539.6807	713.268	IRON ROD W/ CAP
BM #11	13912746.0793	2324545.2207	714.463	IRON ROD W/ CAP
BM #12	13913115.7299	2324615.4093	717.462	IRON ROD W/ CAP
BM #13	13913449.3072	2324664.1324	720.047	IRON ROD W/ CAP
BM #14	13913774.5645	2324755.0883	722.591	IRON ROD W/ CAP
BM #15	13914002.5907	2324968.8760	723.5	IRON ROD W/ CAP



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

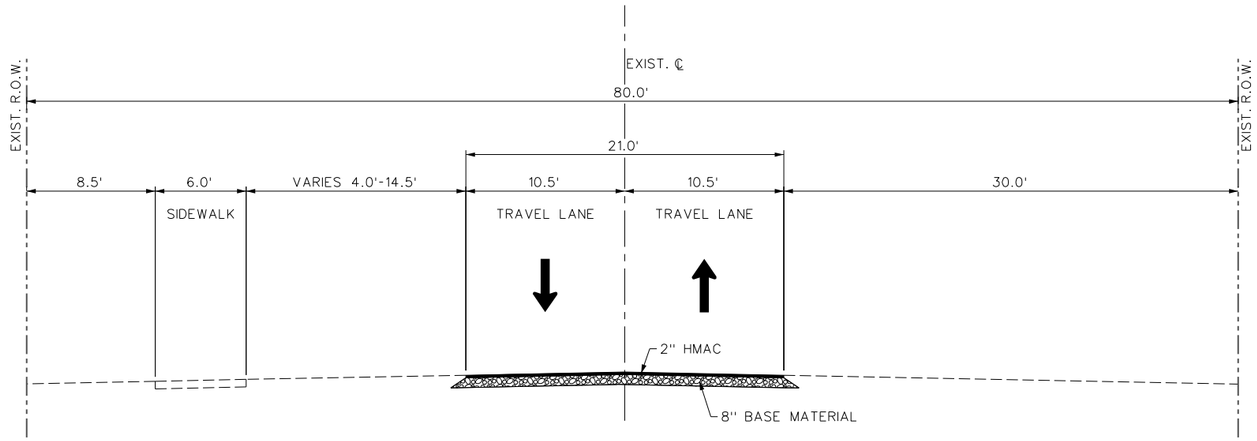
PROJECT LAYOUT AND CONTROL POINTS

NO.	ISSUES	BY	DATE

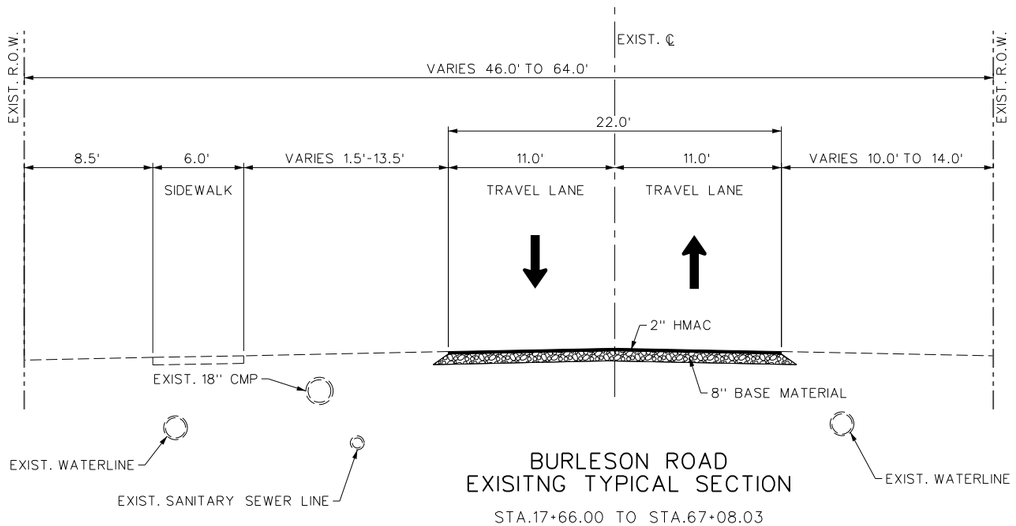
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-ALL-GN-LAYOUT.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 3
TOTAL 292



BURLESON ROAD
EXISITNG TYPICAL SECTION
STA.10+08.53 TO STA.17+66.00



BURLESON ROAD
EXISITNG TYPICAL SECTION
STA.17+66.00 TO STA.67+08.03

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
EXISTING TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-EX TYPICAL SECTIONS.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 4
TOTAL 292

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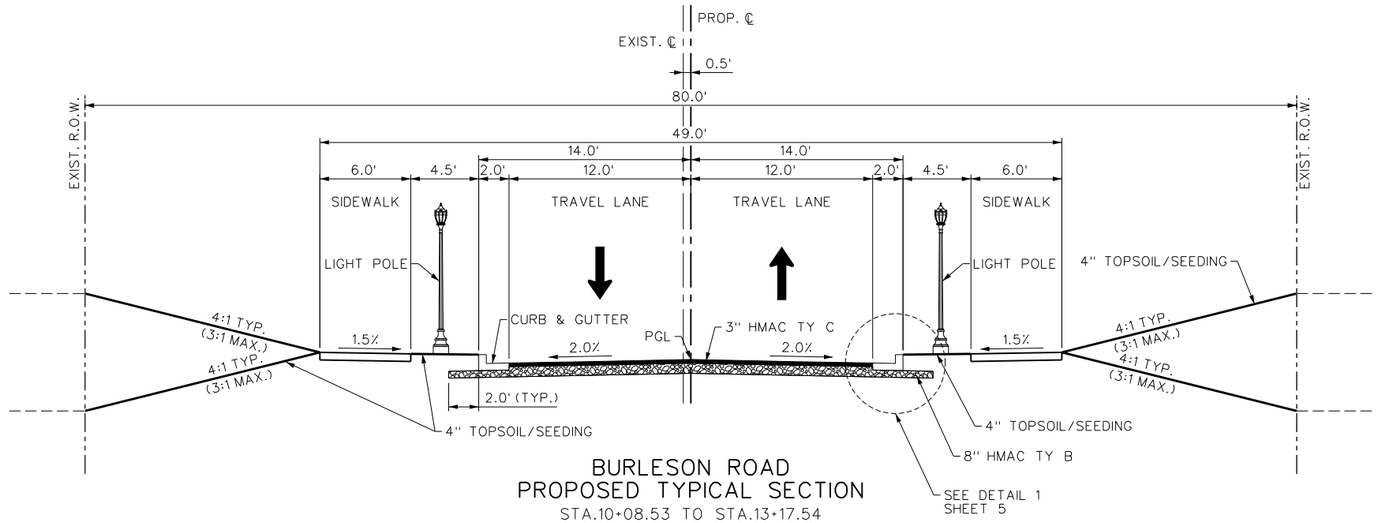
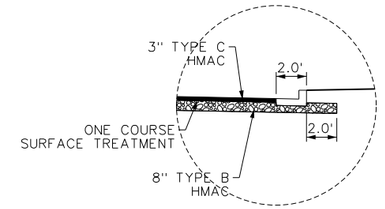


BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.10+08.53 TO STA.13+17.54
STA.13+39.47 TO STA.16+56.85



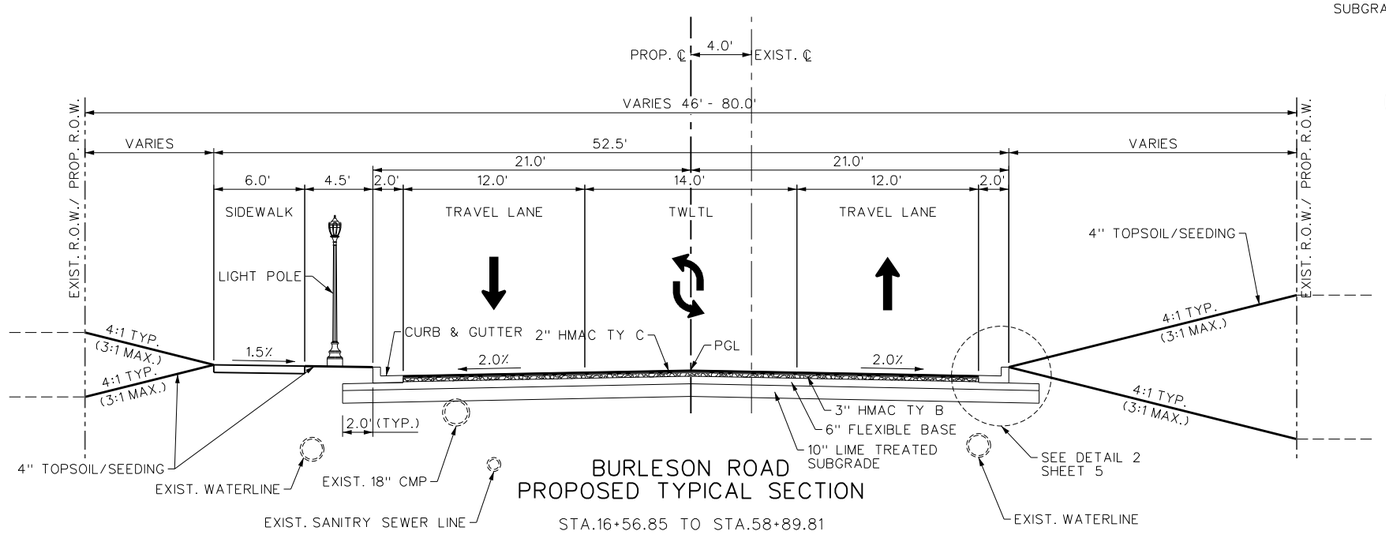
1 SECTION DETAILS
NOT TO SCALE

NOTE:

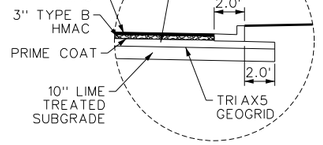
1. LIMITS OF SIDEWALK VARY. SEE ROAD PLAN SHEETS FOR MORE DETAILS.

2. REFER TO TXDOT SPECIFICATIONS 100, 110, AND 132 FOR SUBGRADE PREPARATION REQUIREMENTS.

3. PROOF ROLLING ITEM 216 IS SUBSIDIARY TO CONTRACT WORK ITEMS AND SHALL NOT BE PAID SEPARATELY.



BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.16+56.85 TO STA.58+89.81



2 SECTION DETAILS
NOT TO SCALE

NOTE:

1. LIMITS OF SIDEWALK VARY. SEE ROAD PLAN SHEETS FOR MORE DETAILS.

2. REFER TO TXDOT SPECIFICATIONS 100, 110, AND 132 FOR SUBGRADE PREPARATION REQUIREMENTS.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/29/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
PROPOSED TYPICAL SECTIONS

F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	TYPICAL SECTIONS01.sht

BY | DATE | NO. ISSUES

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly

SHEET 5
TOTAL 292

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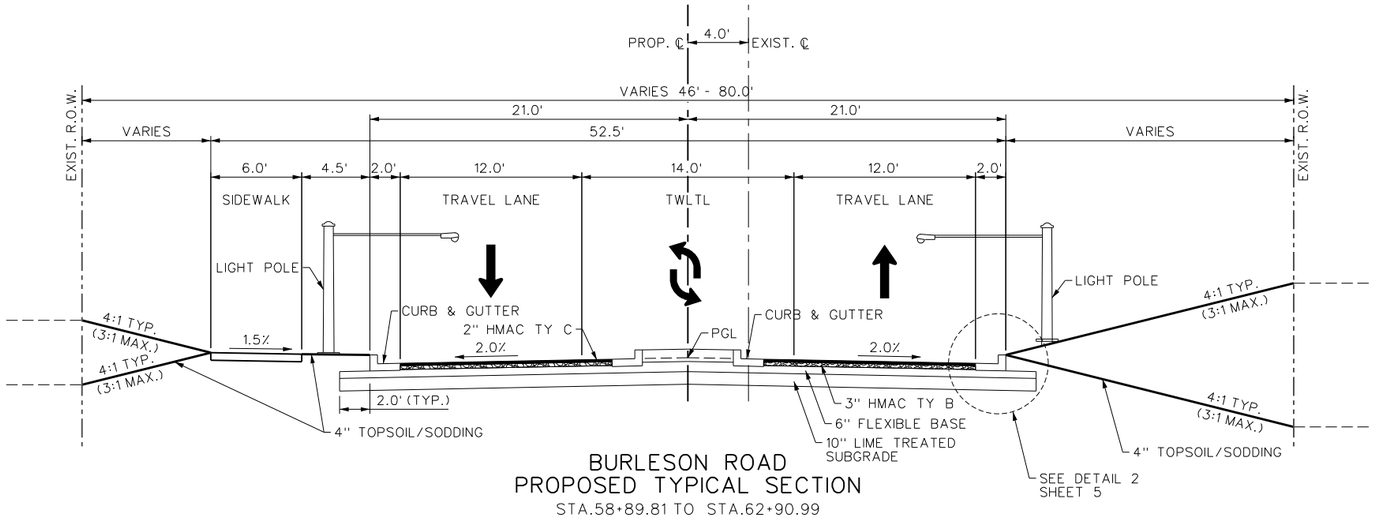
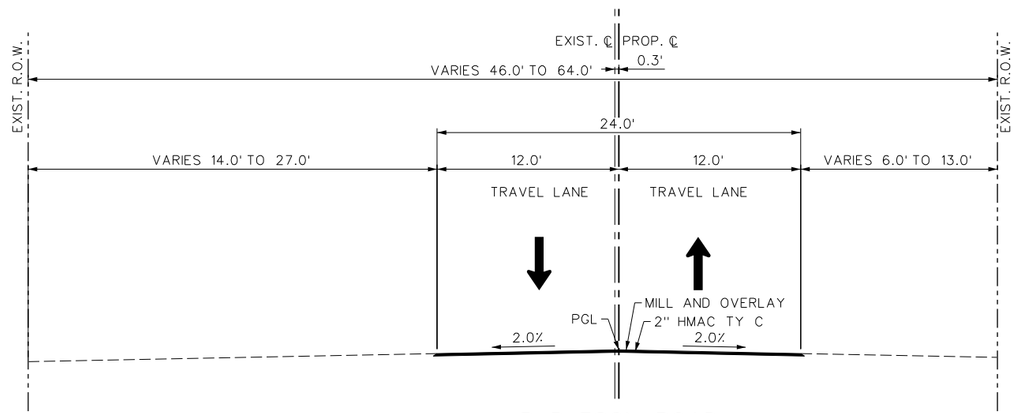


BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.58+89.81 TO STA.62+90.99

NOTE:

1. REER TO TXDOT SPECIFICATIONS 100, 110, AND 132 FOR SUBGRADE PREPARATION REQUIREMENTS.

3. PROOF ROLLING ITEM 216 IS SUBSIDIARY TO CONTRACT WORK ITEMS AND SHALL NOT BE PAID SEPARATELY.



BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.66+97.29 TO STA.79+61.75

NOTE:
SPOT BASE REPAIR MAY BE NEEDED. THIS IS NOT A PLAN QUANTITY ITEM AND SHALL NOT BE PAID IF WORK IS NOT PERFORMED. BASED REPAIR WILL CONSIST OF 8" CEMENT STABILIZATION.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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5/29/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME TYPICAL SECTIONS02.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly

SHEET 6
TOTAL 292

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Project: Freese and Nichols, Inc.

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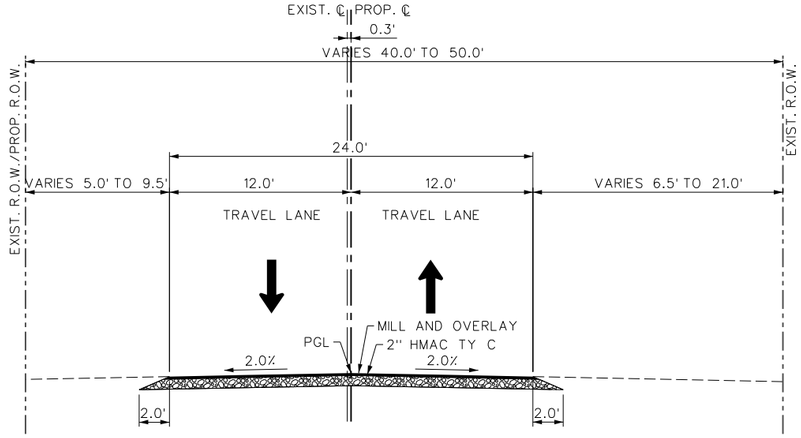
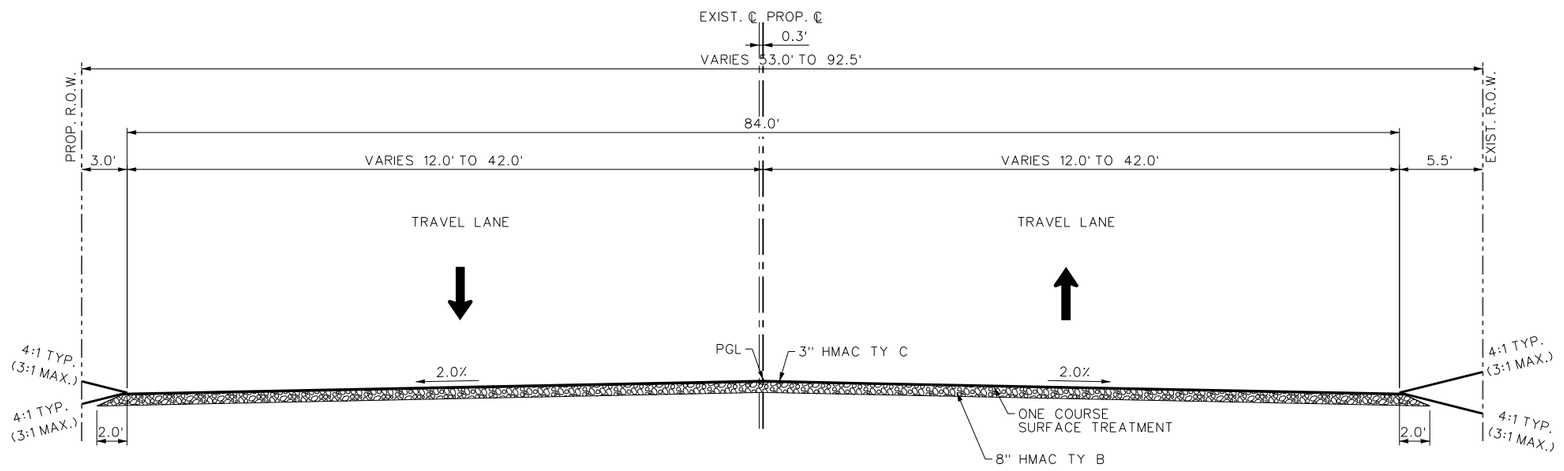


BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.77+06.15 TO STA.78+53.55

NOTE:

1. REER TO TXDOT SPECIFICATIONS 100, 110, AND 132 FOR SUBGRADE PREPARATION REQUIREMENTS.

2. PROOF ROLLING ITEM 216 IS SUBSIDIARY TO CONTRACT WORK ITEMS AND SHALL NOT BE PAID SEPARATELY.



BURLESON ROAD
PROPOSED TYPICAL SECTION
STA.78+53.55 TO STA.79+63.75

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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5/29/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME TYPICAL SECTIONS03.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly. 0 1"

SHEET 7
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-PR TYPICAL SECTIONS03.sht
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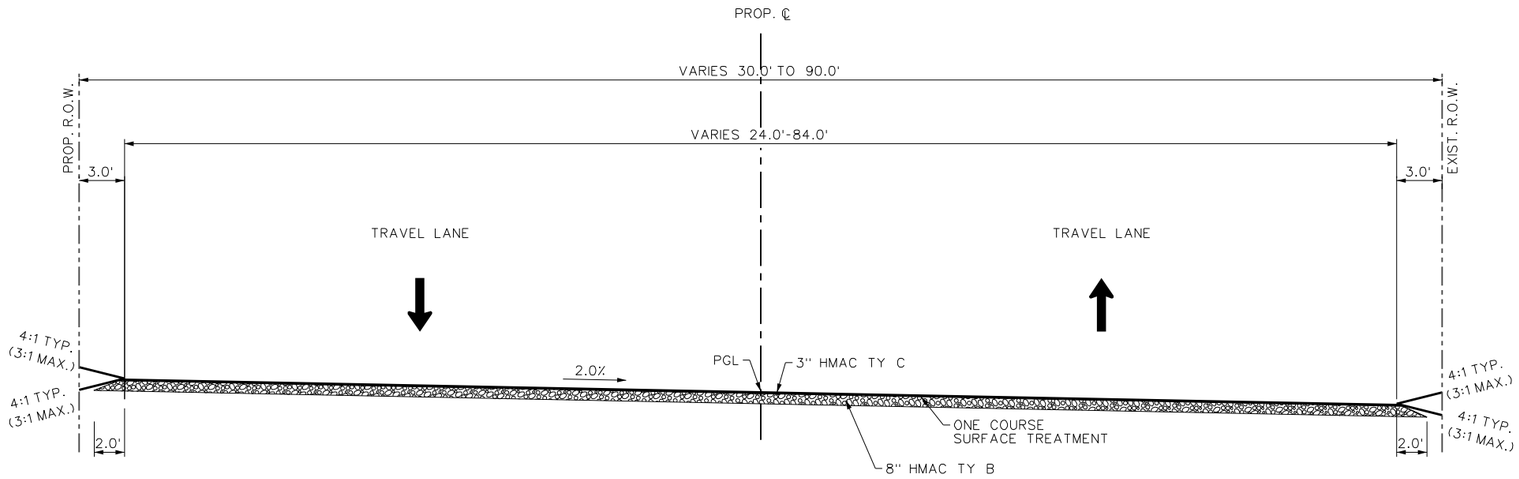
Project: Freese and Nichols, Inc.

NOTE:

1. PROOF ROLLING ITEM 216 IS SUBSIDIARY TO CONTRACT WORK ITEMS AND SHALL NOT BE PAID SEPARATELY.



BURLESON STREET
PROPOSED TYPICAL SECTION
CUL DE SAC

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
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5/29/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME TYPICAL SECTIONS05.sht

SHEET 8
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IT\Drawings\CV-TRT-PL-PR TYPICAL SECTIONS05.sht
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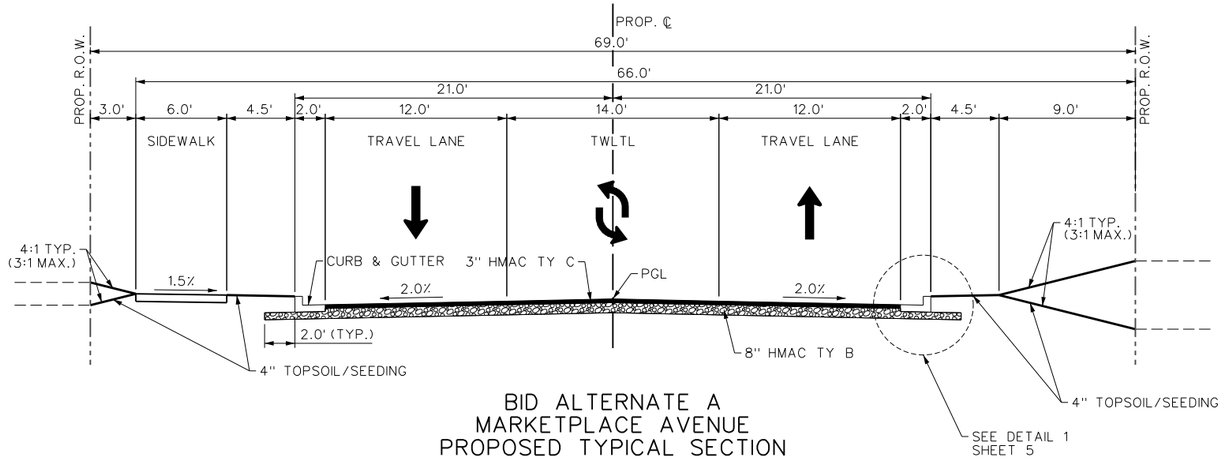
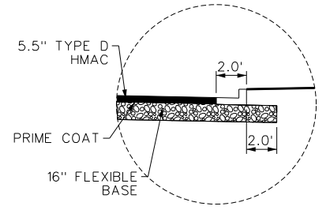


BID ALTERNATE A
MARKETPLACE AVENUE
PROPOSED TYPICAL SECTION
STA.11+33.10 TO STA.19+36.68

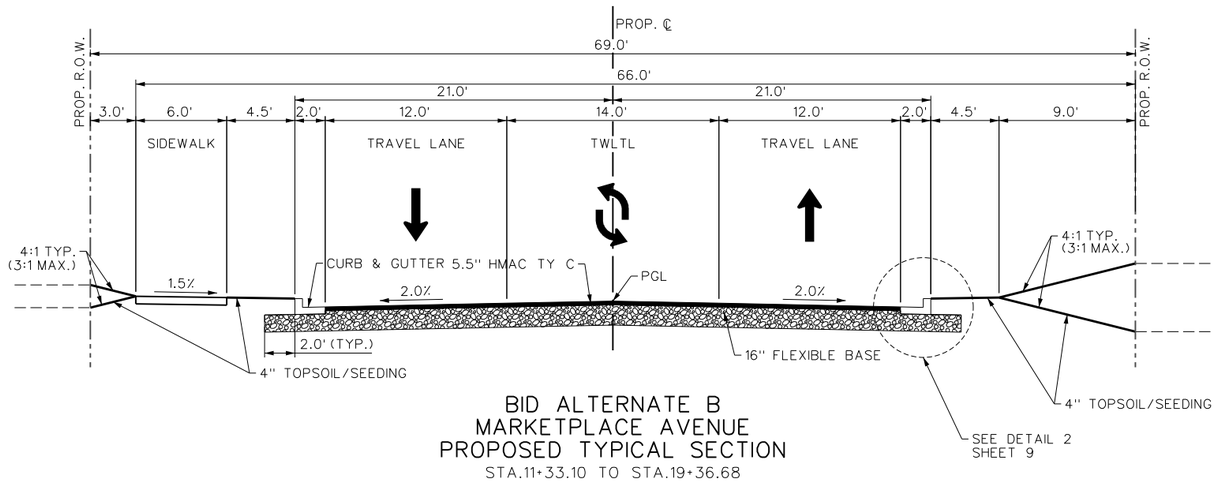


2 SECTION DETAILS
NOT TO SCALE

NOTE:

1. REER TO TXDOT SPECIFICATIONS 100, 110, AND 132 FOR SUBGRADE PREPARATION REQUIREMENTS.

2. PROOF ROLLING ITEM 216 IS SUBSIDIARY TO CONTRACT WORK ITEMS AND SHALL NOT BE PAID SEPARATELY.



BID ALTERNATE B
MARKETPLACE AVENUE
PROPOSED TYPICAL SECTION
STA.11+33.10 TO STA.19+36.68

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
PROPOSED TYPICAL SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME TYPICAL SECTIONS04.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust accordingly.

SHEET 9
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\F\Drawings\CV-TRT-PL-PR TYPICAL SECTIONS04.sht
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Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 29, 2018 - 11:02:23 AM User: 02590File: N:\F\Drawings\CV-TRT-PL-PR TYPICAL SECTIONS04.sht

GENERAL NOTES:

Basis of Estimate

Item	Description	**Rate
160	**Topsoil**	1 CY/7 SY
164	**Seed for Erosion Control**	4840 SY/AC
166	**Fertilizer (13-13-13)**	1/8 LB/SY
168	**Vegetative Watering** (Item 164)(Perm)	 20 GAL/SY
**204	**Sprinkling** (Dust) (Item 132) (Item 247)	 30 GAL/CY 30 GAL/CY 30 GAL/CY
**210	**Roll (Flat Wheel)** (Item 247) (Item 316)	 1 HR/200 TON 1 HR/6000 SY
**210	**Roll (Tamping)** (Item 132)	 1 HR/200 CY
**210	**Roll (Heavy Tamp)** (Item 132)	 1 HR/200 CY
**210	**Roll (Lt Pneumatic Tire)** (Item 132) (Item 247) (Item 316)(Seal Coat) (Item 316)(One Course)	 1 HR/500 CY 1 HR/200 TON 1 HR/6000 SY 1 HR/6000 SY
247	**FL BS (CMP IN PLC)** (TY A GR 5)	 27 CF/CY
310	**Prime Coat (MC-30 or AE-P)**	0.20 GAL/SY
316	**One Course Surface Treatment** ASPH (RC-250) AGG (TY D GR 5 SAC B)	 0.42 GAL/SY 1 CY/115 SY
340	**Dense-Graded Hot-Mix Asphalt (Method)** TY C SAC B PG 76-22 TY B PG 64-22	 115 LB/SY/IN 115 LB/SY/IN
360	**Lime (Hydrated Lime (Slurry))**	49.5 LB/SY

** For Informational Purposes Only

GENERAL NOTES AND SPECIFICATION DATA

LIST OF MODIFIED STANDARDS

Arrange a Pre-Work Meeting between representatives of the City and the Contractor prior to beginning work. Outline the proposed work and submit plans for performing the work while providing safe passage of traffic at all times.

Repair any damages incurred to existing fences, signs, sign posts, curbs, or any other appurtenances caused by equipment or personnel to its original condition or as directed by the Engineer.

Project Number: KYL14284 **Sheet:** 10
City: Kyle **County:** Hays
Highway: N. Burleson Street

The contractor shall notify the City's Representative as soon as the ROW is staked and prior to clearing operations. Upon notification, the City's Representative will schedule a walk-through with the Contractor and designate all trees and other features to be protected during construction.

The Contractor shall not begin any clearing of the ROW prior to this walk-through. The designated trees shall be protected in accordance with the plans and specifications, or as directed by the Representative. No fences shall be removed without notification to the observer.

Maintain the right of way in a satisfactory appearance as shown in the plans and/or as approved by the Engineer.

Perform work expeditiously during daylight hours. Submit written request to City Engineer for week-end and/or night time work.

Conform with the "Texas MUTCD" for sign types which details are not shown in the plans.

Remove all existing raised pavement markings as the work progresses or as approved by the Engineer. The work will not be paid for separately and is subsidiary to the various bid items. Materials removed become the property of the Contractor for proper disposal.

Maintain the roadway surface and work zone striping within the project limit while the traffic control plan is in effect.

Be aware that some franchise utility relocations will be necessary and may not be complete prior to issuance of Notice to Proceed. Adjust work accordingly and coordinate workspace with utility relocation crews.

CONTROL OF THE WORK

All construction shall be in accordance with the plans and specifications and applicable City of Kyle standards and TxDOT 2014 specifications.

All concrete constructed adjacent to the roadway must be free of stains, dirt, tire marks, etc., at the time of final acceptance. These items include but are not limited to curb and gutter, wheel chair ramps, inlets and riprap. Blast cleaning of these items will be required to achieve acceptance of the project and will be considered subsidiary to the applicable bid items.

Prior to final acceptance, all new structures and/or structures that have been extended shall be cleaned out by the contractor. This work will not be paid for directly but will be considered subsidiary to the various bid items.

Bench mark locations, control coordinates, and elevations are shown on the alignment data sheet. Contractor is responsible for replacing damaged Bench Marks and setting new Bench Marks if existing cannot be maintained during construction for whatever reason. The cost for establishing new Bench Marks is subsidiary to contract bid items.

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-ALL-GN-GENNOTE01.sht

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Prior to beginning work in the area of existing utilities, the contractor shall contact the utility companies for exact locations to prevent any damage or interference with present facilities. The TEXAS ONE CALL system shall be notified at the following toll-free number: (1-800-245-4545). This action shall in no way be interpreted as relieving the contractor of his responsibilities, under the terms of the contract and as set out in the plans and specifications. The contractor shall repair any damage caused by his operations, at his own expense and shall restore facilities to service in a timely manner.

If working near power lines, comply with the appropriate sections of Local Legal Requirements, Texas State Law, and Federal Regulations relating to the type of work involved.

In the event of unforeseen utility adjustment, the Contractor will prosecute their work in such a manner and sequence as to facilitate the adjustments to be made.

CONTROL OF MATERIALS

Submit all fabrication and shop drawings to the Engineer for review and approval.

The Owner intends to test materials for quality assurance. Such minimum testing is intended to include Atterberg Limits, sieve analysis, lime series; In-place nuclear densities; concrete compressive tests on structure pours, reinforcement inspection; and during daily (full-production) hot mix operations - extractions, A/C content, VMA's, gradations, lab molded density's as well as density on cores taken from the roadway. For testing of hot mix, the Contractor shall provide a currently approved hot mix design from either the TxDOT Austin District or City of Austin. Contact names and phone numbers shall be provided for verification purposes. Rejection of asphalt concrete pavement may be rejected for failure to meet any of the specification requirements. Owner sampling and testing does not relieve the contractor of his responsibility to provide material that meets specifications.

LEGAL RELATIONS AND RESPONSIBILITIES

Protect all adjoining pavement sections during all phases of construction. Any damages incurred due to contractor's operation shall be repaired and/or replaced at the contractor's expense.

Where existing pavement adjoins new pavement, saw the existing pavement to a neat transverse and/or longitudinal line to permit adequate joining. This will not be paid for directly, but will be considered subsidiary to the various bid items.

Remove all vegetation from pavement edges, intersections and driveways prior to ACP operations. This work will not be paid for directly but will be subsidiary to the various bid items.

Manage construction to minimize disruption to traffic. Make every effort to ensure the safety and convenience of the public and property as provided in the Contract and as directed.

Follow the safety provisions of all applicable rules, codes, and regulations. Keep all portions of the highway open to traffic, unless otherwise shown on the plans. Maintain the roadway in a

Project Number: KYL14284 **Sheet:** 10
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good and passable condition. Provide for ingress and egress to adjacent property at end of each work day. All materials, labor and incidentals required for the contractor to provide for traffic across the highway and for all weather ingress and egress to public and private property shall be considered as incidental to the various bid items.

In the event the CONTRACTOR fails, in the opinion of the OWNER, to maintain a smooth surface for public comfort, fails to provide ingress and egress to private property, and/or does not provide and maintain proper traffic control devices, OWNER may provide these services and deduct any cost thereof, including overtime and administrative expenses, from all estimates thereafter due the CONTRACTOR. Such action by the OWNER shall not relieve the CONTRACTOR of his liability to protect the public at construction site.

Develop communication with adjacent land owners for temporary day or night closures of driveways as the work progresses. Provide minimum of 48-hour written notice to owner for temporary closure of driveway.

Overnight staging of materials, vehicles, or equipment is not allowed south of Marketplace Rd.

Provide suitable drainage of the roadway and erect temporary structures as required.

If at any time during construction, the approved plan of operation does not accomplish the intended purpose due to any condition affecting the safe handling of traffic, immediately make necessary changes, as directed, to correct the unsatisfactory conditions.

Store all equipment not in use in a manner and at locations that will not interfere with the safe passage of traffic.

Provide qualified flaggers in accordance with the TxMUTCD for the safety and convenience of the traveling public and workers, as directed.

Do not park equipment or make stockpiles where driver sight distance to businesses and side street intersections is obstructed, especially after work hours. If it is necessary to park where drivers' views are blocked, make every effort to flag traffic accordingly. Give the travelling public priority.

Maintain positive drainage for permanent, as well as, temporary drainage for the duration of the project. This work is the sole responsibility of the Contractor. Construct temporary and permanent drainage systems prior to the placement of temporary pavement, when possible, but absolutely prior to the placement of permanent pavement. Be responsible for any items associated with the temporary/interim drainage and all related maintenance. No direct payment will be made for this work. The Engineer will have the final authority in determining/approving the adequacy of any temporary/permanent drainage features installed.

No blasting on this project, unless otherwise allowed.

PROSECUTIONS AND PROGRESS

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
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MicroStation V8 User: 02590Office: Austin
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Plot Offset: (0.000, 0.000) Plot Origin: (0.000, 0.000)
Plot Scale: 20.000D / 1.0
Date: May. 22, 2018 - 11:54:08 AM
Model: Default
Project: Freese and Nichols, Inc.

For this project, Calendar Day Charges will be charged. (Time for this calendar day project was calculated based on a 5-day workweek, Monday-Friday, with an average of 17 working days per month). For a Calendar Day contract, working days will be charged Sunday through Saturday, including all holidays, regardless of weather conditions, material availability, or other conditions not under the control of the Contractor.

The time established for the completion of the work is an essential element of the Contract. If the Contractor fails to complete the work within the number of days specified, days will continue to be charged. Failure to complete the Contract, or a separate work order when specified in the Contract, within the number of days specified, including any approved additional days, will result in liquidated damages for each day charged over the number of days specified in the Contract. The dollar amount specified in the Contract will be deducted from any money due or to become due the Contractor for each day the Contract or work order remains incomplete. This amount will be assessed not as a penalty, but as liquidated damages. The amount of liquidated damages for this project is established at $1000.00 per day.

Prior to contract letting, the conceptual construction schedule as developed for the contract time determination will be made available by the Engineer for prospective bidder's review. The schedule will be in hard copy form and made available for copying by the contractor. This supplied schedule is for informational purposes only. It is the responsibility of the prospective bidder to determine a construction schedule for the work in this contract.

Before starting work on a construction Contract, prepare and submit a critical path progress schedule (CPM) (software to be approved by City prior to submission) based on the sequence of work and traffic control plan shown in the Contract. Include all planned work activities and sequences and show Contract completion within the number of working days specified. Incorporate major material procurements, known utility relocations, and other activities that may affect the completion of the Contract in the progress schedule. Show a beginning date, ending date, and duration in number of working days for each activity. Do not use activities exceeding 20 working days, except for agreed upon activities. Show an estimated production rate per working day for each work activity.

Submit an updated progress schedule monthly, unless otherwise shown in the Contract or as directed. Update the progress schedule by adding actual progress made during the previous update period, including approved changes to the sequence of work and the traffic control plan. If an updated progress schedule indicates the Contract will not be completed within the number of working days specified, notify the Engineer in writing whether the Contractor will revise the progress schedule to meet the number of working days specified or exceed the number of working days specified. Meet with the Engineer or Engineer's representative on a bi-weekly basis minimum to go over work schedules and upcoming work.

Notify the Engineer in writing of proposed major changes in the progress schedule. Major changes are those that may affect compliance with the Contract requirements or that change the critical path or controlling Item of work. The Engineer reserves the right to reject these proposed changes.

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No direct compensation will be made for fulfilling these requirements, as this work is considered subsidiary to the Items of the Contract. Schedules are subject to review and acceptance.

For this project, the contractor is expected to schedule this work so that the base placement operations will follow the subgrade work as closely as practical in order to reduce the hazard to the traveling public and prevent undue delay from wet weather.

In the event utility lines needing unforeseen adjustments are encountered during construction operations, alter operations and continue to prosecute the contract in such a manner that will allow utility adjustments to be made by others.

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved.

Do not place surface treatments or pavement when in the Engineer's professional judgment, the apparent general weather conditions are unsuitable for Overlay operations.

Remove and replace, at the Contractor's expense, and as directed, all defective work, which was caused by the Contractor's workforce, materials, or equipment.

Perform work during good weather unless otherwise directed. If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

Accrue contract time charges through the Contractor's completion of the final punch list.

Blade the side slopes to remove all grass from the area of construction before placing flexible base on that portion of the roadway to be widened, leveled-up, seal coated/surfaced treated, or Hot Mix Asphaltic Concrete Pavement (HMACP) overlaid. Blade the sod back onto the side slopes after the proposed items of work have been completed. Consider subsidiary to pertinent Items.

Equip all construction equipment used in roadway work with a permanently mounted 360° revolving or strobe warning light with amber lens. Light will have a minimum lens height and diameter of 5 inches and mounting height of not less than 6 feet above the roadway surface and be visible from all sides. Attach at each side of the rear end of the construction equipment an approved orange warning flag mounted not less than 6 feet above the roadway surface.

Be aware that Intelligent Transportation Systems (ITS) Infrastructure may exist within the limits of this project and that the system must remain operational throughout construction. The exact location of ITS Infrastructure is not known. Contact the TxDOT Area Engineer's or Inspection Team's Office for the location(s) at least 48 hours before commencing any work that might affect present ITS Infrastructure. Use caution if working in these areas to avoid damaging or interfering with existing facilities. Repair any damage to this system within 8 hours of occurrence at no cost

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
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to the Department. In the event of system damage, notify TxDOT/CTECC at (512) 974-0883 within one hour of occurrence. Failure of the Contractor to repair damage to any infrastructure that conveys any corridor information to TxDOT/CTECC will result in the Contractor being billed for the full cost of emergency repairs.

Superelevate all curves to conform to the slope(s) of the existing curves, as directed. Consider subsidiary to the pertinent Items.

Match existing cross slopes, as directed. Consider subsidiary to the pertinent Items.

Provide a smooth, clean sawcut along the existing asphalt pavement structure, as directed. Consider subsidiary to the pertinent Items.

Sweep, mow, and remove all litter on the right of way, within the project limits, to keep the jobsite in a neat and presentable condition at all times. Use a self-contained broom to sweep the roadway and keep it free of sediment due to the construction of the roadway, as directed. Perform this work as directed and consider subsidiary to pertinent Items.

Remove all construction debris and surplus material generated by the construction work within the project limits. Perform this work as directed. Consider subsidiary to the pertinent Items.

Trim vegetation around signs, in ROW, and other obstructions. Consider subsidiary to pertinent Items.

Supply litter barrels in enough numbers at locations as directed to control litter within the project. Consider subsidiary to pertinent Items.

Use a self-contained vacuum broom to sweep the roadway and keep it free of sediment due to the Construction of the Roadway, as directed. Consider subsidiary to pertinent Items.

Protect all areas of the right of way, which are not included in the actual limits of the proposed construction areas, from destruction. Exercise care to prevent damage to trees, vegetation, and other natural surroundings. Areas not to be disturbed will be as directed. Restore any area disturbed because of the Contractor's operations to a condition as good as, or better than, before the beginning of work.

Damage to existing pipes and SET's due to Contractor operations shall be repaired at Contractor's expense.

All locations used for storing construction equipment, materials, and stockpiles of any type, within the right of way, will be as directed. Use of right of way for these purposes will be restricted to those locations where driver sight distance to businesses and side street intersections is not obstructed and at other locations where an unsightly appearance will not exist. The Contractor will not have exclusive use of right of way but will cooperate in the use of the right of way with the city/county and various public utility companies as required.

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The Project Superintendent will be capable of speaking English and will be available to contact at all times when work is being performed, including subcontractor work. The Superintendent will be available and on-call 24 hours a day.

Measure and provide elevations for all minimum vertical clearances for all structures (including, but not limited to, signal mast arms, span wires, and overhead sign bridge structures) within the limits of the project for all roadway alignments in all directions of travel. Coordinate with the Engineer to take these measurements and obtain prior to opening roadways to traffic unless otherwise approved. The Engineer will report all minimum vertical clearance information to the local City Police Office and City Engineer.

Furnish, to the Engineer, a list of the final centerline elevations.

When directed, designate an official backer/spotter or "dump-man" who shall wear specially marked clothing and a specially marked hard hat which specifically identifies them as the backer/spotter and identifies that they are the person who is directing the backing operations. They shall be identified to all project personnel, Contractor and City, when dumping the various project materials, throughout the course of the project.

Construction Photography & Videos

Contractor shall be responsible for the production of pre-construction, construction progress and postconstruction photographs as provided herein. The City or Engineer may also designate additional subjects for photographs in addition to the general guidelines identified below.

All photographs must be produced by a competent photographer and shall be digital (6 Mega-Pixel) date-stamped color photography of commercial quality. All CONTRACTOR-generated photographs must be stored in a .jpeg file format with a digital date-stamped in CD format or other format acceptable to the City.

Each photograph submittal must include a Photo Log that includes the name and bid number of Contract, name of Contractor, the name of the photographer and company, photograph number, the date of the photograph and the filename that the camera assigns to the photo (e.g. MVC-001.jpg). In addition, appropriate descriptive information to properly identify the location of view must be entered into the Photo Log that includes a project drawing or sketch to assist in maintaining a concise project record (e.g. location of MH 5 - Line A or Sta. 2+00 - Line A or location of Sedimentation Basin 5. sludge pump A).

CONTRACTOR shall document by video, within the limits of construction, all pre-existing site conditions/elements as listed for the Pre-construction Photographs below. The video documentation shall provide a clear and continuous view of the project alignment showing all visible utilities and features within the limits of construction. The pre-construction video shall be in a format acceptable to the City and shall be shot prior to the occurrence of any site disturbance after Notice to Proceed. The pre-construction video shall be submitted within ten (10) calendar days of the Notice to Proceed.

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All pre-construction photographs must be submitted within ten (10) calendar days of the Notice to Proceed.

Pre-construction photographs must be taken at sufficient intervals to be able to carefully document the preconstruction conditions of the Work, but in no case less than 100-foot intervals along the street. right-of-way, drainage easement or water/wastewater line route before commencement of Work. Each photograph location shall be taken from a minimum of two (2) views (one forward station view and one backward station view along the street, drainage, easement or pipeline route) within the limits of construction. Attention must be devoted to pre-existing damage to structures; landscape features, streets, curbs, sidewalks, driveways, signs, mailboxes, retaining walls, MSE walls, etc. shall be documented. An identifier such as houses or businesses address/ signs, property numbers, mail boxes, landscaping, etc. shall be included in each view for ease of later identification. At a minimum, Pre-construction photographs must be taken of the following views:

- The entire street ROW
- The entire easement width and length (both permanent and temporary)
- All curb lines (both sides of street) - all pre-existing curb damage not called for replacement within the Work and shall include major cracks
- All driveways, steps, and curbs and curb ramps (both sides of street)
- Fence and gate conditions
- Trees, ornamental shrubs, plantings/planter boxes and evidence of irrigation features
- Other privately or publicly owned features or facilities that might be disturbed by the construction
- Prominent utility features, such as: guy wires. poles, signs, valves. fire hydrants, meters, pull boxes, etc.
- Other significant or prominent features in order to protect the CITY and CONTRACTOR following construction (e.g. close up photographs of pre-existing broken curbs, cracked/failed pavement damaged adjacent retaining walls, etc.)
- Views of structures, both inside and adjacent to the ROW/easement in areas where CONTRACTOR will be working within five (5) feet of said structure
- • Other views as requested by the City

Construction Progress photos must be taken at least monthly showing the progress of the work for the month. Construction photographs of the same views taken during pre-construction photography must be taken during the progress of the Work and shall be submitted monthly with the Contractor's monthly progress payment application.

Post-construction photographs must be taken of the same views taken during pre-construction photography to fully document the completed project. Post-construction photographs must be taken after cleanup and site restoration, and must be submitted with the final payment.

Storm Water Pollution Prevention Plan (SW3P)/Water Pollution Abatement Plan (WPAP) notes

Transport any soils contaminated during construction off of the proposed project, away from the site, and properly dispose of off-site.

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Collect wastewater generated on-site by chemical toilets, transport and dispose of off-site, in a proper manner.

Suspend all activities near any significant recharge features, such as sinkholes, caves, or any other subterranean openings that are discovered during construction or core sampling. Do not proceed until the designated Geologist or TCEQ representative is present to evaluate and approve remedial action.

Locate aboveground storage tanks kept on-site for construction purposes over bermed impervious liners as to not allow any leakage into underlying soils. Additionally, the containment will be sized to capture 150% of the total volume of fluids stored on-site within the storage area.

No blasting will be allowed within 300 feet of a geologic feature of significant recharge potential, unless otherwise approved. Known locations of these features are available from the Area Engineer.

For all work over or near Bodies of Water (Lakes, Rivers, Ponds, Creeks, etc.):
Keep on hand Synthetic Absorbent Booms (Petroleum Sorbent Booms, Petroleum Socks, Absorbent Socks, etc.) and Absorbent Pads (Eversoak Sorbents, Industrial Absorbent Pads, Calicorp Absorbent Pads, etc.), both types, for spilled petroleum products, in enough quantity to mitigate a petroleum-type spill due to Contract work.

Safety Contingency & Item 502
The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

ITEM 4 - SCOPE OF WORK

Final cleanup will include the removal of excess material considered detrimental to vegetation growth along the front slope of the ditch. Materials such as surface aggregates and other materials, as specified by the Engineer, will be removed at the Contractor's expense.

ITEM 5 - CONTROL OF THE WORK

GEOPAK earthwork output listings for this project are available with bid documents and are available from the Engineer or City in PDF format upon request.

Mark and maintain 100-foot station intervals for the duration of the project, as directed. Consider subsidiary to pertinent Items.

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Record drawings (Two 11 "x 17" and one digital copy in PDF format) and final asphalt test report shall be submitted to the city prior to project acceptance.

Contractor shall perform all layout work to transfer all controls for grades, lines, levels and measurements from a minimum of two reference points provided by the OWNER. All survey work will be performed under the direct supervision of a Texas Registered Professional Land Surveyor (RPLS).

Within 5 working days of the Notice to Proceed date, or within 10 working days of initiating work based on the approved Schedule in a new area of the Project, the CONTRACTOR shall survey and stake the locations of all proposed improvements behind the curb and within the ROW (examples: manholes, storm inlets, fire hydrants, etc.), or any other improvements identified by the OWNER'S REPRESENTATIVE, for the purpose of identifying the nature and location of these improvements to the adjacent property owner(s). The OWNER'S REPRESENTATIVE will identify to the CONTRACTOR the improvements to be staked.

OWNER will not stake for construction and will not be on site for survey layout activities, except to perform quality control checks.

CONTRACTOR shall be required to set elevation hubs (blue tops) for subgrade and base course on centerline, at quarter points and curb lines or edge of pavement at intervals not exceeding 50 feet.

The construction plans will include horizontal and vertical control points. References to approved COA benchmarks used in establishing controls on the drawings will be provided by the Owner's E/A. In addition, on building projects and/or projects not built within an existing public ROW, a boundary survey will be supplied together with a legal description of the property and all easements where Work will take place.

CONTRACTOR shall submit construction staking layout sheets sealed by a Professional Engineer or Registered Professional Land Surveyor registered in the State of Texas. CONTRACTOR shall use a qualification-based selection process consistent with the Professional Services Procurement Act, Chapter 2254.004 of the Texas Government Code, when securing the services of Professional Engineer or Registered Professional Land Surveyor. It is a violation of State Law to solicit bids for the services of a Professional Engineer or Registered Professional Land Surveyor.

Any discrepancies found with the construction documents' dimensional layout will be corrected. CONTRACTOR shall assure that the Owner's Representative and E/A are notified so that the appropriate actions are taken to correct the Contract drawings.

All Work shall be done to the lines, grades and elevations indicated on the drawings. Information concerning basic horizontal and vertical control points will be provided by the E/A, **Freese and Nichols, Inc.** These points shall be used as the datum basis under this Contract.

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All work to transfer all controls for grades, lines, levels, layout and measurements shall be performed under the supervision of a Texas Registered Professional Land Surveyor, provided by the CONTRACTOR. Such work shall conform to the standards for construction staking in the most recent edition of the Texas Society of Professional Surveyors Manual of Practice for Land Surveying, Category 5, Sections 1-12 inclusive.

The offset centerline stakes will be set at no greater than fifty (50) foot interval on both sides of the right-of-way. References to lines and grades as established by the CONTRACTOR'S surveyor shall be in reference to these stake lines. The CONTRACTOR is required to provide a sealed statement from his RPLS that the controls are correct and the site layout has been done by their professional staff.

The CONTRACTOR shall place grade stakes and submit construction staking layout sheets. The CONTRACTOR shall allow a minimum of ten (10) days after submission to the Owner's Representative for review of construction staking layout sheets. Construction staking layout sheets shall include, at a minimum, the information contained in the form included at the end of this section. No Work shall be performed without Owner's Representative review and return to CONTRACTOR of construction staking layout sheets. The Owner's Representative, E/A and the CONTRACTOR shall review the survey controls on the ground.

Prior to any excavation, the CONTRACTOR shall establish the elevation to top of ground at [centerline of the pipe as well as cuts and] offset stakes at the distance deemed appropriate by the CONTRACTOR to preclude disturbance of offset stakes during construction. The CONTRACTOR shall set all blue tops for subgrade and base courses on centerline at quarter points, at curb lines or edge of pavement, and other points that may be indicated on the Drawings, all at intervals not to exceed 50 feet.

The CONTRACTOR shall furnish, without charge, experienced personnel and such calibrated survey equipment, tools, stakes, and other materials that the Owner's Representative may require in establishing or checking control points, or in checking survey, layout, and measurement work performed by the CONTRACTOR.

The CONTRACTOR shall keep the Owner's Representative informed in a reasonable time in advance of the times and places at which he wishes to do work, so that any checking deemed necessary by the OWNER may be done with minimum inconvenience to the E/A and minimum delay to the CONTRACTOR. Surveying will be coordinated between the Owner's Representative and CONTRACTOR in a manner convenient to both.

During layout, CONTRACTOR shall field verify the elevation and alignment of all tie-in points to existing infrastructure. This work shall be performed sufficiently in advance of construction so that any conflicts may be resolved without delay. Any work done without being properly located may be ordered removed and replaced at the CONTRACTOR'S expense.

The CONTRACTOR shall carefully preserve all monuments, benchmarks, reference points, and stakes. In case of the destruction thereof, the CONTRACTOR shall bear the cost of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent

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N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
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monuments or benchmarks, which must be removed or disturbed, shall be protected until properly referenced for relocation. The CONTRACTOR shall furnish materials and assistance for the proper replacement of such monuments or benchmarks.

The CONTRACTOR shall satisfy himself before commencing work as to the meaning and correctness of all survey control stakes, marks, etc., and no claim will be entertained by the OWNER for or on account of any alleged inaccuracies, unless the CONTRACTOR notifies the OWNER in writing before commencing the affected work.

As needed for necessary documentation of the work progress, the CONTRACTOR shall maintain and/or protect offset or survey staking for the duration of the project. Any re-staking required to meet this requirement shall be done at the CONTRACTOR'S expense.

ITEM 6 - CONTROL OF MATERIALS
Article 6.5. Give a minimum of 72 hours written notice for materials, which require Inspection at the Plant, and by Wednesday noon of each week for testing needed on Saturday or Sunday.

ITEM 8 - PROSECUTION AND PROGRESS
Article 8.3C. Work is allowed to be performed during the nighttime, with prior approval.

A Critical Path Method (CPM) schedule will be required for this project.

ITEM 100, 132 & 160 - PREP ROW, EMBANKMENT, & TOPSOIL
Do not burn brush, unless otherwise approved.

Use hand methods or other means to remove objectionable material and obstructions, if doing work by mechanical methods is impractical. Consider subsidiary to the pertinent Items.

ITEM 110 & 132 - EXCAVATION & EMBANKMENT
Unsuitable material encountered in a cut or fill section will be considered waste. The Engineer will define unsuitable material. Material, which the Contractor might deem to be unsatisfactory or unsuitable, due to moisture content, will not be considered unsuitable material, unless otherwise approved.

Obtain approval of all compaction equipment prior to all backfilling and embankment operations.

ITEM 132 - EMBANKMENT
Do not furnish shale clays. The Engineer must approve the embankment material before use on the project. Existing material from within the project limits or approved by the engineer may be used vertically beyond 5' of the finished subgrade elevation or beyond the edge of the subgrade. Furnish embankment with sulfate content less than 3000 ppm if treated with calcium-based chemicals or within 5' of the finished subgrade elevation.

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Embankment placed over the area of MSE backfill must meet the same backfill requirements for the type specified under Item 423.

TY C Requirements

Percent Passing	Percent Retained					LL	PI	PI
3"	1 3/4"	7/8"	3/8"	#4	#40	Max	Max	Min
100	0-10	10-20	-	45-75	50-85	45	20	6

The City/Engineer must approve the embankment material before use on the project.

Stockpile TY C embankment at an approved location until it meets all testing requirements. The stockpile must be between 500 CY and 5000 CY and must not exceed a height of 15 FT. Provide a test report from a City -approved lab prior to requesting the City to test the stockpile.

Work to correct unstable material (e.g. dry, wet, loose, etc.) to a depth of 6" below existing subgrade elevation, prior to beginning any embankment placement. Consider subsidiary to the various bid Items. Any work to correct unstable material below the 6" depth, below existing subgrade elevation, will be paid as extra work. However. there will be no payment to correct failures. in the subgrade areas, that were constructed under this contract.

Under excavating to depths greater than 6" has to be approved in writing by the City prior to work occurring if payment is requested.

Track ALL embankment slopes left idle for more than 14 days. within or at the end of the 14-day idle period, to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slope, leaving: track marks perpendicular to the direction of the slope. Retrack slopes after rain event, as directed. Consider tracking of slopes to prevent erosion as subsidiary to the pertinent Items.

Correct subgrade (e.g. unstable areas, soft spots, etc.) prior to the dumping of Flexbase or HMACP. Proof Roll subgrade. Consider subsidiary to the pertinent Items.

Scarify and re-compact existing: asphaltic/base sections, which are not called out to be removed in fill sections, where the bottom of the proposed pavement structure is higher than and over the top of the existing asphalt surface, in order to reduce the possibility of a slip plane.

ITEM 160 - TOPSOIL
Obtain approval of all topsoil sources before digging begins. Ensure off-site topsoil has a minimum PI of 25, or as directed. Ensure that the topsoil placed is similar to the topsoil that is within the project. To the extent possible, obtain as much of the topsoil from within the project site, or as directed. City reserves the right to take samples, as needed, to assure that the material meets the PI and other requirements as indicated in the Specifications (Fertility, Organics, Erodibility, etc.).

No Sandy Loam allowed, unless the project dictates otherwise.

Obtain approval of the actual depth of the topsoil sources for both on-site and off-site sources.

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Construct topsoil stockpiles of no more than five (5) feet in height.

It is permissible to use topsoil dikes for erosion control berms within the right of way, as directed.

Track ALL topsoiled slopes left idle for more than 14 days, within or at the end of the 14-day idle period, to prevent erosion. Tracking consists of operating a tracked vehicle or equipment up and down the slope, leaving track marks perpendicular to the direction of the slope. Retrack slopes after rain event, as directed. Consider the tracking of slopes to prevent erosion as subsidiary to the pertinent Items.

Upon final grading, immediately track all topsoiled slopes to prevent erosion, prior to seeding operations, as directed. Consider subsidiary to the pertinent Items.

Provide measurements for payment of topsoil quantities before seeding. Consider subsidiary to the pertinent Items.

Place Topsoil in accordance with the SW3P, in phases, as partial completion of the roadway is obtained.

ITEM 164 – SEEDING FOR EROSION CONTROL
Obtain vegetation establishment of all seeded areas, including adequate coverage, prior to "Final Acceptance." If all other work is complete, time charges may be suspended, until adequate coverage is established.

Do not use ryegrass for temporary cover.

Reseed all areas with "little or no" grass growth after 1 month from the last seeding date, as directed. Consider subsidiary to the various bid Items.

Provide measurements for payment of seeding for erosion control quantities before seeding. Consider subsidiary to the pertinent Items.

ITEM 166 – FERTILIZER
Use 13-13-13 fertilizer analysis, unless otherwise directed. Take soil samples, as directed, to determine the actual soil needs for fertilizer. Consider this work subsidiary to pertinent Items.

ITEM 168 – VEGETATIVE WATERING
Water all areas of project to be seeded or sodded.

Maintain the seedbed in a condition favorable for the growth of grass. Watering can be postponed immediately after a rainfall on the site of ½ inch or greater, but will be resumed before the soil dries out. Continue watering until final acceptance.

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Vegetative watering rates and quantities are based on ¼ inch of watering per week over a 3-month watering cycle. The actual rates used and paid for will be as directed and will be based on prevailing weather conditions to maintain the seedbed.

Obtain water at a source that is metered (furnish a current certification of the meter being used) or furnish the manufacturer's specifications showing the tank capacity for each truck used. Notify the Engineer, each day that watering takes place, before watering, so that meter readings or truck counts can be verified. Contractor will be allowed to use City water, at no charge, from fire hydrant located at Selvera and Burleson and or at Contractor chosen fire hydrant approved by City prior to commencement of project. For this item and all items of work where water is needed (base, subgrade).

ITEM 204 - SPRINKLING
Apply water for dust control as directed. When dust control is not being maintained, cease operations until dust control is maintained. Consider subsidiary to the pertinent Items.

ITEM 216 - PROOF ROLLING
Correct and perform "Proof Rolling" at the Contractor's expense, to the satisfaction of the Engineer, when initial "Proof Rolling" yields a failing result.

ITEM 247 - FLEXIBLE BASE
The lift thickness will be 4" to 6" unless shown in the plans. When compacted in multiple lifts, the density of the bottom and middle lifts will be 95% and 98% of the maximum dry density, respectively.

A minimum plasticity index of 3 is required on all gradations.

Correction of subgrade soft spots is subsidiary.

Complete all subgrade, ditches, slopes, and place all drainage structures to conform to required lines, grades, and cross-sections, as shown and directed, prior to the placement of Flex Base.

Do not use a vibratory roller to compact the material directly over a box culvert.

ITEM 300 – ASPHALTS, OILS, AND EMULSIONS
Asphalt season starts May 1 and ends September 15.

ITEM 310 & 340
Perform work during good weather, unless otherwise directed. If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

ITEM 310 – PRIME COAT
Apply blotter material to all driveways and intersections.

Any oil or asphaltic material being paid for on the project shall use tank strap method as shown in TxDOT Seal Coat and Surface Treatment Manual 2004-1.

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Plot Scale: 20.0000 '/ in. Project Freese and Nichols, Inc.

ITEM 320 - EQUIPMENT FOR ASPHALT CONCRETE PAVEMENT
Provide a Material Transfer Device (MTD).

ITEM 340 (HMACP Testing)
The Contractor must sample asphalt binder, in accordance to the applicable item. Label the sample can with the corresponding CSJ, lot, and sublot numbers.

The Contractor will be responsible for supplying storage for all samples. Retain all asphalt samples until hot mix production is complete or directed otherwise.

When directed, the Contractor is responsible for disposal of all asphalt binder samples, in accordance to Local, State, and Federal regulations.

Submit all tickets for payment and closure of project. No payment will be made for tonnage when driver fails to provide ticket at the jobsite. Contractor will work with City inspector for collection of tickets.

[Hot Mix Asphaltic Conc (HMAC) Core Holes]
Refill and compact all HMAC core holes to the same elevation as the adjacent roadway. Use hot mix of the type being used in the project to fill core holes. As an alternative a high performance cold patching mix such as Rapid Cure Patching Mix meeting the requirements of DMS-9203 or Medium Cure Patching mix made with SCM meeting requirements of DMS-9202. Consider this work subsidiary to the pertinent Items.

ITEM 340
Transition from the new ACP to the existing surface tie-in by utilizing a required milled transition to a vertical butt joint. Make the transition a minimum of 50 feet H: 1 inch V slope ratio of newly placed ACP. Make the temporary joint, at the tie-in, a minimum of a "3-paper-taper" longitudinally and covering the entire width. Sawcut existing pavement as directed. Prior to milling, core the existing pavement to determine its thickness. Do not proceed with milling until directed. Consider this work subsidiary to the pertinent Items.

ITEM 340 - DENSE-GRADED HOT-MIX ASPHALT
Provide mixture Type C using PG binder 76-22.
Provide mixture Type B using PG binder 64-22.

Use aggregate meeting a Surface Aggregate Classification (SAC) requirement of "B" for surface course mixtures.

All base or non-surface mixtures require SAC "B" aggregate, unless directed otherwise.

Aggregates used on shoulders and ramps are required to meet SAC requirements.

Target laboratory molded density is 96.5% for mixtures without recycled asphalt and 97% for mixtures with recycled asphalt for TGC mixture designs.

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When using Superpave Gyratory Compactor (SGC) to design mixtures, submit the SGC mix design to the Engineer for approval.

When using substitute binders, mold specimens for mix design and production at the temperature required for the substitute binder used to produce the HMA.

All mixtures must meet the HVEEN stability test with a minimum value of 40.

All mixtures must meet the Hamburg requirement as stated in the table below.

High-Temperature Binder Grade	Test Method	Hamburg Wheel Test Requirements [1]		
		Minimum # of Passes	Maximum Rut Depth (mm) [2]	Minimum Rut Depth (mm) [2,3]
PG 64 or lower	Tex-242-F	7,000	12.5	3
PG 70	Tex-242-F	15,000	12.5	3
PG 76 or higher	Tex-242-F	20,000	12.5	3

1. The Engineer may accept Hamburg Wheel test results for production and placement if no more than 1 of the 5 most recent tests is below the specified number of passes and the failing test is no more than 2,000 passes below the specified number of passes.
2. Rut depth tested @122°F
3. Unless approved otherwise.

When using RAP and/or RAS, include the management methods of processing, stockpiling, and testing of RAP and/or RAS in the QCP submitted for the project. If RAP and RAS are used in the same mix, the QCP must document that both of these materials have dedicated feeder bins for each recycled material. Blending of RAP and RAS in one feeder bin or in a stockpile is not permitted. Deleterious materials in RAP or RAS stockpiles should not exceed 1.5%, as determined by Tex-217-F, Part I and III.

RAP must be fractionated for all surface mix applications. No roofing materials are to be used as RAP.

Complete all roadways before final surface course placement, unless directed otherwise.

Ensure placement sequence to avoid excess distance of longitudinal joint lapback not to exceed one day's production rates.

Use a device to create a maximum 3H: 1V notched wedge joint on all hot mix joints of 2 in. or greater. Consider subsidiary to the pertinent Items.

Submit any proposed adjustments or changes to a job mix formula to the Engineer before production of the new job mix formula.

Tack every intermediate layer, unless otherwise directed. Do not dilute tack coat. Apply it through a distributor spray bar in accordance with Article 316.3(A) Distributor.

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Do not dilute tack coat. Apply it through a distributor spray bar in accordance with Article 316.3(A) Distributor.

When surface irregularities, as defined in Article 341.4.I.3.c(5), "Irregularities", are detected or measured, the Contractor must take immediate corrective action defined as the removal and replacement of a full lane width of the defective area using a paver to place new mix, unless otherwise directed. If there are multiple defective areas within a sublot, making up to 30% of the sublot by area, the Engineer will require the entire sublot be removed, unless directed otherwise.

Provide a minimum transition for all side streets of at least 12 feet and driveways of at least six (6) feet, unless otherwise shown on the plans or otherwise approved/directed.

ITEM 400 - EXCAVATION AND BACKFILL FOR STRUCTURES
Cut pavements with the use of a saw as directed. Consider subsidiary to pertinent Items.

Obtain approval of all compaction equipment prior to all backfilling and embankment operations.

ITEM 402 – TRENCH EXCAVATION PROTECTION
Prior to construction, submit a Trench Excavation Plan for City's records.

ITEM 432, 462, 465, & 466
Remove all loose Formwork and other Materials from the Floodplain or drainage areas, daily, which could float off in a Stormwater Event, as directed.

ITEM 432 - RIPRAP
Make 5-inches thick unless otherwise noted or directed.

Make all mow strip riprap four (4) inches, unless otherwise directed.

Where any proposed riprap joins existing riprap, saw cut the existing riprap and dowel/epoxy the joint as directed. Consider subsidiary to the pertinent Items.

Additional riprap may be required, as determined by the Engineer, near the end of project completion, due to unanticipated erosion locations. Any additional, approved riprap will be paid under this Item.

Consider saw cutting of riprap as subsidiary.

Provide Class B Concrete for that riprap placed around ground mounted large signs and overhead sign structures.

Provide Class B Concrete for riprap.

ITEM 462 - CONCRETE BOX CULVERTS AND STORM DRAINS

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Provide Shop Drawings, signed and sealed by a Licensed Professional Engineer, for all precast box culverts. Indicate the appropriate design load as shown on the plans (HS20 or HS25) and the maximum design depth of fill.

Use cohesionless backfill material of aggregate size range of ⅜-inch to 1½-inch, for bedding material.

Don't recall about splicing shown on standards portion needs to be poured in place like wings?

ITEM 465 - MANHOLES AND INLETS
Adjust inlet locations to the upstream side of driveways to accommodate driveway relocation.

Consider excavation and backfill, frames, grates, rings and covers subsidiary to pertinent Items.

Salvage existing grates, which are to remain the property of the Department, as directed. Stockpile neatly, as directed.

Provide temporary drainage at each curb inlet and maintain until the final course of asphaltic concrete pavement is placed.

ITEM 466 - HEADWALLS AND WINGWALLS
Removal of existing headwalls and wingwalls will be considered subsidiary to pertinent Items.

ITEM 467 - SAFETY END TREATMENT
Cut pipe ends, in the field, to match roadway side slopes, or as directed. Apply asphalt base aluminum paint to the cut ends.

All Type II SET's shall have mitered pipe ends and cast-in-place riprap aprons.

ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING
Notify the City Engineer prior to implementing any "Approved Lane Closure". Provide notice no later than 10:00 AM (Central Time) and at least 24 hours prior to the closure. If the closure is scheduled on a Monday, then it will be called in by 10:00 AM on Friday. If the notification time falls on a State Holiday, then make the notification to the Inspector or Engineer by 10:00 AM on the day prior to the State Holiday. If you find you will need to report closure information after the 10:00 AM deadline.

Submit and secure concurrence, prior to the publication of any notices or placement of any traffic control devices for implementation of the traffic control plan, hereinafter called a Lane Closure Notice (LCN).

Present to City, an LCN for traffic control, which is proposed for implementation, a minimum of four (4) full working days preceding any proposed implementation date. Indicate the estimated date, time, duration, and location for the proposed work. As a part of the LCN submit a written

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Present to City, LCN's proposed to detour traffic, a minimum of ***seven (7)*** full calendar days preceding any proposed implementation date.

Present to City, LCN's proposed for night work, a minimum of ***seven (7)*** full calendar days preceding any proposed implementation date.

Receive concurrence prior to LCN implementation.

Meet with the Engineer prior to roadway and lane closures to ensure that sufficient equipment, materials, devices, and workers will be used. Discuss contingency plans at that time. Consider inclement weather prior to implementing the lane closures.

Submit a cancellation of any lane closures, no later than noon on the day preceding the proposed work.

Coordinate Main Lane closures with adjacent projects.

Obtain prior approval for any lane closures of the IH 35 south bound frontage road, which occur during peak hours. Maintain a minimum of 1 lane open at all times.

Take immediate action to modify Closures / Traffic Control, if at any time backup (roadway queuing) becomes unreasonable (greater than 20 minutes). Have in place, a contingency plan of how this will occur.

Utilize Shadow Vehicle with Truck Mounted Attenuator for setup and removal of each lane closure.

Incorporate and maintain a 3H: 1V safety wedge into the proposed construction for any roadway edge of 2 inches or greater adjacent to a roadway under traffic.

Within the limits of the project, provide standard barricades, warning signs, delineators, lights, 28-inch cones, and flaggers in enough numbers and combinations, as directed.

Use a minimum of 2 flaggers, 2 advance warning flashing arrow panels (TY C), 2 of each signs CW20-5TR or CW20-5TL with appropriate distance plaques and CW9-2TR or CW9-2TL and 28-in. cones at each location in which milling or paving operations are in progress. Maintain at least 1 lane of traffic in each direction during paving or milling operations. Maintain at least the minimum numbers of lanes as directed.

Contractor to provide two (2) portable changeable message boards to advise the public of all lane closures and traffic shifts prior to occurrence. All message board placement, verbiage, and duration must be coordinated with the City's representative prior to placement.

Use advance warning flashing arrow panels for the closing of traffic lanes. Furnish one stand-by unit, in good working condition at the jobsite, ready for immediate use.

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Maintain access to all streets and driveways at all times, unless otherwise approved. Consider subsidiary to the pertinent Items.

Furnish advisory speed signs in enough numbers as directed.

Maintain enough workers to revise traffic control as directed.

Provide a "Downstream" Buffer Space (≈100' per lane with devices spaced at ≈20') for each lane closure setup, as directed.

Maintain construction-warning signs, which are needed for longer periods than what is shown on the traffic control plan or as directed. Consider subsidiary to the pertinent Items.

Cover or remove any existing sign(s), which conflict with temporary traffic control operations. Install all permanent signs, delineation, and object markers necessary for the operation of any roadway before opening that section of roadway to traffic**,** regardless of the phase during which the roadway construction occurs. Erect the signs on temporary mounts until the permanent mounts are installed. Consider any costs associated with the temporary mounts subsidiary. Repair or replace any signs, which are damaged by the Contractor's operations during construction or which are deemed not sufficient. The Engineer will be the sole judge of the adequacy of the sign(s). Consider this work subsidiary to the pertinent Items.

Secure a 28-inch cone on top of any foundations that have protruding studs during construction. The cones will meet the specifications listed on BC (10)–07. In addition, they will be reflectorized, as described. All labor and materials will be considered subsidiary to the pertinent Items.

Provide "Electronic" Portable Changeable Message Sign(s) (EPCMS) as part of the traffic control operations and provide another one that is available to utilize when a backup is needed. Consider the one designated for backup as subsidiary to the various Items of the project. All EPCMS will be exclusive to this project, unless otherwise approved. Placement location and message as directed.

Maintain Sandbags that are used for ballast, as directed. Consider subsidiary to the pertinent Items.

As work progresses, transition as necessary new pavement to existing for the safe passage of traffic.

ITEM 506 - TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

Obtain the Engineer's approval for proposed methods used for erosion control before starting each phase of construction.

Stockpile 4-inch by 8-inch (4" x 8") rock for emergency erosion control use, as directed. Place this rock in ditches and other areas, as directed. The Contractor will be reimbursed in accordance with Pertinent Items or Article 9.5, "Force Account."

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Place temporary sediment fence at locations where large roadside guide signs and new overhead sign structures are installed. In addition, place temporary sediment fence at those locations where existing large guide signs and structures are to be removed.

Double-bag all sandbags used for erosion control Items. Consider subsidiary to pertinent Items.

ITEMS 528, 531 and 536
Reinforcement will be in accordance with Item 432.3.1 unless shown on the plans. Fiber reinforcement is not allowed. Class A and B Concrete are allowed to use Coarse Aggregate Grades 1-8. Expansion joints will be placed every 40 ft. Expansion joints must be 1" wide asphalt board and flush with the surface. The bottom of the joint shall be at half the depth of the concrete. Sidewalk cross slope must not exceed 1.5%.

All sidewalks and ramps must conform to ADA and TAS standards. The maximum sidewalk longitudinal slope is 5%. The maximum cross slope is 2%. For curb ramps, the maximum longitudinal slope is 8.333%. For curb ramp landings, the maximum slope is 2% in all directions.

Unless shown on the plans or in the pay items, all concrete will be 5 in. thick and have 2 in. sand, base, or RAP bedding. Furnish base meeting the requirement for any type or grade in accordance with Item 247. Base compressive strengths are waived. RAP must be 100% passing a 1 in. sieve. Bedding must be placed using ordinary compaction.

If roots are encountered verify with the Engineer prior to accommodating or removing 2 in. diameter or larger roots. Root removal must be in accordance with Item 752.4.2. Roots may remain in the bedding or base. For improvements within 6 in. of a root, the concrete thickness may be reduced by 1 in. and the bedding increased by 1 in. to minimize impacts to the roots. Adjust bedding and surface profile to provide a 1 in. bedding cushion around the roots. The surface profile may be adjusted to the extent allowed by ADA. This work is subsidiary.

ITEM 530 – INTERSECTIONS, DRIVEWAYS, AND TURNOUTS
Coordinate and notify property owners a minimum of 48 hours in advance of beginning work on their driveways. Provide, City Engineer a list of each notification and contact prior to each closure.

Provide access, at all times, to adjacent property. Construct driveways one-half sections, to allow access.

Do not completely close driveways for reconstruction purposes, unless a reasonable alternate access exists to the property, as approved.

ITEM 560 - MAILBOX ASSEMBLIES

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Supplement each new mailbox installation with Type 2 object marker placed on the mailbox support in a vertical position 6 in. below the bottom of the mailbox.

Reflective tape may be used to simulate a Type 2 marker placed on tubular supports. Use tape that meets DMS-8600. The simulated marker will consist of three (3)--2¾-inch x 2¾-inch pieces of yellow high intensity tape spaced 1 inch apart.

The Type 2 marker will consist of OM-2SR or OM-2VP object markers if delineator post supports are used. Bi-directional brackets may be required on Size 2 mailbox installations. Consider subsidiary to the pertinent Items.

ITEM 644 - SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES
Fabricate all small signs not detailed on the plans in conformance with the latest edition of the "Standard Highway Sign Designs for Texas."
http://www.txdot.gov/business/resources/highway.html

Street name signs shall consist of white letters with a red and blue background and shall be retro-reflective. Standard street name signs will be composed of lower-case letters at least 4 inches in height with initial upper-case letters being at least 6 inches in height. Signs will be double sided.

The street name sign background colors will be "SafeLane Kyle Red" and SafeLane Kyle Blue" and the white lettering will be high intensity grade reflective sheeting. The wording font will be "Transport". All retro-reflective sheeting must conform to the Texas Department of Transportation material specification DMS-8300.

Street name signs that have supplemental lettering to indicate the type of street (such as Lane, Avenue, or Road) may be in smaller lettering at least 3 inches tall and may use standard abbreviations (such as Ln, Ave, or Rd.) as noted in city plans.

Street name sign blanks shall be 9" in height by variable length by .125" thick. All street name sign blanks must be alodized aluminum with radius corners. All street name sign blanks must conform to the Texas Department of Transportation material specification DMS-7110.

All street name signs shall be in conformance with the City of Kyle Standards and include the City of Kyle logo.

All street name signs will be finished with a clear anti-graffiti film.

Square tubing shall not be used for sign posts.

ITEM 662, 666, & 672

Notify the Engineer at least 24 hours in advance of removing existing striping and placing pavement markings & markers.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-ALL-GN-GENNOTE12.sht

NO. ISSUES BY DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 10L
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-ALL-GN-GENNOTE12.sht
Plot Driver: HP DesignJet 500 PS3 Level: Default
Plot Scale: 20.0000 '/ in. Model: Default
Date: May. 22, 2018 - 11:54:50 AM Project: Freese and Nichols, Inc.

Apply markings during good weather unless otherwise directed. If markings are placed at Contractor's option, when inclement weather is impending, and the markings are damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the markings if required.

ITEM 662 - WORK ZONE PAVEMENT MARKINGS

Place temporary pavement markings each night, as directed. Temporary flexible-reflective tabs will not be allowed as temporary pavement marking on the various roadways, unless otherwise approved.

If Temporary Flexible Reflective Tabs are allowed replace any missing tabs daily. If tabs are used, replace tabs at the Contractor's expense.

Remove work zone pavement markings within 48 hours after permanent striping has been completed.

Foil backed pavement markings will not be allowed.

ITEM 666 - REFLECTORIZED PAVEMENT MARKINGS
Apply Type I Reflectorized Pavement Markings no sooner than 14 days after applying the final course of HMACP, unless otherwise directed.

Reference existing channel islands, gores, and lane striping before commencing work. Provide referencing that will include a sketch of the layout to the Engineer. Obtain approval for placement of guide marks from the Engineer before installing any permanent pavement markings. Consider subsidiary to the pertinent Items.

If TY II material is used (vs. an acrylic or epoxy) as the sealer for the TY I markings, place the TY II a minimum of 14 calendar days (to provide adequate curing) before placing the TY I markings.

ITEM 672 - RAISED PAVEMENT MARKERS
Place the bituminous adhesive at a temperature range of 380°F to 390°F. Place the pavement marker on the bituminous adhesive approximately 20 seconds after the adhesive is placed on the pavement. Ensure the pavement marker rests solely on the adhesive and not the pavement surface. Ensure that a minimum of ⅛ in. layer of bituminous adhesive remains between the pavement marker and the pavement surface.

COA ITEMS: WATER AND WASTEWATER CONSTRUCTION NOTES

Pipe material for water mains shall be PVC (AWWA C-900). Water services (2" or less) shall be polyethylene tubing (200 psi, DR14).

Pipe material for pressure wastewater mains shall be PVC (200 psi. SDR21). Pipe material for gravity wastewater mains shall be PVC (SDR 26). SDR-35 wastewater is not allowed in the right of way or public easement.

Project Number: KYL14284 **Sheet:** 10
City: Kyle **County:** Hays
Highway: N. Burleson Street

All wastewater main, excluding service lines. shall be mandrel tested per TCEQ (Texas Commission on Environmental Quality) criteria. A mandrel test will not be performed until backfill has been in place for a minimum 30 days.

Unless otherwise accepted by the City Engineer, depth of cover for all lines out of the pavement shall be 42"' min. and depth of cover for all lines under pavement shall be a min. of 30" below subgrade. Prior to excavating for water line placement, the Contractor is responsible for submitting water line vertical profile for Inspector review. This work will be subsidiary to bid item.

Where a water or wastewater line crosses below a storm sewer structure and the top of the pipe is within 18" of the bottom of the utility structure, the pipe shall be encased with concrete for a distance of at least 1' on either side of the ditch line of the utility structure or the storm sewer. Concrete encasement will not be required for ductile iron pipe with sizes larger than 12". Concrete encasement shall conform to the City of Austin standard detail.

All manholes shall be concrete with cast iron ring and cover. All manholes located outside of the pavement shall be bolted covers. Tapping of fiberglass manholes shall not be allowed. All manholes shall be coated with 80 mil of Raven Lining System or approved equal.

All pipe bedding material shall conform to the City of Austin Standard Detail. Sand must be washed/manufactured san, not pit run.

All fire hydrant leads shall be ductile iron pipe (AWWA C-100, min. class 150).
All iron pipe and fittings shall be wrapped with a minimum 11 8-mil polyethylene film prior to placing concrete.

The Contractor shall contact the City Inspector to coordinate utility tie-ins and notify him at least 48 hours prior to connection to existing lines.

The Contractor, at his expense, shall perform quality testing for all wastewater pipe installed and pressure pipe hydrostatic testing of all water lines constructed and shall provide equipment included pumps, gauges, supplies, and labor necessary to perform the tests.

Quality and pressure testing shall be monitored by City of Kyle personnel. Water samples will be collected by the City of Kyle, after all fees are paid in accordance to City of Kyle's fee schedule, to verify each treated line has attained an initial chlorine concentration of 50 ppm.

The Contractor shall coordinate testing with the City of Kyle and provide no less than 24 hours' notice prior to performing sterilization, quality testing or pressure testing.

The Contractor shall not open or close any valves unless authorized by the City of Kyle.

All valve boxes and covers shall be cast iron.

A double check backflow device in a vault shall be installed adjacent the right of way or public easement on private property on all private fire lines.

FREESE AND NICHOLS, INC
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STATE OF TEXAS
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5/22/2018
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

F&N JOB NO. KYL14284
DATE 5/22/18
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REVISED
CHECKED JNR
FILE NAME CV-ALL-GN-GENNOTE13.sht

NO. ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 10M
TOTAL 292

Project Number: KYL14284
City: Kyle
Highway: N. Burleson Street

Sheet: 10
County: Hays

All water service, wastewater service and valve locations shall be appropriately marked as follows:

Water service	"W" on top of curb
Wastewater service	"S" on top of curb
Valve	“V” on face of curb

The Contractor is hereby notified that connecting to, shutting down, or terminating existing utility lines may have to occur at off-peak hours. Such hours are usually outside normal working hours and possibly between 12 a.m. and 6 a.m.

All fire hydrants shall be National Standard Hose Thread.

All material tests, including soil density tests and related soil analysis, shall be accomplished by an independent laboratory funded by the developer in accordance with the specifications.

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
GENERAL NOTES AND SPECIFICATIONS

NO.	ISSUES	BY	DATE

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REVISED
CHECKED JNR
FILE NAME CV-ALL-GN-GENNOTE14.sht

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0 1"

SHEET 10N
TOTAL 292

LEGEND

- BENCHMARK
- IRON ROD FOUND
- IRON ROD WITH CAP FOUND
- COTTON SPINDLE FOUND
- GROUND LIGHT
- GUY POLE
- POWER POLE
- GUY WIRE ANCHOR
- LIGHT POLE
- HIGH VOLTAGE POWER POLE
- RAILROAD SIGNAL
- AC AIR CONDITIONER UNIT
- ALARM ALARM/MOTION SENSOR
- ECON ELECTRIC CONDUIT
- E ELECTRIC METER
- E ELECTRIC JUNCTION BOX
- ET ELECTRIC TRANSFORMER
- FO FIBER OPTIC MARKER
- TV TV CABLE MARKER
- TV TV JUNCTION BOX
- TEL TELEPHONE JUNCTION BOX
- TMH TELEPHONE MANHOLE
- T TELEPHONE MARKER
- T TELEPHONE PEDESTAL
- GV GAS VALVE
- G GAS METER
- CO CLEAN OUT
- SSMH SANITARY SEWER MANHOLE
- DRAIN INLET
- STMH STORM DRAIN MANHOLE
- BIB WATER FAUCET
- FH FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- W WATER METER
- WATER VALVE
- TCB TRAFFIC CONTROL BOX
- BOLLARD
- REFLECTOR POST
- SIGN POST
- PED PEDESTRIAN SIGNAL LIGHT
- TSP TRAFFIC SIGNAL LIGHT
- HCP HANDICAP PARKING SPACE
- GUARDRAIL
- FLAG POLE
- MB MAILBOX
- POST POST
- TD TRASH DISPOSAL CONTAINER
- CAR VACUUM MACHINE
- CULVERT PIPE
- — 00 — CHAIN LINK FENCE
- — // — WOOD FENCE
- — x — BARBED WIRE FENCE
- — □ — HOG WIRE FENCE
- WROUGHT IRON FENCE
- — o — PIPE FENCE
- --OHE-- OVERHEAD ELECTRIC LINE
- --HV-- HIGH VOLTAGE TRANSMISSION LINE
- --G-- UNDERGROUND GAS LINE
- --T-- UNDERGROUND TELEPHONE LINE
- --W-- UNDERGROUND WATER LINE
- --SS-- UNDERGROUND SANITARY SEWER LINE
- BORE HOLE
- TREE TAG NO. TREE AND CRITICAL ROOT ZONE DIAMETER
- ------- LOT LINE
- UTLITY TO BE ABANDONED OR REMOVED
- ------- MAJOR CONTOUR
- ------- MINOR CONTOUR
- — — — EASEMENT
- REDUCER
- COMBINATION AIR RELEASE AND VACUUM VALVE
- PROPOSED VALVE
- --W--| PROPOSED CUT & PLUG
- (S) PROPOSED SANITARY SEWER MANHOLE
- — W — PROPOSED WATER LINE
- — SS — PROPOSED SANITARY SEWER LINE
- — — — PROPOSED RIGHT OF WAY
- — — — EXISTING RIGHT OF WAY

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

LEGEND

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
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SHEET 11
TOTAL 292

ROADWAY - BASE BID

ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS																					TOTAL
			73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	94	96	97	
TxDOT 100 6002	PREPARING ROW	STA	4	4	4	3.5	4.5	4	4	4	4	4	4	4	4	1	3	4	4	2				66
TxDOT 106 6002	OBLITERATING ABANDONED ROAD	SY																		331	722			1053
TxDOT 110 6001	EXCAVATION (ROADWAY)	CY	1093	510	1093	717	1267	825	693	930	1307	1977	1605	955	232	128			83	247				13662
TxDOT 132 6005	EMBANKMENT (FINAL) (ORD COMP) (TY C)	CY	31	202	19	75	82	61	236	129	6	24	5	47	866	2			2	3				1790
TxDOT 160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	214	426	727	658	905	232	329	278	566	766	838	691	731	94			169	659				8283
TxDOT 164 6027	CELL FBR MLCH SEED (PERM)(URBAN)(CLAY)	SY	214	426	727	658	905	232	329	278	566	766	838	691	731	94			169	659				8283
TxDOT 166 6002	FERTILIZER	TON	0.04	0.09	0.15	0.13	0.19	0.05	0.07	0.06	0.12	0.16	0.17	0.14	0.15	0.02			0.03	0.14				1.70
TxDOT 168 6001	VEGETATIVE WATERING	MG	2	4	6	6	8	2	3	3	5	7	7	6	6	1			2	6				74
TxDOT 247 6366	FL BS (CMP IN PLC) (TY A GR 5) (FNAL POS) (6")	CY		137	360	275	462	341	368	375	372	449	403	341	343									4226
TxDOT 260 6002	LIME (HYDRATED LIME (SLURRY))	TON		21	54	41	69	51	55	56	55	66	59	50	50									627
TxDOT 260 6009	LIME TRT (SUBGRADE)(10")	SY		819	2160	1648	2768	2045	2204	2247	2228	2692	2413	2045	2056									25325
TxDOT 310 6005	PRIME COAT (AE-P)(0.20 GAL/SY)	GAL		164	432	330	554	409	441	450	446	539	483	409	412									5069
SS 6789	GEOGRID REINFORCEMENT (MSAL)	GAL		819	2160	1648	2768	2045	2204	2247	2228	2692	2413	2045	2056									25325
TxDOT 341 6008	D-GR HMA TY-B PG64-22 (3")	TON		113	309	236	396	292	314	320	318	384	341	292	261									3576
TxDOT 341 6008	D-GR HMA TY-B PG64-22 (8")	TON	998	594																				1592
TxDOT 341 6030	D-GR HMA TY-C SAC-B PG76-22 (2")	TON		75	206	158	264	195	210	213	212	256	227	195	174									2385
TxDOT 341 6030	D-GR HMA TY-C SAC-B PG76-22 (2") (OVERLAY)	TON															92	123	94					309
TxDOT 341 6030	D-GR HMA TY-C SAC-B PG76-22 (LEVEL UP)	TON															92	123	94					309
TxDOT 341 6030	D-GR HMA TY-C SAC-B PG76-22 (3")	TON	309	189															44	147				689
TxDOT 354 6045	PLANE ASPH CONC PAV (2")	SY															799	1067	816					2682
TxDOT 423 6001	RETAINING WALL (MSE)	SF																				2689	2729	5418
TxDOT 423 6008	RETAINING WALL (CAST-IN-PLACE)	SF	557	463					56															1076
TxDOT 450 6042	RAIL (TY PR1)	LF																				193	415	608
TxDOT 450 6051	RAIL (HANDRAIL) (TY E)	LF												24										24
TxDOT 528 6004	LANDSCAPE PAVERS	SY	64																					64
TxDOT 529 6008	CONC CURB & GUTTER (TY II)	LF	782	600	545	470	761	800	813	803	824	920	821	734	1274	150					113			10410
TxDOT 529 6021	CONC CURB & GUTTER (SAWTOOTH)	LF		45	71	58	10							24										208
TxDOT 530 6004	DRIVEWAYS (CONC)	SY	92	342	217	214	112			36				51						10				1074
TxDOT 531 6001	CONC SIDEWALKS (4")	SY	383	287	14	7	163		197	215	214	320	275	267	234	69								2645
TxDOT 531 6004	CURB RAMPS (TY 1)	EA	9	1																				10
TxDOT 531 6010	CURB RAMPS (TY 7)	EA	4	7	2	2	4				4	4	2		2									31
TxDOT 531 6013	CURB RAMPS (TY 10)	EA							2	2														4
TxDOT 550 6001	CHAIN LINK FENCE (INSTALL) (6')	EA														120								120
TxDOT 560 6001	MAILBOX INSTALL-S (TWG-POST) TY 1	EA	1																					1
TxDOT 560 6001	MAILBOX INSTALL-S (SPECIAL - BRICK)	EA	1																					1

UTILITES - BASE BID

ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS																TOTAL
			226	227	228	229	230	231	235	236	237	238	239	240	241	242	243	244	
TxDOT 247 6366	FLEXIBLE BASE (GRAVEL PAVEMENT REPAIR)	SY													20				20
TxDOT 341 6043	D-GR HMA TY-C PG70-22 (PAVEMENT REPAIR)	SY														32			32
COA 402S-A	FLOWABLE FILL ENCASEMENT	LF												72					72
COA 505S-A	CONCRETE ENCASEMENT	LF							296									47	343
COA 505S-B	16" STEEL CASING BY OPEN CUT	LF						20										8	28
COA 501S	16" STEEL CASING BY BORE	LF								30	50								80
COA 501S	24" STEEL CASING BY BORE	LF	80		76			132											288
COA 506S MWW	MANHOLE (4' DIAMETER)	EA							2	1	1	1	1	2	1		2	3	14
COA 506S DWW	DROP MANHOLE (4' DIAMETER)	EA							1	1	1	2	1					1	7
COA 506S EDM	EXTRA DEPTH FOR MANHOLE (4' DIAMETER)	VF							2	5	8	8	2	3			5	11	44
COA 506S AB	ABANDON EXISTING MANHOLE	EA									1	3	1						5
COA 506	REMOVE EXISTING MANHOLE	EA							1	1								3	5
COA 506	CONNECTION TO EXISTING MANHOLE	EA												1					1
COA 506	STRUCTURAL LINING OF MANHOLE	VF												8					8
COA 509S-1	TRENCH SAFETY	LF	1474	1369	1168	1326	1223	567	439	471	450	499	506	405	454	377	588	148	11464
COA 510-AWW	6" PVC WASTEWATER LINE (SDR-26)	LF												4	54	27	129		214
COA 510-AWW	6" PVC PRESSURE RATED WASTEWATER LINE (DR-25)	LF																	0
COA 510-AWW	8" PVC WASTEWATER LINE (SDR-26)	LF								144	500	499	506	401	400	350	459	9	3268
COA 510-AWW	8" PVC PRESSURE RATED WASTEWATER LINE (DR-25)	LF							100	357									457
COA 510-AWW	12" PVC WASTEWATER LINE (SDR-26)	LF																139	139
COA 510-AWW	12" PVC PRESSURE RATED WASTEWATER LINE (DR-25)	LF							339										339
COA 510	NEW SERVICE & CLEANOUT	EA													2	1	5		8
COA 510	CUT/PLUG EXISTING WASTEWATER LINE	EA							1	1	1	2	1						6
COA 511	CONNECT TO EXISTING WASTEWATER LINE	EA							1	1	1	2	1				1	2	9
COA 510-AWRJ	2" PVC WATERLINE (SCH. 80) & FITTINGS	LF	69	14															145
COA 510-AWRJ	4" PVC WATERLINE (AWWA C-900, DR-14) & FITTINGS	LF				45													45
COA 510-AWRJ	6" PVC WATERLINE (AWWA C-900, DR-14) & FITTINGS	LF	26	69	20			170											285
COA 510-AWRJ	6" DI WATER LINE (AWWA C-100, MIN CLASS 150) & FITTINGS	LF	79	38	32	31	20	16											216
COA 510-AWRJ	8" PVC WATERLINE (AWWA C-900, DR-14) & FITTINGS	LF	380	248	192	250	203												1273
COA 510-AWRJ	12" PVC WATERLINE (AWWA C-900, DR-14) & FITTINGS	LF	1000	1000	1000	1000	1000	371											5371
COA 510-AWRJ	12" DI WATER LINE (AWWA C-100, MIN CLASS 150) & FITTINGS	LF						142											142
COA 510	CUT/PLUG EXISTING WATER LINE	EA	11	7	2	4	3	1											28
COA 511	CONNECT TO EXISTING WATER LINE	EA	11	7	2	5	3	1											29
COA 510-IR	RELOCATE EXISTING SERVICE LINE	EA	6	4	1	1	3												15
COA 511S-A	6" GATE VALVE	EA		2	2			1											5
COA 511S-A	8" GATE VALVE	EA	12	5	2	5	3												27
COA 511S-A	12" GATE VALVE	EA	9	6	4	4	4	7											34
COA 511S-B	FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE	EA	4	3	1	3	2	2											15
COA 511S-F	1" COMBINATION AIR VALVE	EA	1				1												2

SW3P - BASE BID

ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS											TOTAL
			248	249	250	251	252	253	254	255	256	257	258	
TxDOT 506 6001	ROCK FILTER DAMS (INSTALL)(TY 1)	LF		112	213	66	50	78	57	76	80			732
TxDOT 506 6011	ROCK FILTER DAMS (INSTALL)(REMOVE)	LF		112	213	66	50	78	57	76	80			732
TxDOT 506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	450	576	715	127	782	371	725	780	608	827	293	6254
TxDOT 506 6038	TEMP SEDMT CONT FENCE (INLET PROTECTION)	LF		95	115	40	58			81	144	124	25	682
TxDOT 506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	450	671	830	167	840	371	725	861	752	951	318	6936

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SUMMARY - BASE BID

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

FNI JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	MJM
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FILE NAME	CV-ALL-GN-SUMMARY01.sht

SHEET 12
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-ALL-GN-SUMMARY01.sht
Project: KYL14284 CV-ALL-GN-SUMMARY01.dgn
Plot Scale: 2.0000 '= 1.0000 "
Date: May. 25, 2018 - 05:28:17 PM
Model: Default
Project: Freese and Nichols, Inc.

STORM WATER - BASE BID																
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS													TOTAL
			150	151	152	153	154	155	156	157	158	159	160	161	174	
TXDOT 104 6015	REMOVING CONC (SIDEWALK)	SY													190	190
TxDOT 110 6003	EXCAVATION (POND)	CY							7						7406	7413
TXDOT 110 6002	EXCAVATION (CHANNEL)	CY												150	1048	1198
TxDOT 132 6005	EMBANKMENT (RAIN GARDEN)	CY		17	27	37	17									98
TxDOT 132 6005	EMBANKMENT (POND)	CY												10	50	60
TxDOT 160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY												70	8710	8780
TxDOT 162 6002	BLOCK SODDING	SY												70	8710	8780
TxDOT 402 6001	TRENCH EXCAVATION PROTECTION	LF	462	488	414	339	448	436	573	430	475	748	442			5255
TXDOT 420 6007	CONCRETE (DROP STRUCTURE)	CY							37							37
TXDOT 420 6007	CONCRETE (APRON W BAFFLE BLOCS)	CY							62							62
TXDOT 420 6007	CONCRETE (PILOT CHANNEL)	CY													42	42
TXDOT 420 6007	CONCRETE (RAIN GARDEN)	CY		12	15	22	8									57
TXDOT 420 6007	CONCRETE (POND HEADWALLS AND APRONS)	CY													41	41
TXDOT 422 6001	REIN CONC SLAB	SF												252		252
TxDOT 432 6002	RIPRAP (CONC) (5 IN)	CY		95	28	25										148
TXDOT SP432	RIP RAP (MITERED SLOPE)	CY													13	13
TxDOT 462 6004	CONC BOX CULV (4 FT X 3 FT)	LF							336	400	399	469	233			1837
TxDOT 462 6012	CONC BOX CULV (6 FT X 5 FT)	LF							54							54
TxDOT 462 6021	CONC BOX CULV (8 FT X 6 FT)	LF							106							106
TxDOT 464 6001	RC PIPE (CL III) (12 IN)	LF				33										33
TxDOT 464 6003	RC PIPE (CL III) (18 IN)	LF	462				56	36	33	30	76	50	102		48	893
TxDOT 464 6005	RC PIPE (CL III) (24 IN)	LF					211	304				80	56			651
TxDOT 464 6008	RC PIPE (CL III) (36 IN)	LF						96	44							140
TxDOT 464 6017	RC PIPE (CL IV) (18 IN)	LF		488	414	236	118					82	51			1389
TxDOT 464 6018	RC PIPE (CL IV) (24 IN)	LF				70	63									133
TxDOT 464 6020	RC PIPE (CL IV) (36 IN)	LF										67				67
TxDOT 465 6002	MANH (COMPL)(PRM)(48IN)	EA						1								1
TxDOT 465 6006	JCTBOX(COMPL)(PJB)(4FTX4FT)	EA				1	1									2
TxDOT 465 6009	JCTBOX(COMPL)(PJB)(5FTX5FT)	EA		1			1	1				1	1			5
TxDOT 465 6011	JCTBOX(COMPL)(PJB)(6FTX6FT)	EA										1				1
TxDOT 465 6012	JCTBOX(COMPL)(PJB)(7FTX7FT)	EA							1	1	2	3	2			9
TxDOT 465 6175	INLET (COMPL)(TY C)(5-FT)	EA		2												2
TxDOT 465 6175	INLET (COMPL)(TY C)(10-FT)	EA					3	2	2	2	5	4	2			20
TxDOT 466 6152	WINGWALL (FW-0) (HW=5)	EA							1							1
TxDOT 467 6362	SAFETY END TREATMENT (TY II)(18-IN)(RCP)(6:1)(C)	EA		6	8											14
TxDOT 467 6379	SAFETY END TREATMENT (TY II)(24-IN)(RCP)(6:1)(C)	EA				2	2									4
TXDOT 476 6023	JACK BOR OR TUN PIPE(30 IN)(RC)(CL III)	LF													48	48
TXDOT 481 6026	PIPE (PVC) (SCH 80) (12 IN)	LF		17	29	27	21									94
TXDOT 496 6006	REMOVING CONC (HEADWALL)	EA	1												2	3
TXDOT 496 6007	REMOVING CONC (RC PIPE)	LF		134	164	171	338		125		60	197			60	1249
TXDOT 7156 6001	CASING PIPE (BORE) (30" STEEL)	LF													48	48
COA 402S	CONTROLLED LOW STRENGTH MAERIAL (CLSM)	CY													1	1
COA 508S-5S	INLET, STANDARD (5 FT)	EA	5		1	1	1									8
COA 508S-10S	INLET, STANDARD (10 FT)	EA			1	3						2	1			7
COA 508S-20S	INLET, STANDARD (20 FT)	EA										2	1			3
COA 508S-A	AREA INLET, STANDARD 4 FT X 4 FT	EA					1									1
COA 620S	FILTER FABRIC	SY													18	18
COA 551	PIPE UNDERDRAIN, 6" DIA, PERF PVC	LF		32	51	70	32									185
SP551S-A	RAIN GARDEN DRAINAGE STONE	SY		47	74	87	22									230
SP551S-B	RAIN GARDEN OVERFLOW STRUCTURE	EA		1	1	1	1									4
SP591S	SPLASH PAD ROCK, 3-5 IN DIA	SY		2	3	4	2									11
COA 660S	BIOFILTRATION MEDIUM	CY		36	49	62	21									168
SS02263	PERMANENT TURF REINFORCMENT MATTING	SY													1130	1130
SS02267	HDPE GEOMEMBRANE	SY		16	26	35	16									93

PAVEMENT MARKINGS - BASE BID												
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS									TOTAL
			205	206	207	208	209	210	211	212	213	215	
TxDOT 644 6001	IN SM RD SN SUP&AM TY10BWG (1) SA (P)	EA	4	7	6	6	4	2	6				35
TxDOT 644 6004	IN SM RD SN SUP&AM TY10BWG (1) SA (T)	EA					2			1		1	4
TxDOT 666 6011	REFL PAV MRK TY I (W) 4" (SLD) (090MIL)	LF	975					29				1234	2238
TxDOT 666 6035	REFL PAV MRK TY I (W) 8" (SLD) (090MIL)	LF	100				39	27					166
TxDOT 666 6047	REFL PAV MRK TY I (W) 24" (SLD) (090MIL)	LF	62				24	22	56			167	331
TxDOT 666 6053	REFL PAV MRK TY I (W) (ARROW) (090MIL)	EA					2	2					4
TxDOT 666 6092	REFL PAV MRK TY I (RR XING) (090MIL)	EA							2				2
TxDOT 666 6125	REFL PAV MRK TY I (Y) 4" (BRK) (090MIL)	LF		326	373	319	322	336	45				1721
TxDOT 666 6128	REFL PAV MRK TY I (Y) 4" (SLD) (090MIL)	LF	1511	1497	1490	1275	1366	1400	177	1384	964		11064
TxDOT 666 6166	RE PM TY I (ACC PRK) (WHT) (SYMBOL)	EA	3										3
TxDOT 666 6170	REF PAV MRK TY II (W) 4" (SLD)	LF	975					29				1234	2238
TxDOT 666 6178	REF PAV MRK TY II (W) 8" (SLD)	LF	100				39	27				0	166
TxDOT 666 6182	REF PAV MRK TY II (W) 24" (SLD)	LF	62				24	22	56			167	331
TxDOT 666 6184	REF PAV MRK TY II (W) (ARROW)	EA	0				2	2					4
TxDOT 666 6196	REF PAV MRK TY II (W) (RR XING)	EA	0						2				2
TxDOT 666 6202	REFL PAV MRK TY II (W) (BIKE SYMBOL)	EA	#REF!					#REF!					#REF!
TxDOT 666 6205	REF PAV MRK TY II (Y) 4" (BRK)	LF	0	326	373	319	322	336	45				1721
TxDOT 666 6207	REF PAV MRK TY II (Y) 4" (SLD)	LF	1511	1497	1490	1275	1366	1400	177	1384	964		11064
TxDOT 666 6220	RE PM TY II (AAC PRK) (BL&WH) (W/BORDR) LG	EA	3										3
TxDOT 672 6007	REFL PAV MRKR TY I-C	EA	5				4	3					12
TxDOT 672 6009	REFL PAV MRKR TY II-A-A	EA	72	38	40	32	27	32	4	70	48		363
TxDOT 6120 6001	DEAD END ROADWAY BARRICADE	LF									24	16	40

ILLUMINATION - BASE BID																	
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL
			268	269	270	271	272	273	274	275	276	277	278	279	280	281	
26 56 00	TYPE "S1" POLE/FIXTURE		10	10	4	3	4	4	4	4	4	5	4	4	2		62
TxDOT 610 6032	TYPE "S2" POLE/FIXTURE (MATCH EXISTING)														1		1
26 56 00	2" CONDUIT, TRENCH & BACKFILL		800	816	445	380	502	444	452	492	442	472	448	441	295		6429
26 56 00	ELECTRIC SERVICE & METER			1													1
26 05 19	2#6 XHHW		1600	1632	890	760	884	888	904	984	884	944	896	882	590		12738
26 05 19	1#8 GRD XHHW		800	816	445	380	442	444	452	492	442	472	448	441	295		6369
26 05 33	PULLBOX, CONCRETE W/ HINGED COVER		1	2		1	1			1			1			1	8

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SUMMARY - BASE BID

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED MJM
DRAWN MJM
REVISED
CHECKED SDB
FILE NAME CV-ALL-GN-SUMMARY02.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 13
TOTAL 292

LANDSCAPING - BASE BID							
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS				TOTAL
			262	263	264	265	
TxDOT 0192	PLANT MATERIAL (65 GAL) (TREE)	EA	4	8			12
TxDOT 0192	PLANT MATERIAL (30 GAL) (TREE)	EA	1				1
TxDOT 0192	PLANT MATERIAL (5-GAL)	EA		71			71
TxDOT 0192	PLANT MATERIAL (3-GAL)	EA			200	176	376
TxDOT 0192	PLANT MATERIAL (2-GAL)	EA			296	357	653
TxDOT 0192	PLANT MATERIAL (1-GAL)	EA		102			102
TxDOT 0192	LANDSCAPE EDGE	LF		710			710
TxDOT 0162	BLOCK SODDING - BUFFALOGRASS	SY		445			445
COA SP551-A	DRAINAGE STONE (6" DEPTH) (TREE WELLS)	SY		7			7
COA 437S-B	TREE GRATE AND FRAME	EA	4				4
	3'x3'x3' LIMESTONE BOULDER	EA		3			3

ROADWAY - ALTERNATE BID						
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS			TOTAL
			91	92	93	
TxDOT 100 6002	PREPARING ROW	STA	3	4	2	9
TxDOT 110 6001	EXCAVATION (ROADWAY)	CY	58	27	92	177
TxDOT 132 6005	EMBANKMENT (FINAL) (ORD COMP) (TY C)	CY	1174	2965	65	4204
TxDOT 160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY	570	533	210	1313
TxDOT 164 6027	CELL FBR MLCH SEED (PERM)(URBAN)(CLAY)	SY	570	533	210	1313
TxDOT 166 6002	FERTILIZER	TON	0.12	0.11	0.04	0.27
TxDOT 168 6001	VEGETATIVE WATERING	MG	5	5	2	12
TxDOT 247 6366	FL BS (CMP IN PLC) (TY A GR 5) (FNAL POS) (16")	CY	677	909	337	1923
TxDOT 310 6005	PRIME COAT (AE-P)(0.20 GAL/SY)	GAL	305	410	151	866
TxDOT 341 6008	D-GR HMA TY-B PG64-22 (8")	TON	701	940	349	1990
TxDOT 341 6030	D-GR HMA TY-C SAC-B PG76-22 (3")	TON	206	292	108	606
TxDOT 529 6008	CONC CURB & GUTTER (TY II)	LF	722	800	300	1822
TxDOT 531 6001	CONC SIDEWALKS (4")	SY	333	270	144	747
TxDOT 531 6004	CURB RAMPS (TY 1)	EA	2			2
TxDOT 531 6010	CURB RAMPS (TY 7)	EA			2	2
TxDOT 550 6020	CHAIN LINK FENCE (INSTALL) (4')	LF	810	800	174	1784

PAVEMENT MARKINGS - ALTERNATE BID				
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBER	TOTAL
			214	
TxDOT 644 6001	IN SM RD SN SUP&AM TY10BWG (1) SA (P)	EA	9	9
TxDOT 644 6004	IN SM RD SN SUP&AM TY10BWG (1) SA (T)	EA	1	1
TxDOT 666 6125	REFL PAV MRK TY I (Y) 4" (BRK) (090MIL)	LF	380	380
TxDOT 666 6128	REFL PAV MRK TY I (Y) 4" (SLD) (090MIL)	LF	1612	1612
TxDOT 666 6205	REF PAV MRK TY II (Y) 4" (BRK)	LF	380	380
TxDOT 666 6207	REF PAV MRK TY II (Y) 4" (SLD)	LF	1612	1612
TxDOT 672 6009	REFL PAV MRKR TY II-A-A	EA	36	36

SW3P - ALTERNATE BID				
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS	TOTAL
			247	
TxDOT 506 6001	ROCK FILTER DAMS (INSTALL)(TY 1)	LF	25	25
TxDOT 506 6011	ROCK FILTER DAMS (INSTALL)(REMOVE)	LF	25	25
TxDOT 506 6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	751	751
TxDOT 506 6038	TEMP SEDMT CONT FENCE (INLET PROTECTION)	LF	30	30
TxDOT 506 6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	781	781

STORM WATER - ALTERNATE BID						
ITEM NUMBER	DESCRIPTION	UNIT	SHEET NUMBERS			TOTAL
			183	184	185	
TxDOT 462 6003	CONC BOX CULV (4 FT X 2 FT)	LF		235	272	507
TXDOT 464 6003	RC PIPE (CL III) (18 IN)	LF	175	200		375
TxDOT 464 6017	RC PIPE (CL IV) (18 IN)	LF	23		20	43
TXDOT 465 6006	JCTBOX(COMPL)(PJB)(4FTX4FT)	EA	1			1
TXDOT 465 6003	MANH (COMPL)(PRM)(60IN)	EA	1			1
TXDOT 465 6011	JCTBOX(COMPL)(PJB)(6FTX6FT)	EA		1		1
TxDOT 466 6179	WINGWALL (PW-1)(HW=4 FT)	EA		1		1
TXDOT 466 6151	WINGWALL (FW-0)(HW=4 FT)	EA			2	2
COA 508S-10S	INLET, STANDARD (10 FT)	EA	1		2	3
TxDOT 162 6002	BLOCK SODDING	SY		110	615	725
TxDOT 160 6003	FURNISHING AND PLACING TOPSOIL (4")	SY		110	615	725
TXDOT 110 6002	EXCAVATION (CHANNEL)	CY			84	84
TxDOT 132 6005	EMBANKMENT (GRADING)	CY		78	34	112

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

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5/29/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SUMMARY - ALTERNATIVE BID

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED MJM
DRAWN MJM
REVISED
CHECKED SDB
FILE NAME CV-ALL-GN-SUMMARY03.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 14
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-ALL-GN-SUMMARY03.sht
Plotted: 29-MAY-2018 11:02:24 AM By: MJM
Plot Scale: 2.0000 '= 1.0000 '
Date: May. 29, 2018 - 11:02:24 AM
Model: Default
Project: Freese and Nichols, Inc.

DATE: May. 22, 2018 - 11:55:07 AM
FILE: N:\IF\Drawings\CV-ALL-GN-SUMMARY04.sht

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT/ DESCRIPTION	SIGN DIMENSIONS	LEGEND SHEETING	BACKGROUND SHEETING	PLWOOD TYPE A	ALUMINUM TYPE A	ALUMINUM TYPE G	Post Type FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 S80 = Sch 80	Posts (0 or 1)	Anchor Type UA = Univ-Conc UB = Univer-Bolt WA = Wedge-Conc SA = Slip-Conc SB = Slip-Bolt	Mounting Designation P = Prefab. "Plain" T = Prefab. "T" U = Prefab "U"	1EXT or 2EXT = # of Ext. BM = Extruded Wind Beam WC = 1.12 #/ft Wing Chan. EXAL = Extruded Alum. Signs
188	1	D3-1G*	MILLER	VARIES				X		10BWG	-	-	-	
188		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
188		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
188	2	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
188	3	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
188	4	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
189	5	R3-9dP	END	30" X 12"				X		10BWG	-	-	-	
189		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
189	6	R3-9cP	BEGIN	30" X 12"				X		10BWG				
189		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
189	7	D3-1G*	BLANCO	VARIES				X		10BWG	-	-	-	
189		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
189		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
189	8	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
189	9	D3-1G*	AUSTIN	VARIES				X		10BWG	-	-	-	
189		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
189		R1-1	STOP	30" X 30"				X		10BWG	-	-	-	
189		R5-1	DO NO ENTER	30" X 30"				X		10BWG	1	SA	P	
189	10	R6-1R	ONE WAY	36" X 12"				X		10BWG	-	-	-	
189		R5-1	DO NO ENTER	30" X 30"				X		10BWG	-	-	-	
189		R6-1L	ONE WAY	36" X 12"				X		10BWG	1	SA	P	
189	11	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
190	12	D3-1G*	NORTH	VARIES				X		10BWG	-	-	-	
190		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
190		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
190	13	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
190	14	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
190	15	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
190	16	D3-1G*	SCHLEMMER	VARIES				X		10BWG	-	-	-	
190		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
190		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
190	17	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
191	18	D3-1G*	SAINT ANTHONY'S	VARIES				X		10BWG	-	-	-	
191		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
191		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
191	19	D3-1G*	MORENO	VARIES				X		10BWG	-	-	-	
191		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
191		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
191	20	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
191	21	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
191	22	D3-1G*	TENRIO	VARIES				X		10BWG	-	-	-	
191		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
191		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
191	23	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
192	24	D3-1G*	SELVERA	VARIES				X		10BWG	-	-	-	
192		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
192		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
192	25	D3-1G*	BARRERA	VARIES				X		10BWG	-	-	-	
192		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
192	26	D3-1G*	STAR OF TEXAS	VARIES				X		10BWG	-	-	-	
192		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
192		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
192	27	W1-7	TWO DIRECTION LARGE ARROW	36" X 18"				X		10BWG	1	SA	T	
192	28	D3-1G*	BELLAIR	VARIES				X		10BWG	-	-	-	
192		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
192		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
192	29	W1-7	TWO DIRECTION LARGE ARROW	36" X 18"				X		10BWG	1	SA	T	
193	30	D3-1G*	RODGRIGUEZ	VARIES				X		10BWG	-	-	-	
193		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
193		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
193	31	D3-1G*	SPRING BRANCH	VARIES				X		10BWG	-	-	-	
193		D3-1G*	BURLESON	VARIES				X		10BWG	-	-	-	
193		R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
194	32	W10-9	NO TRAIN HORN	36" X 36"				X		10BWG	1	SA	P	
194	33	R1-1	STOP	30" X 30"				X		10BWG	1	SA	P	
194	34	R3-9dP	END	30" X 12"				X		10BWG	-	-	-	
194		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
194	35	R3-9cP	BEGIN	30" X 12"				X		10BWG	-			
194		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
194	36	W10-9	NO TRAIN HORN	36" X 36"				X		10BWG	1	SA	P	
194	37	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
195	38	W14-2	NO OUTLET	30" X 30"				X		10BWG	1	SA	T	
198	39	W9-2TL	LANE ENDS MERGE LEFT	30" X 30"				X		10BWG	1	SA	T	
			ALTERNATE - BID											
197	40	R1-2	YIELD	36" X 36" X 36"				X		10BWG	1	SA	T	
197	41	W11-2	PEDESTRIAN CROSSING	36" X 36"				X		10BWG	1	SA	P	
197	42	W11-2	PEDESTRIAN CROSSING	36" X 36"				X		10BWG	1	SA	P	
197	43	R3-9dP	END	30" X 12"				X		10BWG	-	-	-	
197		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
197	44	R3-9cP	BEGIN	30" X 12"				X		10BWG	-	-	-	
197		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
197	45	R6-5P	ROUNDABOUT CIRCULATION	30" X 30"				X		10BWG	1	SA	P	
197	46	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
197	47	R2-1	SPEED LIMIT 30	24" X 30"				X		10BWG	1	SA	P	
197	48	R3-9dP	END	30" X 12"				X		10BWG	-	-	-	
197		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	
197	49	R3-9cP	BEGIN	30" X 12"				X		10BWG	-	-	-	
197		R3-9b	TWO-WAY LEFT TURN ONLY	24" X 36"				X		10BWG	1	SA	P	

ALUMINUM SIGN BLANKS (TYPE A)

Square Ft.	Min. Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.

NOTE:
SIGN D3-1G* SHALL CONFORM TO THE CITY OF KYLE STREET NAME SIGN REQUIREMENTS AS LISTED IN THE GENERAL NOTES.

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS			
11-93	7-02		
8-95	2-07		
1-02	9-08		

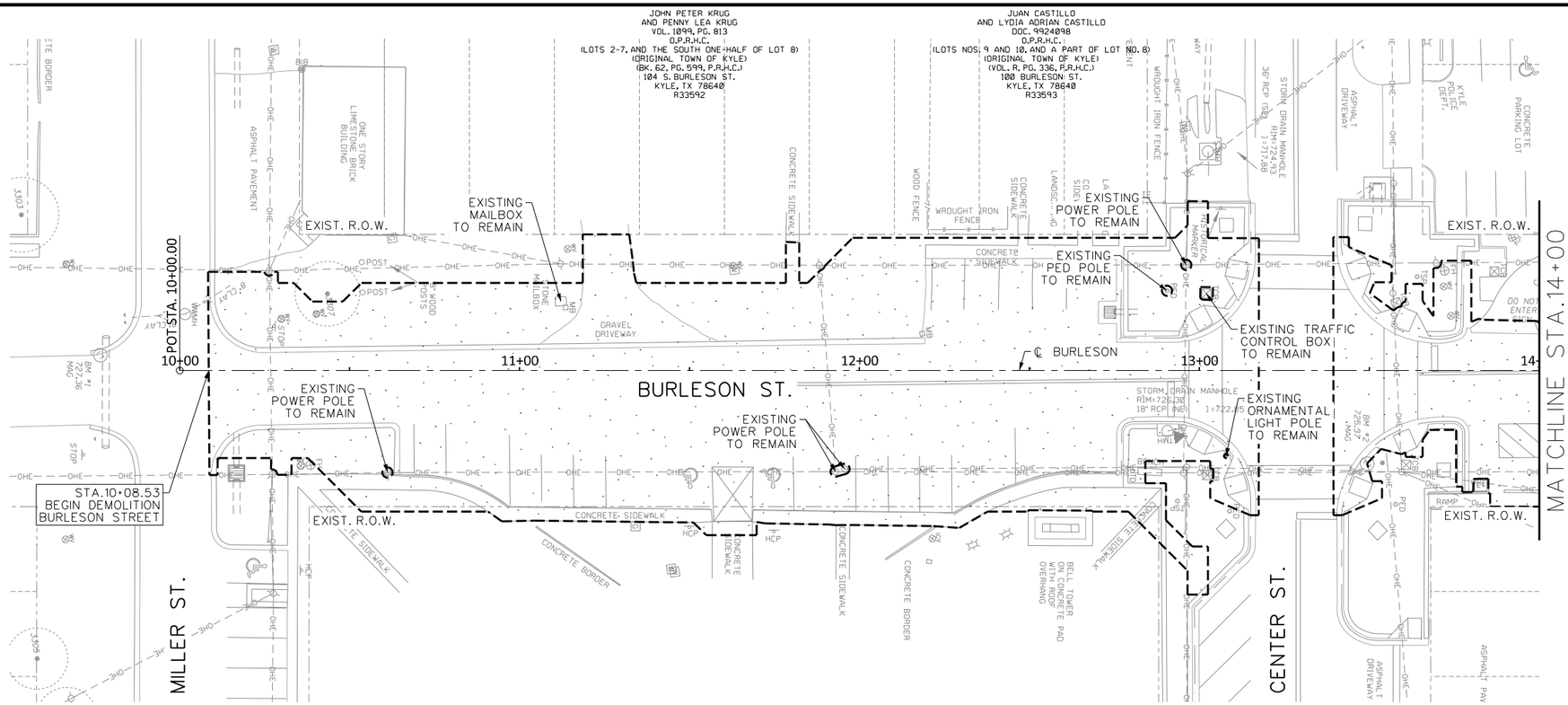
SUMMARY OF SMALL SIGNS
SOSS

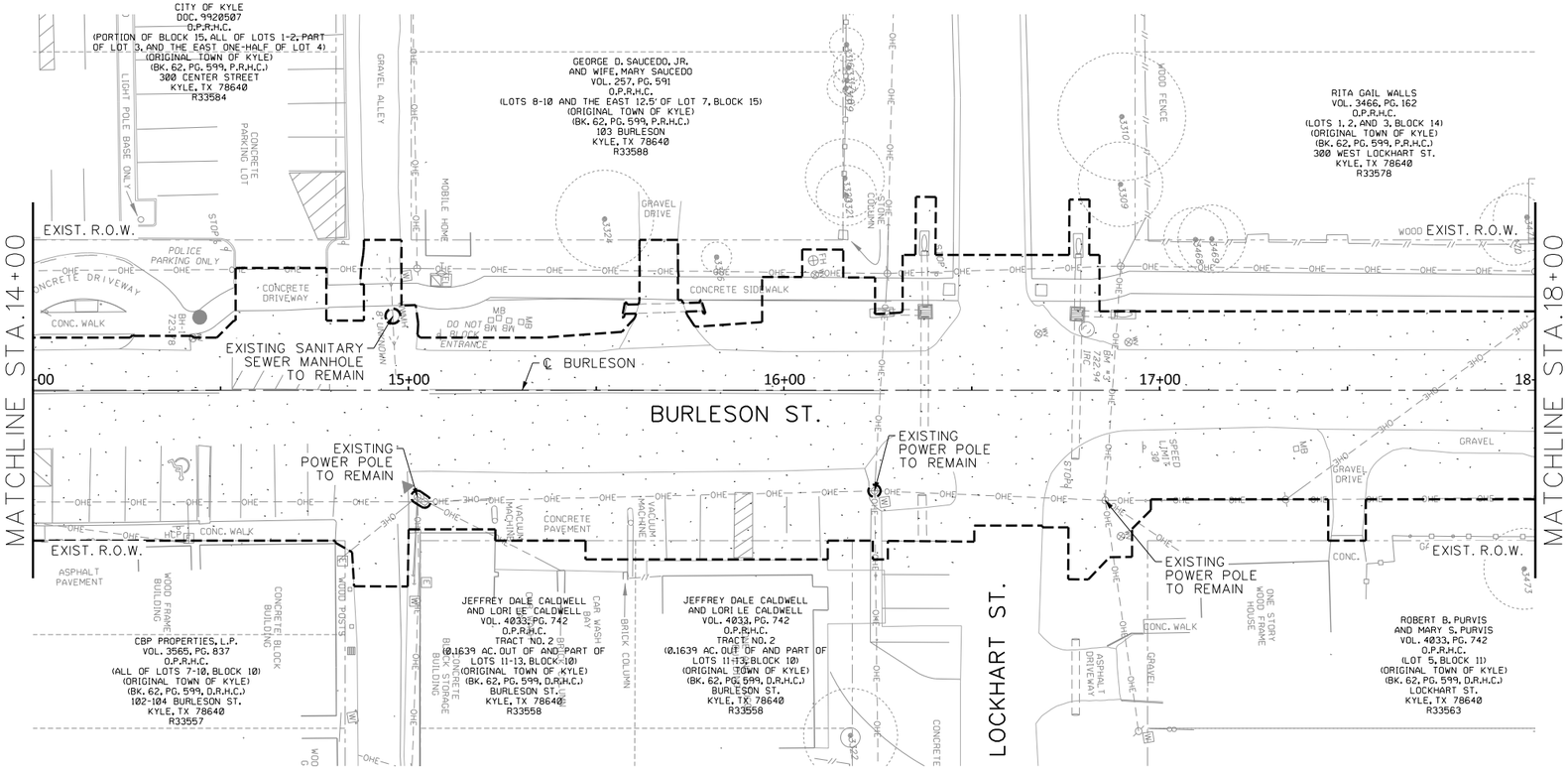
DIST	COUNTY	CONT	SECT	JOB	HIGHWAY

SHEET NO.

18

15





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.10+00 TO STA.18+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO. KYL14284

DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-DEMO01.sht

SHEET 16

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\Df\Drawings\CV-TRT-PL-DEMO1.sht
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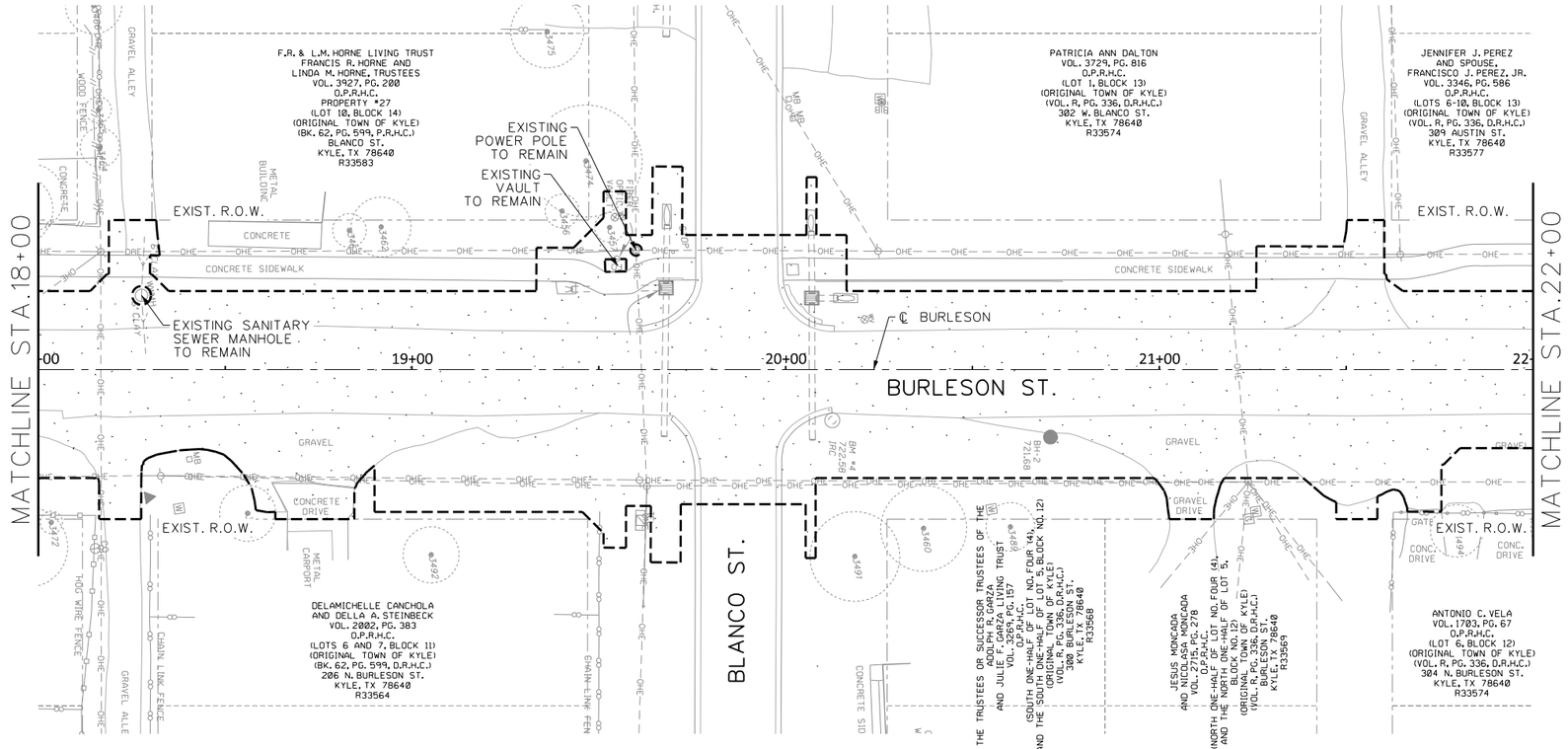

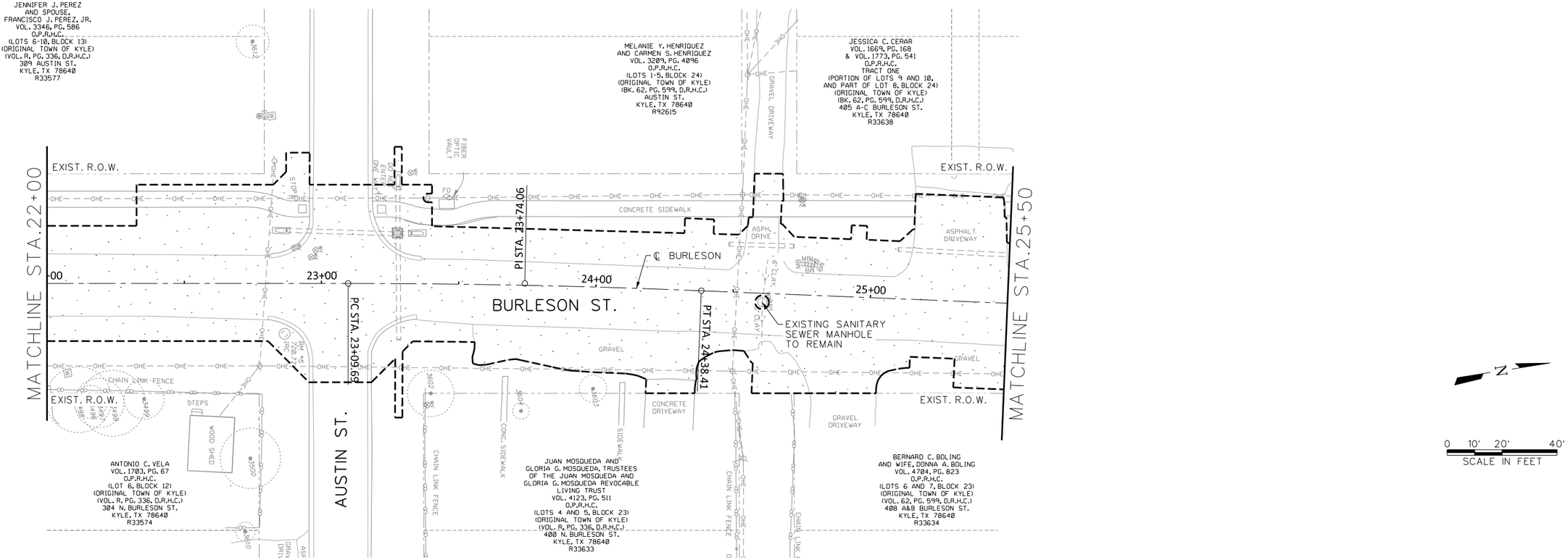

LEGEND

DEMO AREA

LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
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5/29/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.18+00 TO STA.25+50

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284

	DATE	BY
DESIGNED	5/29/18	SDB
DRAWN		MJM
REVISED		
CHECKED		JNR

FILE NAME: CV-TRT-PL-DEMO02.shl

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 17

TOTAL 292

MicroStation V8 User: 02590Office: Austin
N:\IT\Drawings\CV-TRT-PL-DEMO02.sht
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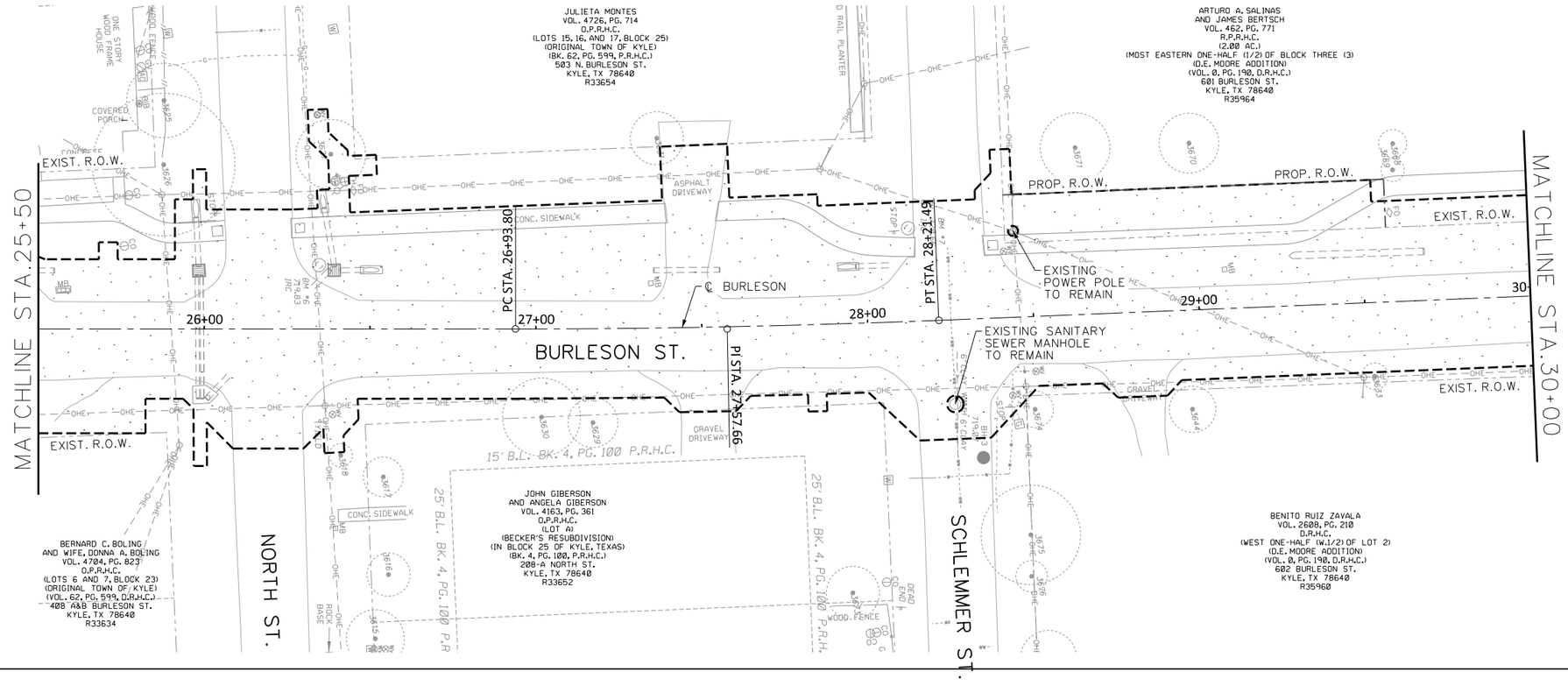
Plot Scale: 40.0000 ' / in. Model Default
Date: May. 25, 2018 - 05:29:45 PM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 25, 2018 - 05:29:45 PM User: 02590File: N:\IT\Drawings\CV-TRT-PL-DEMO02.sht

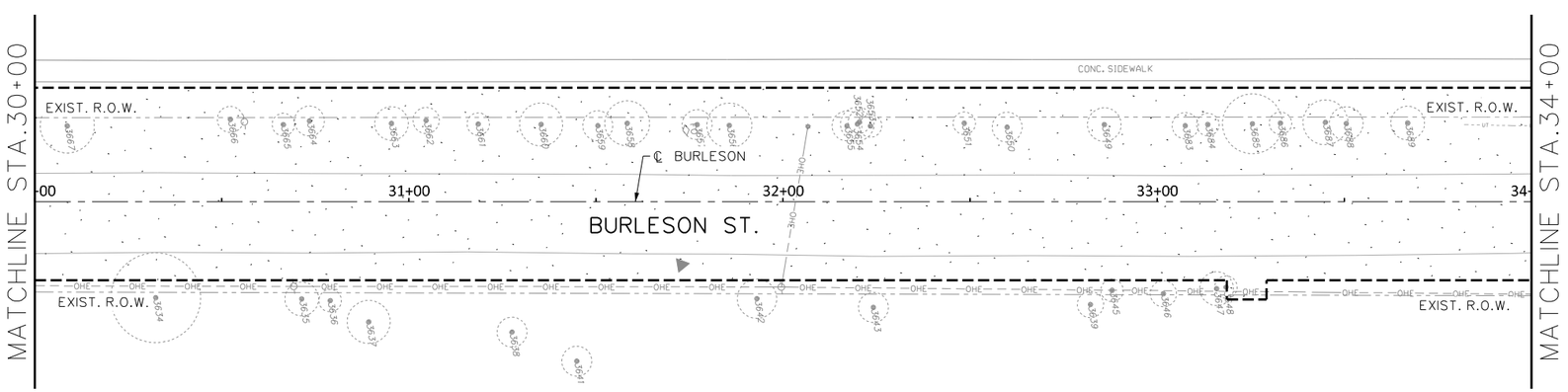


LEGEND

- DEMO AREA
- LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.



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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS STA.25+50 TO STA.34+00

F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-DEMO03.sht

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 18

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-DEMO03.sht
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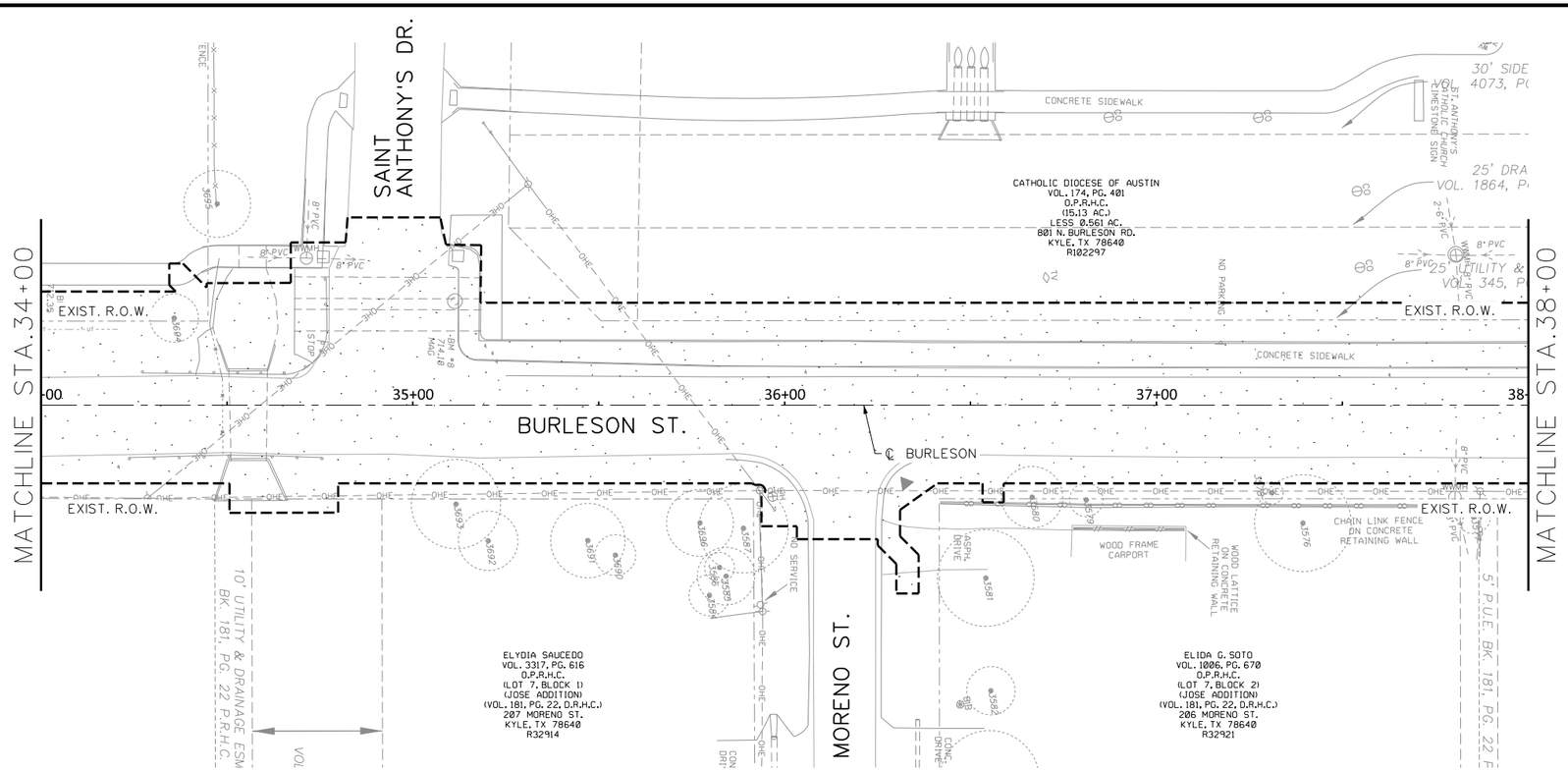

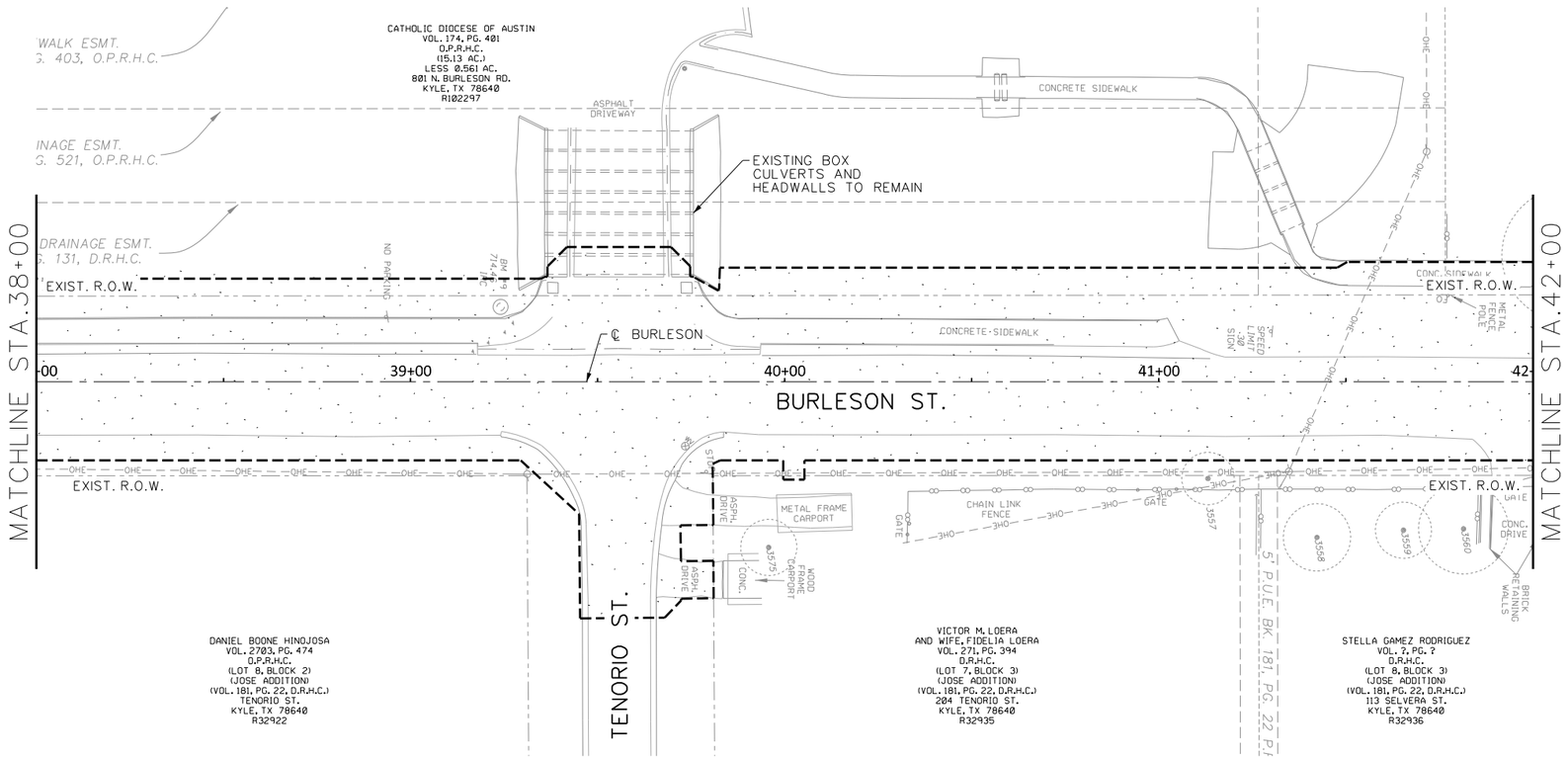

LEGEND

- DEMO AREA
- LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

N

0 10' 20' 40'
SCALE IN FEET

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

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114177
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5/29/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.34+00 TO STA.42+00

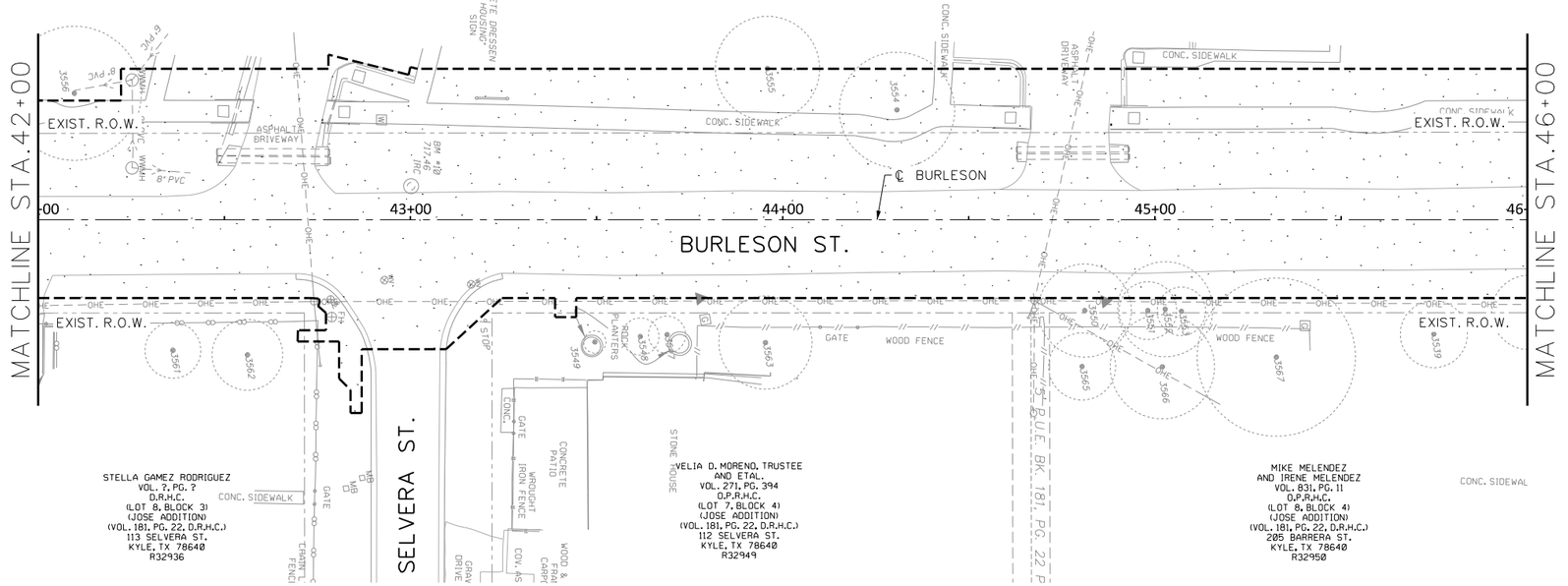
NO.	ISSUES	BY	DATE

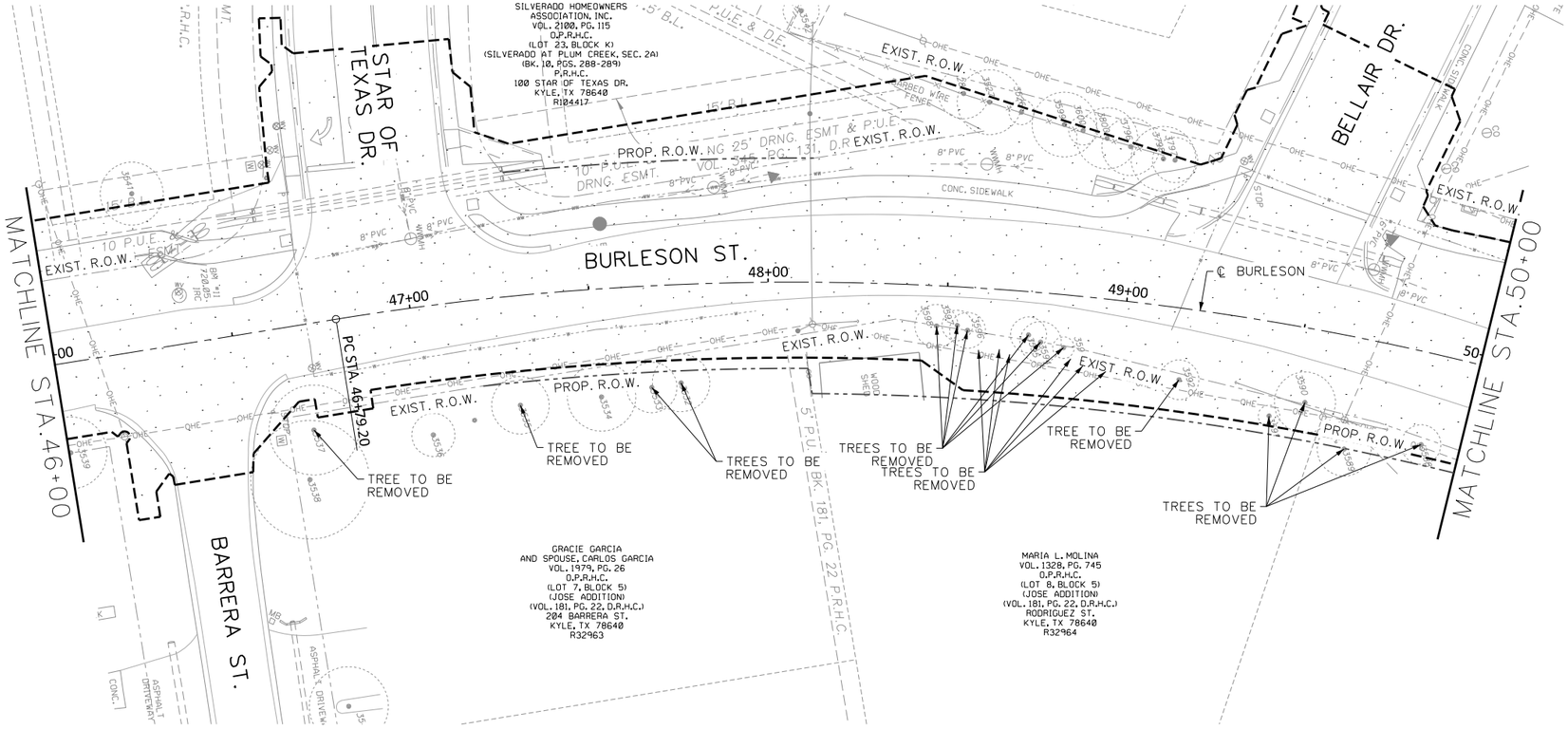
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-DEMO04.sht

SHEET 19
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\If\Drawings\CV-TRT-PL-DEMO04.sht
Plot Date: May 25, 2018 - 05:29:47 PM
Plot Scale: 40.0000 ' / in.
Plot Driver: HP DesignJet 500 PostScript.drv
Model: Default
Project: Freese and Nichols, Inc.





LEGEND

DEMO AREA

LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

N

0 10' 20' 40'
SCALE IN FEET

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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114177
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.42+00 TO STA.50+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-DEMO05.sht

SHEET 20
TOTAL 292

MicroStation V8 User: 02590ffice: Austin
K:\KYL\14284 N\1\Drawings\CV-TRT-PL-DEMO05.sht
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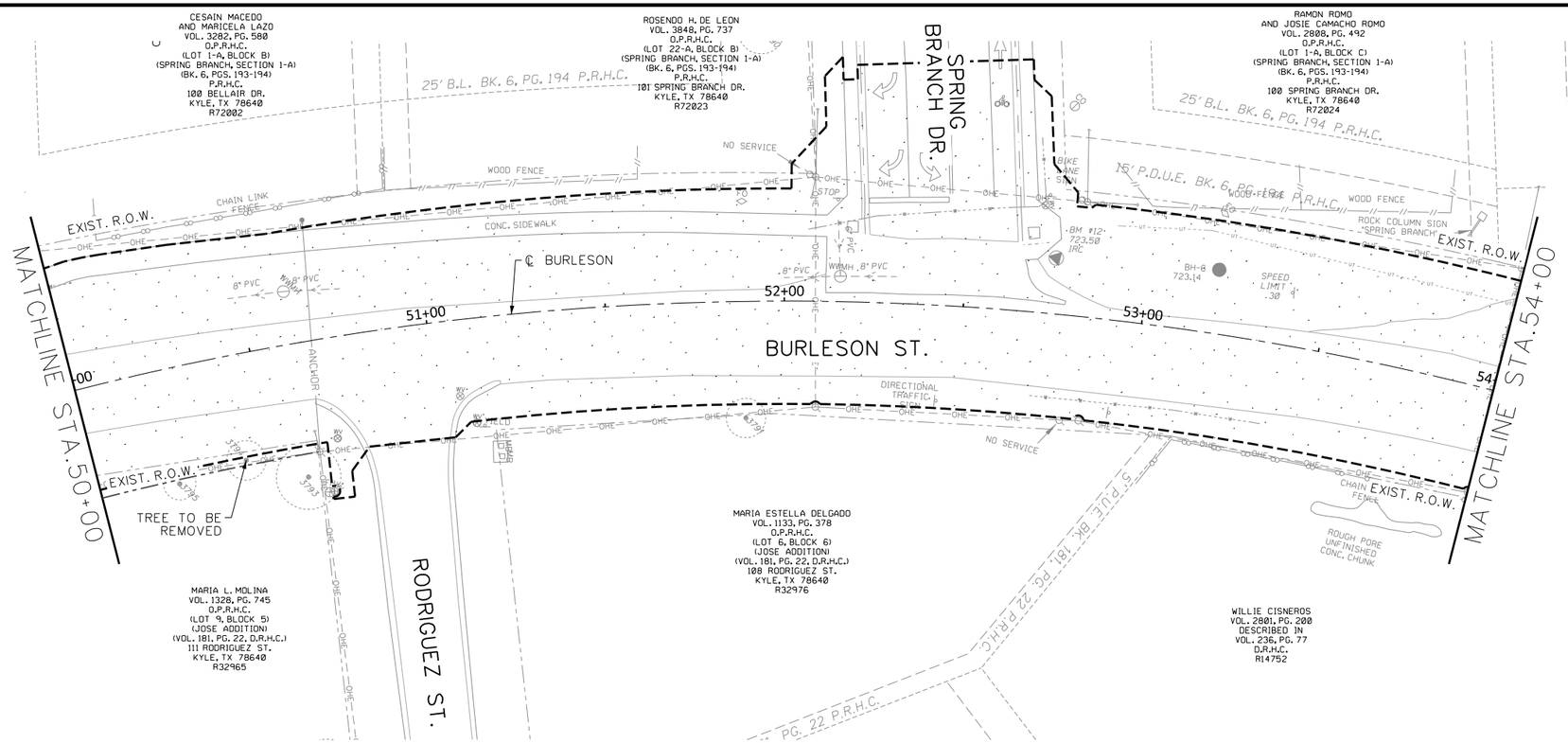
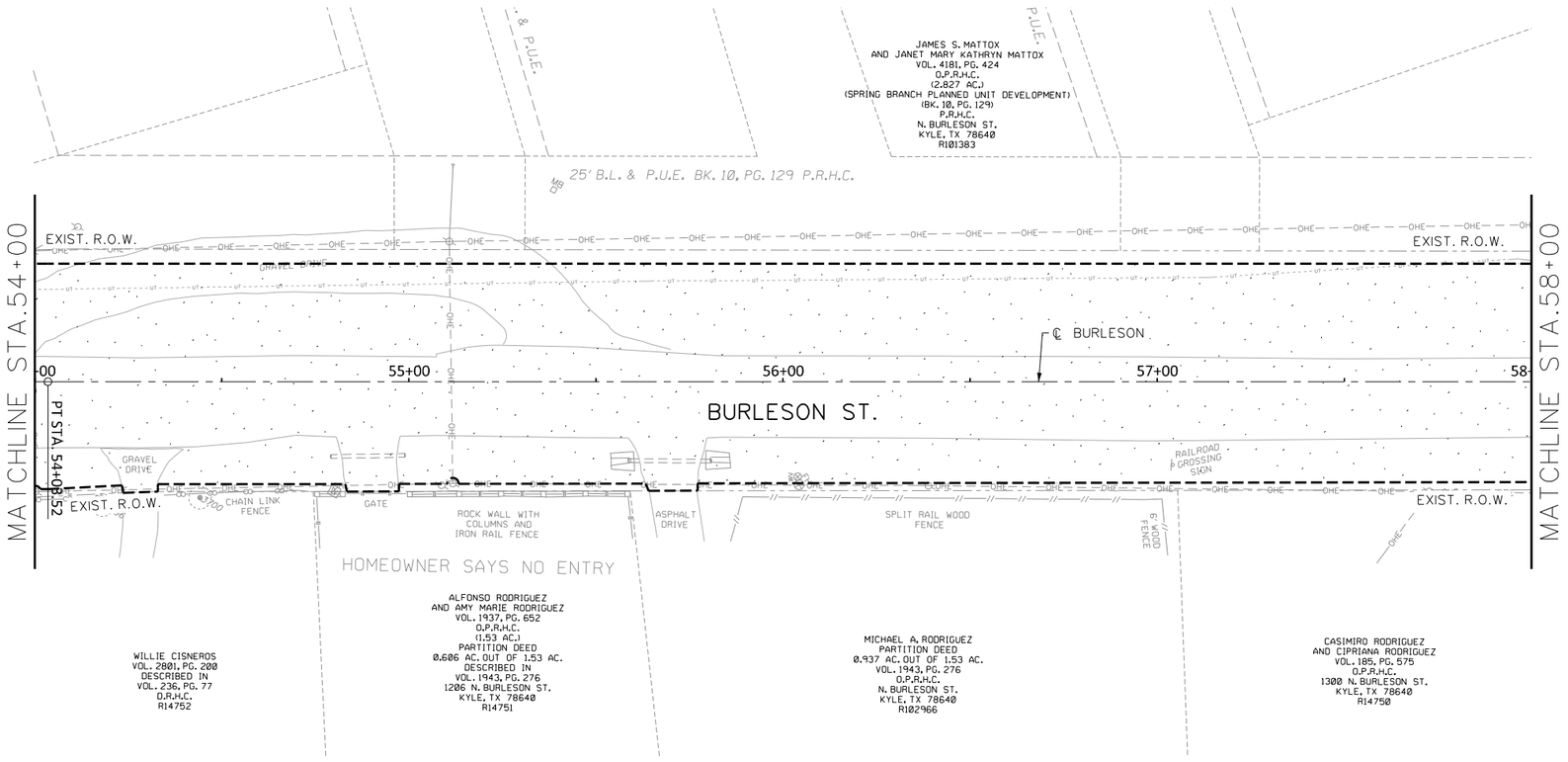
Plot Scale: 40.0000 ' / in. Model: Default
Date: May 25, 2018 - 05:29:48 PM Project: Freese and Nichols, Inc.





LEGEND

- DEMO AREA
- LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

N

0 10' 20' 40'
SCALE IN FEET

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.50+00 TO STA.58+00

F&N JOB NO.	KYL14284	
DATE	5/29/18	
DESIGNED	SDB	
DRAWN	MJM	
REVISED		
CHECKED	JNR	
FILE NAME	CV-TRT-PL-DEMO06.sht	

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 21
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tf\Drawings\CV-TRT-PL-DEMO06.sht
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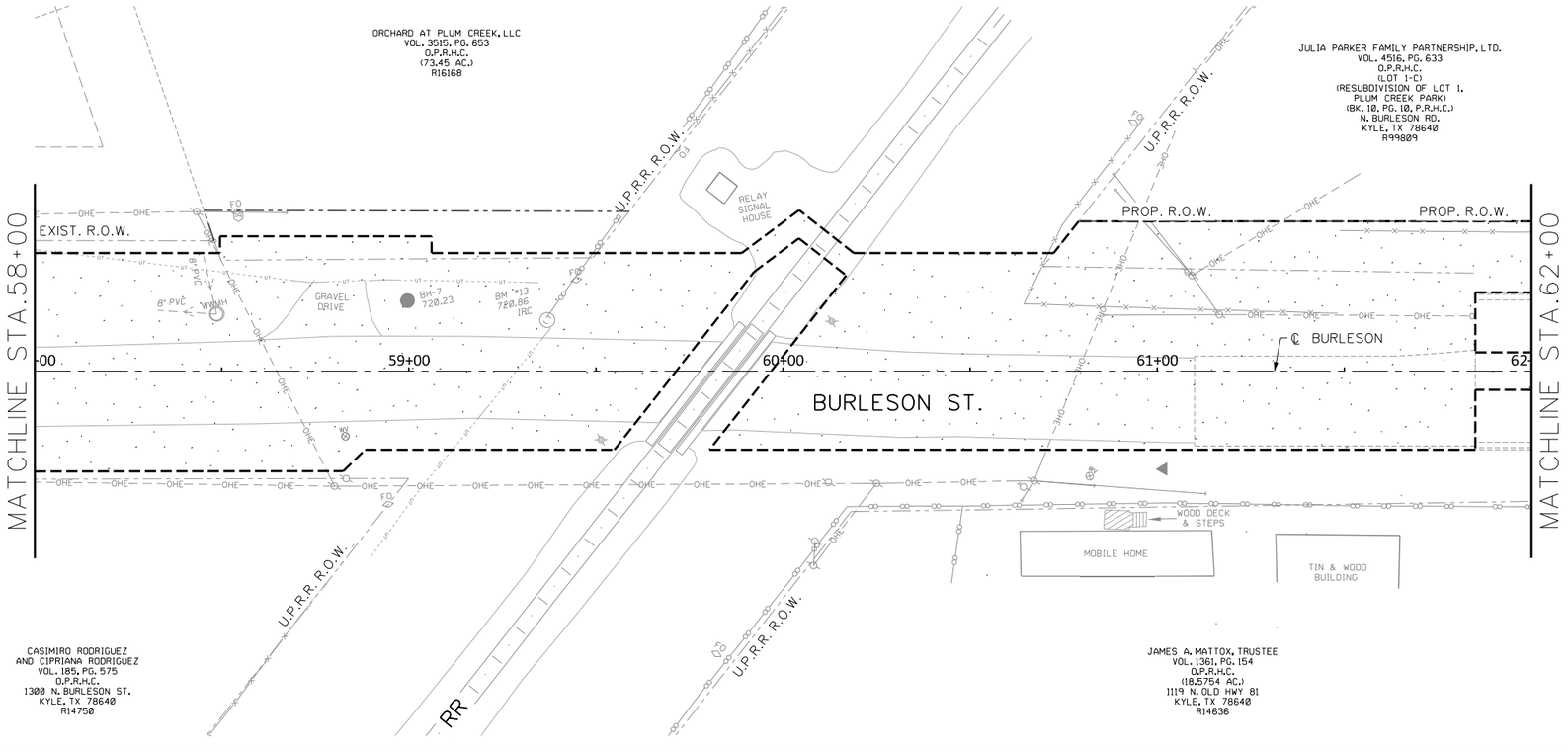


LEGEND

DEMO AREA

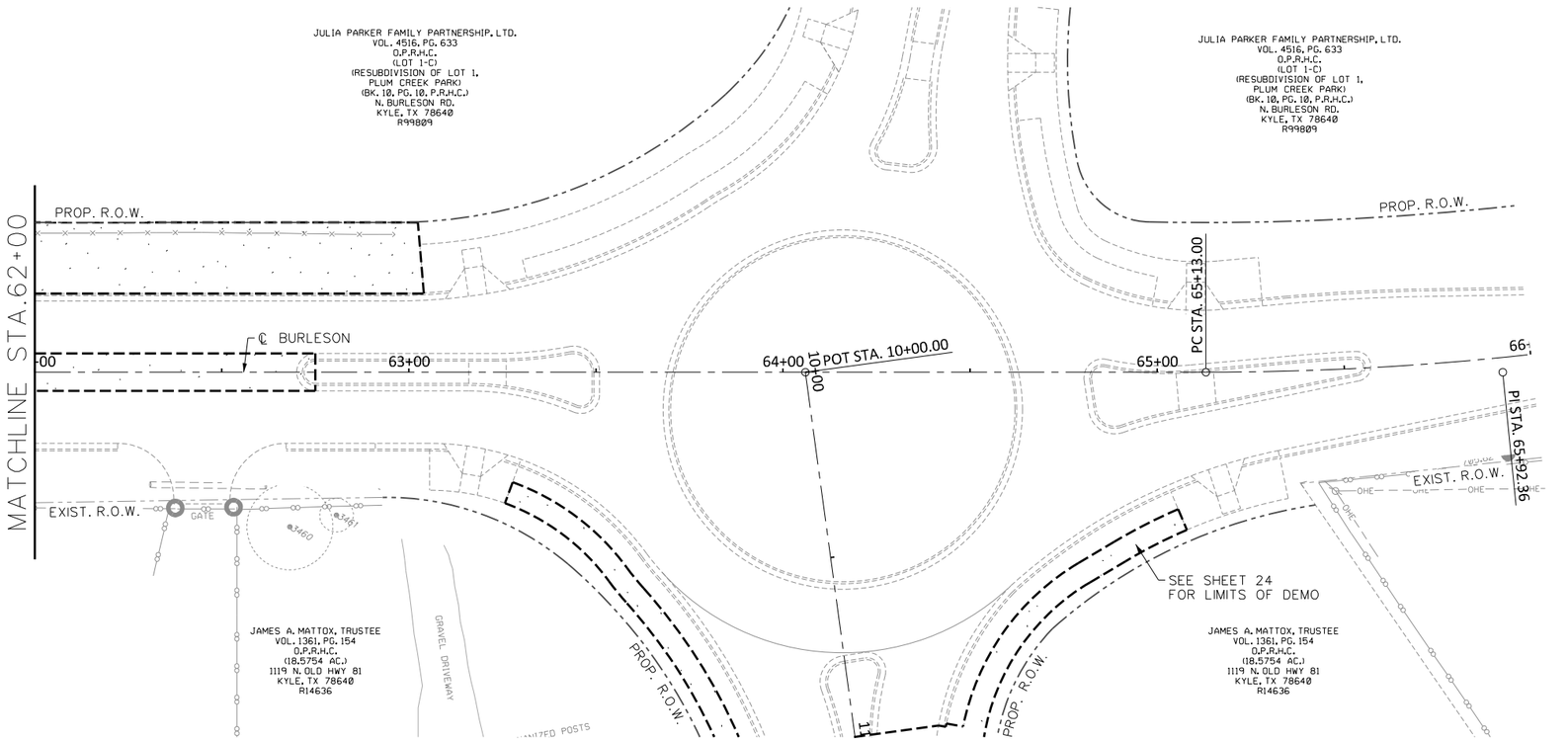
LIMITS OF DEMO AREA

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

N

0 10' 20' 40'
SCALE IN FEET



N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.58+00 TO STA.66+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-DEM007.sht

SHEET 22

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-PL-DEM007.sht
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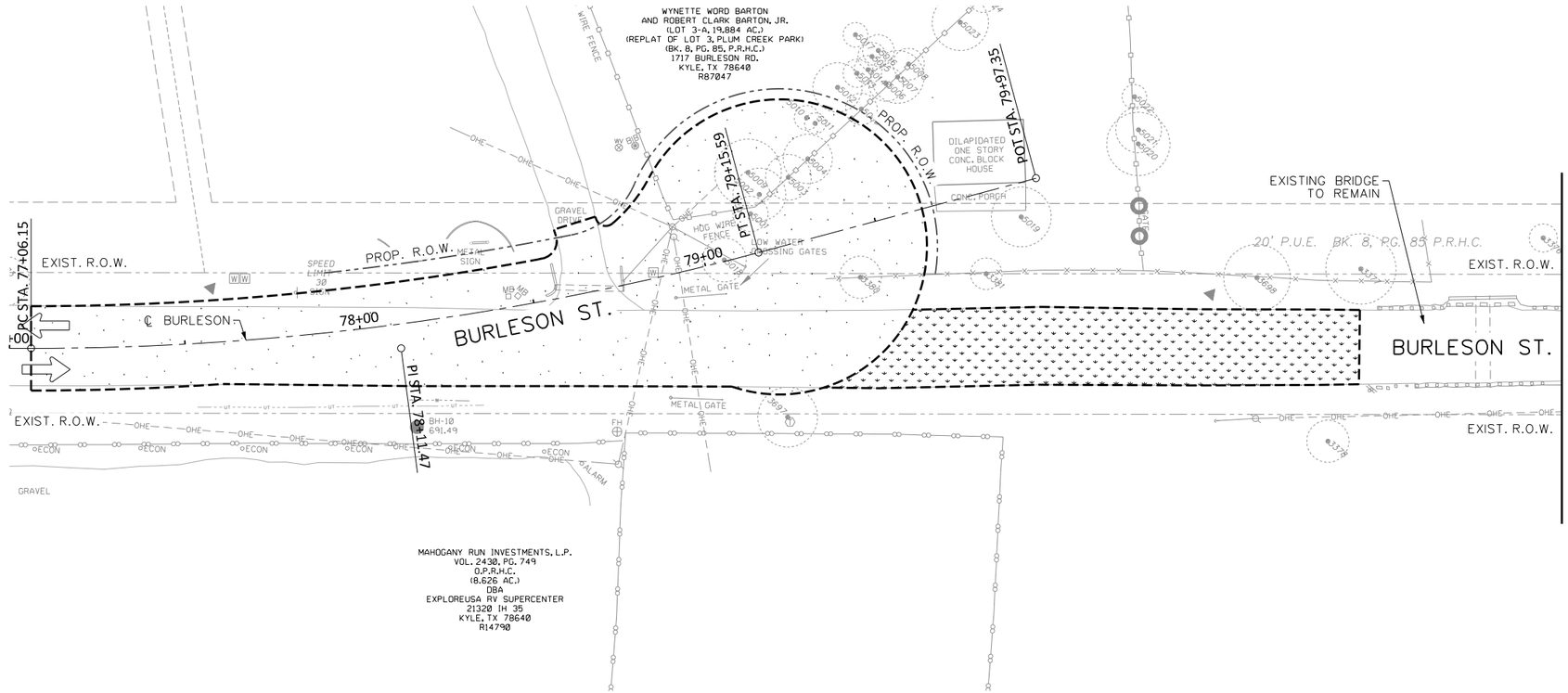
Plot Scale: 40.0000 ' / in. Model: Default
Date: May 25, 2018 - 05:29:50 PM Project: Freese and Nichols, Inc.



LEGEND

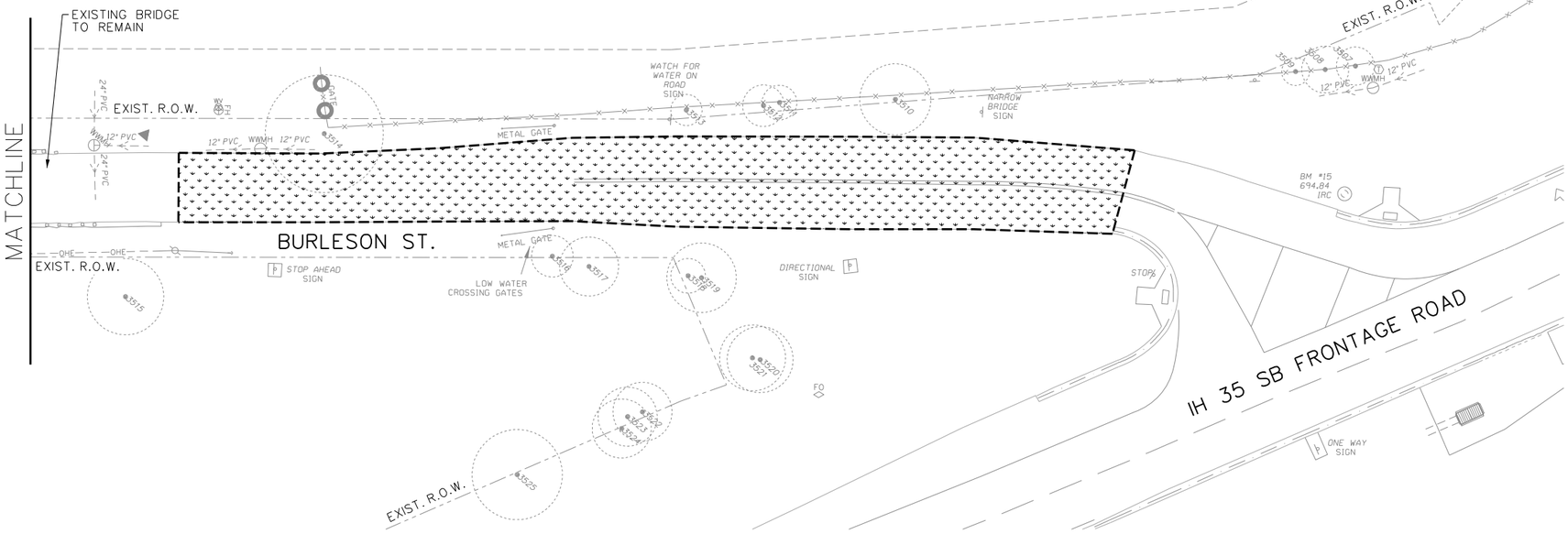
- DEMO AREA
- LIMITS OF DEMO AREA
- DEMO AREA REPLACED WITH SEED/SOD

NOTES:

1. REFER TO PAVEMENT PLAN & PROFILE SHEETS FOR DEMOLITION STAKING LIMITS.
2. TREES WITHIN FOOTPRINT OF ROAD AND OTHER PROPOSED IMPROVEMENTS TO BE REMOVED. ALL OTHER TREES WITHIN ROW TO BE TRIMMED UNLESS OTHERWISE NOTED ON PLANS.
3. REMOVAL OF TREES AND PRUNING TO BE PAID FOR UNDER PREP ROW.

N

0 10' 20' 40'
SCALE IN FEET



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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
STA.74+00 TO STA.79+97.35

NO.	ISSUES	BY	DATE

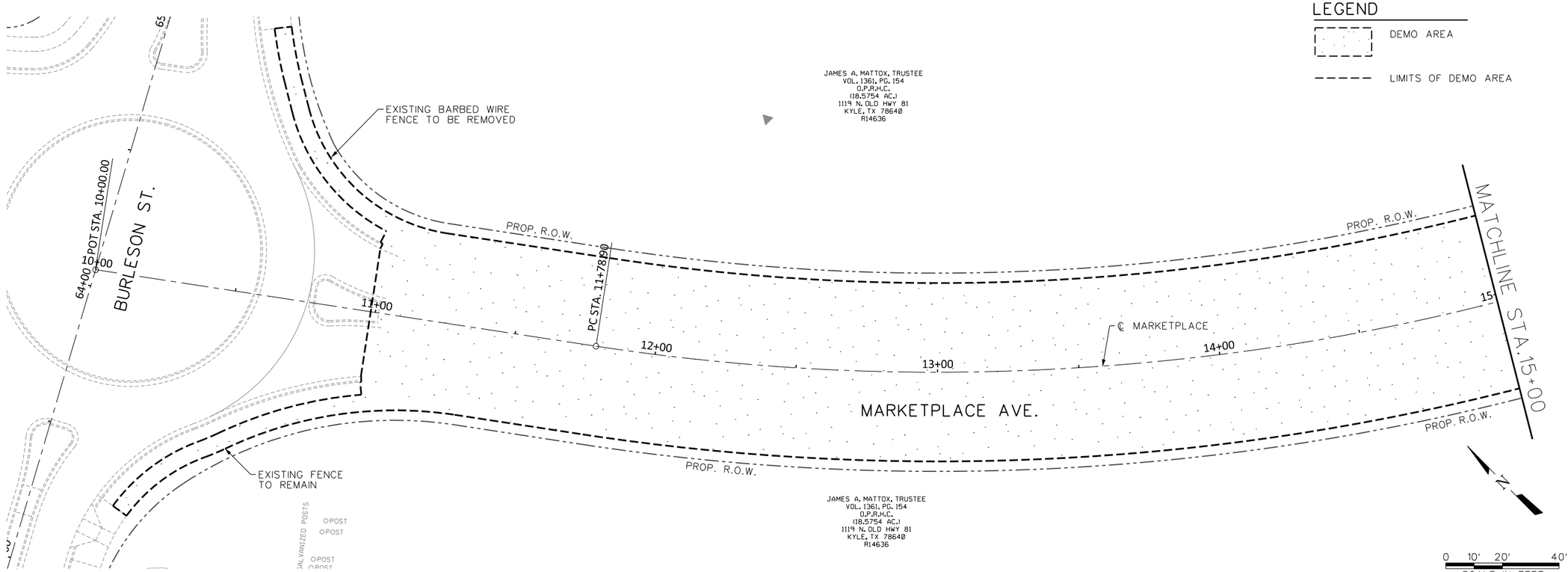
F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-DEM008.sht

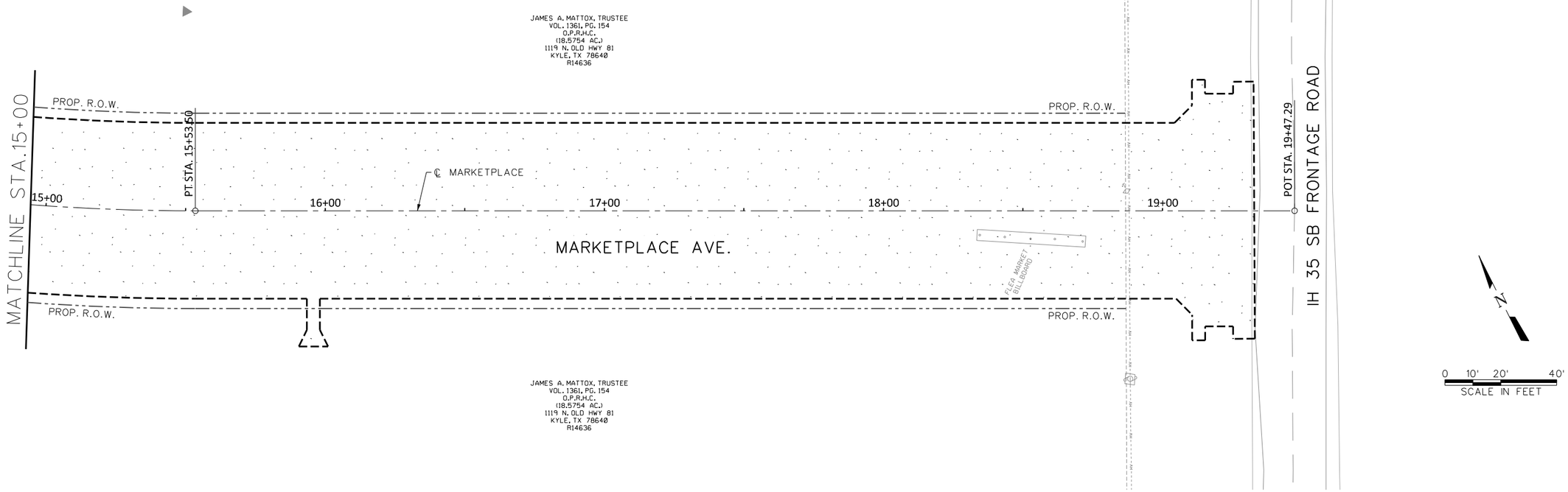
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 23
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\lf\Drawings\CV-TRT-PL-DEM008.sht
Plot Driver: HP DesignJet 500 42in Wide.drv
Plot Scale: 40.0000 ' / in
Date: May. 25, 2018 - 05:29:51 PM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 25, 2018 - 05:29:51 PM User: 02590File: N:\lf\Drawings\CV-TRT-PL-DEM008.sht





ADDITIVE ALTERNATE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

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Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS STA.10+00 TO END

CIVIL

DEMO PLANS

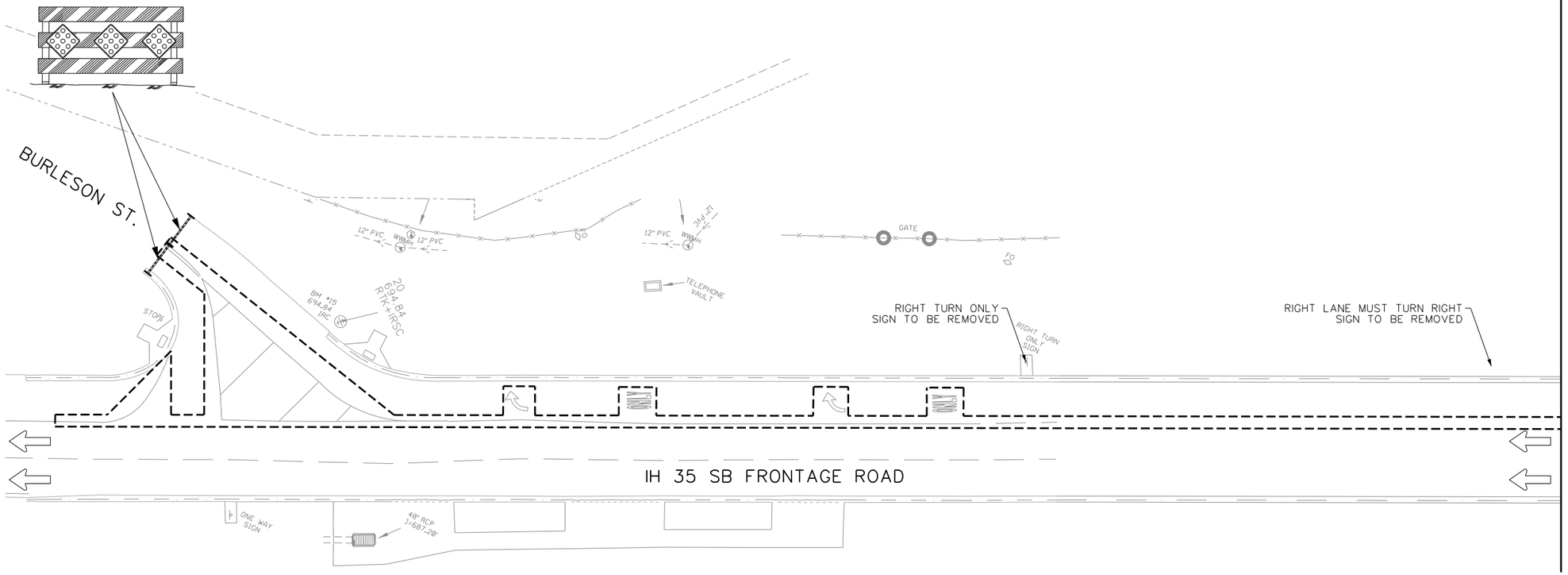
NO.	ISSUES	BY	DATE

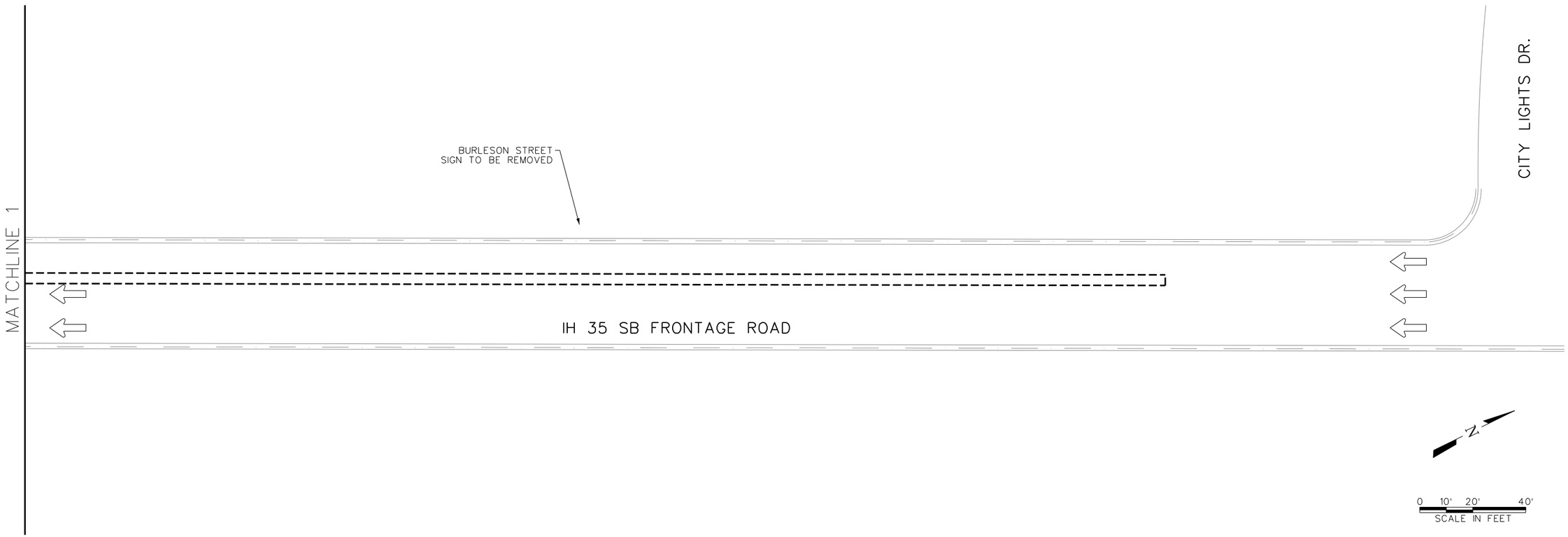
F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-DEM009.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 24
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-DEM009.sht
Plot Driver: HP DesignJet 500ps Model Config:
Plot Scale: 40.0000 '/ in.
Date: May. 25, 2018 - 05:29:52 PM
Model: Default
Project: Freese and Nichols, Inc.





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DEMO PLANS
IH 35 SOUTHBOUND ROAD

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-DEMO10.sht

SHEET 25
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-PL-DEMO10.sht
Plot Date: May 25, 2018 - 05:29:53 PM Plot Scale: 40.0000 ' / in.
Plot Driver: HP DesignJet 750C+ PS.ADF Model: Default
Project: Freese and Nichols, Inc.

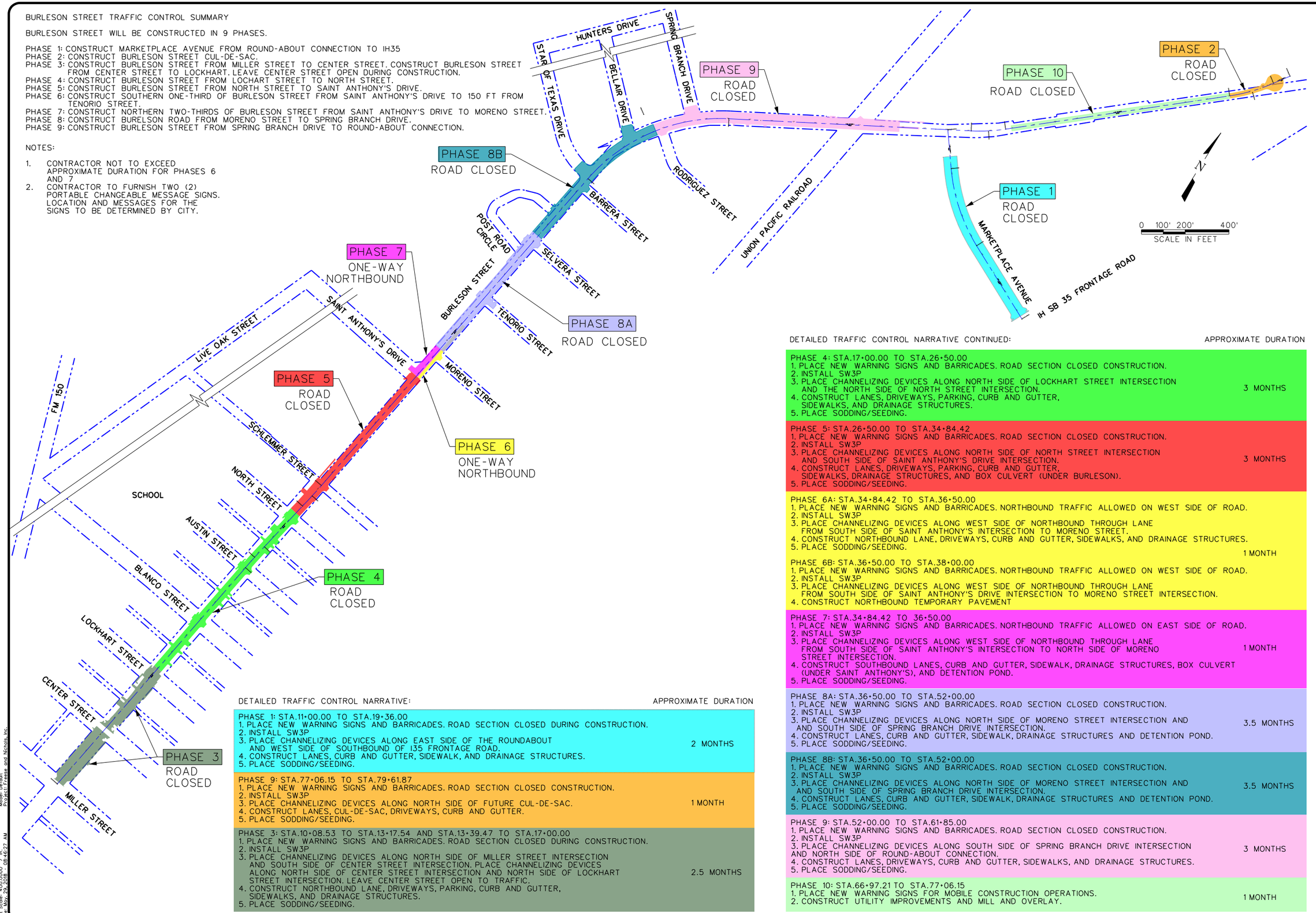
BURLESON STREET TRAFFIC CONTROL SUMMARY

BURLESON STREET WILL BE CONSTRUCTED IN 9 PHASES.

PHASE 1: CONSTRUCT MARKETPLACE AVENUE FROM ROUND-ABOUT CONNECTION TO IH35
PHASE 2: CONSTRUCT BURLESON STREET CUL-DE-SAC.
PHASE 3: CONSTRUCT BURLESON STREET FROM MILLER STREET TO CENTER STREET. CONSTRUCT BURLESON STREET FROM CENTER STREET TO LOCKHART. LEAVE CENTER STREET OPEN DURING CONSTRUCTION.
PHASE 4: CONSTRUCT BURLESON STREET FROM LOCHART STREET TO NORTH STREET.
PHASE 5: CONSTRUCT BURLESON STREET FROM NORTH STREET TO SAINT ANTHONY'S DRIVE.
PHASE 6: CONSTRUCT SOUTHERN ONE-THIRD OF BURLESON STREET FROM SAINT ANTHONY'S DRIVE TO 150 FT FROM TENORIO STREET.
PHASE 7: CONSTRUCT NORTHERN TWO-THIRDS OF BURLESON STREET FROM SAINT ANTHONY'S DRIVE TO MORENO STREET.
PHASE 8: CONSTRUCT BURELSON ROAD FROM MORENO STREET TO SPRING BRANCH DRIVE.
PHASE 9: CONSTRUCT BURLESON STREET FROM SPRING BRANCH DRIVE TO ROUND-ABOUT CONNECTION.

NOTES:

1. CONTRACTOR NOT TO EXCEED APPROXIMATE DURATION FOR PHASES 6 AND 7
2. CONTRACTOR TO FURNISH TWO (2) PORTABLE CHANGEABLE MESSAGE SIGNS. LOCATION AND MESSAGES FOR THE SIGNS TO BE DETERMINED BY CITY.



DETAILED TRAFFIC CONTROL NARRATIVE: — APPROXIMATE DURATION

PHASE 1: STA.11+00.00 TO STA.19+36.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED DURING CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG EAST SIDE OF THE ROUNDABOUT AND WEST SIDE OF SOUTHBOUND OF I35 FRONTAGE ROAD.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.
— 2 MONTHS

PHASE 9: STA.77+06.15 TO STA.79+61.87
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF FUTURE CUL-DE-SAC.
4. CONSTRUCT LANES, CUL-DE-SAC, DRIVEWAYS, CURB AND GUTTER.
5. PLACE SODDING/SEEDING.
— 1 MONTH

PHASE 3: STA.10+08.53 TO STA.13+17.54 AND STA.13+39.47 TO STA.17+00.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED DURING CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF MILLER STREET INTERSECTION AND SOUTH SIDE OF CENTER STREET INTERSECTION. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF CENTER STREET INTERSECTION AND NORTH SIDE OF LOCKHART STREET INTERSECTION. LEAVE CENTER STREET OPEN TO TRAFFIC.
4. CONSTRUCT NORTHBOUND LANE, DRIVEWAYS, PARKING, CURB AND GUTTER, SIDEWALKS, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.
— 2.5 MONTHS

DETAILED TRAFFIC CONTROL NARRATIVE CONTINUED: — APPROXIMATE DURATION

PHASE 4: STA.17+00.00 TO STA.26+50.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF LOCKHART STREET INTERSECTION AND THE NORTH SIDE OF NORTH STREET INTERSECTION.
4. CONSTRUCT LANES, DRIVEWAYS, PARKING, CURB AND GUTTER, SIDEWALKS, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.
— 3 MONTHS

PHASE 5: STA.26+50.00 TO STA.34+84.42
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF NORTH STREET INTERSECTION AND SOUTH SIDE OF SAINT ANTHONY'S DRIVE INTERSECTION.
4. CONSTRUCT LANES, DRIVEWAYS, PARKING, CURB AND GUTTER, SIDEWALKS, DRAINAGE STRUCTURES, AND BOX CULVERT (UNDER BURLESON).
5. PLACE SODDING/SEEDING.
— 3 MONTHS

PHASE 6A: STA.34+84.42 TO STA.36+50.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. NORTHBOUND TRAFFIC ALLOWED ON WEST SIDE OF ROAD.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S INTERSECTION TO MORENO STREET.
4. CONSTRUCT NORTHBOUND LANE, DRIVEWAYS, CURB AND GUTTER, SIDEWALKS, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.
— 1 MONTH

PHASE 6B: STA.36+50.00 TO STA.38+00.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. NORTHBOUND TRAFFIC ALLOWED ON WEST SIDE OF ROAD.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S DRIVE INTERSECTION TO MORENO STREET INTERSECTION.
4. CONSTRUCT NORTHBOUND TEMPORARY PAVEMENT

PHASE 7: STA.34+84.42 TO 36+50.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. NORTHBOUND TRAFFIC ALLOWED ON EAST SIDE OF ROAD.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S INTERSECTION TO NORTH SIDE OF MORENO STREET INTERSECTION.
4. CONSTRUCT SOUTHBOUND LANES, CURB AND GUTTER, SIDEWALK, DRAINAGE STRUCTURES, BOX CULVERT (UNDER SAINT ANTHONY'S), AND DETENTION POND.
5. PLACE SODDING/SEEDING.
— 1 MONTH

PHASE 8A: STA.36+50.00 TO STA.52+00.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF MORENO STREET INTERSECTION AND AND SOUTH SIDE OF SPRING BRANCH DRIVE INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, DRAINAGE STRUCTURES AND DETENTION POND.
5. PLACE SODDING/SEEDING.
— 3.5 MONTHS

PHASE 8B: STA.36+50.00 TO STA.52+00.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF MORENO STREET INTERSECTION AND AND SOUTH SIDE OF SPRING BRANCH DRIVE INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, DRAINAGE STRUCTURES AND DETENTION POND.
5. PLACE SODDING/SEEDING.
— 3.5 MONTHS

PHASE 9: STA.52+00.00 TO STA.61+85.00
1. PLACE NEW WARNING SIGNS AND BARRICADES. ROAD SECTION CLOSED CONSTRUCTION.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG SOUTH SIDE OF SPRING BRANCH DRIVE INTERSECTION AND NORTH SIDE OF ROUND-ABOUT CONNECTION.
4. CONSTRUCT LANES, DRIVEWAYS, CURB AND GUTTER, SIDEWALKS, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.
— 3 MONTHS

PHASE 10: STA.66+97.21 TO STA.77+06.15
1. PLACE NEW WARNING SIGNS FOR MOBILE CONSTRUCTION OPERATIONS.
2. CONSTRUCT UTILITY IMPROVEMENTS AND MILL AND OVERLAY.
— 1 MONTH

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS · SEAN D. BARRY · 114177 · LICENSED PROFESSIONAL ENGINEER
5/29/2018
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Web: www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
TRAFFIC CONTROL PHASING PLANS

BY	DATE	NO.	ISSUES

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-SCH-TCP TIMELINE.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

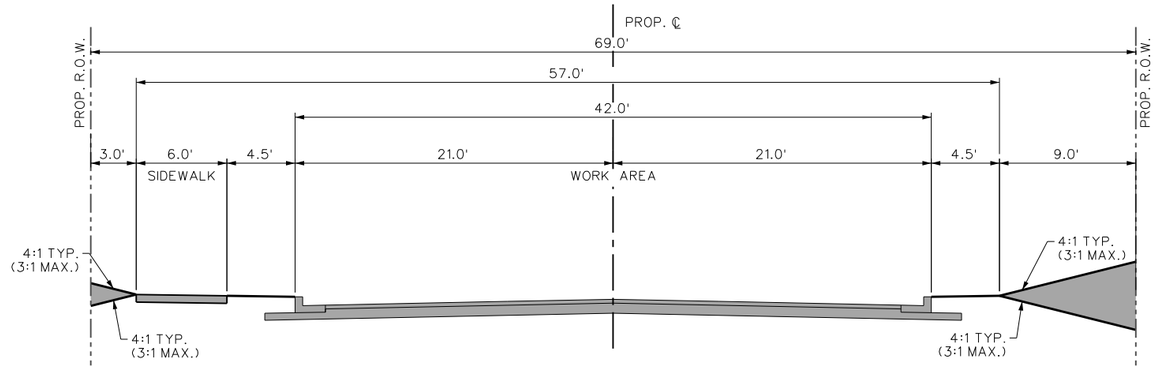
SHEET 26
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\Y\Drawings\CV-TRT-SCH-TCP TIMELINE.sht
Plot Date: 29 May 2018 - 08:46:27 AM
Plot Scale: 400.0000 '/ in.
Date: May. 29, 2018 - 08:46:27 AM
Model Default
Project Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 29, 2018 - 08:46:27 AM User: 02590File: N:\Y\Drawings\CV-TRT-SCH-TCP TIMELINE.sht

SUGGESTED CONSTRUCTION SEQUENCE

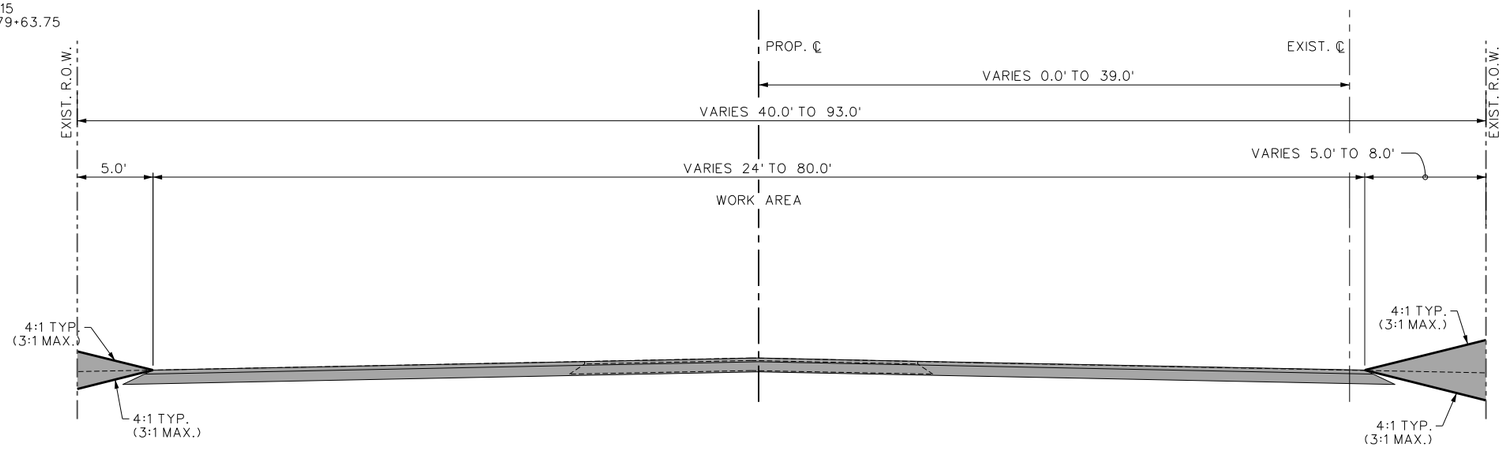
PHASE 1:
1. PLACE NEW WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG EAST SIDE OF THE ROUNDABOUT AND WEST SIDE OF SOUTHBOUND OF I35 FRONTAGE ROAD.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.



ADDITIVE ALTERNATE
MARKETPLACE AVENUE
PHASE 1 SEQUENCE OF WORK
STA.11+00.00 TO STA.19+36.00

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 2:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG SIDE OF BURLESON SOUTH OF FUTURE CUL-DE-SAC AND NORTH SIDE OF BURLESON AND NORTH OF FUTURE CUL-DE-SAC. AND SOUTH SIDE OF CENTER STREET INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, AND CUL-DE-SAC. DO NOT CONSTRUCT TOP 2" HMAC TYPE D.
5. MILL 2" OF ROAD FROM STA.66+97.29 TO STA.77+06.15
6. PLACE HMAC TYPE D 2" FROM ST.66+97.29 TO STA.79+63.75
7. PLACE SODDING/SEEDING.



BURLESON STREET
PHASE 2 SEQUENCE OF WORK
STA.77+06.15 TO STA.79+63.75

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
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5/29/2018
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-SEQUENCE OF WORK01.sht

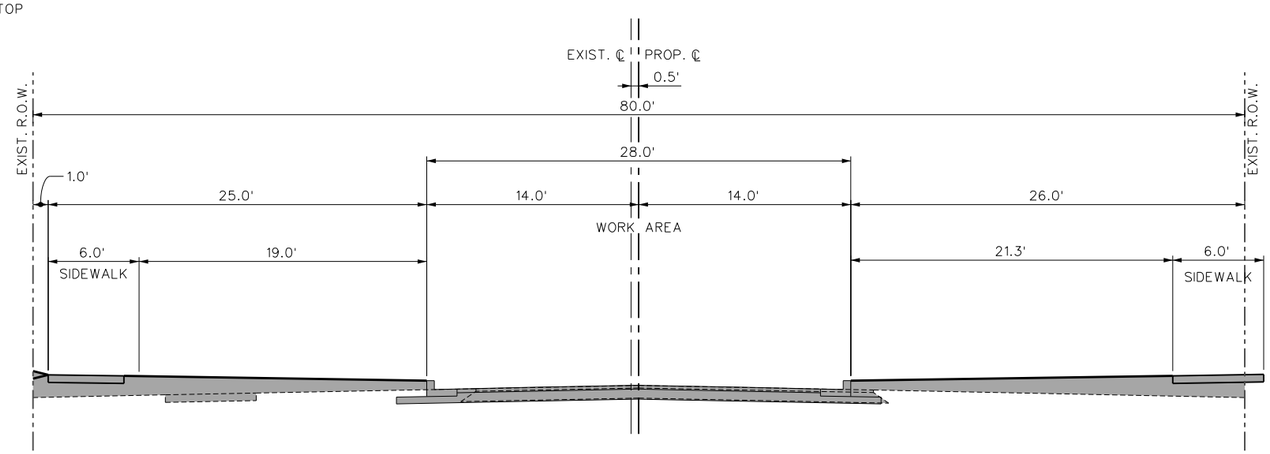
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale

SHEET 27
TOTAL 292

MicroStation V8 User: 0259OFile: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK01.sht
Printed by: JOSHUA.KNOPP Freese and Nichols, Inc.
Plot Scale: 20.0000 ' / in.
Model: Default
Date: May. 25, 2018 - 05:31:45 PM
Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 3:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF MILLER STREET INTERSECTION AND SOUTH SIDE OF CENTER STREET INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B AND 1.5" HMAC TYPE D. DON NOT CONSTRUCT TOP 1.5" HMAC TYPER D.
5. PLACE SODDING/SEEDING.

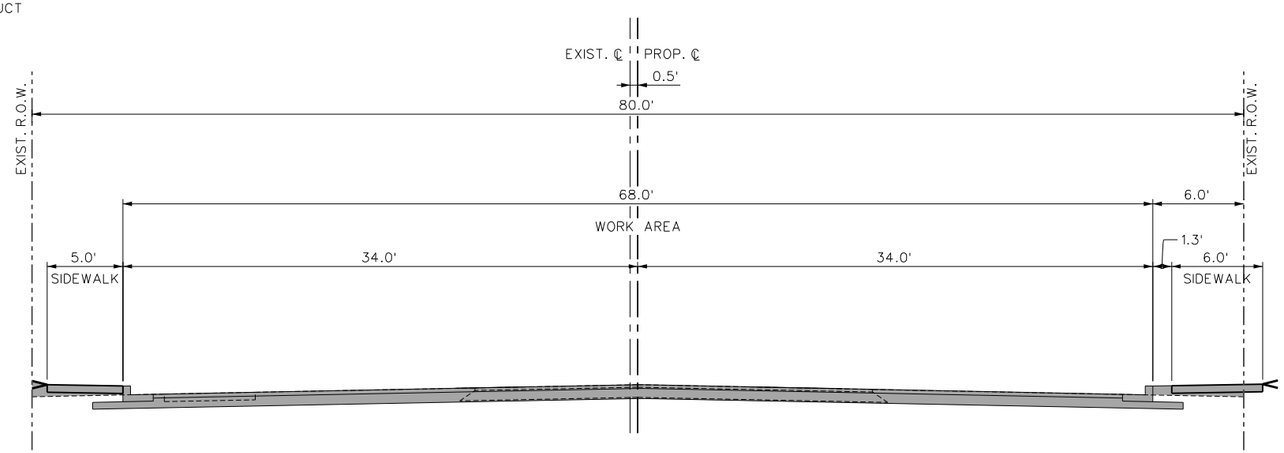


BURLESON STREET
PHASE 3 SEQUENCE OF WORK

STA.10+08.53 TO STA.10+58.01

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 3:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF MILLER STREET INTERSECTION AND SOUTH SIDE OF CENTER STREET INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMAC TYPE D. DO NOT CONSTRUCT TOP 1.5" HMAC TYPE D.
5. PLACE SODDING/SEEDING.
6.



BURLESON STREET
PHASE 3 SEQUENCE OF WORK

STA.10+58.01 TO STA.13+17.54

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME SEQUENCE OF WORK02.sht

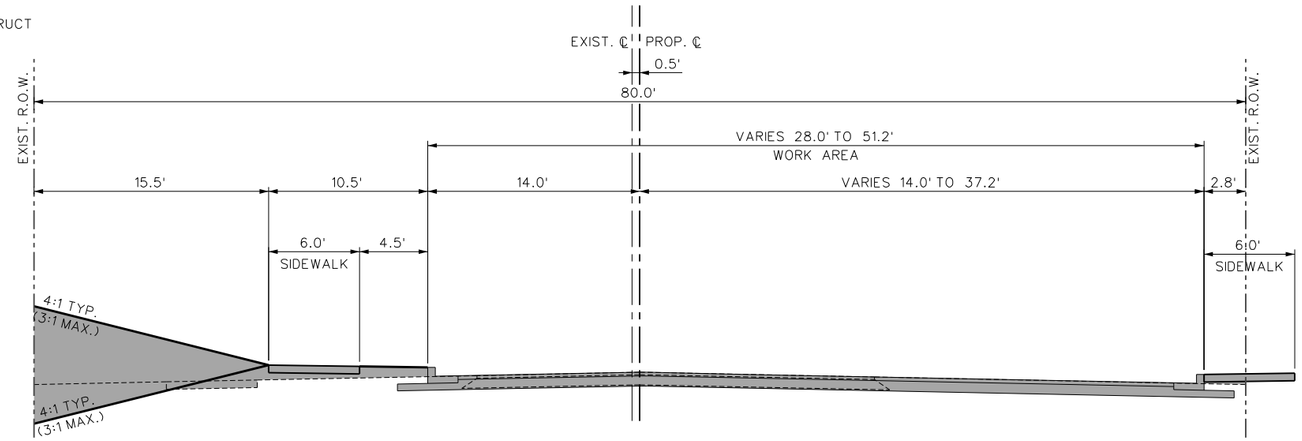
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly.
0 1"

SHEET 28
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK02.sht
Printed by: JNR 05/22/2018 11:55:23 AM Design Model: Default
Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:55:23 AM Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 3:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF CENTER STREET INTERSECTION AND NORTH SIDE OF LOCKHART STREET INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMACE TYPE D. DO NOT CONSTRUCT TOP 1.5" HMAC TYPE D.
5. PLACE SODDING/SEEDING.

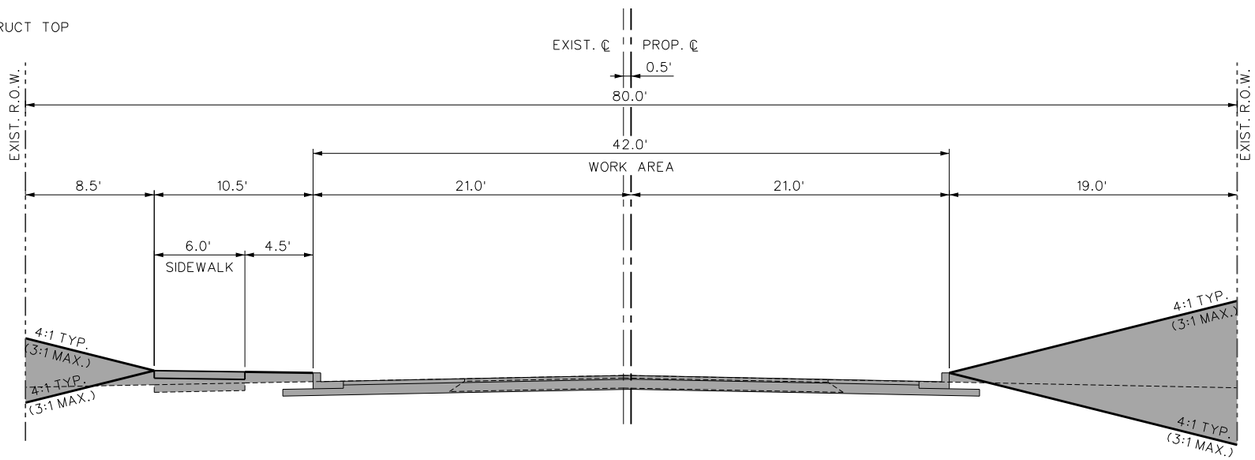


BURLESON STREET
PHASE 3 SEQUENCE OF WORK

STA.13+39.47 TO STA.17+00.00

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 4:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF LOCKHART STREET INTERSECTION AND THE NORTH SIDE OF NORTH STREET INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMACE TYPE D. DO NO CONSTRUCT TOP 1.5" HMAC TYPE D.
5. PLACE 1.5" HMAC TYPE D FINAL SURFACE COURSE ACROSS BOTH TCP PHASE 3 AND TCP PHASE 4.
6. PLACE SODDING/SEEDING.



BURLESON STREET
PHASE 4 SEQUENCE OF WORK

STA.17+00.00 TO STA.26+50.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
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Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME SEQUENCE OF WORK03.sht

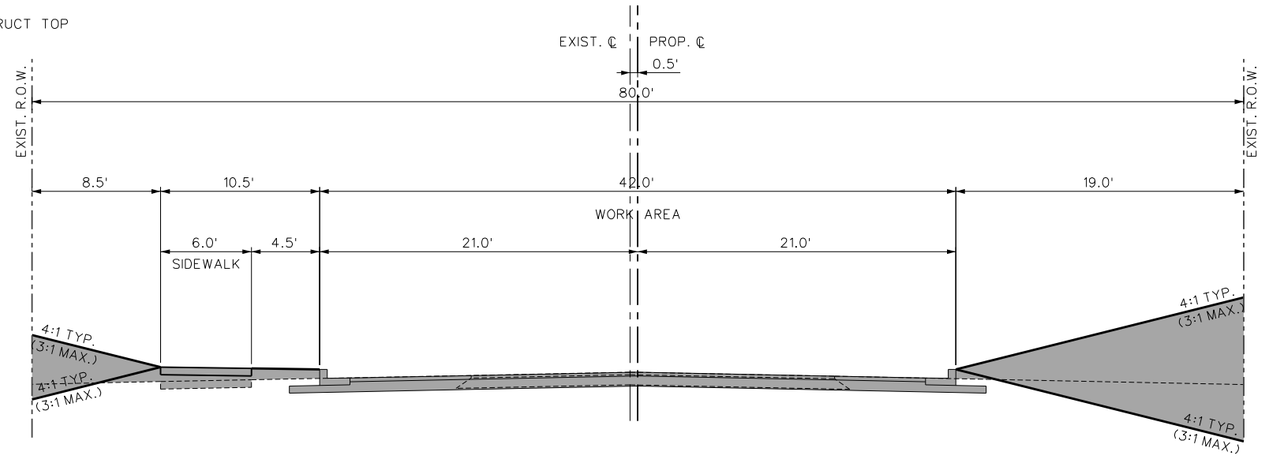
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly. 0 1"

SHEET 29
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK03.sht
Plotted: Jul 05, 2018 - 4:45pm Plotted by: Mona Jones
Plot Scale: 20.0000 '= 1"
Date: May. 22, 2018 - 11:55:23 AM
Model: Default
Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 5:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORTH SIDE OF NORTH STREET INTERSECTION AND SOUTH SIDE OF SAINT ANTHONY'S DRIVE INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMAC TYPE D. DO NOT CONSTRUCT TOP 1.5" HMAC TYPE D.
5. PLACE SODDING/SEEDING.

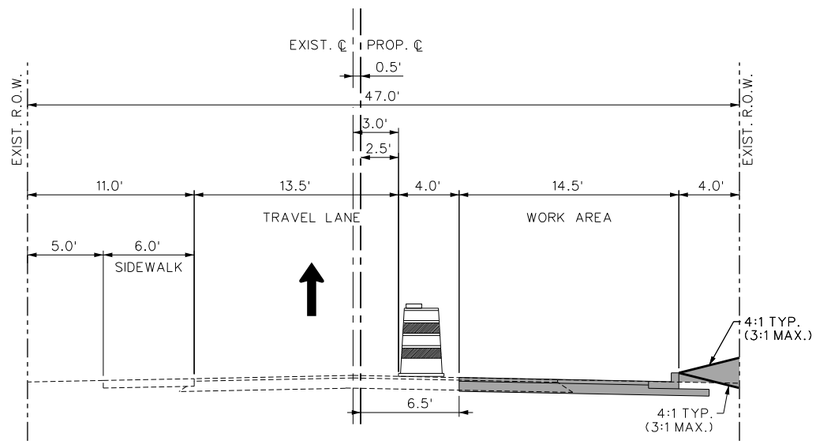


BURLESON STREET
PHASE 5 SEQUENCE OF WORK

STA.26+50.00 TO STA.34+84.42

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 6A:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S INTERSECTION TO MORENO STREET.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMAC TYPE D. DO NOT CONSTRUCT TOP 1.5" HMAC TYPE D.
5. PLACE SODDING/SEEDING.



BURLESON STREET
PHASE 6A SEQUENCE OF WORK

STA.34+84.42 TO STA.36+50.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME SEQUENCE OF WORK04.sht

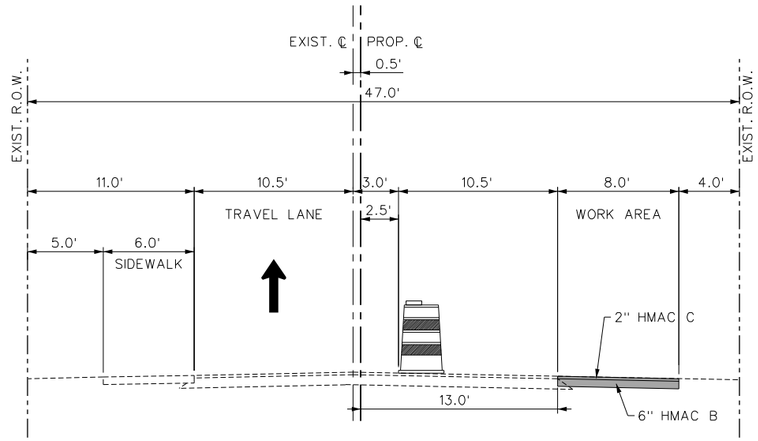
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly.
0 1"

SHEET 30
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK04.sht
Printed by: JOHN NICHOLAS KOLB at: Freese and Nichols
Plot Scale: 20.0000 '= 1"
Plot Date: May. 22, 2018 - 11:55:24 AM
Model: Default
Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 6B:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S INTERSECTION TO MORENO STREET.
4. CONSTRUCT NORTHBOUND TEMPORARY PAVEMENT.

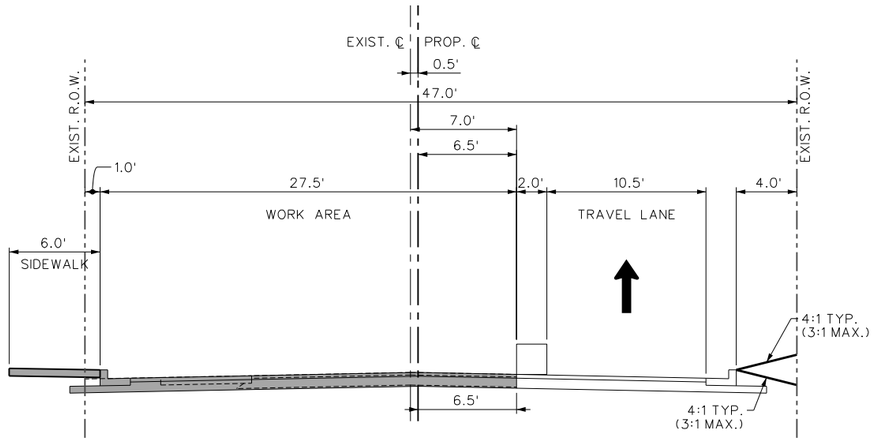


BURLESON STREET
PHASE 6B SEQUENCE OF WORK

STA.36+50.00 TO STA.38+00.00

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 7:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG WEST SIDE OF NORTHHBOUND THROUGH LANE FROM SOUTH SIDE OF SAINT ANTHONY'S INTERSECTION TO MORENO STREET.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES. PLACE HMAC TYPE B BASE AND 1.5" HMAC TYPE D. DO NOT PLACE TOP 1.5" HMAC TYE D.
7. PLACE 1.5" HMAC TYPE D FINAL SURFACE COURSE ACROSS TCP PHASE 5, TCP PHASE 6, AND TCP PHASE 7.
5. PLACE SODDING/SEEDING.



BURLESON STREET
PHASE 7 SEQUENCE OF WORK

STA.34+84.42 TO STA.36+50.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME SEQUENCE OF WORK05.sht

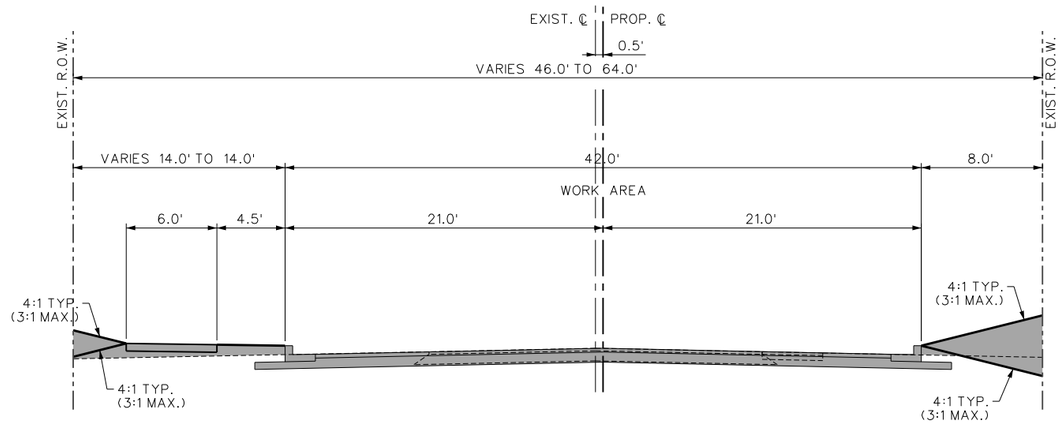
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly.
0 1"

SHEET 31
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK05.sht
Plotted: May. 22, 2018 - 11:55:25 AM by JNR on MicroStation
Plot Scale: 20.0000 ' / in.
Model: Default
Date: May. 22, 2018 - 11:55:25 AM
Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 8A:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORHT SIDE OF MORENO STREET INTERSECTION AND AND SOUTH SIDE OF SPRING BRANCH DRIVE INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.

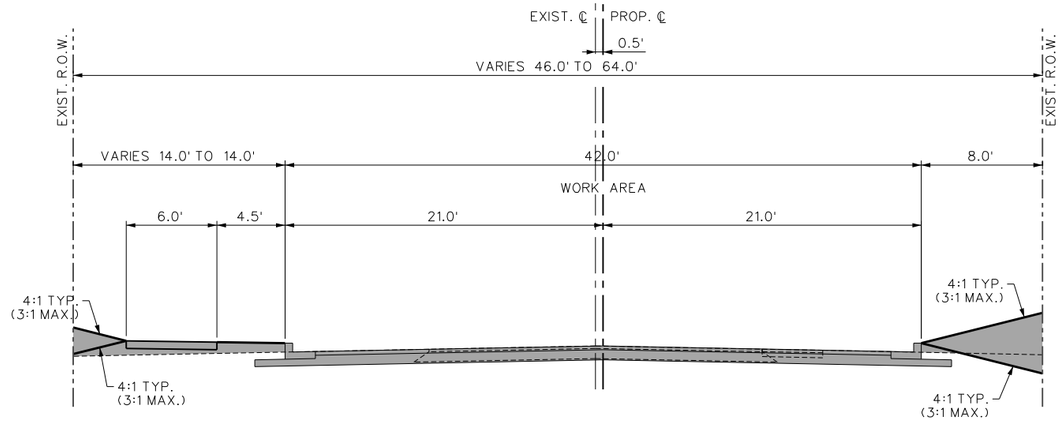


MARKETPLACE AVENUE
PHASE 8A SEQUENCE OF WORK

STA.36+50.00 TO STA.52+00.00

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 8B:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG NORHT SIDE OF MORENO STREET INTERSECTION AND AND SOUTH SIDE OF SPRING BRANCH DRIVE INTERSECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.



MARKETPLACE AVENUE
PHASE 8B SEQUENCE OF WORK

STA.36+50.00 TO STA.52+00.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SEQUENCE OF WORK

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
CHECKED JNR
REVISED

NO.	ISSUES	BY	DATE

FILE NAME = SEQUENCE OF WORK06.sht

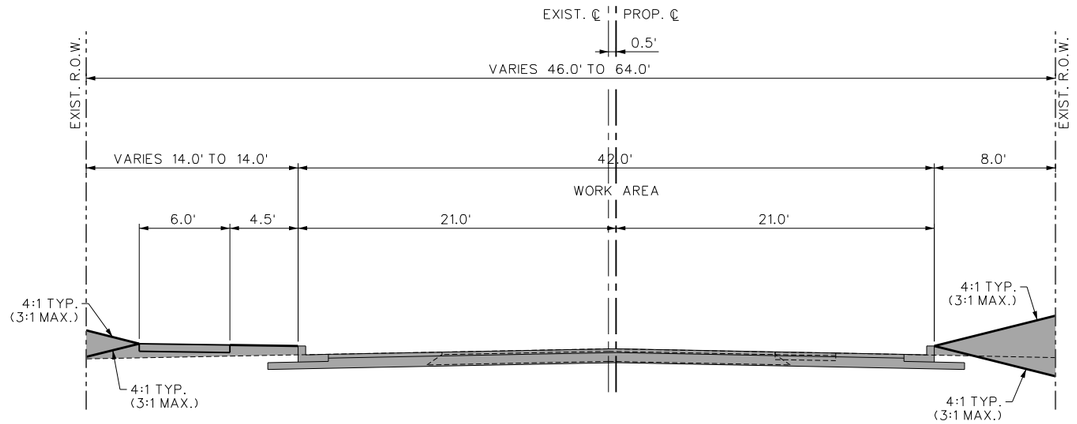
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale accordingly. 0 1"

SHEET 32
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK06.sht
Plotted: 22-JUN-2018 11:55:26 AM Driver: HPGL2.drv PenTable: Mono.tbl
Plot Scale: 20.0000 '= 1 "
Made Default
Date: May. 22, 2018 - 11:55:26 AM Project: Freese and Nichols, Inc.

SUGGESTED CONSTRUCTION SEQUENCE

PHASE 9:
1. RECONFIGURE WARNING SIGNS AND BARRICADES.
2. INSTALL SW3P
3. PLACE CHANNELIZING DEVICES ALONG SOUTH SIDE OF SPRING BRACH DRIVE INTERSECTION AND NORTH SIDE OF ROUND-ABOUT CONNECTION.
4. CONSTRUCT LANES, CURB AND GUTTER, SIDEWALK, ILLUMINATION, WATER, SANITARY, WASTE WATER, AND DRAINAGE STRUCTURES.
5. PLACE SODDING/SEEDING.



BURLESON STREET
PHASE 9 SEQUENCE OF WORK
STA.52+00.00 TO STA.61+85.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SEQUENCE OF WORK

NO.	ISSUES	BY	DATE

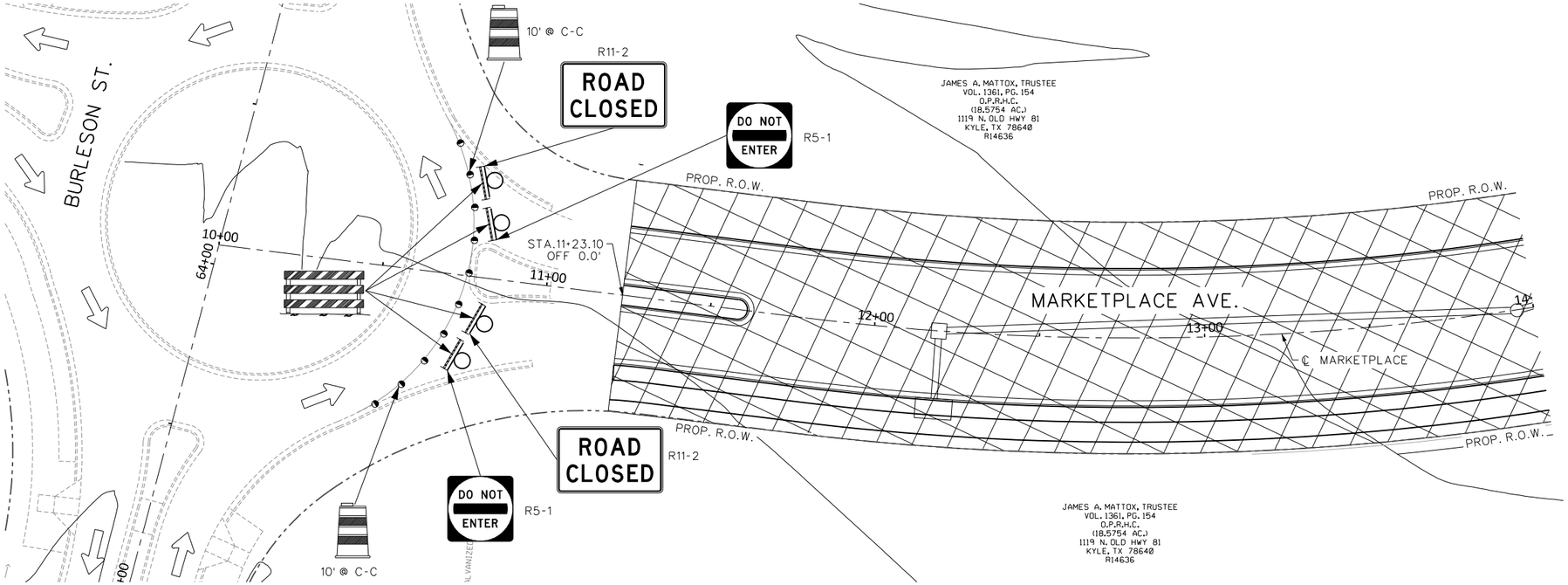
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME SEQUENCE OF WORK07.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. CV-TRT-PL-

SHEET 33
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK07.sht
Plot Driver: HP DesignJet 1050C.pltcfg Monochrome
Plot Scale: 20.0000 '/ in.
Date: May. 22, 2018 - 11:55:27 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:55:27 AM User: 02590File: N:\IF\Drawings\CV-TRT-PL-SEQUENCE OF WORK07.sht

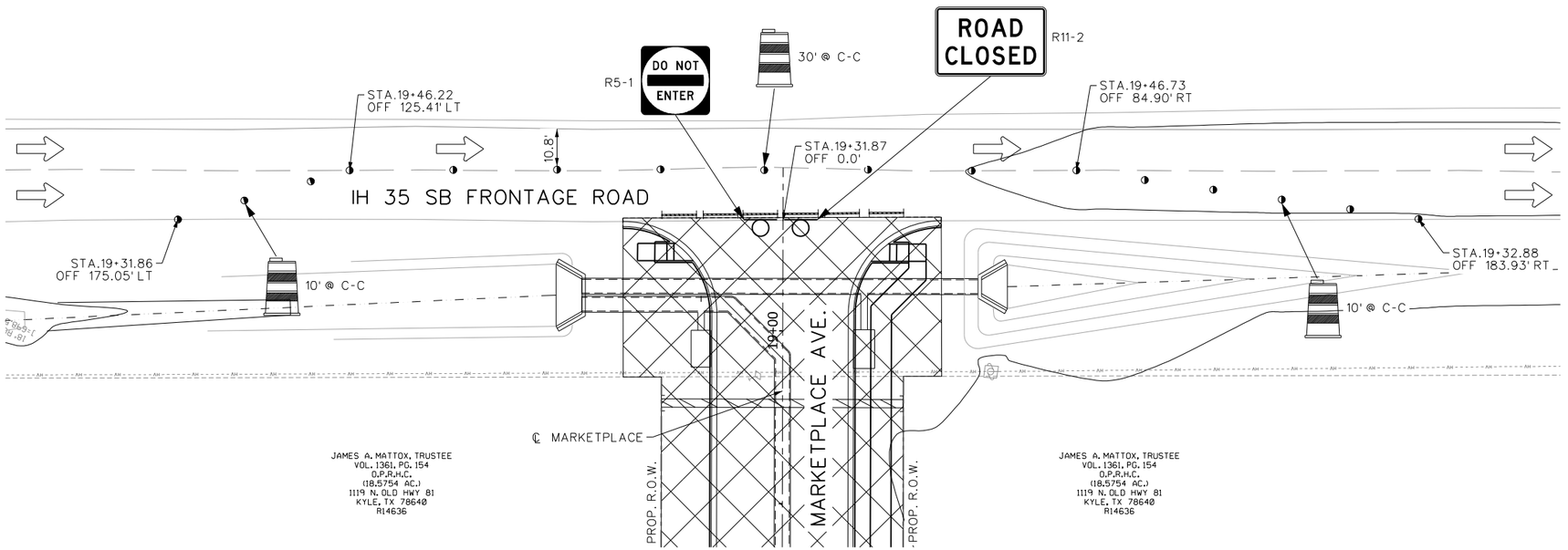


LEGEND

CONSTRUCTION THIS PHASE

N

0 10' 20' 40'
SCALE IN FEET



N

0 10' 20' 40'
SCALE IN FEET

ADDITIVE ALTERNATE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 1
MARKETPLACE AVE AND IH 35 SBFR

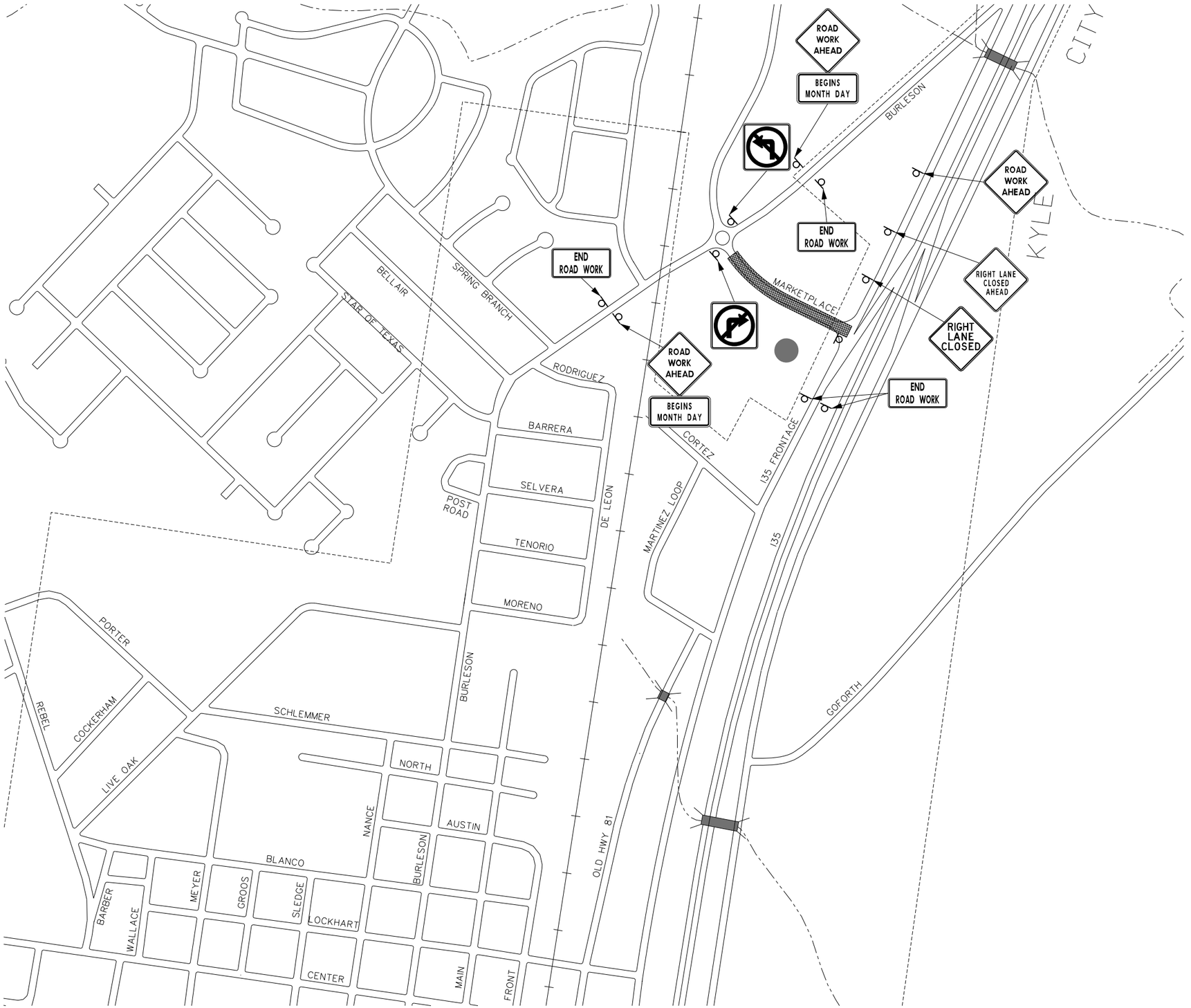
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0101.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 34
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\F\Drawings\CV-TRT-PL-TCP PHASE0101.sht
Active Model: Default (3D) Plot Offset: 0.0000 / 0.0000
Plot Scale: 40.0000 ' / in. Plot Area: Window
Date: May. 25, 2018 - 05:31:49 PM Model: Default
Project: Texas and Nichols, Inc.



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 1
DETOUR LAYOUT

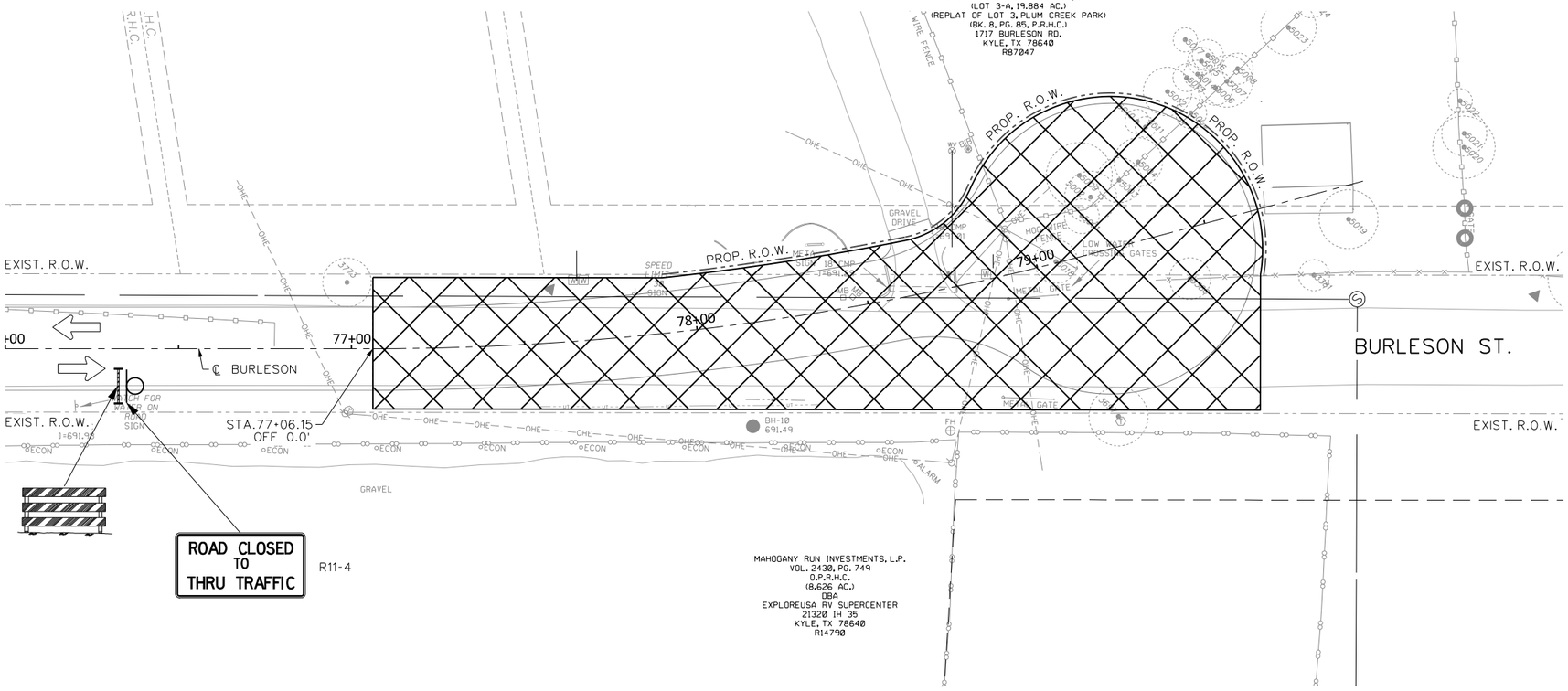
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0102.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 35
TOTAL 292

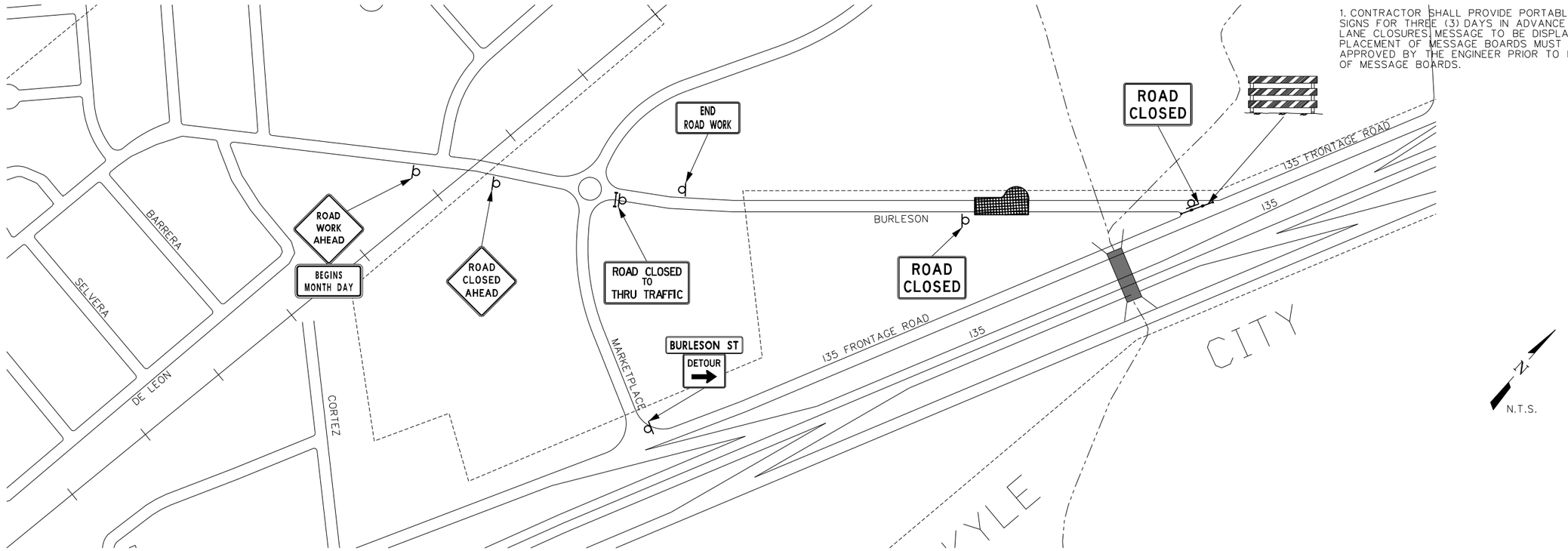
MicroStation V8 User: 02590Office: Austin
KYL14284 N:\F\Drawings\CV-TRT-PL-TCP PHASE0102.sht
Plot Driver: HP DesignJet 500 PS for WOF Model: 36x24
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:55:32 AM
Model: Default
Project: Freese and Nichols, Inc.



LEGEND

CONSTRUCTION THIS PHASE

0 10' 20' 40'
SCALE IN FEET



NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 2
STA.66+00 TO STA.74+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0201.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 36
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0201.sht
Plot Date: 5/22/2018 11:55:53 AM Plotted By: Jennifer Moore
Plot Scale: 40.0000 ' / in. Model: Default
Data: May. 22, 2018 - 11:55:33 AM Project: Freese and Nichols, Inc.

JOHN PETER KRUG
AND PENNY LEA KRUG
VOL. 1099, PG. 813
O.P.R.H.C.
(LOTS 2-7, AND THE SOUTH ONE-HALF OF LOT 8)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
104 S. BURLESON ST.
KYLE, TX 78640
R33592

CITY OF KYLE
DOC. 9920507
O.P.R.H.C.
(PORTION OF BLOCK 15, ALL OF LOTS 1-2, PART OF LOT 3, AND THE EAST ONE-HALF OF LOT 4)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
300 CENTER STREET
KYLE, TX 78640
R33584

GEORGE D. SAUCEDO, JR.
AND WIFE, MARY SAUCEDO
VOL. 257, PG. 591
O.P.R.H.C.
(LOTS 8-10 AND THE EAST 12.5' OF LOT 7, BLOCK 15)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
103 BURLESON
KYLE, TX 78640
R33588

RITA GAIL WALLS
VOL. 3466, PG. 162
O.P.R.H.C.
(LOTS 1, 2, AND 3, BLOCK 14)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
300 WEST LOCKHART ST.
KYLE, TX 78640
R33578

CBP PROPERTIES, L.P.
VOL. 3565, PG. 837
O.P.R.H.C.
(ALL OF LOTS 7-10, BLOCK 10)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
102-104 BURLESON ST.
KYLE, TX 78640
R33557

JEFFREY DALE CALDWELL
AND LORI LE CALDWELL
VOL. 4033, PG. 742
O.P.R.H.C.
TRACT NO. 2
(0.1639 AC. OUT OF AND PART OF LOTS 11-13, BLOCK 10)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
BURLESON ST.
KYLE, TX 78640
R33558

JEFFREY DALE CALDWELL
AND LORI LE CALDWELL
VOL. 4033, PG. 742
O.P.R.H.C.
TRACT NO. 2
(0.1639 AC. OUT OF AND PART OF LOTS 11-13, BLOCK 10)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
BURLESON ST.
KYLE, TX 78640
R33558

ROBERT B. PURVIS
AND MARY S. PURVIS
VOL. 4033, PG. 742
O.P.R.H.C.
(LOT 5, BLOCK 11)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
LOCKHART ST.
KYLE, TX 78640
R33563

BURLESON ST.
MILLER ST.
CENTER ST.
LOCKHART ST.
MATCHLINE STA.14+00
STA.10+07.00 OFF 0.00'RT
STA.11+39.47 OFF 0.00' RT
STA.11+17.54 OFF 0.00' RT
STA.17+00.00 OFF 0.00' RT
EXIST. R.O.W.
℄ BURLESON
ROAD CLOSED
DETOUR
DO NOT ENTER
ONLY
R11-2
R5-1
R5-1a
M4-10R
R3-2
R3-1
CW1-7

LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR TO CONSTRUCT TEMPORARY ASPHALT LEVEL-UP TO TRANSITION BETWEEN NEW AND EXISTING PAVEMENT.

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 3
STA.10+00 TO STA.18+50

NO.	ISSUES	BY	DATE

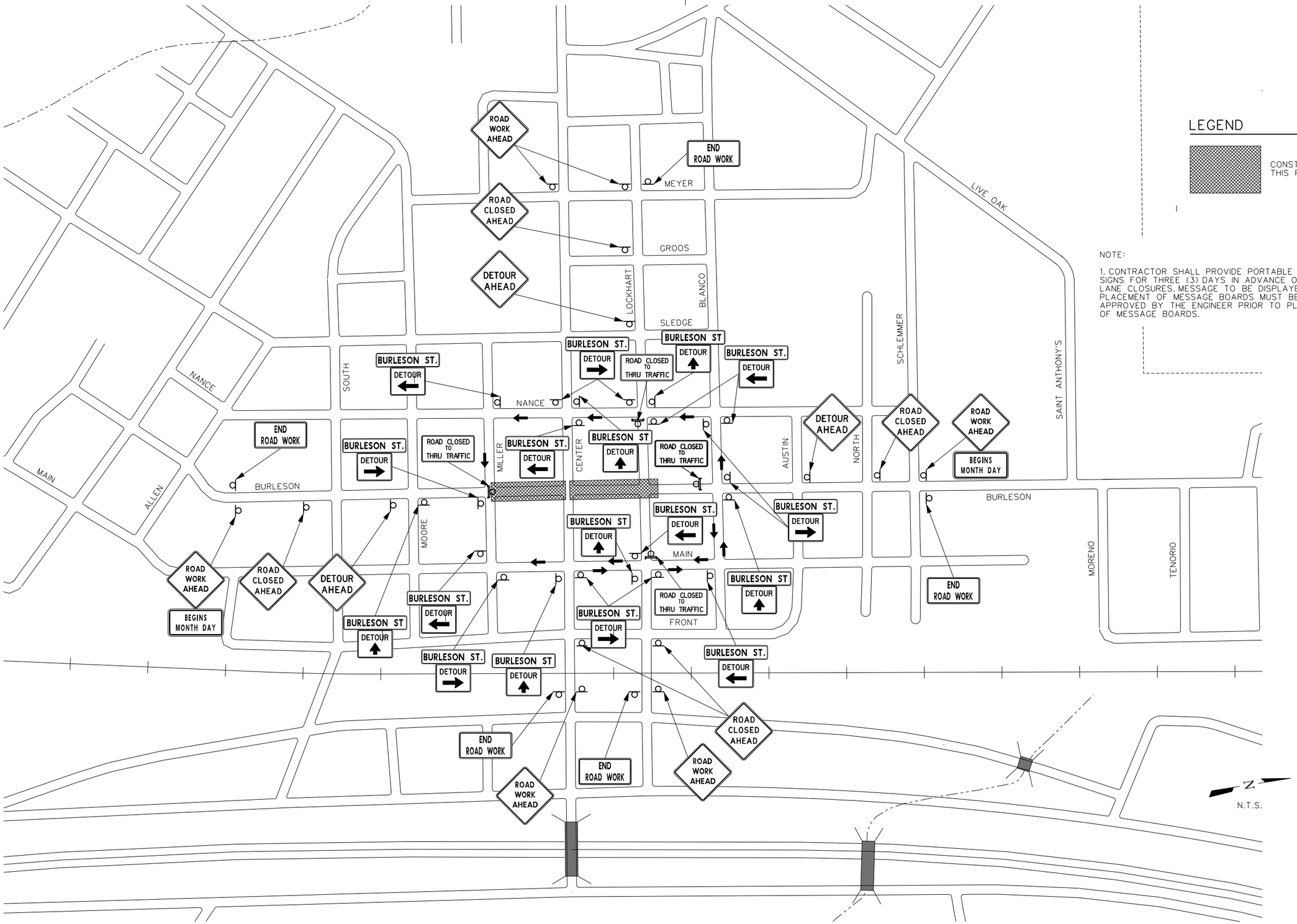
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0301.sht

SHEET 37
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0301.sht
Plot Scale: 40.0000 ' = 1.0000 ' Model Default
Plot Date: May. 22, 2018 - 11:55:35 AM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:55:35 AM User: 02590File: N:\IF\Drawings\CV-TRT-PL-TCP PHASE0301.sht



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 3
DETOUR LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0302.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

SHEET 38
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\F\Drawings\CV-TRT-PL-TCP PHASE0302.sht
Plotted By: Matthew Jones on 05/22/2018 11:55:37 AM
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:55:37 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:55:37 AM User: 02590File: N:\F\Drawings\CV-TRT-PL-TCP PHASE0302.sht

RITA GAIL WALLS
VOL. 3466, PG. 162
O.P.R.H.C.
(LOTS 1, 2, AND 3, BLOCK 14)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
300 WEST LOCKHART ST.
KYLE, TX 78640
R33578

F.R. & L.M. HORNE LIVING TRUST
FRANCIS R. HORNE AND
LINDA M. HORNE, TRUSTEES
VOL. 3927, PG. 200
O.P.R.H.C.
PROPERTY #27
(LOT 10, BLOCK 14)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, P.R.H.C.)
BLANCO ST.
KYLE, TX 78640
R33583

R3-2

DO NOT ENTER R5-1

ROAD CLOSED R11-2

EXIST. R.O.W.

STA.17+00.00
OFF 0.0'

BURLESON ST.

℄ BURLESON

MATCHLINE STA.20+50

LOCKHART ST.

ROAD CLOSED R11-2

DETOUR M4-10R

R3-1

ROBERT B. PURVIS
AND MARY S. PURVIS
VOL. 4033, PG. 742
O.P.R.H.C.
(LOT 5, BLOCK 11)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
LOCKHART ST.
KYLE, TX 78640
R33563

DELAMICHELLE CANCHOLA
AND DELLA A. STEINBECK
VOL. 2002, PG. 383
O.P.R.H.C.
(LOTS 6 AND 7, BLOCK 11)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
206 N. BURLESON ST.
KYLE, TX 78640
R33564

ROAD CLOSED R11-2

BLANCO ST.

LEGEND

CONSTRUCTION THIS PHASE

N

0 10' 20' 40'
SCALE IN FEET

PATRICIA ANN DALTON
VOL. 3729, PG. 816
O.P.R.H.C.
(LOT 1, BLOCK 13)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
302 W. BLANCO ST.
KYLE, TX 78640
R33574

JENNIFER J. PEREZ
AND SPOUSE,
FRANCISCO J. PEREZ, JR.
VOL. 3346, PG. 586
O.P.R.H.C.
(LOTS 6-10, BLOCK 13)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
309 AUSTIN ST.
KYLE, TX 78640
R33577

ROAD CLOSED R11-2

MELANIE Y. HENRIQUEZ
AND CARMEN S. HENRIQUEZ
VOL. 3209, PG. 4096
O.P.R.H.C.
(LOTS 1-5, BLOCK 24)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
AUSTIN ST.
KYLE, TX 78640
R92615

JESSICA C. CERAR
VOL. 1669, PG. 168
& VOL. 1773, PG. 541
O.P.R.H.C.
TRACT ONE
(PORTION OF LOTS 9 AND 10,
AND PART OF LOT 8, BLOCK 24)
(ORIGINAL TOWN OF KYLE)
(BK. 62, PG. 599, D.R.H.C.)
405 A-C BURLESON ST.
KYLE, TX 78640
R33638

MATCHLINE STA.20+50

MATCHLINE STA.25+00

AUSTIN ST.

ROAD CLOSED R11-2

THE TRUSTEES OR SUCCESSOR TRUSTEES OF THE
ADOLPH R. GARZA
AND JULIE F. GARZA LIVING TRUST
VOL. 3269, PG. 157
O.P.R.H.C.
(SOUTH ONE-HALF OF LOT NO. FOUR (4),
AND THE SOUTH ONE-HALF OF LOT 5, BLOCK NO. 12)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
300 BURLESON ST.
KYLE, TX 78640
R33568

JESUS MONCADA
AND NICOLASA MONCADA
VOL. 2715, PG. 278
O.P.R.H.C.
(NORTH ONE-HALF OF LOT NO. FOUR (4),
AND THE NORTH ONE-HALF OF LOT 5,
BLOCK NO. 12)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
BURLESON ST.
KYLE, TX 78640
R33569

ANTONIO C. VELA
VOL. 1703, PG. 67
O.P.R.H.C.
(LOT 6, BLOCK 12)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
304 N. BURLESON ST.
KYLE, TX 78640
R33574

JUAN MOSQUEDA AND
GLORIA G. MOSQUEDA, TRUSTEES
OF THE JUAN MOSQUEDA AND
GLORIA G. MOSQUEDA REVOCABLE
LIVING TRUST
VOL. 4123, PG. 511
O.P.R.H.C.
(LOTS 4 AND 5, BLOCK 23)
(ORIGINAL TOWN OF KYLE)
(VOL. R, PG. 336, D.R.H.C.)
400 N. BURLESON ST.
KYLE, TX 78640
R33633

BERNARD C. BOLING
AND WIFE, DONNA A. BOLING
VOL. 4704, PG. 823
O.P.R.H.C.
(LOTS 6 AND 7, BLOCK 23)
(ORIGINAL TOWN OF KYLE)
(VOL. 62, PG. 599, D.R.H.C.)
408 A&B BURLESON ST.
KYLE, TX 78640
R33634

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 4
STA.16+00 TO STA.25+00

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284

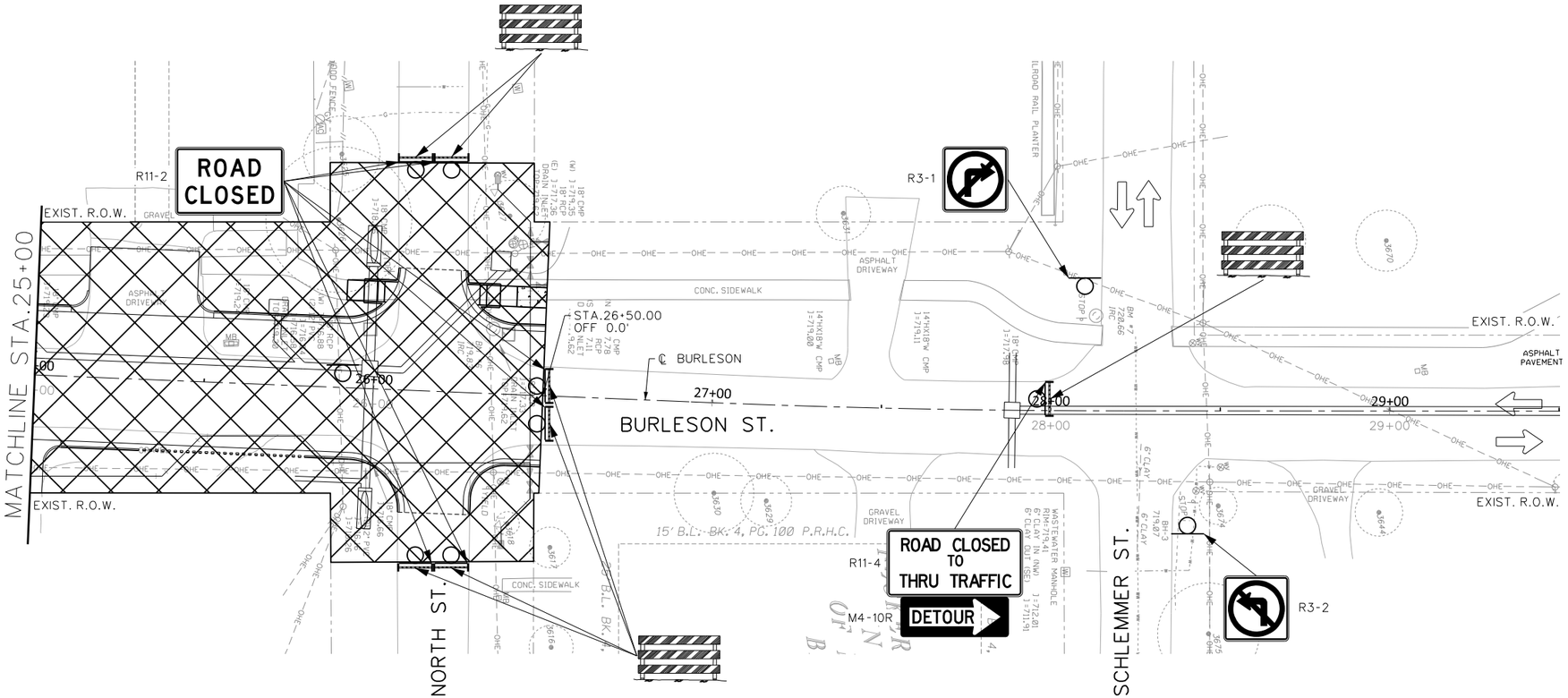
	DATE	
DESIGNED	5/22/18	SDB
DRAWN		MJM
REVISED		
CHECKED		JNR

FILE NAME CV-TRT-PL-TCP PHASE0401.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 39
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0401.sht
Plot Driver: \\fnifs01\HP Designjet T1700dr PS3 Model Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols Inc.
Date: May. 22, 2018 - 11:55:42 AM



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR TO CONSTRUCT TEMPORARY ASPHALT LEVEL-UP TO TRANSITION BETWEEN NEW AND EXISTING PAVEMENT.

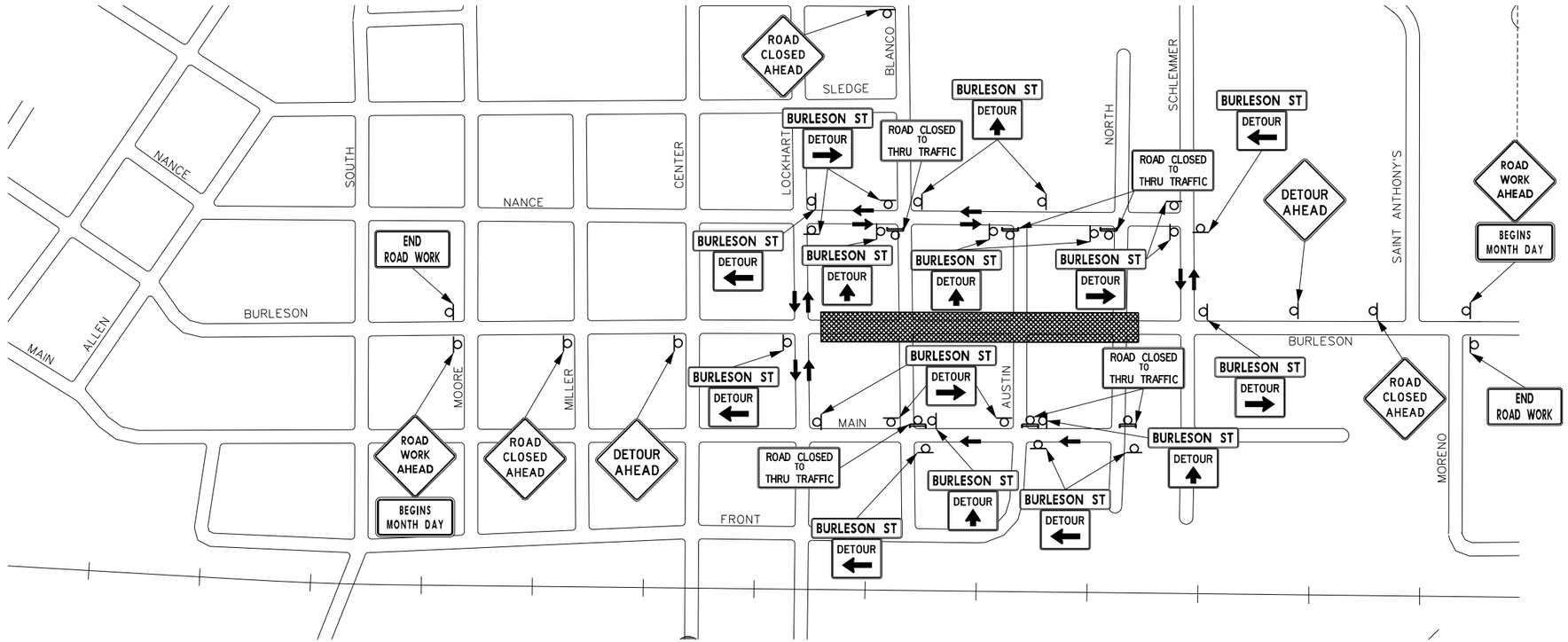
N

0 10' 20' 40'

SCALE IN FEET

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.



N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/29/2018

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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 4
STA.25+00 TO STA.26+50

NO.	ISSUES	BY	DATE

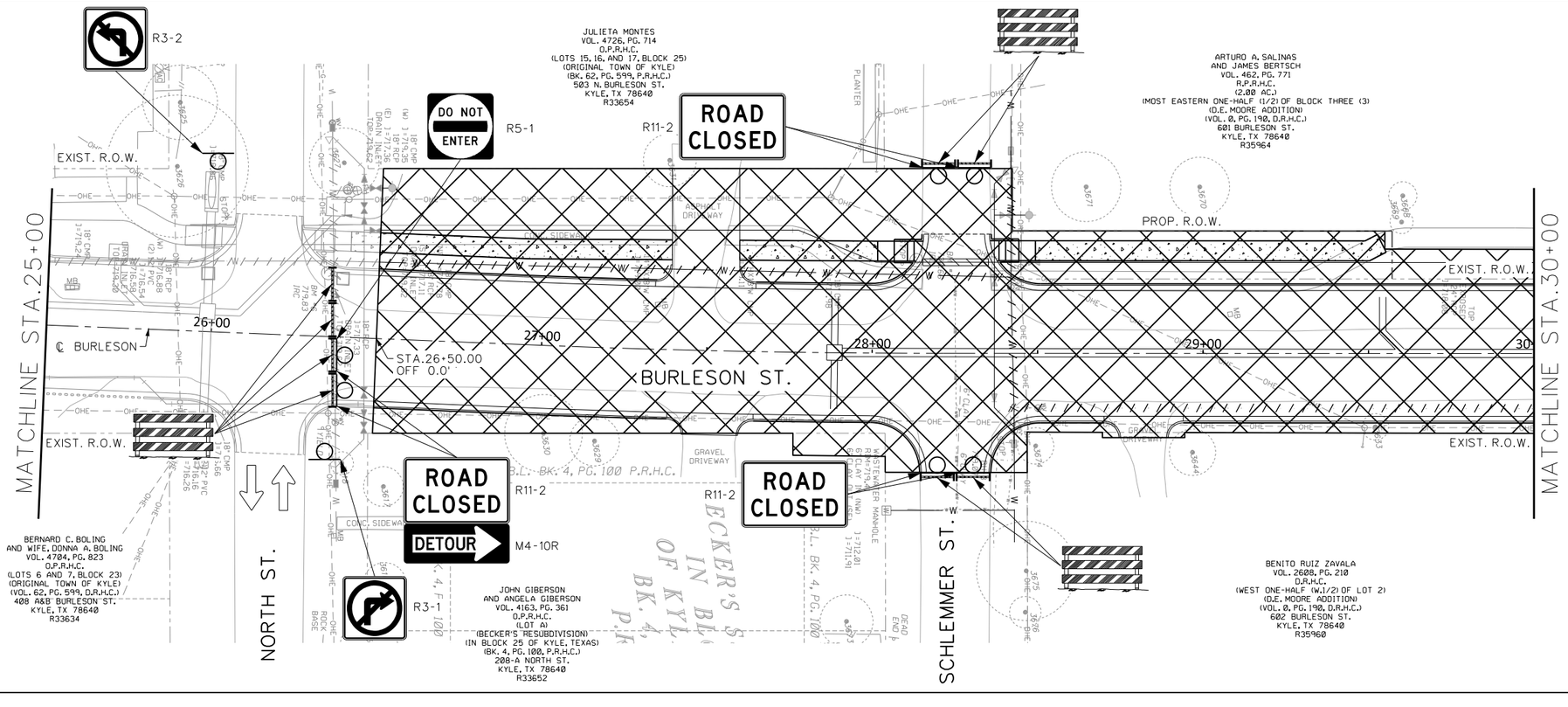
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

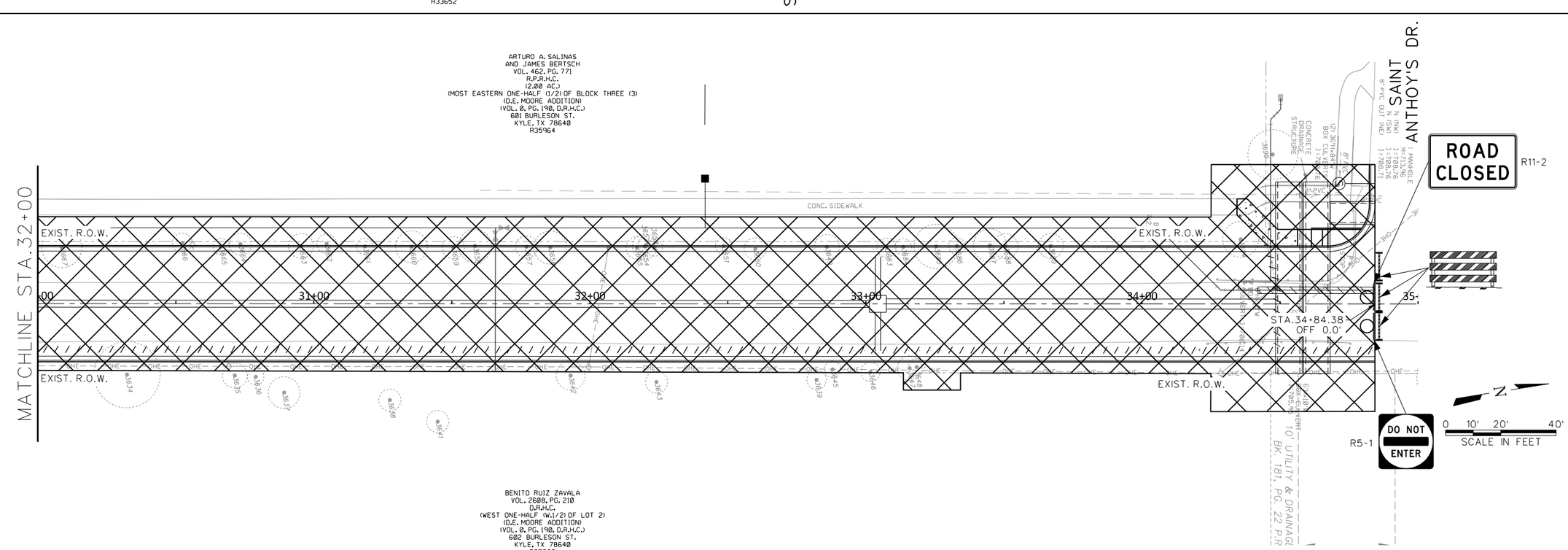
F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0402.sht

SHEET 40
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0402.sht
Plot Date: 5/29/2018 - 5:31:52 PM Plotted By: Matthew Mouton
Plot Scale: 40.0000 ' / in. Model Default
Date: May. 25, 2018 - 05:31:52 PM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 25, 2018 - 05:31:52 PM User: 02590File: N:\IF\Drawings\CV-TRT-PL-TCP PHASE0402.sht





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
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Austin, Texas 78759
Phone: (512) 617-3100
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 5
STA.25+00 TO STA.35+00

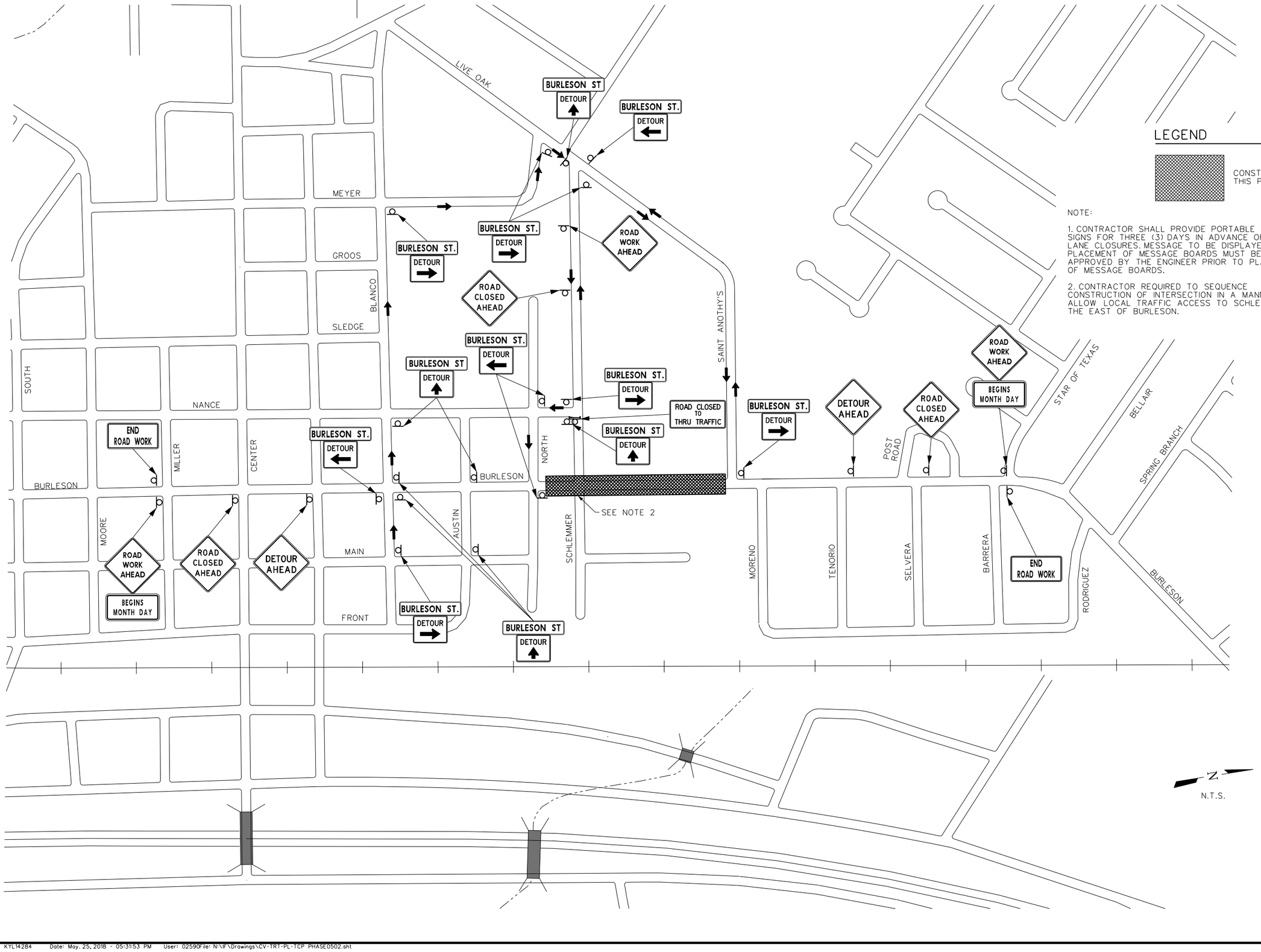
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

FAN JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-TCP PHASE0501.sht

SHEET 41
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0501.sht
Plot Driver: HP Designjet 500 42ps.pltcfg Manufacturer: HP
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:55:45 AM Project: Freese and Nichols, Inc.



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

2. CONTRACTOR REQUIRED TO SEQUENCE CONSTRUCTION OF INTERSECTION IN A MANNER TO ALLOW LOCAL TRAFFIC ACCESS TO SCHLEMMER TO THE EAST OF BURLESON.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/29/2018

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Austin, Texas 78759
Phone: (512) 617-3100
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

CONTROL PLAN PHASE 5
TRAFFIC DETOUR LAYOUT

F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-TCP PHASE0502.sht

NO.	ISSUES	BY	DATE

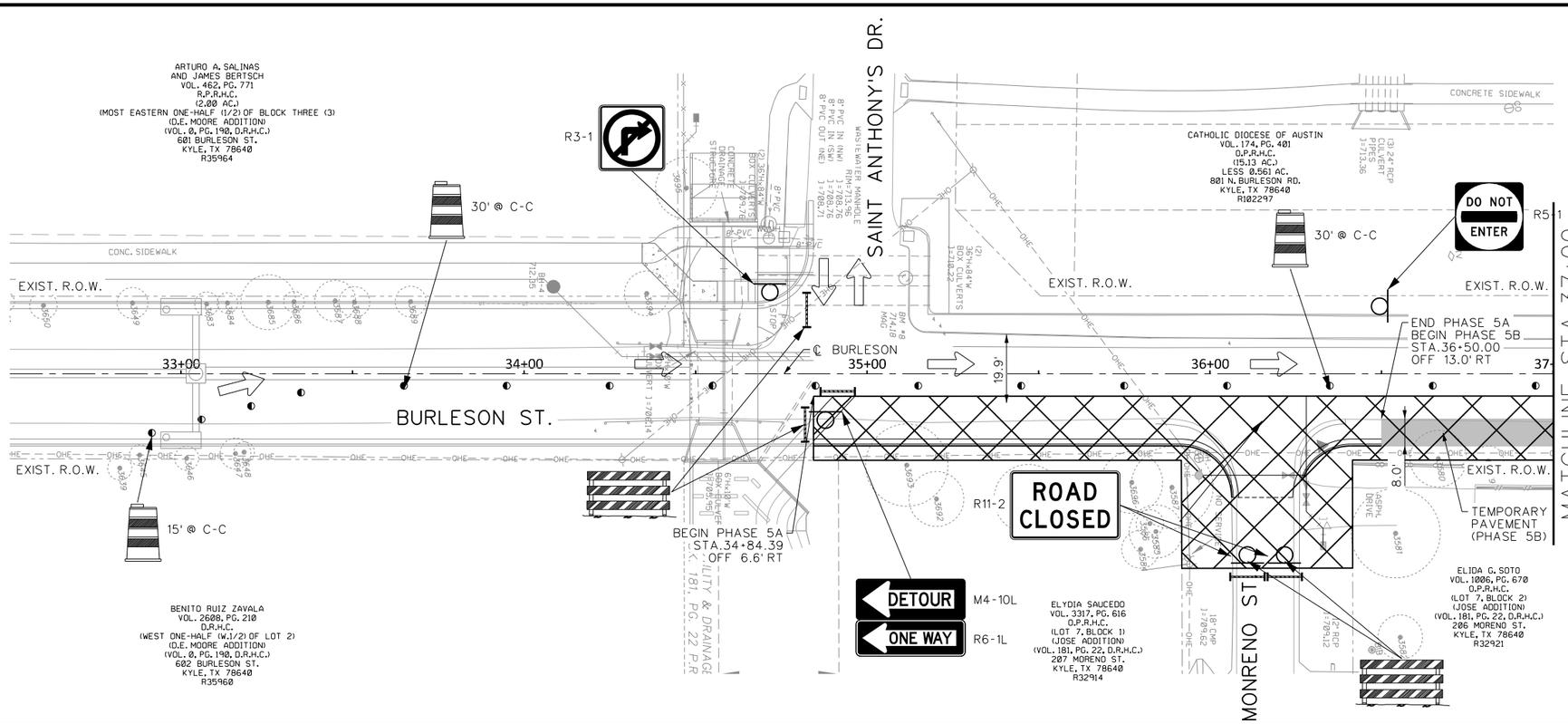
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 42

TOTAL 292

MicroStation V8 User: 025900ffice: Austin
KYL14284 - N:\F\Drawings\CV-TRT-PL-TCP PHASE0502.sht
Printer: HP DesignJet 1055CM Plus v60F Model: 1055
Plot Scale: 40.0000 ' / 1 in. Model: Default
Date: May. 25, 2018 - 05:31:53 PM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 25, 2018 - 05:31:53 PM User: 0259 File: N:\F\Drawings\CV-TRT-PL-TCP PHASE0502.sht



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR TO CONSTRUCT TEMPORARY ASPHALT LEVEL-UP TO TRANSITION BETWEEN NEW AND EXISTING PAVEMENT.
2. PHASE 5A: CONTRACTOR TO CONSTRUCT NORTH BURLESON ROAD FROM STA.34+84.42 TO STA.36+50.00
3. PHASE 5B: CONTRACTOR TO CONSTRUCT TEMPORARY PAVEMENT FROM STA.36+50.00 TO STA.38+00.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS SEAN D. BARRY 114177 LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 6
STA.32+50 TO STA.41+50

NO.	ISSUES	BY	DATE

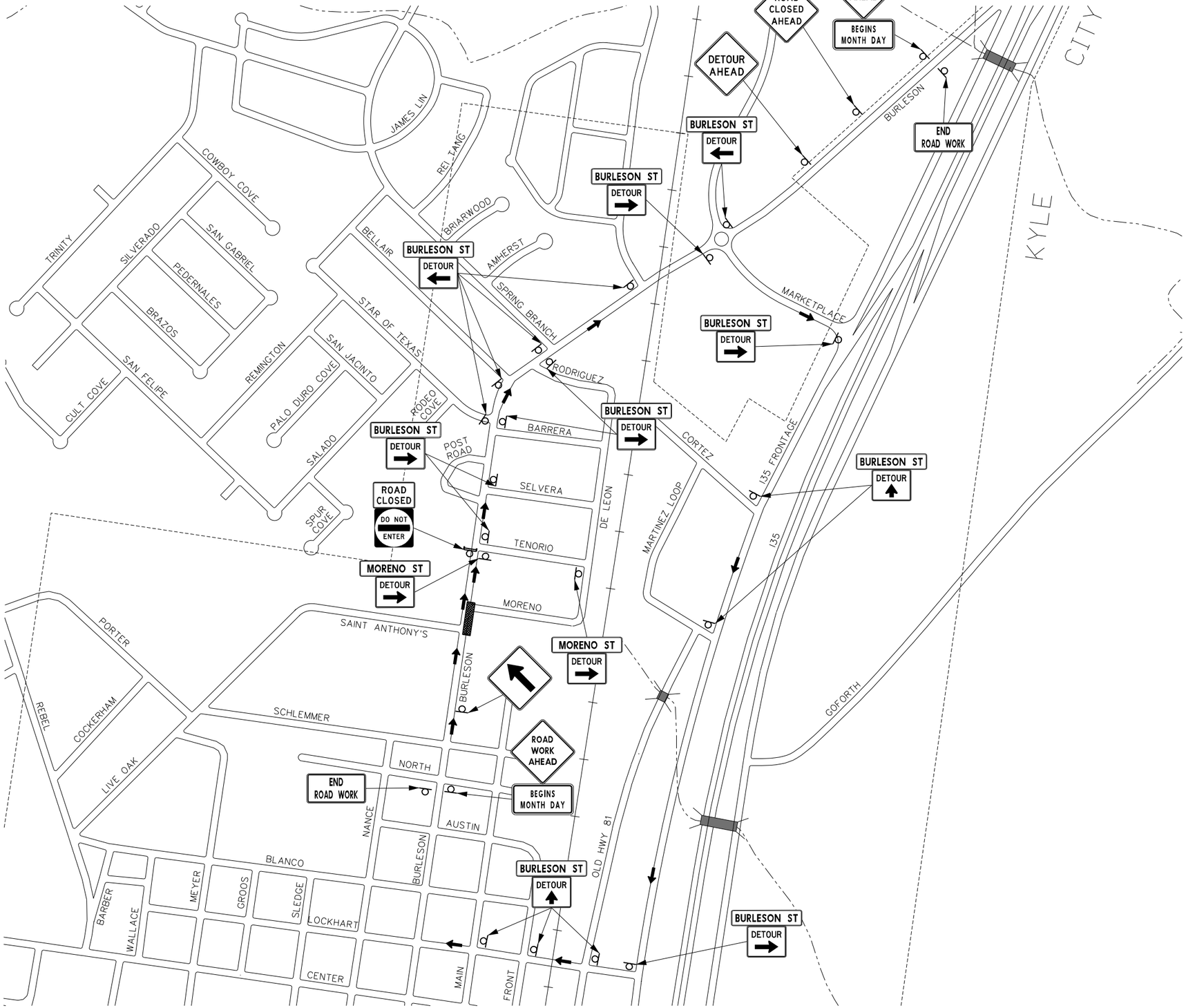
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJW
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0601.sht

SHEET 43
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\F\Drawings\CV-TRT-PL-TCP PHASE0601.sht
Plot Scale: 40.0000 ' / in.
Plot Date: May. 22, 2018 - 11:55:50 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:55:50 AM User: 02590File: N:\F\Drawings\CV-TRT-PL-TCP PHASE0601.sht



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 6
DETOUR LAYOUT

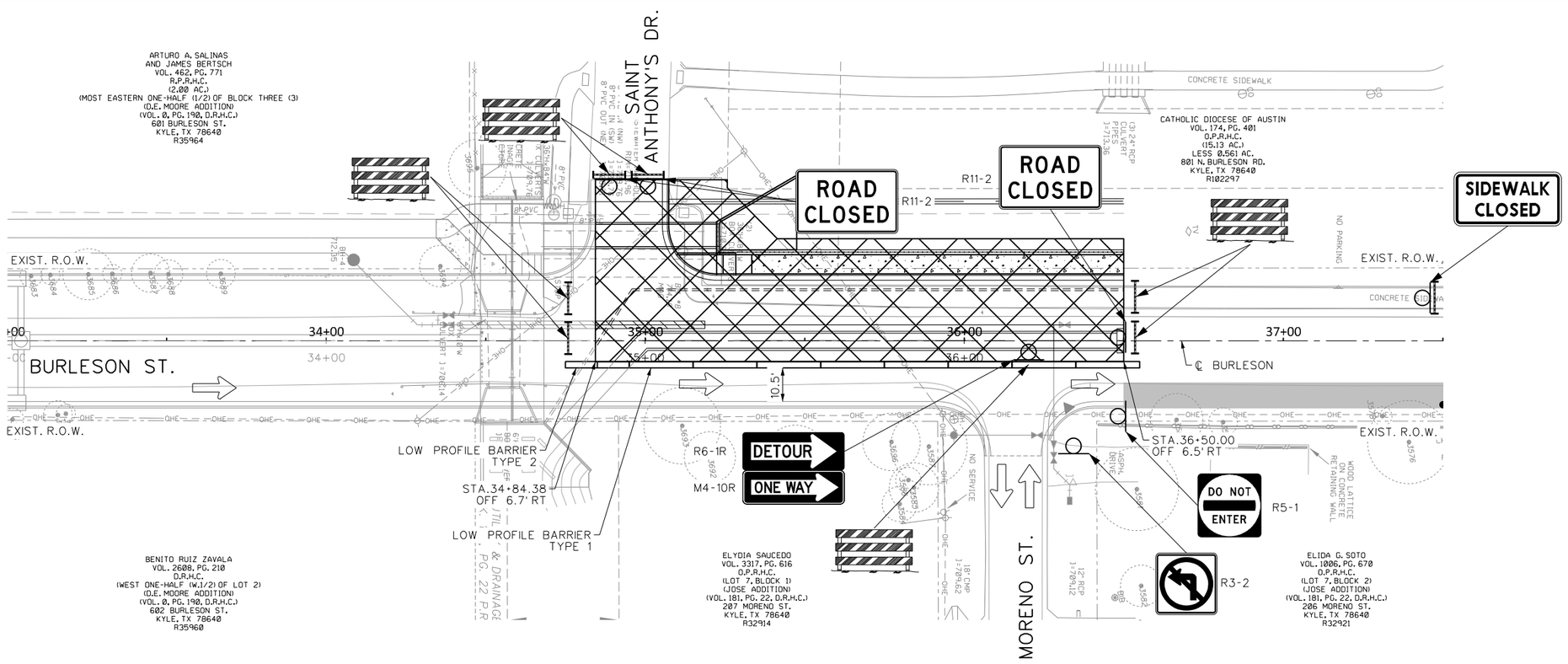
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0602.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 44
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0602.sht
Plot Driver: HP DesignJet 500ps Model Name: Plot Offset: 0.0000, 0.0000
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:55:51 AM Project: Freese and Nichols, Inc.



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
2nd
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 7
STA.33+00 TO STA.37+50

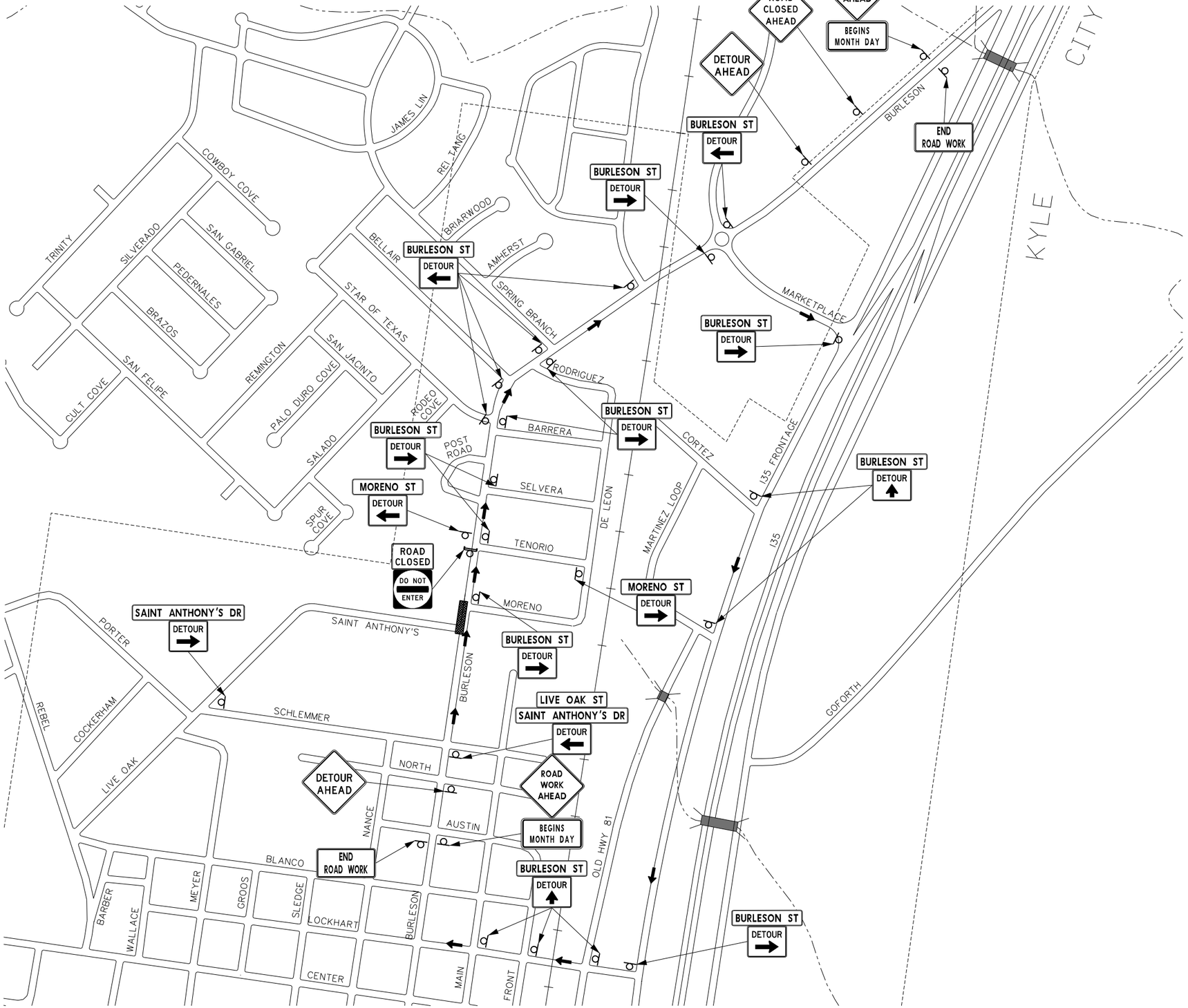
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0701.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 45
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\F\Drawings\CV-TRT-PL-TCP PHASE0701.sht
Printed by: JNR on: Tue May 22 11:55:54 2018
Plot Scale: 40.0000 ' / in. Model: Default
Date: May 22, 2018 - 11:55:54 AM Project: Freese and Nichols, Inc.



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 7
DETOUR LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0702.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 46
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0702.sht
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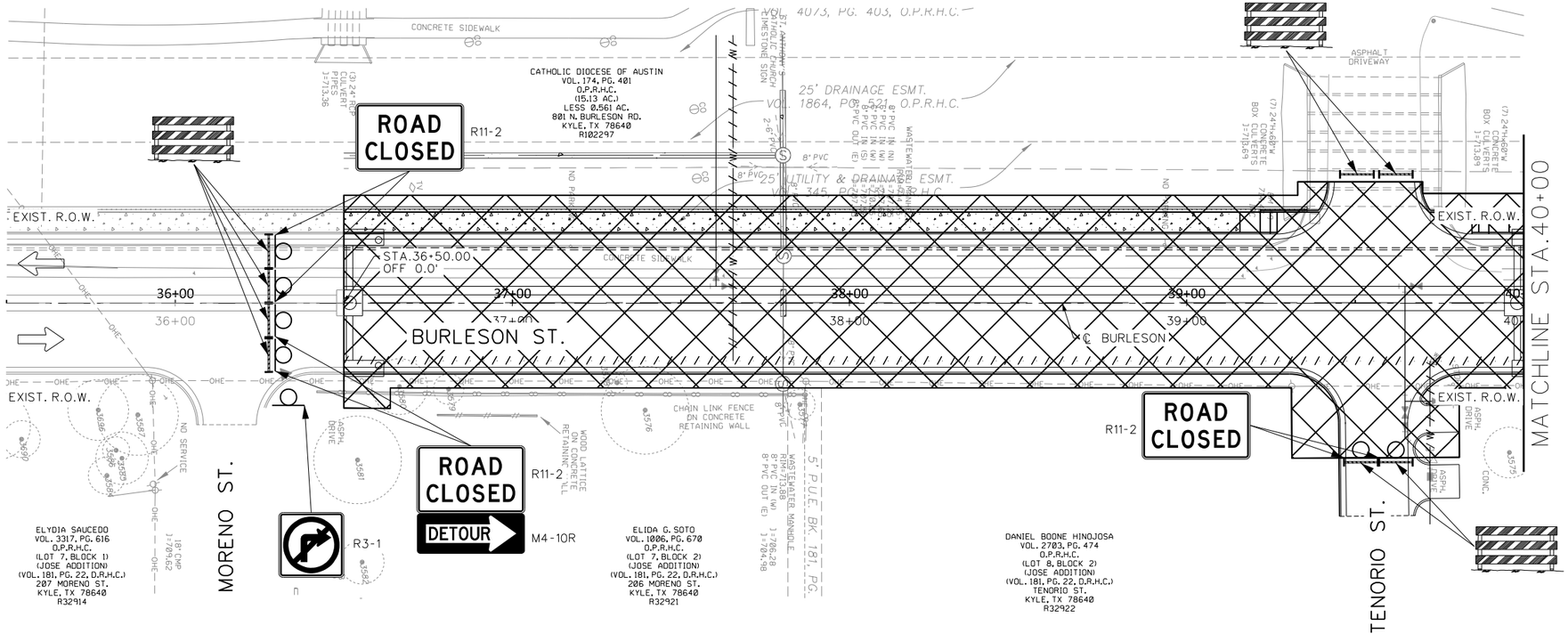
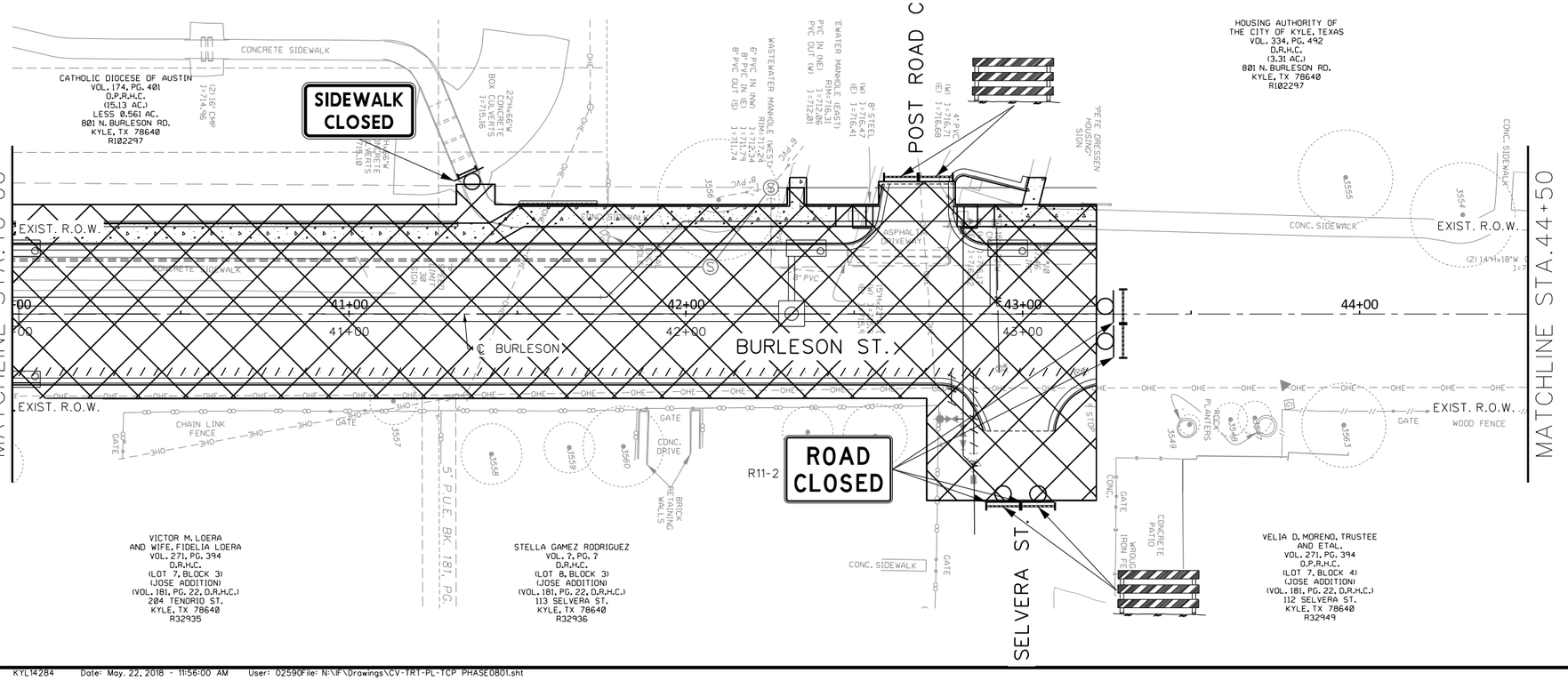
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:55:56 AM Project: Freese and Nichols, Inc.





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 8A
STA.35+50 TO STA.44+50

NO.	ISSUES	BY	DATE

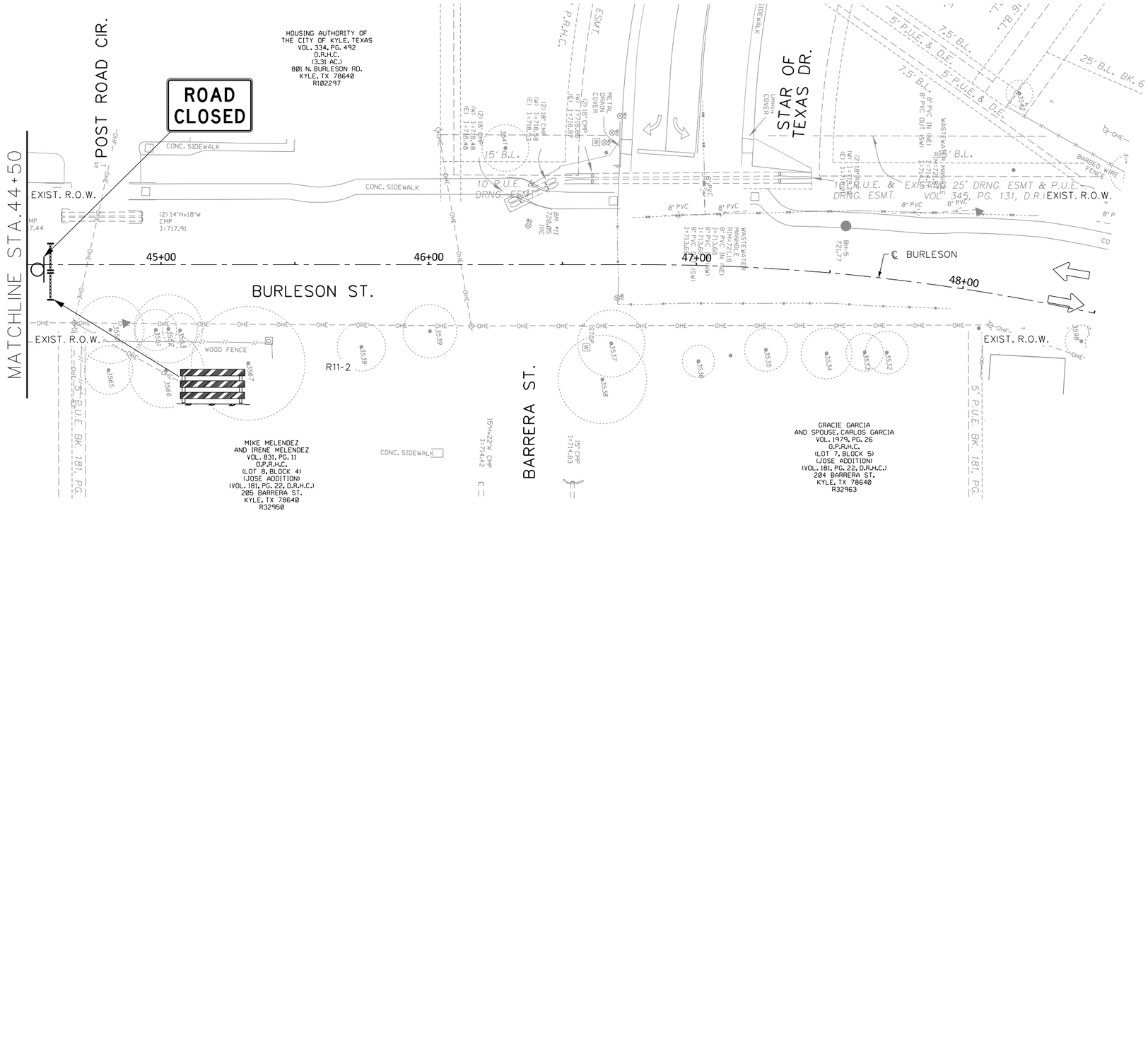
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0801.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 47
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0801.sht
Plot Date: May. 22, 2018 - 11:56:00 AM
Plot Scale: 40.0000 ' / in.
Model Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:00 AM User: 02590File: N:\IF\Drawings\CV-TRT-PL-TCP PHASE0801.sht



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR TO CONSTRUCT TEMPORARY ASPHALT LEVEL-UP TO TRANSITION BETWEEN NEW AND EXISTING PAVEMENT.

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 8A STA.37+00 TO STA.46+00

NO.	ISSUES	BY	DATE

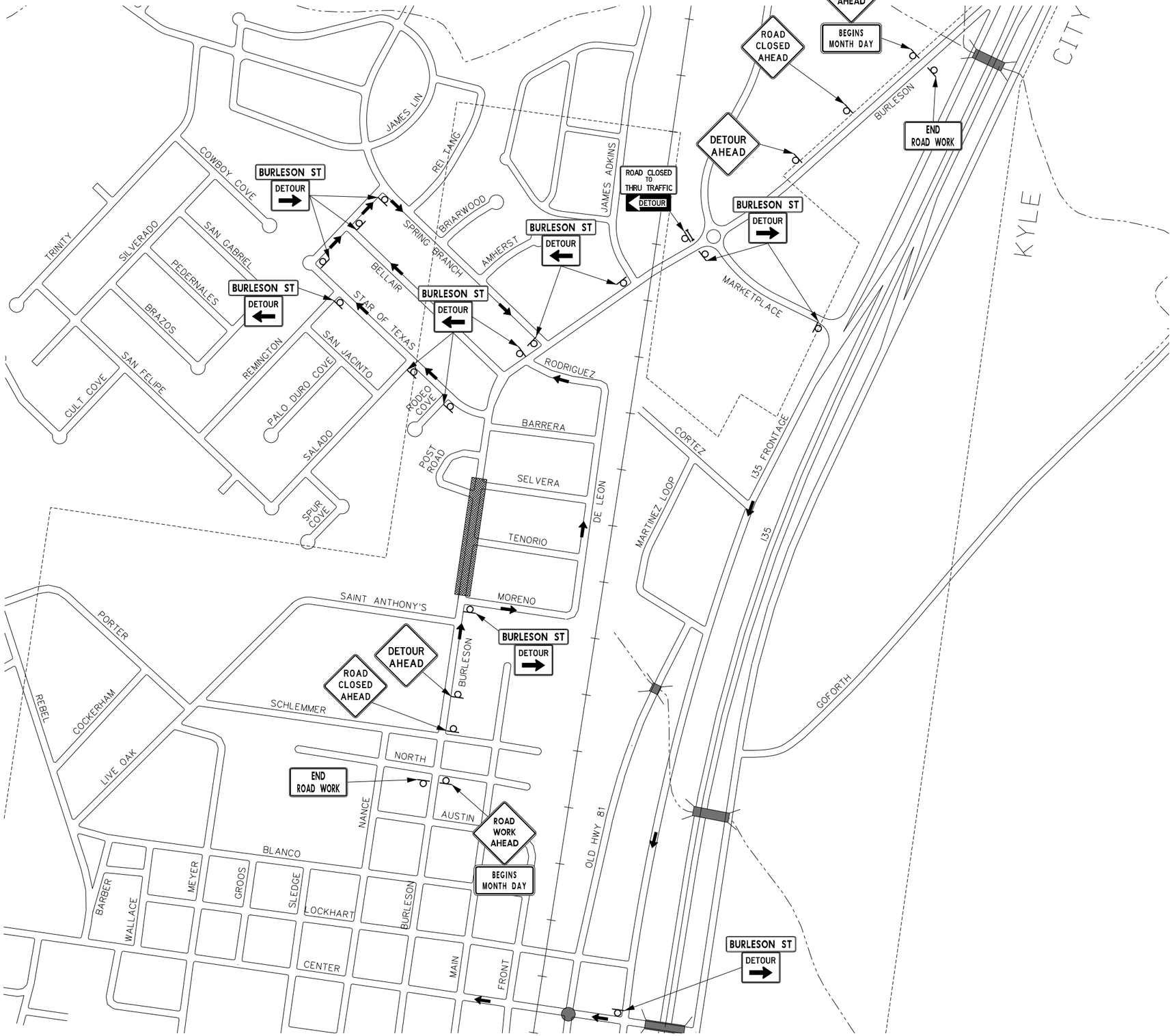
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0802.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 48
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0802.sht
Plotted: 05/22/2018 11:56:01 AM File:PHASE0802.dgn Sheet:01SHEET
Plot Scale: 40.0000 ' / in. Model:Default
Date: May. 22, 2018 - 11:56:01 AM Project:Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:01 AM User: 02590File: N:\IF\Drawings\CV-TRT-PL-TCP PHASE0802.sht



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

2. CONTRACTOR SHALL MAINTAIN ACCESS TO AT LEAST ONE INTERSECTION OF POST CIRCLE AND BURLESON STREET AT ALL TIMES.

N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 8A DETOUR LAYOUT

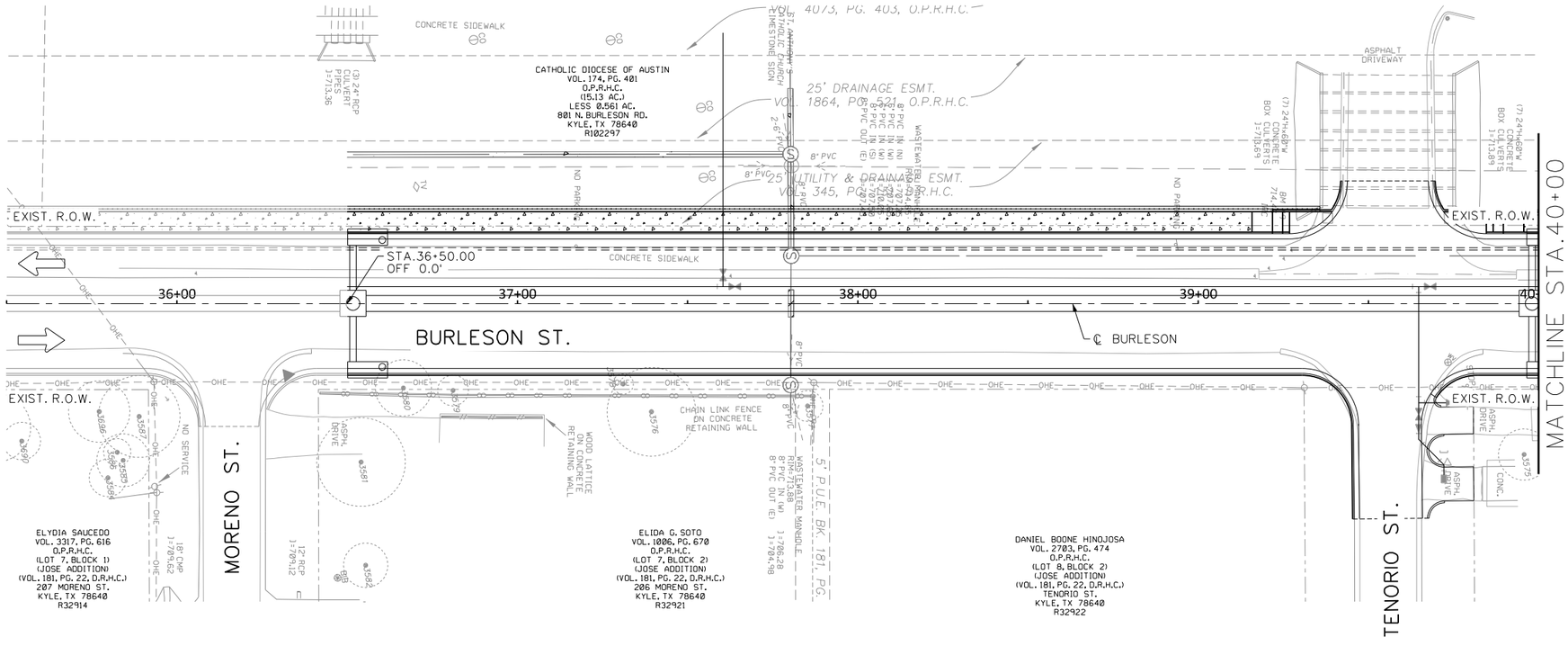
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0803.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 49
TOTAL 292

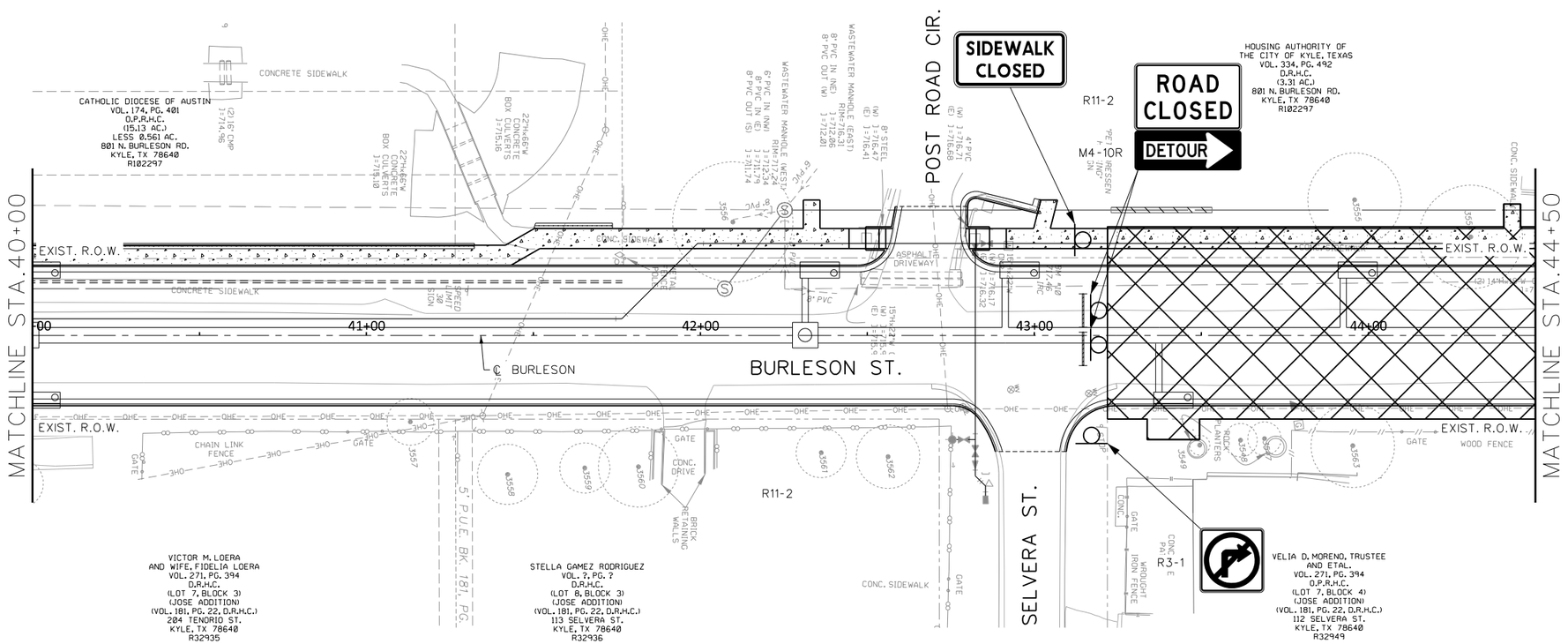
MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-TCP PHASE0803.sht
Plot Driver: HP DesignJet 500 42ep.pltPen Table: Modern Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:02 AM



LEGEND

CONSTRUCTION THIS PHASE

0 10' 20' 40'
SCALE IN FEET



0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 8B
STA.35+50 TO STA.44+50

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	PL-TCP PHASE0801B.sht

SHEET 50
TOTAL 292

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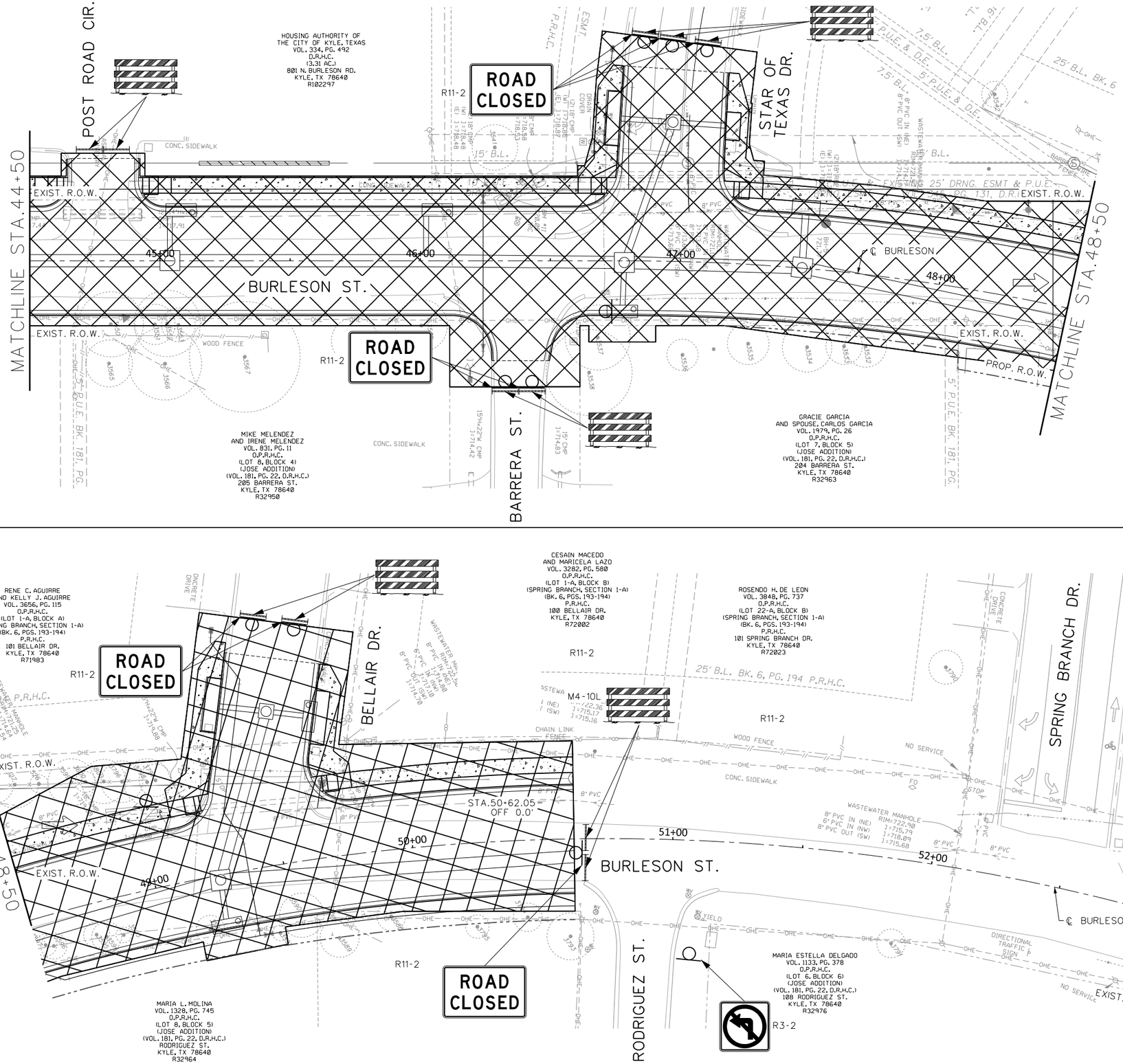
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:06 AM

Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:06 AM User: 02590File: N:\TI\Drawings\CV-TRT-PL-TCP PHASE0801B.sht



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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CIVIL

TRAFFIC CONTROL PLAN PHASE 8B
STA.44+50 TO STA.53+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

FAN JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	PL-TCP PHASE0802B.sht

SHEET 51
TOTAL 292

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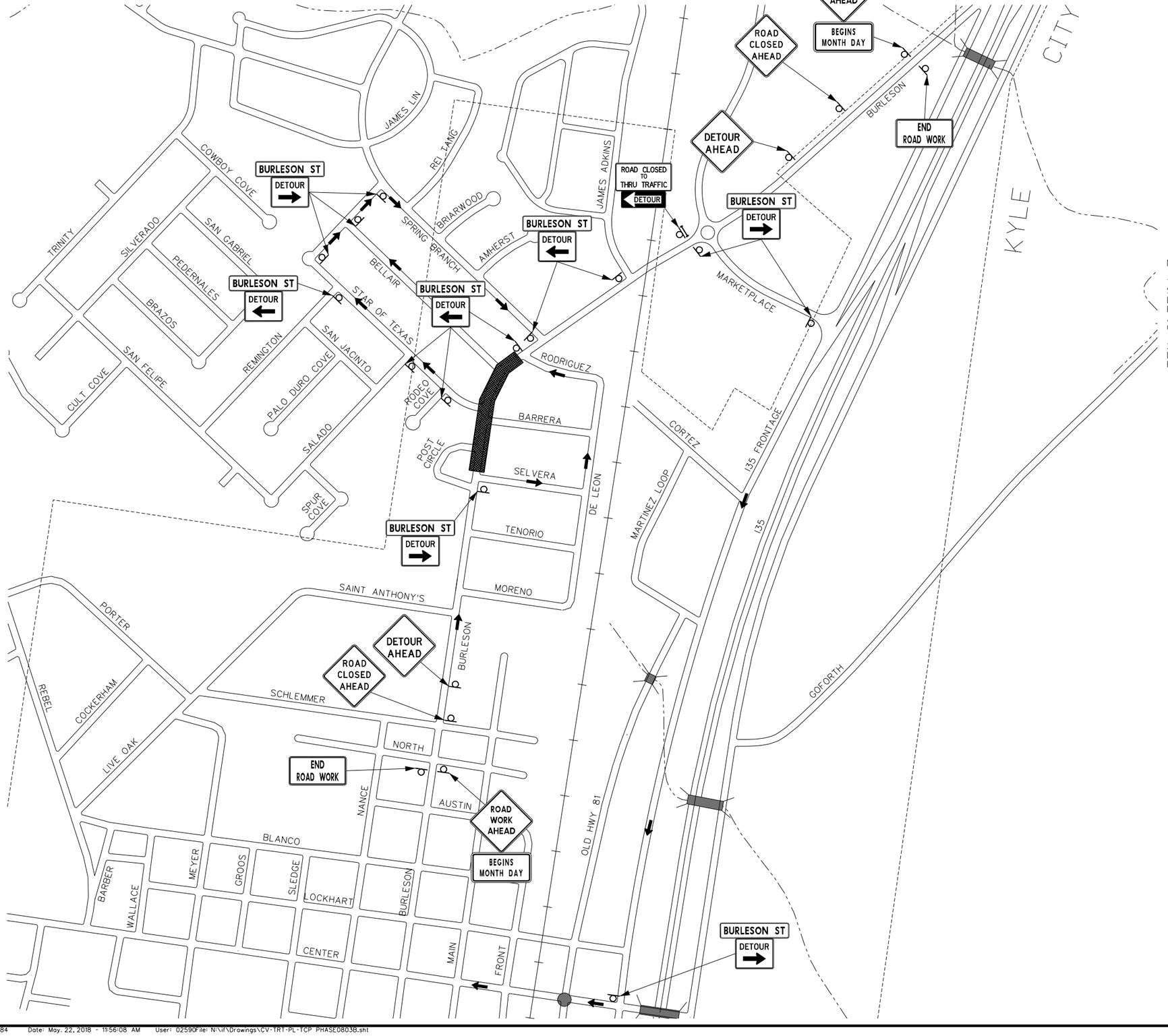

LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

2. CONTRACTOR SHALL MAINTAIN ACCESS TO AT LEAST ONE INTERSECTION OF POST CIRCLE AND BURLESON STREET AT ALL TIMES.

N

N.T.S.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 8B DETOUR LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0803B.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0" 1"

SHEET 52
TOTAL 292

MicroStation V8 User: 02590Office: Austin
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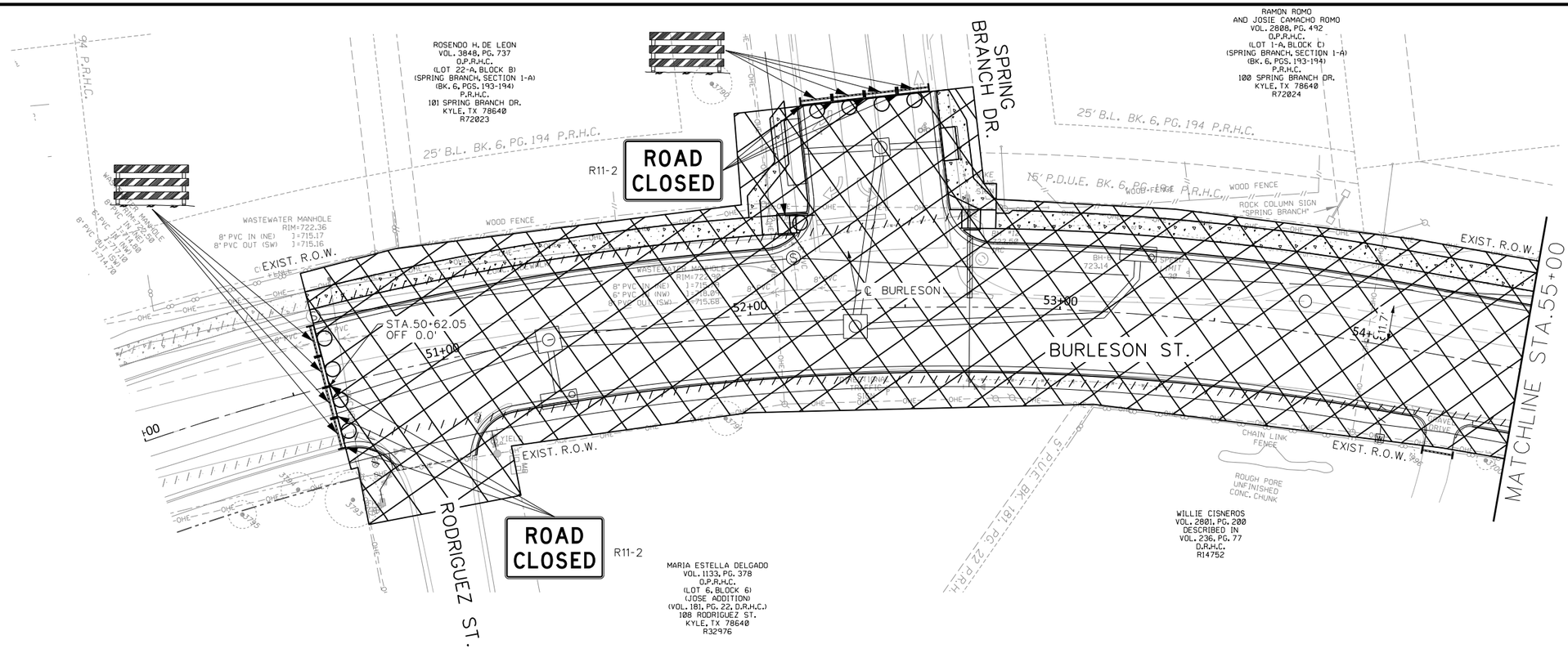

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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LICENSED
PROFESSIONAL
ENGINEER
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 9
STA.50+00 TO STA.59+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284

DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-TCP PHASE0901.sht

SHEET 53
TOTAL 292

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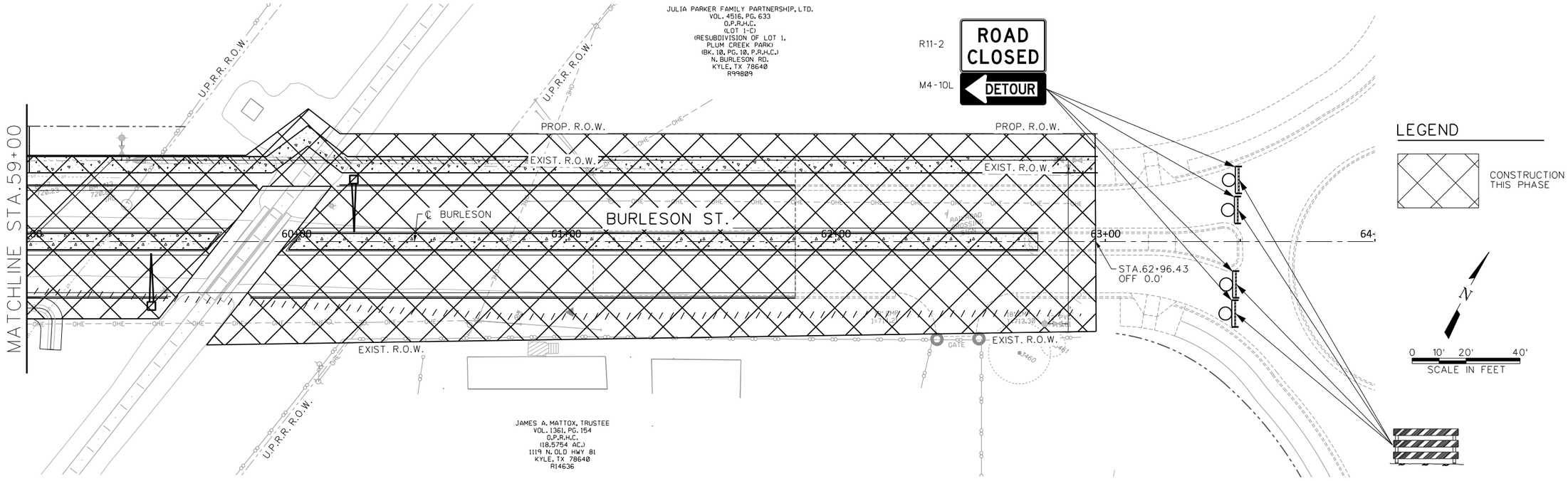
Date: May. 22, 2018 - 11:56:11 AM



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 9
STA.59+00 TO STA.64+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0902.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 54
TOTAL 292

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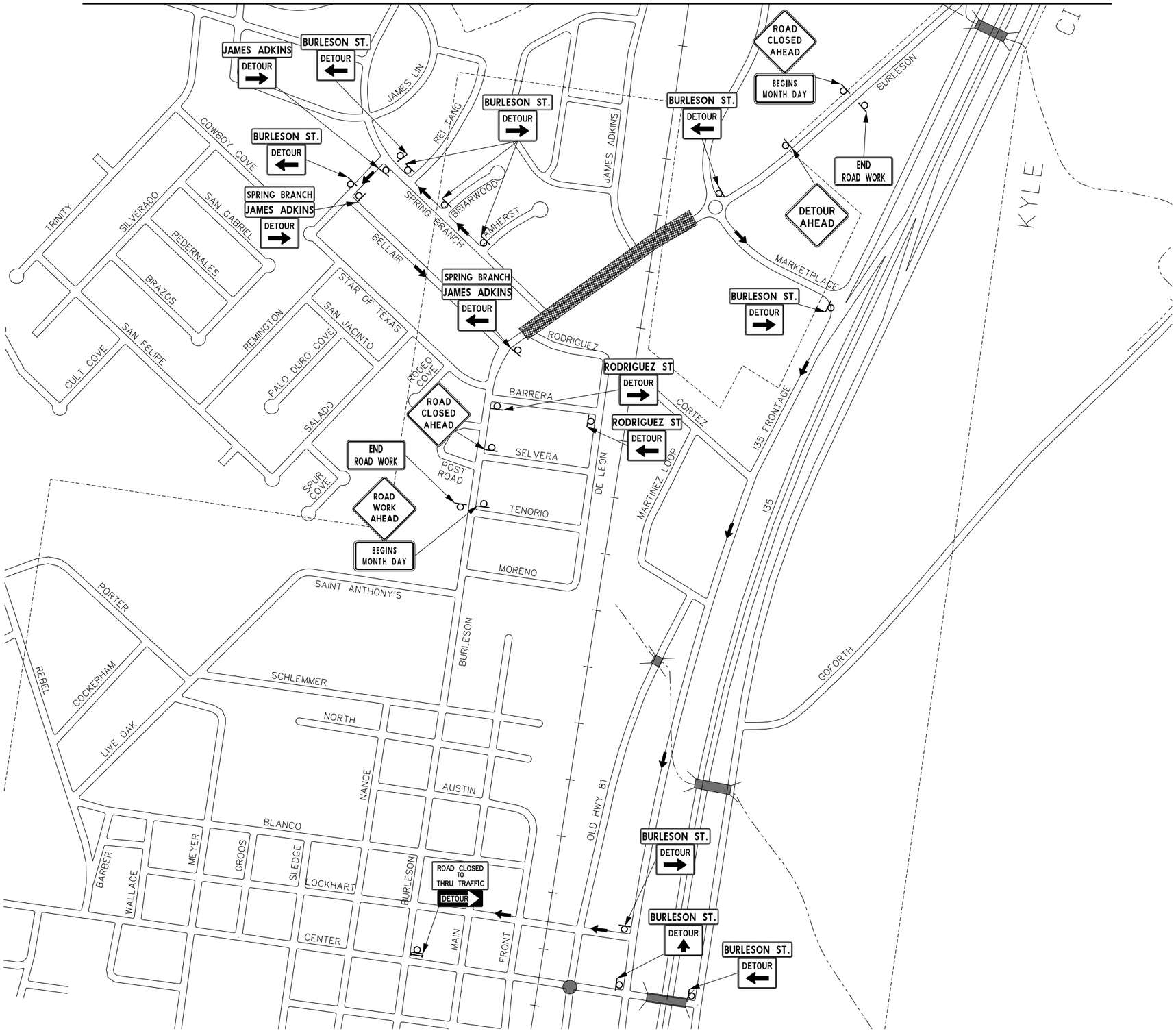
Project: Freese and Nichols, Inc.

MATCHLINE



LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

N

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FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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LICENSED
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5/22/2018

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CITY OF KYLE, TEXAS

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CIVIL

TRAFFIC CONTROL PLAN PHASE 9 DETOUR LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0903.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 55
TOTAL 292

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Date: May. 22, 2018 - 11:56:14 AM
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Project: Texas and Nichols, Inc.

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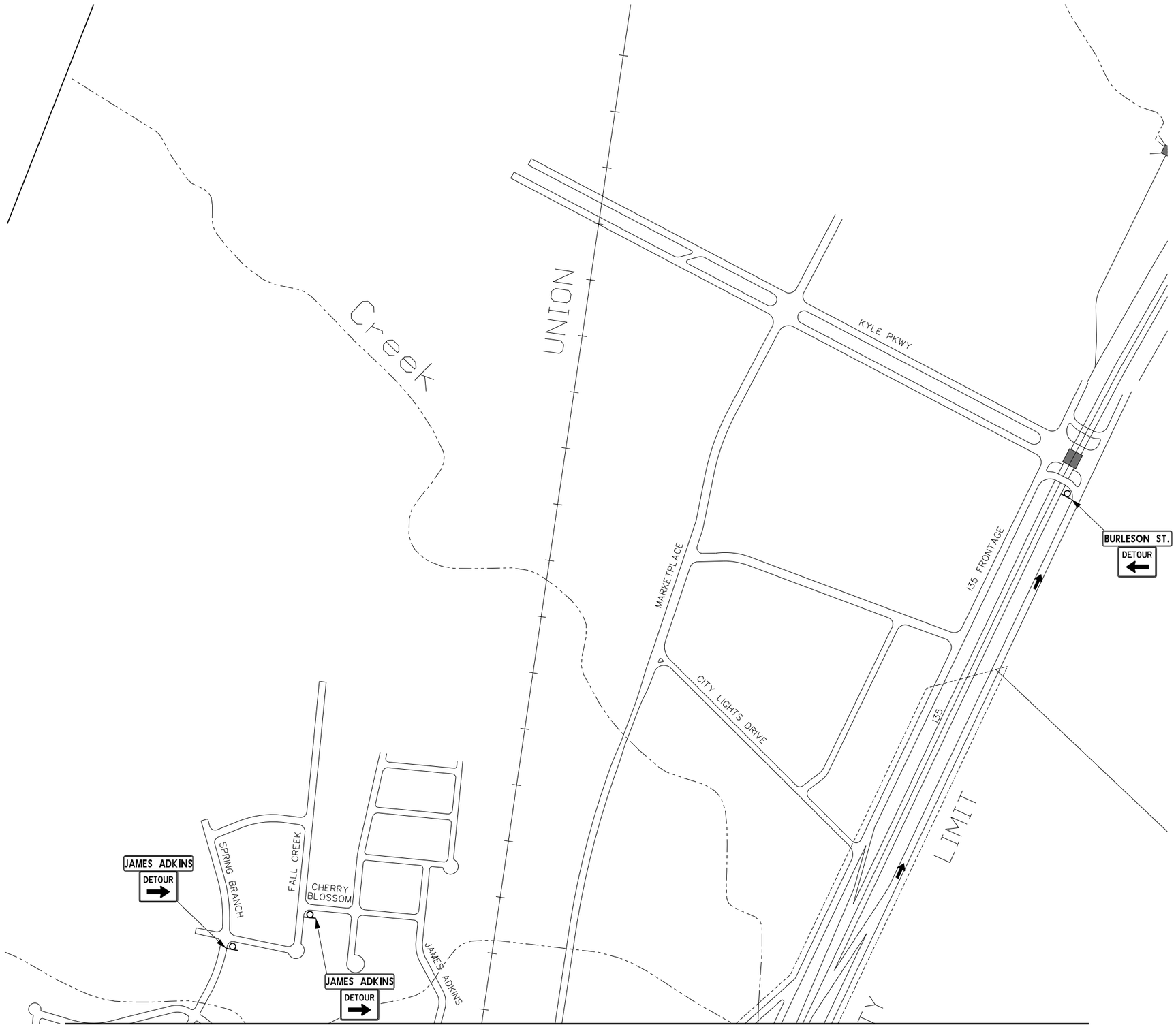

LEGEND

CONSTRUCTION THIS PHASE

NOTE:

1. CONTRACTOR SHALL PROVIDE PORTABLE MESSAGE SIGNS FOR THREE (3) DAYS IN ADVANCE OF ALL LANE CLOSURES. MESSAGE TO BE DISPLAYED AND PLACEMENT OF MESSAGE BOARDS MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF MESSAGE BOARDS.

N

N.T.S.

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TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

TRAFFIC CONTROL PLAN PHASE 9 DETOUR LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-TCP PHASE0904.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 56
TOTAL 292

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Date: May. 22, 2018 - 11:56:15 AM Project: Freese and Nichols, Inc.

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY APPAREL NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

DATE: May.22, 2018 - 11:56:16 AM
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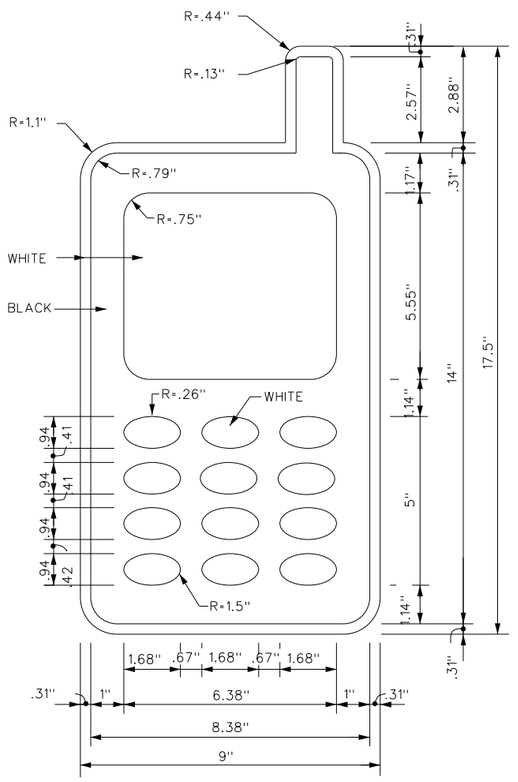


3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

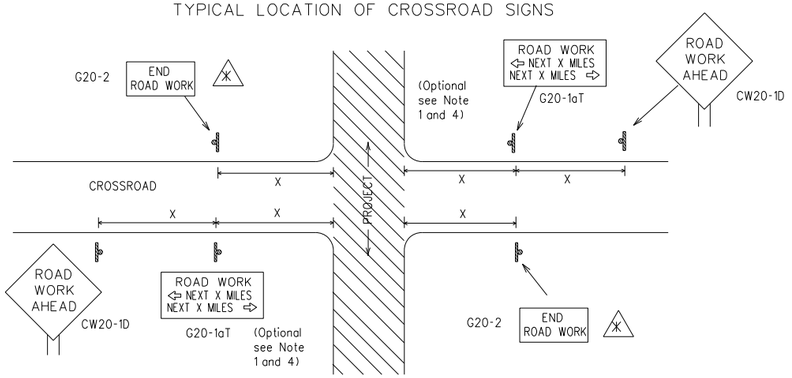
Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 5-10 8-14 9-07 7-13	DIST	COUNTY		SHEET NO. 57

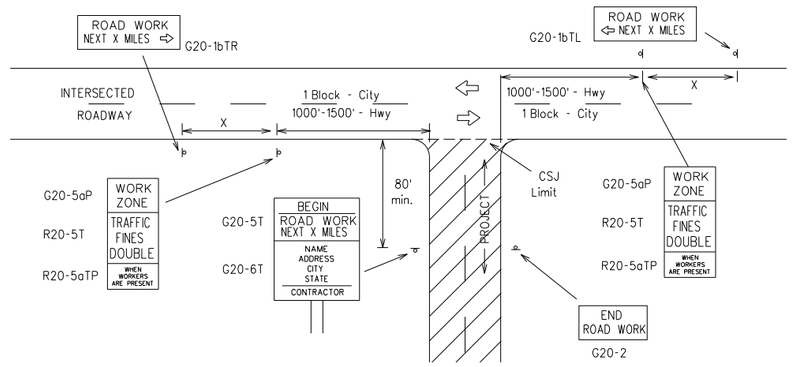
TYPICAL LOCATION OF CROSSROAD SIGNS



✳ May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

1.5.6

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign Spacing △ "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500 [2]
60	600 [2]
65	700 [2]
70	800 [2]
75	900 [2]
80	1000 [2]
✳	✳ [3]

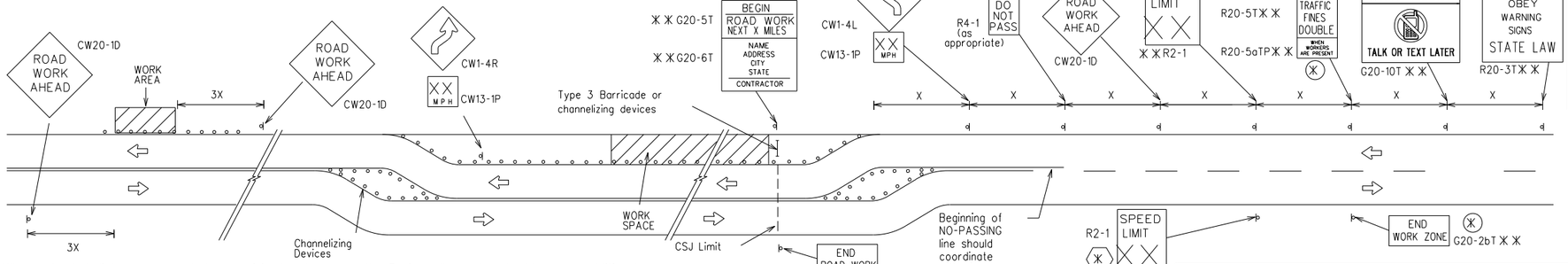
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

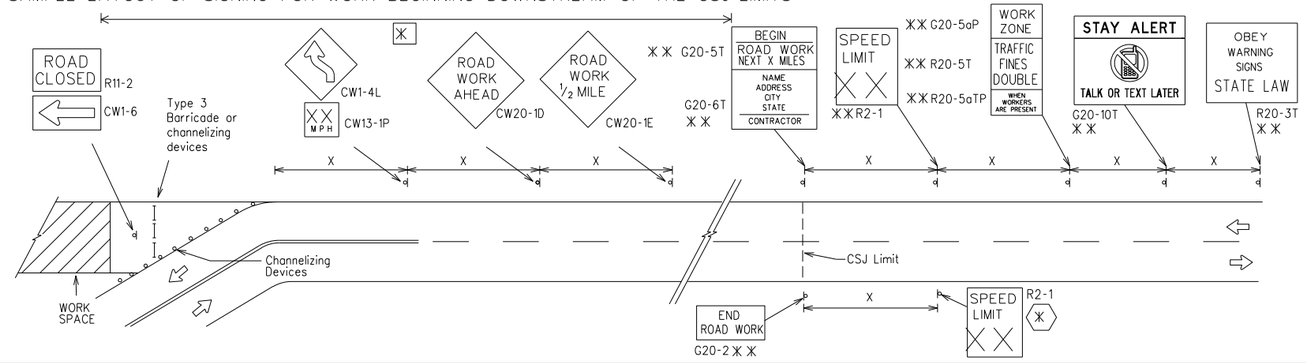
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

(✳) The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

✳✳ Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

[✳] Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

⟨✳⟩ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

⊢	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO. 58

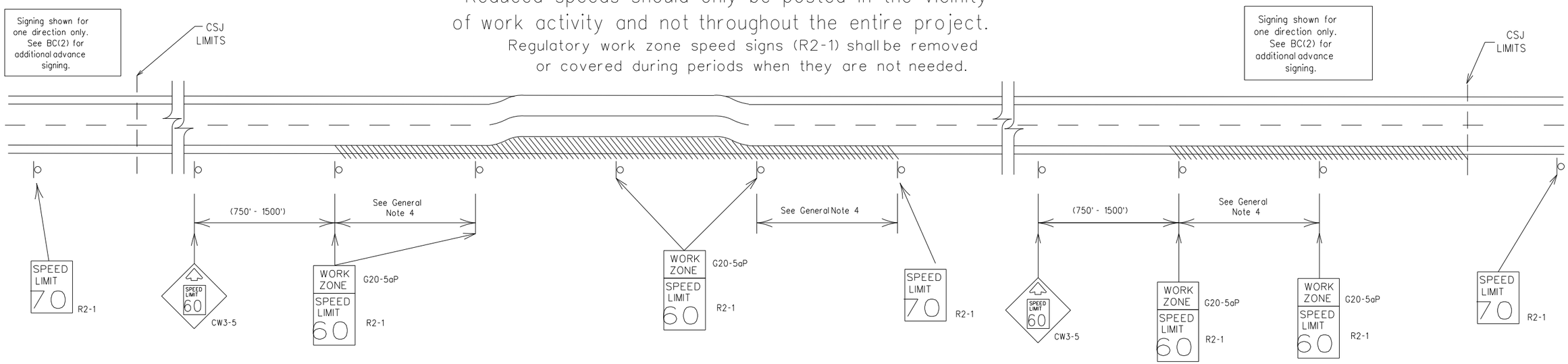
96

DATE: May. 22, 2018 - 11:56:16 AM
FILE: N:\IfC\Drawings\CV-TRT-DT-bc-14.sht

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.
Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the travelled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

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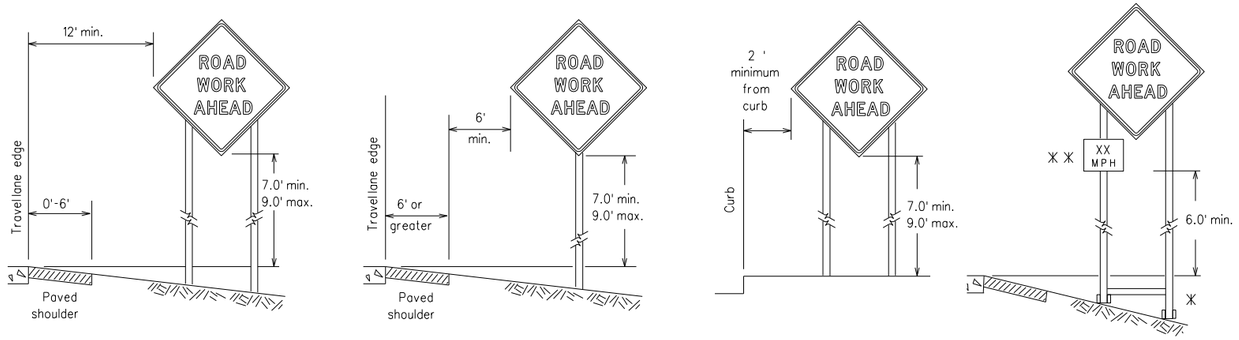
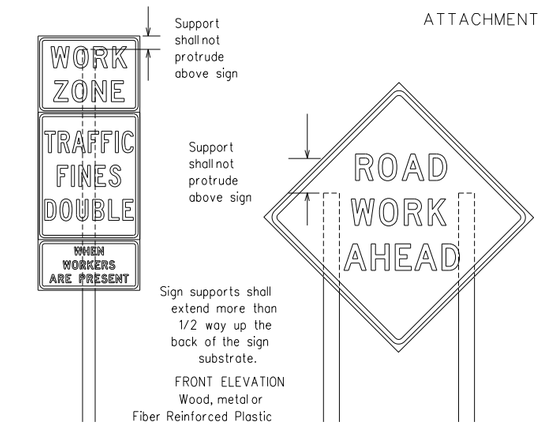
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



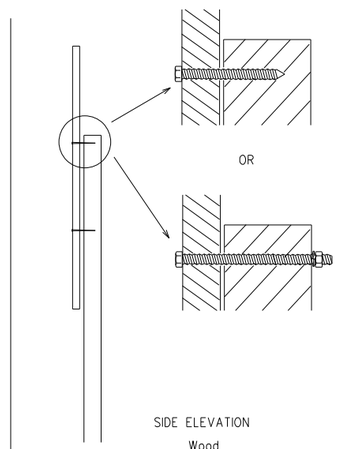
✳ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

✳✳ When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

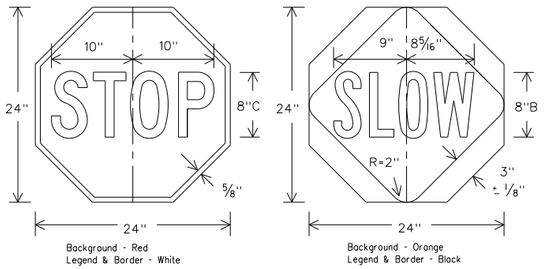


Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD). The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

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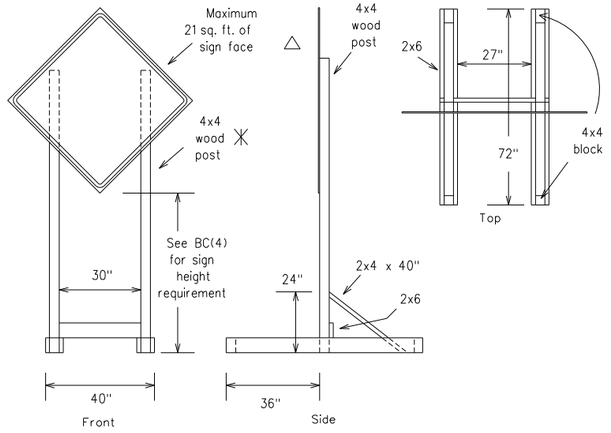
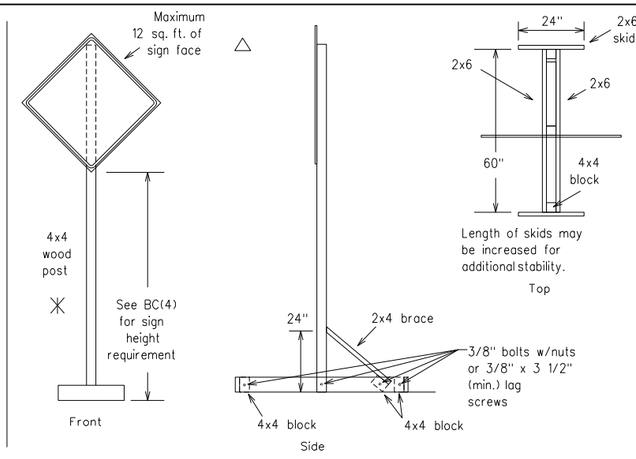
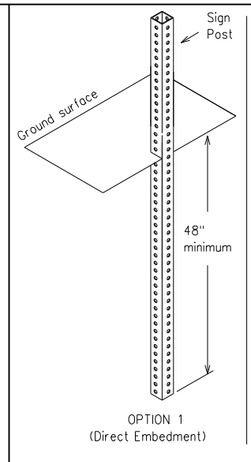
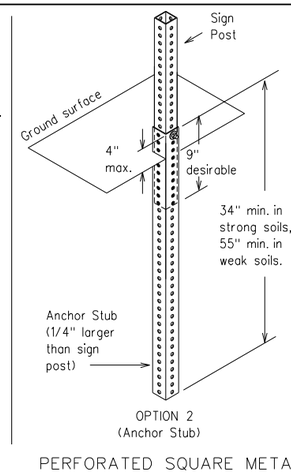


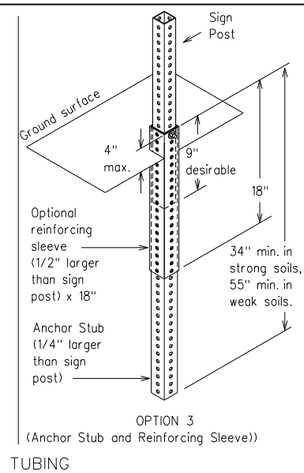


SKID MOUNTED WOOD SIGN SUPPORTS

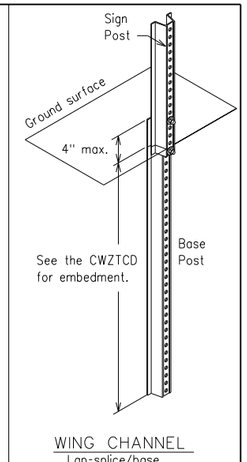
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □







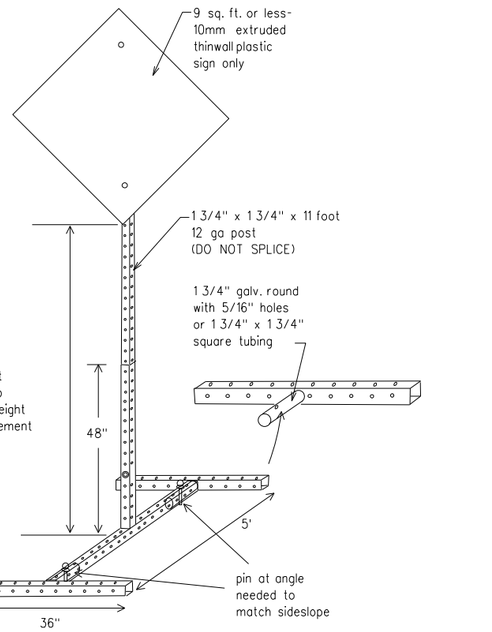
PERFORATED SQUARE METAL TUBING

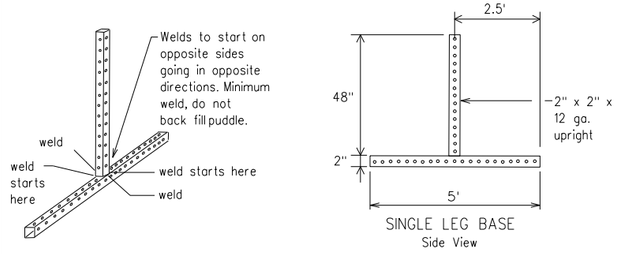


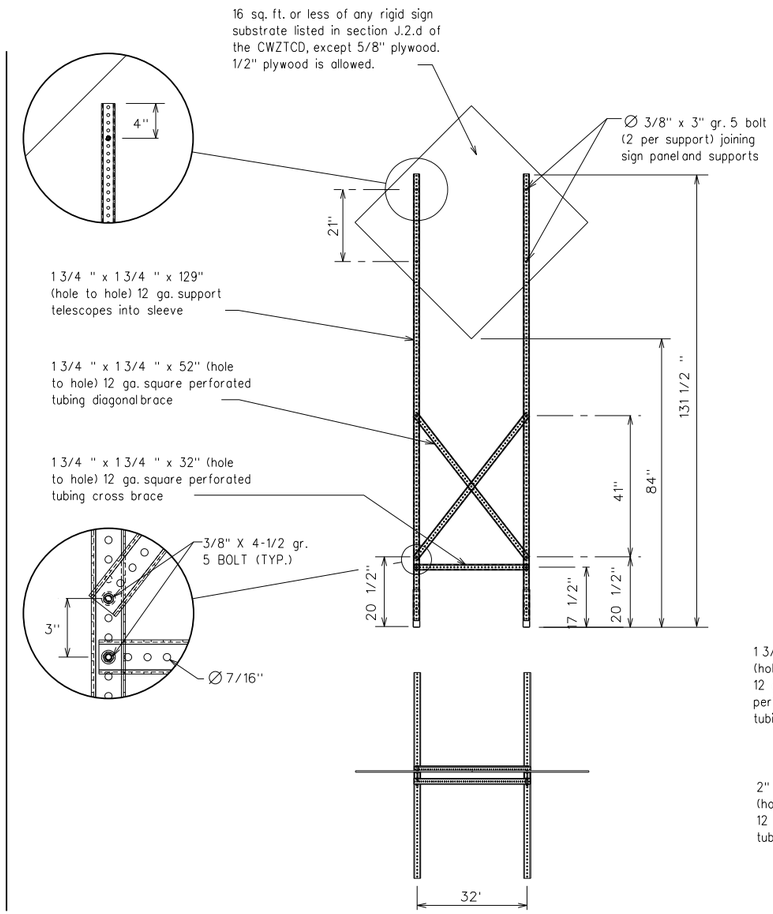
WING CHANNEL
Lap-splice/base bolted anchor

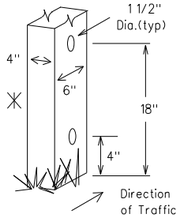
GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.



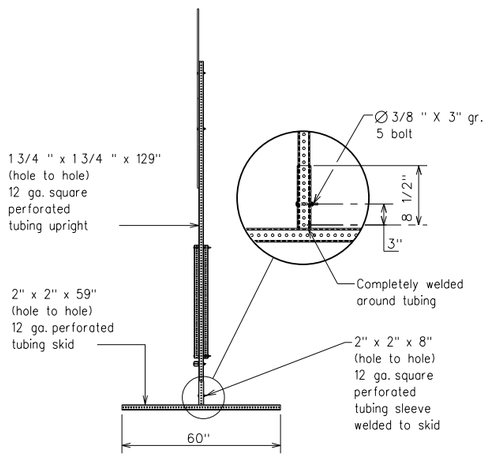






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND MOUNTED SIGN SUPPORTS



WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

□ See BC(4) for definition of "Work Duration."

✳ Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

△ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation # IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXX TO XXXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

** Advance Notice List

TUE-FRI XX AM- X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

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Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

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REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO. 62

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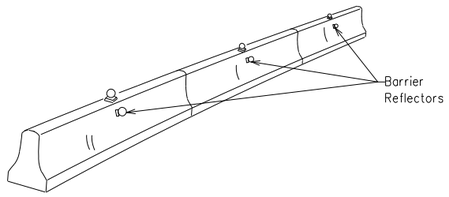
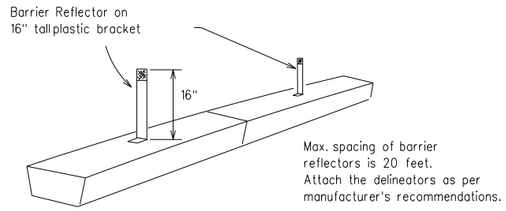
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

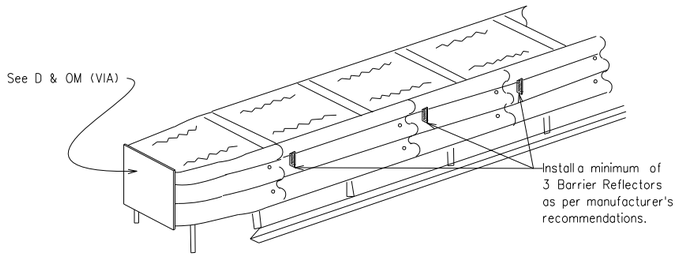


CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB)

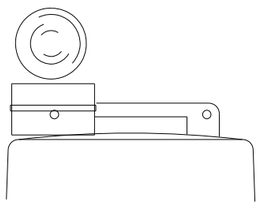


DELINEATION OF END TREATMENTS

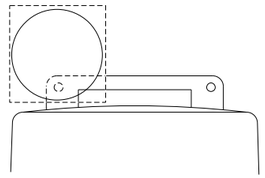
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square.Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B or C $_{FL}$Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

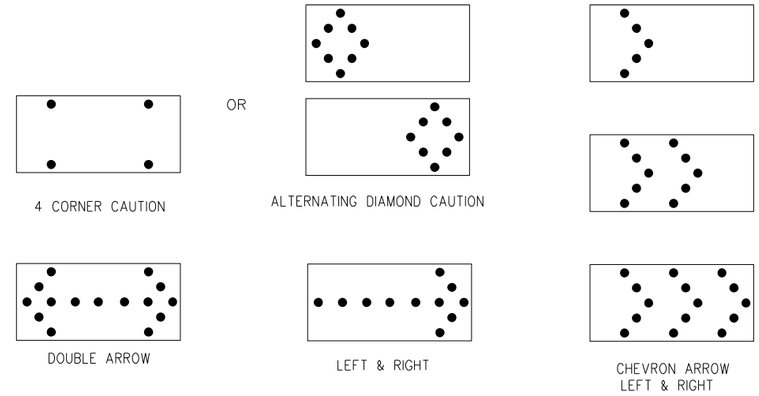
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-14

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

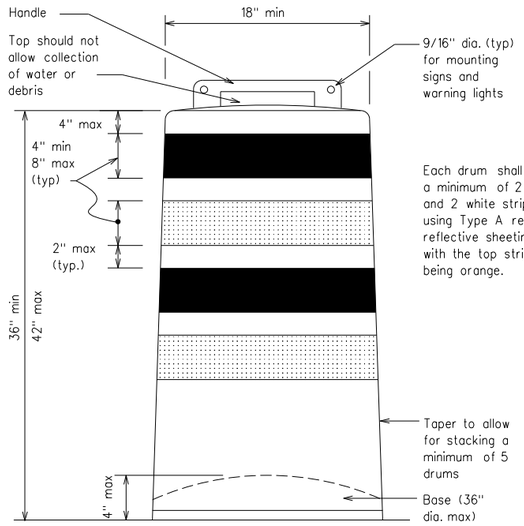
1. Plastic drums shall be a two-piece design: the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

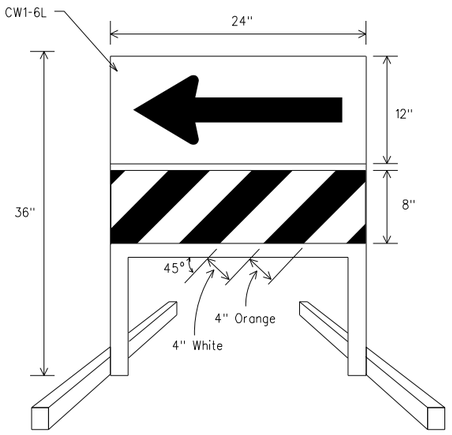
RETROREFLECTIVE SHEETING

1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

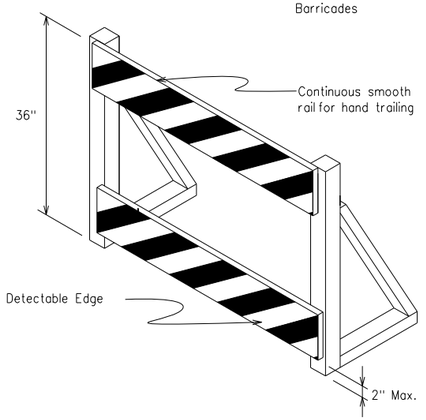
1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.





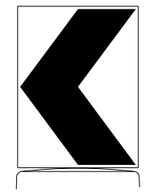
DIRECTION INDICATOR BARRICADE

1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B or $_{EL}$Type C Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

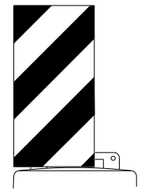


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades may use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B or $_{EL}$Type C Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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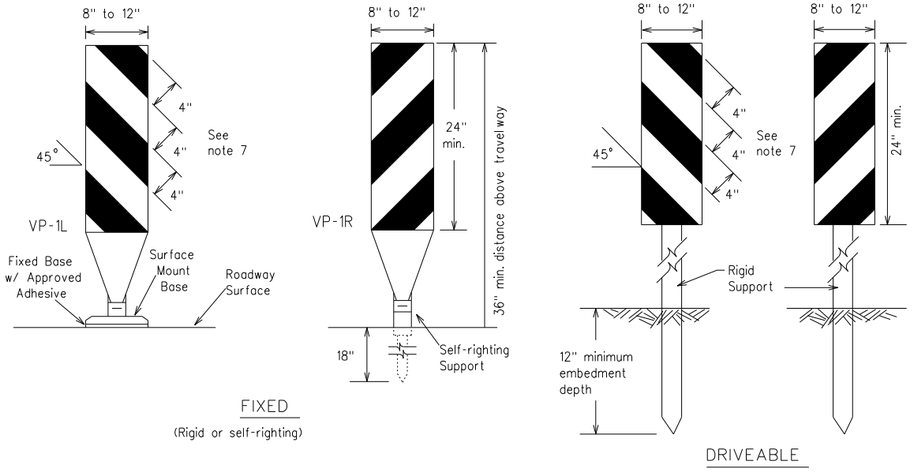

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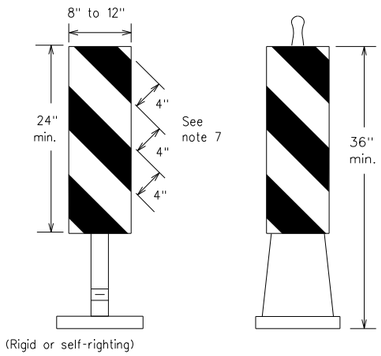
(Rigid or self-righting)

DRIVEABLE

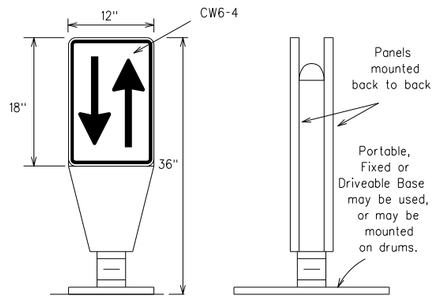


(Rigid or self-righting)

PORTABLE

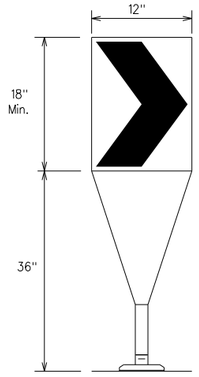
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



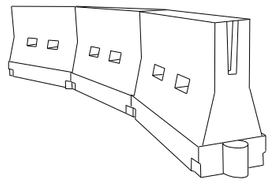
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B or Type C conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10) placed near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate NCHRP 350 crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	$L=WS$	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

** Taper lengths have been rounded off.
L=Length of Taper (FT.) W=Width of Offset (FT.)
S=Posted Speed (MPH)

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

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REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO. 65

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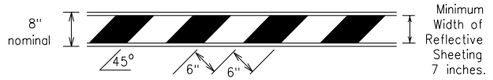
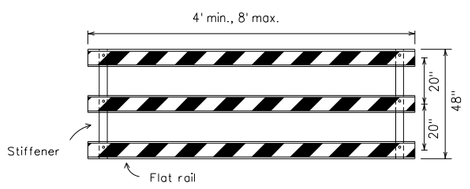
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



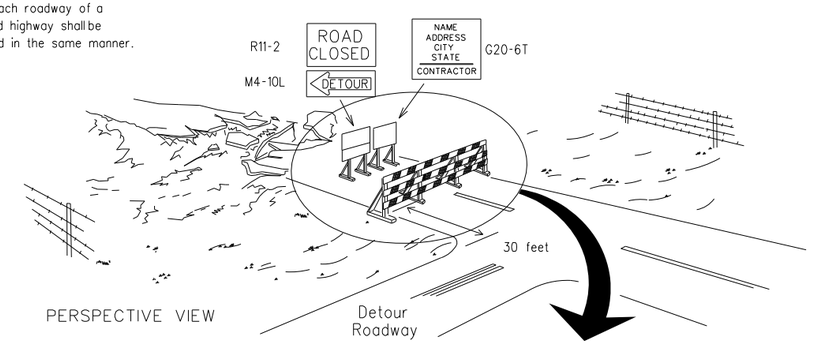
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

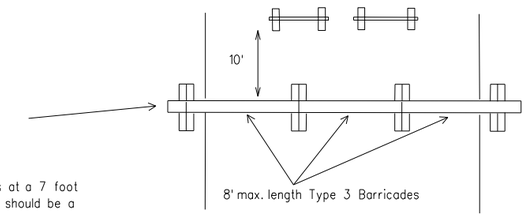
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

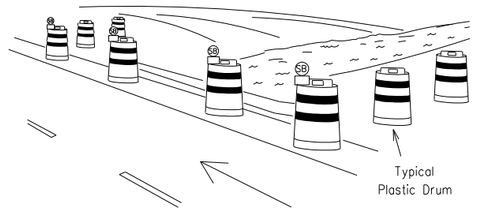
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

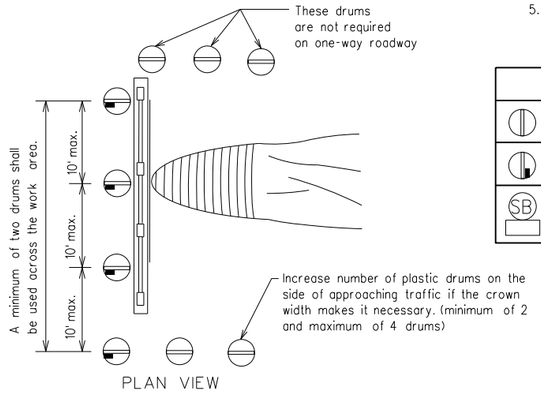
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

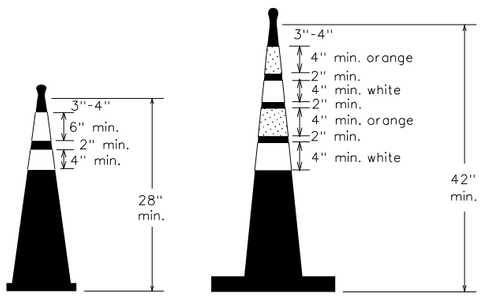
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



PLAN VIEW

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

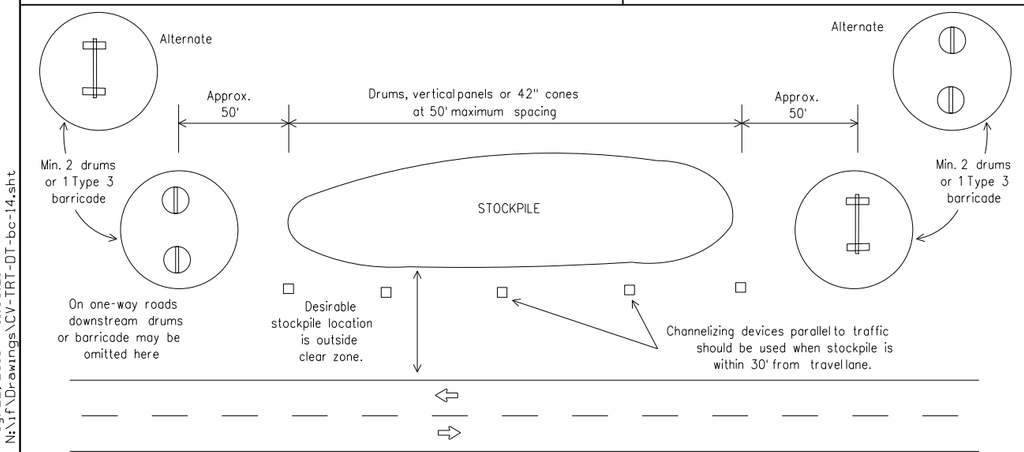
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

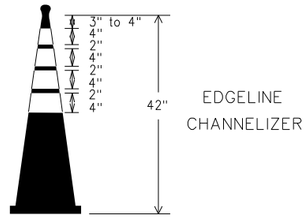
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers used at night shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

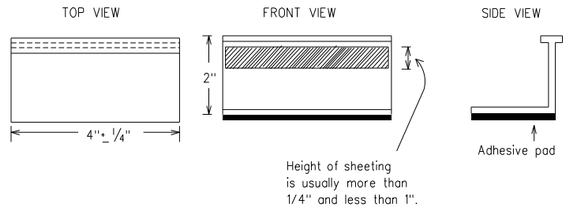
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

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Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

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11-02 8-14				

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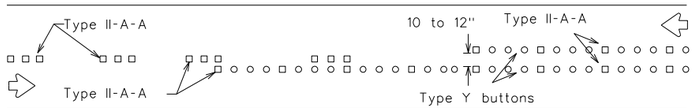
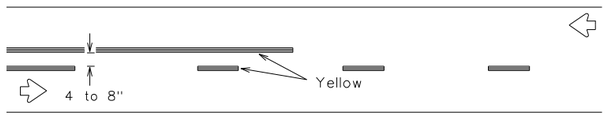
PAVEMENT MARKING PATTERNS

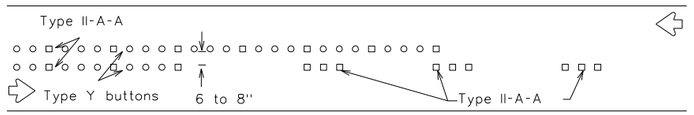
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



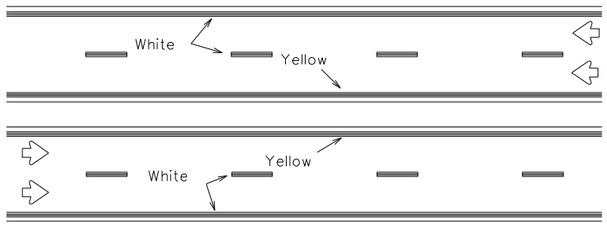
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



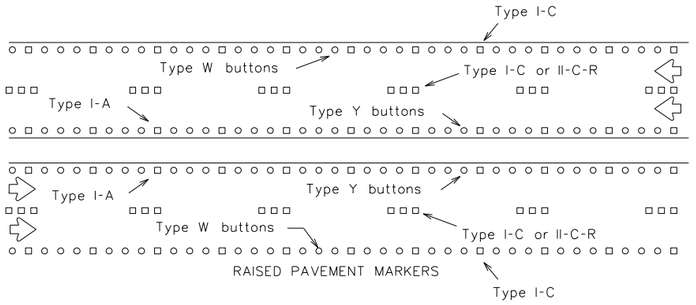
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



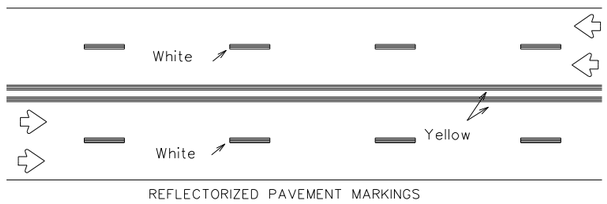
REFLECTORIZED PAVEMENT MARKINGS



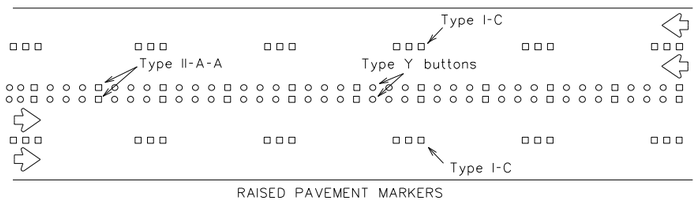
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



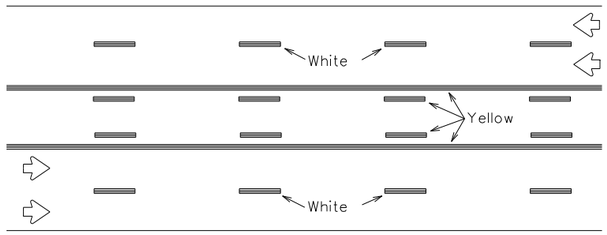
REFLECTORIZED PAVEMENT MARKINGS



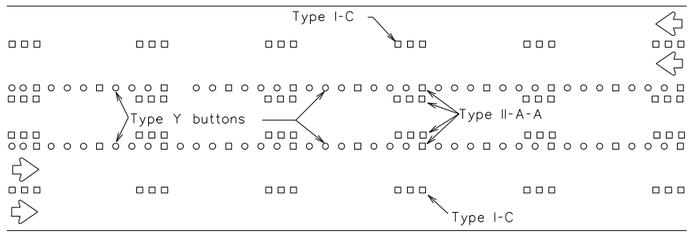
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

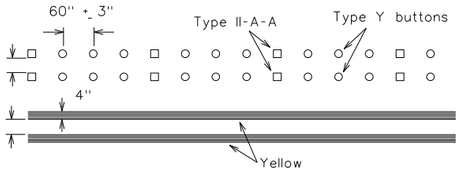
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

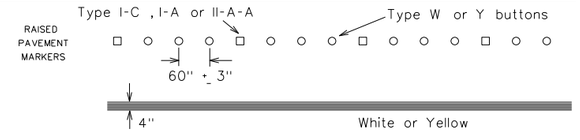
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

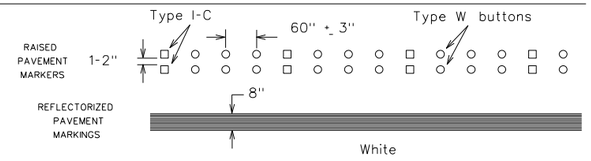


EDGE LINE OR SINGLE NO-PASSING LINE



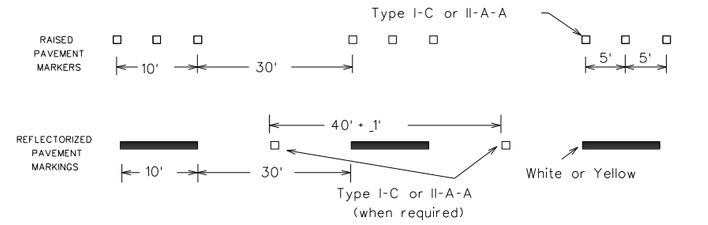
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

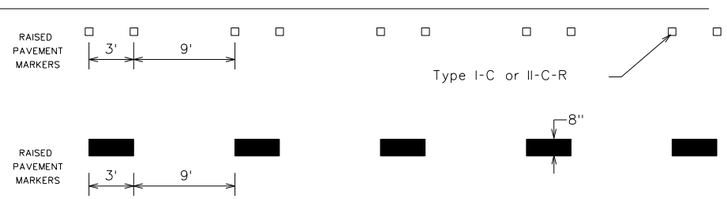


BROKEN LINES

CENTER LINE OR LANE LINE

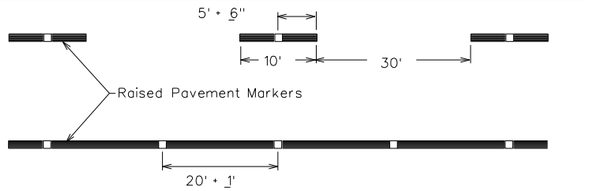


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

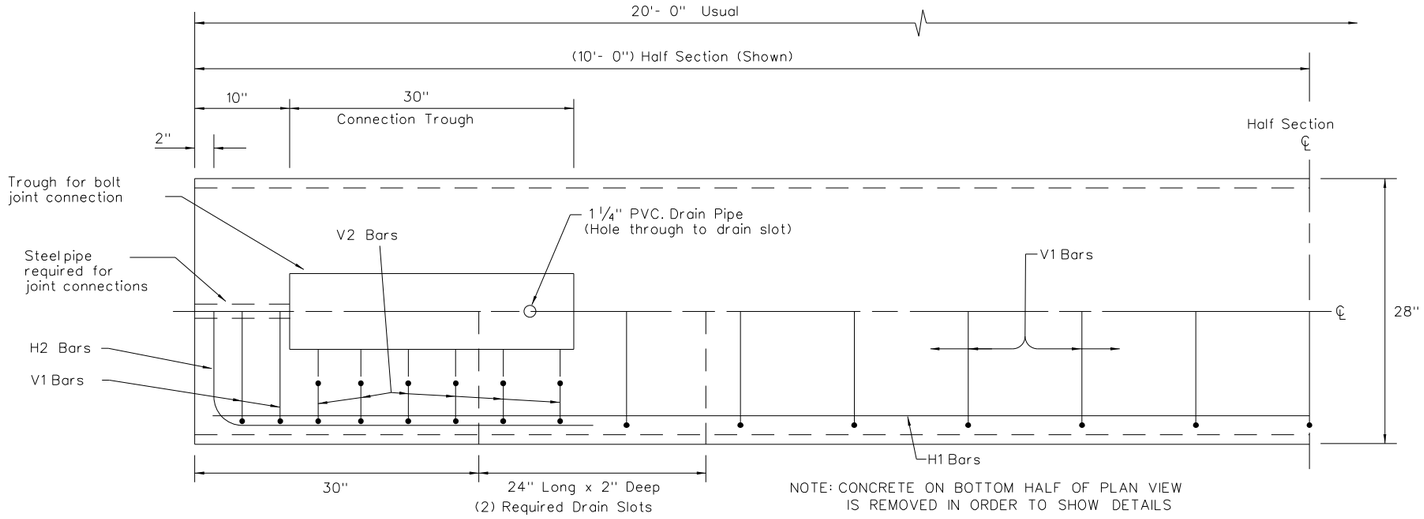
Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

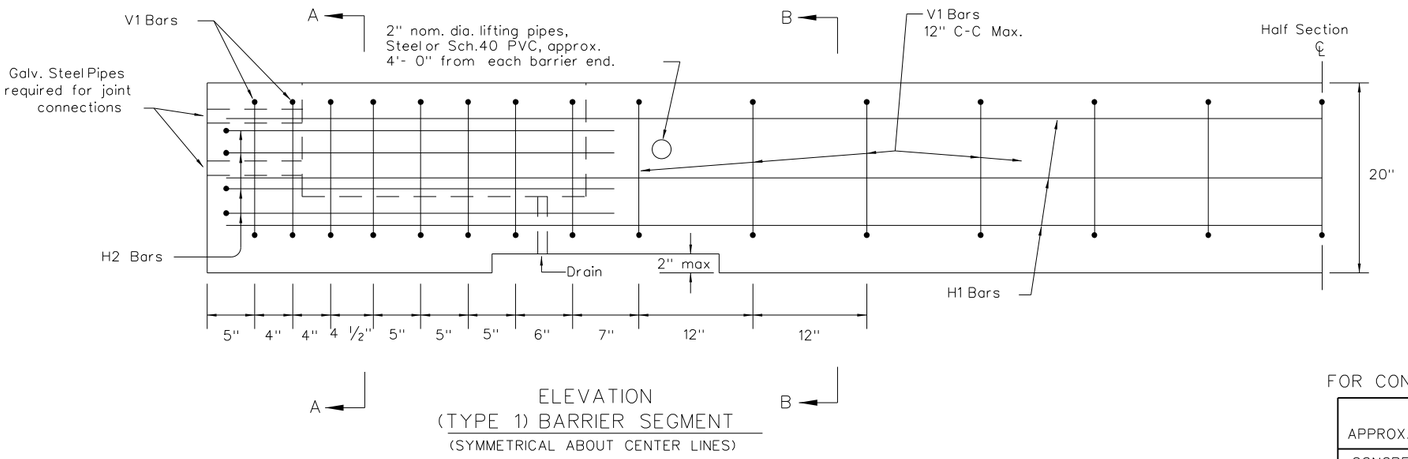
BC(12)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 9-07	DIST	COUNTY		SHEET NO.
2-98 7-13				68
11-02 8-14				

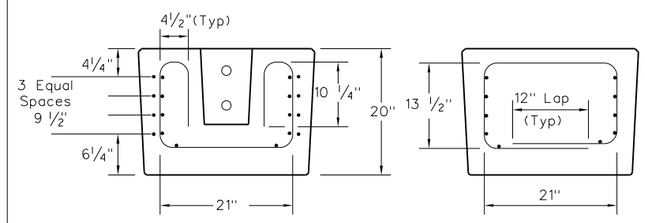
106



PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



SECTION A-A SECTION B-B

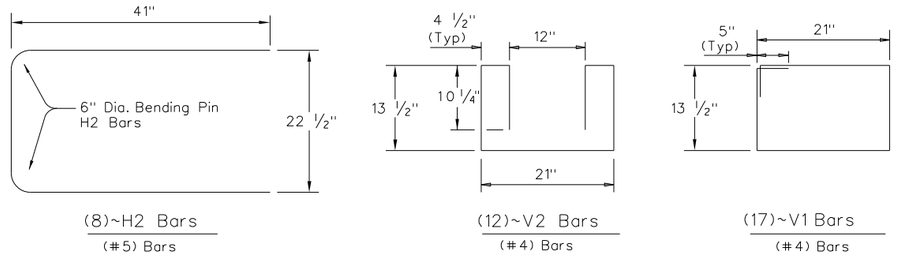
(WWR) GENERAL NOTES

1. Deformed Welded Wire Reinforcement shall conform to ASTM A497.
2. Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
3. Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

8 ~ (D31) Horizontal Wires (Equally spaced)
10 ~ (D20) Horizontal Wires (Equally spaced)
29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)

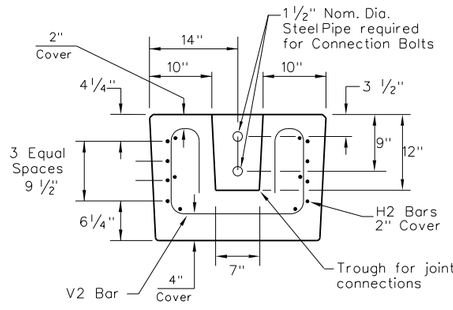
WELDED WIRE REINFORCEMENT (WWR)- OPTIONAL REINFORCING



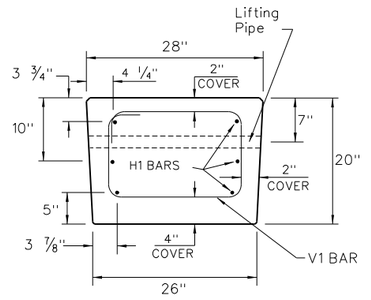
(8)~H2 Bars (#5) Bars
(12)~V2 Bars (#4) Bars
(17)~V1 Bars (#4) Bars

REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT

Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



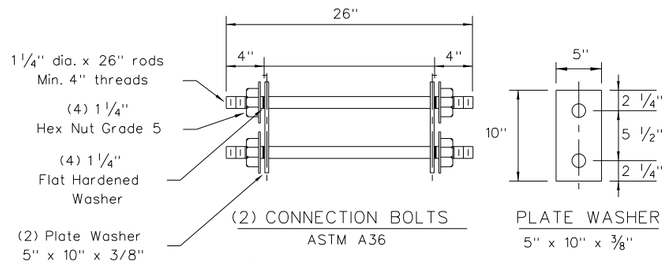
SECTION B-B

GENERAL NOTES

1. Low Profile Concrete Barrier (LPCB), is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
2. Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
3. Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
4. Precast LPCB barrier length shall be 20 ft.
5. All barrier edges shall have 3/4" chamfer or a tooled radius.
6. Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts." and is considered subsidiary.
7. Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445,"Galvanizing."
8. Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

(TYPE 1) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	2.6
REINFORCING STEEL	LBS	330
TOTAL BARRIER WT.	LBS	11000



Note: Rods, Hex nuts and Washers shall be Galvanized.

SHEET 1 OF 2

Texas Department of Transportation — Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 1)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				69

DATE: May. 22, 2018 - 11:56:23 AM
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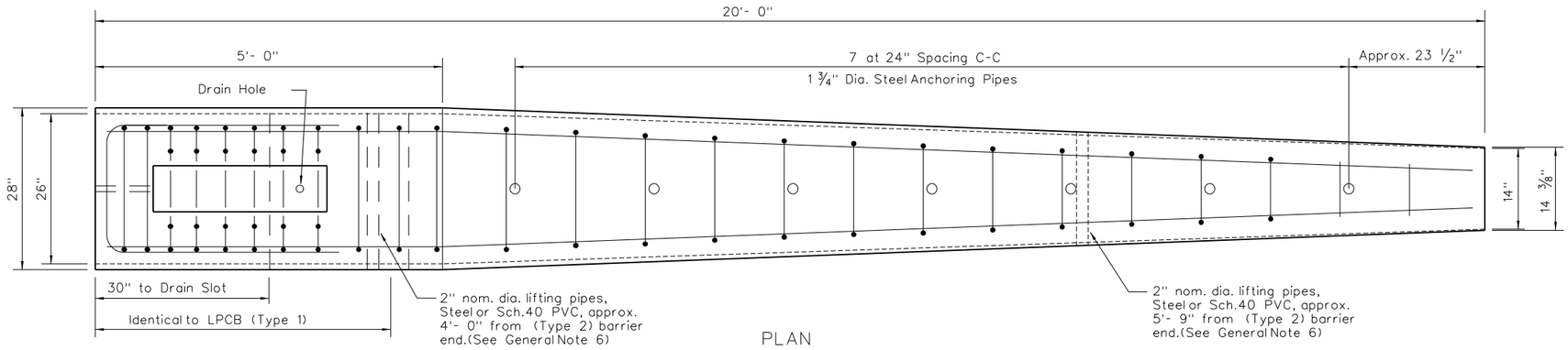
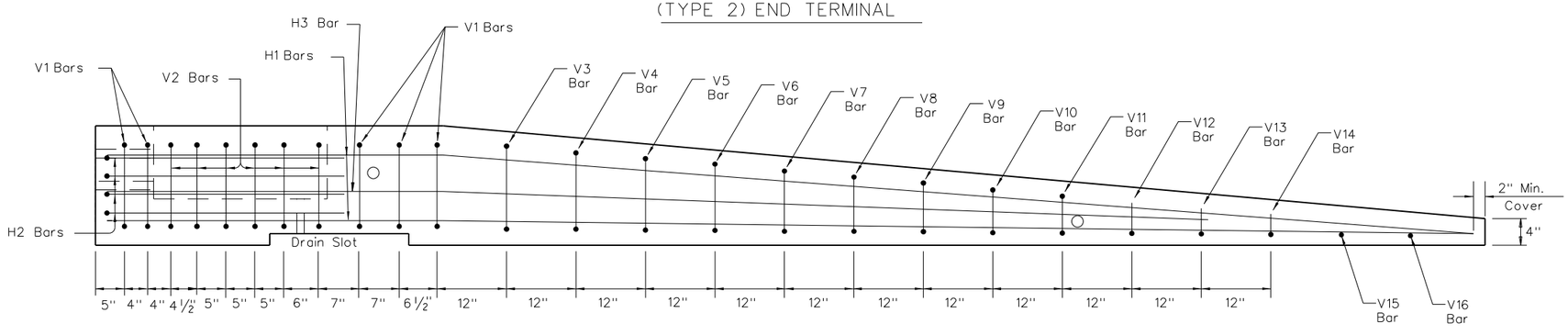
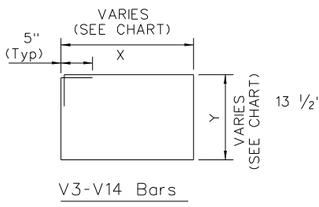


PLAN
(TYPE 2) END TERMINAL

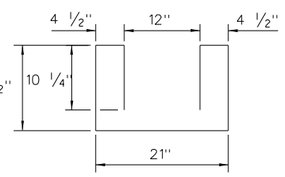


ELEVATION
(TYPE 2) END TERMINAL

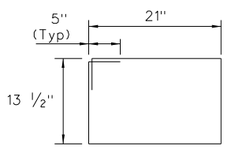
Note:
Anchoring pipes not shown in Elevation View



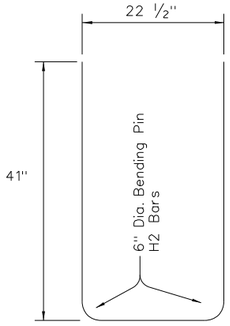
V3-V14 Bars



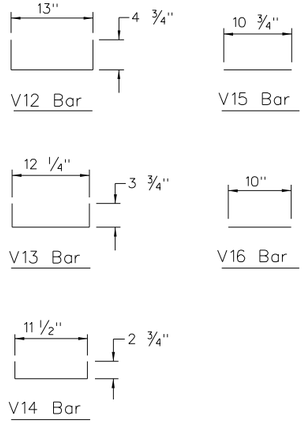
(6)~V2 Bars



(5)~V1 Bars



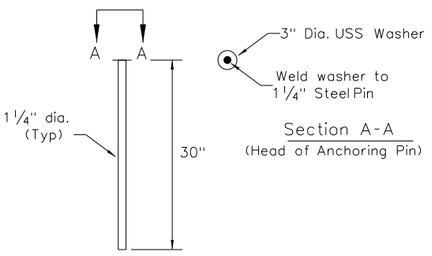
(4)~H2 Bars
(#5) Bars



Note: All V Bars are (#4)

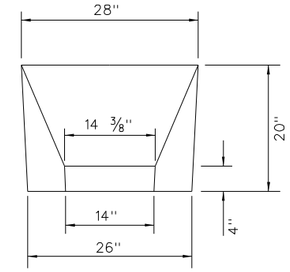
BAR(#)	X (IN.)	Y (IN.)
V3 BAR	20 ¼	14 ½
V4 BAR	19 ½	13 ½
V5 BAR	18 ½	12 ¼
V6 BAR	17 ½	11 ¼
V7 BAR	17	10 ¼
V8 BAR	16 ¼	9
V9 BAR	15 ½	8
V10 BAR	14 ½	7
V11 BAR	13 ¾	6

REINFORCING STEEL DETAILS
TYPE 2 - END TERMINAL



Section A-A
(Head of Anchoring Pin)

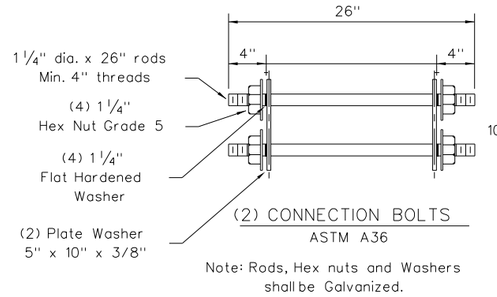
(7) Anchor Pins
ASTM A36 Steel
(See Note 3)



APPROACH VIEW

TYPE 2 - NOTES

1. Welded wire reinforcment (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile barrier system.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bends in the H3 and H1 bars are slight, no formal bend is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.



(2) CONNECTION BOLTS
ASTM A36

Note: Rods, Hex nuts and Washers shall be Galvanized.

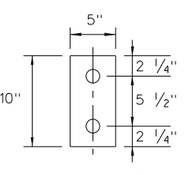
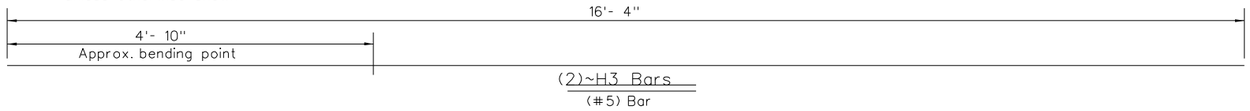


PLATE WASHER
5" x 10" x ⅜"

Note: Use 2" Dia. Bending Pin, unless otherwise shown



(2)~H3 Bars
(#5) Bar

Note: Bends on H1 and H3 bars are slight and do not require formal bends.

(4)~H1 Bars
(#5) Bar

FOR CONTRACTORS INFORMATION ONLY

(TYPE 2) APPROX. QUANTITIES 20 FT. SECTION		
CONCRETE	CY	1.65
REINFORCING STEEL	LBS	240
TOTAL BARRIER WT.	LBS	7000

Texas Department of Transportation

Design Division Standard

LOW PROFILE CONCRETE BARRIER
PRECAST BARRIER (TYPE 2)
LPCB-13

FILE: lpcb13.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT December 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				70

DATE: May. 22, 2018 - 11:56:23 AM
FILE: N:\IF\Drawings\CV-TRT-DT-lpcb13.sht

Chain BURLESON contains:
BUR01 CUR CUR BUR1 CUR CUR BUR2 CUR CUR BUR3 CUR CUR BUR4 CUR CUR BUR5 BUR12

Beginning chain BURLESON description
==========

Point BUR01 N 13,909,858.1958 E 2,324,088.5072 Sta 10+00.00

Course from BUR01 to PC CUR BUR1 N 9° 03' 42.12" E Dist 1,309.6915

Curve Data

Curve CUR BUR1
P.I. Station 23+74.06 N 13,911,215.1056 E 2,324,304.9187
Delta = 2° 21' 22.34" (RT)
Degree = 1° 49' 49.93"
Tangent = 64.3674
Length = 128.7167
Radius = 3,130.0000
External = 0.6618
Long Chord = 128.7076
Mid. Ord. = 0.6616
P.C. Station 23+09.69 N 13,911,151.5415 E 2,324,294.7810
P.T. Station 24+38.41 N 13,911,278.1991 E 2,324,317.6611
C.C. N 13,910,658.5728 E 2,327,385.7164
Back = N 9° 03' 42.12" E
Ahead = N 11° 25' 04.46" E
Chord Bear = N 10° 14' 23.29" E

Course from PT CUR BUR1 to PC CUR BUR2 N 11° 25' 04.46" E Dist 255.3954

Curve Data

Curve CUR BUR2
P.I. Station 27+57.66 N 13,911,591.1290 E 2,324,380.8606
Delta = 2° 20' 14.52" (LT)
Degree = 1° 49' 49.93"
Tangent = 63.8526
Length = 127.6875
Radius = 3,130.0000
External = 0.6512
Long Chord = 127.6786
Mid. Ord. = 0.6511
P.C. Station 26+93.80 N 13,911,528.5401 E 2,324,368.2201
P.T. Station 28+21.49 N 13,911,654.1814 E 2,324,390.9380
C.C. N 13,912,148.1664 E 2,321,300.1649
Back = N 11° 25' 04.46" E
Ahead = N 9° 04' 49.94" E
Chord Bear = N 10° 14' 57.20" E

Course from PT CUR BUR2 to PC CUR BUR3 N 9° 04' 49.94" E Dist 1,857.7070

Curve Data

Curve CUR BUR3
P.I. Station 50+68.31 N 13,913,872.8421 E 2,324,745.5371
Delta = 51° 52' 32.38" (RT)
Degree = 7° 09' 43.10"
Tangent = 389.1121
Length = 724.3209
Radius = 800.0000
External = 89.6113
Long Chord = 699.8330
Mid. Ord. = 80.5847
P.C. Station 46+79.20 N 13,913,488.6066 E 2,324,684.1263
P.T. Station 54+03.52 N 13,914,061.7475 E 2,325,085.7178
C.C. N 13,913,362.3484 E 2,325,474.1003
Back = N 9° 04' 49.94" E
Ahead = N 60° 57' 22.32" E
Chord Bear = N 35° 01' 06.13" E

Course from PT CUR BUR3 to PC CUR BUR4 N 60° 57' 22.32" E Dist 1,109.4826

Curve Data

Curve CUR BUR4
P.I. Station 65+92.36 N 13,914,638.9052 E 2,326,125.0634
Delta = 11° 19' 50.23" (LT)
Degree = 7° 09' 43.10"
Tangent = 79.3614
Length = 158.2053
Radius = 800.0000
External = 3.9268
Long Chord = 157.9476
Mid. Ord. = 3.9076
P.C. Station 65+13.00 N 13,914,600.3770 E 2,326,055.6817
P.T. Station 66+71.21 N 13,914,690.3140 E 2,326,185.5231
C.C. N 13,915,299.7760 E 2,325,667.2992
Back = N 60° 57' 22.32" E
Ahead = N 49° 37' 32.10" E
Chord Bear = N 55° 17' 27.21" E

Course from PT CUR BUR4 to PC CUR BUR5 N 49° 37' 32.10" E Dist 1,034.9410

Curve Data

Curve CUR BUR5
P.I. Station 78+11.47 N 13,915,428.9533 E 2,327,054.2069
Delta = 15° 00' 00.00" (LT)
Degree = 7° 09' 43.10"
Tangent = 105.3220
Length = 209.4395
Radius = 800.0000
External = 6.9032
Long Chord = 208.8419
Mid. Ord. = 6.8441
P.C. Station 77+06.15 N 13,915,360.7278 E 2,326,973.9697
P.T. Station 79+15.59 N 13,915,515.6210 E 2,327,114.0521
C.C. N 13,915,970.1899 E 2,326,455.7459
Back = N 49° 37' 32.10" E
Ahead = N 34° 37' 32.10" E
Chord Bear = N 42° 07' 32.10" E

Course from PT CUR BUR5 to BUR12 N 34° 37' 32.10" E Dist 81.7655

Point BUR12 N 13,915,582.9044 E 2,327,160.5121 Sta 79+97.35

==========
Ending chain BURLESON description

Beginning chain CONNECTOR description
==========

Point CON01 N 13,914,548.4151 E 2,325,962.1088 Sta 10+00.00

Course from CON01 to PC CUR CON1 S 36° 47' 05.64" E Dist 178.8985

Curve Data

Curve CUR CON1
P.I. Station 13+69.70 N 13,914,252.3257 E 2,326,183.4902
Delta = 26° 49' 45.09" (LT)
Degree = 7° 09' 43.10"
Tangent = 190.8023
Length = 374.6062
Radius = 800.0000
External = 22.4388
Long Chord = 371.1931
Mid. Ord. = 21.8266
P.C. Station 11+78.90 N 13,914,405.1372 E 2,326,069.2355
P.T. Station 15+53.50 N 13,914,167.5304 E 2,326,354.4149
C.C. N 13,914,884.1873 E 2,326,709.9468
Back = S 36° 47' 05.64" E
Ahead = S 63° 36' 50.73" E
Chord Bear = S 50° 11' 58.18" E

Course from PT CUR CON1 to CON04 S 63° 36' 50.73" E Dist 377.6092

Point CON04 N 13,913,999.7152 E 2,326,692.6852 Sta 19+31.11

==========
Ending chain CONNECTOR description

Chain RETWALL contains:
RETWALL01 RETWALL02 RETWALL03 RETWALL04

Beginning chain RETWALL description
==========

Point RETWALL01 N 13,912,997.4675 E 2,324,572.4640 Sta 7+60.86

Course from RETWALL01 to RETWALL02 S 9° 04' 49.94" W Dist 26.5040

Point RETWALL02 N 13,912,971.2957 E 2,324,568.2811 Sta 7+87.37

Course from RETWALL02 to RETWALL03 S 20° 55' 10.05" E Dist 10.0000

Point RETWALL03 N 13,912,961.9549 E 2,324,571.8517 Sta 7+97.37

Course from RETWALL03 to RETWALL04 S 9° 04' 49.94" W Dist 617.4848

Point RETWALL04 N 13,912,352.2087 E 2,324,474.3985 Sta 14+14.85

==========
Ending chain RETWALL description

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
HORIZONTAL ALIGNMENT DATA

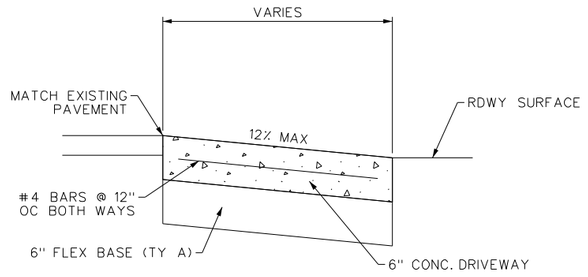
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale 0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	DG-HORIZONTAL DATA.sht

SHEET 71
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-DG-HORIZONTAL DATA.sht
Plot Date: 5/22/2018 - 11:56:25 AM User: 02590File: N:\IF\Drawings\CV-TRT-DG-HORIZONTAL DATA.sht
Plot Scale: 2.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:56:25 AM Project: Freese and Nichols, Inc.

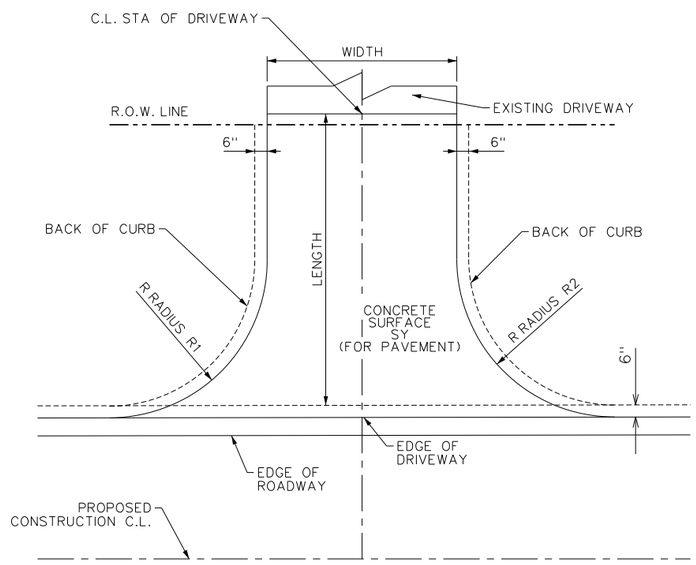


CONCRETE DRIVEWAY DETAIL

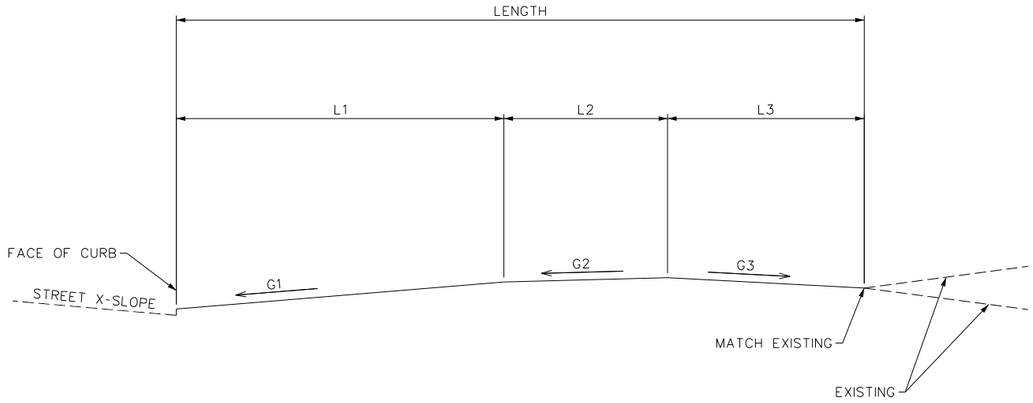
NOTE: SIDEWALK LOCATION VARIES
N.T.S.

BURLESON STREET DRIVEWAY SUMMARY

NO.	STATION	OFFSET	LT\RT	WIDTH	L1	L2	L3	LENGTH	R1	R2	G1	G2	G3
				FT	FT	FT	FT	FT	FT	FT	%	%	%
1	11+25.40	40.00	LT	14	10	15.5		25.5	5	5	1.50	8.74	
2	13+90.87	14.73	LT	16	1			1	5	1			
3	13+93.86	40.00	RT	18	3.5	5	18	26.5	5	1	5.00	2.00	10.08
4	14+34.39	14.46	LT	15	1			1	1	1			
5	14+66.03	40.50	LT	24	8.5	6	12	26.5	5	5	5.00	1.50	3.11
6	14+92.49	43.15	RT	15	31.5			31.5	5	5			
7	14+93.10	40.00	LT	10	9	6	14	29	5	5	5.00	1.5	4.00
8	15+35.14	40.00	RT	24	27.5			27.5	5	5			
9	15+66.64	40.00	LT	10	8.5	6	10	24.5	5	5	5.00	1.50	5.21
10	16+17.61	40.00	RT	11.5	21			21	5	5			
11	17+49.89	40.00	RT	11	3.5	5	16	24.5	5	5	5.00	3.00	12.00
12	18+21.90	40.00	LT	11	4	6	9	19	5	5	10.00	1.50	2.88
13	18+24.32	40.00	RT	21	3.5	5	15	23.5	5	5	5.00	3.00	10.00
14	18+74.00	40.00	RT	12	3.5	5	11	19.5	5	5	5.00	3.00	8.13
15	21+08.60	40.00	RT	11	3.5	5	15	23.5	4	5	5.00	3.00	12.00
16	21+52.83	40.00	LT	11	3.5	6	10	19.5	5	5	10.00	1.50	8.42
17	21+55.19	38.00	RT	9	3.5	5	11.5	20	5	4	5.00	3.00	10.00
18	21+70.19	37.77	RT	18	3.5	5	11	19.5	5	5	5.00	3.00	7.48
19	24+28.46	43.62	LT	10	3.5	5	9.5	18	5	5	5.00	3.00	12.00
20	24+61.78	36.34	RT	11	3.5	5	21.5	30	5	5	5.00	3.00	12.00
21	24+63.72	35.20	RT	24	3.5	5	21.75	30.25	5	5	5.00	3.00	12.00
22	24+91.41	38.50	LT	32	3.5	5	21	29.5	5	5	5.00	3.00	12.00
23	25+30.98	54.93	LT	14	10.5	5	10.5	26	5	5	5.00	1.50	5.52
24	27+46.61	25.50	LT	20	11	6	17	34	5	5	5.00	1.50	8.82
25	27+51.33	25.50	RT	16	3.5	5	9.5	18	5	5	5.00	3.00	12.00
26	28+82.02	32.19	RT	20	3.5	3.5		7	5	5	5.00	3.00	
27	39+80.85	35.27	RT	8	14			14	5	5			
28	39+80.95	52.86	RT	10	14			14	5	5			
29	54+28.27	29.48	RT	9	3.5	11		14.5	5	5	5.00	3.00	
30	54+90.40	29.33	RT	14	9			9	5	5	6.34		



PLAN VIEW



SECTION VIEW

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRIVEWAY DETAIL AND SUMMARY

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED M.JM
DRAWN M.JM
REVISED
CHECKED JNR
FILE NAME CV-TRT-SH-DRIVEWAY SUM.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 72
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-SH-DRIVEWAY SUM.sht
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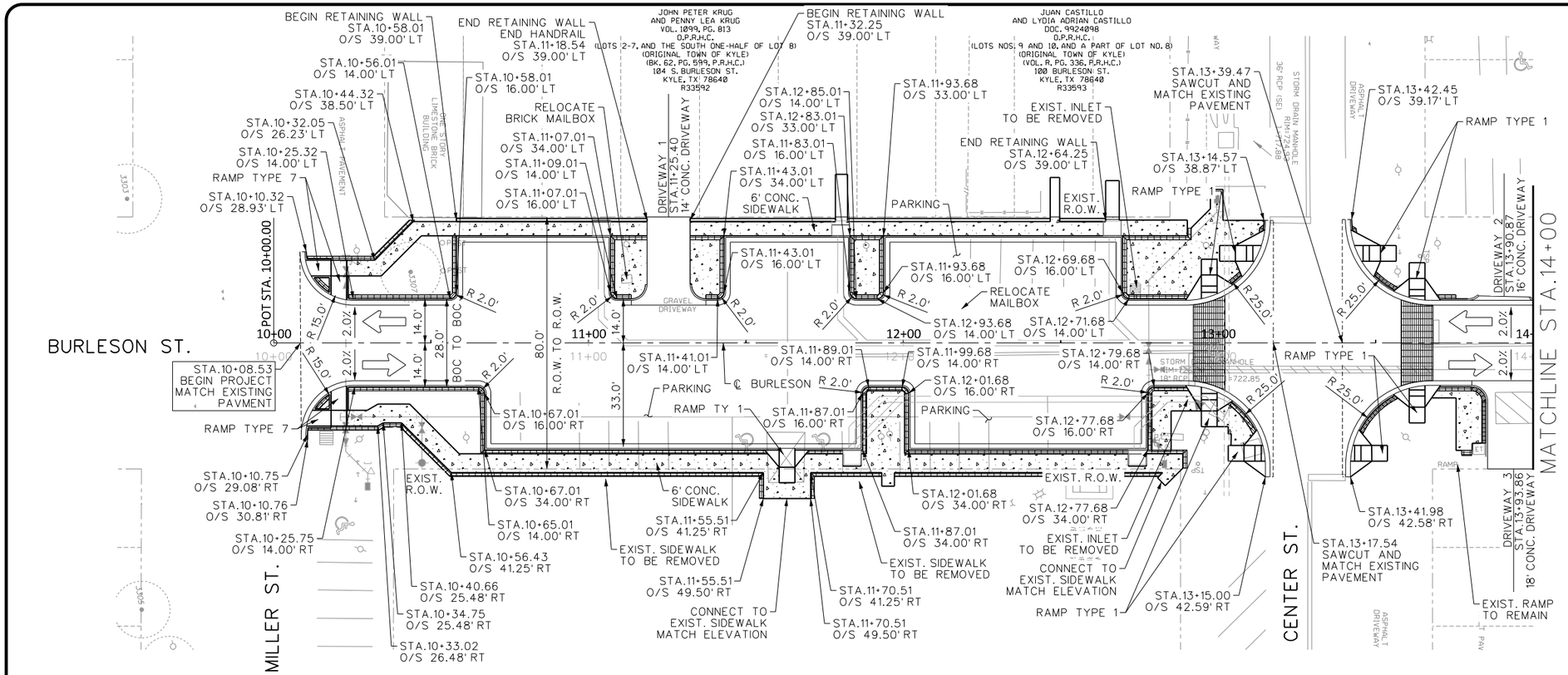
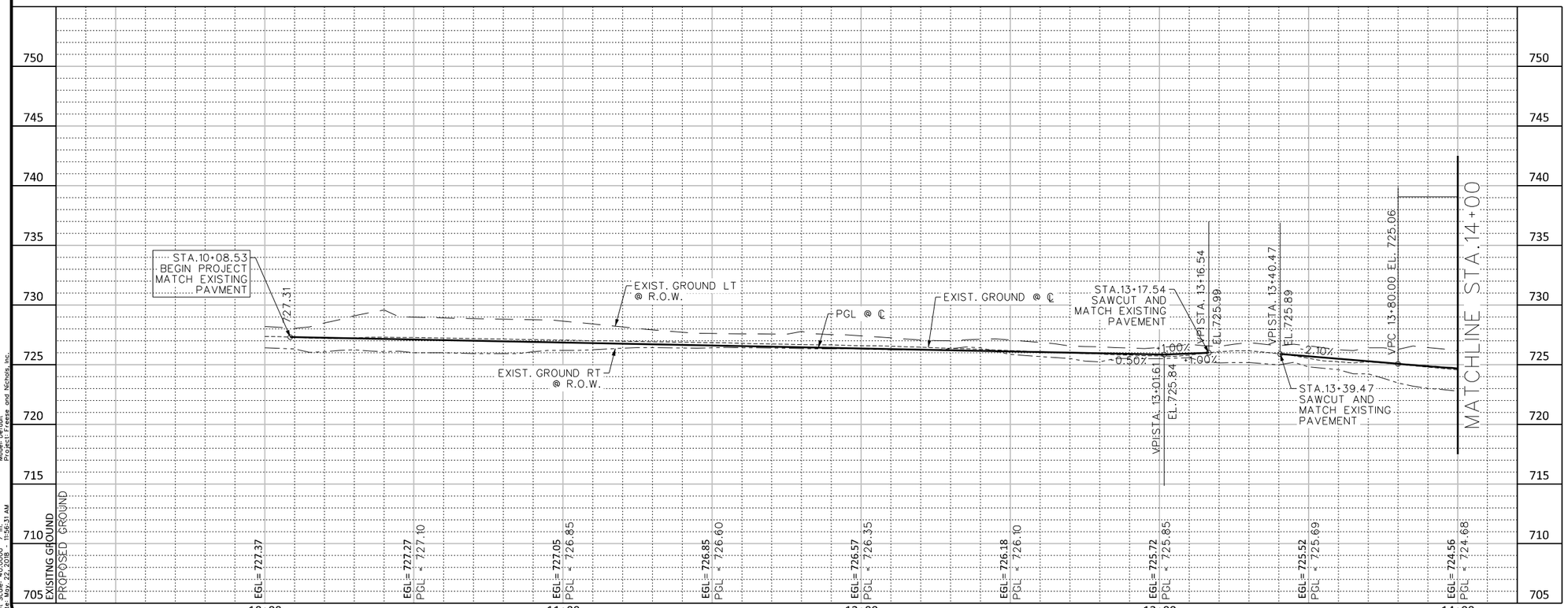
Plot Scale: 2.0000 ' / in. Model: Default
Date: May. 25, 2018 - 05:36:34 PM Project: Freese and Nichols, Inc.





LEGEND

- TRAFFIC DIRECTION
- CONCRETE SIDEWALK
- ORNAMENTAL PATTERN

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
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Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.10+00 TO STA.14+00

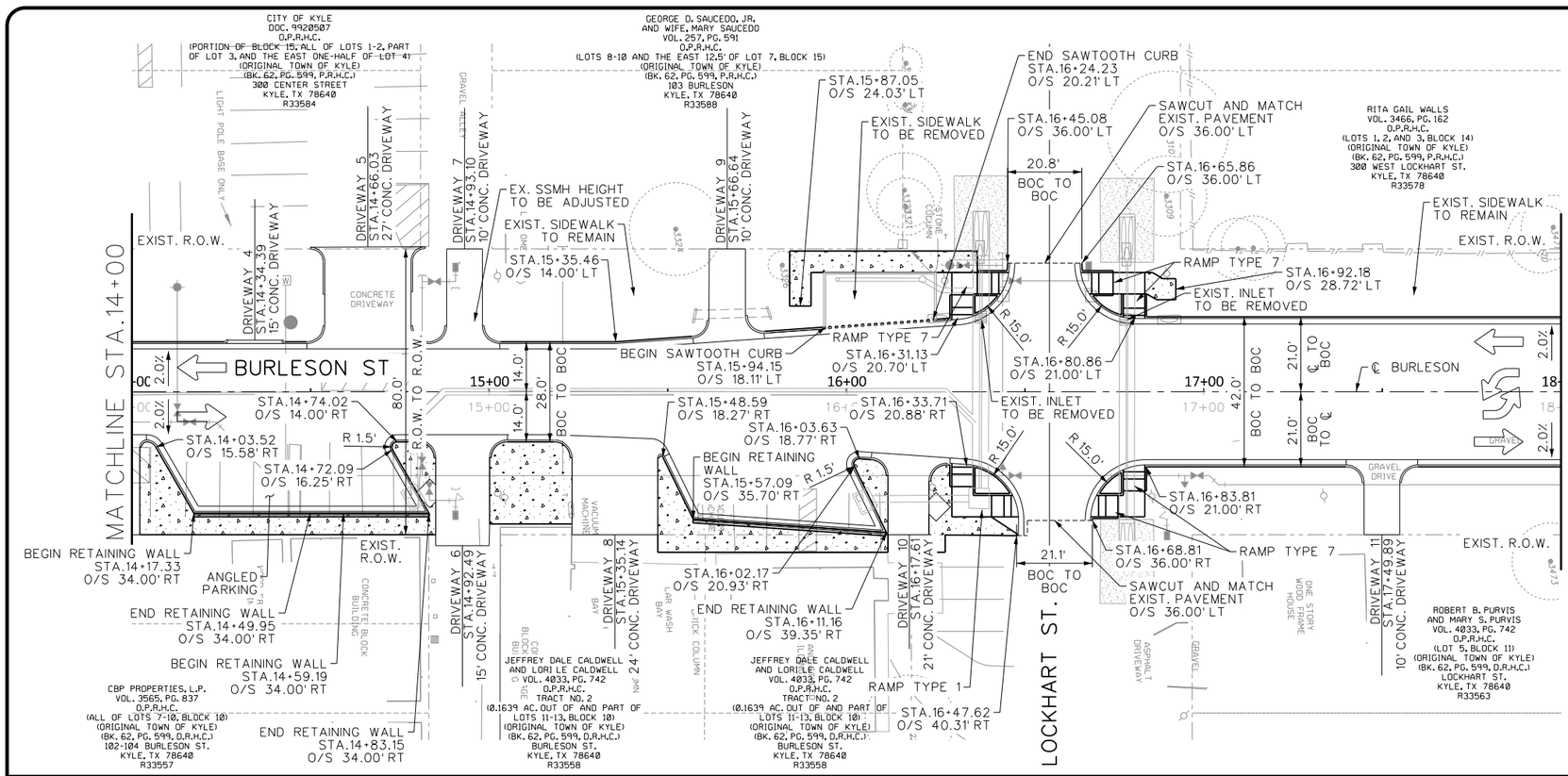
NO.	ISSUES	BY	DATE

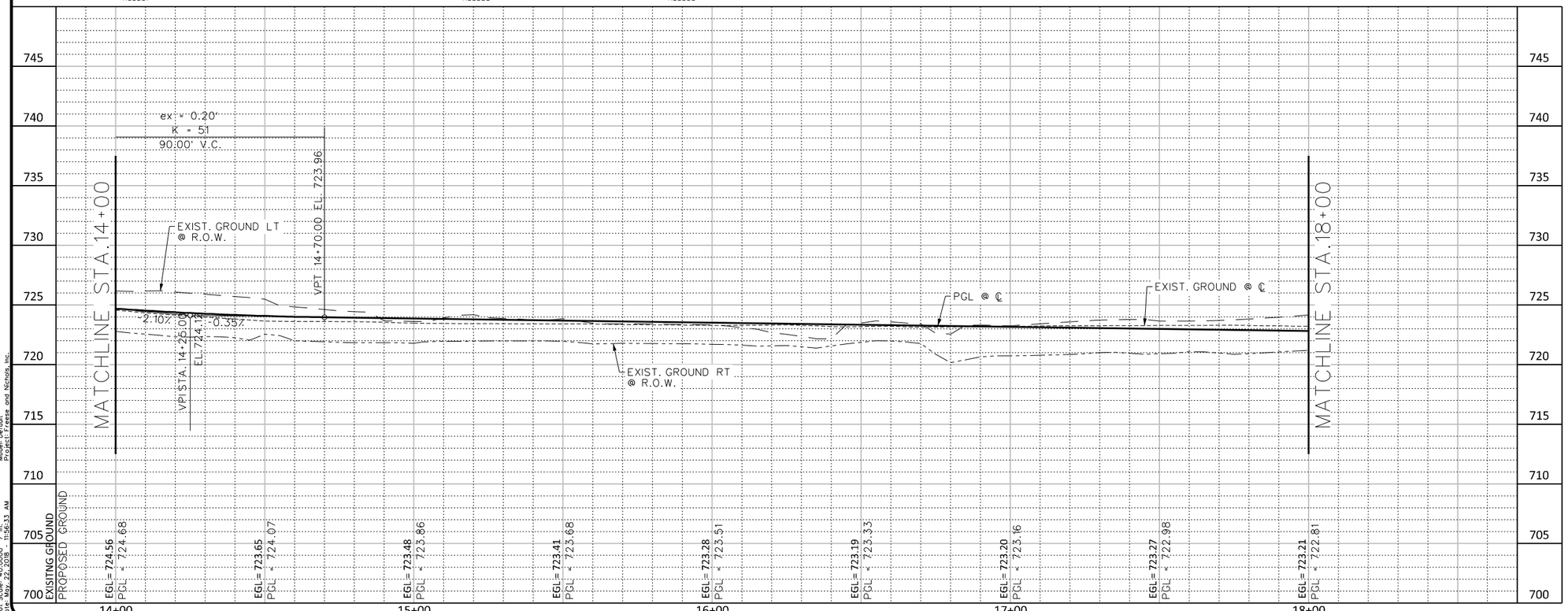
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 73
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tf\Drawings\CV-TRT-PL-ROAD01.sht
Plot Date: 22 MAY 2018 11:56:31 AM
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:56:31 AM
Model: Default
Project: Freese and Nichols, Inc.
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:31 AM User: 02590File: N:\tf\Drawings\CV-TRT-PL-ROAD01.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (B.O.C.) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.14+00 TO STA.18+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284

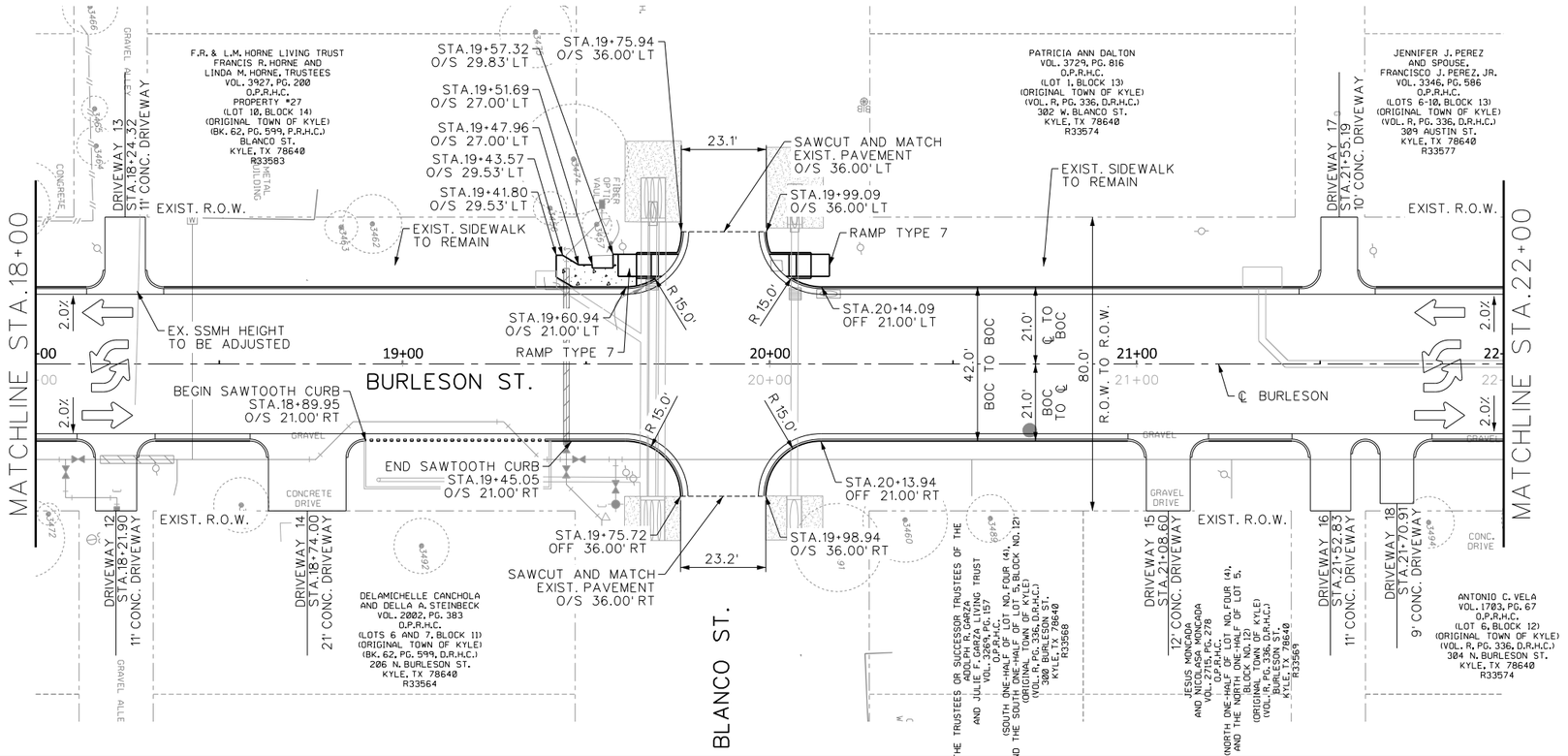
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR

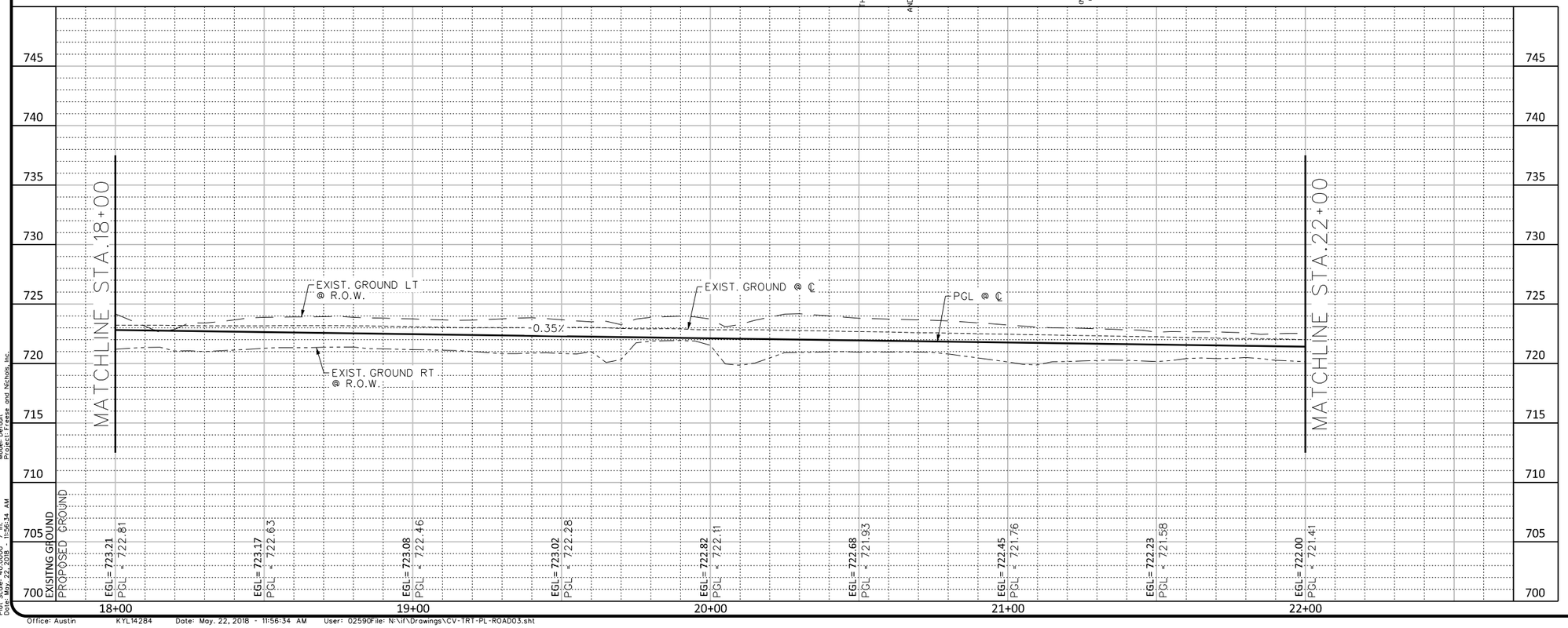
FILE NAME CV-TRT-PL-ROAD02.sht

SHEET 74

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tf\Drawings\CV-TRT-PL-ROAD02.sht
Plotted By: Sean Barry on May. 22, 2018 - 11:58:33 AM
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:58:33 AM
Model: Default
Project: Freese and Nichols, Inc.





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (B.O.C.) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS
STA.18+00 TO STA.22+00

NO.	ISSUES	BY	DATE

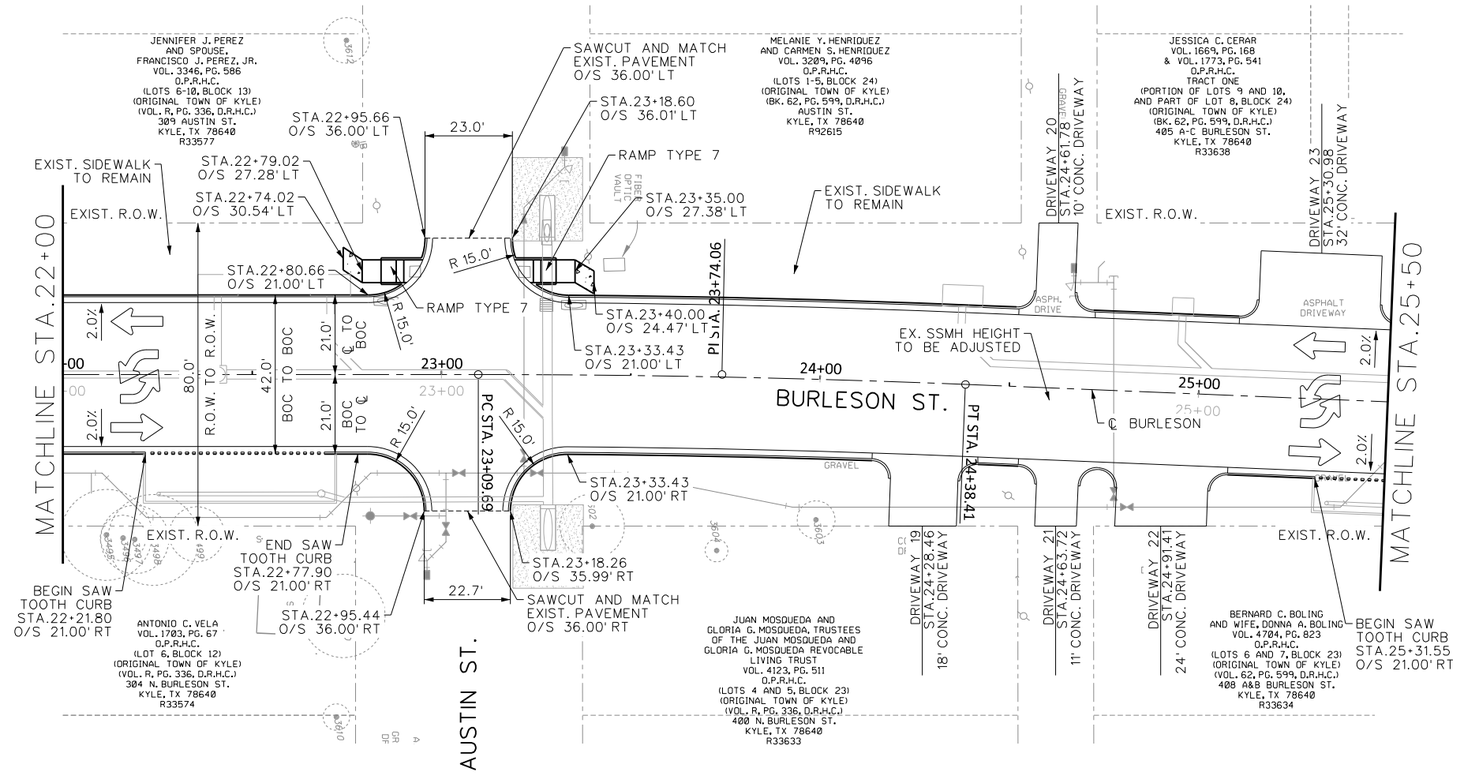
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD03.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 75
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - K:\TX\Drawings\CV-TRT-PL-ROAD03.sht
Plotted by: Jason Rogers on May 22, 2018 11:56:34 AM
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 11:56:34 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:34 AM User: 02590File: N:\tx\Drawings\CV-TRT-PL-ROAD03.sht



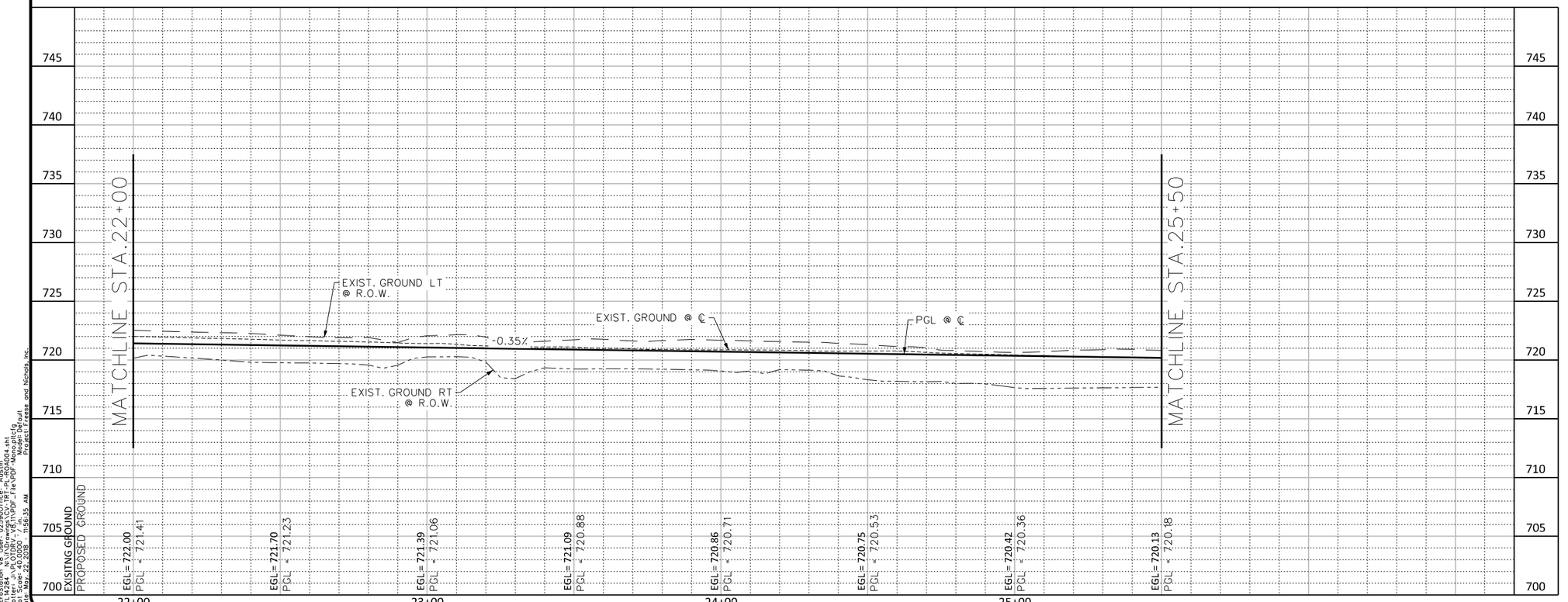
LEGEND

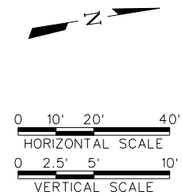
TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (B.O.C.) UNLESS OTHERWISE NOTED ON PLANS.





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.22+00 TO STA.25+50

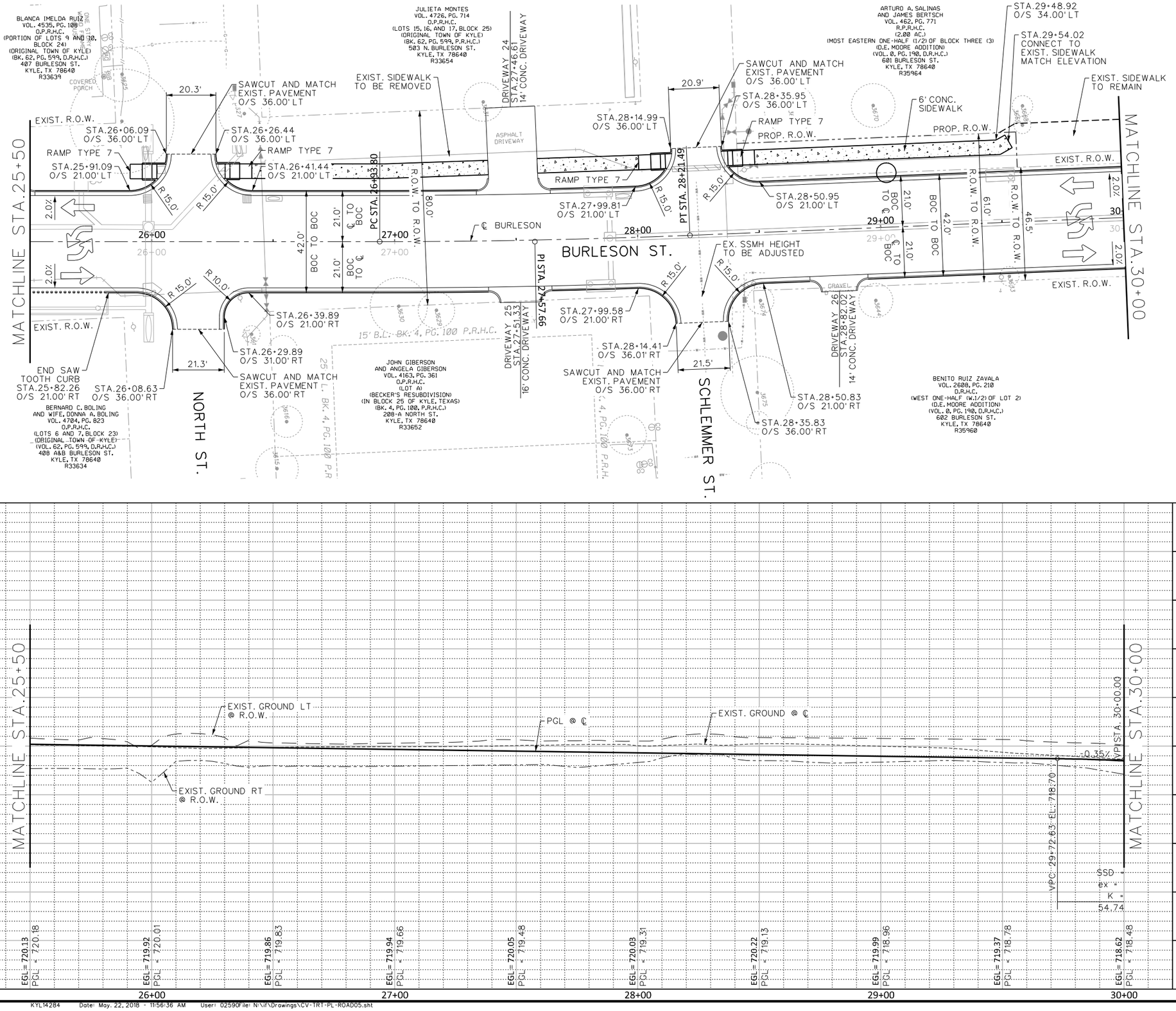
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD04.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 76
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-ROAD04.sht
Plot Driver: HP DesignJet 4000ps.pltcfg
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:56:35 AM
Model: Default
Project: Freese and Nichols Inc.
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:35 AM User: 02590File: N:\tf\Drawings\CV-TRT-PL-ROAD04.sht



NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE
0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.25+50 TO STA.30+00

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD05.sht

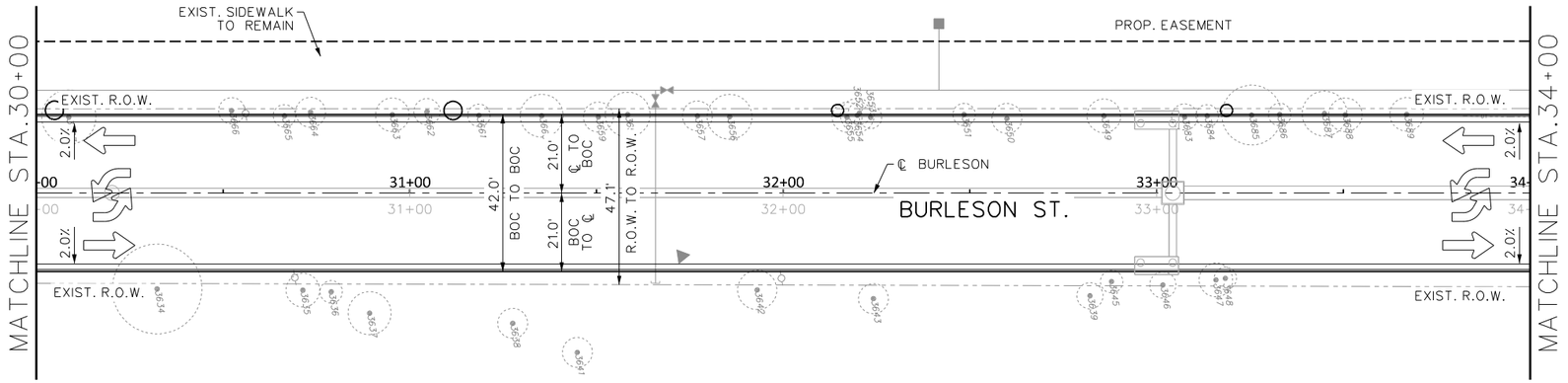
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 77
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TIF\Drawings\CV-TRT-PL-ROAD05.sht
PLOT DRIVER: HP Designjet 1055CM PS3 Model Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:36 AM
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:36 AM User: 02590File: N:\TIF\Drawings\CV-TRT-PL-ROAD05.sht

ARTURO A. SALINAS
AND JAMES BERTSCH
VOL. 462, PG. 771
R.P.R.H.C.
(2.00 AC.)
(MOST EASTERN ONE-HALF (1/2) OF BLOCK THREE (3)
(D.E. MOORE ADDITION)
(VOL. 0, PG. 190, D.R.H.C.)
601 BURLESON ST.
KYLE, TX 78640
R35964

KYLE



BENITO RUIZ ZAVALA
VOL. 2608, PG. 210
D.R.H.C.
(WEST ONE-HALF (W.1/2) OF LOT 2)
(D.E. MOORE ADDITION)
(VOL. 0, PG. 190, D.R.H.C.)
602 BURLESON ST.
KYLE, TX 78640
R35960

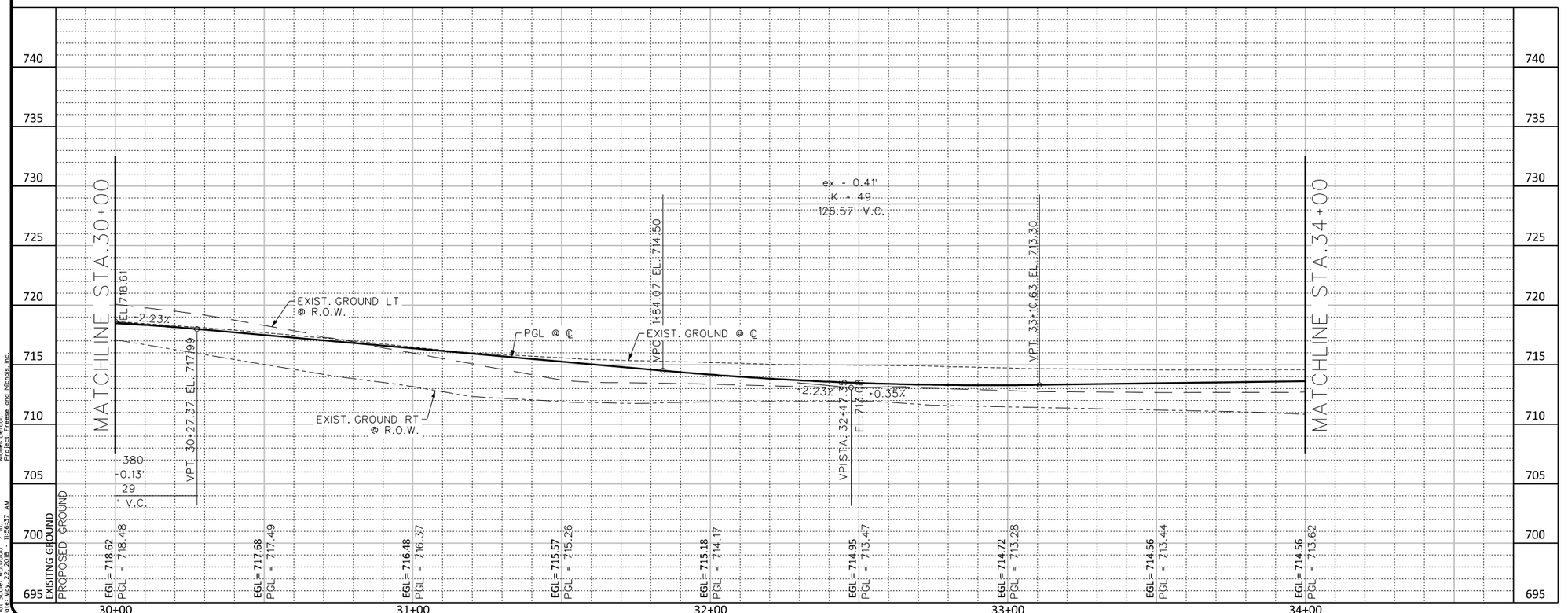
LEGEND

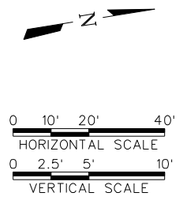
TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.30+00 TO STA.34+00

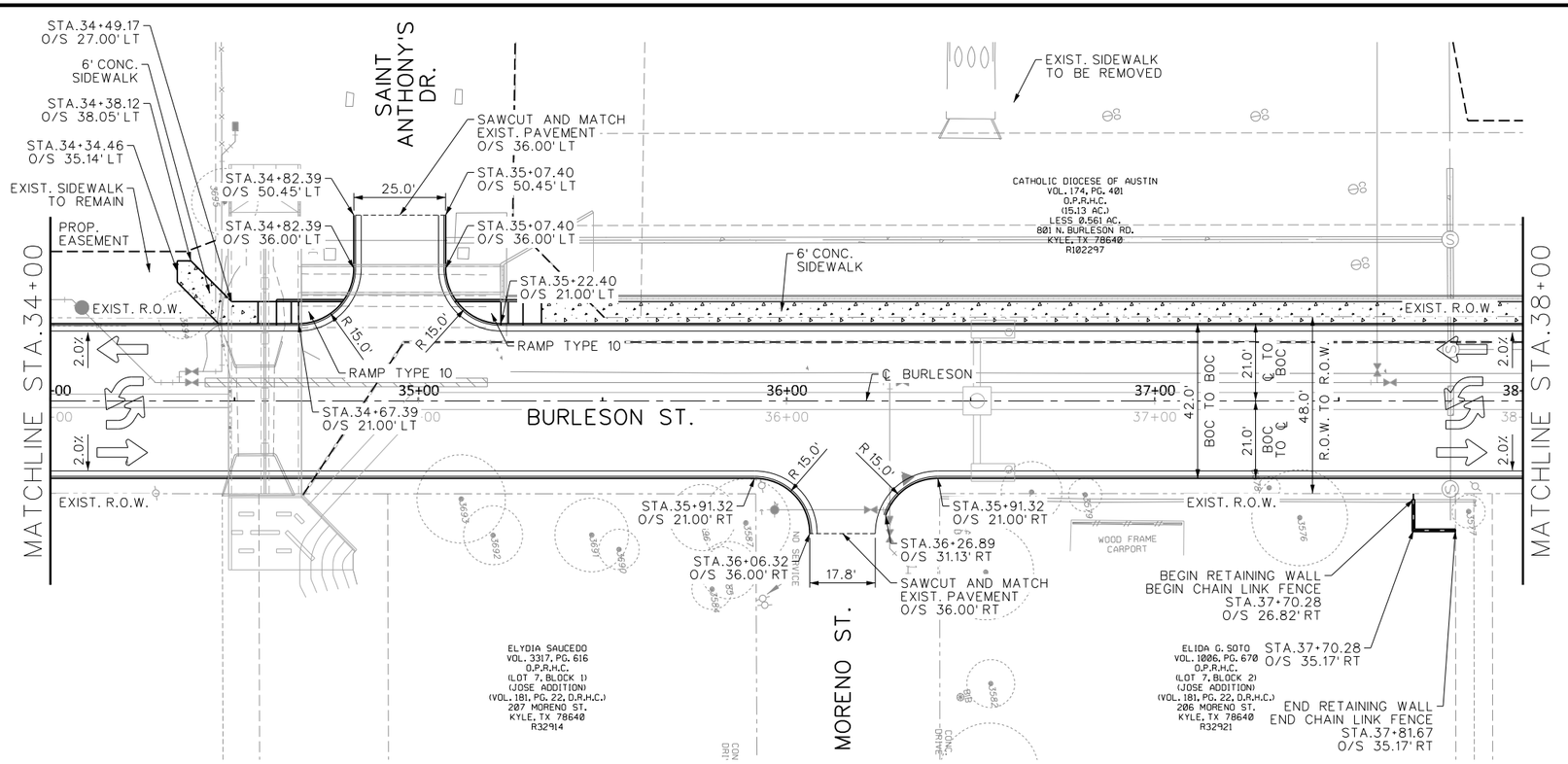
NO.	ISSUES	BY	DATE

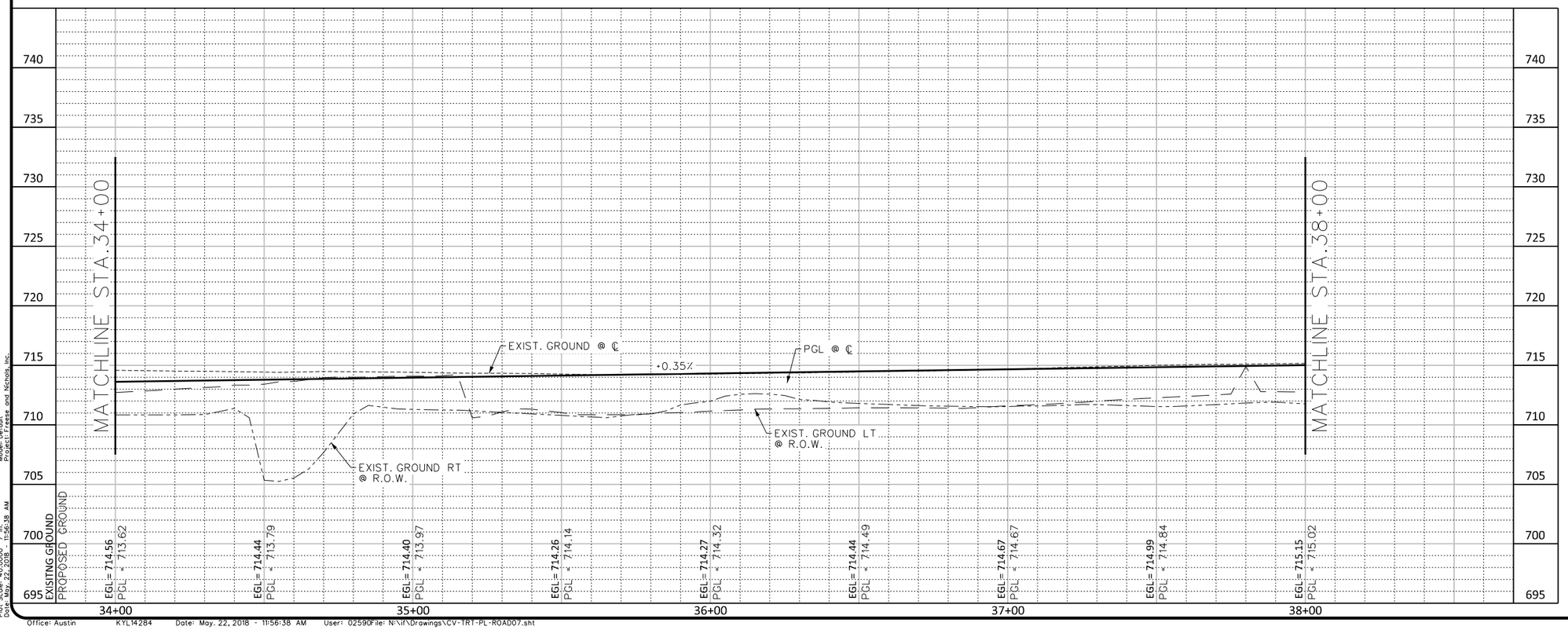
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD06.sht

SHEET 78
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\If\Drawings\CV-TRT-PL-ROAD06.sht
Plot Date: May. 22, 2018 - 11:56:37 AM Model Default
Plot Scale: 40.0000 '/ in. Project Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:37 AM





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE
0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
2nd
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.34+00 TO STA.38+00

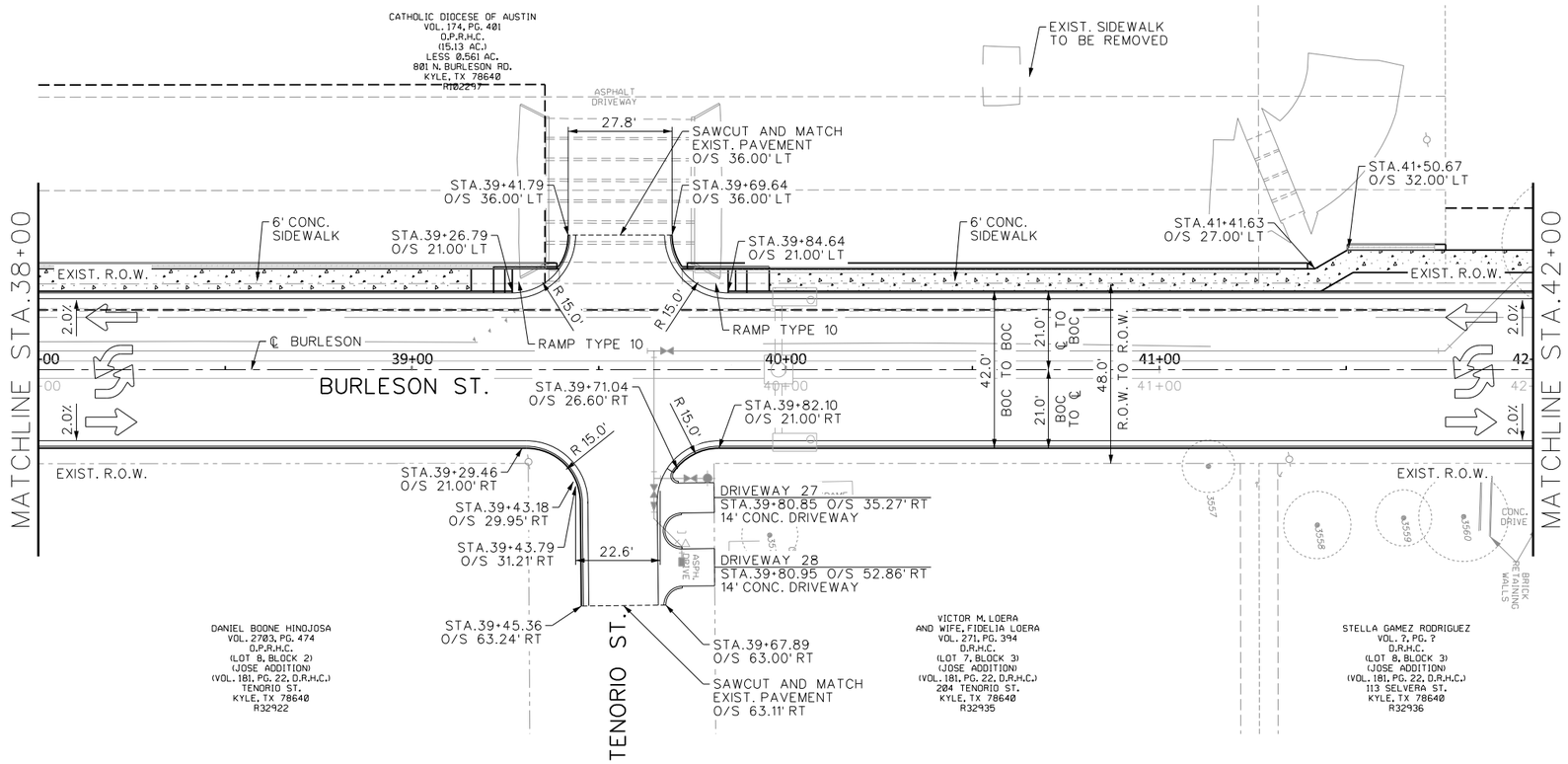
NO.	ISSUES	BY	DATE

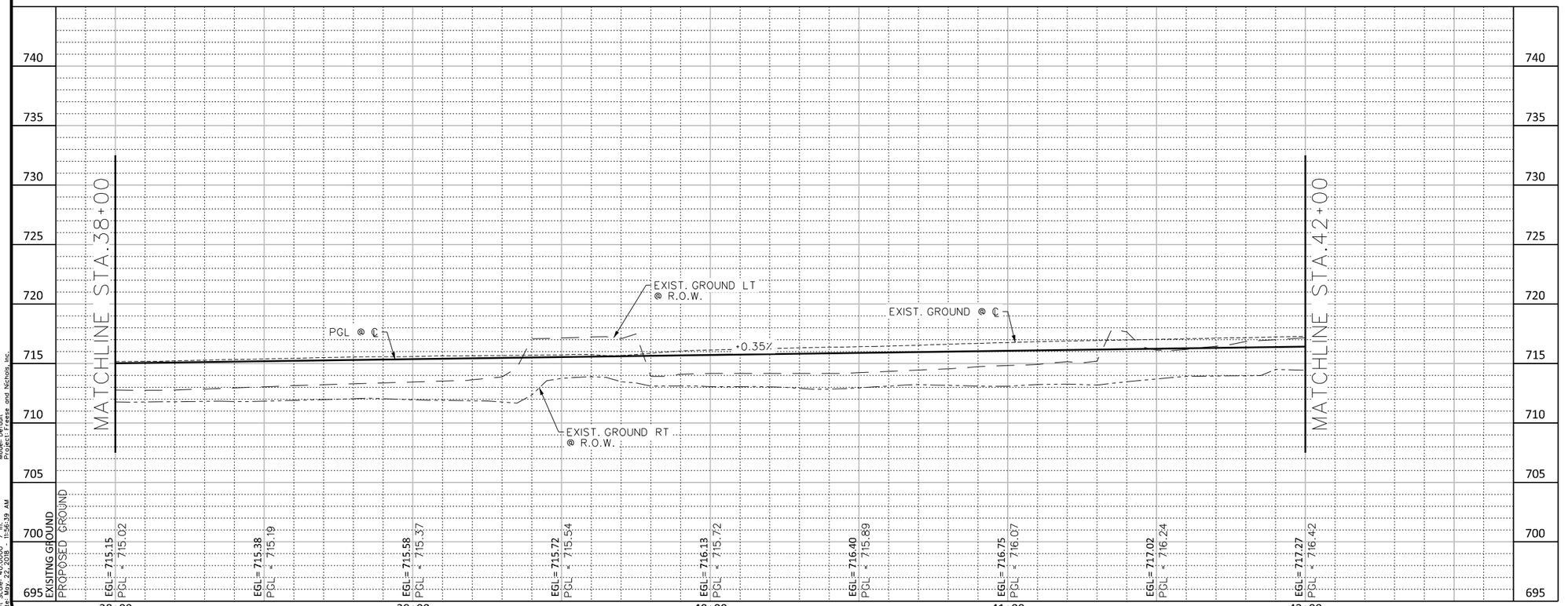
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD07.sht

SHEET 79
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IT\Drawings\CV-TRT-PL-ROAD07.sht
Plot Date: May. 22, 2018 - 11:56:38 AM Model:Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:38 AM
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:38 AM User: 02590File: N:\IT\Drawings\CV-TRT-PL-ROAD07.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.38+00 TO STA.42+00

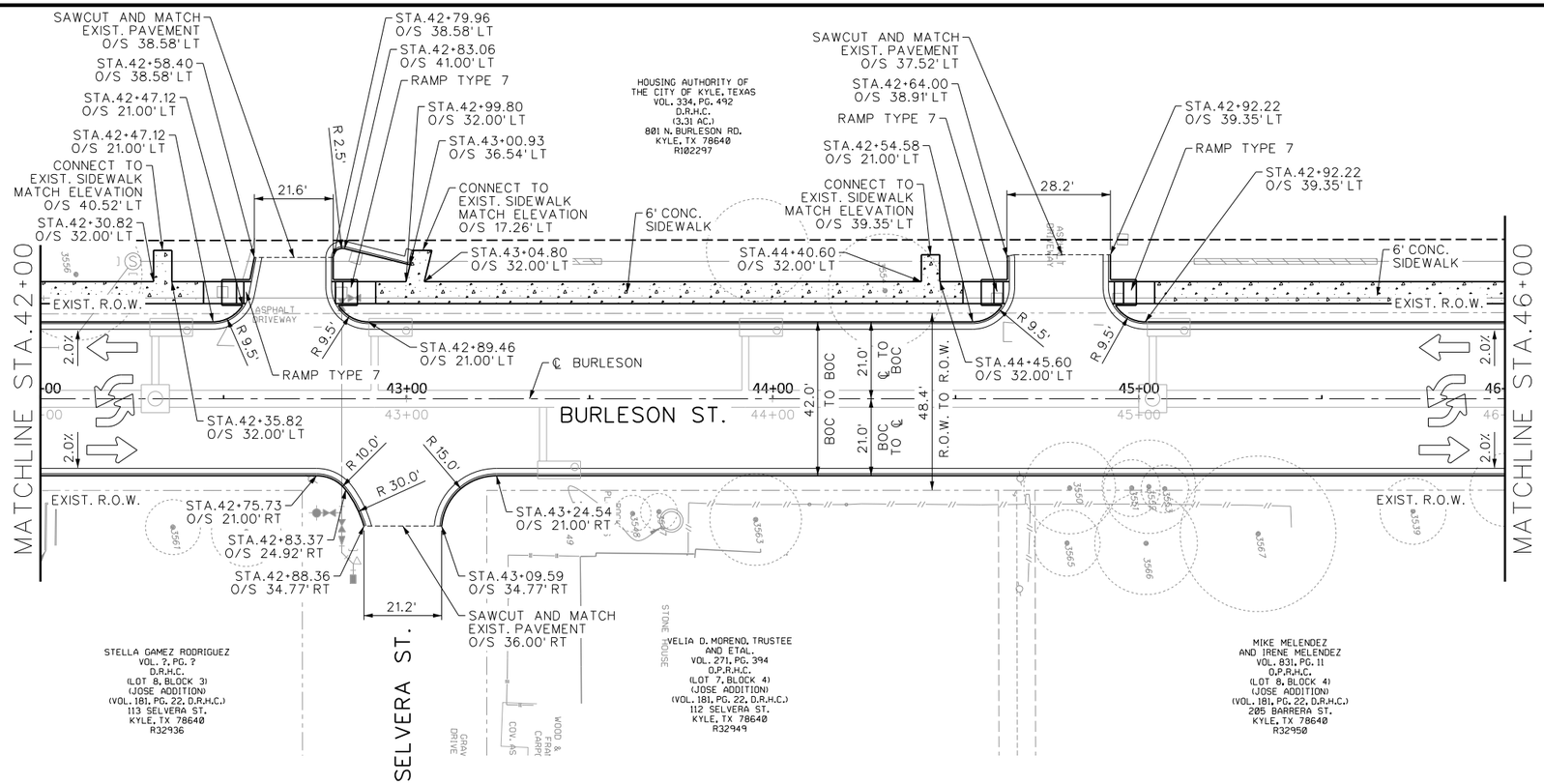
NO.	ISSUES	BY	DATE

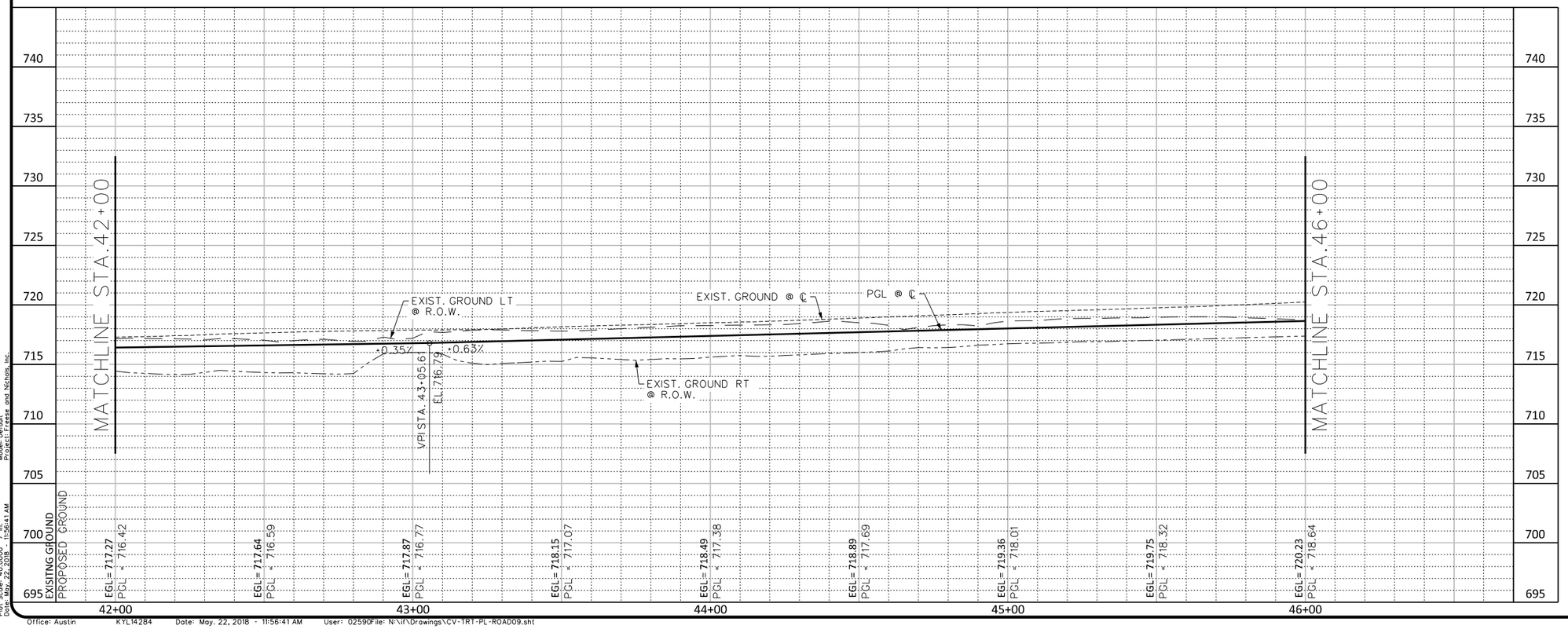
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD08.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 80
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-ROAD08.sht
Plot Date: 22 MAY 2018 11:56:39 AM
Plot Scale: 40.0000 '/ in.
Model: Default
Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:39 AM
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:39 AM User: 02590File: N:\tf\Drawings\CV-TRT-PL-ROAD08.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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2nd Floor
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Austin, Texas 78759
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Fax: (512) 617-3101
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.42+00 TO STA.46+00

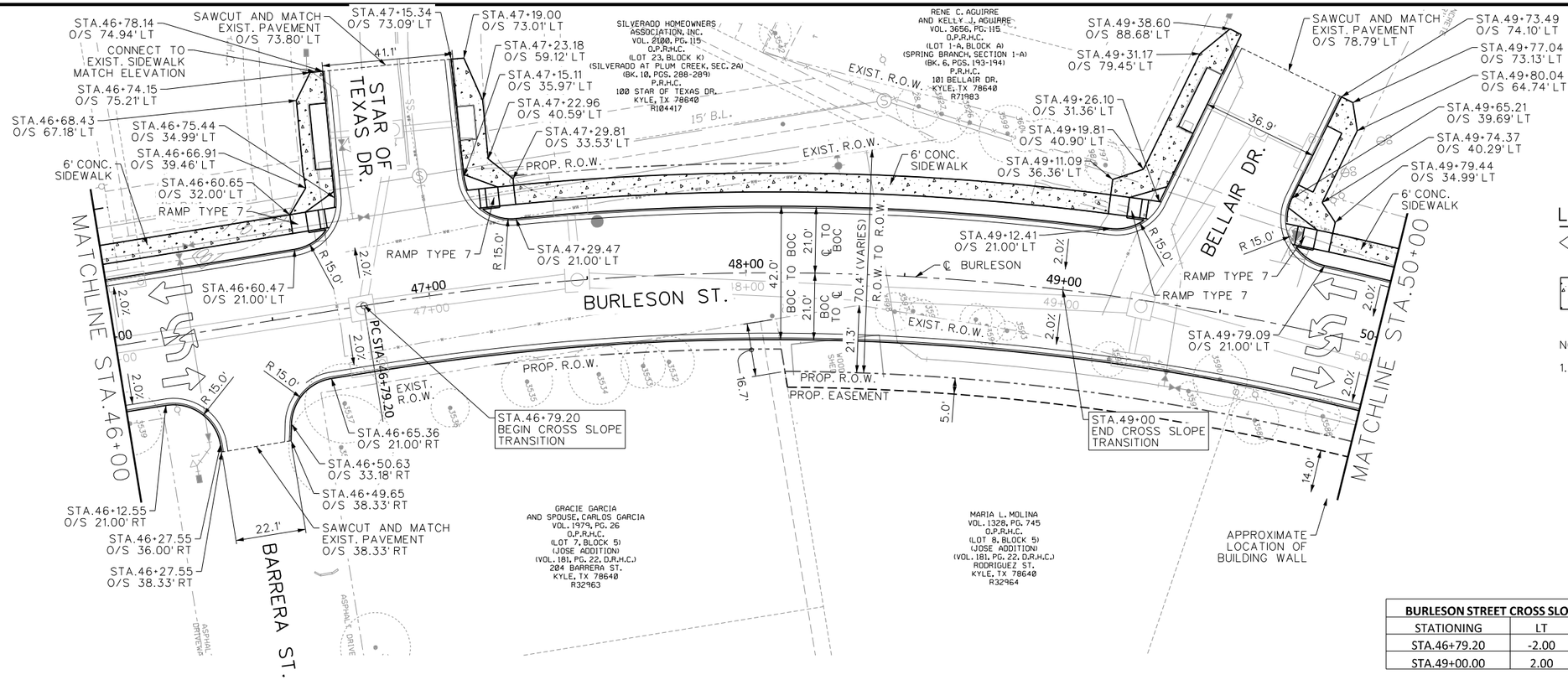
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD09.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 81
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-ROAD09.sht
Plot Driver: HP DesignJet 4000ps.pltcfg
Plot Scale: 40.0000 '/ in.
Date: May. 22, 2018 - 11:56:41 AM
Model: Default
Project: Freese and Nichols, Inc.



LEGEND

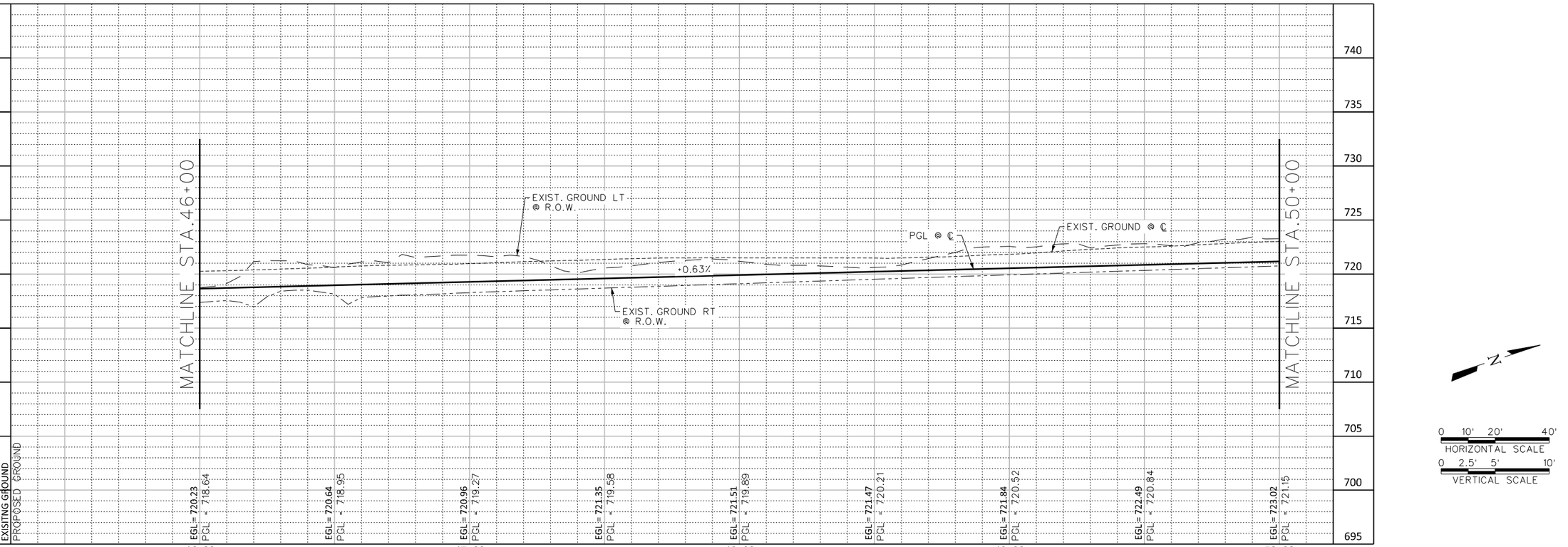
TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

BURLESON STREET CROSS SLOPE DATA		
STATIONING	LT	RT
STA.46+79.20	-2.00	-2.00
STA.49+00.00	2.00	-2.00



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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2nd Floor
10431 Morado Circle, Suite 300
Austin, Texas 78759
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.46+00 TO STA.50+00

NO.	ISSUES	BY	DATE

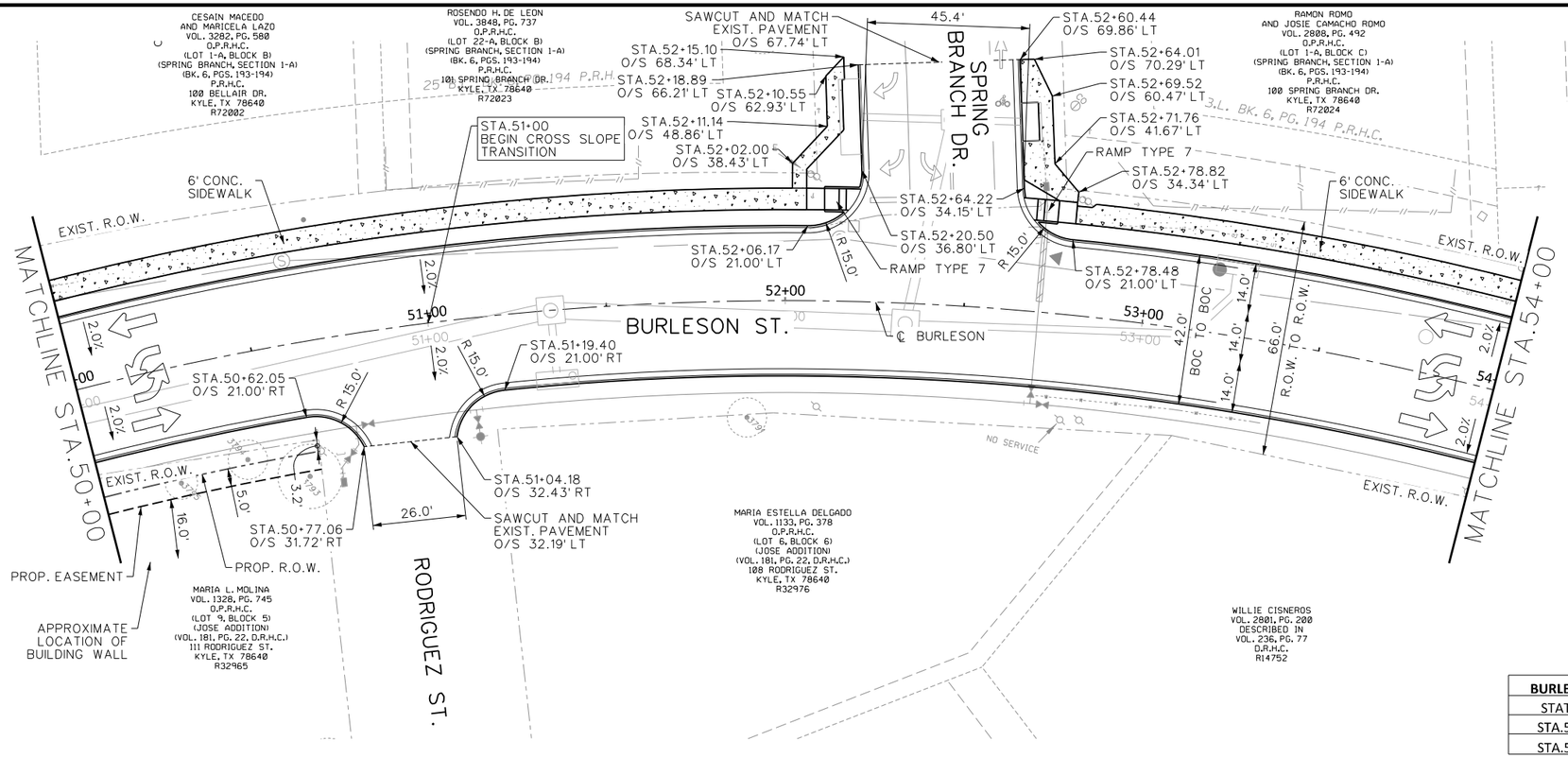
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD10.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 82
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\lf\Drawings\CV-TRT-PL-ROAD10.sht
Plot Driver: HP Designjet 500ps 42.ps PlotCfg
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:56:42 AM
Model: Default
Project: Freese and Nichols Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:42 AM User: 02590File: N:\lf\Drawings\CV-TRT-PL-ROAD10.sht



LEGEND

TRAFFIC DIRECTION

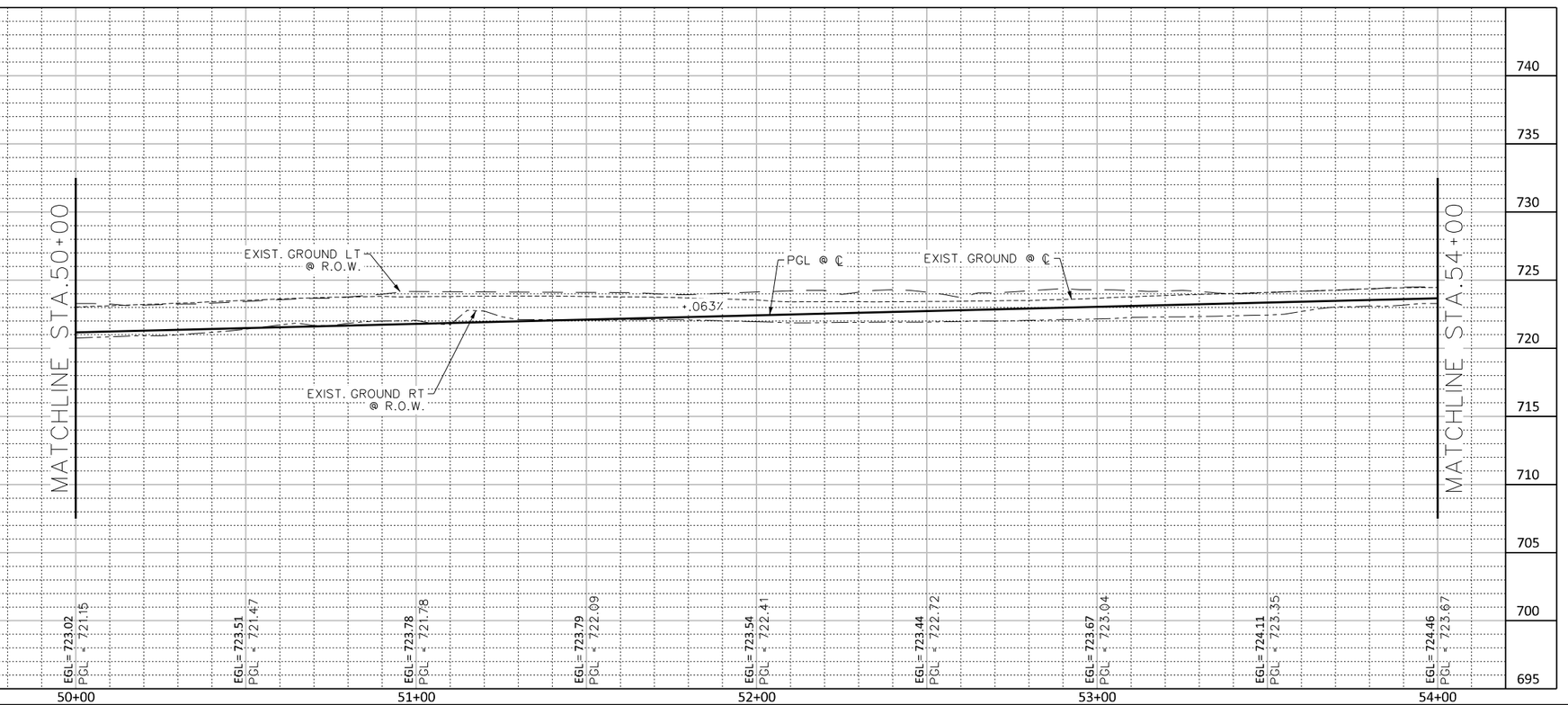
CONCRETE SIDEWALK

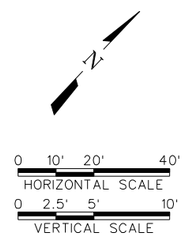
NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

BURLESON STREET CROSS SLOPE DATA

STATIONING	LT	RT
STA.51+00.00	2.00	-2.00
STA.54+03.52	-2.00	-2.00





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.50+00 TO STA.54+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD11.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 83
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tf\Drawings\CV-TRT-PL-ROAD11.sht
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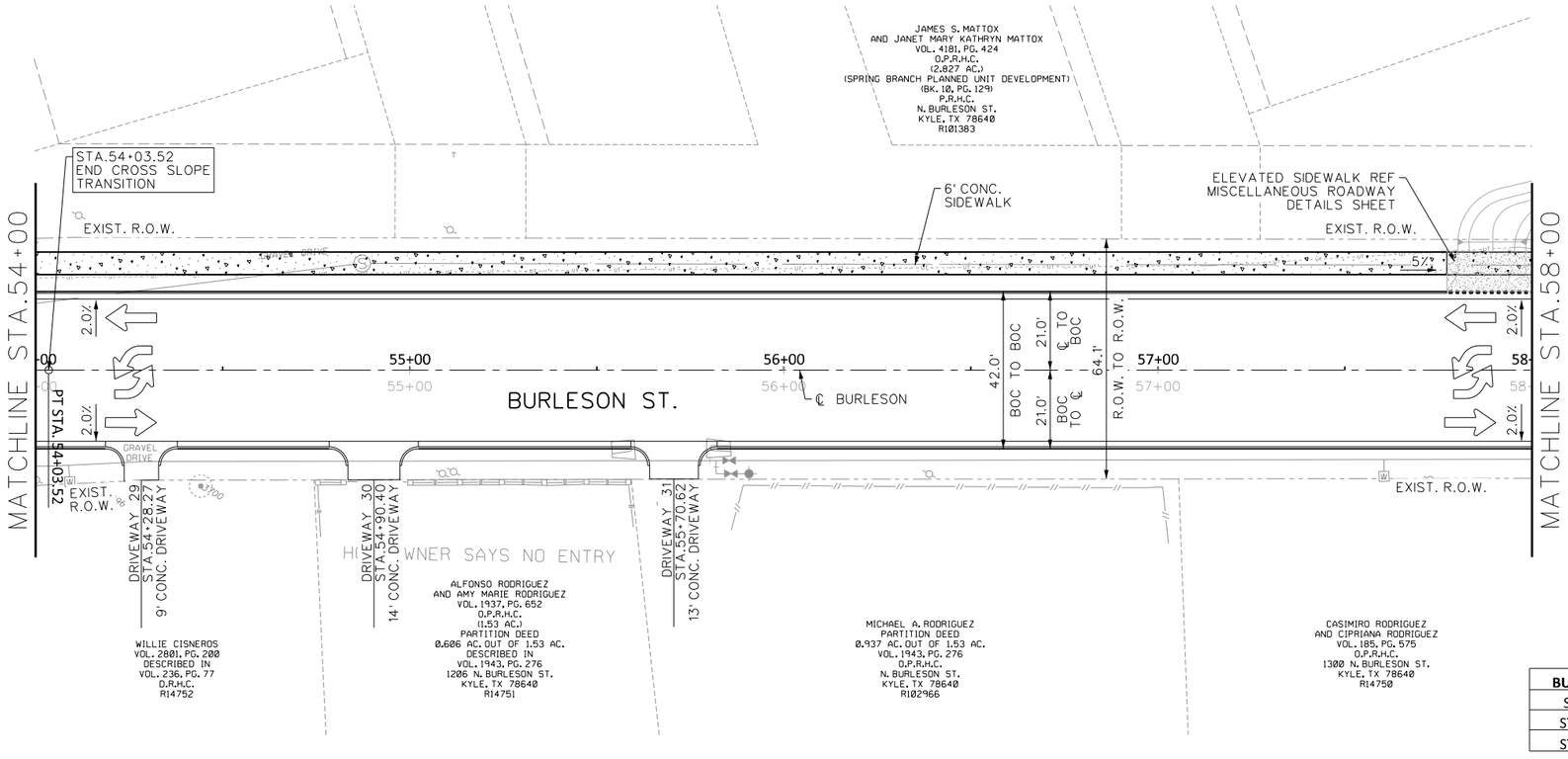
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:43 AM



LEGEND

TRAFFIC DIRECTION

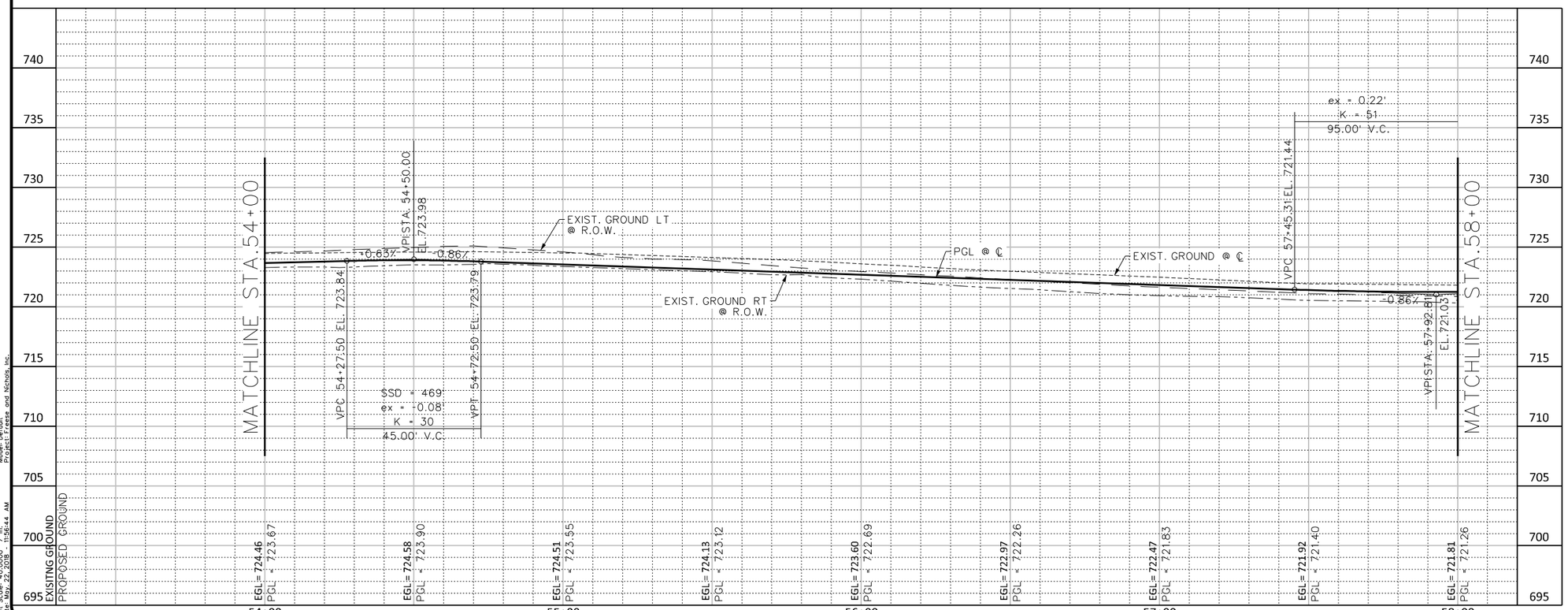
CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

BURLESON STREET CROSS SLOPE DATA

STATIONING	LT	RT
STA.51+00.00	2.00	-2.00
STA.54+03.52	-2.00	-2.00



N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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10431 Morado Circle, Suite 300
Austin, Texas 78759
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.54+00 TO STA.58+00

NO.	ISSUES	BY	DATE

FNI JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD12.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 84
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TIF\Drawings\CV-TRT-PL-ROAD12.sht
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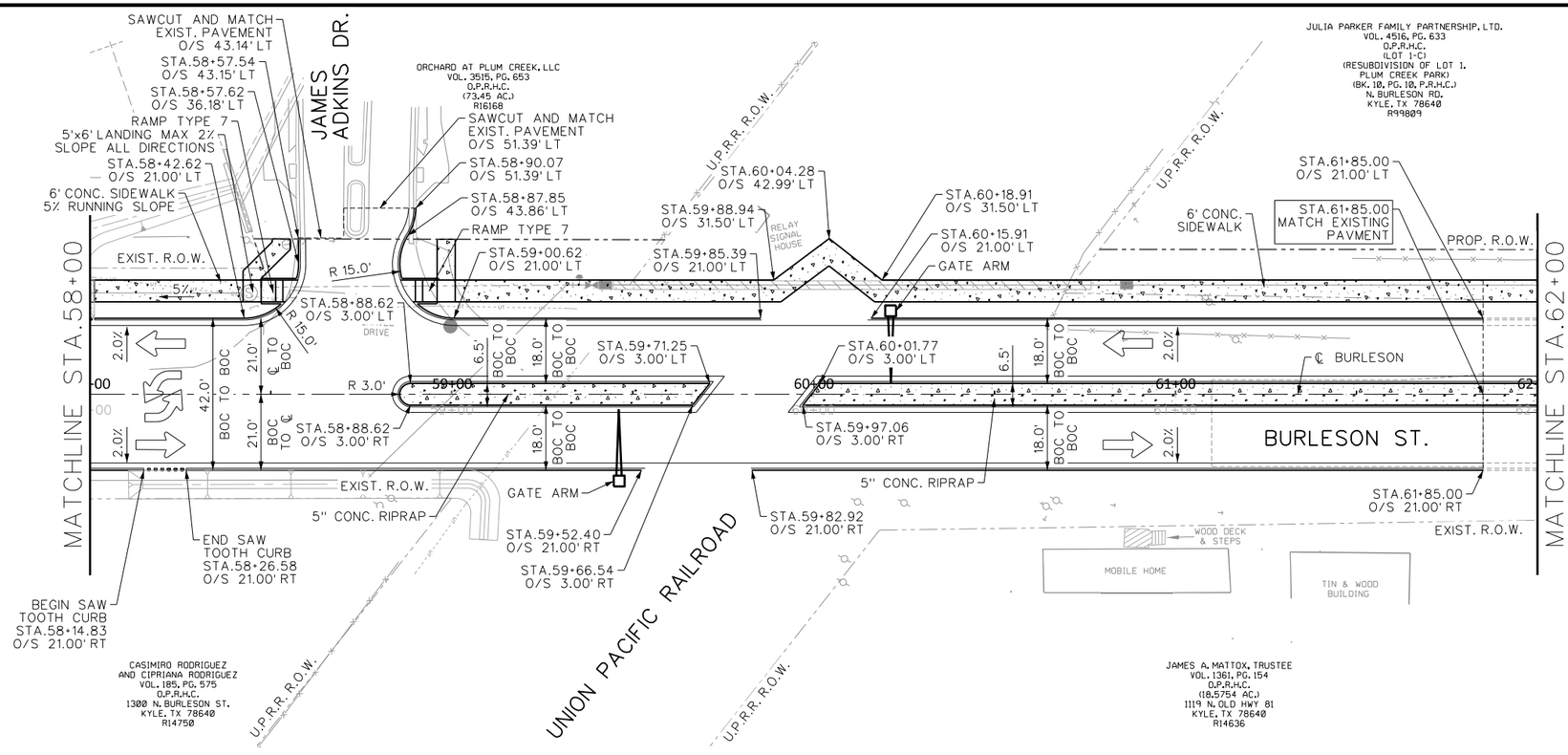
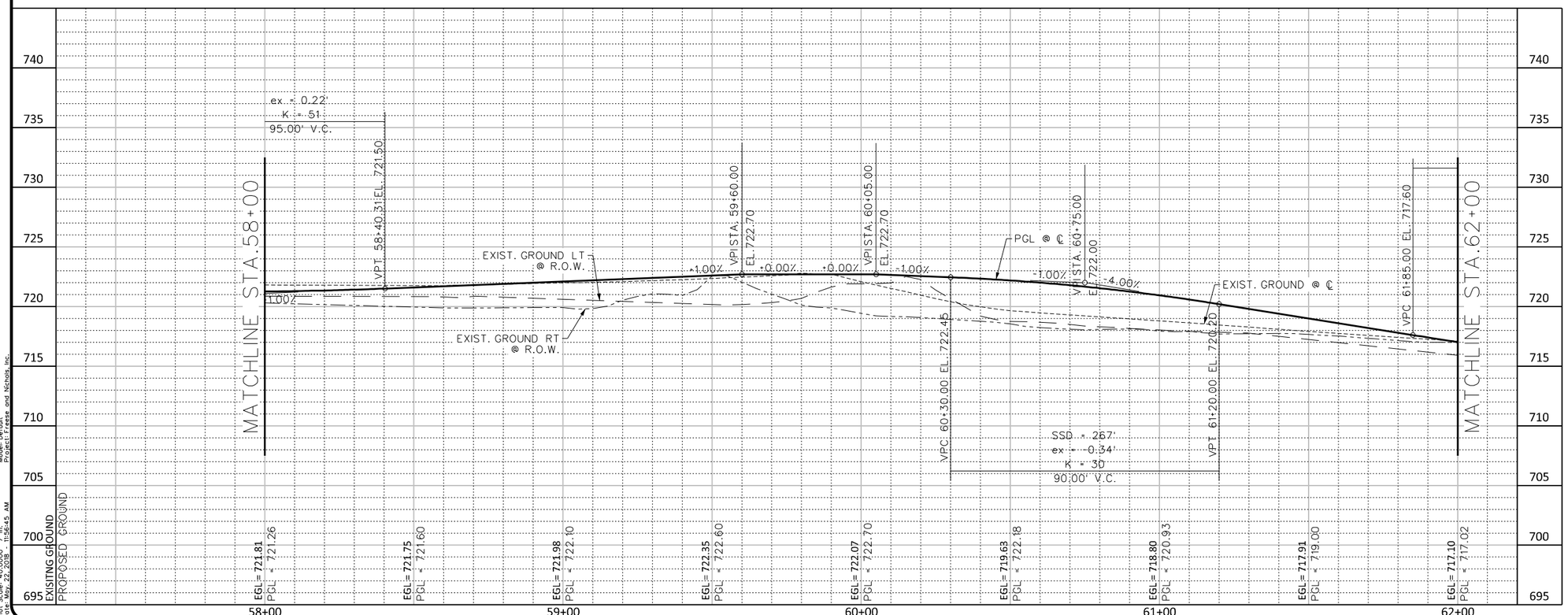
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:44 AM User: 02590File: N:\TIF\Drawings\CV-TRT-PL-ROAD12.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

N

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.58+00 TO STA.62+00

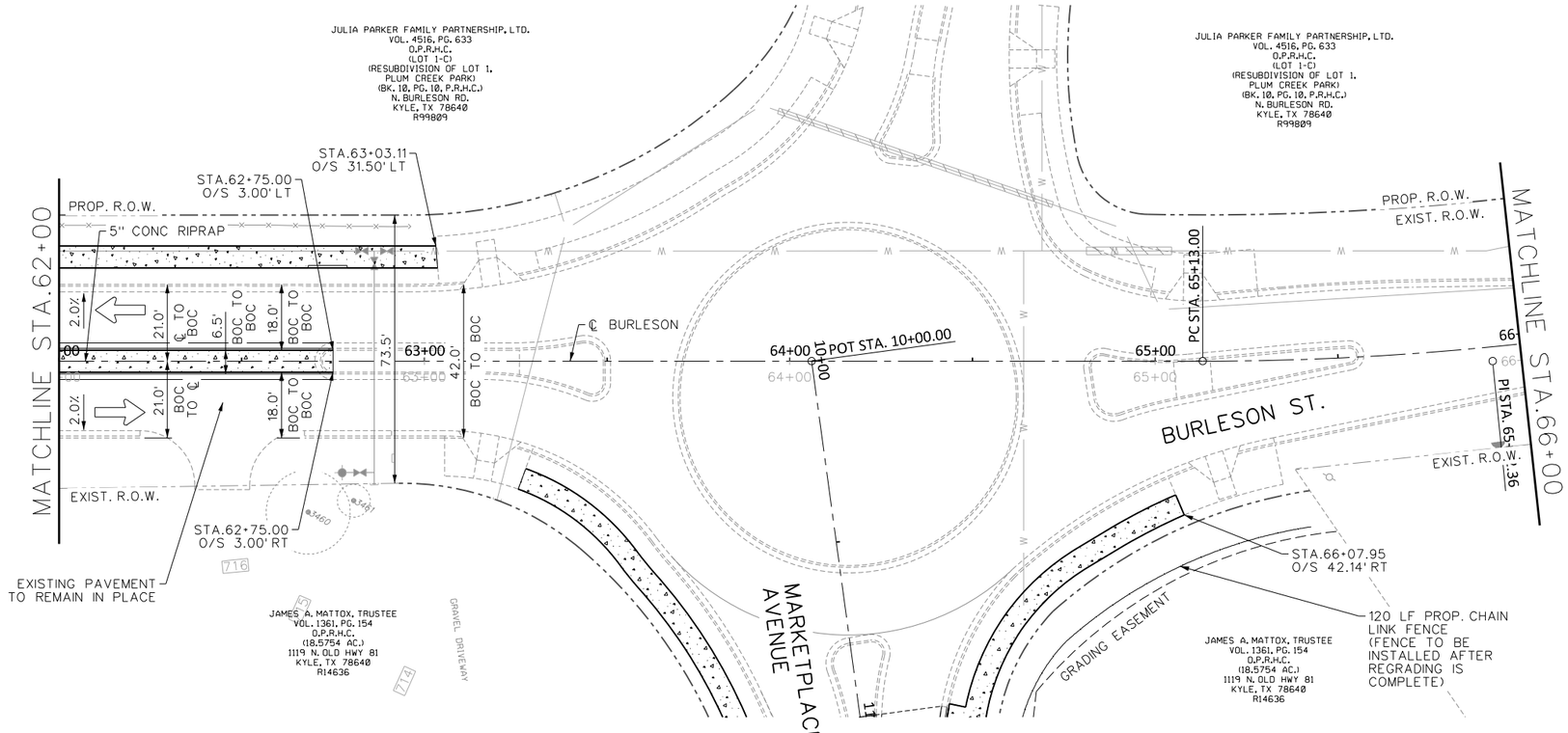
NO.	ISSUES	BY	DATE

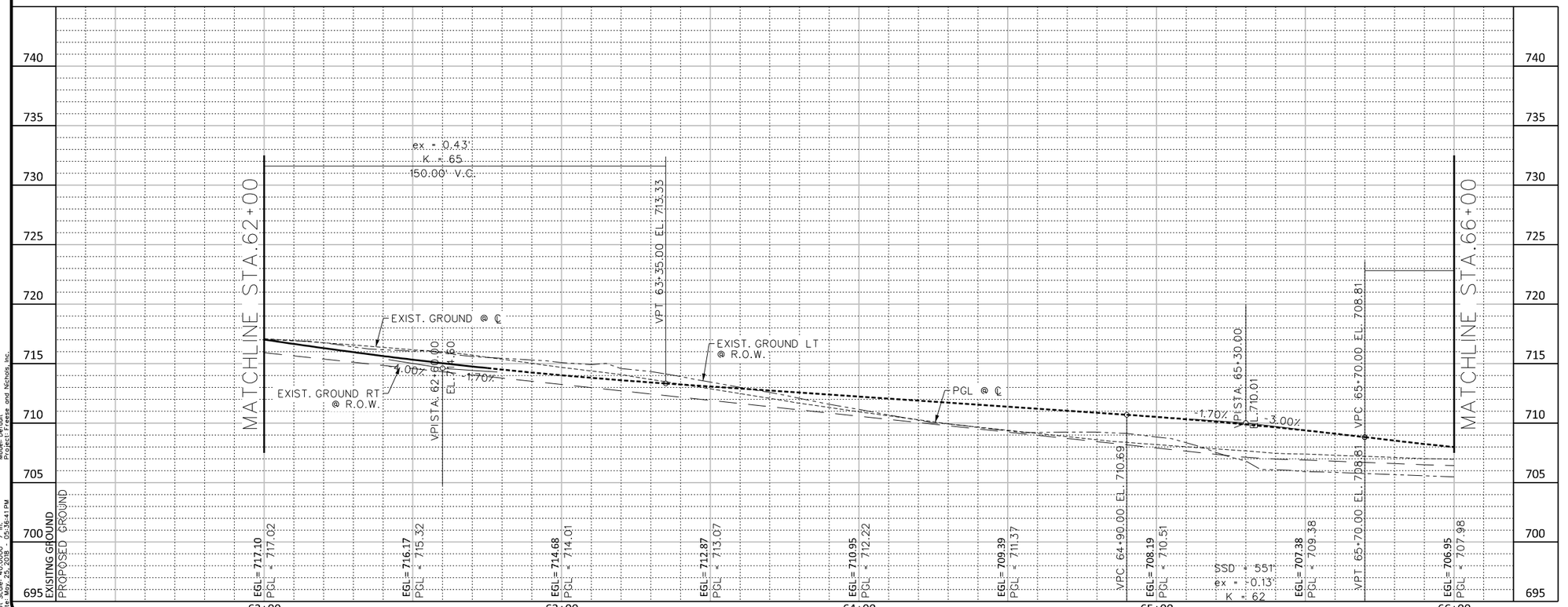
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD13.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 85
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IT\Drawings\CV-TRT-PL-ROAD13.sht
Plot Date: 22 May 2018 11:56:45 AM Model:Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:56:45 AM
Office: Austin KYL14284 Date: May. 22, 2018 - 11:56:45 AM User: 02590File: N:\IT\Drawings\CV-TRT-PL-ROAD13.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS
STA.62+00 TO STA.66+00

NO.	ISSUES	BY	DATE

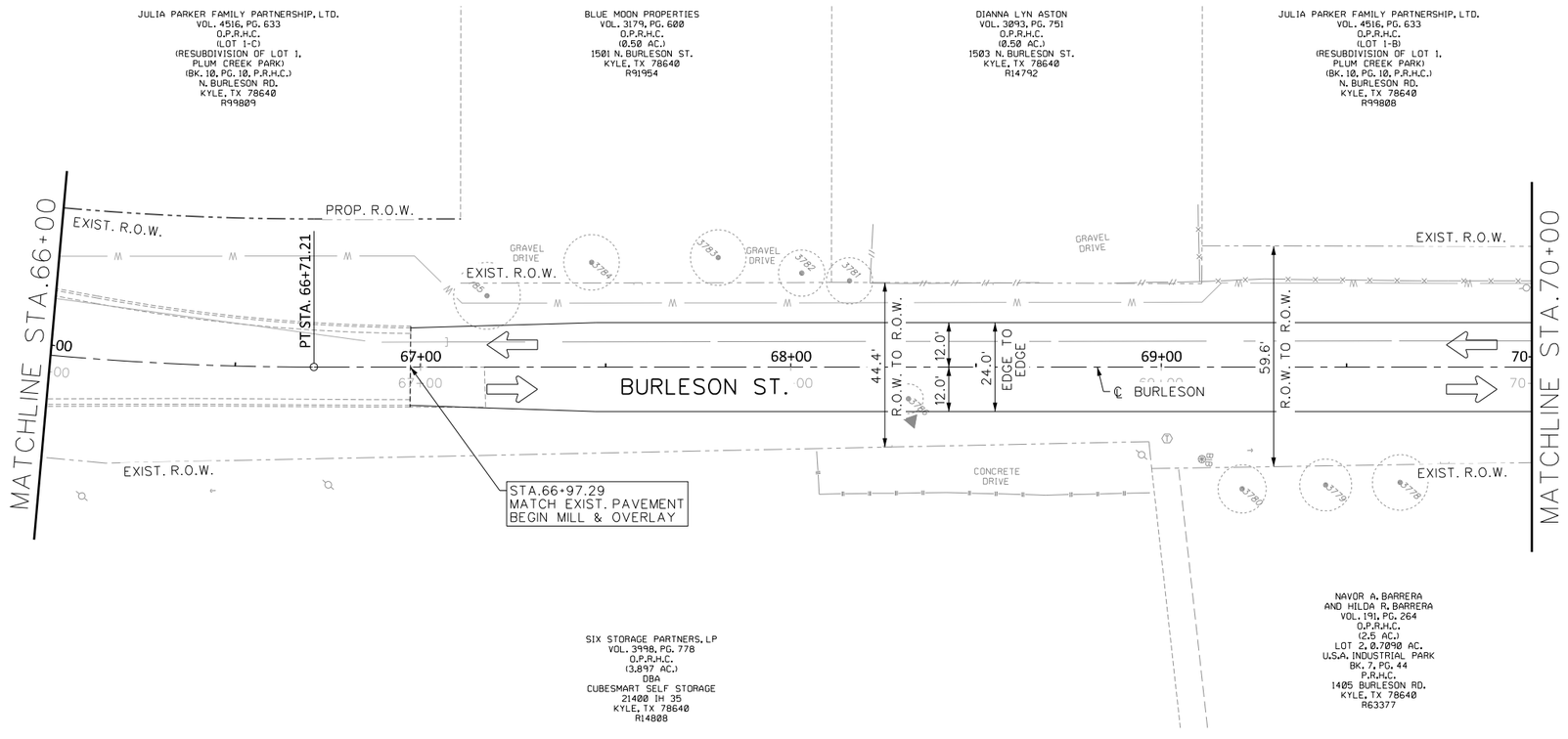
F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD14.sht

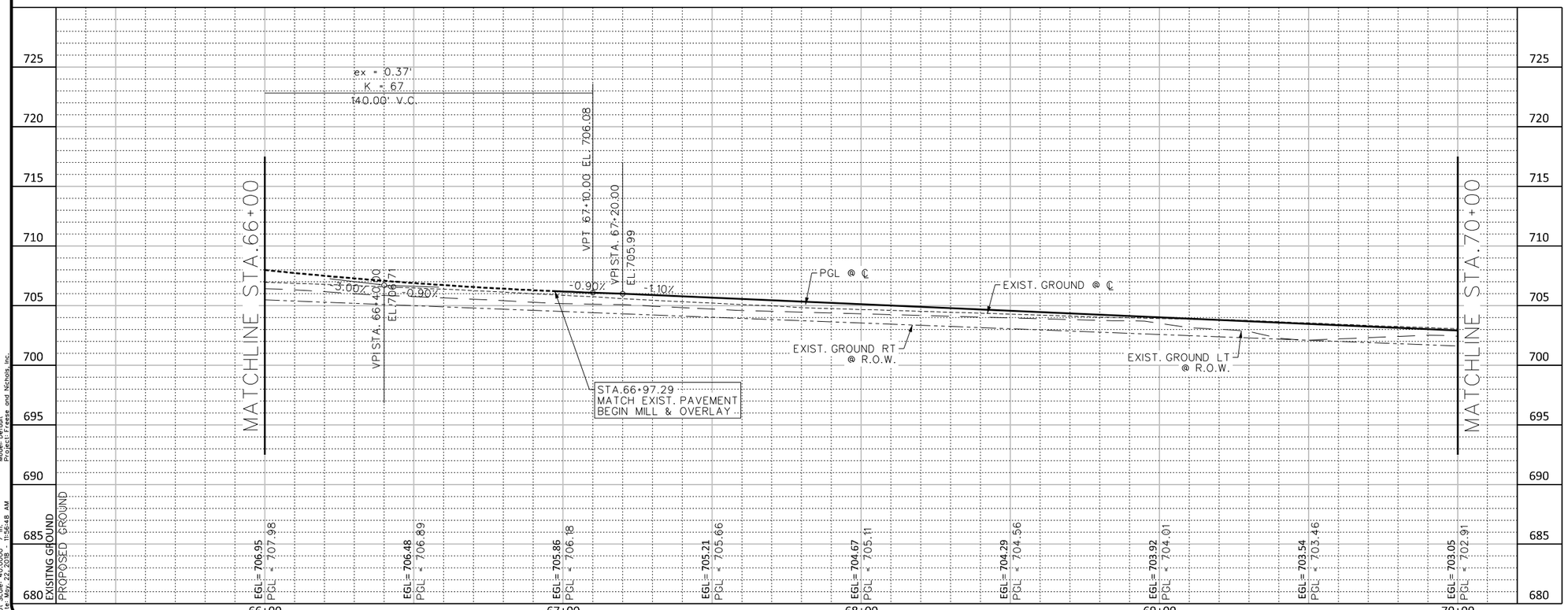
SHEET 86
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-ROAD14.sht
Plot Driver: HP DesignJet 500 PostScript Plot.PltCfg
Plot Scale: 40.0000 ' / in.
Date: May. 25, 2018 - 05:36:41 PM

Project: Freese and Nichols, Inc.
Model: Default

Office: Austin KYL14284 Date: May. 25, 2018 - 05:36:41 PM User: 02590File: N:\tf\Drawings\CV-TRT-PL-ROAD14.sht





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE
0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
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Austin, Texas 78759
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Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.66+00 TO STA.70+00

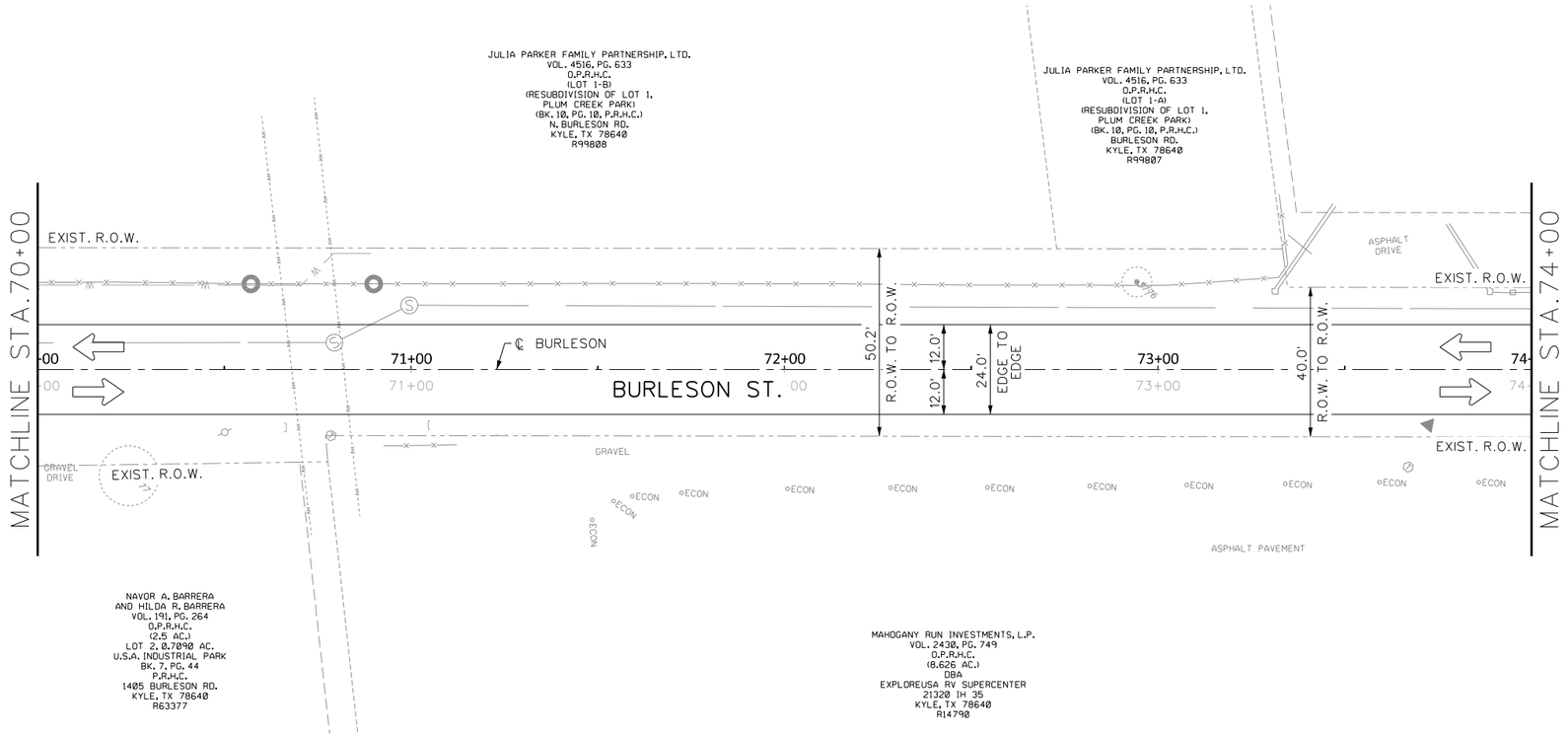
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD15.sht

SHEET 87
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-PL-ROAD15.sht
Plot Date: May. 22, 2018 - 11:56:48 AM
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:56:48 AM
Model Default
Project: Freese and Nichols, Inc.



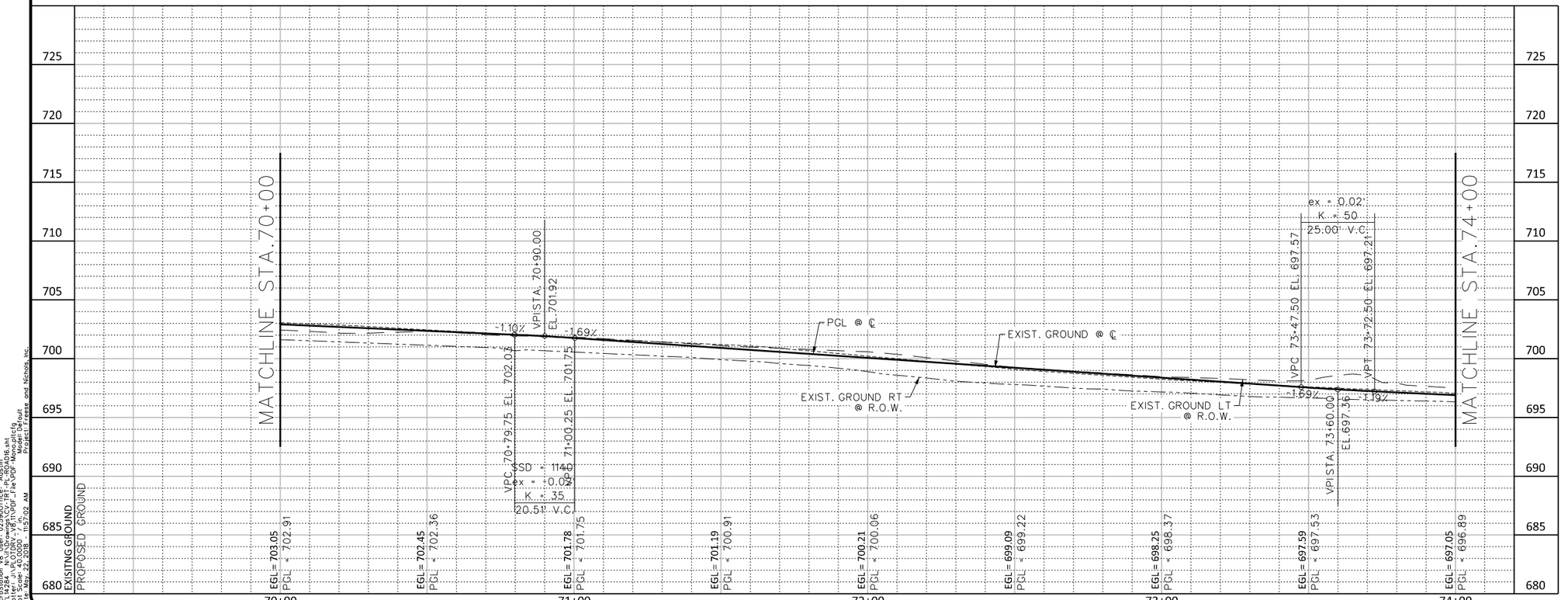
LEGEND

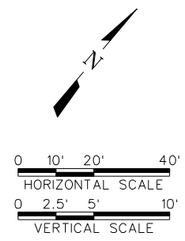
TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.70+00 TO STA.74+00

NO.	ISSUES	BY	DATE

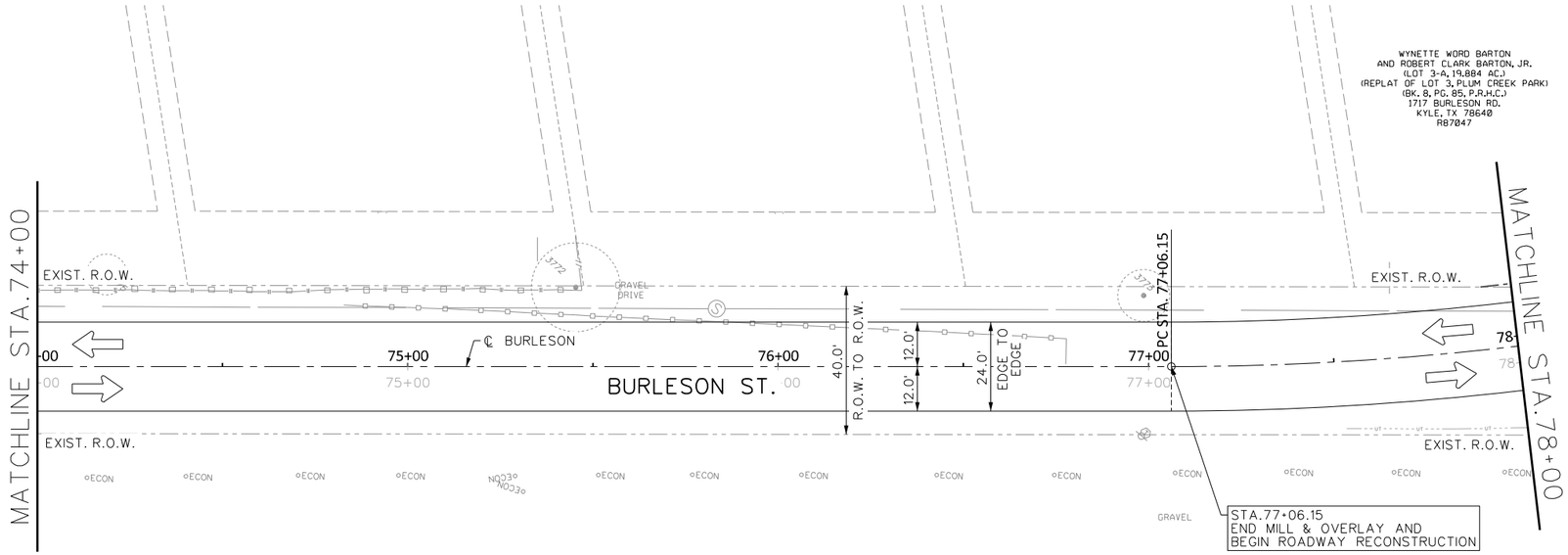
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD16.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 88

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tl\Drawings\CV-TRT-PL-ROAD16.sht
Plot Driver: HP Designjet 500 42ps.pltCfg Model Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:02 AM



WYNETTE WORD BARTON
AND ROBERT CLARK BARTON, JR.
(LOT 3-A, 19.884 AC.)
(REPLAT OF LOT 3, PLUM CREEK PARK)
(BK. 8, PG. 85, P.P.H.C.)
1717 BURLESON RD.
KYLE, TX 78640
R87047

MAHOGANY RUN INVESTMENTS, L.P.
VOL. 2430, PG. 749
O.P.R.H.C.
(8.626 AC.)
DBA
EXPLOREUSA RV SUPERCENTER
21320 IH 35
KYLE, TX 78640
R14790

LEGEND

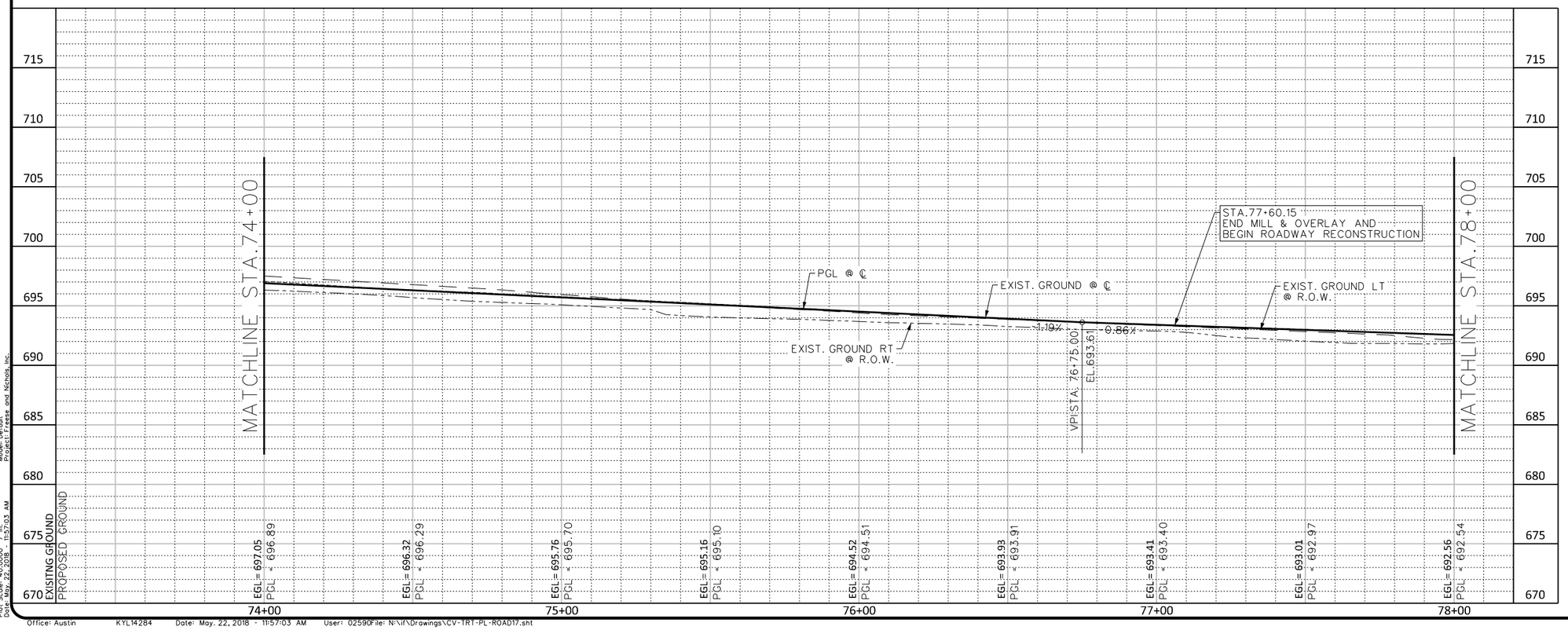
TRAFFIC DIRECTION

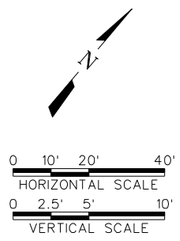
CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

BURLESON STREET CROSS SLOPE DATA		
STATIONING	LT	RT
STA.77+50.00	-2.00	-2.00
STA.78+50.00	2.00	-2.00





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.74+00 TO STA.78+00

NO.	ISSUES	BY	DATE

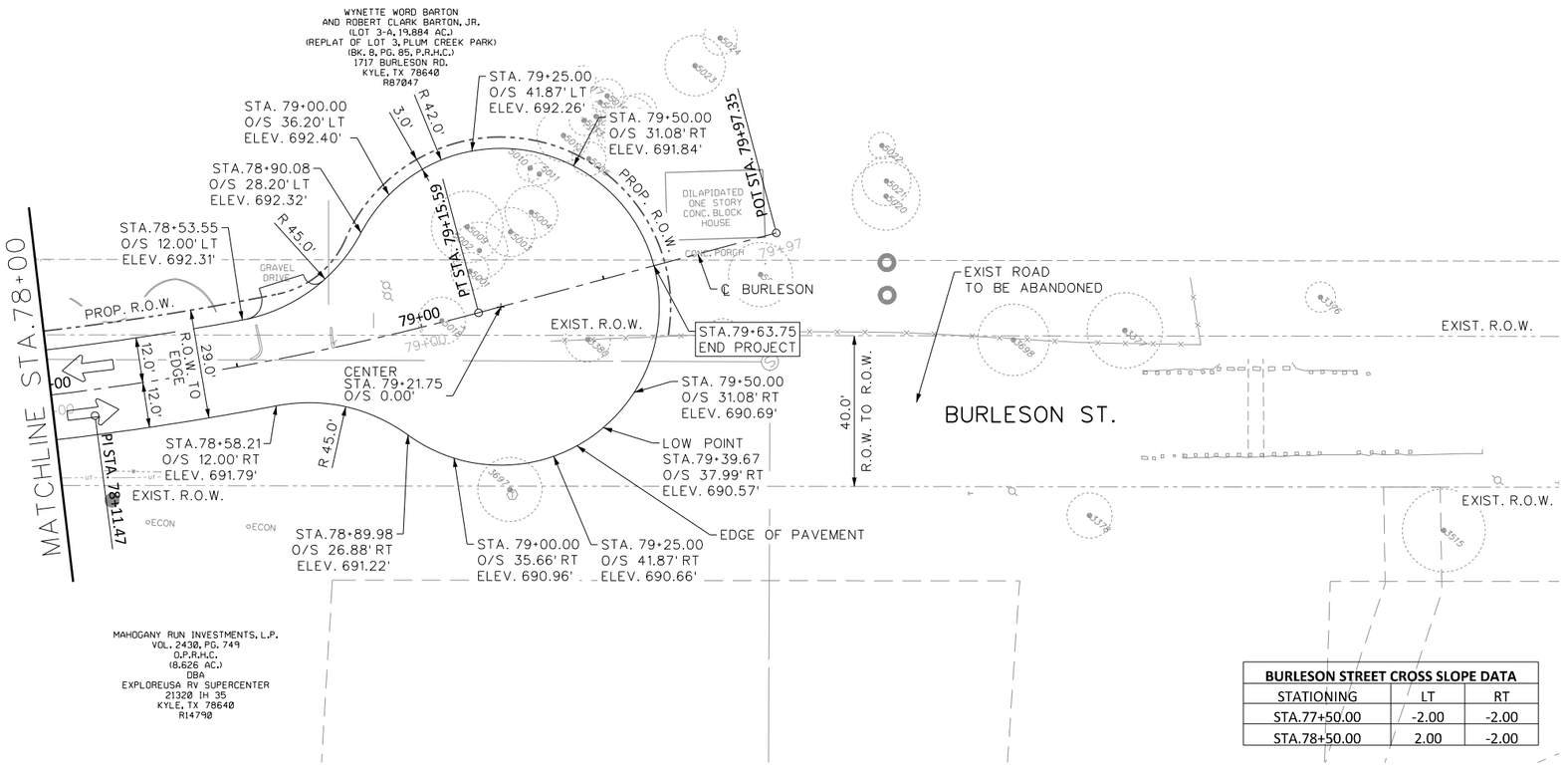
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD17.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

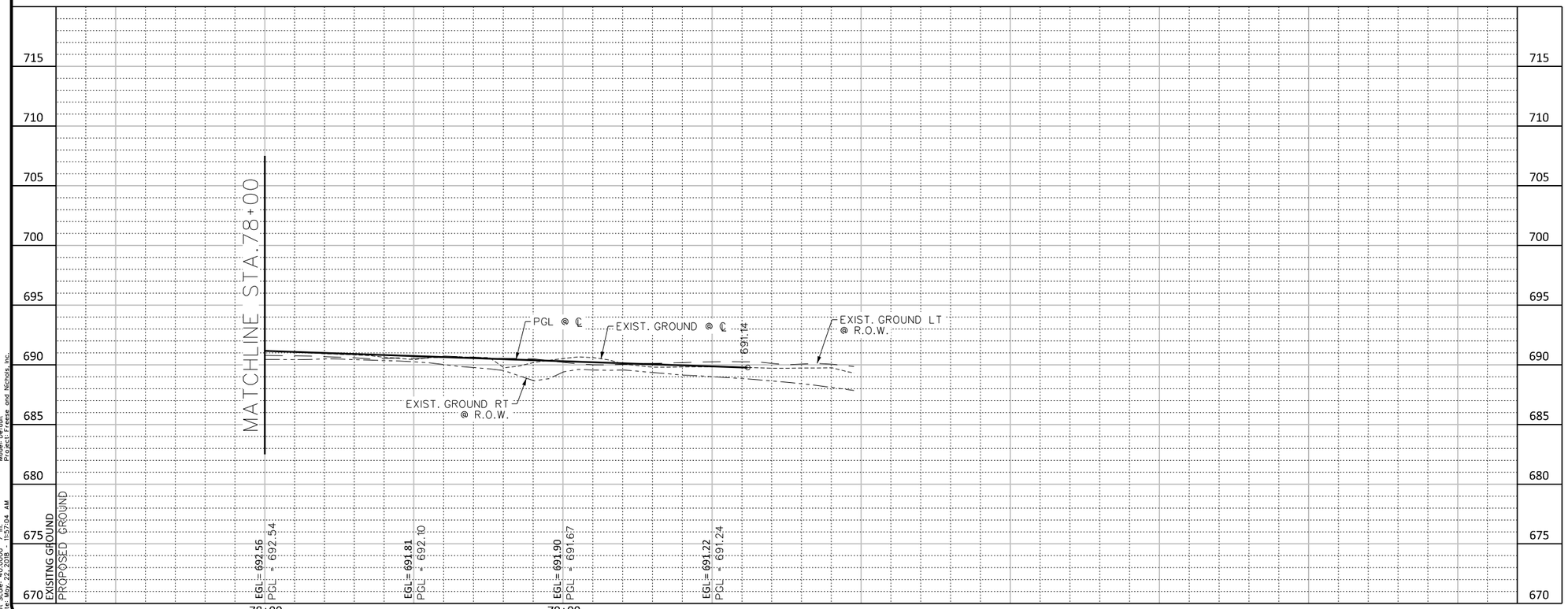
SHEET 89
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IT\Drawings\CV-TRT-PL-ROAD17.sht
PlotDrv=HP Officejet 4500 Desktop, Model=Default
Plot Scale= 40.0000 ' / in. Project=Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:03 AM

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:03 AM User: 02590File: N:\IT\Drawings\CV-TRT-PL-ROAD17.sht



BURLESON STREET CROSS SLOPE DATA		
STATIONING	LT	RT
STA.77+50.00	-2.00	-2.00
STA.78+50.00	2.00	-2.00



LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE

0 2.5' 5' 10'
VERTICAL SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
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5/22/2018

FREESE NICHOLS
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Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS
STA.78+00 TO STA.79+97.35

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD18.sht

SHEET 90
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-ROAD18.sht
Plot Date: May. 22, 2018 - 11:57:04 AM Model: Default
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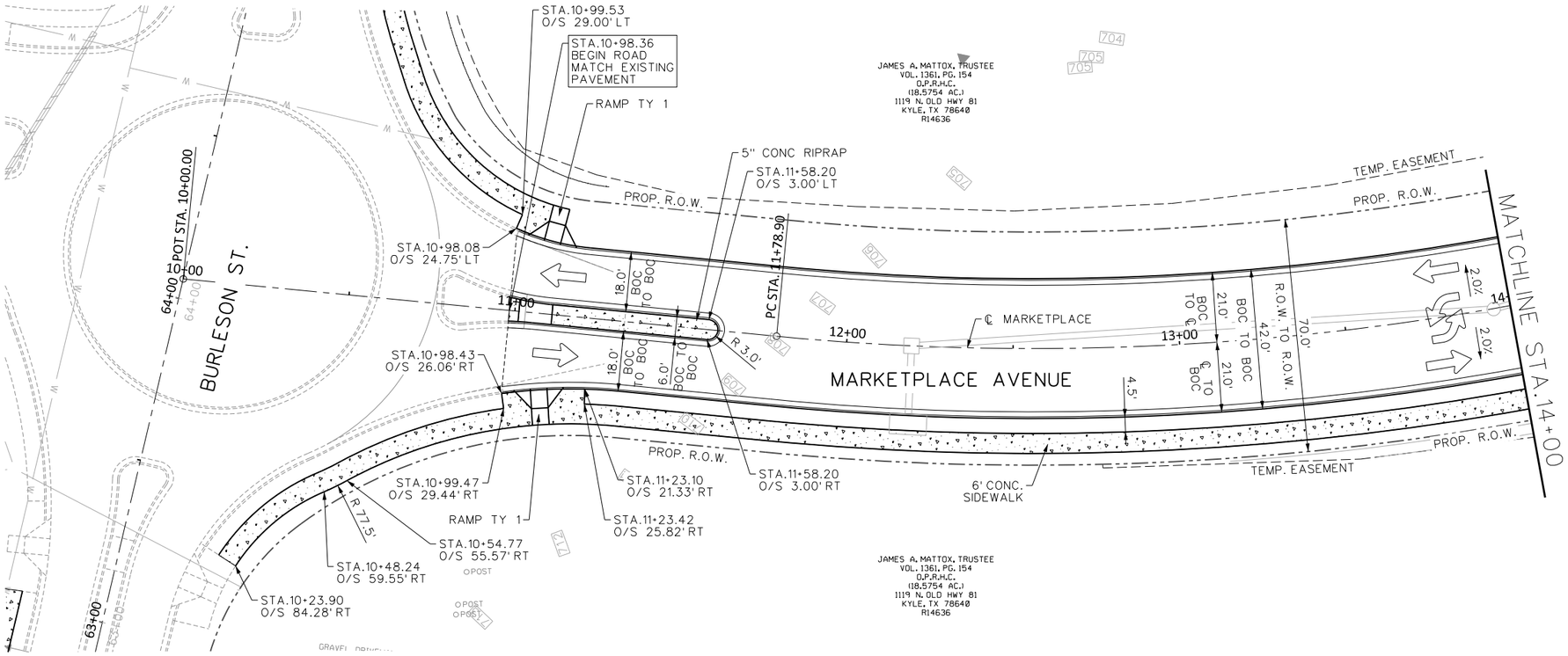
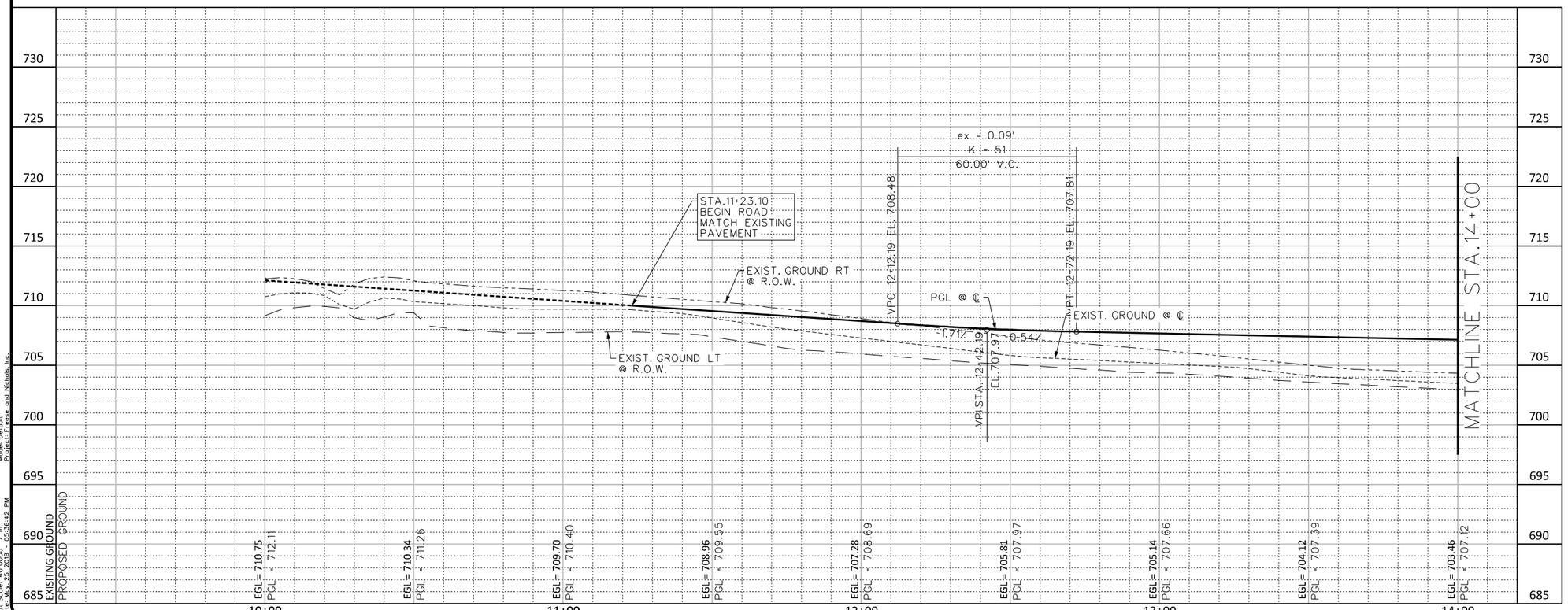
Date: May. 22, 2018 - 11:57:04 AM





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

HORIZONTAL SCALE: 0 10' 20' 40'

VERTICAL SCALE: 0 2.5' 5' 10'

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.10+00 TO STA.14+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

FAN JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD19.sht

SHEET 91
TOTAL 292

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/29/2018

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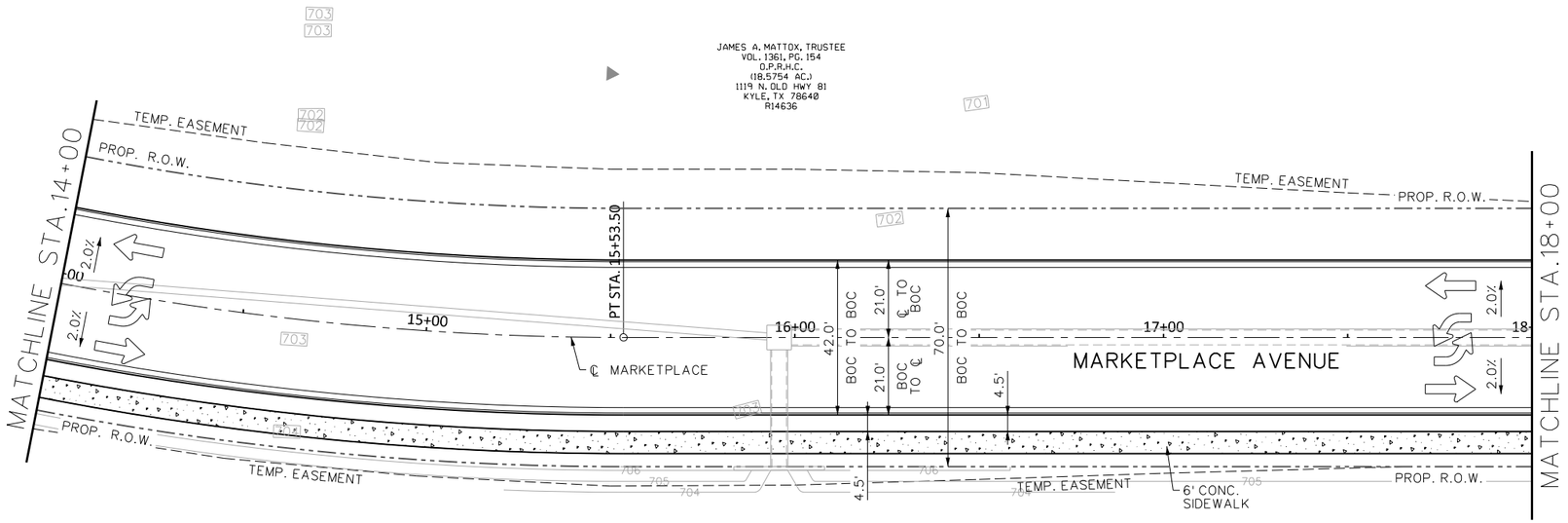
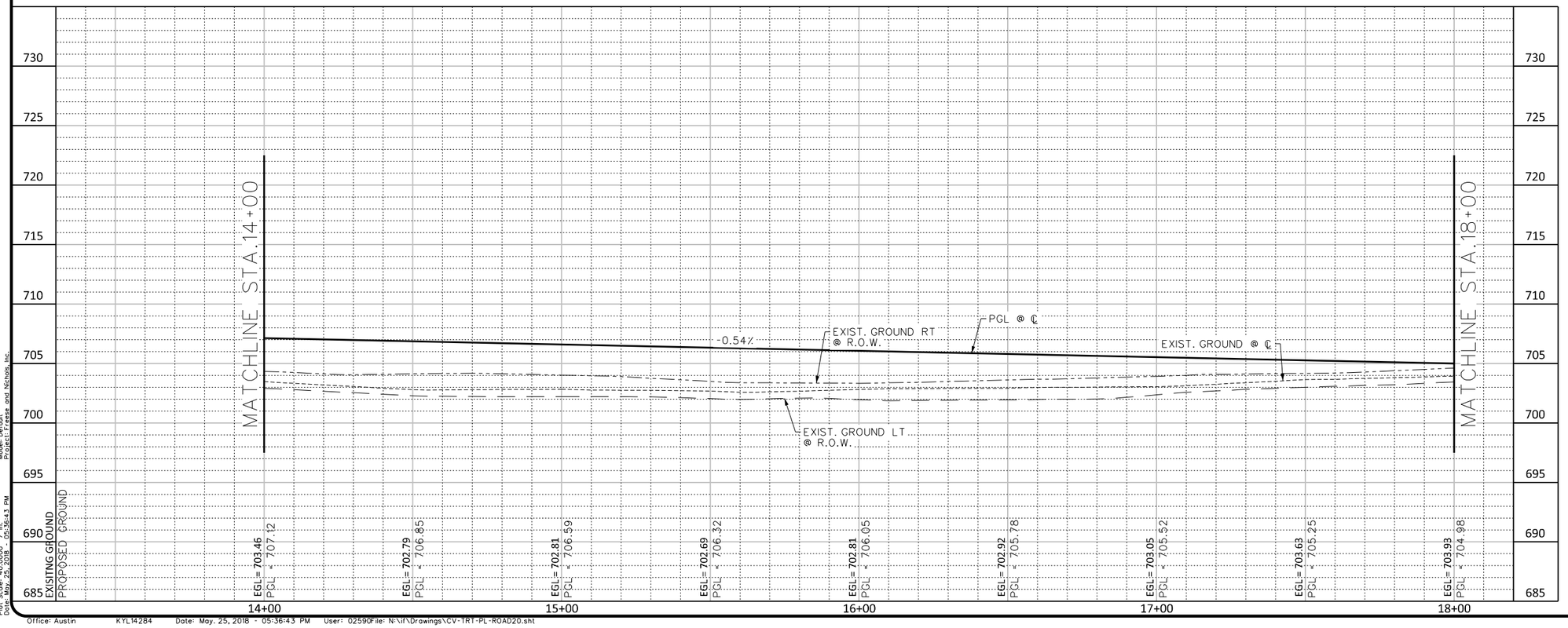
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-PL-ROAD19.sht
Plot Date: May. 25, 2018 - 05:36:42 PM
Plot Scale: 40.0000 ' / in.
Date: May. 25, 2018 - 05:36:42 PM
Model Default
Project: Freese and Nichols, Inc.





LEGEND

TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.

0 10' 20' 40'
HORIZONTAL SCALE
0 2.5' 5' 10'
VERTICAL SCALE

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS STA.14+00 TO STA.18+00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
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FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

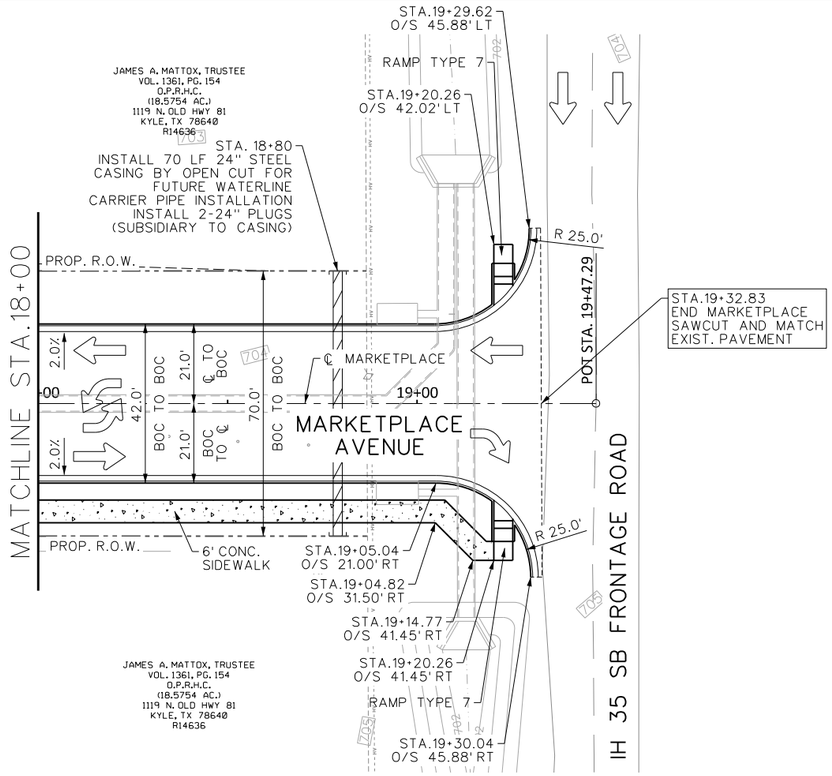
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

F&N JOB NO.	KYL14284
DATE	5/29/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD20.sht

SHEET 92
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\Drawings\CV-TRT-PL-ROAD20.sht
Plot Date: May. 25, 2018 - 05:36:43 PM
Plot Scale: 40.0000 ' / in.
Model: Default
Project: Freese and Nichols, Inc.



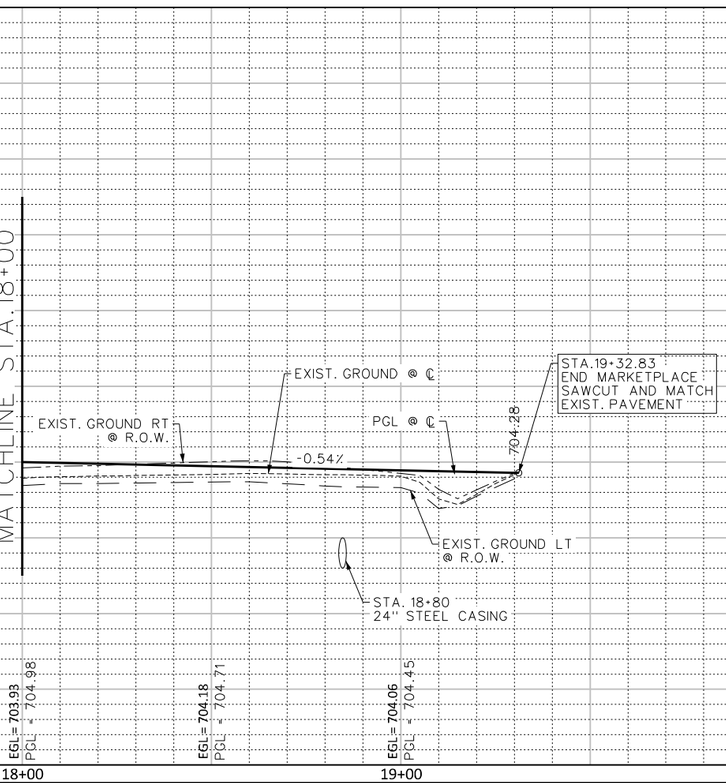
LEGEND

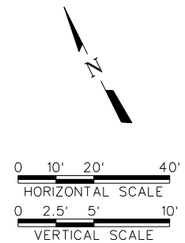
TRAFFIC DIRECTION

CONCRETE SIDEWALK

NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.





ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN & PROFILE SHEETS
STA.18+00 TO STA.19+32.83

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-ROAD21.sht

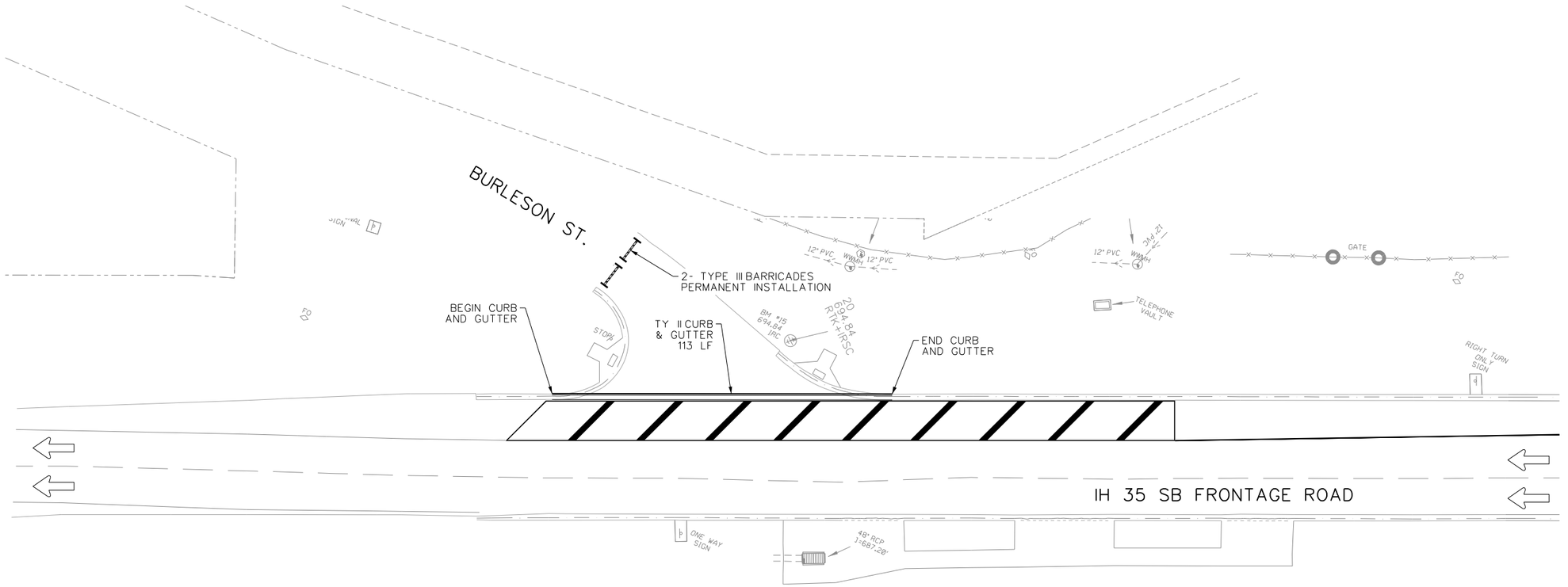
SHEET 93
TOTAL 292

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/29/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

MicroStation V8 User: 0259Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-ROAD21.sht
Plot Date/Time: 05/25/2018 05:36:44 PM Plot Driver: HP DesignJet 500PS.pltcfg
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 25, 2018 - 05:36:44 PM Project: Freese and Nichols, Inc.



LEGEND

TRAFFIC DIRECTION

N

0 10' 20' 40'

SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
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5/22/2018

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Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT PLAN
IH 35 SOUTHBOUND ROAD

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

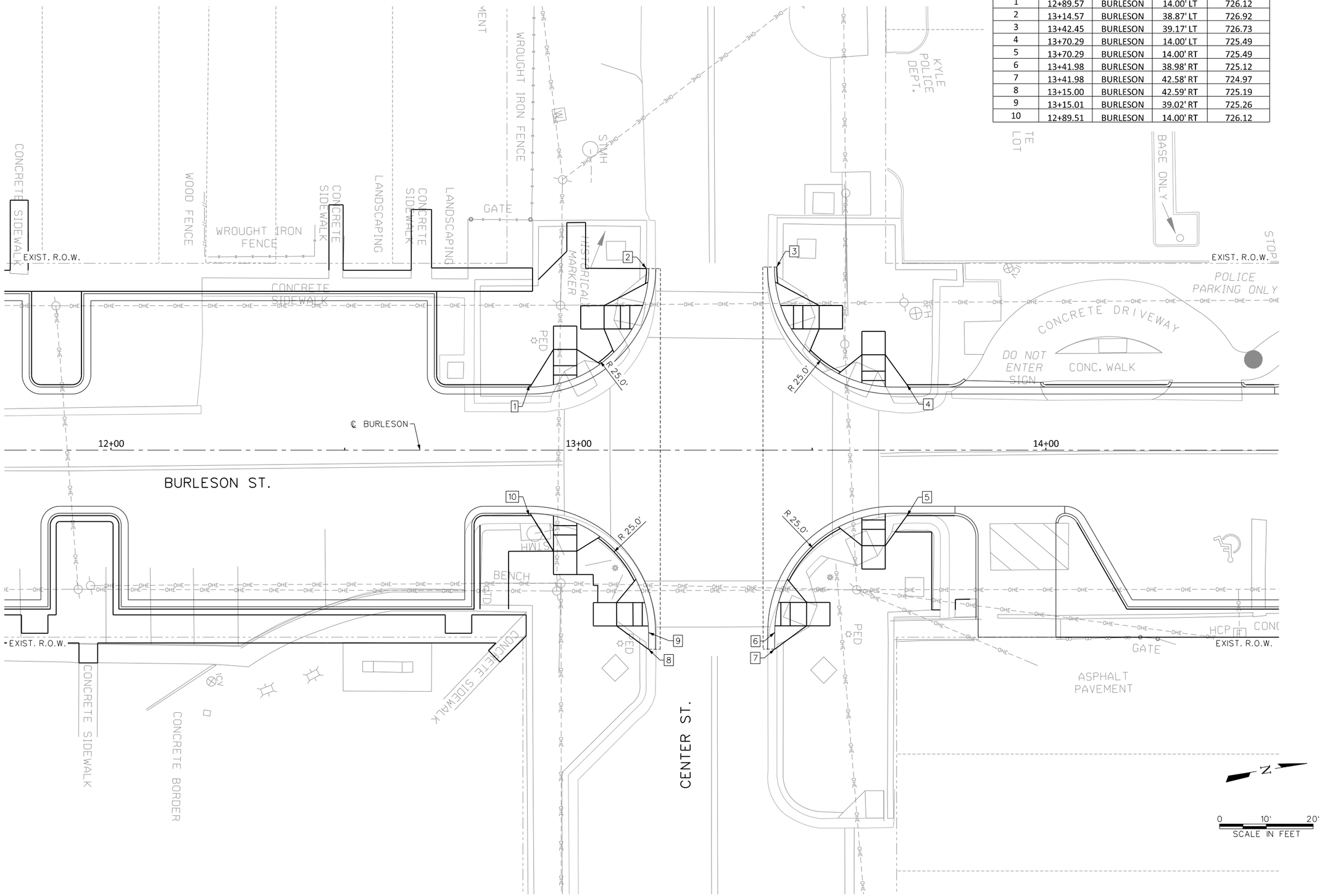
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-ROAD22.sht

SHEET 94

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-ROAD22.sht
Plot Area: 40.0000 x 10.0000 Plot Offset: 0.00, 0.00 Model Default
Plot Scale: 40.0000 = 1. in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:09 AM

PT NO.	STATION	CHAIN	OFFSET	ELEVATION
1	12+89.57	BURLESON	14.00' LT	726.12
2	13+14.57	BURLESON	38.87' LT	726.92
3	13+42.45	BURLESON	39.17' LT	726.73
4	13+70.29	BURLESON	14.00' LT	725.49
5	13+70.29	BURLESON	14.00' RT	725.49
6	13+41.98	BURLESON	38.98' RT	725.12
7	13+41.98	BURLESON	42.58' RT	724.97
8	13+15.00	BURLESON	42.59' RT	725.19
9	13+15.01	BURLESON	39.02' RT	725.26
10	12+89.51	BURLESON	14.00' RT	726.12



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

INTERSECTION LAYOUT

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-INTERSECTION01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

SHEET 95
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-PL-INTERSECTION01.sht
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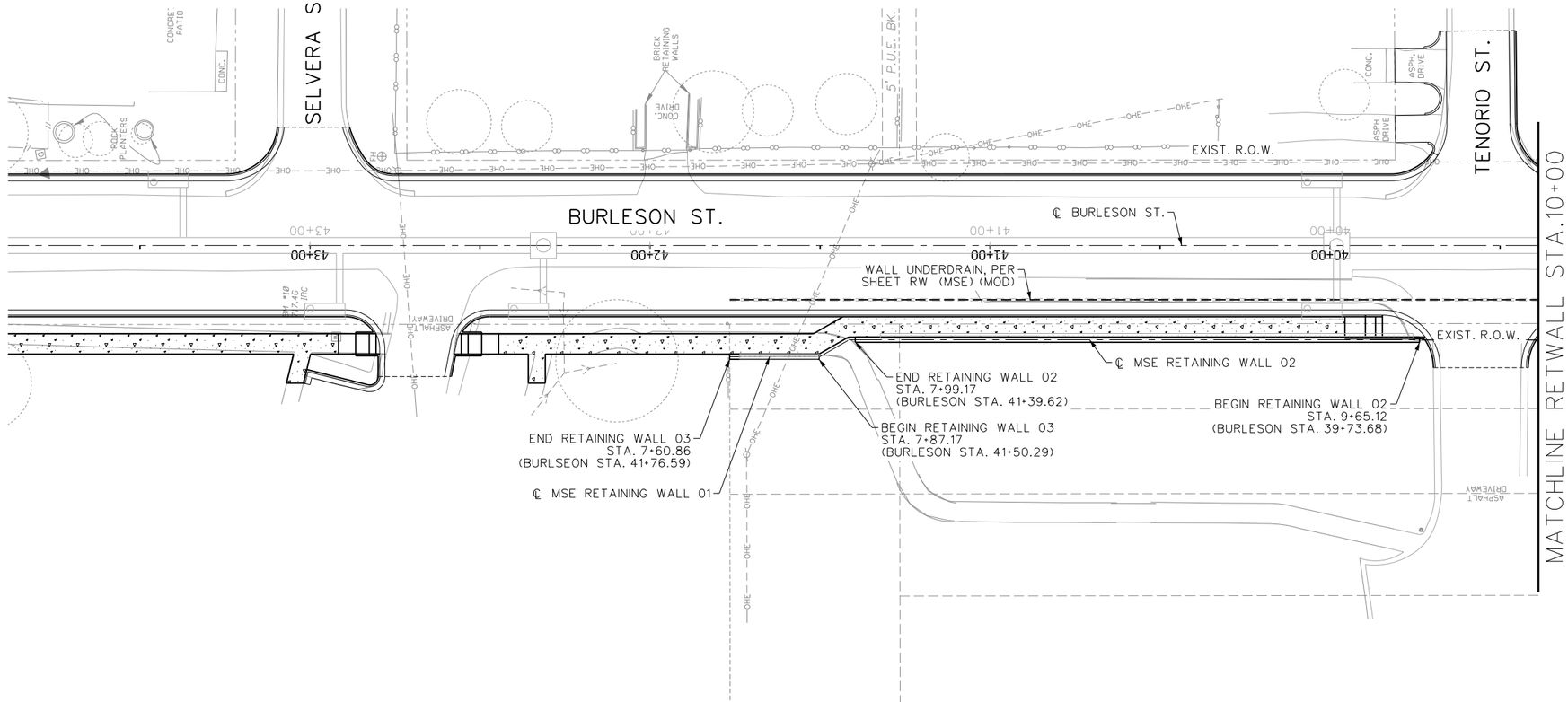
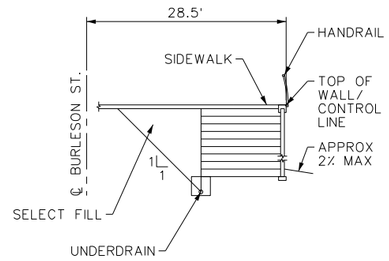
Plot Scale: 20.0000 ' / in.
Date: May. 22, 2018 - 11:57:10 AM
Mode: Default
Project: Freese and Nichols, Inc.

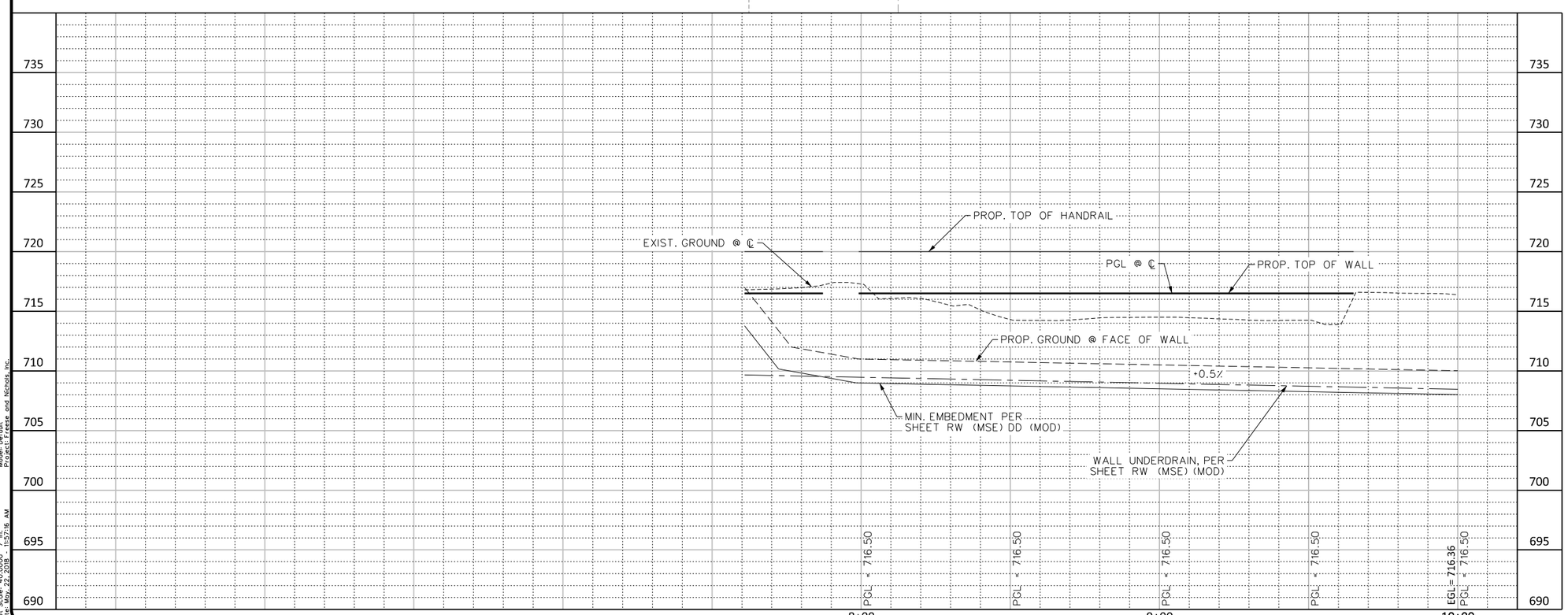


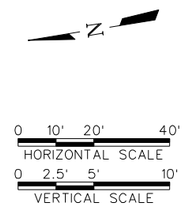
NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.
2. DESIGN WATER LEVEL = 716.07 FT-MSL
3. REFER TO RW (MSE) (MOD) AND RW (MSE) DD FOR RETAINING WALL REQUIREMENTS.



SECTION A-A
NOT TO SCALE





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
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LICENSED PROFESSIONAL ENGINEER
5/22/2018
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MSE RETAINING WALL PLAN AND PROFILE STA.7+60.86 TO STA.10+00.00

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN BP
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-RET WALL02.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 96
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IT\Drawings\CV-TRT-PL-RET WALL02.sht
Plot Date: May. 22, 2018 - 11:57:16 AM Model Default
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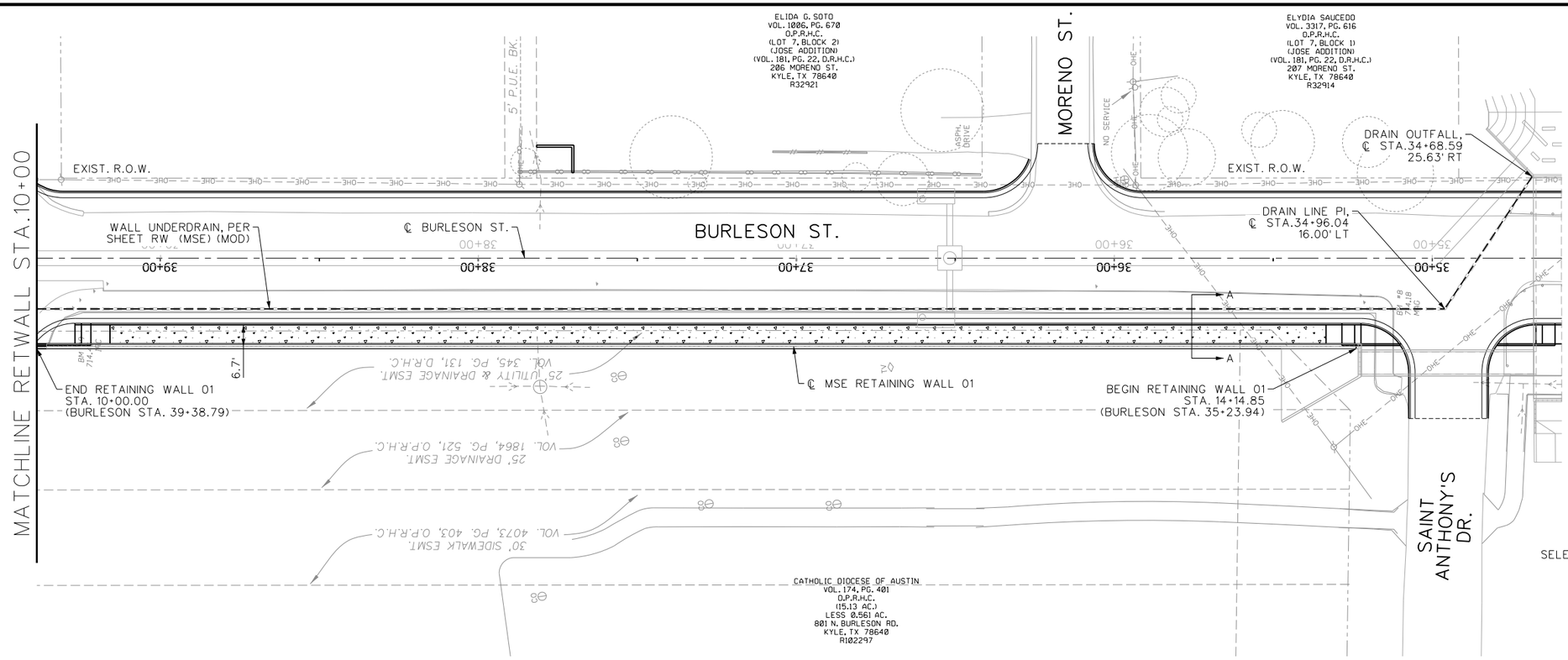
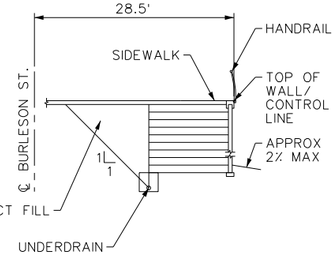
Date: May. 22, 2018 - 11:57:16 AM

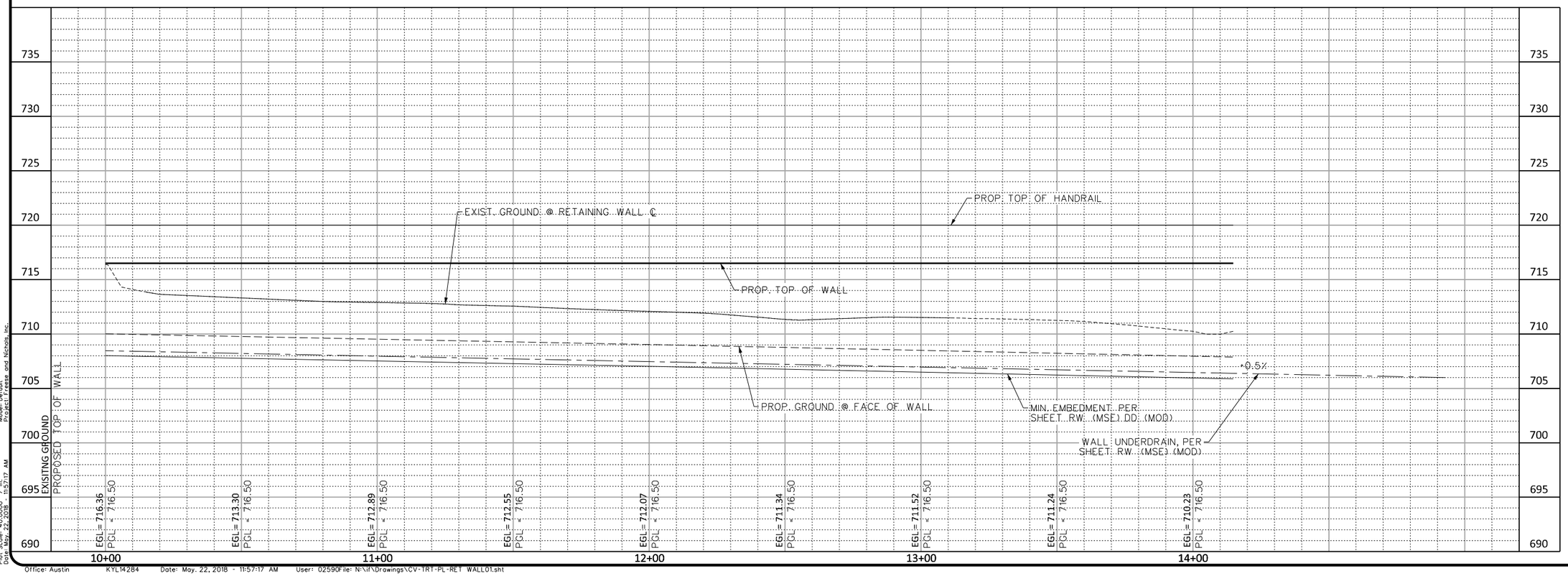


NOTE:

1. ALL MEASUREMENTS TAKEN FROM BACK OF CURB (BOC) UNLESS OTHERWISE NOTED ON PLANS.
2. DESIGN WATER LEVEL = 716.07 FT-MSL
3. REFER TO RW (MSE) (MOD) AND RW (MSE) DD FOR RETAINING WALL REQUIREMENTS.



SECTION A-A
NOT TO SCALE



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MSE RETAINING WALL PLAN AND PROFILE STA.10+00.00 TO STA.14+14.85

NO.	ISSUES	BY	DATE

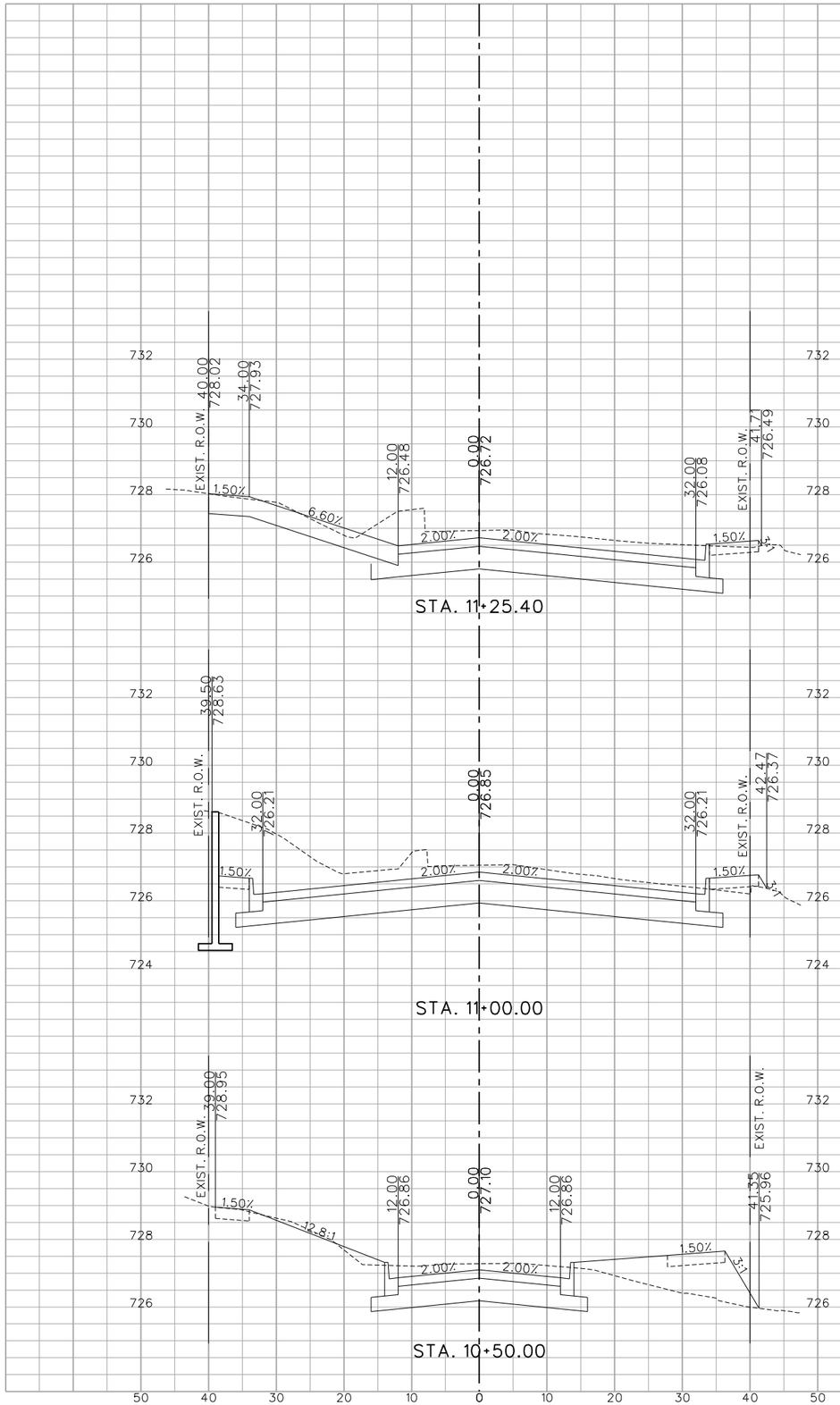
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-RET WALL01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 97
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\IF\Drawings\CV-TRT-PL-RET WALL01.sht
Plot Date: 22 May 2018 11:57:17 AM Model: Default
Plot Scale: 40.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:17 AM

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:17 AM User: 02590File: N:\IF\Drawings\CV-TRT-PL-RET WALL01.sht



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 98

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
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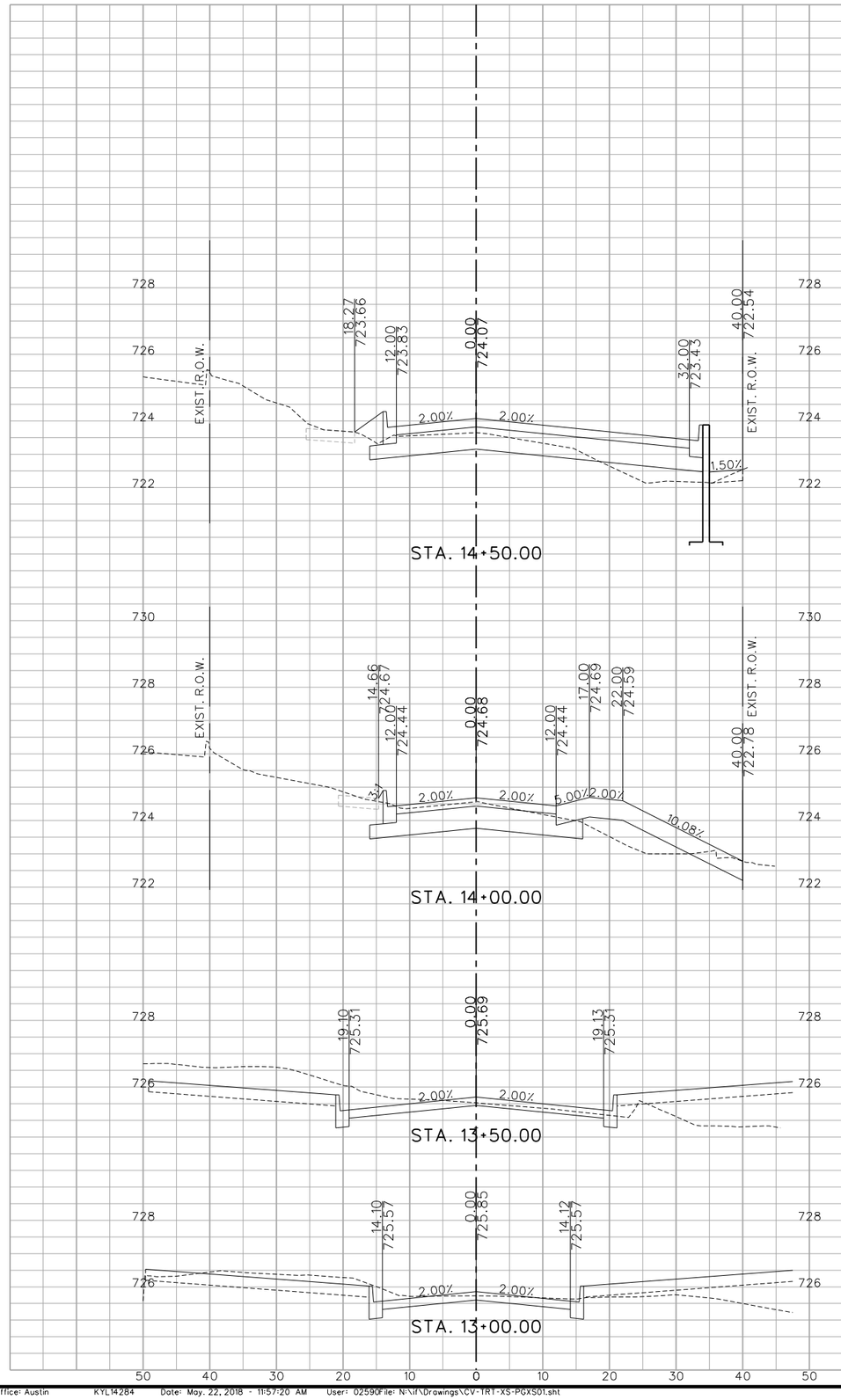
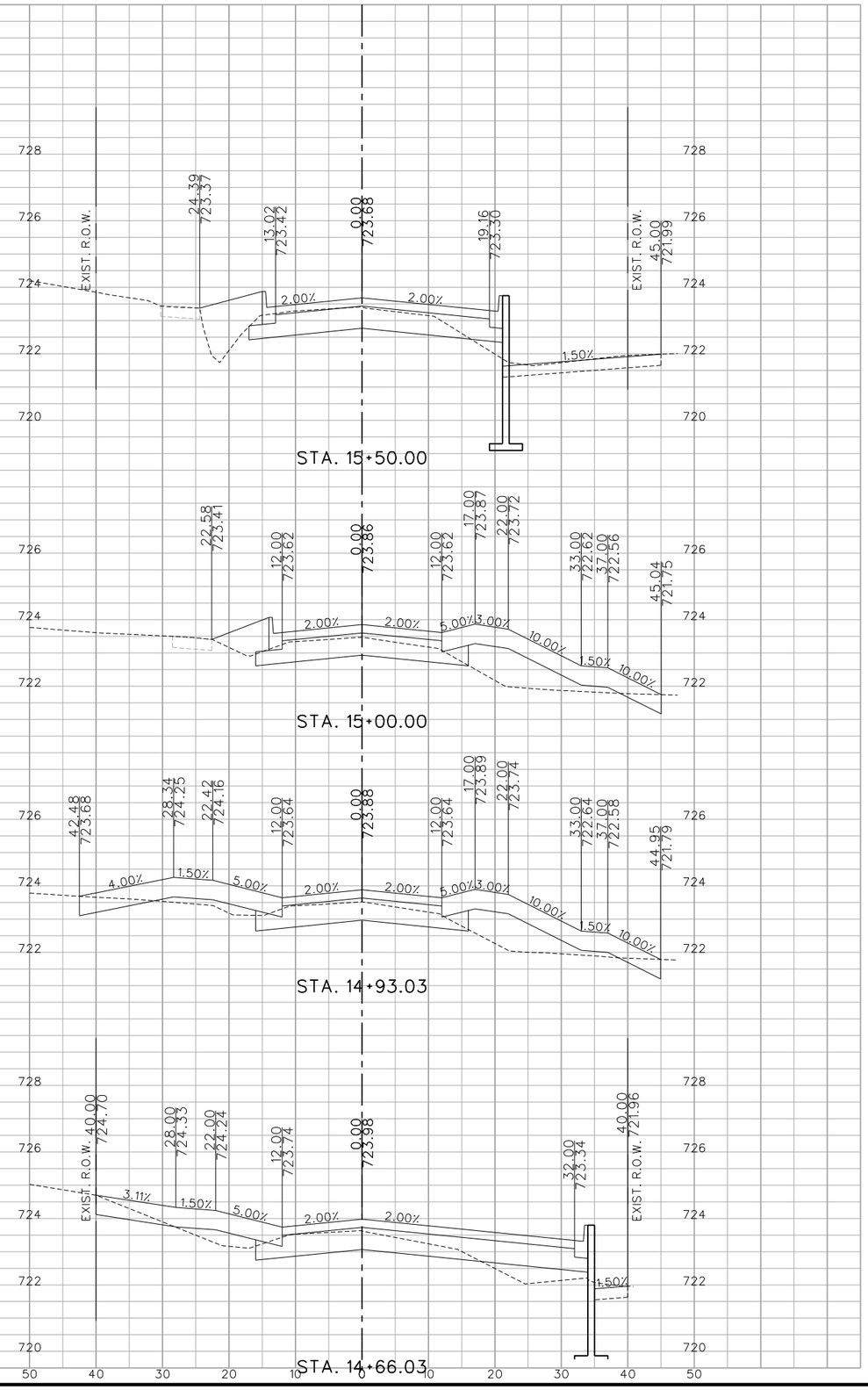
Date: May. 22, 2018 - 11:57:19 AM
Made: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:19 AM User: 02590File: N:\tf\Drawings\CV-TRT-XS-PGXS01.sht





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
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Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

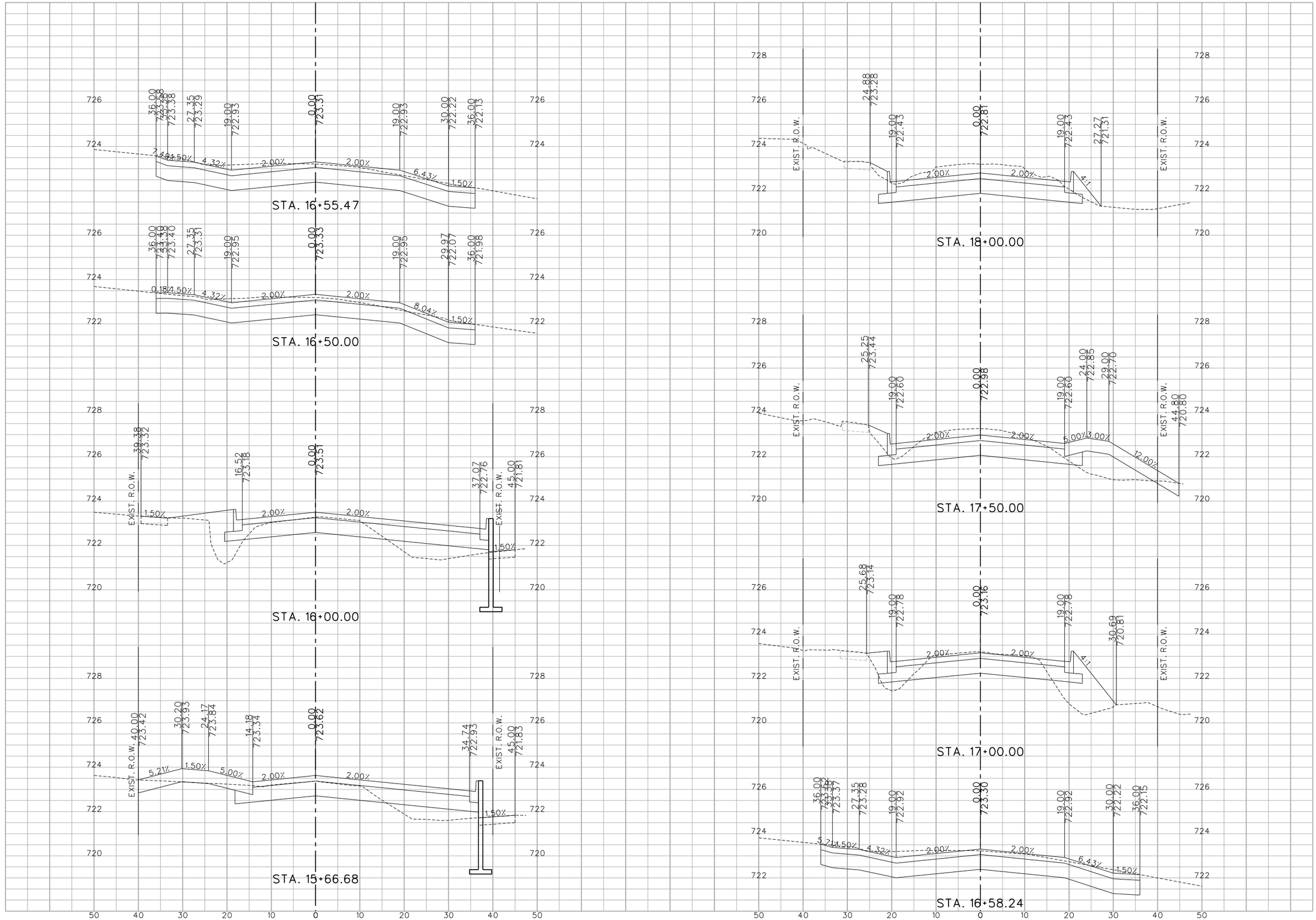
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 99
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TxDrawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 500ps.pltcfg Model: Default
Plot Scale: 20.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:20 AM



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

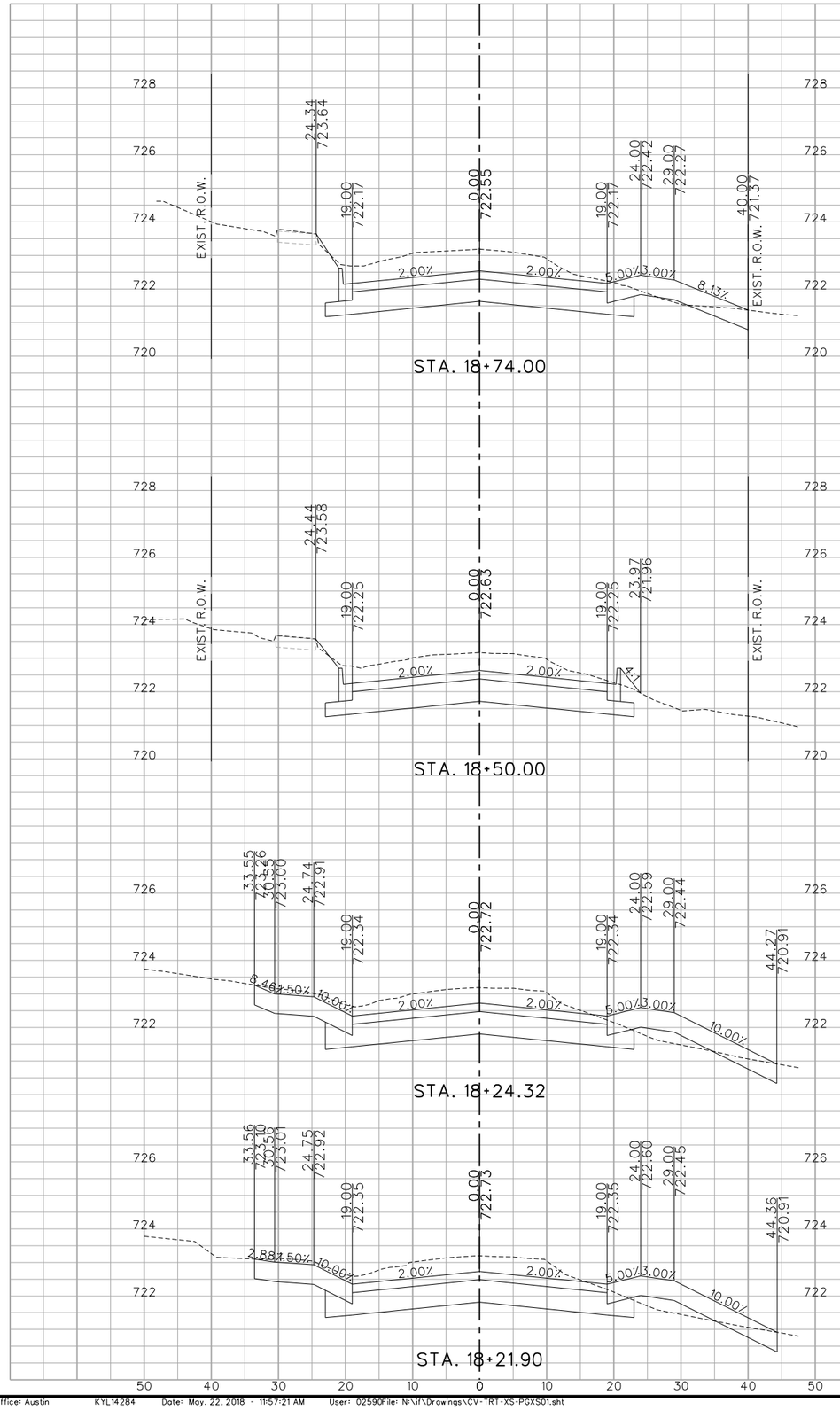
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 100
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Default - Plotted by: Sean Barry on 22-MAY-2018 11:57:20 AM
Plot Scale: 20.0000 ' = 1"
Date: May. 22, 2018 - 11:57:20 AM
Model: Default
Project: Freese and Nichols, Inc.



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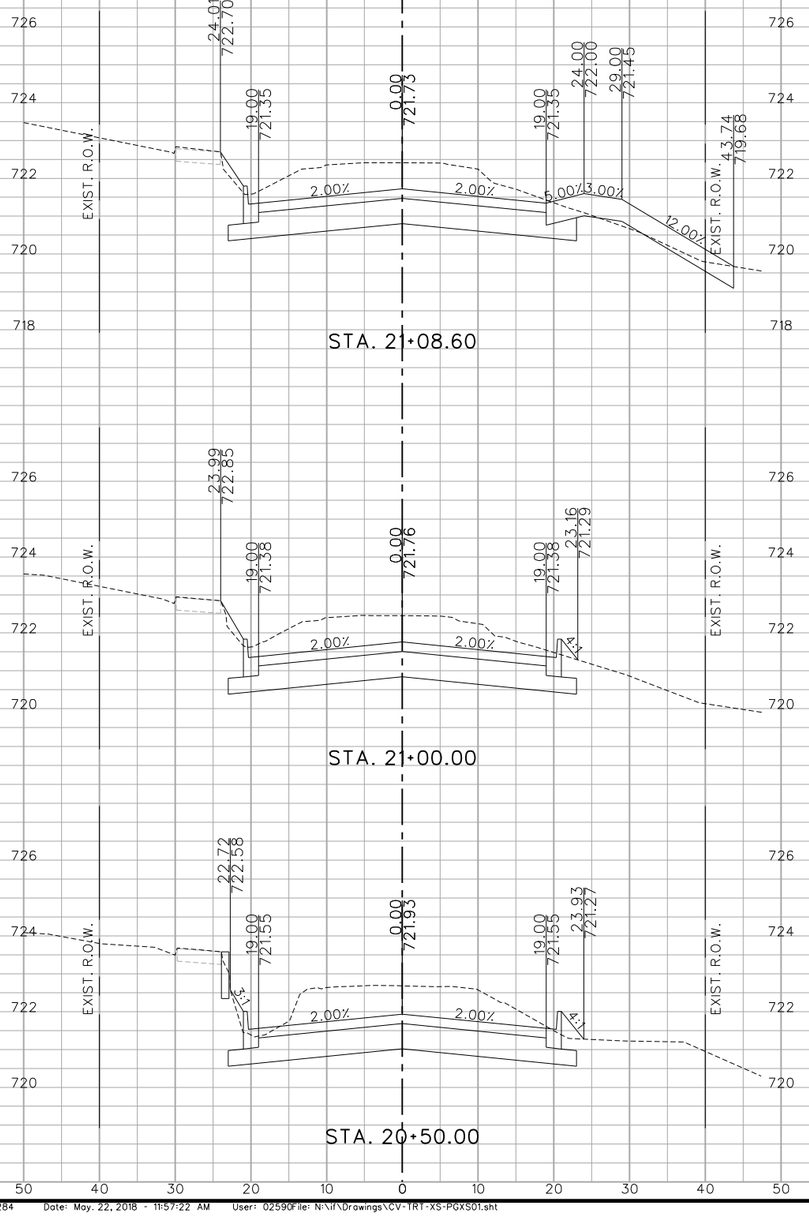
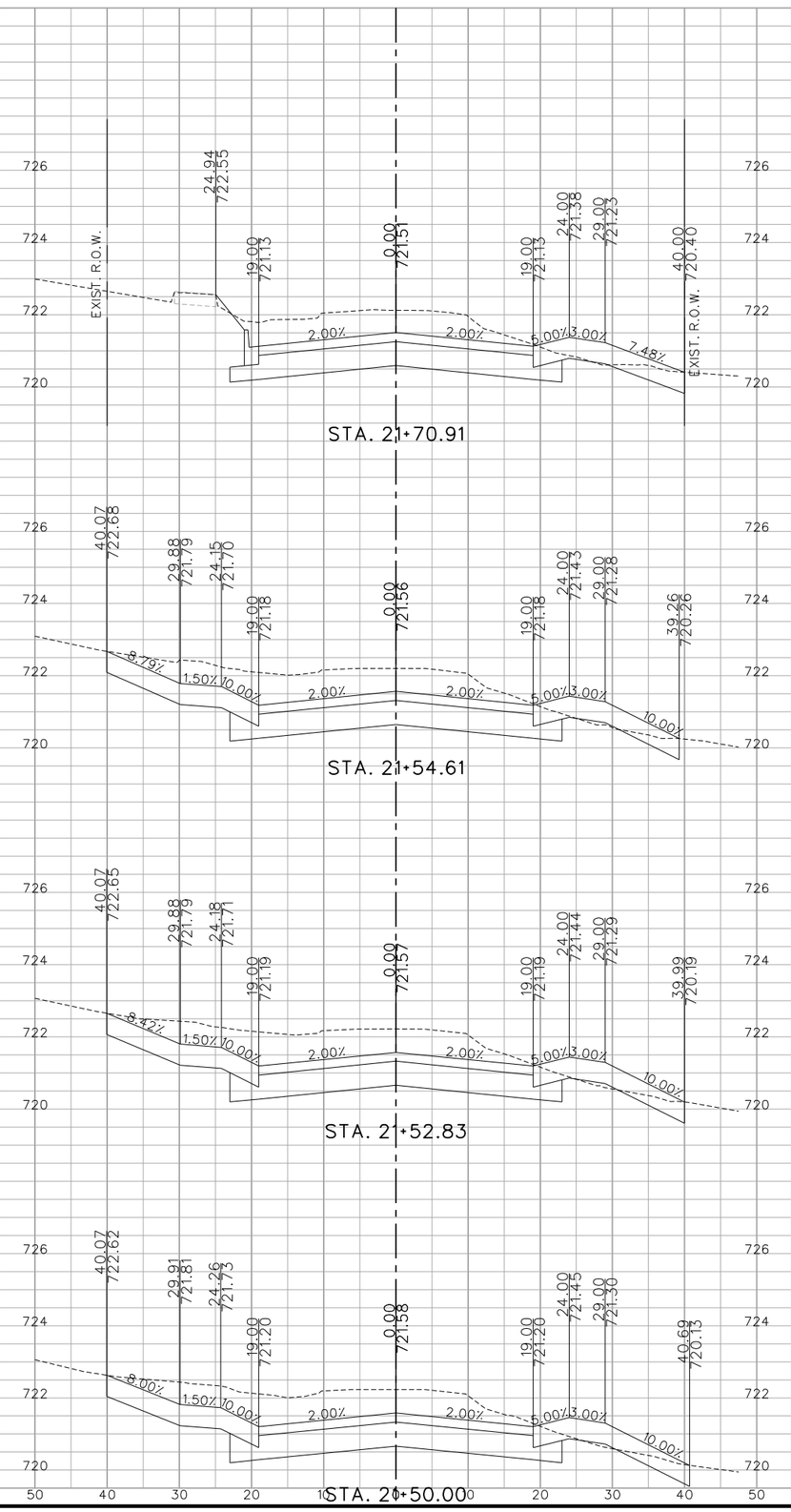
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 101
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TF\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 500 PostScript Level 2 for HP-GL/2 Model Default
Plot Scale: 20.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:21 AM





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5/22/2018

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N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

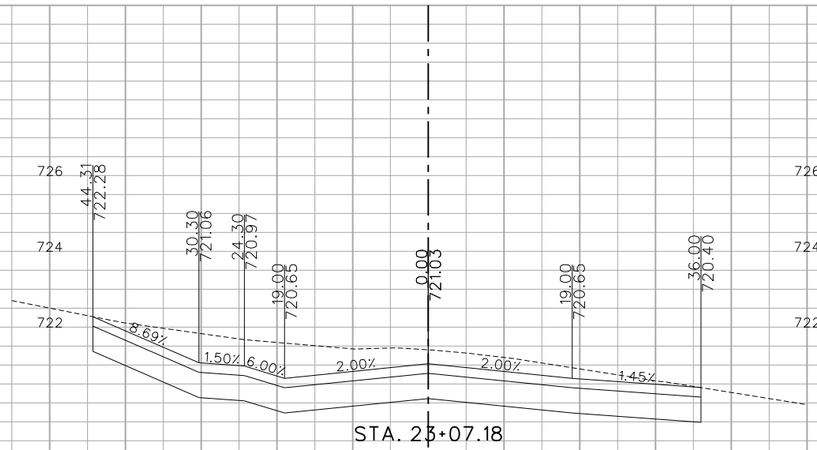
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

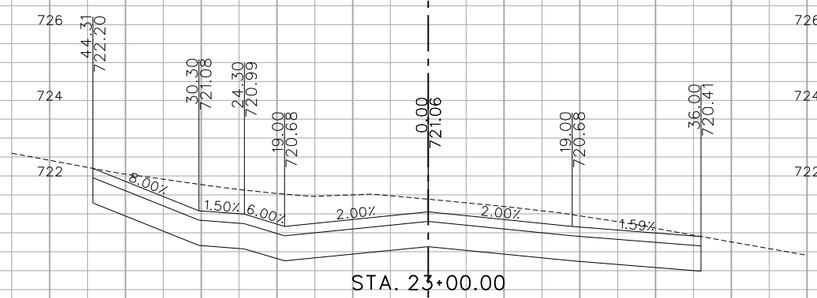
SHEET 102
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
Active Model: 3D (Default) Model: Default
Plot Scale: 20.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:22 AM

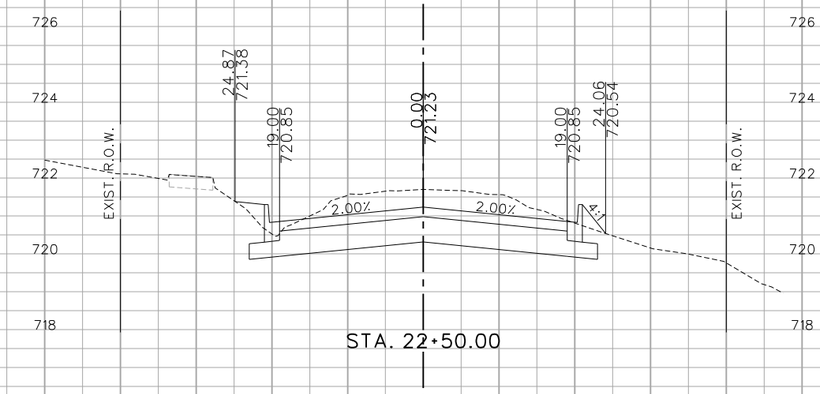
Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:22 AM User: 02590File: N:\tf\Drawings\CV-TRT-XS-PGXS01.sht



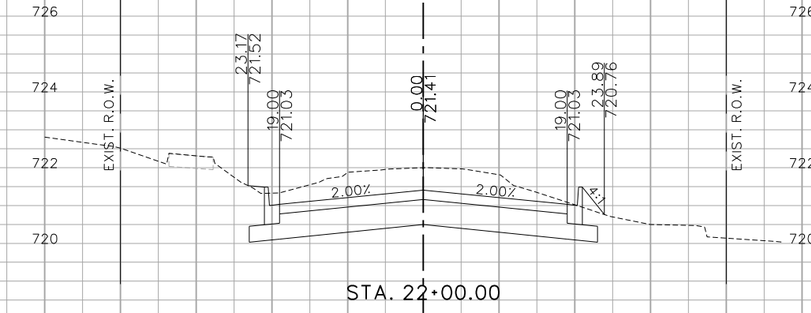
STA. 23+07.18



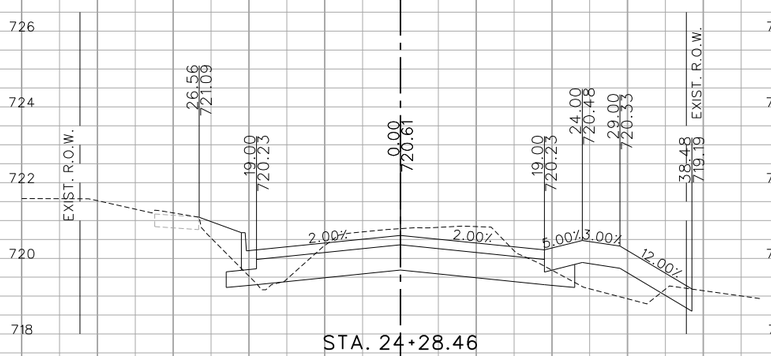
STA. 23+00.00



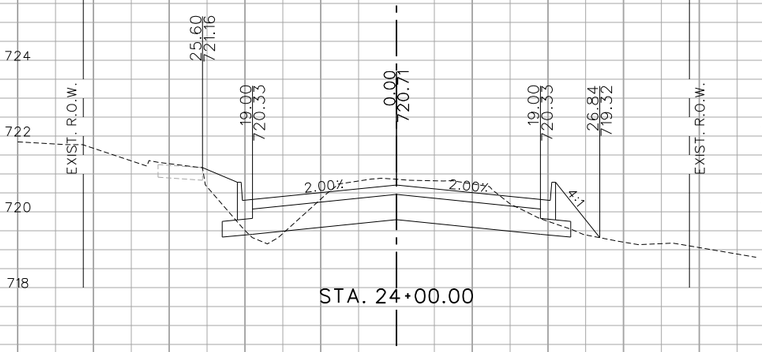
STA. 22+50.00



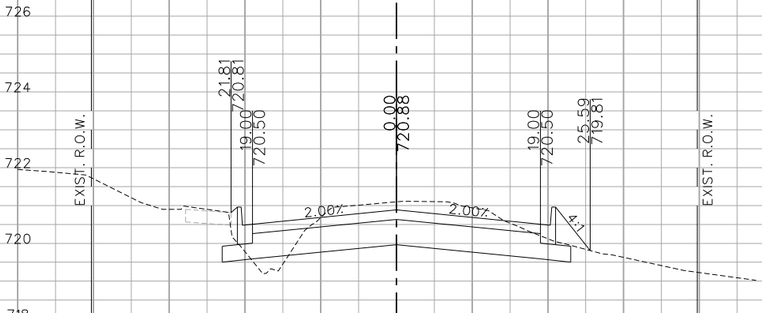
STA. 22+00.00



STA. 24+28.46



STA. 24+00.00



STA. 23+50.00

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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Austin, Texas 78759
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Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

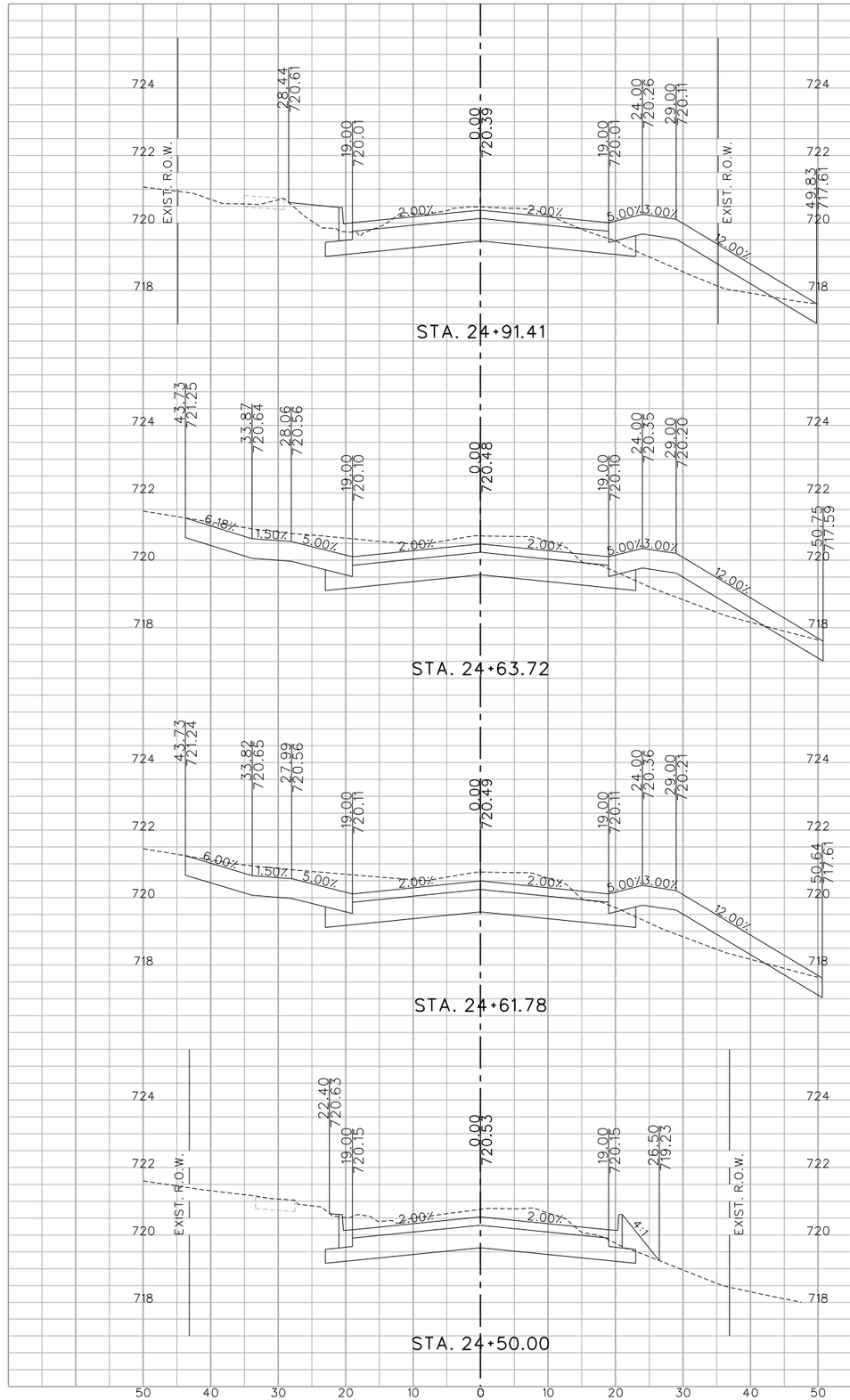
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 103
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TF\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver(s): HP DesignJet 750C Plus PS3.pltcfg
Plot Scale: 20.0000 ' / in. Model Default
Date: May. 22, 2018 - 11:57:23 AM Project: Freese and Nichols, Inc.



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BURLESON STREET
PROPOSED CROSS SECTIONS

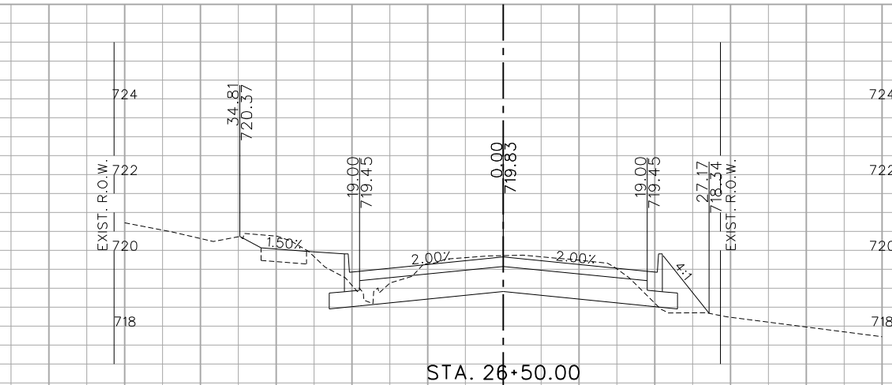
FNI JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

NO.	ISSUES	BY	DATE

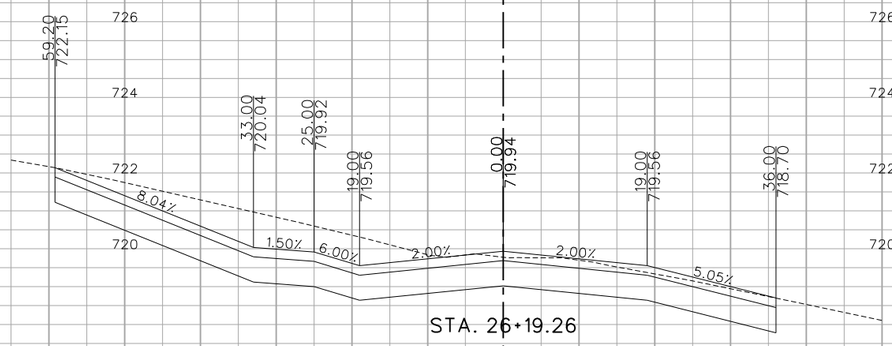
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 104
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TF\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 500 PostScript Level 2 for HP-GL/2 Model Default
Plot Scale: 20.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:23 AM

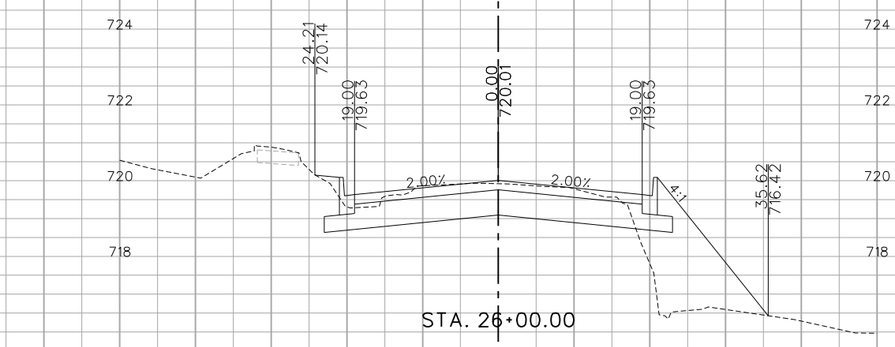


STA. 26+50.00

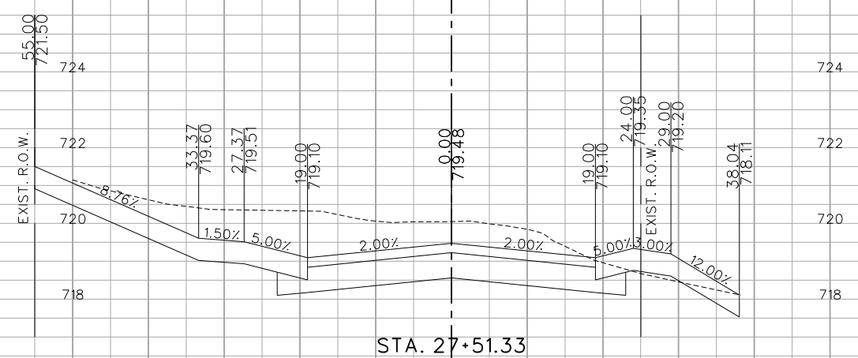


STA. 26+19.26

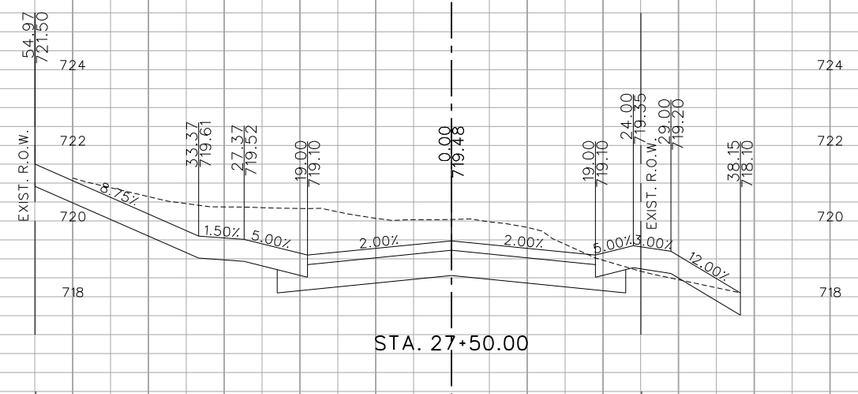
STA. 26+16.26



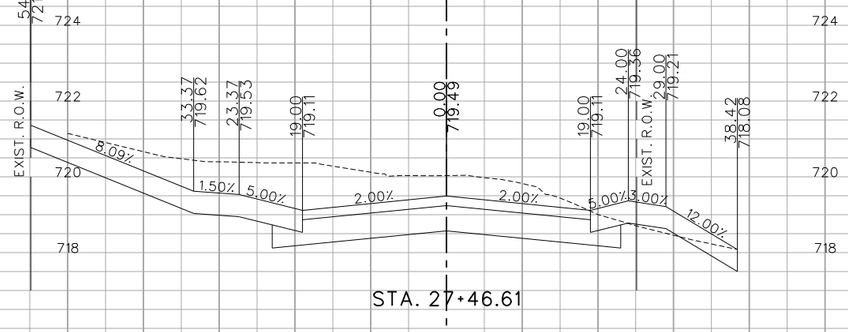
STA. 26+00.00



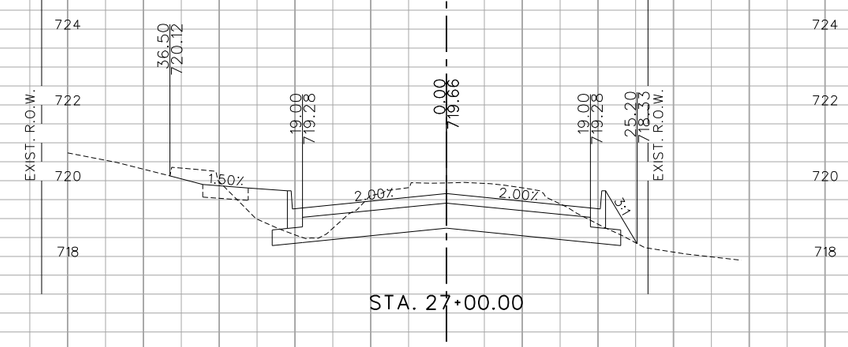
STA. 27+51.33



STA. 27+50.00



STA. 27+46.61



STA. 27+00.00

50 40 30 20 10 0 10 20 30 40 50

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
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Austin, Texas 78759
Phone: (512) 617-3100
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

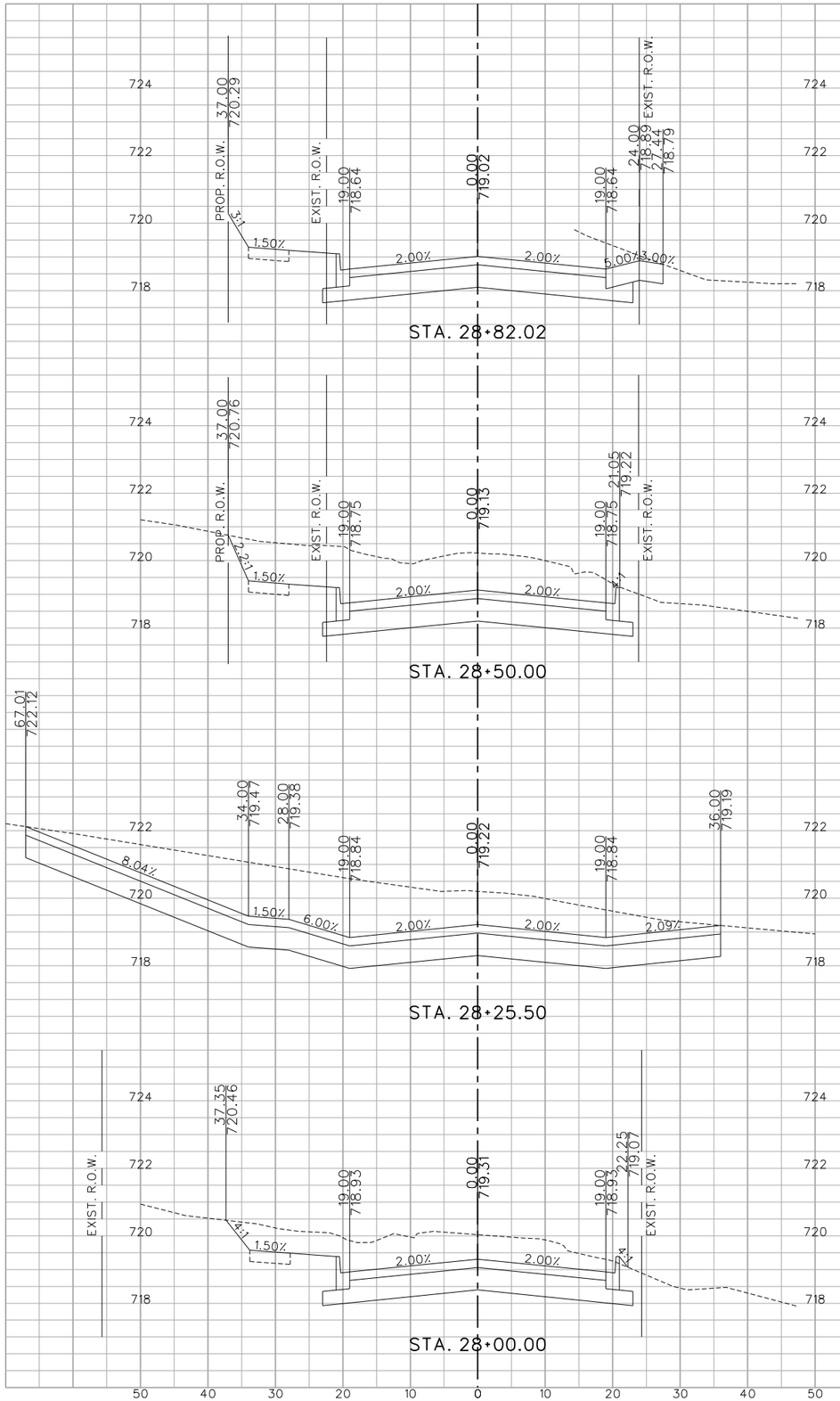
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 105
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TF\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 1055CM Plus PS3 Model Default
Plot Scale: 20.0000 ' / in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:24 AM



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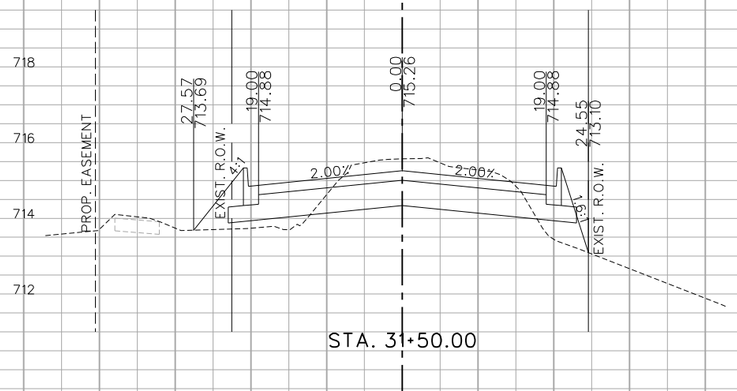
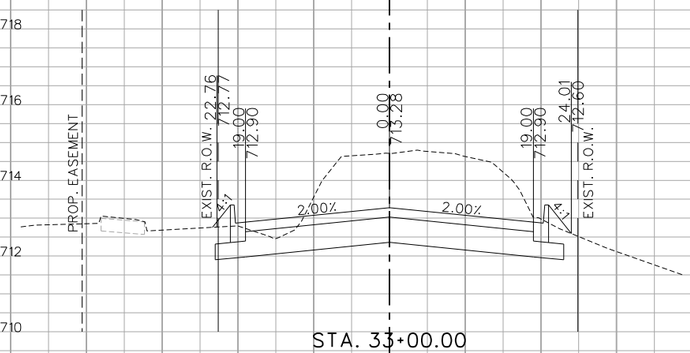
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET
106
TOTAL
292

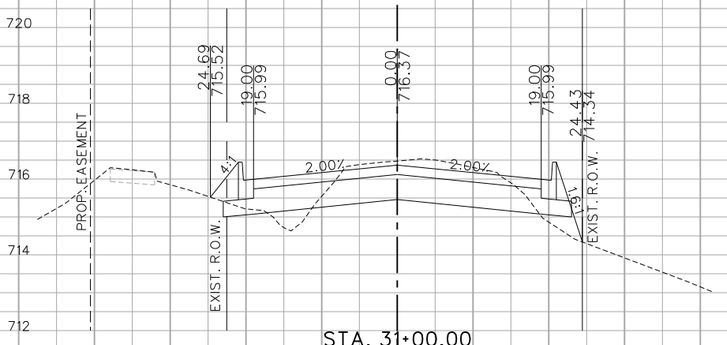
MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Plotted by: Plotter: HP Designjet 4500 PS3 Model.cfg
Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:57:24 AM
Model: Default
Project: Freese and Nichols, Inc.



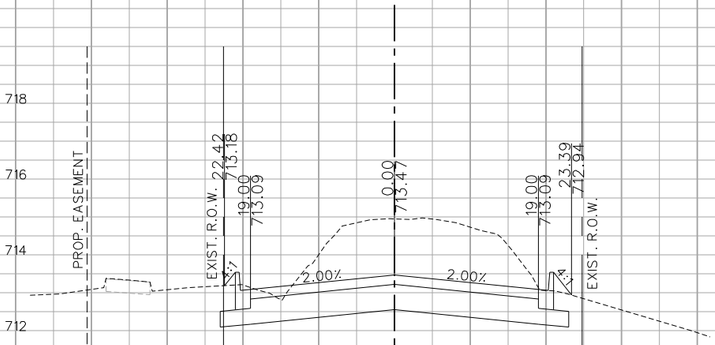
STA. 31+50.00



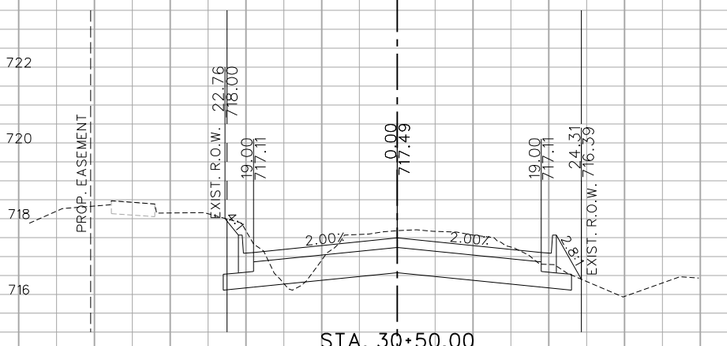
STA. 33+00.00



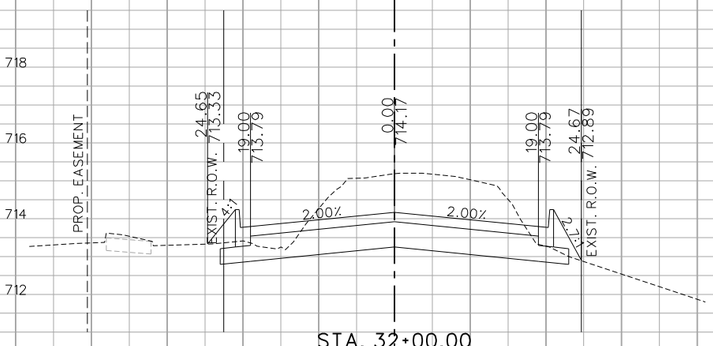
STA. 31+00.00



STA. 32+50.00



STA. 30+50.00



STA. 32+00.00

50 40 30 20 10 0 10 20 30 40 50

FREESE AND NICHOLS, INC.
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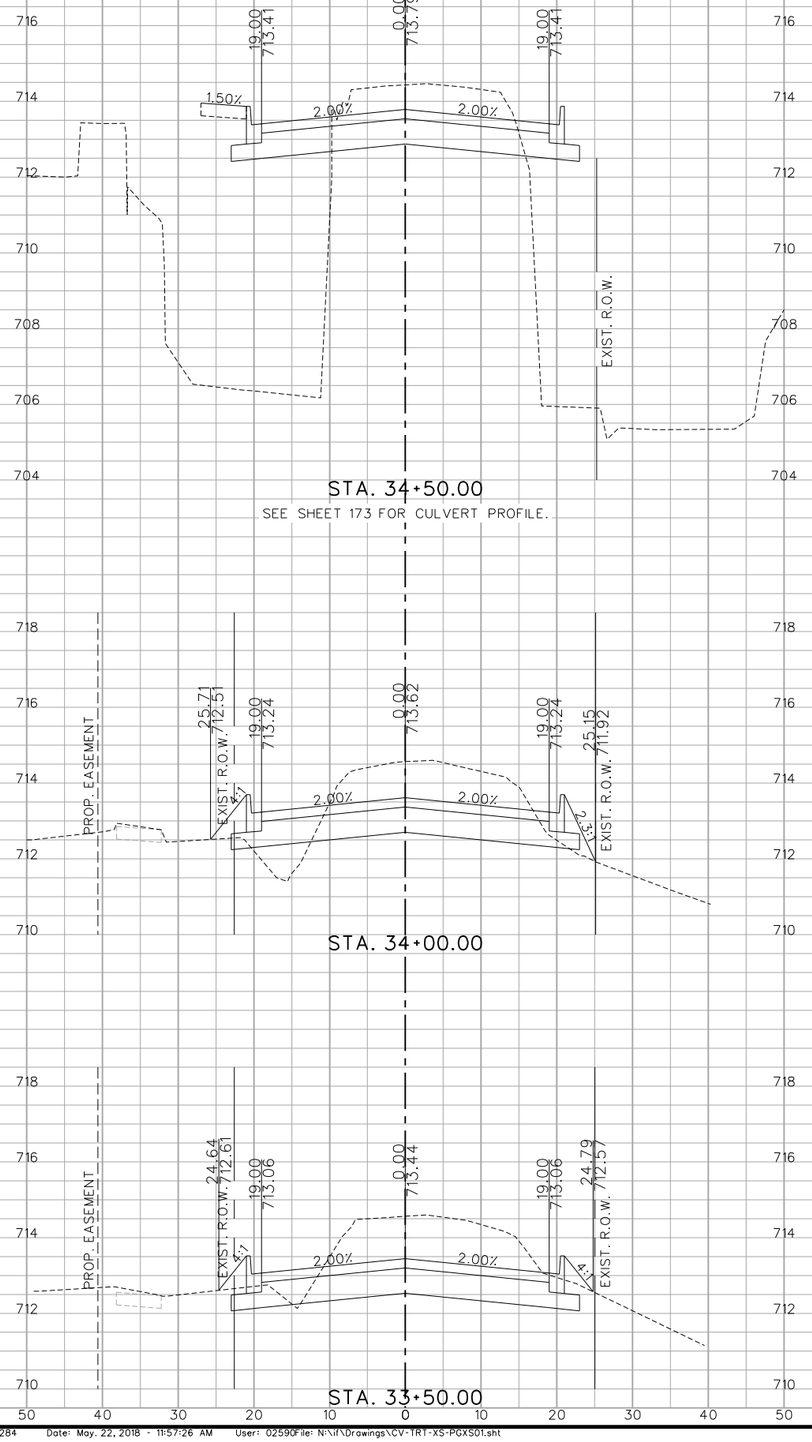
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 107

TOTAL 292

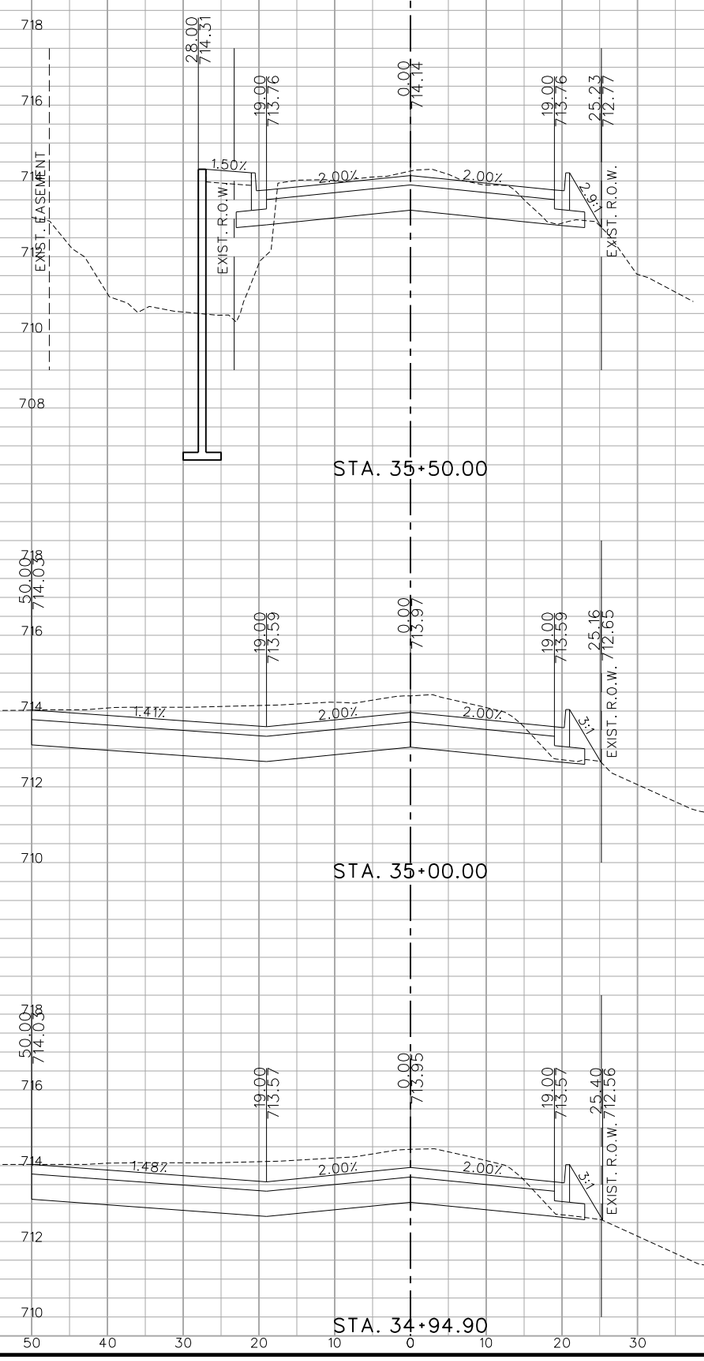
MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 500 PS for 600 Monochrome.cfg
Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:57:25 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:25 AM User: 02590File: N:\tf\Drawings\CV-TRT-XS-PGXS01.sht



STA. 34+50.00

SEE SHEET 173 FOR CULVERT PROFILE.

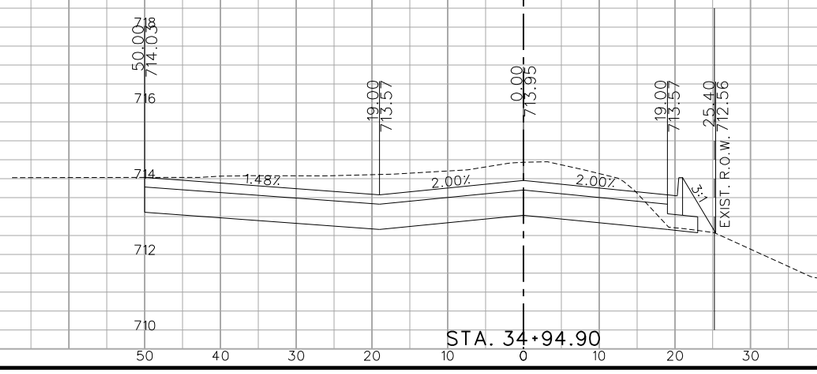


STA. 35+50.00

STA. 34+00.00

STA. 35+00.00

STA. 33+50.00



STA. 34+94.90

50 40 30 20 10 0 10 20 30 40 50

FREESE AND NICHOLS, INC.
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STATE OF TEXAS
SEAN D. BARRY
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LICENSED
PROFESSIONAL ENGINEER
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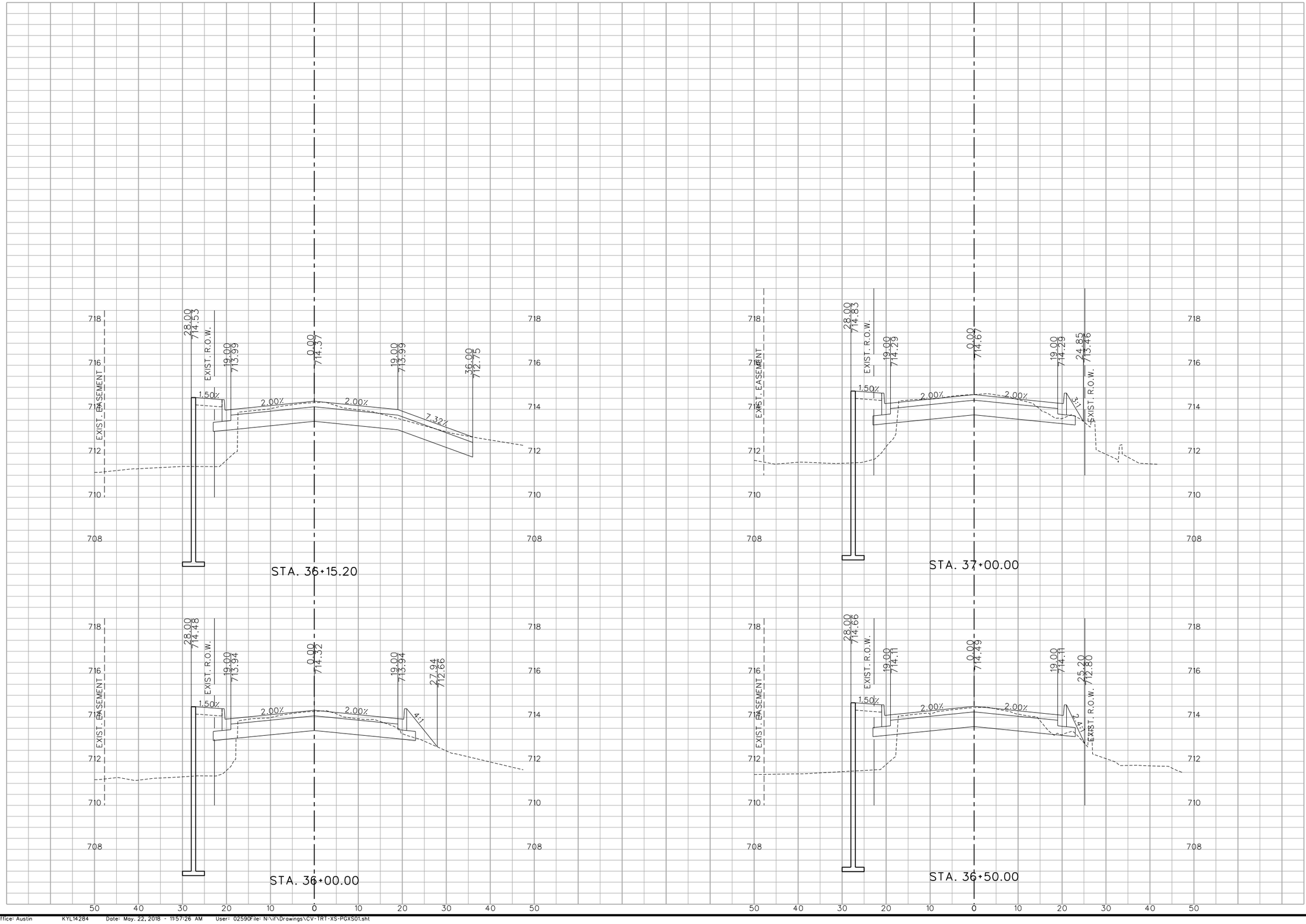
F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 108

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 500 PostScript.pltcfg
Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:57:26 AM
Made: Default
Project: Freese and Nichols, Inc.



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

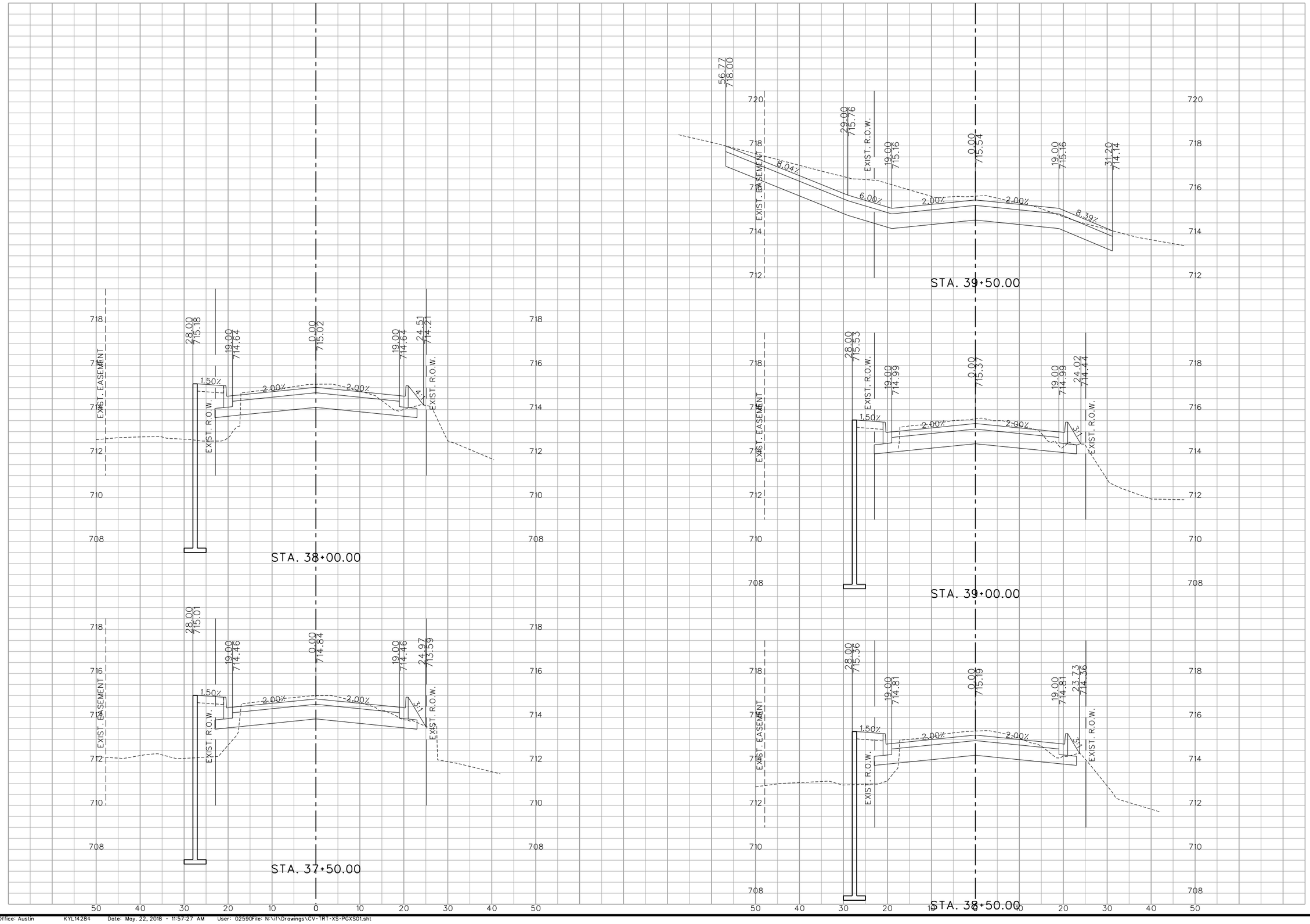
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 109
TOTAL 292

MicroStation V8 User: 025900ffice: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
Active Model: 3D (Default) Level: Default Ref: GOP Metric.dlg
Plot Scale: 20.0000 '/ in. Model: Default
Date: May. 22, 2018 - 11:57:26 AM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:26 AM User: 0259 File: N:\tf\Drawings\CV-TRT-XS-PGXS01.sht



MicroStation V8 User: 025900ffice: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: HP DesignJet 755CM PS.pltcfg
Plot Scale: 20.0000 ' / in.
Date: May. 22, 2018 - 11:57:27 AM
Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:27 AM User: 0259OFile: N:\tf\Drawings\CV-TRT-XS-PGXS01.sht

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
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REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 110
TOTAL 292

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
BURLESON STREET
PROPOSED CROSS SECTIONS

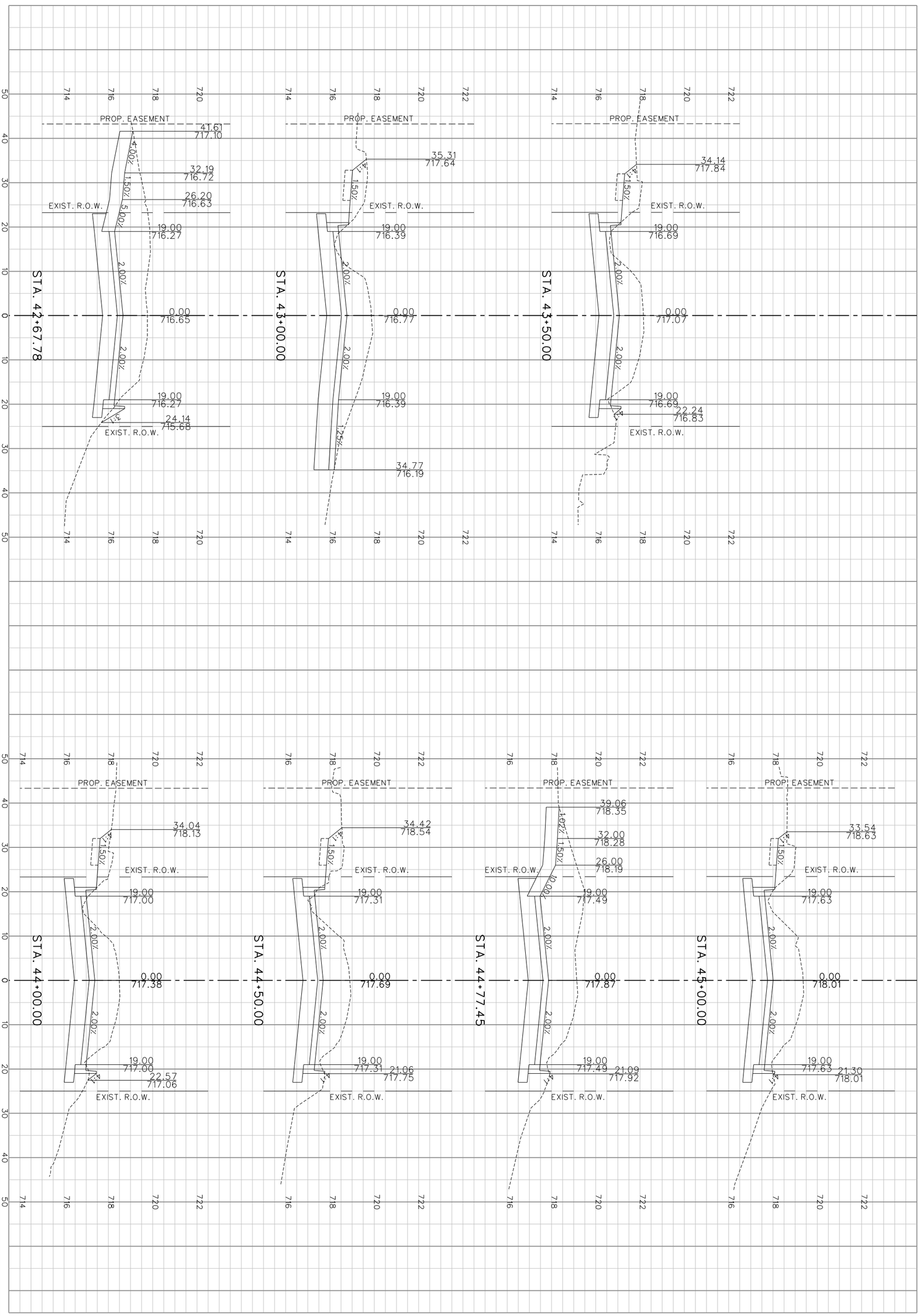
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 111
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\J\Drawings\CV-TRT-XS-PGXS01.sht
Plotter: J:\PLOTDRV_V8i\1\PDF_File\PDF-Mono.pltcfg
Plot Scale: 20.0000 '/ M. Model: Default
Date: May. 22, 2018 - 11:57:28 AM Project: Freese and Nichols, Inc.



TOTAL SHEET 292 112

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
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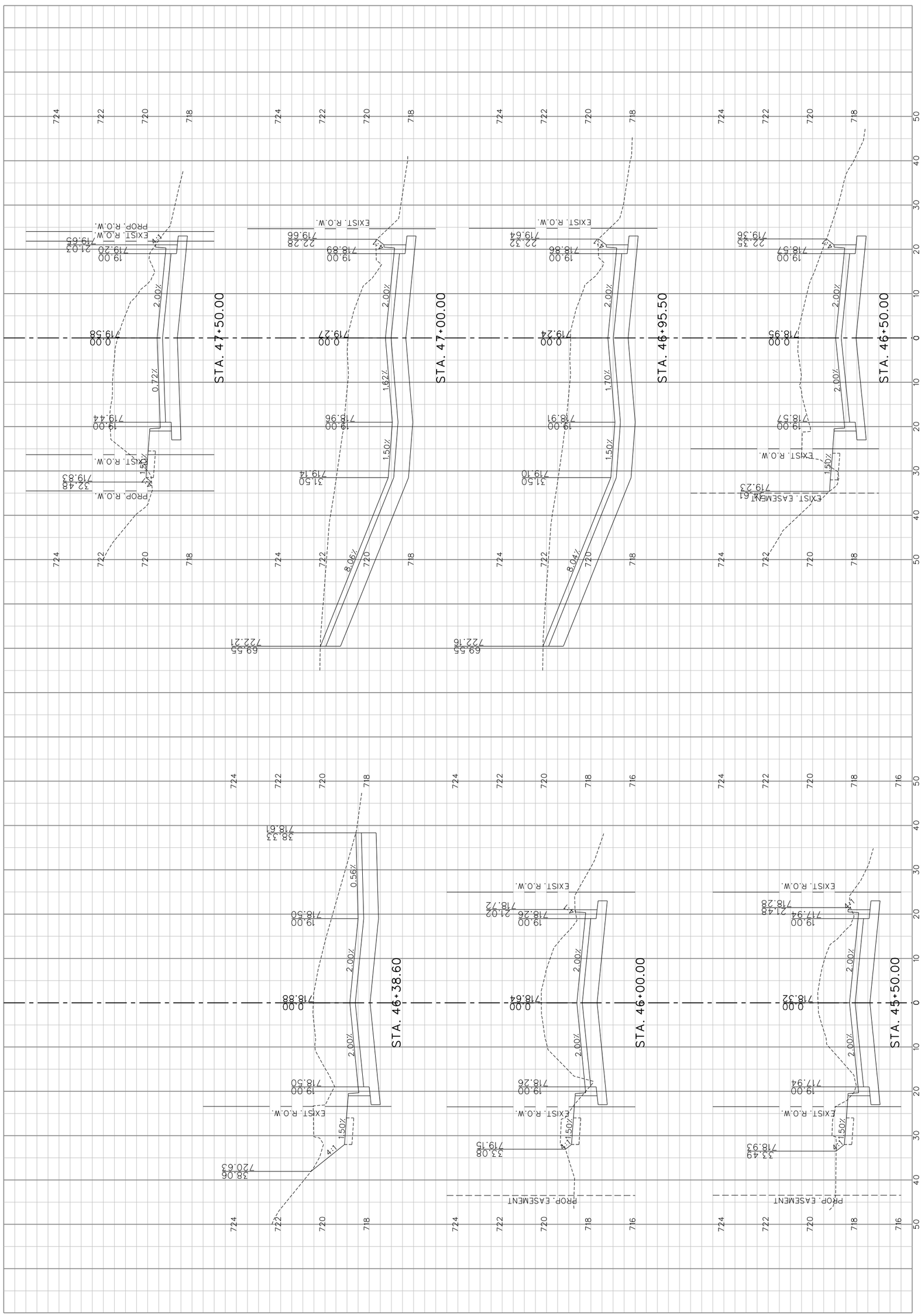
FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018



McGrathSolution V8 User: 02390Office: Austin
K:\KTL\42284\...\N.\U\Drawings\CV-TRT-XS-PGXS01.sht
Plotter: drv.DTDRV.V8.1hPDF-Fae-PDF-Monochrome.cfg
Plot Scale: 20.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:57:29 AM Project: Freese and Nichols, Inc.

Office: Austin KTL\42284 Date: May. 22, 2018 - 11:57:29 AM User: 02390File: N:\U\Drawings\CV-TRT-XS-PGXS01.sht

FREESE AND NICHOLS, INC
TEXAS REGISTERED ENGINEERING FIRM F-2144

FREESE NICHOLS

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BRAD BARRY
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STATE OF TEXAS

5/22/2018

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

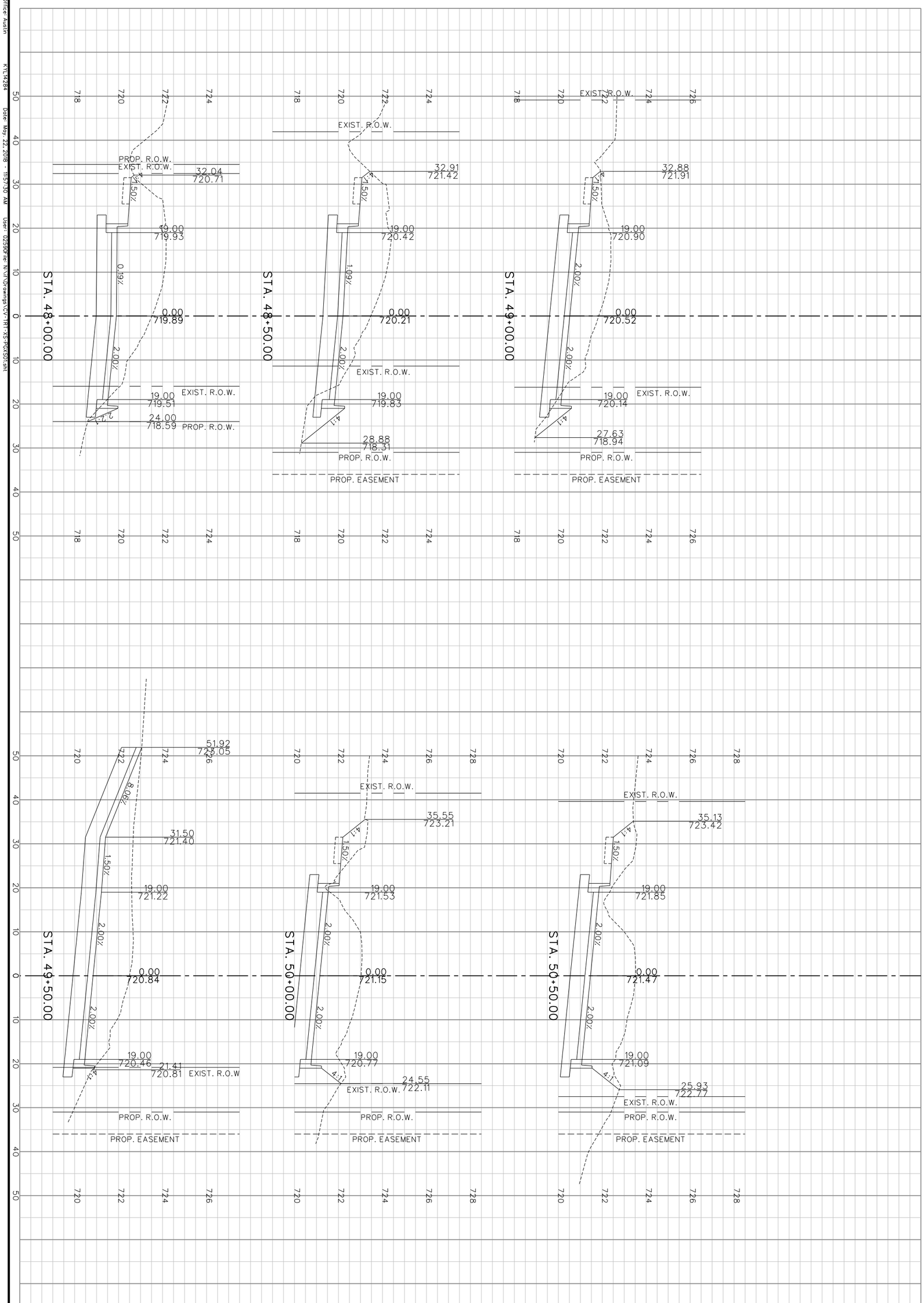
BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original (drawing). If not one inch on this sheet, adjust scale.
0 1"

SHEET 113
TOTAL 292



NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 114
TOTAL 292

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

FREESE and NICHOLS
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Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

50 40 30 20 10 0 10 20 30 40 50

FREESE AND NICHOLS, INC.
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STATE OF TEXAS
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN SDB
REVISED
CHECKED JNR
FILE NAME CV-TRT-XS-PGXS01.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 115
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: PLOTWISE.PLT File:PGP Model:Cfg
Plot Scale: 20.0000 ' = 1"
Date: May. 22, 2018 - 11:57:31 AM Model: Default
Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:31 AM User: 02590File: N:\lf\Drawings\CV-TRT-XS-PGXS01.sht

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
BURLESON STREET
PROPOSED CROSS SECTIONS

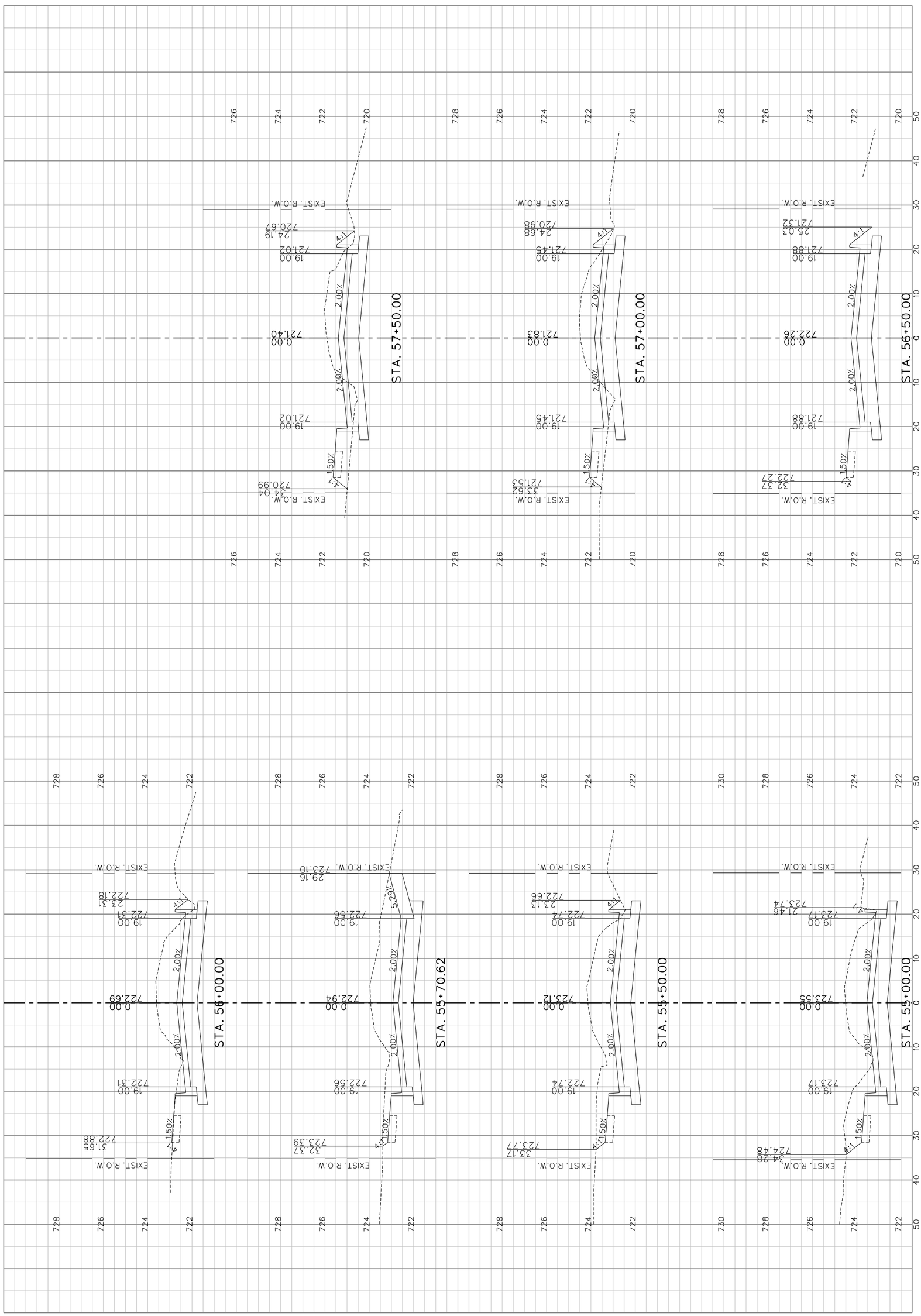
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 116
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Plotted by: Plotter Name Plot Style Table: FNI-Mono.ctb
Plot Scale: 20.0000 ' = 1"
Date: May. 22, 2018 - 11:57:31 AM
Model: Default
Project: Freese and Nichols, Inc.



N. BURLESON ST. IMPROVEMENTS

CITY OF KYLE, TEXAS

BURLESON STREET
PROPOSED CROSS SECTIONS

CIVIL

FREESE AND NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
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TEXAS REGISTERED ENGINEERING FIRM F-2144
FREESE AND NICHOLS, INC

STATE OF TEXAS
SEAN D. MABRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FILE NAME	CHECKED	DESIGNED	DRAWN	REVISED	DATE	F&N JOB NO.
CV-TRT-XS-PGXS01.sht	JNR	SDB	SDB		5/22/18	KYL142.84

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 117
TOTAL 292

McroStation V8 User: 02390Office: Austin
XYL142.84 N:\Civil\Drawings\CV-TRT-XS-PGXS01.sht
Plot Scale: 20.0000 ' / in. Model: Default
Plotter: c:\PLOTDRV_V8.I\PDF_Fae.PDF -Monochrome.cfg
Date: May. 22, 2018 - 11:57:22 AM Project: Freese and Nichols, Inc.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 118
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\TF\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver(s): HP DesignJet 1055CM Plus PS v3.0
Plot Scale: 20.0000 ' / in. Model Default
Date: May. 22, 2018 - 11:57:33 AM Project: Freese and Nichols, Inc.

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:33 AM User: 02590File: N:\TF\Drawings\CV-TRT-XS-PGXS01.sht

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET
PROPOSED CROSS SECTIONS

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 119
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-XS-PGXS01.sht
Default - PLOTDRV: HP Designjet 500 PostScript Model.prc
Plot Scale: 20.0000 ' = 1"
Date: May. 22, 2018 - 11:57:34 AM
Model: Default
Project: Freese and Nichols, Inc.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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PROPOSED CROSS SECTIONS

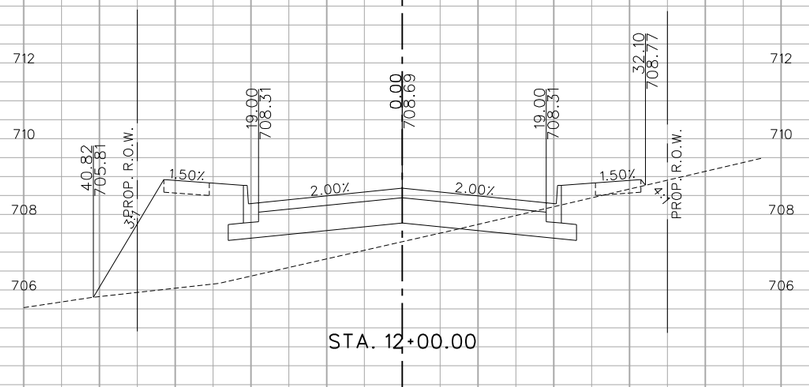
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS01.sht

SHEET 120
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-XS-PGXS01.sht
Plot Driver: PLOTTER.PLT Line Weight Method: cfg
Plot Scale: 20.0000 '= 1"
Date: May. 22, 2018 - 11:57:34 AM
Model: Default
Project: Freese and Nichols, Inc.



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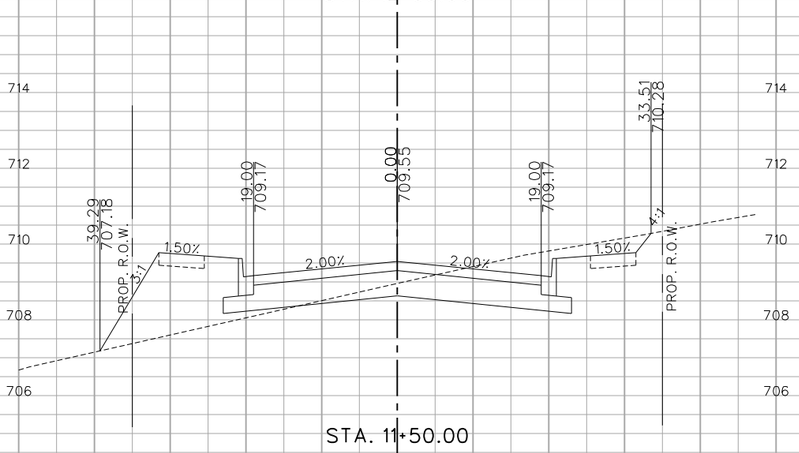

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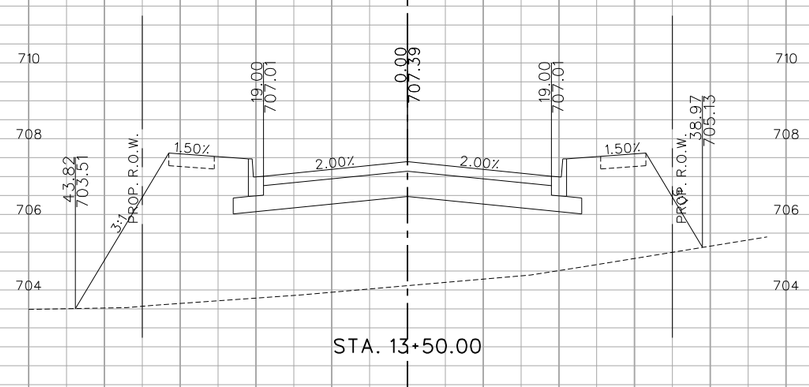
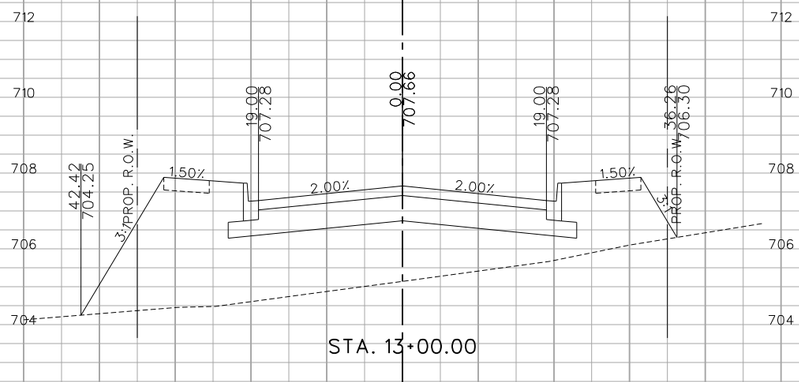
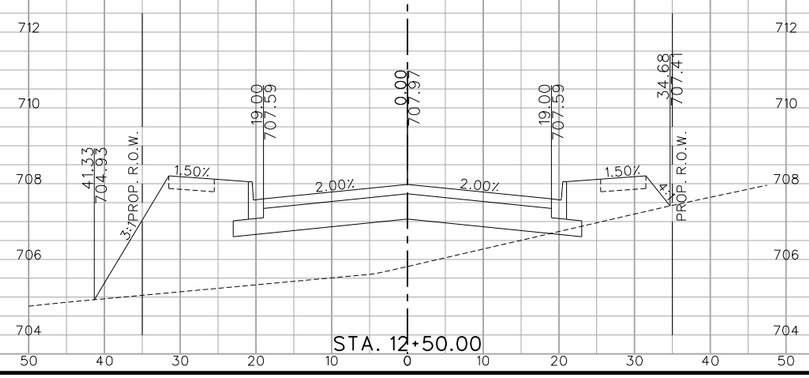


STA. 13+50.00



STA. 13+00.00



STA. 12+50.00

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MARKETPLACE AVENUE
PROPOSED CROSS SECTIONS

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

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NO.	ISSUES	BY	DATE

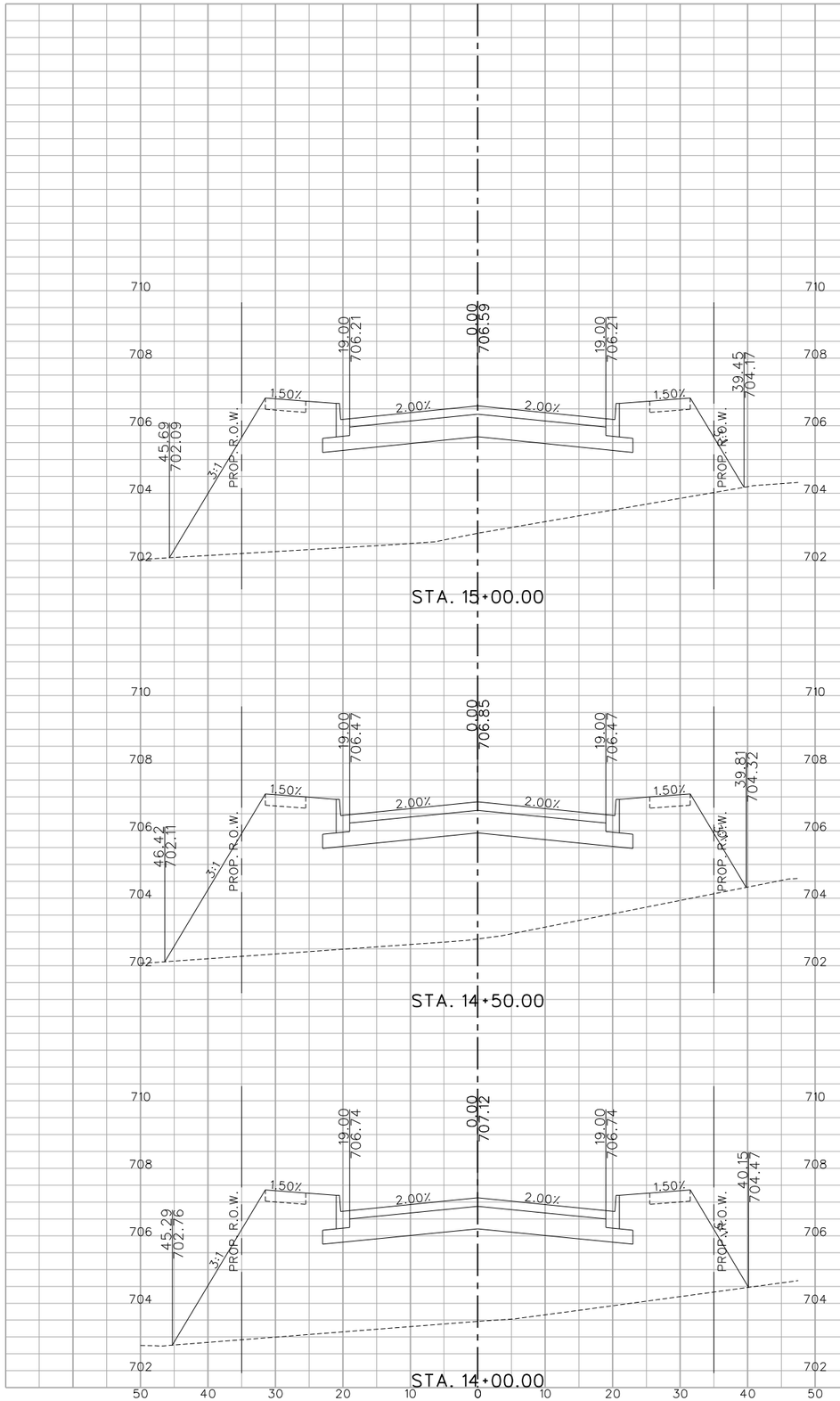
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS02.sht

SHEET 121

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-XS-PGXS02.sht
Plot Driver: HP DesignJet 500 PS for 600 Monochrome.cfg
Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:57:35 AM Model: Default
Project: Freese and Nichols, Inc.



ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MARKETPLACE AVENUE
PROPOSED CROSS SECTIONS

FREESE AND NICHOLS, INC.
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STATE OF TEXAS
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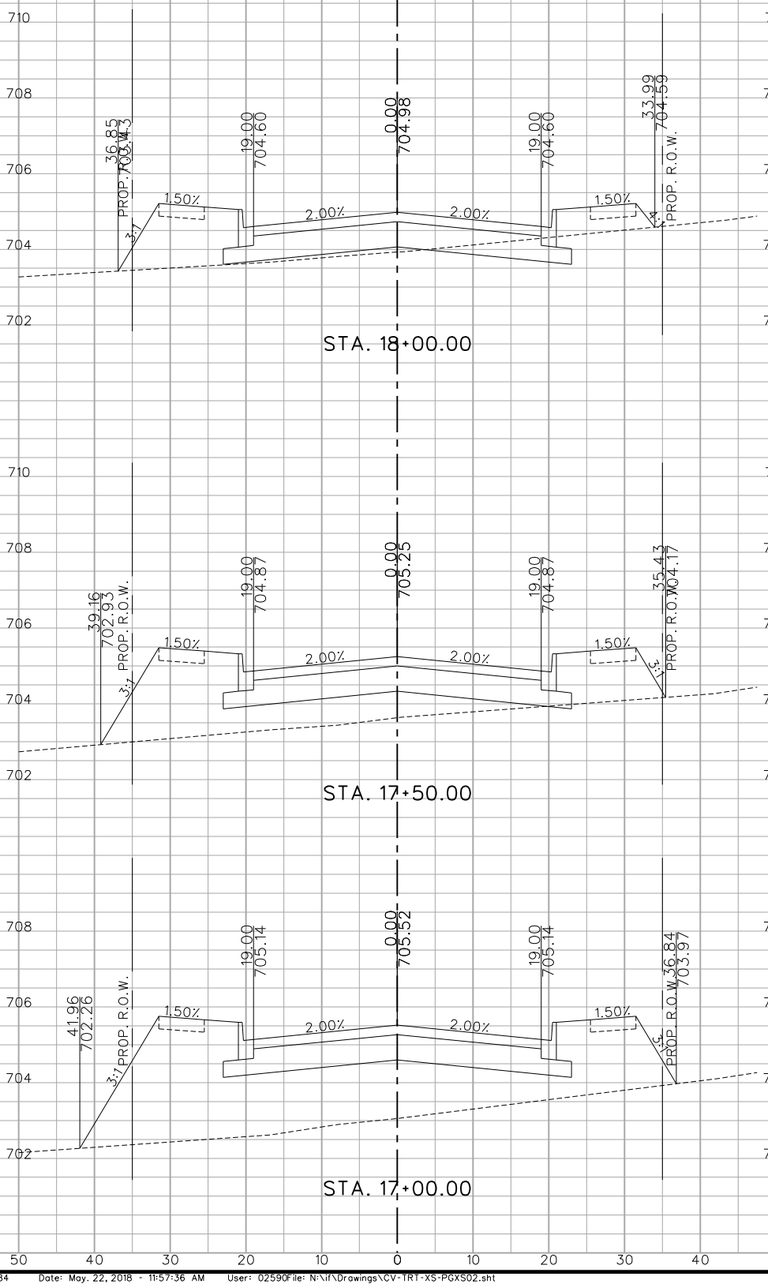
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS02.sht

SHEET 122

TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-XS-PGXS02.sht
Default Level: Plot Scale: 20.0000 ' = 1 "
Date: May. 22, 2018 - 11:57:36 AM
Model: Default
Project: Freese and Nichols, Inc.



ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

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CIVIL

MARKETPLACE AVENUE
PROPOSED CROSS SECTIONS

FREESE AND NICHOLS, INC.
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FNI JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	SDB
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-XS-PGXS02.sht

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

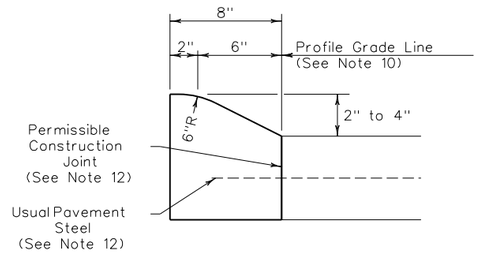
0 1"

SHEET 123

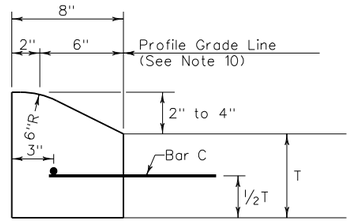
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 N:\tf\Drawings\CV-TRT-XS-PGXS02.sht
Plot Style Table: FNI_100%.tbl Plotter: HP Designjet T1700dr PS
Plot Scale: 20.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:57:36 AM Project: Freese and Nichols, Inc.

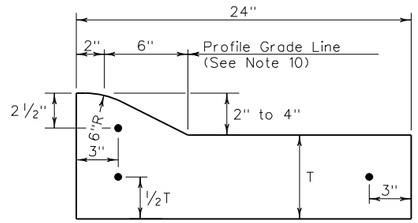
Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:36 AM User: 02590File: N:\tf\Drawings\CV-TRT-XS-PGXS02.sht



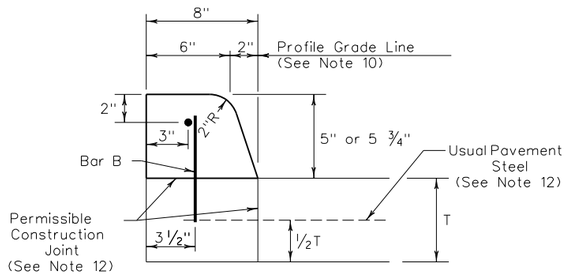
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



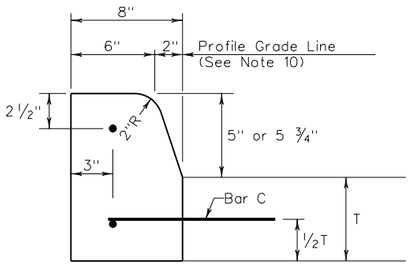
TYPE I CURB
2" - 4" HEIGHT



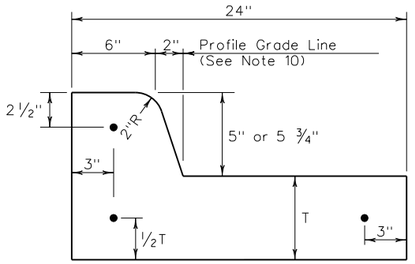
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



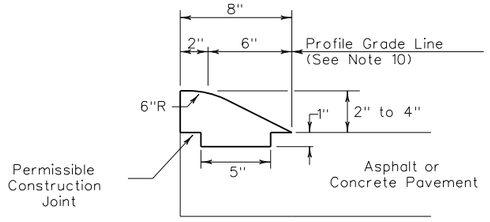
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



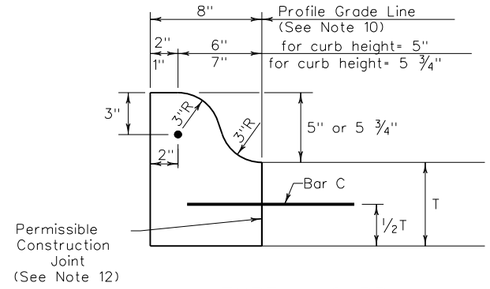
TYPE II CURB
5" - 5 ¾" HEIGHT



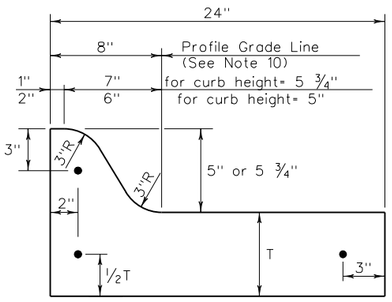
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



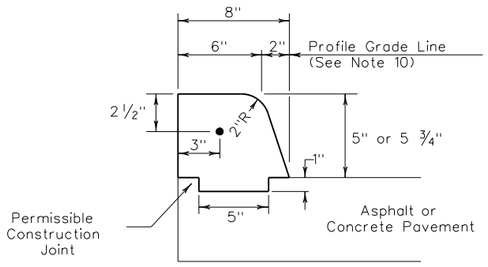
TYPE III CURB (KEYED)
2" - 4" HEIGHT



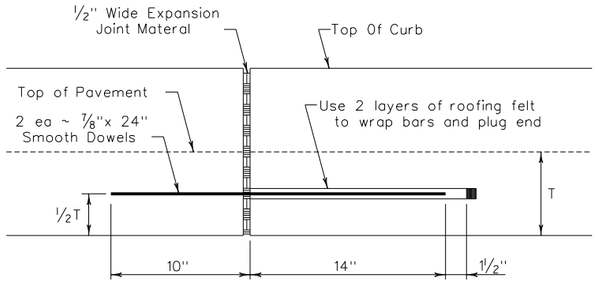
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

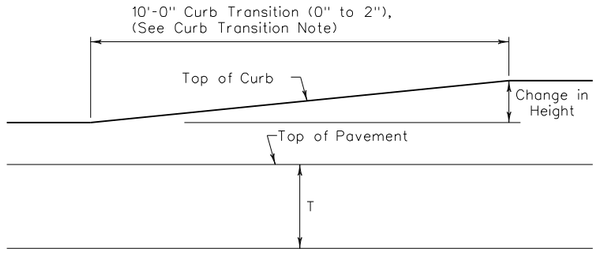


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

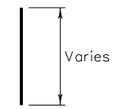
Curb Transition Note:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans,or as directed by the Engineer.



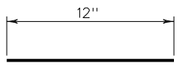
CURB TRANSITION
Note: To be paid for as Highest Curb

General Notes

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of synthetic fiber in lieu of steel reinforcing is not acceptable.
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When vertical permissible construction joints are used, resulting in a longitudinal construction joint in the pavement, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans for longitudinal construction joints. Reinforcing steel for curb section shall then conform to that required for concrete curb.



BAR B



BAR C

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF SEAN D. BARRY, P.E. TEXAS NO; 114711 DATE: 5/22/18
IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

Texas Department of Transportation

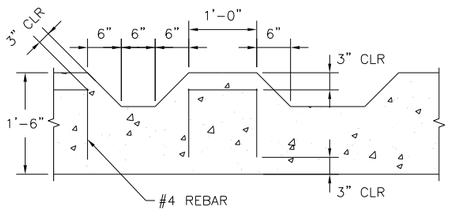
Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

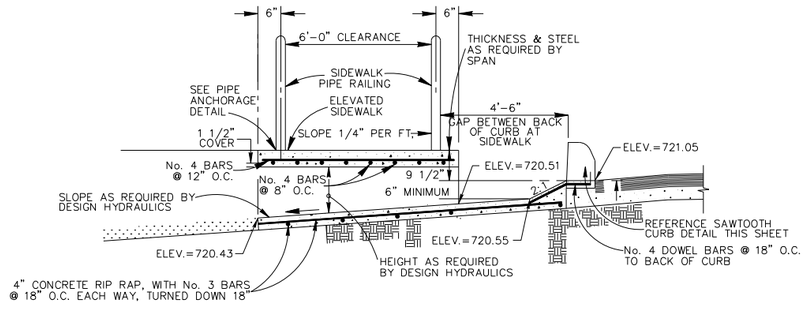
CCCG-12 (MOD)

FILE: cccg12.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
©TxDOT: 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS UPDATED 2012 - VP				
	DIST	COUNTY		SHEET NO.
				124

DATE: May 22, 2018 - 11:57:37 AM
FILE: N:\F\Drawings\CV-TRT-DT-cccg12.sht



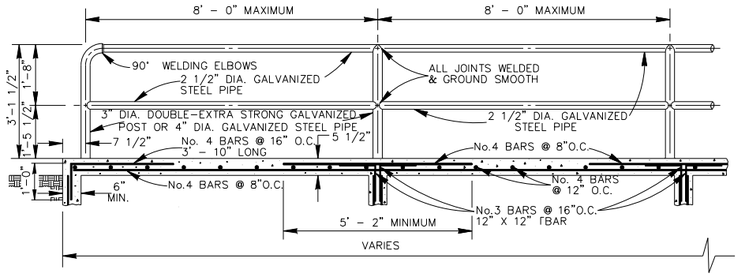
SAWTOOTH CURB DETAIL



NOTE: 1. ALLOW FOR REFLECTOR BUTTONS ON BARRICADE POST. USE ONE 3 / 4" BUTTON PER POST.
2. POST SHALL RECEIVE TWO COATS OF ALUMINUM PAINT.

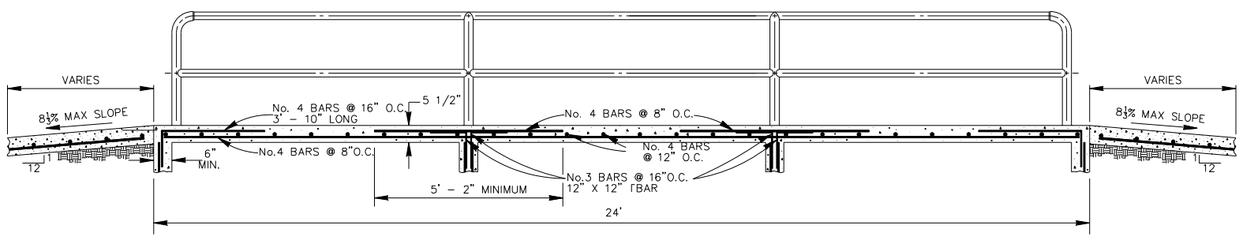
SECTION VIEW
ELEVATED SIDEWALK & DROP CURB
DETAILS FOR DRAINAGE CHANNELS

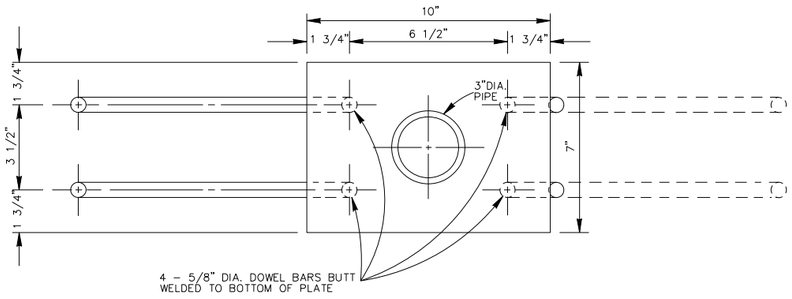
SCALE : 1" = 4'

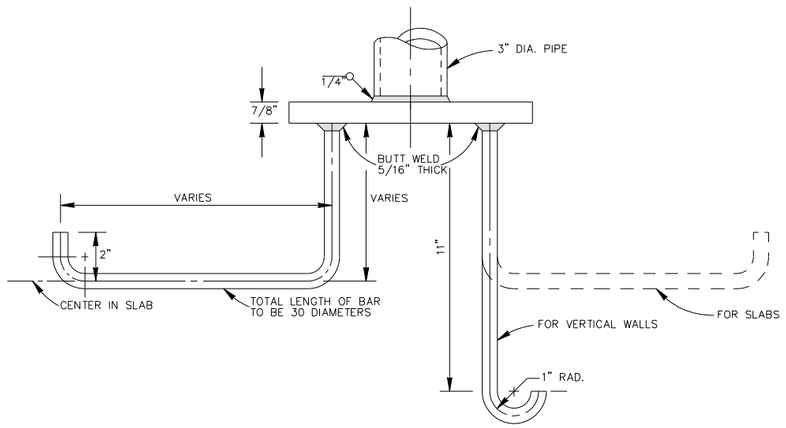


TYPICAL SIDEWALK BRIDGE &
SIDEWALK PIPE RAILING SECTION

SCALE : 1" = 4'

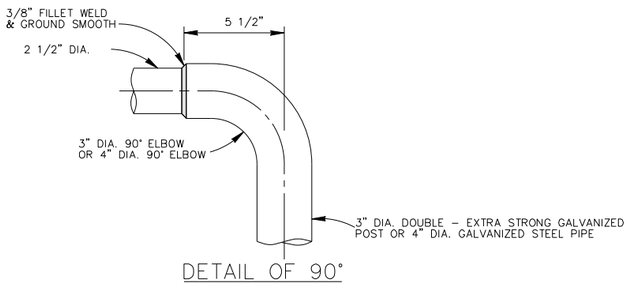






PIPE ANCHORAGE DETAILS

SCALE : 1" = 6"



DETAIL OF 90°
WELDING ELBOWS

* A NEAT END SECTION, SATISFACTORY TO THE ENGINEER, FROM SUBMITTED SHOP DRAWINGS, MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.

SCALE : 1" = 8"

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
MISCELLANEOUS ROADWAY DETAILS

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-DT-DETAIL01.sht

NO.	ISSUES	DATE	BY

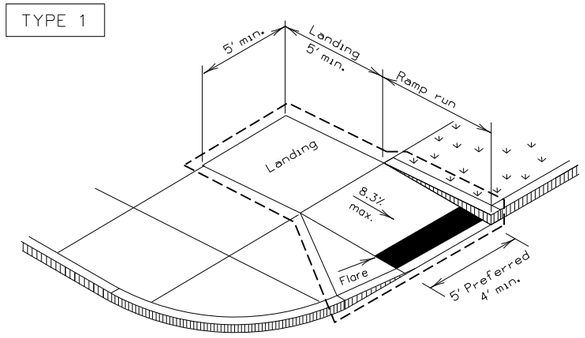
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 125
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\IF\Drawings\CV-TRT-DT-DETAIL01.sht
Plot Driver: HP DesignJet 1055CM Plus Model Config
Plot Scale: 20.0000 ' / in.
Date: May. 22, 2018 - 11:57:38 AM
Model: Default
Project: Freese and Nichols, Inc.

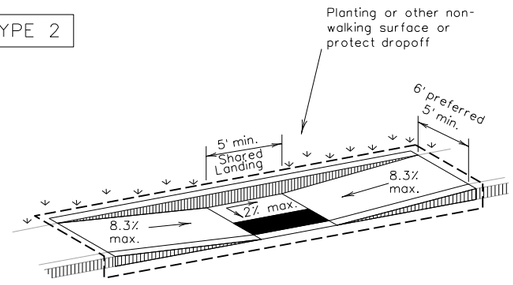
Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:38 AM User: 02590File: N:\IF\Drawings\CV-TRT-DT-DETAIL01.sht

TYPE 1



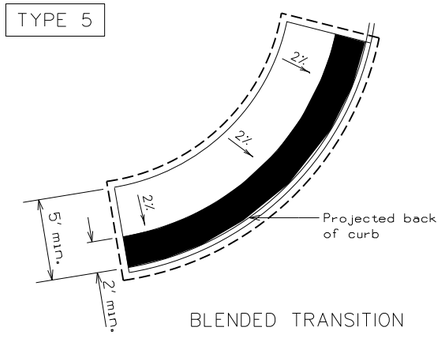
PERPENDICULAR CURB RAMP

TYPE 2



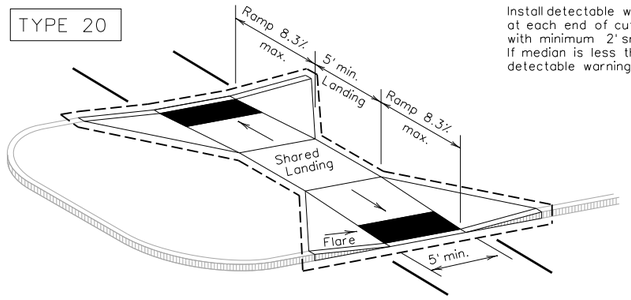
PARALLEL CURB RAMP
(Use only where water will not pond in the landing.)

TYPE 5



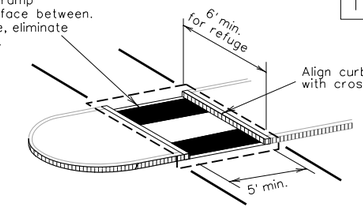
BLENDED TRANSITION

TYPE 20



Install detectable warning surface at each end of cut-through ramp with minimum 2' smooth surface between. If median is less than 6' wide, eliminate detectable warning surfaces.

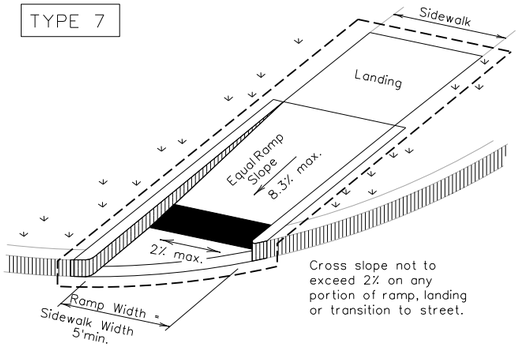
TYPE 21



Curb details are shown elsewhere in the plans.

CURB RAMPS AT MEDIAN ISLANDS

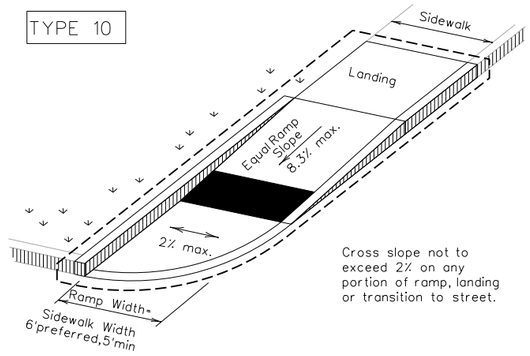
TYPE 7



Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk set back from curb)

TYPE 10

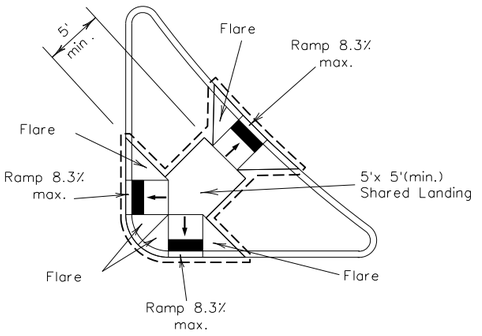


Cross slope not to exceed 2% on any portion of ramp, landing or transition to street.

(Sidewalk adjacent to curb)

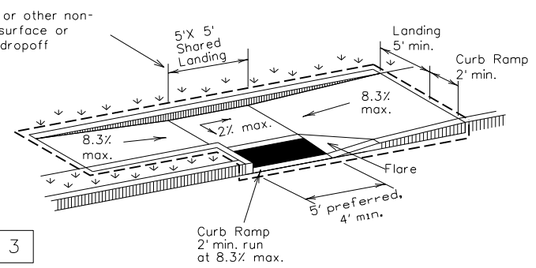
DIRECTIONAL RAMPS WITHIN RADIUS

TYPE 22

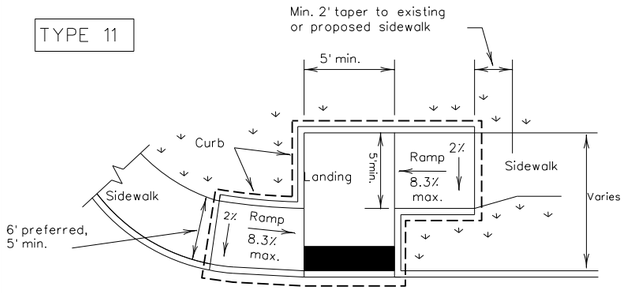


COMBINATION ISLAND RAMPS

TYPE 3

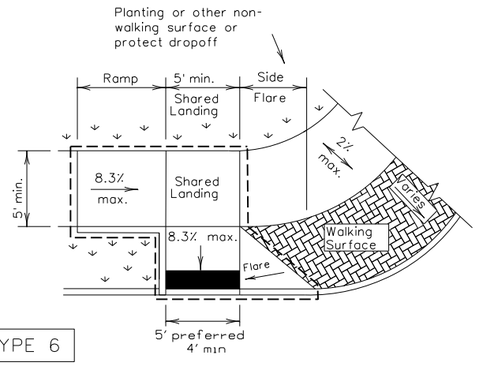


TYPE 11



OFFSET PARALLEL CURB RAMP

TYPE 6



COMBINATION CURB RAMPS

NOTES / LEGEND:

See General Notes on sheet 2 of 4 for more information.

Denotes planting or non-walking surface not part of pedestrian circulation path.

Ramp Limits of Payment

Detectable Warning Surface

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP
© TxDOT March 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
VP June 13, 2012	DIST	COUNTY		SHEET NO.
				126

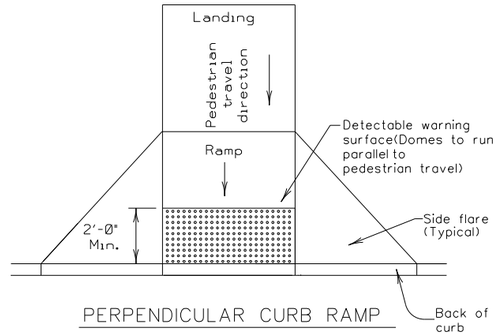
General Notes

Curb Ramps

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Lesser slopes that will still drain properly should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
4. Landings shall be 5'x 5' minimum with a maximum 2% slope in any direction.
5. Maneuvering space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
6. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the current edition of the Texas Accessibility Standards (TAS) and 16 TAC 68.102.
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Handrails are not required on curb ramps. Provide curb ramps wherever on accessible route crosses (penetrates) a curb.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Provide a smooth transition where the curb ramps connect to the street.
16. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
17. Existing features that comply with TAS may remain in place unless otherwise shown on the plans.

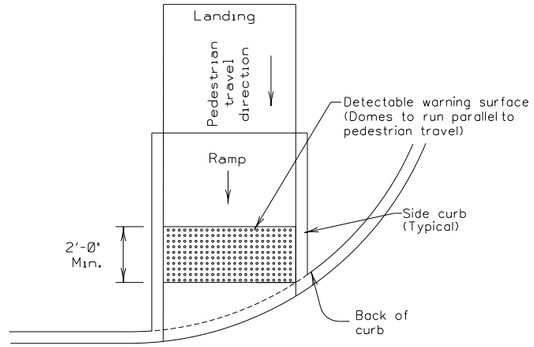
Detectable Warning Material

18. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with Section 705 of the TAS. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
19. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
20. Detectable warning surfaces must be slip resistant and not allow water to accumulate.
21. Detectable warning surfaces shall be a minimum of 24" in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
22. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb. Align the rows of domes to be perpendicular to the grade break between the ramp run and the street. Detectable warning surfaces may be curved along the corner radius.
23. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.



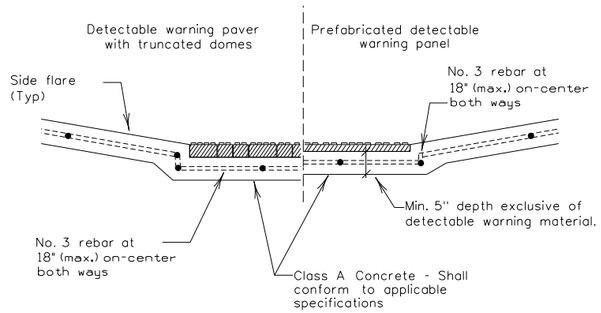
PERPENDICULAR CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.

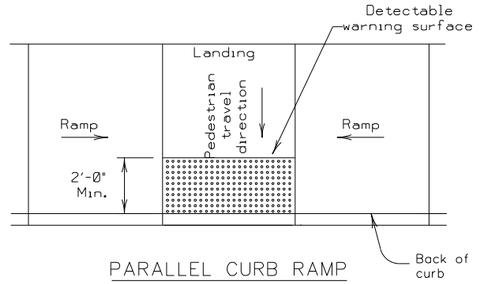


DIRECTIONAL CURB RAMP

Typical placement of detectable warning surface on sloping ramp run.



SECTION: CURB RAMP AT DETECTABLE WARNING



PARALLEL CURB RAMP

Typical placement of detectable warning surface on landing at street edge.

DETECTABLE WARNINGS

Detectable Warning Pavers

24. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
25. Lay full-size units first followed by closure units consisting of at least 25 percent of a full unit. Cut detectable warning paver units using a power saw.

Sidewalks

26. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within one or more reach ranges specified in TAS 308.
27. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
28. Street grades and cross slopes shall be as shown elsewhere in the plans.
29. Changes in level greater than 1/4 inch are not permitted.
30. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than 5% must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with TAS 505.
31. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
32. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
33. Sidewalk details are shown elsewhere in the plans.

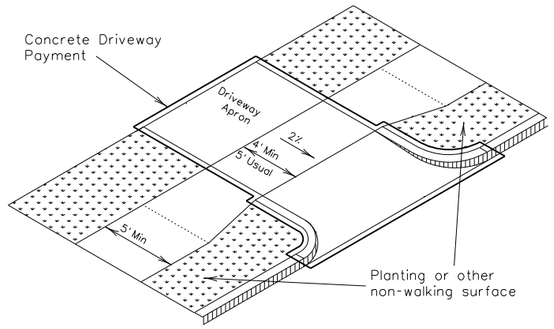
Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

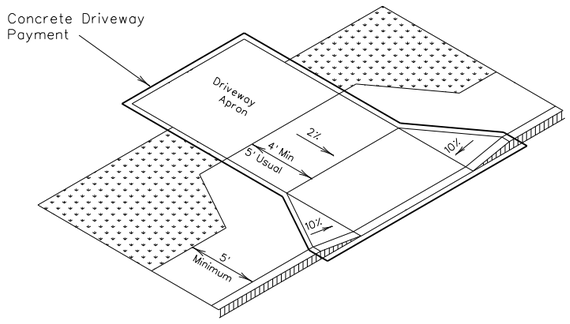
PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP
©TxDOT March 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
VP June 13, 2012	DIST	COUNTY		SHEET NO.
				127

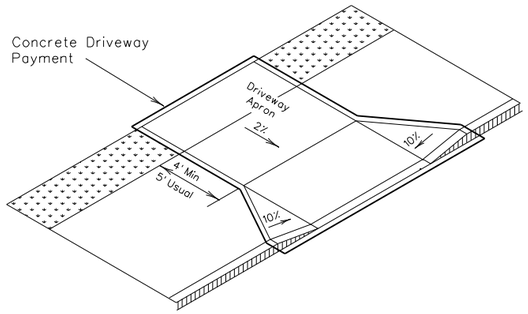
May. 22, 2018 - 11:57:39 AM
N:\rf\Drawings\CV-TRT-DT-ped12a.sht



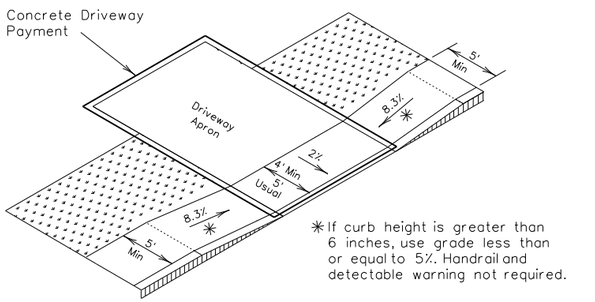
Setback sidewalk



Apron offset sidewalk



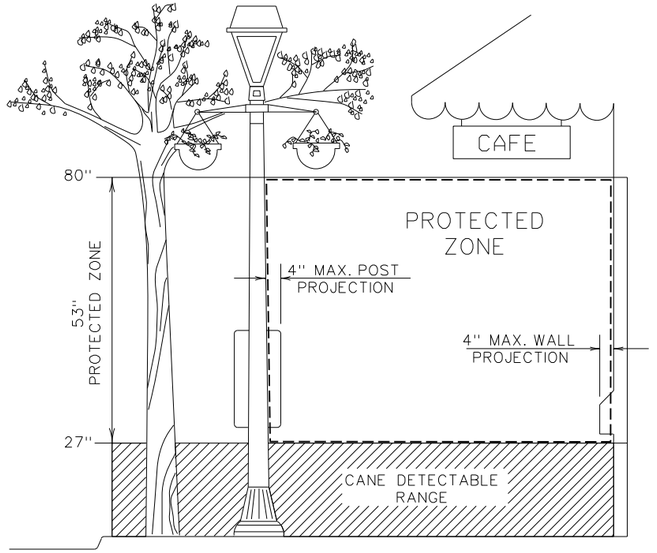
Wide sidewalk



*If curb height is greater than 6 inches, use grade less than or equal to 5%. Handrail and detectable warning not required.

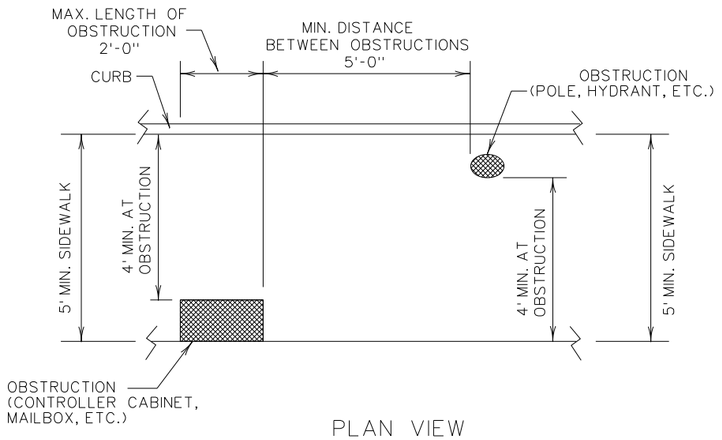
Ramp sidewalk

SIDEWALK TREATMENT AT DRIVEWAYS



PROTECTED ZONE

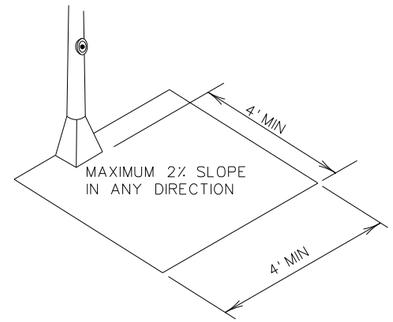
In pedestrian circulation area, maximum 4" projection for post or wall mounted objects between 27"and 80" above the surface.



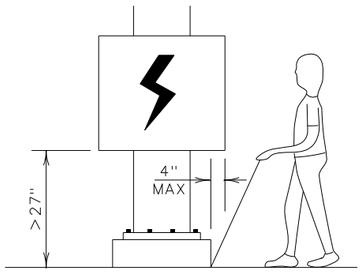
PLAN VIEW

PLACEMENT OF STREET FIXTURES

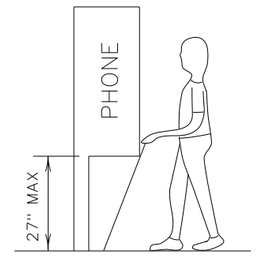
(ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' x 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.)



CLEAR GROUND SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



When an obstruction of a height greater than 27" from the surface would create a protrusion of more than 4" into the pedestrian circulation area, construct additional curb or foundation at the bottom to provide a maximum 4" overhang.



Protruding objects of a height 27" are detectable by cane and do not require additional treatment.

DETECTION BARRIER FOR VERTICAL CLEARANCE <80"

SHEET 3 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP
©TxDOT March 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS VP June 13, 2012	DIST	COUNTY		SHEET NO. 128

May. 22, 2018 - 11:57:40 AM
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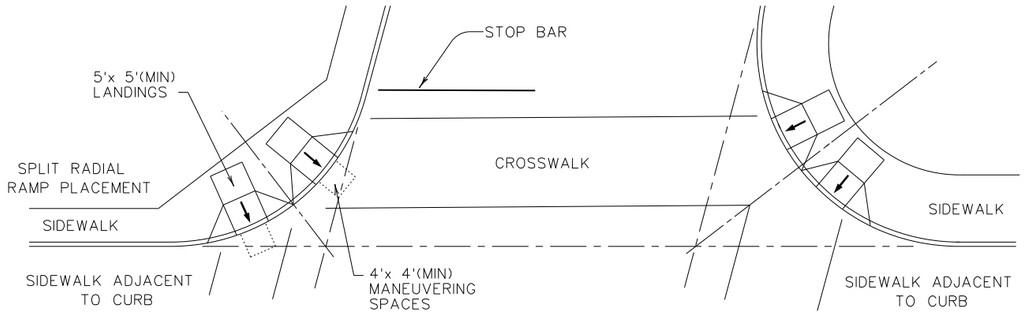
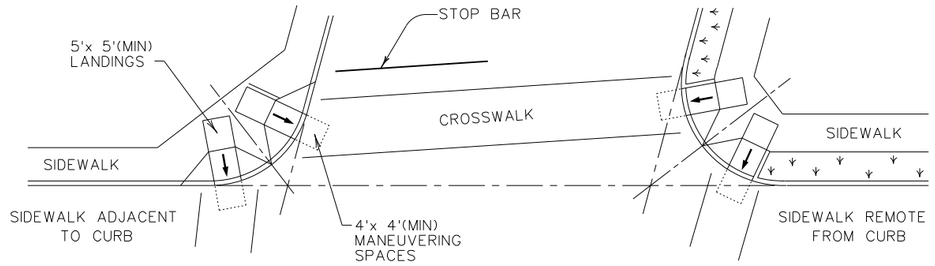
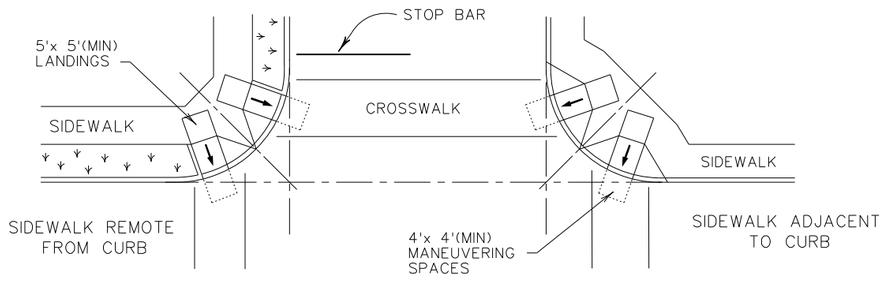


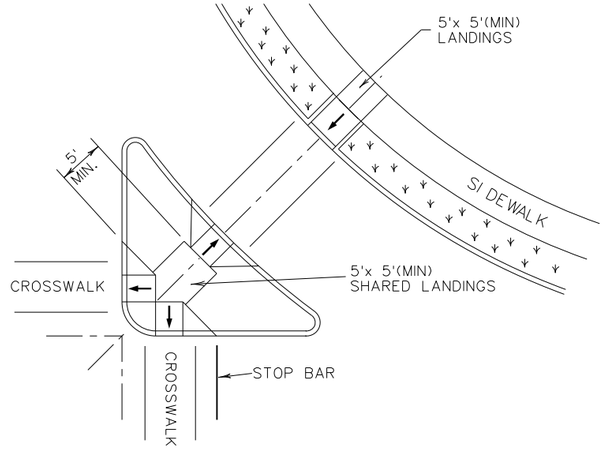
SKEWED INTERSECTION WITH "LARGE" RADIUS



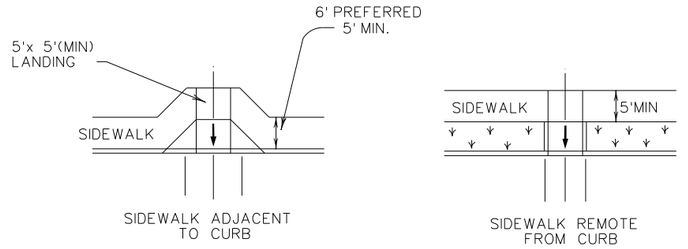
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

TYPICAL CROSSING LAYOUTS

SHEET 4 OF 4

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-12A

FILE: ped12a.dgn	DN: TxDOT	CK: RM	DW: TxDOT	CK: VP			
©TxDOT March 2002	CONT	SECT	JOB		HIGHWAY		
REVISIONS							
VP June 13, 2012	DIST	COUNTY			SHEET NO.		
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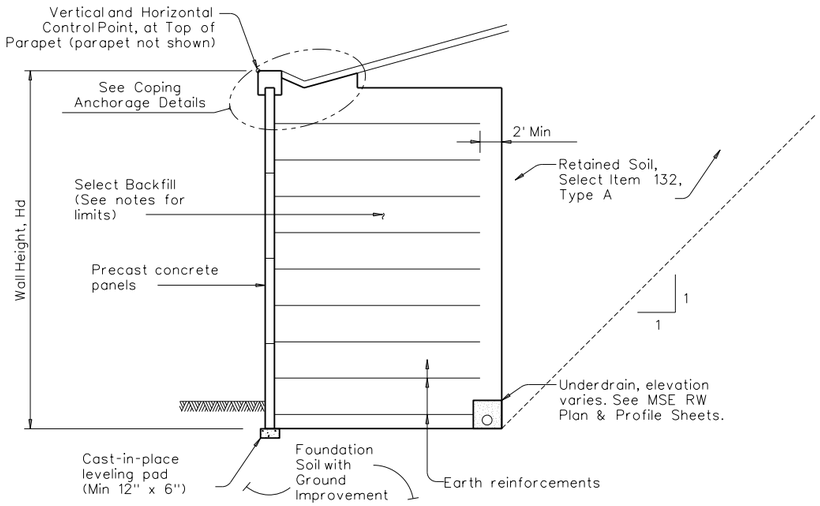
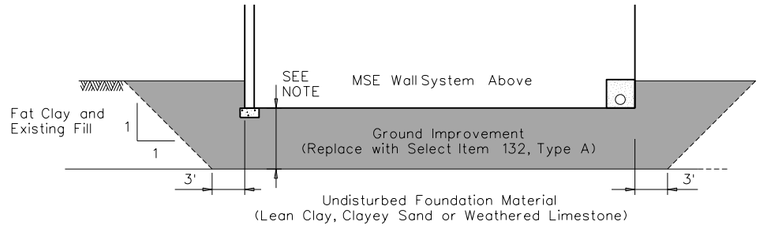


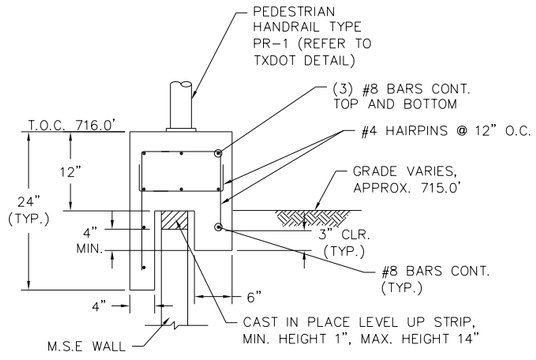
TYPICAL SECTION

(Wall at bottom of slope)

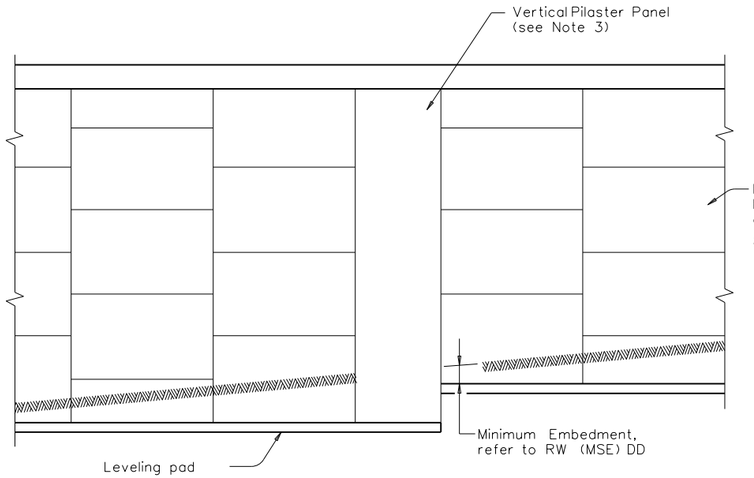


NOTE: Excavate all fat clay (CH) and existing fill from limits shown. Contractor shall contact Engineer to approve excavation before placing fill.
Depth of existing fill varies, minimum ground improvement is 4 feet thick regardless of existing fill or fat clay thickness.

GROUND IMPROVEMENT DETAIL



M.S.E. COPING DETAIL



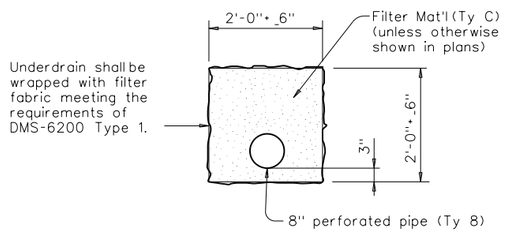
ELEVATION

NOTE:

1) For all wall panels, paint brick face of panels Federal Standard 595 Color No. 20152 (red). Brick joint to remain unpainted.

2) Paint all exposed wall coping and vertical pilaster panels Federal Standard 595 Color No. 33711 (sand).

3) Pilaster shall be 3 feet wide and project 1-1/2-inch beyond front face of wall panels. Space pilasters every 100 to 110 feet to accommodate standard panel widths. Location of pilasters subject to approval of Engineer.



UNDERDRAIN DETAIL

COPING DETAIL ONLY

STATE OF TEXAS — SHANE RAY TORNO — 89499 — LICENSED PROFESSIONAL ENGINEER

STATE OF TEXAS — MARC T. MILLER — 87824 — LICENSED PROFESSIONAL ENGINEER — 05/22/2018

May 22, 2018

SHEET 1 OF 2

Texas Department of Transportation

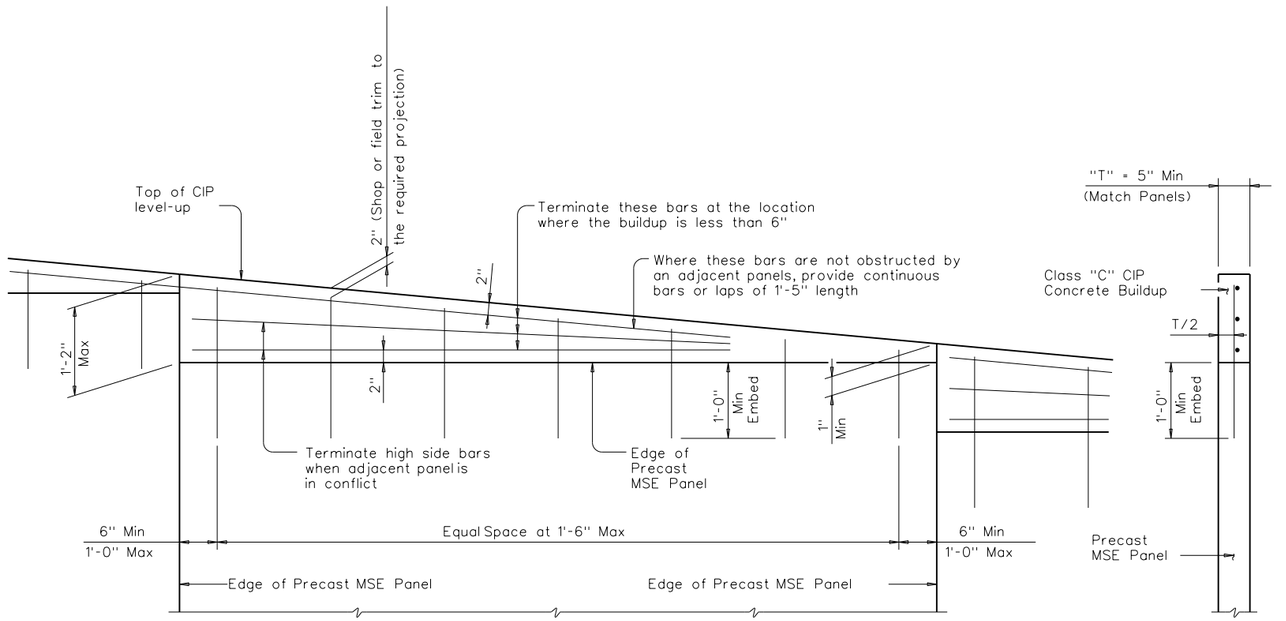
Bridge Division Standard

MECHANICALLY STABILIZED EARTH RETAINING WALL

RW(MSE) (MOD)

FILE: rwstde01.dgn	DN: TxDOT	CK: TxDOT	DW: JGD	CK: MJG
©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS 04-11: Added Table & Corrosion Criteria, 01-13: Wall embed. (WS) table, retained fill, soil strength.	DIST	COUNTY		SHEET NO. 130

DATE:
FILE:



ELEVATION

SECTION

LEVEL UP DETAIL (5)

Provide Grade 60 (#4) Reinforcement

(3) Precast coping shall be anchored to prevent rotation or displacement. Use these details to develop custom anchorage for precast copings. Details shall include coping reinforcement. Concrete flume (if required) shall be paid for separately from Item 423.

(4) Soil design parameter must be based on long term soil strength. Design parameters must be listed on the RW(MSE)DD.

(5) Cast vertical bars into the top of panels. At contractor's option vertical bars may be embedded 4" with a Type III Clac C epoxy anchorage system./Follow manufacturer's directions for installing the epoxied vertical bars.

(6)

SELECT BACKFILL UNIT WEIGHT			
Type A, B & D	Unit Weight	Internal Stability	External Stability
	105 PCF	Pullout	Sliding, Overturning, Eccentricity
	125 PCF	Rupture	Bearing

DESIGN PARAMETERS:

Design of retaining walls shall be based on the following design parameters unless stated elsewhere in the plans:

Retained Soil Select Item 132, Type A	Unit Weight = 125 pcf See Note (4)
Foundation Soil	See Note (4)
Select Backfill (reinforced zone), Item 423, Type D	Unit Weight = See Table (6) Ø = 34 C = 0 psf

Stress in steel and concrete shall be in accordance with current AASHTO Standard and Interim Specifications.
The minimum length of earth reinforcements are as shown on the RW(MSE)DD standard.

STABILITY CRITERIA:

Stability criteria applies to both dry and drawdown analysis.
Factor of safety in sliding along the base of the structure shall be greater than or equal to 1.5.
Factor of safety in overturning shall be greater than or equal to 2.0.
The base pressure resultant shall fall within the middle third of the retaining wall.
The factor of safety against pullout of the earth reinforcements shall be greater than or equal to 1.5 at each level. Pullout resistance shall be determined from test data evaluated at ¾ inch strain.

CORROSION CRITERIA:

The earth reinforcement elements shall be designed to have a minimum design life of 75 years, using current AASHTO corrosion rates.
Stress calculations (rupture) shall be done on the calculated earth reinforcement section remaining after 75 years. Pullout calculations may be based on non-corroded section.

PRECAST COPINGS:

Wall supplier is to maximize lengths of precast coping. Precast coping is to be provided in 10' minimum lengths (typical). To optimize coping lengths at radiuses, end of runs or other wall geometric conditions favorable to shorter coping sections, shorter lengths may be used pending approval by the Engineer. This applies only to coping without railing.

JOINT SEALER:

The joints between coping segments must be sealed in accordance with the DMS-6310 "Joint Sealant's and Fillers", joint sealing material, Class 4. The joint must be sealed 3" below and 6" above the adjoining pavement surface, or as directed by the Engineer. The purpose of the joint sealing is to contain surface drainage and prevent infiltration into the retaining wall backfill.

GENERAL NOTES:

Section and elevation shown is for informational purposes only. Specific geometry is to be determined based on wall layouts and other plan information.
The select backfill specified for use within the mechanically stabilized earth volume shall extend horizontally from the back of the panels to a minimum 2' beyond the end of the earth reinforcements. The select backfill shall extend vertically from the top of the leveling pad or 4" below the lowest earth reinforcement, whichever is lower, to the top of panels.
The uppermost earth reinforcements shall be no more than 3.0' below the top of wall.
The lowest level of earth reinforcements shall be no more than 2.0' above the top of the leveling pad.
Minimum wire size for earth reinforcements shall be W7.0. If different longitudinal and cross wires are used in an earth reinforcement mesh, the smaller wire shall have at least 50% of the cross sectional area of the larger wire.
A maximum of four wire mesh configurations (wire sizes) will be allowed on a project. Each mesh configuration shall have a unique transverse bar spacing, differing from other configurations by a minimum of 3". Earth reinforcement lengths shall be stepped in increments no finer than 12".
Standard precast concrete panels shall have a maximum height of 6', and a maximum surface area of 50 sq ft. Top and bottom panels may exceed these limitations as necessary to achieve required wall grades. Maximum height of any panel shall be 7'-6". Minimum panel thickness shall be 5". Panels shall be arranged to provide offset horizontal joints.
An open joint shall be provided around the perimeter of the concrete panels. The joint configuration shall be such that 1) the filter fabric and/or pad materials are not exposed at the wall face and 2) the design opening is between ⅜" and ¾". Adhesive shall be applied to back of panel and shall not be applied directly to filter fabric.
A one-piece corner panel shall be provided for wall angle changes of greater than 30 degrees. Butting of chamfered panels will be allowed for angle changes of 30 degrees or less.
Concrete coping shall be provided along the top of wall, at the vertical steps at bridge backwalls, and at other vertical steps along the top of wall. The joints between all coping segments shall be sealed to prevent infiltration of water into the retaining wall backfill. Sealing shall be in accordance with the DMS-6310 "Joint Sealants and Fillers", using Class 4 joint sealant.
When obstructions (inlets, drilled shafts, piling, etc.) prevent placement of soil reinforcements in their normal locations, provide details and calculations that establish support for the affected panels. Furnish the same earth reinforcement coverage as that required in the absence of the obstruction. For skewed (rotated) earth reinforcements no adjustment in length is needed for skew angles between 1 and 10 degrees. For skew angles greater than 10 degrees adjust the length of earth reinforcement to provide a cosine length of the reinforcement equivalent to the stated design length for the section of wall. Provide calculations that justify any alterations made to the soil reinforcements or modifications to their normal placement. Do not use panels without any soil reinforcements connected to them unless they are connected with galvanized hardware to adjacent panels which do have supporting Soil reinforcements attached to them and as approved by the Engineer.
Reinforced concrete must be Class "C", Precast concrete Class "H", Unreinforced concrete Class "A".
All reinforcing steel must be Grade 60.
Coping and anchor slabs are considered subsidiary to the Item "Retaining Wall".
These details are to be used in conjunction with the retaining wall layout, standard RW(MSE)DD and other applicable standards.
The wall geometry shown on the drawings are the minimum required to satisfy external and global stability requirements. Additional reinforcement length or wall depth may be required to satisfy internal stability. The Contractor's Designer (Wall Fabricator) is responsible for the design of the wall system for internal stability and shall provide shop drawings and supporting stability calculations. The Contractor shall coordinate with the Wall Fabricator for strap locations and layout, and for allowable adjustments around obstructions.
Reference these plans for inlet, outlet, barrier, roadway, planned utilities, signage, signals, etc. locations and details to determine the location of obstructions that may effect the MSE walls. Provide slip joints at limits of obstructions.
Utility trenches outside of the MSE wall limits but within a horizontal distance of twice the wall height (2H) shall be backfilled with flowable fill. Construction of underground elements, such as utilities, drainage structures, foundations, etc. shall be completed and backfilled prior to construction of the wall system.
Excavation within 10 feet or 2H, whichever is greater, of the face of the wall shall not be permitted without prior written approval of the Engineer. Where allowed by the Engineer, construction in this exclusion zone will require active shoring to prevent movement of the MSE wall system.

STATE OF TEXAS
MARC T. MILLER
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05/22/2018

Texas Department of Transportation

Bridge Division Standard

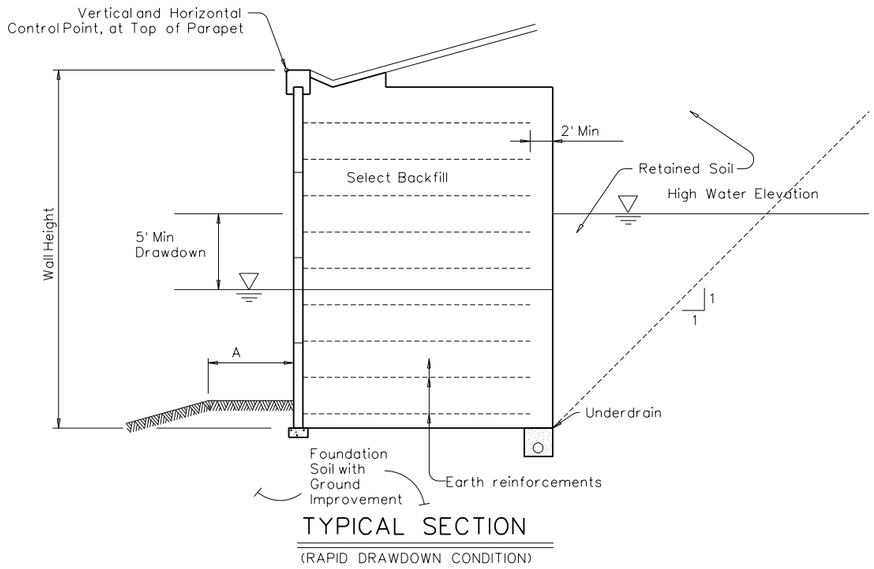
MECHANICALLY STABILIZED EARTH RETAINING WALL

RW(MSE) (MOD)

FILE: rwstde01.dgn	DN: TxDOT	CK: TxDOT	DW: JGD	CK: MJG
©TxDOT March 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS 04-11: Added Table & Corrosion Criteria. 01-13: Wall embed. (WS) table, retained fill, soil strength.	DIST	COUNTY		SHEET NO. 131

WALL SUMMARY

MSE Retaining Wall	Begin Station	End Station	Retained Soil Frictin Angle (SEE NOTE 1)	Foundation Soil Friction Angle	Ground Improvement (SEE NOTE 2)	Min Earth Reinforcement Length (SEE NOTE 3)	Min Wall Embedment (SEE NOTE 4)	Underdrain Required (SEE NOTE 5)	Drawdown Analysis (SEE NOTE 6)	Bench Width (SEE NOTE 7)
WALL 01	7+60.86	14+14.85	28 DEG	26 DEG (C=100 PSF)	YES	110% of Hd	2 FT	YES	YES	2 FT



TYPICAL SECTION

(RAPID DRAWDOWN CONDITION)

NOTES:

1. Retained soil is select material. Refer to RW (MSE) (MOD).
2. Refer to Ground Improvement Detail on RW (MSE) (MOD).
3. Minimum reinforcement length is based on total wall height from top of leveling pad to top of coping. Minimum length is 8 feet for all reaches and levels.
4. Embedment is measured from top of leveling pad to proposed ground surface at wall face.
5. Refer to Underdrain detail on RW (MSE) (MOD).
6. Assume 5-foot drawdown from design water level.
7. Bench width is the minimum horizontal width of ground required at the face of wall (dimension "A" on typical section this sheet). Provide a 2% grade away from wall for surface drainage.

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05/22/2018

Texas Department of Transportation

Bridge Division Standard

MECHANICALLY STABILIZED EARTH RETAINING WALL DESIGN DATA

RW(MSE)DD (MOD)

FILE:	rwstde16.dgn	DN: TxDOT	CK: MJG	DW: JTR	CK: MJG
©TxDOT	January 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS					
		DIST	COUNTY		SHEET NO.
					132

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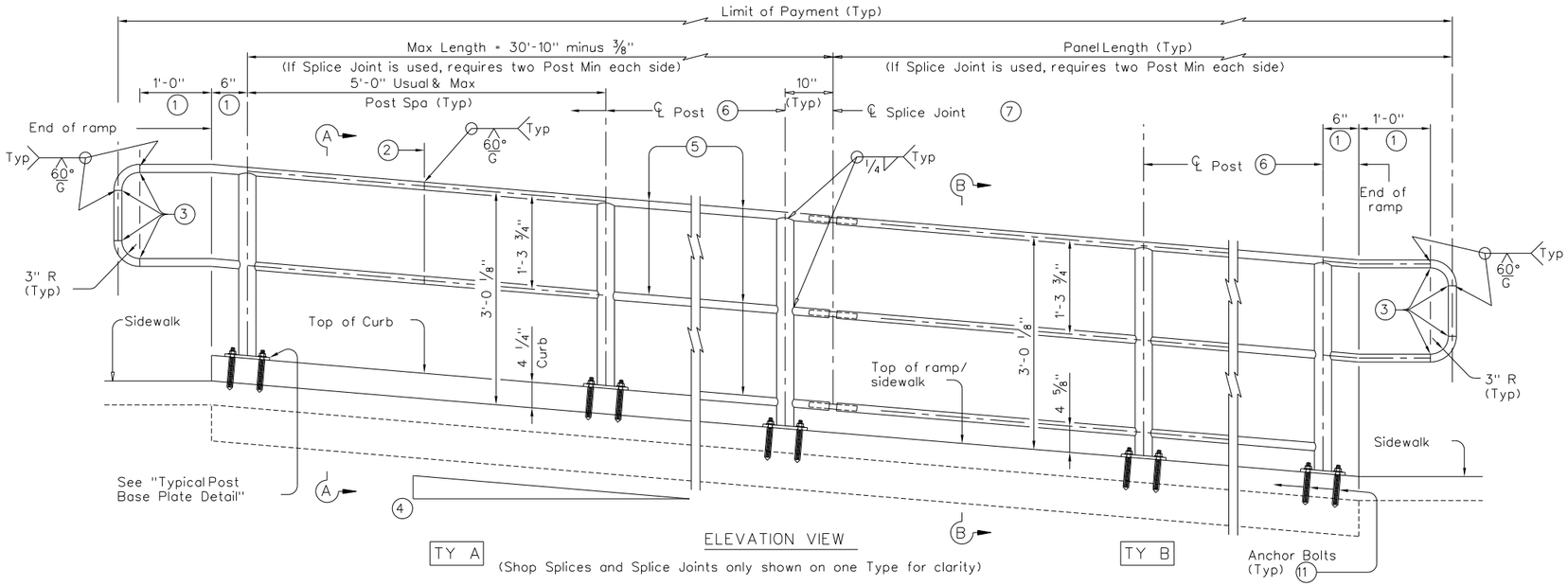
DATE:
FILE:

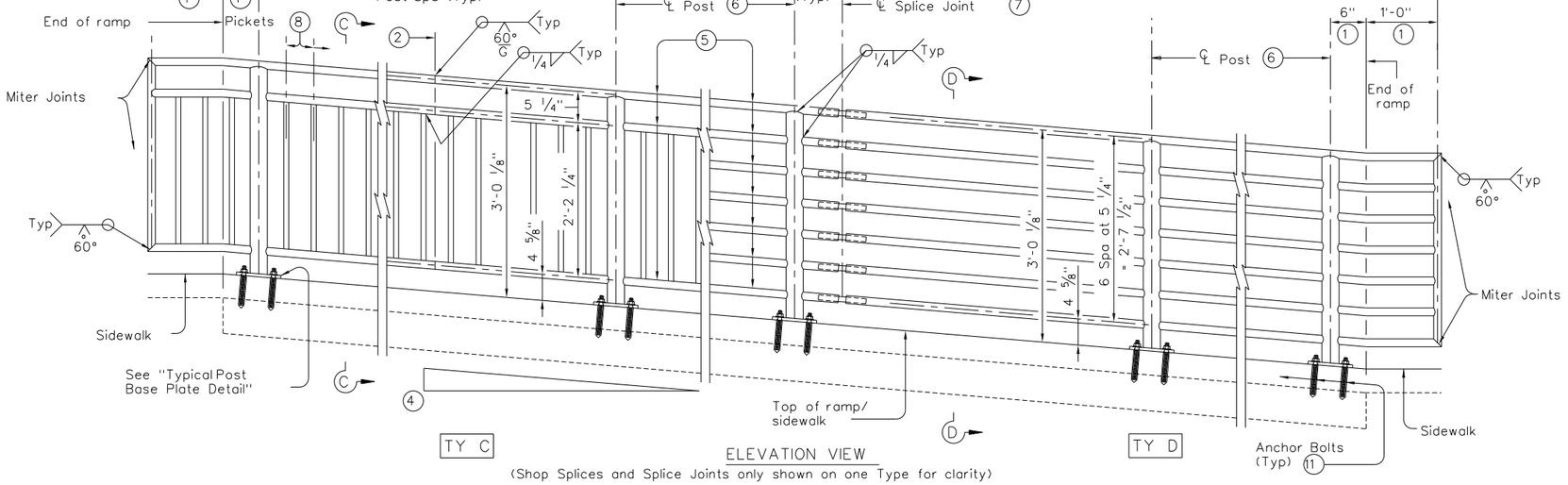


TY A

ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

TY B



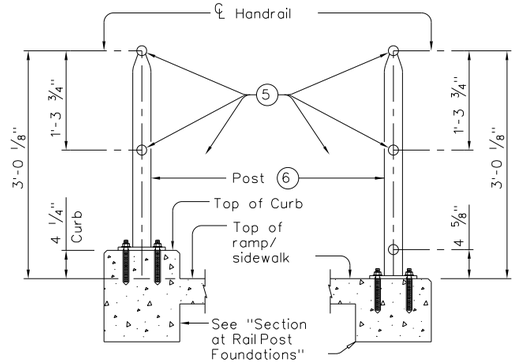
TY C

ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

TY D

RECOMMENDED USAGE (9) (10)	
Dropoff Height/ Condition	Recommended Rail Options
<30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F

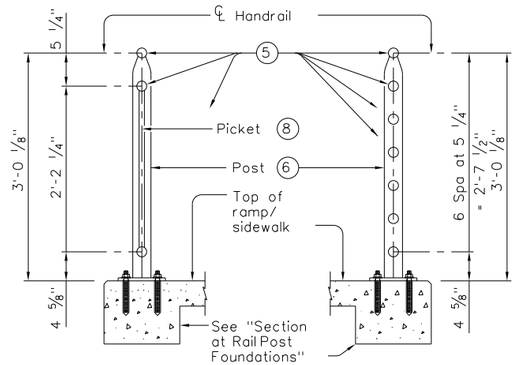


SECTION A-A

(Showing Handrail) TY A

SECTION B-B

(Showing Handrail) TY B



SECTION C-C

(Showing Handrail) TY C

SECTION D-D

(Showing Handrail) TY D

(1) Parallel to ground.

(2) One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(3) Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(4) See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

(7) See "Handrail Fabrication Details" for Splice Joints.

(8) ℄ 5/8" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

(9) When needed for accessibility (grade 5 percent) or as needed for pedestrian safety.

(10) Not to be used on bridges.

(11) See "General Notes" for anchor bolt information.

SHEET 1 OF 3

Texas Department of Transportation

Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT Decmeber 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)				
	DIST	COUNTY		SHEET NO.
				133

DATE: May. 22, 2018 - 11:57:44 AM
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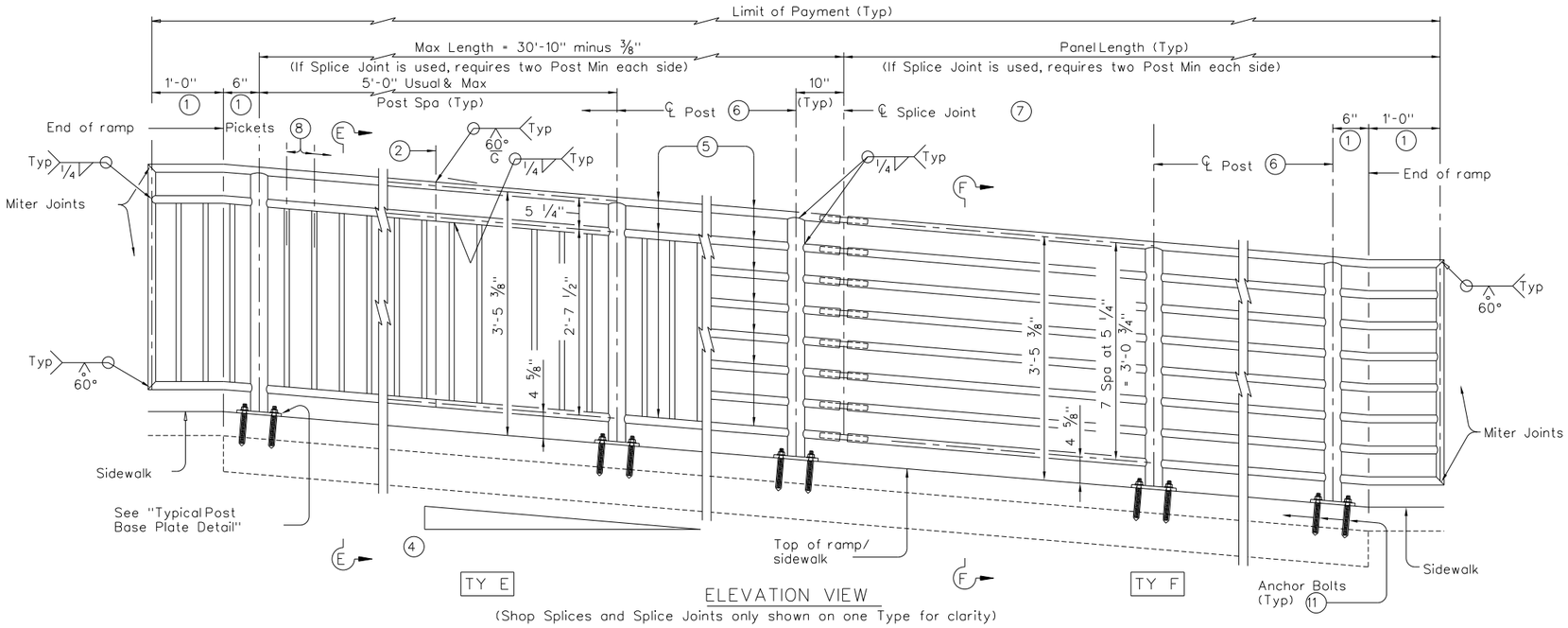
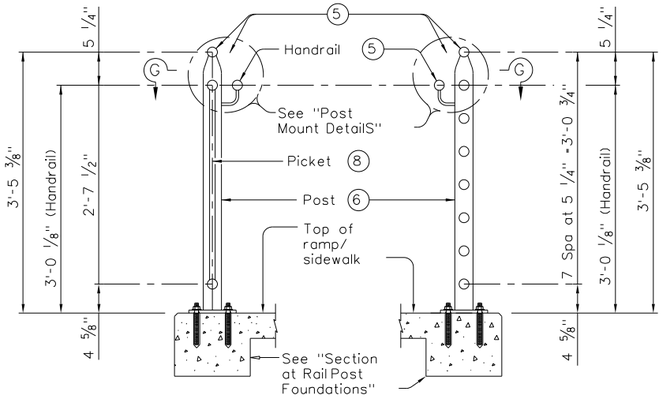


ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

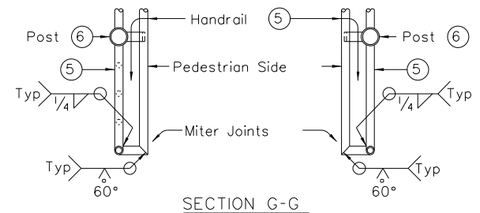


SECTION E-E

(Showing Handrail) TY E

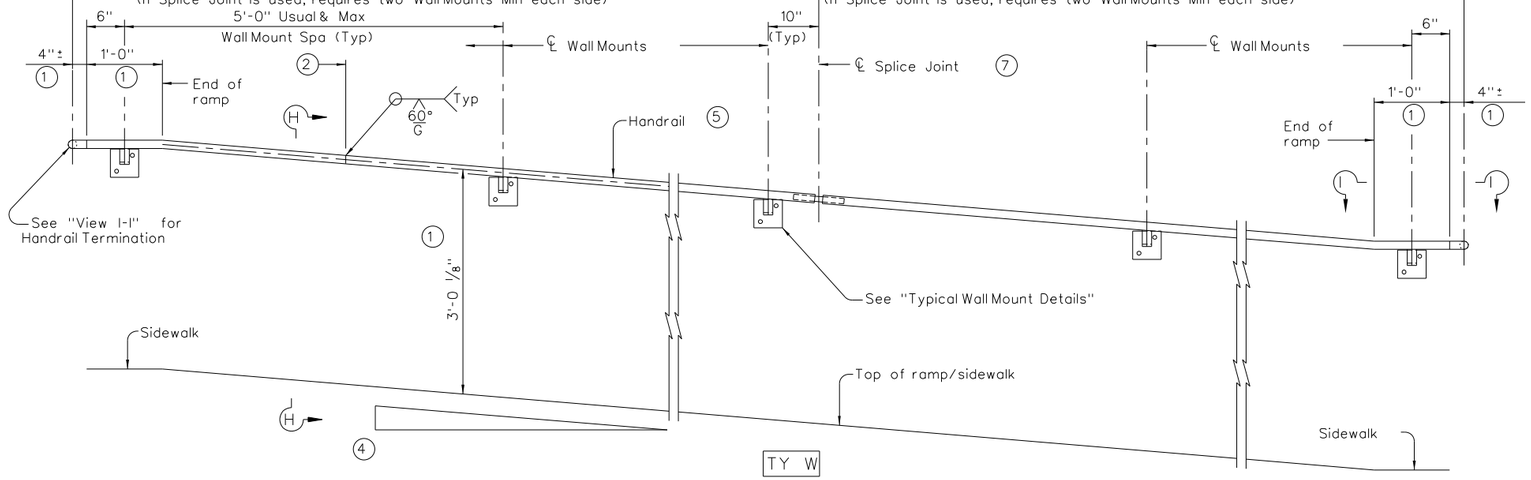
SECTION F-F

(Showing Handrail) TY F



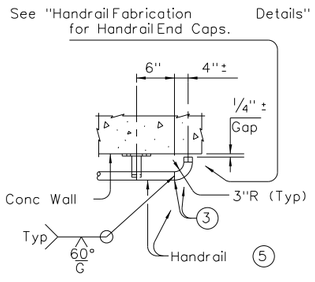
SECTION G-G

(Showing Handrail Termination)



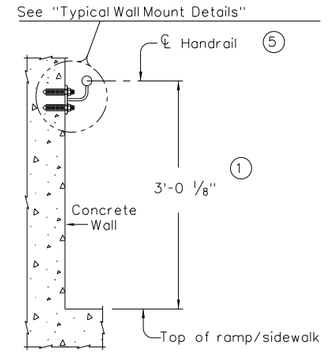
TY W

ELEVATION VIEW



VIEW I-I

(Showing Handrail Termination)



SECTION H-H

(Showing Handrail) TY W

1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.
6. 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ 5/8" Dia. Round Bar equal spacing at 4 1/2" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

Texas Department of Transportation

Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO. 134

DATE: May. 22, 2018 - 11:57:44 AM
FILE: N:\f\Drawings\CV-TRT-DT-prd13.sht

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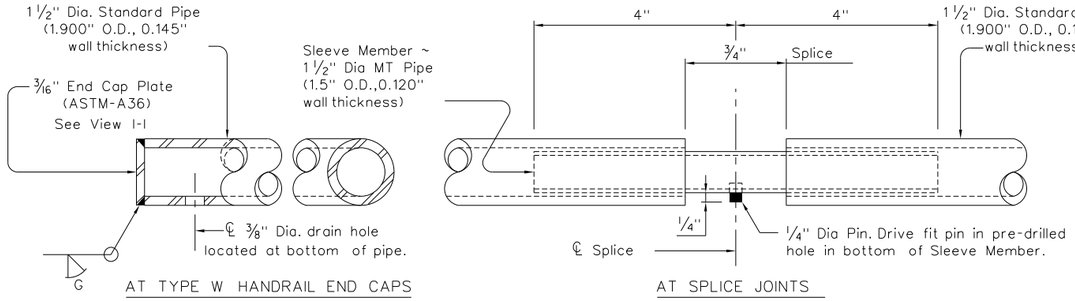
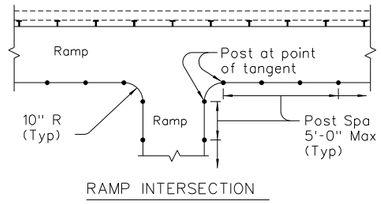
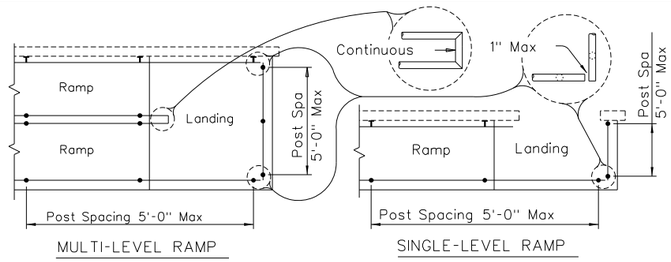
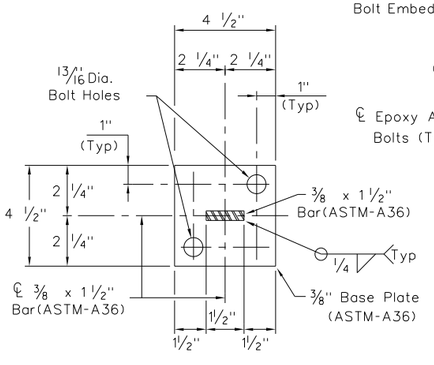


HANDRAIL FABRICATION DETAILS

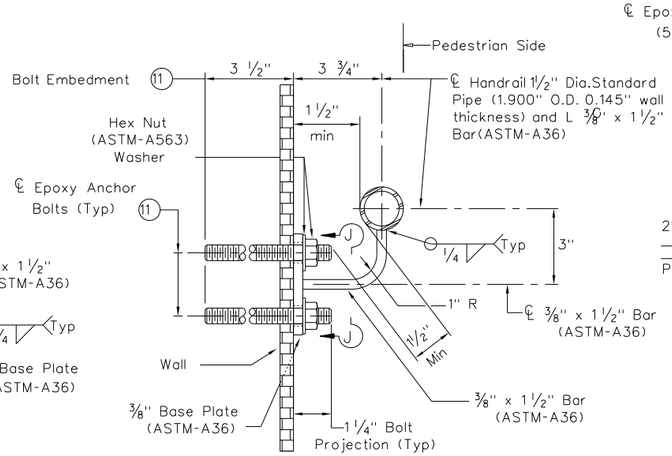




PLAN SHOWING RAIL AT RAMP CONDITIONS

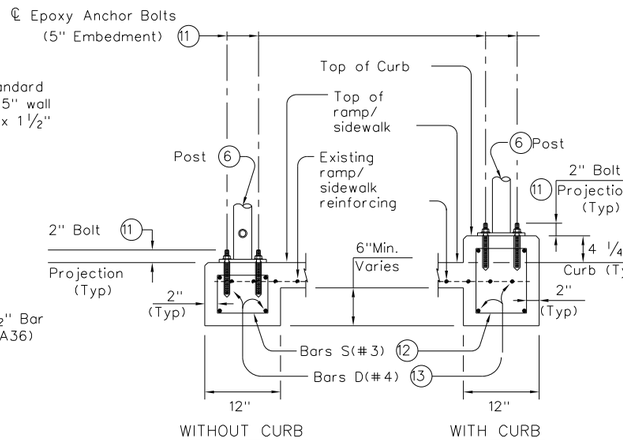


SECTION J-J
(Anchor Bolts not shown for clarity)



SECTION AT WALL MOUNT

TYPICAL WALL MOUNT DETAILS



SECTION AT RAIL POST FOUNDATIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be 5/8" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. 5/8" Dia. threaded rod embedment depth for wall mounts is 3 1/2" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.

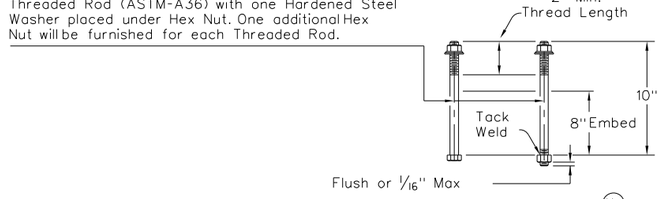
(5) 1 1/2" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 1/2" Dia. pipe for galvanizing drainage and venting.

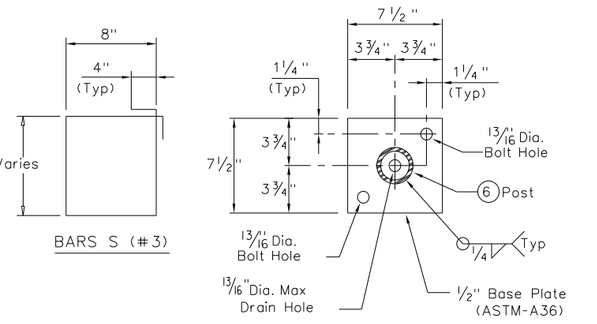
(6) 2 1/2" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diamenter of top rail. Provide holes as needed in post for galvanizing drainage and venting.

(11) See "General Notes" for anchor bolt information.

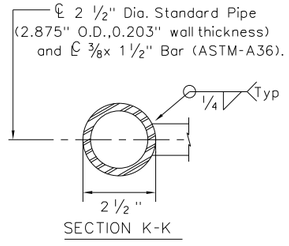
(12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).

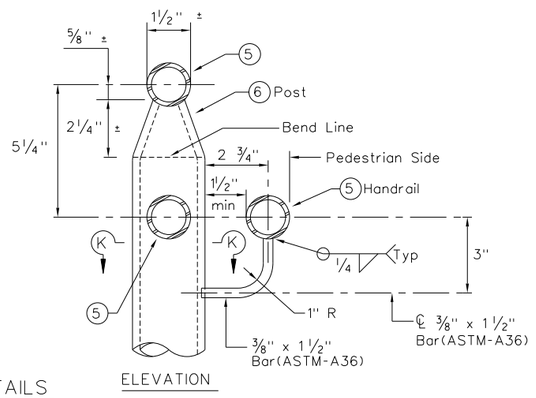
(13) Provide 1 1/2" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.





TYPICAL POST BASE PLATE DETAIL





POST MOUNT DETAILS

SHEET 3 OF 3

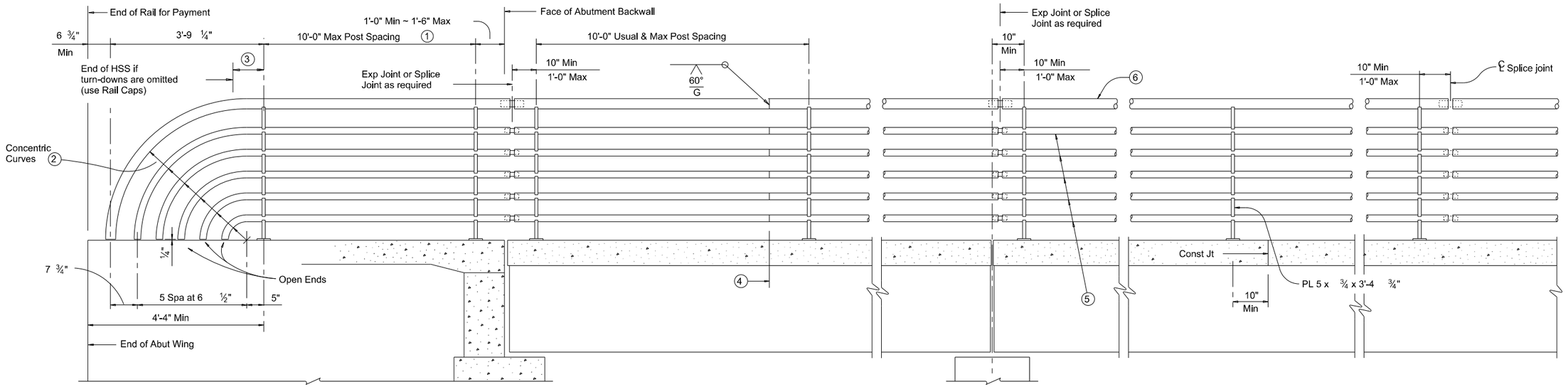
Texas Department of Transportation

Design Division Standard

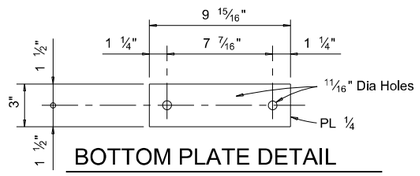
PEDESTRIAN HANDRAIL DETAILS

PRD-13

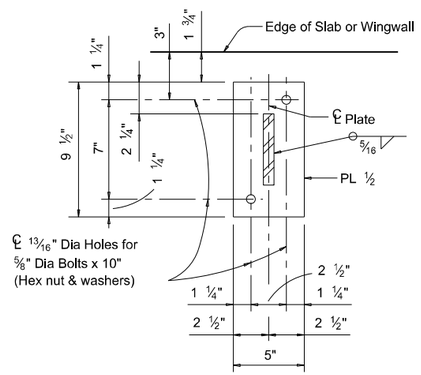
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
				135



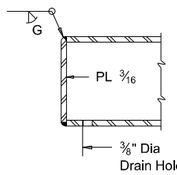
AT ABUTMENTS | AT SHOP SPLICE | AT ENDS OF UNIT | AT SLAB CONST JOINT | AT SPLICE JOINT



BOTTOM PLATE DETAIL

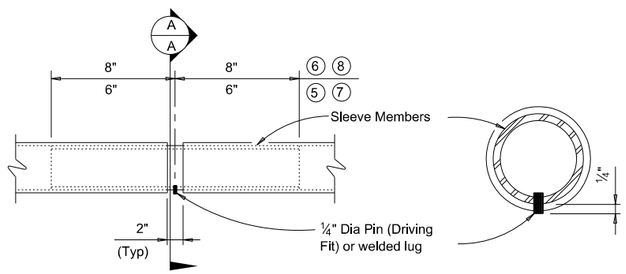


BASE PLATE DETAIL



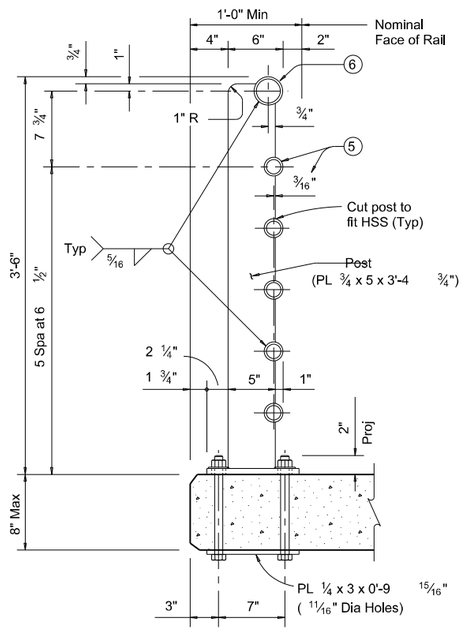
RAIL CAP DETAIL

ROADWAY ELEVATION OF RAIL

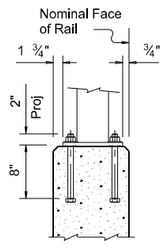


AT SPLICE OR EXP JTS | SECTION A-A

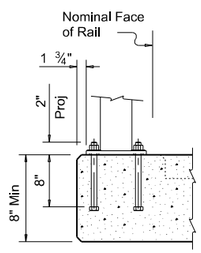
HSS SPLICE DETAIL



BASIC CONDITION



ON ABUT WING OR CIP RETAINING WALL



ON CULVERTS OR SLABS OVER 8" THICK

POST MOUNTING DETAILS

1. Min of 2 posts required on wingwall
2. Portion of railing with turn-downs to be used or omitted as indicated on Bridge Layout.
3. 10" Min ~ 1'-6" Max if turn-downs are omitted.
4. One shop splice per panel is permitted (with minimum 85 percent penetration). The weld may be square groove or single vee groove. Grind smooth.
5. HSS 2.375 x 0.154
6. HSS 3.500 x 0.216
7. HSS 1.900 x 0.145
8. HSS 2.875 x 0.203

CONSTRUCTION NOTES:

Panel lengths of railing must be attached to a minimum of three posts except at abutment wingwalls.

Face of rail and posts must be vertical transversely unless otherwise approved. Posts must be perpendicular to adjacent roadway grade. Use Type VIII epoxy mortar under post base plates if gaps larger than 1/16" exist.

For curved railing applications, fabricate the HSS rails to the radius when the radius is 600' or less. Submit shop drawings for approval when tubes are required to be fabricated to a radius. Shop drawings must be submitted to the Engineer for approval.

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately 1/16" by grinding.

MATERIAL NOTES:

Provide ASTM-A500 Grade B, A1085 or A53 Grade B for all HSS.

Provide ASTM-A36 for posts and plates.

Galvanize all steel components unless otherwise shown.

Anchor bolts must be 5/8" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Threaded rods may be 0.557" minimum diameter with rolled threads. Nuts must conform to A563 requirements.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

For all rails, submit erection drawings showing section lengths, splice locations, rail post spacing and anchor bolt setting for approval.

Average weight of railing is 30 plf.

Texas Department of Transportation

Bridge Division Standard

PEDESTRIAN RAIL

TYPE PR1

FILE: rlstd028.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT July 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS				
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				136

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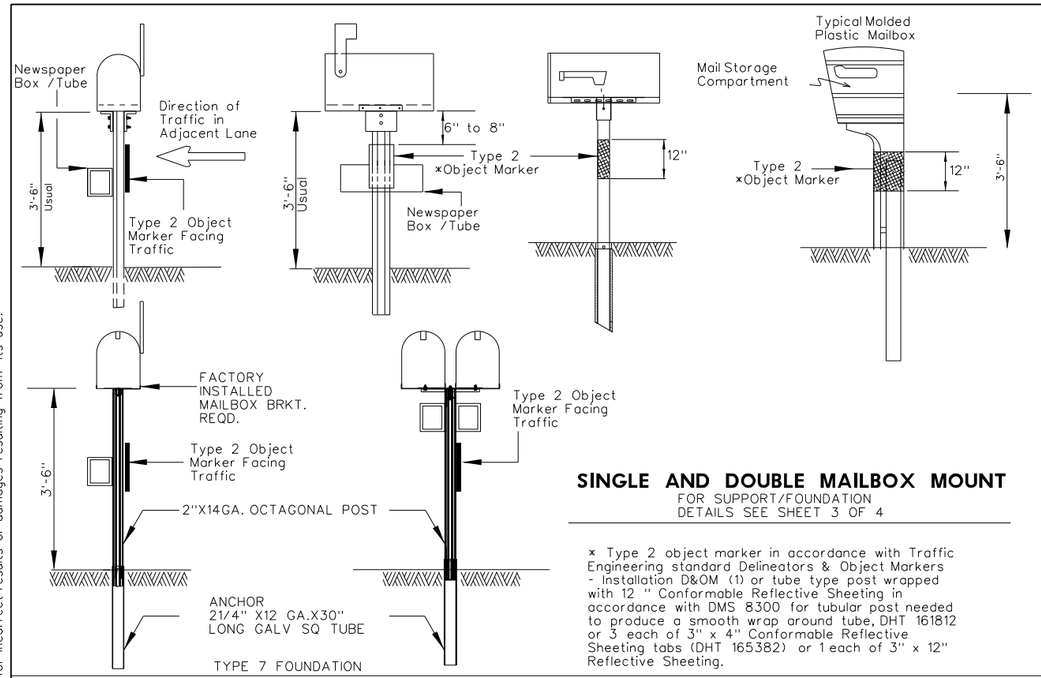


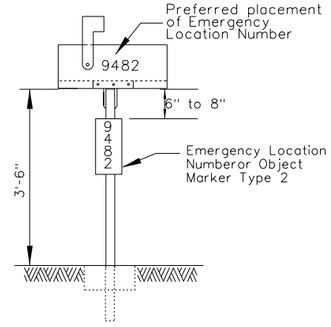
SINGLE AND DOUBLE MAILBOX MOUNT

FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4

× Type 2 object marker in accordance with Traffic Engineering standard Delineators & Object Markers - Installation D&OM (1) or tube type post wrapped with 12 '' Conformable Reflective Sheeting in accordance with DMS 8300 for tubular post needed to produce a smooth wrap around tube, DHT 161812 or 3 each of 3" x 4" Conformable Reflective Sheeting tabs (DHT 165382) or 1 each of 3" x 12" Reflective Sheeting.

Note: Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Pedestrian Facilities Curb ramps standard ×PED-XX for pedestrian facilities.

×PED-XX: XX is the standard year for example PED- 12 , PED-13,etc.



PLACEMENT OF EMERGENCY LOCATION NUMBER

Location Number shall be placed on: 1. A yellow, type A plate with class 1 flat surface reflective sheeting in accordance with DMS 8600. The color of numbers shall be black. or 2: A green or blue plate with white numbers attached to post beside the object marker. Other contrasting color configuration, as approved , may be used. (Use Same type plate as used for the type 2 Object Marker. Recommended sign size is 6" by 15")

TYPICAL MAILBOX SIZE				LIGHT WEIGHT MATERIAL	
				SHEET METAL	××PLASTIC
SIZE	LENGTH (INCHES)	WIDTH (INCHES)	HEIGHT (INCHES)	MAXIMUM WEIGHT (POUNDS)	
SMALL	19 1/2	6	7	5	5
MEDIUM	22 1/2	8	11 1/2	7	7
LARGE	23 1/2×	11 1/2×	13 1/2×	10	10

× Maximum allowed dimensions for mailbox
×× Excluding Molded Plastic on 4 X 4 Post

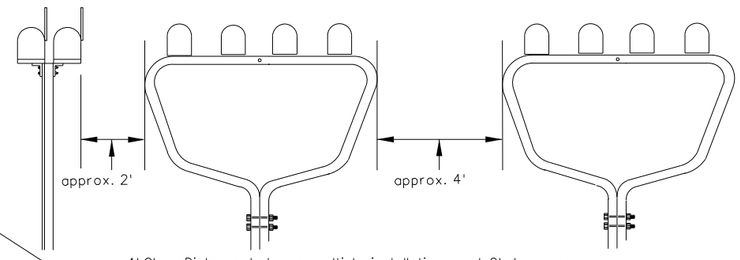
LOCKABLE ARCHITECTURAL MAILBOX SIZE (INCHES)					
VIEW	TOP	BOTTOM	FRONT SIDE	BACK SIDE	WEIGHT
SIDE	18	15	18.3	15	(POUNDS)
BACK	11 1/2	11 1/2		15	22.4

SEE TOP RIGHT CORNER OF SHEET 2 OF 4

MAILBOX SIZES

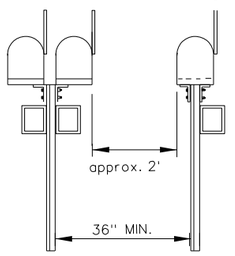
Mailboxes shall be made of light weight sheet metal or light weight plastic.
Lockable architectural mailboxes shall meet the requirements of the above table.

Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.



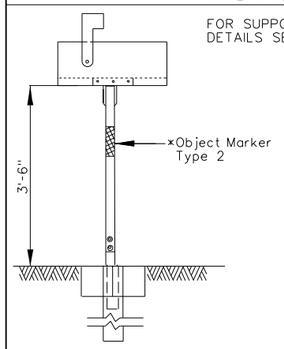
4' Clear Distance between multiple installations and 2' clearance between double or single installations and the multiple installation. DHT #'s 164116 or 149339.

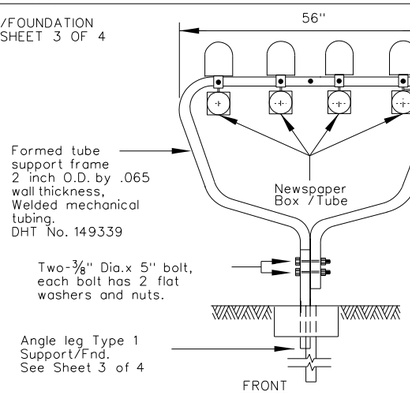
MULTIPLE MAILBOX PLACEMENT

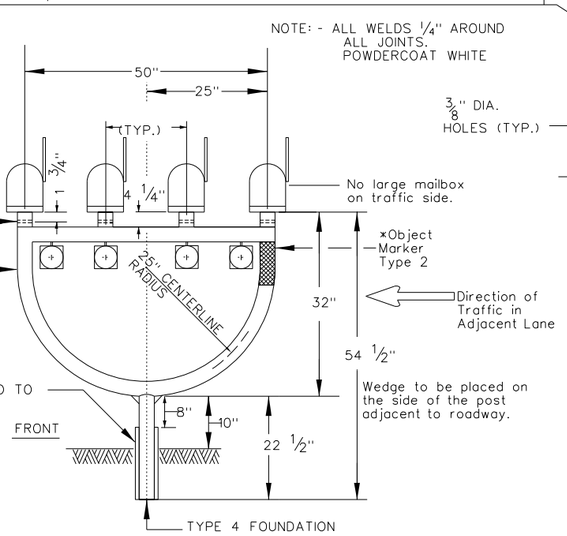


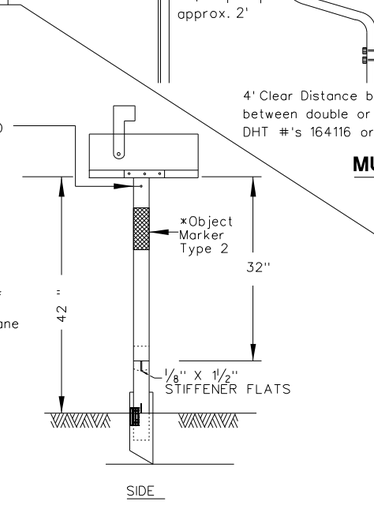
Clear Distance between single or double mounted posts. (Normally when 3 or more mailboxes are in one location, a multiple support is used).

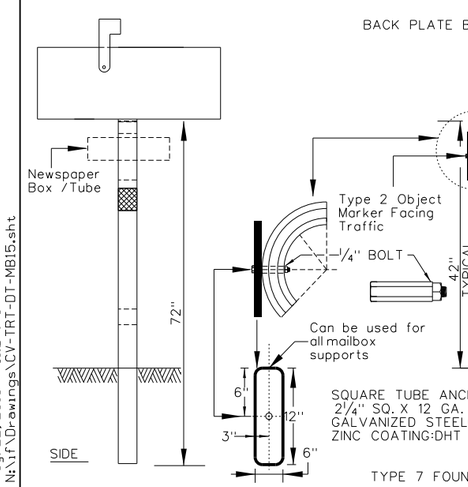
SINGLE & DOUBLE MAILBOX PLACEMENT











DOUBLE AND MULTIPLE MAILBOX MOUNT

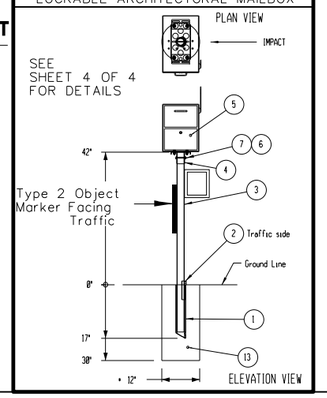
FOR SUPPORT/FOUNDATION DETAILS SEE SHEET 3 OF 4
FOR DHT NUMBERS SEE SHEET 4 OF 4

NEWSPAPER RECEPTACLE

A light weight receptacle for newspaper delivery can be attached to mailbox posts as shown on this page if the receptacle:

- Does not touch the mailbox.
- Does not present a hazard to traffic or delivery of the mail.
- Does not extend beyond the front of the mailbox.
- Does not display advertising, except the publication title.
- Newspaper receptacles on separate supports are prohibited.

LOCKABLE ARCHITECTURAL MAILBOX



MULTIPLE MAILBOX MOUNT

INDEX OF MAILBOX DETAIL SHEETS

SHEET 1 OF 4

Texas Department of Transportation — Maintenance Division Standard

MAILBOX MOUNTING AND SPACING

MB-15(1)

FILE:MB14(1).DGN	DN:JEO	CK:JEO	DW:	CK:	
©TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS: Added additional newspaper receptacle for double mailbox support	DIST	COUNTY		SHEET NO.	
				137	

DATE: May. 22, 2018 @ 11:48 AM
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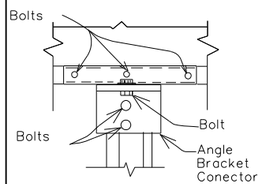
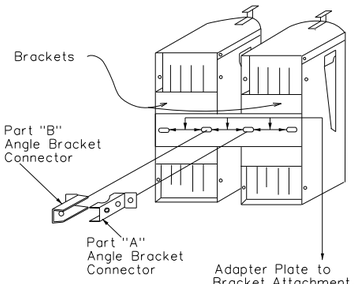


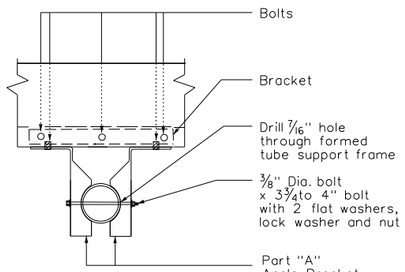
For bolt sizes see details below for "SMALL MAILBOX" and "MEDIUM AND LARGE MAILBOXES"

SINGLE MAILBOX

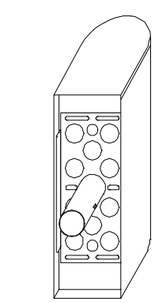


(Not permitted for Large Mailboxes)

DOUBLE MAILBOX

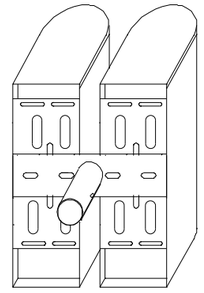


MULTIPLE MAILBOX



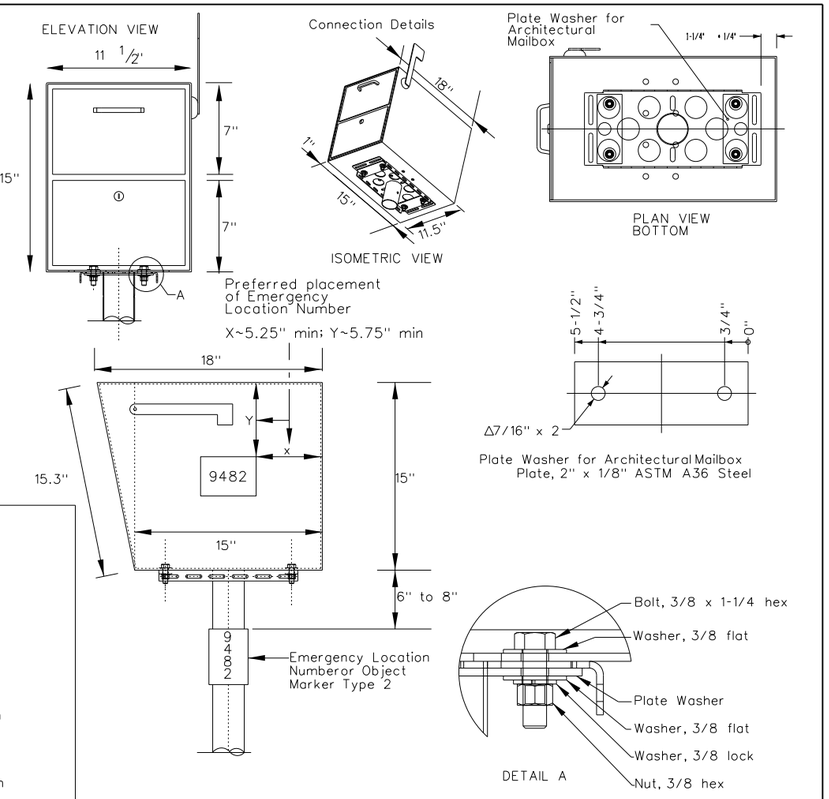
To be used with 2⅜" OD RR or thinwall Steel posts.

WELDED SINGLE MAILBOXBRACKET

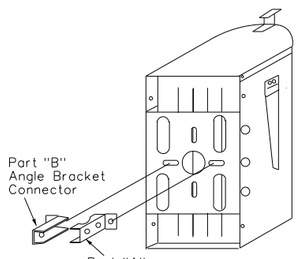


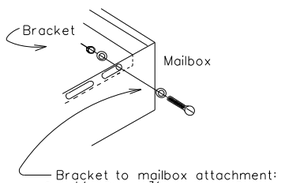
To be used with thinwall Steel posts. Not to be used with RR posts.

WELDED DOUBLE MAILBOX BRACKET WITHADAPTER PLATE



LOCKABLE ARCHITECTURAL MAILBOX CONNECTION DETAILS



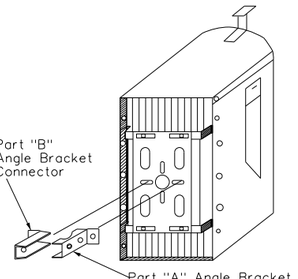


Bracket to mailbox attachment:
6 - ¼" Dia. x ¾" bolt w/ 2 flat washers and nut per each bolt.

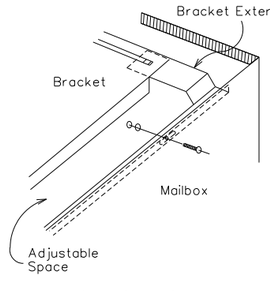
Angle to bracket attachment:
2 - ⅜" Dia. x ¾" bolt with 2 flat washers, lock washer and nut per each bolt.

Angle to
2 - ⅜" Dia. x 2½" bolt with 2 flat washers, lock washer and nut per each bolt.

SMALL MAILBOX



Use both Parts "A" and "B" Angle Bracket Connectors for Winged Channel Posts



Bracket to mailbox attachment:
6 - ¼" Dia. x ¾" bolt w/2 flat washers and nut per each bolt.

Bracket to bracket extension attachment:
2 - ¼" Dia. x ¾" carriage bolt w/ flat washer, lock washer and nut per bolt (4 bolts required if 2 bracket extensions are used).

Angle to bracket attachment:
2 - ⅜" Dia. x ¾" bolt w/2 flat washers, lock washer and nut per each bolt.

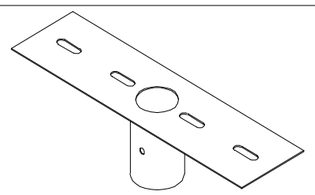
Angle to mailbox support attachment:
2 - ⅜" Dia. x 2 ½" bolt w/2 flat washers, lock washer, and nut per each bolt.

Medium size mailboxes - one extension bracket
Large size mailboxes - two extension brackets

MEDIUM AND LARGE MAILBOXES

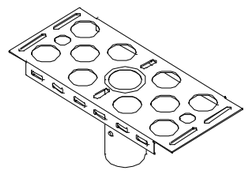
HARDWARE AT TXDOT REGIONAL WAREHOUSES

Brackets and adapter plate shown in this section should be available to the Contractor when stated elsewhere in plans or specifications.



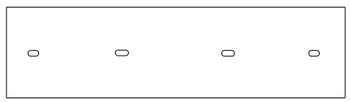
DHT 162323

For use with galvanized thinwall steel posts DHT # 143426 or powder-coated thinwall steel post DHT # 162911.



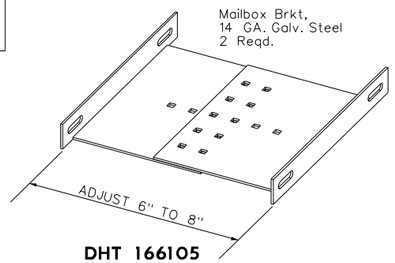
DHT 161443

For use with RCR post DHT # 161442 or galvanized thinwall steel post DHT # 143426 or powder-coated thinwall steel post. DHT # 162911.

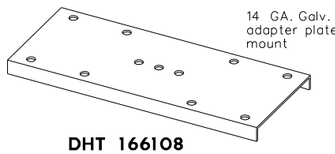


DHT #3789

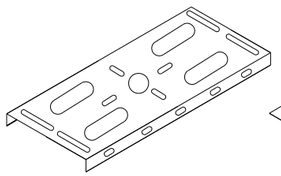
Used for mounting two Mailboxes on the same post.



DHT 166105

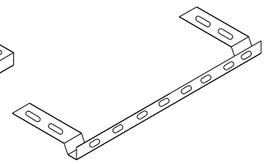


DHT 166108



DHT 148939

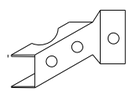
Mailbox Bracket



DHT 148938

Used for extending 6" wide bracket to attach larger mailboxes.

Bracket Extension

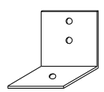


DHT 159489

Part "A" Angle Bracket Connector

DHT 159490

Part "B" Angle Bracket Connector



DHT 2917

Angle Bracket For Temporary Mailbox

See Table of Applicable DHT Numbers on sheet 4 of 4 for DHT description and unit of measure.

GENERAL NOTES

1. Connecting hardware detailed on this sheet is for the hardware that the Department stocks at the Regional Warehouses. This hardware is available to the contractor only when so stated elsewhere in the plans or specification.
2. Hardware for mounting mailboxes to the support/foundation furnished by industry should be used when shown on the Maintenance Divisions "Approved Products List." Only mailbox hardware that have been crash tested in accordance with NCHRP Report 350, will be on the approved list.
3. Hardware furnished by industry shall be erected in accordance with the manufacturer's recommendation.
4. Bracket and bracket extension shall be constructed of 14 gauge galvanized steel sheet metal.
5. The angles, brackets and adapter plates shall be constructed of 12 gauge galvanized steel sheet metal.
6. Items with evidence of damage to the galvanized coating or wet storage stains (white rust) will not be accepted.

Texas Department of Transportation

Maintenance Division Standard

MAILBOX BRACKET CONNECTING DETAILS

MB-15(1)

FILE:MB14(1).DGN	DN:JEO		CK:	DW:JEO	CK:
©TxDOT APRIL 2015	CONT	SECT	JOB		HIGHWAY
REVISIONS ADDED DHT 163730					
	DIST	COUNTY			SHEET NO.
					138

DATE: May. 22, 2018 @TIME@:48 AM
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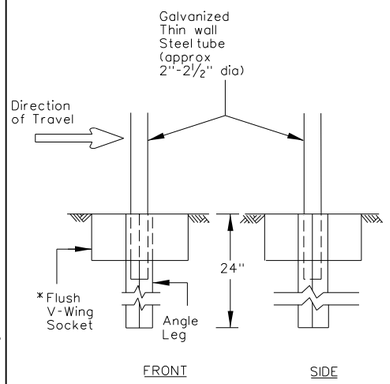
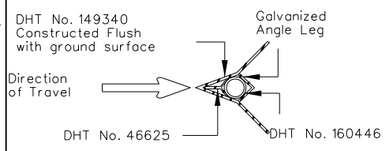
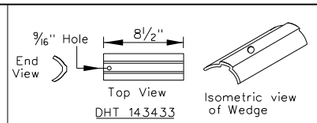




Insert formed tube 7" to 9"
into V-wing socket.

TYPE 1 SUPPORT/FOUNDATION

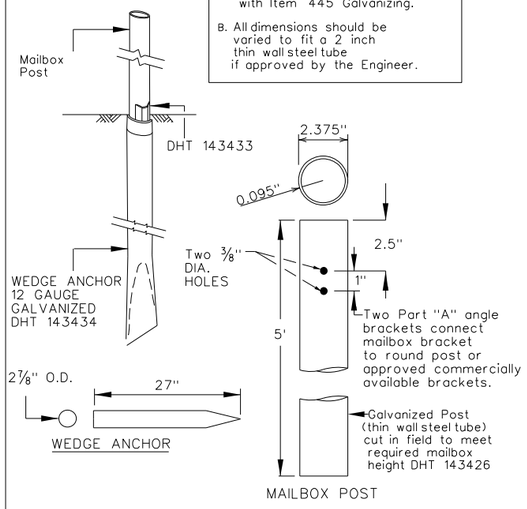
THIN WALL STEEL TUBE w/ V-LOC ANCHORAGE



NOTES FOR TYPE 2 SUPPORT/FOUNDATION

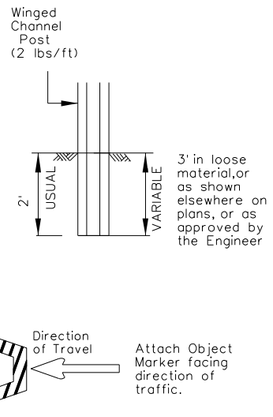
A. Galvanize steel support foundation in accordance with Item 445 Galvanizing.

B. All dimensions should be varied to fit a 2 inch thin wall steel tube if approved by the Engineer.



TYPE 2 SUPPORT/FOUNDATION

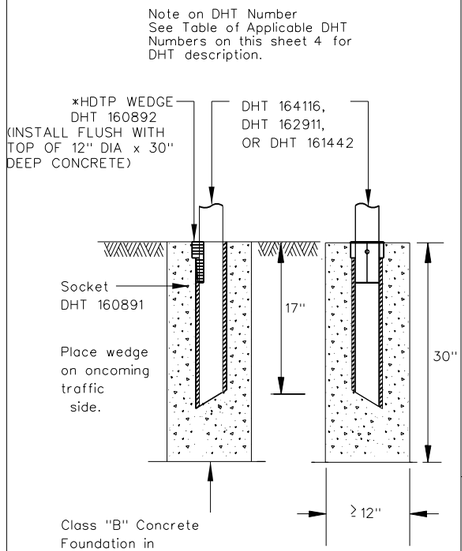
THIN WALL STEEL TUBE w/ WEDGE ANCHOR SYSTEM



DHT No. 4289 to
ASTM A 1011
SS GRADE 50, STEEL.

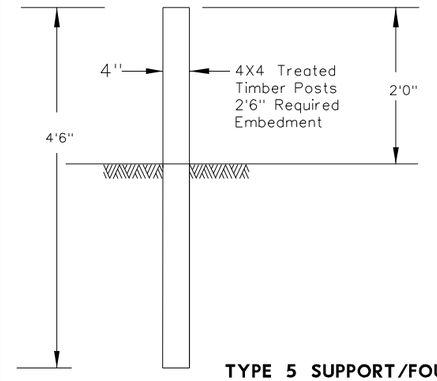
TYPE 3 SUPPORT/FOUNDATION

WINGED CHANNEL POST



TYPE 4 SUPPORT/FOUNDATION

FOR WHITECOATED STEEL POST, MULTIPLE POST,
AND RECYCLED RUBBER.

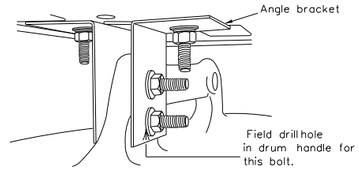


TYPE 5 SUPPORT/FOUNDATION

FOR ONE PIECE MOLDED PLASTIC MAILBOX

ONE PIECE MOLDED PLASTIC MAILBOXES

Molded Plastic Mailboxes shall be installed on 4"x4" treated timber posts only. The use of steel pipe or structural tubing in place of timber post is prohibited.

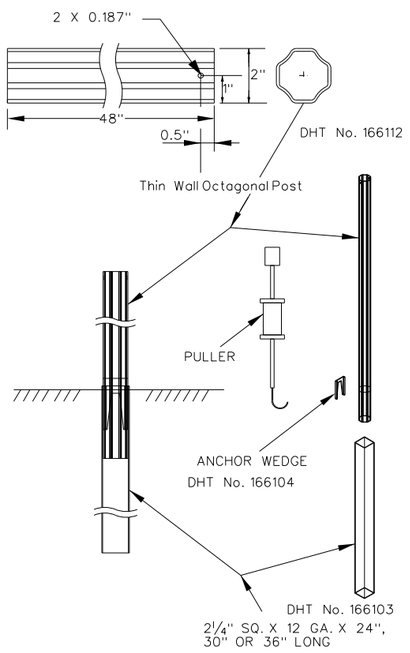


Placed on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).

Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

TYPE 6 TEMPORARY MAILBOX SUPPORT

CONNECTION DETAIL



TYPE 7 MAILBOX SUPPORT/FOUNDATION

CONNECTION DETAIL

MB-(X) ASSM TY (XXX) (X) (XX) (OPTIONAL)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- SP = Single Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post
- Ty 7 = Wedge Anchor

Type of Bracket
- AB = Angle Bracket.
- TB = 2.375" Tube Bracket

GENERAL NOTES
1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. type 1, 2, 3, 4 or 7 supports or foundation can be used for single or double mailbox installations. The RCR post should be used only for a single installation with a small mailbox. The Type 5 support/foundation is used for the single molded plastic mailbox. The Type 4 support/foundation is used for the 2.375" O.D. RR post, thin wall steel post, and white multiple mailbox post.
4. The Type 1 or type 7 support/foundation can be used for a multiple mailbox mount.
5. The Type 4 support should be used with thin wall steel pipe for the medium, large and double mailbox installations.
6. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition.

DOUBLE AND LARGE MAILBOXES MUST BE ON STEEL POST.

*HDTP: High density thermoplastic polyesters

Texas Department of Transportation

Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB-15(1)

FILE: MB14(1).DGN	DN: JEO	CK:	DW: JEO	CK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				139

DATE: May. 22, 2018 @ 11:49:49 AM
FILE: N:\IT\Drawings\CV-TRT-DT-MB15.sht

LOCKABLE ARCHITECTURAL MAILBOX

SINGLE-MOUNT INSTALLATION PARTS			
#	PART NAME	PART/DHT #	QTY
1	SOCKET, TYPE 4 FOUNDATION	160891	1
2	WEDGE FOR TYPE 4 FOUNDATION	160892	1
3	THIN-WALL WHITE STEEL TUBE 2.375 OD	162911	1
4	BRACKET FOR ATTACHING MAILBOX	161443	1
5	ARCHITECTURAL MAILBOX	SEE NOTE	1
6	NUT, 5/16" HEX	NUT, 5/16" HEX	1
7	BOLT, 5/16 X 3 HEX	GRADE 5	1
8	PLATE WASHER FOR ARCHITECTURAL MAILBOX	SEE SEE SHEET 2	2
9	WASHER, 3/8 FLAT		8
10	WASHER, 3/8 LOCK		4
11	NUT, 3/8 HEX		4
12	BOLT, 3/8 X 1-1/4 HEX	GRADE 5	4
13	CONCRETE, CLASS B (2000 PSI)		1

LOCKABLE ARCHITECTURAL MAILBOX DETAILS

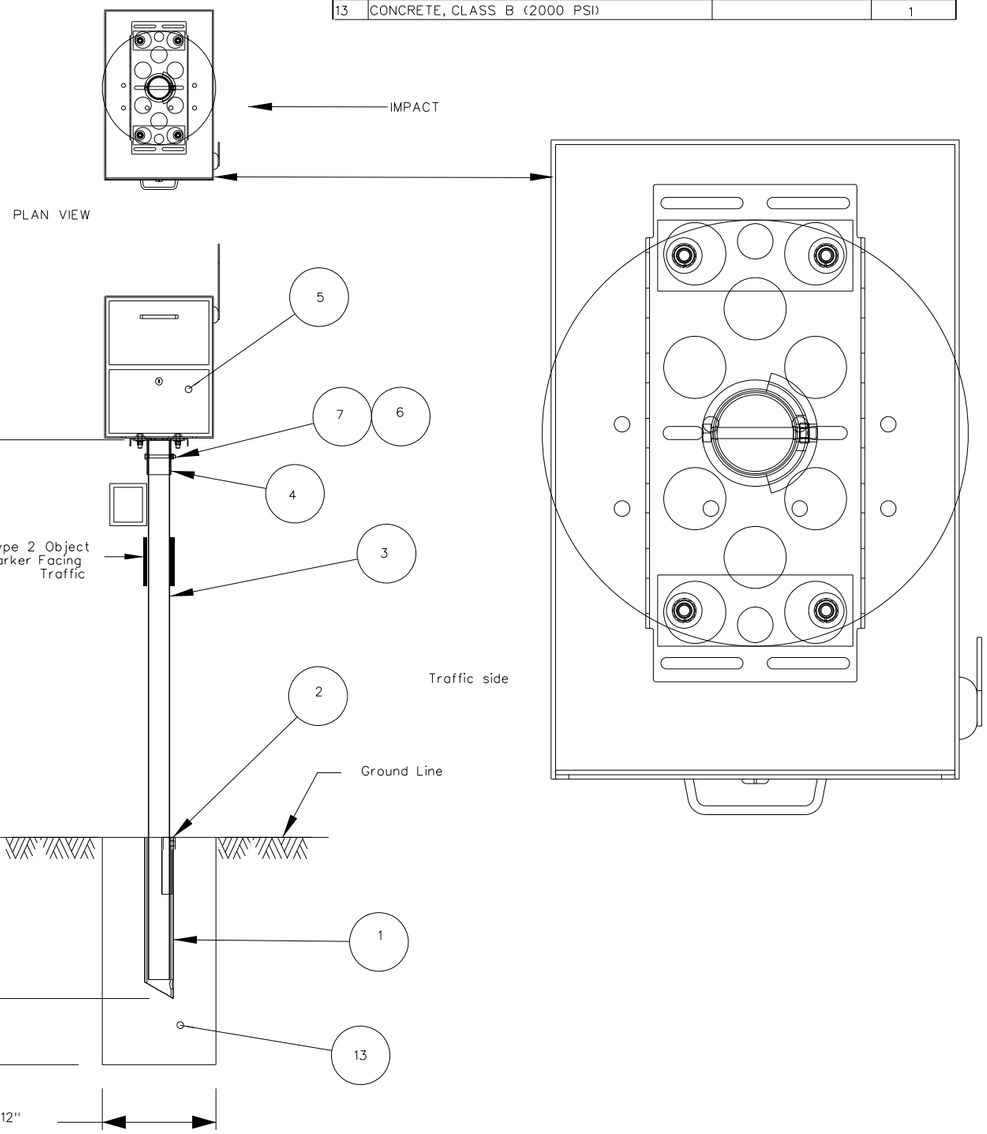


TABLE OF APPLICABLE DHT NUMBERS	
DHT NUMBER	DESCRIPTION
	FOUNDATIONS
46625	WEDGE FOR V-WING SOCKET FOR TYPE 1 FOUNDATION
149340	V-WING SOCKET FOR TYPE 1 FOUNDATION
143433	WEDGE FOR TYPE 2 FOUNDATION
143434	ANCHOR FOR TYPE 2 FOUNDATION
166103	ANCHOR FOR TYPE 7 FOUNDATION
160891	SOCKET FOR TYPE 4 FOUNDATION
160892	WEDGE FOR TYPE 4 FOUNDATION
166104	WEDGE FOR TYPE 7 FOUNDATION
	POSTS
4289	WINGED CHANNEL MAILBOX POST
149339	MULTIPLE MAILBOX POST (GALVANIZED TUBING)
164116	MULTIPLE MAILBOX POST (WHITE COATED)
166114	MULTIPLE MAILBOX POST (WHITE COATED OCTAGONAL)
166153	MULTIPLE MAILBOX POST (GALVANIZED OCTAGONAL)
161442	RECYCLED RUBBER POST. FOR SMALL MAILBOX ONLY
143426	THIN-WALL GALVANIZED STEEL TUBE 2.375" OUTER DIAMETER
162911	THINWALL WHITE STEEL TUBE 2.375" OUTER DIAMETER
166152	SINGLE OR DOUBLE THIN-WALL MAILBOX POST GALVANIZED 2" OCTAGONAL
166112	SINGLE OR DOUBLE THIN-WALL MAILBOX POST WHITECOATED 2" OCTAGONAL
	REFLECTIVE SHEETING
161812	REFLECTIVE SHEETING FOR EMERGENCY LOCATION NUMBER PANEL
	CONNECTING HARDWARE
2917	ANGLE BRACKET USED FOR TEMPORARY MAILBOX SUPPORT
166105	BRACKET FOR SINGLE MOUNTING OF MAILBOXES (MOUNTING KIT)
3789	PLATE FOR DOUBLE MOUNTING OF MAILBOXES
166108	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES (MOUNTING KIT)
166111	BRACKET FOR MULTIPLE MOUNTING OF MAILBOXES (MOUNTING KIT)
148939	BRACKET FOR ATTACHING SMALL OR MEDIUM SIZE MAIL BOX
148938	EXTENDER TO BRACKET FOR ATTACHING LARGE MAILBOX
159489	ANGLE BRACKET PART A
159490	ANGLE BRACKET PART B
162323	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES ON THINWALL STEEL POST, GALVANIZED OR POWDERCOATED.
161443	BRACKET FOR ATTACHING MAILBOX TO RECYCLED RUBBER POST AND TO MULTIPLE WHITE MAILBOX POST
158358	CASTING (NEWSPAPER RECEPTACLE BRACKET)
163731	U-BOLT (NEWSPAPER RECEPTACLE BRACKET)
160698	BOLT:HEX HEAD, GALV:3/8"DIA X 3/4"L HD, W/2-FLAT WASHERS
163750	BOLT:HEX HEAD, GALV:3/8" X 1-1/2, 16 NC, W/WASHERS
160701	BOLT:HEX HEAD, GALV:3/8"DIA X 2-1/2"L, HD, W/2-FLAT WASHERS
163730	BOLT:HEX HEAD, GALV:3/8" X 3-1/2", NC, W/NUT, 2 FLAT WASHERS
160699	BOLT:HEX HEAD, GALV:3/8"DIA X 3-3/4"L HD, W/2-FLAT WASHERS
160700	BOLT:HEX HEAD, GALV:3/8"DIA X 4"L HD, W/2-FLAT WASHERS

DATE: May 22, 2018 @ TIME 8:49 AM
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SHEET 4 OF 4

Texas Department of Transportation

Maintenance Division Standard

DHT NUMBERS TABLE

MB-15(1)

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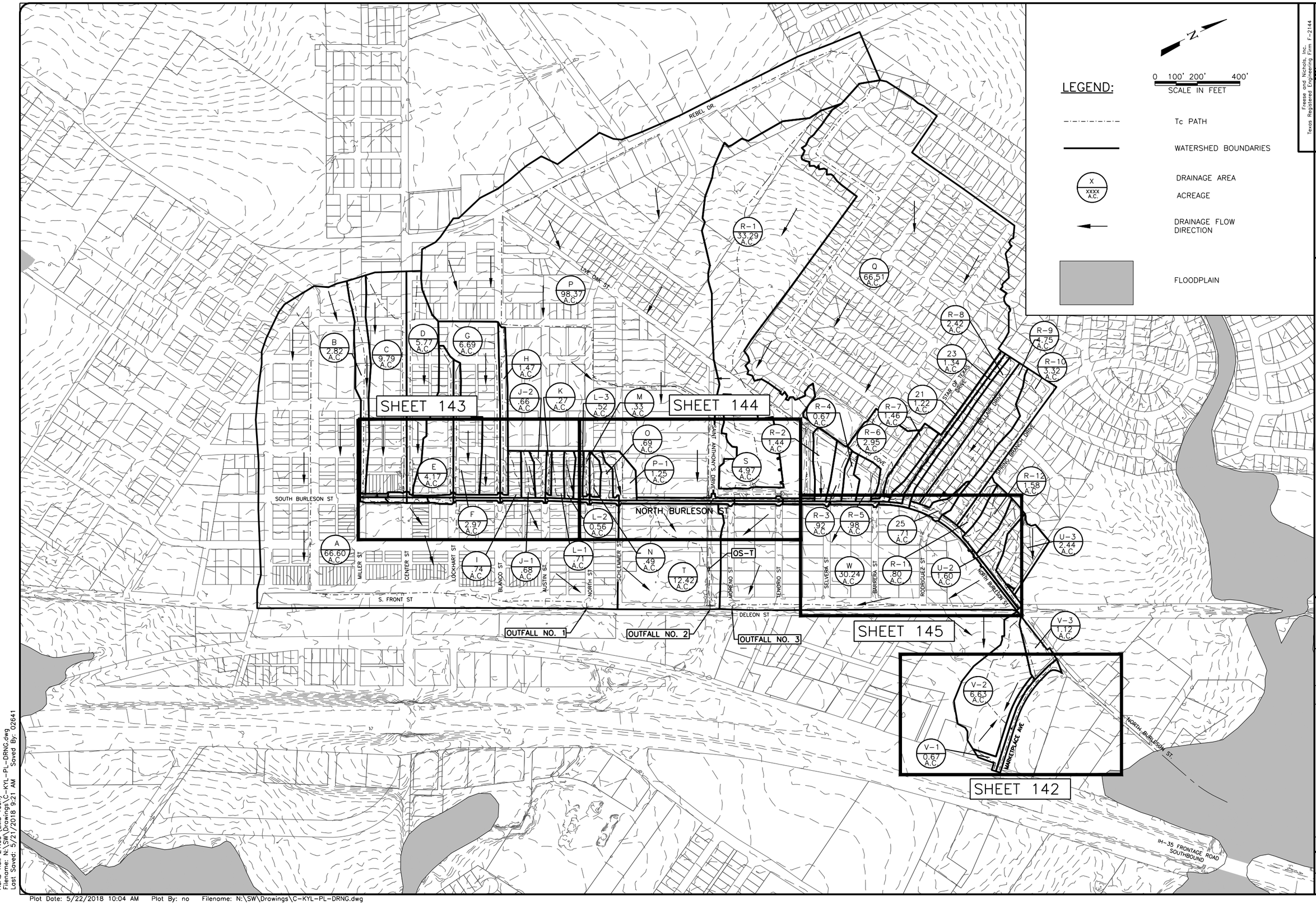

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES W. MURPHY
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

FREESE NICHOLS

10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRAINAGE AREA KEY MAP

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-DRNG.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 141
TOTAL 292

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LEGEND:

- Tc PATH
- WATERSHED BOUNDARIES
- X / XXXX A.C. — DRAINAGE AREA / ACREAGE
- DRAINAGE FLOW DIRECTION
- FLOODPLAIN

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES D. VANDERSLICE
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

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10431 Morado Circle, Suite 300
Austin, Texas 78759
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRAINAGE AREA QUAD I

NO.	REVISION	BY	DATE

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0 1"

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DATE	5/22/2018
DESIGNED	CG
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PL-DRNG.dwg

SHEET 142

TOTAL 292

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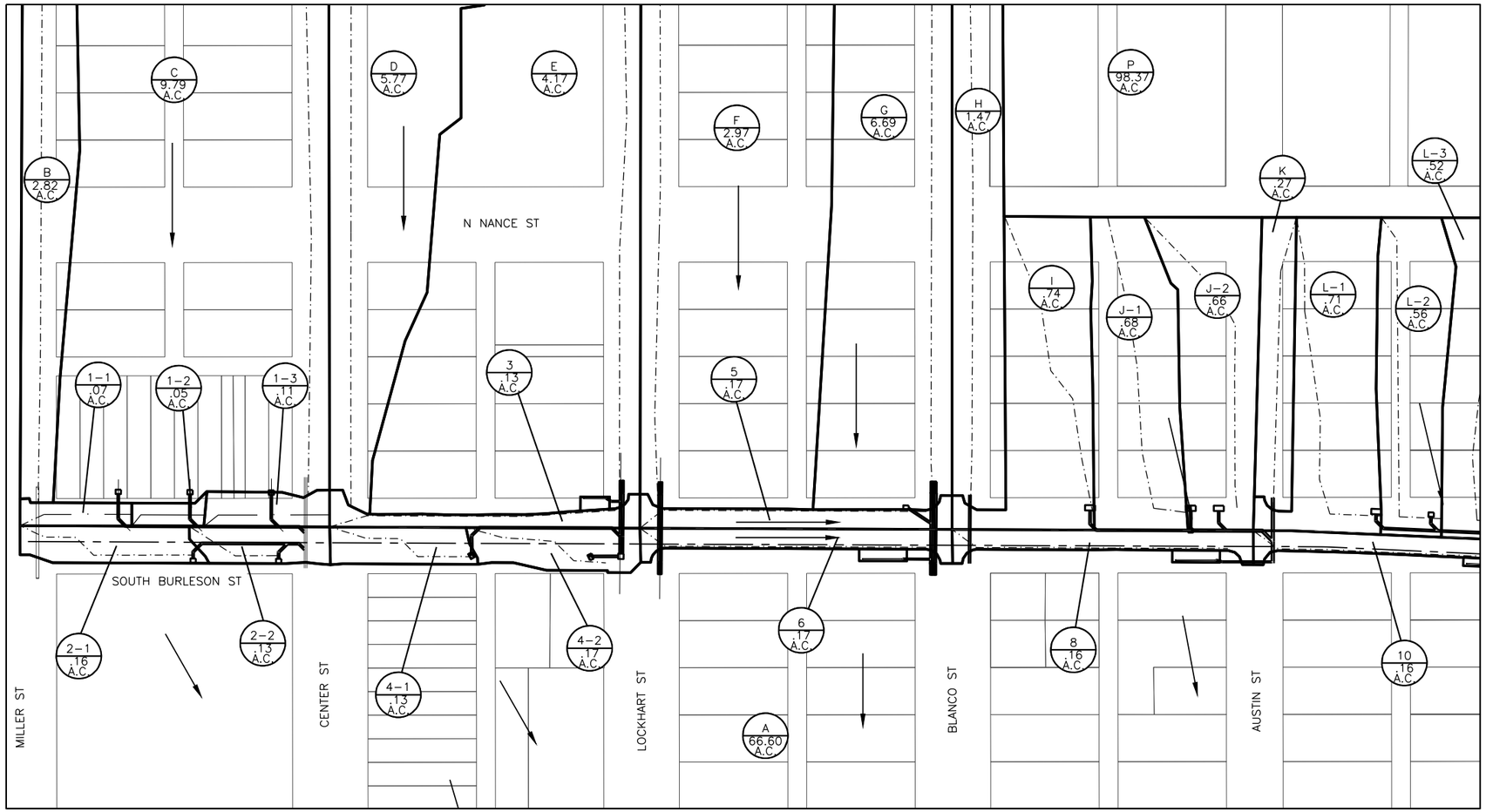

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SCALE IN FEET

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- Tc PATH
- WATERSHED BOUNDARIES
- X / XXXX A.C. — DRAINAGE AREA / ACREAGE
- DRAINAGE FLOW DIRECTION

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
CHRISTOPHER A. GRAHAM
97367
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRAINAGE AREA QUAD II

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-DRNG.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 143
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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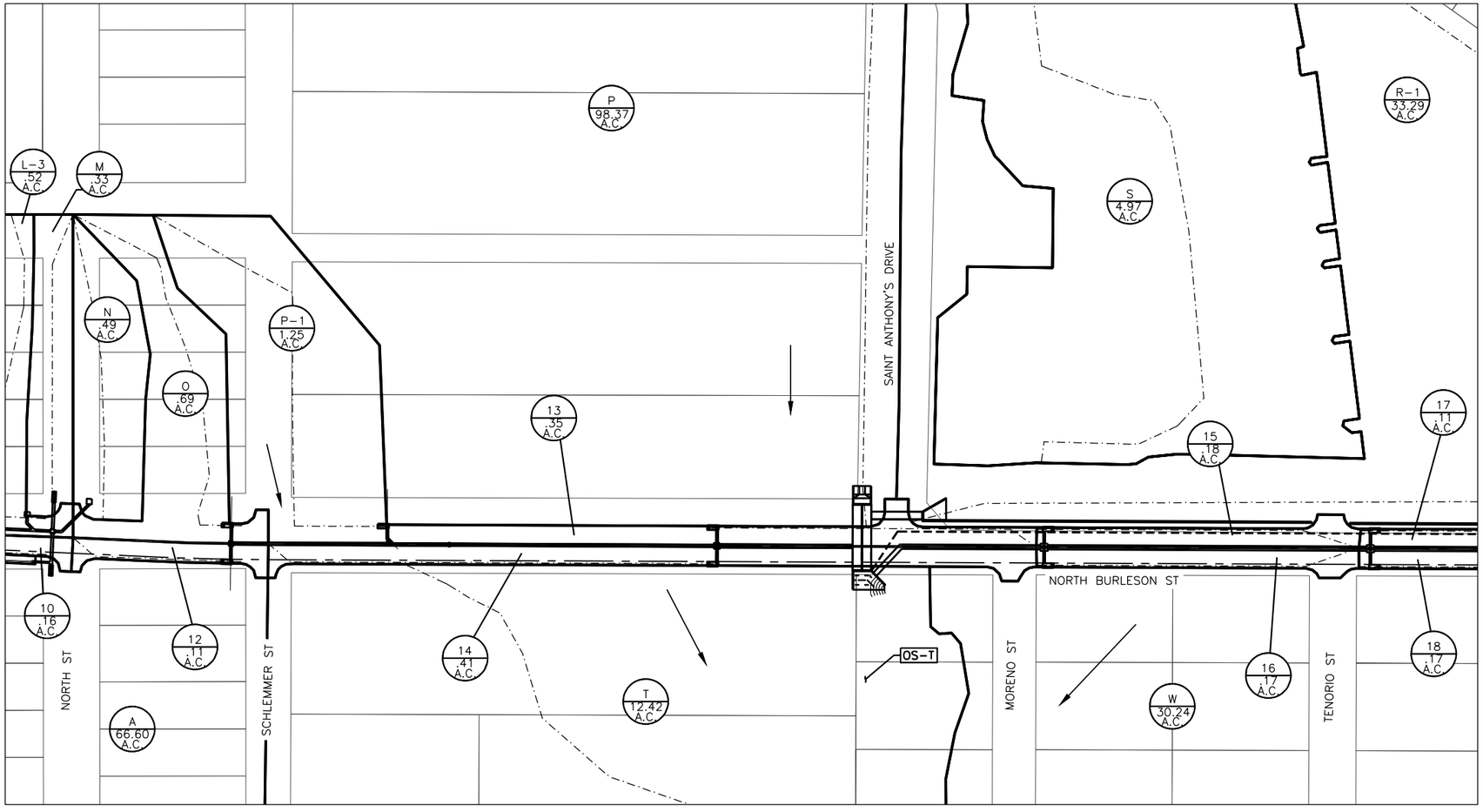
Last Saved: 5/21/2018 9:21 AM Saved By: 02641

Plot Date: 5/22/2018 10:04 AM Plot By: no Filename: N:\SW\Drawings\C-KYL-PL-DRNG.dwg



N

0 100' 200' 400'
SCALE IN FEET

LEGEND:

- Tc PATH
- WATERSHED BOUNDARIES
- X / XXXX A.C. — DRAINAGE AREA / ACREAGE
- DRAINAGE FLOW DIRECTION

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES V. MARTIN
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRAINAGE AREA QUAD III

NO.	REVISION	BY	DATE

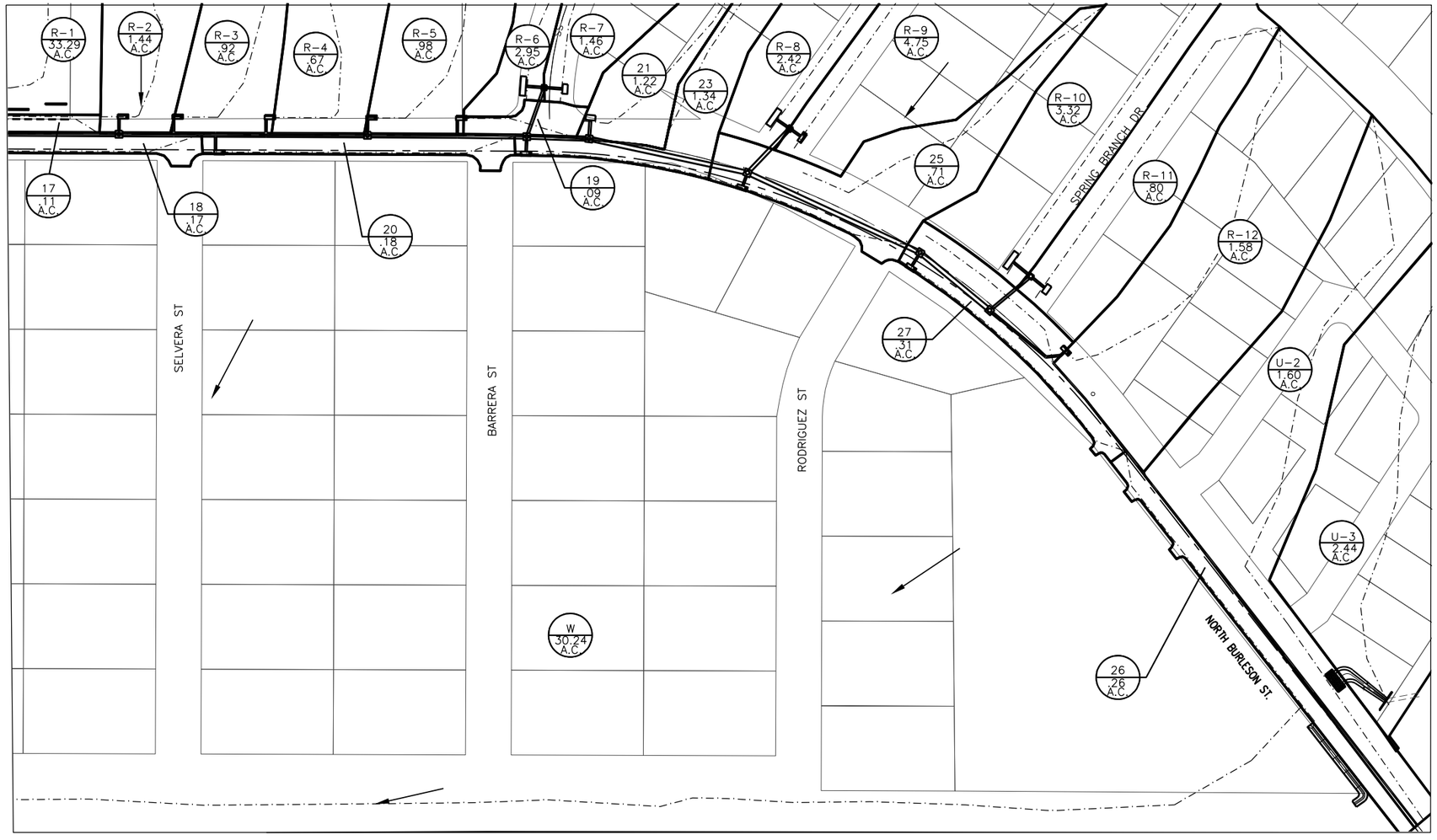
F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-DRNG.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 144
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PL-DRNG.dwg
Last Saved: 5/21/2018 9:21 AM Saved By: 02641

Plot Date: 5/22/2018 10:04 AM Plot By: no Filename: N:\SW\Drawings\C-KYL-PL-DRNG.dwg



N

0 100' 200' 400'

SCALE IN FEET

LEGEND:

- Tc PATH
- WATERSHED BOUNDARIES
- X / XXXX A.C. — DRAINAGE AREA / ACREAGE
- DRAINAGE FLOW DIRECTION

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

DRAINAGE AREA QUAD IV

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-DRNG.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 145
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PL-DRNG.dwg
Last Saved: 5/21/2018 9:21 AM Saved By: 02641

Plot Date: 5/22/2018 10:04 AM Plot By: no Filename: N:\SW\Drawings\C-KYL-PL-DRNG.dwg

CURB INLETS ON GRADE - 5 YEAR GUTTER FLOW

INLET		Peak Discharge							Gutter Analysis																				
ID	LOCATION	D.A. No.	Area (Ac.)	C	Time to Inlet (min)	Intensity (in/hr)	Q (cfs)	CO (cfs)	Q(a) (cfs)	n	S_L (ft/ft)	S_X (ft/ft)	d (ft)	Max Depth (ft)	Depth Check	T (ft)	$T_{allow\ (ft)}$	a (ft)	W (ft)	Aw	Pw	Kw	Ao	Po	Ko	Eo	Se	$L_{R\ (ft)}$	$L_{a\ (ft)}$	E	Qi (cfs)	CO_T (cfs)
CI-V-1	Marketplace Ave	V-1	0.67	0.75	17.5	4.7	2.3	0.0	2.3	0.016	0.005	0.02	0.22	0.5	yes	11.11	10.5	0.55	1.5	0.7	1.6	39.4	0.9	9.6	18.0	0.69	0.3	4.7	10	1.00	2.34	0.00
CI-V-2	Marketplace Ave	31	0.71	0.75	5.0	7.4	3.9	0.0	3.9	0.016	0.005	0.02	0.27	0.5	yes	13.50	10.5	0.55	1.5	0.8	1.6	46.1	1.4	12.0	32.5	0.59	0.2	6.3	10	1.00	3.94	0.00
CI-V-3	Marketplace Ave	V-3	1.12	0.75	10.0	5.9	5.0	0.0	5.0	0.016	0.017	0.02	0.24	0.5	yes	11.88	10.5	0.55	1.5	0.7	1.6	41.5	1.1	10.4	22.1	0.65	0.3	9.3	10	1.00	4.98	0.00
CI-U-21	Burleson	R-12	1.58	0.68	11.1	5.7	6.1	0.0	6.1	0.016	0.006	0.01	0.24	0.5	yes	23.86	9.0	0.55	1.5	0.8	1.6	42.8	2.5	22.4	53.9	0.44	0.2	9.6	10	1.00	6.12	0.00
CI-U-20	Spring Branch	R-11	0.80	0.86	9.2	6.1	4.2	0.0	4.2	0.016	0.070	0.02	0.17	0.5	yes	8.57	12.1	0.55	1.5	0.6	1.6	32.8	0.5	7.1	7.9	0.80	0.3	11.8	10	0.97	4.07	0.14
CI-U-19	Spring Branch	R-10	3.32	0.68	12.8	5.4	12.1	0.0	12.1	0.016	0.081	0.02	0.25	0.5	yes	12.40	12.1	0.55	1.5	0.8	1.6	43.0	1.2	10.9	25.2	0.63	0.3	22.0	20	0.99	11.98	0.17
CI-U-18	Burleson	27	0.31	0.86	5.0	7.4	2.0	0.3	2.3	0.016	0.006	0.02	0.21	0.5	yes	10.68	9.0	0.55	1.5	0.7	1.6	38.3	0.8	9.2	15.9	0.71	0.3	4.8	10	1.00	2.28	0.00
CI-U-17	Burleson	25	0.71	0.68	10.0	5.9	2.9	0.0	2.9	0.016	0.006	0.02	0.23	0.5	yes	11.64	9.0	0.55	1.5	0.7	1.6	40.9	1.0	10.1	20.8	0.66	0.3	5.4	10	1.00	2.87	0.00
CI-U-16	Bellair	R-9	4.75	0.68	17.7	4.6	15.0	0.0	15.0	0.016	0.081	0.02	0.27	0.5	yes	13.41	6.2	0.55	1.5	0.8	1.6	45.9	1.4	11.9	31.9	0.59	0.2	24.9	10	0.60	9.01	5.94
CI-U-15	Bellair	R-8	2.42	0.68	15.7	4.9	8.1	0.0	8.1	0.016	0.081	0.02	0.21	0.5	yes	10.64	6.2	0.55	1.5	0.7	1.6	38.2	0.8	9.1	15.7	0.71	0.3	17.4	20	1.00	8.06	0.00
CI-U-13	Burleson	23	1.34	0.68	18.0	4.6	4.2	0.0	4.2	0.016	0.006	0.02	0.27	0.5	yes	13.41	9.0	0.55	1.5	0.8	1.6	45.9	1.4	11.9	31.9	0.59	0.2	6.8	10	1.00	4.18	0.00
CI-U-14	Burleson	21	1.22	0.68	18.3	4.6	3.8	5.9	9.7	0.016	0.006	0.02	0.37	0.5	yes	18.40	9.0	0.55	1.5	0.9	1.6	61.3	2.9	16.9	81.1	0.43	0.2	11.5	10	0.97	9.48	0.25
CI-U-12	Star of Texas	R-7	1.46	0.68	11.6	5.6	5.6	0.0	5.6	0.016	0.081	0.02	0.19	0.5	yes	9.25	10.0	0.55	1.5	0.7	1.6	34.5	0.6	7.8	10.1	0.77	0.3	14.2	10	0.89	4.94	0.61
CI-U-11	Star of Texas	R-6	2.95	0.68	15.0	5.0	10.0	0.0	10.0	0.016	0.081	0.02	0.23	0.5	yes	11.55	10.0	0.55	1.5	0.7	1.6	40.6	1.0	10.0	20.3	0.67	0.3	19.7	20	1.00	10.04	0.00
CI-U-10	Burleson	19	0.09	0.86	5.0	7.4	0.6	0.9	1.4	0.016	0.006	0.02	0.18	0.5	yes	8.98	9.0	0.31	1.1	0.4	1.2	15.3	0.6	7.9	10.5	0.59	0.2	5.1	10	1.00	1.43	0.00
CI-U-9	Burleson	R-5	0.98	0.68	8.8	6.2	4.2	0.0	4.2	0.016	0.006	0.02	0.27	0.5	yes	13.38	9.0	0.31	1.1	0.5	1.2	23.0	1.5	12.3	34.4	0.40	0.1	9.7	10	1.00	4.16	0.00
CI-U-8	Burleson	R-4	0.67	0.68	9.9	6.0	2.7	0.0	2.7	0.016	0.006	0.02	0.23	0.5	yes	11.42	9.0	0.31	1.1	0.4	1.2	19.4	1.1	10.3	21.6	0.47	0.1	7.5	10	1.00	2.72	0.00
CI-U-7	Burleson	20	0.18	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.006	0.02	0.16	0.5	yes	8.25	9.0	0.55	1.5	0.6	1.6	31.9	0.5	6.7	7.0	0.82	0.3	3.3	10	1.00	1.14	0.00
CI-U-6	Burleson	R-3	0.92	0.68	9.8	6.0	3.8	0.0	3.8	0.016	0.004	0.02	0.29	0.5	yes	14.38	9.0	0.31	1.1	0.5	1.2	24.9	1.8	13.3	42.4	0.37	0.1	8.1	10	1.00	3.75	0.00
CI-U-5	Burleson	R-2	1.44	0.68	8.3	6.4	6.2	0.0	6.2	0.016	0.004	0.02	0.35	0.5	yes	17.39	9.0	0.31	1.1	0.6	1.2	30.9	2.6	16.3	73.2	0.30	0.1	11.2	10	0.98	6.12	0.11
CI-U-4	Burleson	18	0.17	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.02	9.0	0.55	1.5	0.7	1.6	33.9	0.6	7.5	9.3	0.78	0.3	2.8	10	1.00	1.08	0.00
CI-U-3	Burleson	17	0.11	0.86	5.0	7.4	0.7	0.1	0.8	0.016	0.004	0.02	0.16	0.5	yes	8.11	9.0	0.31	1.1	0.3	1.2	14.0	0.5	7.0	7.7	0.65	0.2	3.2	10	1.00	0.81	0.00
CI-U-2	Burleson	16	0.17	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.02	9.0	0.55	1.5	0.7	1.6	33.9	0.6	7.5	9.3	0.78	0.3	2.8	10	1.00	1.08	0.00
CI-U-1	Burleson	15	0.18	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.21	9.0	0.31	1.3	0.4	1.4	18.5	0.6	7.9	10.6	0.64	0.2	4.1	10	1.00	1.14	0.00
CI-P-3	Burleson	P-1	1.25	0.7	11.5	5.6	4.9	0.0	4.9	0.016	0.004	0.02	0.32	0.5	yes	15.91	9.0	0.55	1.1	0.7	1.3	39.2	2.2	14.8	56.7	0.41	0.2	6.4	10	1.00	4.91	0.00
CI-P-4	Burleson	12	0.11	0.86	5.0	7.4	0.7	0.0	0.7	0.016	0.004	0.02	0.15	0.5	yes	7.66	9.0	0.55	1.5	0.6	1.6	30.5	0.4	6.2	5.5	0.85	0.3	2.2	10	1.00	0.70	0.00
CI-P-5	Burleson	O	0.69	0.68	12.2	5.5	2.6	0.0	2.6	0.016	0.004	0.02	0.25	0.5	yes	12.48	9.0	0.55	1.5	0.8	1.6	43.3	1.2	11.0	25.7	0.63	0.2	4.5	10	1.00	2.58	0.00
CI-M-1	Burleson	L-3	0.52	0.68	11.0	5.7	2.0	0.0	2.0	0.016	0.004	0.02	0.23	0.5	yes	11.41	10.8	0.55	1.5	0.7	1.6	40.2	1.0	9.9	19.5	0.67	0.3	3.9	5	1.00	2.02	0.00
CI-M-2	Burleson	L-2	0.56	0.68	5.0	7.4	2.8	0.0	2.8	0.016	0.004	0.02	0.26	0.5	yes	12.91	10.5	0.55	1.5	0.8	1.6	44.5	1.3	11.4	28.4	0.61	0.2	4.7	5	1.00	2.82	0.00
CI-M-3	Burleson	L-1	0.71	0.68	8.6	6.3	3.0	0.0	3.0	0.016	0.004	0.02	0.27	0.5	yes	13.27	10.5	0.55	1.5	0.8	1.6	45.5	1.4	11.8	30.9	0.60	0.2	4.9	10	1.00	3.03	0.00
CI-K-1	Burleson	J-2	0.66	0.68	10.0	5.9	2.7	0.0	2.7	0.016	0.004	0.02	0.25	0.5	yes	12.64	10.7	0.55	1.5	0.8	1.6	43.7	1.2	11.1	26.7	0.62	0.2	4.6	10	1.00	2.66	0.00
CI-K-2	Burleson	J-1	0.68	0.68	9.3	6.1	2.8	0.0	2.8	0.016	0.004	0.02	0.26	0.5	yes	12.92	10.5	0.55	1.5	0.8	1.6	44.5	1.3	11.4	28.5	0.61	0.2	4.7	10	1.00	2.82	0.00
CI-K-3	Burleson	I	0.74	0.68	9.6	6.0	3.0	0.0	3.0	0.016	0.004	0.02	0.27	0.5	yes	13.28	10.5	0.55	1.5	0.8	1.6	45.5	1.4	11.8	30.9	0.60	0.2	5.0	10	1.00	3.03	0.00
CI-G-1	Burleson	5	0.17	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.02	10.6	0.55	1.5	0.7	1.6	33.9	0.6	7.5	9.3	0.78	0.3	2.8	5	1.00	1.08	0.00
CI-E-1	Burleson	4-2	0.17	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.02	17.8	0.55	1.5	0.7	1.6	33.9	0.6	7.5	9.3	0.78	0.3	2.8	5	1.00	1.08	0.00
CI-E-2	Burleson	4-1	0.13	0.86	5.0	7.4	0.8	0.0	0.8	0.016	0.004	0.02	0.16	0.5	yes	8.15	16.7	0.55	1.5	0.6	1.6	31.7	0.4	6.7	6.7	0.82	0.3	2.4	5	1.00	0.83	0.00
CI-C-1	Burleson	2-2	0.13	0.86	5.0	7.4	0.8	0.0	0.8	0.016	0.005	0.02	0.15	0.5	yes	7.63	23.5	0.55	1.5	0.6	1.6	30.4	0.4	6.1	5.4	0.85	0.3	2.6	5	1.00	0.83	0.00
CI-C-2	Burleson	2-1	0.16	0.86	5.0	7.4	1.0	0.0	1.0	0.016	0.005	0.02	0.16	0.5	yes	8.24	23.5	0.55	1.5	0.6	1.6	31.9	0.5	6.7	7.0	0.82	0.3	2.9	5	1.00	1.02	0.00
CI-D-1	Burleson	1-3	0.11	0.86	5.0	7.4	0.7	0.0	0.7	0.016	0.005	0.02	0.14	0.5	yes	7.16	21.5	0.55	1.5	0.6	1.6	29.3	0.3	5.7	4.4	0.87	0.3	2.4	5	1.00	0.70	0.00
CI-D-2	Burleson	1-2	0.05	0.86	5.0	7.4	0.3	0.0	0.3	0.016	0.005	0.02	0.11	0.5	yes	5.33	21.5	0.55	1.5	0.5	1.6	25.0	0.1	3.8	1.5	0.94	0.4	1.7	5	1.00	0.32	0.00
CI-D-3	Burleson	1-1	0.07	0.86	5.0	7.4	0.4	0.0	0.4	0.016	0.005	0.02	0.12	0.5	yes	6.05	21.5	0.55	1.5	0.6	1.6	26.6	0.2	4.5	2.4	0.92	0.4	1.9	5	1.00	0.45	0.00

LEGEND:
Q - Discharge Calculated for D.A.
CO - Carryover from upstream inlet
Q(a) - Actual Discharge = Q+CO
n - Manning's roughness coefficient
S_L - Longitudinal slope of roadway
S_X - Cross-slope or Gutter Slope
d - Gutter depth of flow
T - Top Width of flow
Tallow - Allowable spread
a - Depth of local depression
W - Width of local depression
A_w - Area of depressed gutter section
P_w - Wetted perimeter of depressed gutter section
K_w - Conveyance in gutter section
A_o - Area of road section beyond depressed gutter
P_o - Wetted perimeter of road beyond depressed gutter section
K_o - Conveyance in road beyond gutter section
S'w- Cross slope of gutter
Sw - Cross slope of gutter upstream
E_o - Ratio of depression flow to total flow
S_e - Equivalent cross slope
L_T - Length of curb inlet required for 100% interception
L_{weir} - Length of inlet required in sag location under Weir flow conditions
$L_{orifice}$ - Length of inlet required in sag location under orifice flow conditions
L_a - Actual inlet length
E - Efficiency of inlet
Q_i - Actual inlet interception
CO_t - Carryover flow
Cw - 2.3
Co - .67
g - 32.2
h - Height of inlet opening
d_w - Depth of flow at opening (weir flow)
d_o - Depth of flow at opening (orifice flow)
d_a - Allowable depth of flow at opening
L_t - Total inlet length (all sides)

CURB INLETS IN SAG - 5 YEAR GUTTER FLOW

INLET		Peak Discharge								Gutter Analysis													
ID	LOCATION	D.A. No.	D.A. Area (acres)	C	Time to Inlet (min)	Intensity (in/hr)	Q (cfs)	CO (cfs)	Q(a) (cfs)	n	S_L (ft/ft)	S_X (ft/ft)	a (ft)	W (ft)	S'w	Sw	E_o	Se	d (ft)	Weir Check	T (ft)	$T_{allow\ (ft)}$	$L_{R\ (ft)}$	$L_{a\ (ft)}$	E	Qi (cfs)	CO_T (cfs)
CI-U-23	Burleson	U-2	1.60	0.71	14.7	5.1	5.8	0.0	5.8	0.016	0.01	0.02	0.58	1.50	0.39	0.41	0.4	0.17	0.19	0.7	9.3	9.0	21.3	24.0	1.0	5.76	0.0
CI-P-1	St Anthony's	14	0.41	0.86	5.0	7.4	2.6	0.0	2.6	0.016	0.00	0.02	0.58	1.50	0.39	0.41	0.4	0.16	0.20	0.7	9.8	9.0	7.3	10.0	1.0	2.61	0.0
CI-P-2	St Anthony's	13	0.35	0.86	5.0	7.4	2.2	0.0	2.2	0.016	0.00	0.02	0.58	1.50	0.39	0.41	0.4	0.17	0.18	0.7	8.8	9.0	7.3	10.0	1.0	2.23	0.0

AREA INLET - 5 YEAR GUTTER FLOW

INLET		D.A. No.	D.A. Area (acres)	C	Time to Inlet (min)	Intensity (in/hr)	Q (cfs)	CO (cfs)	Q(a) (cfs)	Lateral Width of Depression	L	Lt	h	dw	do	d	da
ID	LOCATION																
AN-N-1	North St	N	0.49	0.68	6.7	6.8	2.3	0.0	2.3	1.00	4.00	16.00	5.00	0.09	0.21	0.21	1.0

SAW TOOTH CURB - 5 YEAR GUTTER FLOW

INLET		Peak Discharge								Gutter Analysis																			
ID	LOCATION	D.A. No.	Area (Ac.)	C	Time to Inlet (min)	Intensity (in/hr)	Q (cfs)	CO (cfs)	Q(a) (cfs)	n	S_L (ft/ft)	S_X (ft/ft)	d (ft)	Max Depth (ft)	Depth Check	T (ft)	$T_{allow\ (ft)}$	a (ft)	W (ft)	Aw	Pw	Kw	Ao	Po	Ko	Eo	Se	$L_{R\ (ft)}$	SAW TOOTH $L_{a\ (ft)}$	E	Qi (cfs)	CO_T (cfs)
RG-1	Burleson & Lockhart	3	0.13	0.86	5.0	7.4	0.8	0.0	0.8	0.016	0.004	0.02	0.16	0.5	yes	8.15	12.3	0.55	1.5	0.6	1.6	31.7	0.4	6.7	6.7	0.82	0.3	2.4	6	1.0	0.83	0
RG-2	Burleson & Blanco	6	0.17	0.86	5.0	7.4	1.1	0.0	1.1	0.016	0.004	0.02	0.18	0.5	yes	9.02	10.57	0.55	1.5	0.7	1.6	33.9	0.6	7.5	9.3	0.78	0.3	2.8	11	1.0	1.08	0
RG-3	Burleson & Austin	8	0.16	0.86	5.0	7.4	1.0	0.0	1.0	0.016	0.004	0.02	0.18	0.5	yes	8.81	10.5	0.55	1.5	0.7	1.6	33.4	0.5	7.3	8.7	0.79	0.3	2.7	11	1.0	1.02	0
RG-4	Burleson & North	10	0.16	0.86	5.0	7.4	1.0	0.0	1.0	0.016	0.004	0.02	0.18	0.5	yes	8.81	10.75	0.55	1.5	0.7	1.6	33.4	0.5	7.3	8.7	0.79	0.3	2.7	10	1.0	1.02	0
U-24	Burleson	26	0.26	0.86	5.0	7.4	1.7	0.0	1.7	0.016	0.010	0.02	0.17	0.5	yes	8.68	9	0.55	1.5	0.7	1.6	33.0	0.5	7.2	8.3	0.80	0.3	4.5	10	1.0	1.65	0

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STATE OF TEXAS — CHRISTOPHER J. GOBLE — 97367 — LICENSED PROFESSIONAL ENGINEER — 5/22/2018

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN DRAINAGE CALCULATIONS–5 YEAR

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-DT-CALC.dwg

NO. | REVISION | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 146
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-DT-CALC.dwg
Last Saved: 5/18/2018 10:59 AM Saved By: 02641

Plot Date: 5/21/2018 3:02 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-DT-CALC.dwg

OTHER DRAINAGE AREA - RATIONAL METHOD						
ID	Area (ac)	Time of Concentration (min)	AMC II-Overall CN	Runoff Coefficient (25-year)	Intensity-5 year	Q-5 year
A	66.60	23.54	88.59	0.68	3.99	182
B	2.82	16.40	83.70	0.56	4.80	8
C	9.79	18.44	91.57	0.73	4.53	32
D	5.77	16.79	93.75	0.77	4.75	21
E	4.17	15.50	92.38	0.75	4.93	15
F	2.97	9.44	91.01	0.72	6.07	13
G	6.69	14.24	90.42	0.69	5.13	24
H	1.47	11.54	93.49	0.76	5.61	6
K	0.27	5.57	90.03	0.68	7.19	1
M	0.33	3.95	90.70	0.68	7.81	2
T	12.42	13.09	89.12	0.64	5.32	42
W	30.24	18.42	85.93	0.57	4.54	78
P	98.37	38.38	91.03	0.70	3.01	208
S	4.97	10.68	95.56	0.80	5.79	23
Q	66.51	15.57	90.34	0.67	4.92	220
R-1	33.29	23.29	91.76	0.71	4.02	95

St. Anthony's Pond Stage-Storage-Discharge		
Cumulative Volume (acre-ft)	Elevation (ft-msl)	Discharge (cfs)
0	708	0
0.3	709	14
1.02	710	40
1.93	711	74
2.98	712	114
4.14	713	159
5.39	714	208
6.74	715	257
8.2	716	287
9.78	717	325

ST. Anthony's Pond Performance				
Frequency Event	2	10	25	100
Peak WSE (FT)	711.44	712.93	713.97	716.07
Peak Inflow (CFS)	118.5	200.5	247.1	397.8
Peak Outflow (CFS)	90.8	155.5	207.4	312.6
Peak Storage (AC-FT)	2.4	4.1	5.4	8.3

HMS - Discharge Summary												
	2yr			10yr			25yr			100yr		
Discharge point	Proposed	Existing	Δ	Proposed	Existing	Δ	Proposed	Existing	Δ	Proposed	Existing	Δ
Outfall No. 1	190.5	190.5	0	379.1	379.1	0	491.7	491.7	0	679.7	679.7	0
Outfall No. 2	281	287.9	-6.9	458.8	448.8	10	563.1	558.4	4.7	881.4	938.2	-56.8
Outfall No. 3	50.9	71	-20.1	108.4	168	-59.6	172.4	225.3	-52.9	274.3	321.7	-47.4
O-S to T	270.2	275.6	-5.4	451.4	440.8	10.6	554.5	549.3	5.2	857.1	907.4	-50.3

STORMCAD RESULTS FOR 5-YR EVENT

Label	Start Node	Stop Node	Conduit Description	Length (ft)	U/S Invert (ft)	D/S Invert (ft)	Slope (%)	U/S Elevation Ground (ft)	D/S Elevation Ground (ft)	Capacity (Full Flow) (cfs)	5-YR Flow (cfs)	5-YR Velocity Avg (ft/s)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CO-102	Headwall #3	JB-V-3	Box - 4 x 2 ft	34	703	701.8	3.57	706.05	706.08	131.9	27.24	12.35	704.13	703.99
CO-252	JB-V-3	Line V	Box - 4 x 2 ft	297	701.8	701.15	0.22	706.08	704	32.62	31.78	3.97	703.81	703.2
CO-254	Line V	Outfall	Box - 4 x 2 ft	35	701.1	701.01	0.26	714	704.38	35.5	32.64	5.3	702.54	702.28
CO-256	Culvert V	T-75	Box - 4 x 2 ft	34	701.34	701.24	0.29	704.38	704.38	37.31	2.18	2.22	701.71	701.7
CO-259	T-75	Outfall	Box - 4 x 2 ft	82	701.24	701.01	0.29	704.38	704.38	37.29	4.34	2.85	701.62	701.34
CO-332	Line V	T-45	Box - 4 x 2 ft	21	701.15	701.13	0.11	704	708.91	23.62	30.06	3.76	703.05	703.02
CO-333	T-45	Line V	Box - 4 x 2 ft	8	701.13	701.1	0.31	708.91	714	38.88	29.93	5.52	702.85	702.84
CO-67	MH-81	JB-U-8	Box - 4 x 3 ft	99	711.85	711.59	0.26	722.52	722	63.39	22.44	1.87	719.73	719.7
CO-63	JB-U-3	T-72	Box - 4 x 3 ft	76	710.16	709.93	0.3	719.12	718.65	68.15	67.1	5.59	718.34	718.12
CO-63	T-72	T-71	Box - 4 x 3 ft	98	709.93	709.63	0.3	718.65	718.03	68.35	67.1	5.59	717.82	717.53
CO-63	T-71	T-70	Box - 4 x 3 ft	112	709.63	709.28	0.31	718.03	717.33	69.16	69.71	5.81	717.22	716.86
CO-63	T-70	T-69	Box - 4 x 3 ft	55	709.28	709.1	0.33	717.33	716.99	71.05	71.27	5.94	716.54	716.35
CO-63	T-69	T-68	Box - 4 x 3 ft	46	709.1	708.96	0.3	716.99	716.74	68.28	71.71	5.98	716.02	715.87
CO-63	T-68	T-35	Box - 4 x 3 ft	60	708.96	708.77	0.32	716.74	716.52	69.6	74.33	6.19	715.51	715.29
CO-64	JB-U-5	JB-U-3	Box - 4 x 3 ft	68	710.38	710.16	0.32	719.56	719.12	70.15	49.18	4.1	718.93	718.82
CO-66	JB-U-8	JB-U-6	Box - 4 x 3 ft	210	711.59	710.94	0.31	722	720.64	68.92	23.04	1.92	719.66	719.59
CO-65	JB-U-6	JB-U-5	Box - 4 x 3 ft	177	710.94	710.38	0.32	720.64	719.56	69.68	46.09	3.84	719.36	719.11
CO-225	T-65	T-64	Box - 4 x 3 ft	153	706.94	706.14	0.52	714.49	713.96	89.56	78.05	6.5	711.24	710.64
CO-229	T-64	Outfall	Box - 4 x 3 ft	41	706.14	705.95	0.47	713.96	713.95	84.51	77.29	6.44	710.25	710.09
CO-308	T-34	T-65	Box - 4 x 3 ft	346	708.03	706.94	0.31	715.71	714.49	69.43	78.43	6.54	713.29	711.9
CO-311	T-35	T-34	Box - 4 x 3 ft	233	708.77	708.03	0.32	716.52	715.71	69.71	78.48	6.54	714.89	713.96
CO-62	Culvert P-1	T-29	Box - 8 x 6 ft	28	706.2	706	0.71	713.95	713.81	1,324.26	315.04	11.07	710.31	710.33
CO-62	T-29	Outfall	Box - 8 x 6 ft	30	706	705.95	0.17	713.81	713.95	644.64	321.46	6.71	710.1	710.09
CO-262	RG-3	Culvert E-1	Circle - 12.0 in	12	720.5	719.92	4.73	723	722.91	10.08	0.86	1.09	722.26	722.26
CO-265	RG-6	Culvert G-1	Circle - 12.0 in	20	720.5	719.57	4.72	722	722.02	10.06	1.09	8.38	721.11	721.14
CO-268	RG-8	Culvert K-1	Circle - 12.0 in	50	718.5	717.95	1.1	721	720.99	4.87	1.05	4.94	719.5	719.47
CO-271	RG-10	Culvert M-1	Circle - 12.0 in	17	716.5	716.22	1.7	719.7	719.25	6.04	1.02	1.29	717.76	717.75
CO-1	Culvert B	Outfall	Circle - 18.0 in	109	727.17	723.91	2.99	729.5	726.5	9.84	7.78	6.18	728.25	724.92
CO-11	Culvert F-1	Outfall	Circle - 18.0 in	72	720.21	720	0.29	723	722	11.35	13.68	3.87	721.51	721.01
CO-13	Culvert H-1	Outfall	Circle - 18.0 in	72	720.5	719.6	1.24	722	722	11.71	6.6	6.82	721.49	720.41
CO-15	T-54	JB-K-1	Circle - 18.0 in	100	718.63	718.34	0.29	721.61	721.26	5.65	3.19	3.3	720.05	719.96
CO-16	CI-K-2	JB-K-1	Circle - 18.0 in	21	718.85	718.34	2.48	721.06	721.26	16.55	2.97	7.09	719.95	719.96
CO-31	T-57	T-58	Circle - 18.0 in	58	717.34	717.16	0.31	720.43	720.23	5.84	3.17	3.37	718.75	718.7
CO-33	T-58	T-59	Circle - 18.0 in	76	717.16	716.93	0.3	720.23	719.96	5.79	5.61	3.73	718.6	718.41
CO-35	T-59	JB-M-1	Circle - 18.0 in	20	716.93	716.87	0.3	719.96	719.9	5.73	7.31	4.14	718.22	718.1
CO-59	CI-P-2	JB-P-1	Circle - 18.0 in	17	709.1	708.6	2.99	713.03	713.29	18.17	2.24	6.98	710.42	710.41
CO-60	CI-P-1	JB-P-1	Circle - 18.0 in	17	709.1	708.6	2.91	712.96	713.29	17.91	2.64	7.25	710.42	710.41
CO-44	CI-P-5	JB-P-2	Circle - 18.0 in	17	715.28	714.35	5.43	719.01	719.34	24.47	2.7	9.11	715.9	714.72
CO-6	Existing	T-51	Circle - 18.0 in	72	722.33	718.17	5.82	726	725.84	25.33	21.72	12.29	727.14	724.08
CO-104	JB-V-5	JB-V-4	Circle - 18.0 in	175	702.55	702.19	0.21	708	707.01	4.77	5.25	2.97	704.95	704.51
CO-100	JB-V-4	JB-V-3	Circle - 18.0 in	200	702.19	701.8	0.19	707.01	706.08	4.64	5.05	2.86	704.45	703.99
CO-106	CI-V-3	JB-V-5	Circle - 18.0 in	21	704	703.05	4.54	707.96	708	22.38	5.26	10.35	704.91	705.06
CO-91	CI-U-18	JB-U-8	Circle - 18.0 in	17	715.6	713.09	14.57	721.99	722	40.1	1.99	1.12	719.71	719.7
CO-82	CI-U-13	JB-U-3	Circle - 18.0 in	16	714.55	711.66	17.94	719.01	719.12	44.49	4.33	2.45	718.85	718.82
CO-72	CI-U-3	T-34	Circle - 18.0 in	17	711.28	709.53	10.3	715	715.71	33.72	0.7	0.4	713.96	713.96
CO-70	CI-U-1	T-65	Circle - 18.0 in	17	709.58	708.44	6.78	713.72	714.49	27.35	1.15	0.65	711.9	711.9
CO-38	AN-N-1	T-60	Circle - 18.0 in	37	717.47	717.08	1.08	720	719.83	10.89	2.34	4.91	718.05	718.13
CO-39	T-60	JB-M-1	Circle - 18.0 in	17	717.08	716.87	1.23	719.83	719.9	11.66	2.33	5.15	718.1	718.1
CO-177	CI-P-4	JB-P-2	Circle - 18.0 in	17	715.28	714.35	5.59	719.46	719.34	24.84	0.7	6.18	715.59	714.68
CO-89	CI-U-17	JB-U-6	Circle - 18.0 in	15	715.57	711.66	25.67	720.73	720.64	53.22	3.02	1.71	719.6	719.59
CO-185	CI-C-2	T-48	Circle - 18.0 in	21	721.11	720.93	0.85	726.04	726.57	9.69	1.05	3.59	721.49	721.39
CO-186	T-48	T-49	Circle - 18.0 in	84	720.93	720.12	0.96	726.57	726.12	10.31	1.04	3.74	721.31	721.34
CO-216	CI-U-20	JB-U-9	Circle - 18.0 in	19	720.61	720.16	2.39	724.37	722.38	16.24	4.44	7.83	721.68	721.72
CO-217	CI-U-19	JB-U-9	Circle - 18.0 in	25	720.4	720.16	0.97	724.59	722.38	10.33	12.66	7.17	722.08	721.72
CO-219	CI-U-16	JB-U-7	Circle - 18.0 in	14	719.1	718.8	2.09	723.07	721.73	15.17	15.46	8.75	720.82	720.51
CO-220	CI-U-15	JB-U-7	Circle - 18.0 in	18	719.1	718.8	1.62	723.1	721.73	13.38	8.23	4.66	720.62	720.51
CO-222	CI-U-12	JB-U-4	Circle - 18.0 in	20	718.3	718.02	1.39	722.44	721.92	12.37	5.84	3.31	720.05	719.99
CO-223	CI-U-11	JB-U-4	Circle - 18.0 in	20	718.3	718.02	1.42	721.92	721.92	12.53	10.19	5.77	720.17	719.99
CO-233	T-53	Existing SD	Circle - 18.0 in	22	719.63	719.12	2.32	723.22	722	31.98	16.83	4.76	721.65	721.51
CO-235	CI-E-1	Existing SD	Circle - 18.0 in	30	719.2	719.12	0.26	722.71	722	5.4	1.09	0.62	721.51	721.51
CO-236	CI-D-03	Line D	Circle - 18.0 in	25	722.37	721.08	5.1	727.76	726.67	23.71	0.43	5.18	722.83	722.84
CO-239	Line D	Line D	Circle - 18.0 in	86	719.95	719.3	0.75	726.41	725.98	9.12	0.58	0.33	722.83	722.83
CO-249	Culvert G-1	Culvert G-1	Circle - 18.0 in	33	719.8	719.75	0.15	722.25	722.09	12.23	24.28	4.58	721.78	721.58
CO-251	CI-G-1	Culvert G-1	Circle - 18.0 in	29	720.35	719.75	2.09	723.55	722.09	15.17	1.08	4.97	721.58	721.58
CO-255	CI-V-2	Line V	Circle - 18.0 in	8	701.85	701.1	9.42	704.06	714	32.24	3.97	12.38	702.71	702.84
CO-258	CI-V-1	T-75	Circle - 18.0 in	12	701.84	701.24	4.95	704.05	704.38	23.37	2.41	8.53	702.43	701.61
CO-260	Culvert E-1	Culvert E-1	Circle - 18.0 in	12	719.97	719.92	0.44	723	722.91	13.92	15.73	4.45	722.33	722.26
CO-261	Culvert E-1	T-53	Circle - 18.0 in	34	719.92	719.63	0.85	722.91	723.22	19.37	16.3	4.61	722.06	721.86
CO-263	Culvert G-1	Culvert G-1	Circle - 18.0 in	38	719.75	719.57	0.48	722.09	722.02	21.79	24.91	4.7	721.38	721.14
CO-264	Culvert G-1	Outfall	Circle - 18.0 in	6	719.57	719.55	0.32	722.02	722	17.88	25.52	4.81	720.9	720.84
CO-272	Line D	Line D	Circle - 18.0 in	11	721.08	720.5	5.1	726.67	726.79	23.72	0.43	0.24	722.84	722.84
CO-273	Line D	Line D	Circle - 18.0 in	75	720.5	719.95	0.73	726.79	726.41	8.98	0.42	0.24	722.84	722.84
CO-274	T-15	Line D	Circle - 18.0 in	11	720.5	719.95	5.12	726.3	726.41	23.77	0.29	0.16	722.84	722.84
CO-275	CI-D-02	T-15	Circle - 18.0 in	24	721.73	720.5	5.12	727	726.3	23.77	0.29	4.58	722.84	722.84
CO-276	T-16	Line D	Circle - 18.0 in	10	719.84	719.3	5.13	725.87	725.98	23.79	0.68	0.39	722.83	722.83
CO-277	CI-D-01	T-16	Circle - 18.0 in	26	721.17	719.84	5.13	725.97	725.87	23.79	0.7	0.4	722.83	722.83
CO-278	CI-C-1	T-17	Circle - 18.0 in	6	721.66	721.18	8.39	725.61	725.92	30.42	0.81	7.42	721.99	721.58
CO-279	T-17	T-49	Circle - 18.0 in	13	721.18	720.12	8.39	725.92	726.12	30.42	0.81	7.42	721.51	721.34
CO-282	Line D	T-19	Circle - 18.0 in	22	719.3	718.79	2.28	725.98	725.87	15.85	0.96	0.54	722.83	722.83
CO-284	T-19	T-18	Circle - 18.0 in	9	718.79	718.58	2.28	725.87	725.94	15.86	0.95	0.54	722.82	722.82
CO-285	CI-E-2	T-20	Circle - 18.0 in	19	720.45	720.43	0.13	723.44	723.77	3.72	0.86	1.71	721.88	721.88
CO-286	T-20	T-52	Circle - 18.0 in	12	720.43	720.41	0.13	723.77	723.89	3.84	0.86	1.75	721.87	721.87
CO-287	T-52	T-21	Circle - 18.0 in	140	720.41	719.69	0.51	723.89	723.41	7.54	0.85	2.83	721.87	721.86
CO-288	T-21	T-53	Circle - 18.0 in	12	719.69	719.63	0.51	723.41	723.22	7.53	0.83	0.47	721.86	721.86
CO-289	CI-K-3	T-22	Circle - 18.0 in	14	719.25	718.87	2.66	722.22	721.51	17.14	3.2	7.43	720	720.12
CO-290	T-22	T-54	Circle - 18.0 in	9	718.87	718.63	2.7	721.51	721.61	17.24	3.2	7.46	720.08	720.08
CO-291	CI-K-1	T-23	Circle - 18.0 in	12	719	718.82	1.46	721.21	720.99	12.68	2.81	5.77	719.91	719.93
CO-292	T-23	T-55	Circle - 18.0 in	11	718.82	718.66	1.46	720.99	721.12	12.69	2.8	5.77	719.89	719.9
CO-296	CI-M-3	T-25	Circle - 18.0 in	7	717.4	717.38	0.34	720.91	720.31	6.13	3.18	3.5	718.82	718.82
CO-297	T-25	T-57	Circle - 18.0 in	11	717.38	717.34	0.34	720.31	720.43	6.11	3.18	3.49	718.79	718.78
CO-298	CI-M-2	T-26	Circle - 18.0 in	7	717.2	717.18	0.23	719.94	720.11	5.01	2.84	1.61	718.74	718.73
CO-299	T-26	T-58	Circle - 18.0 in	11	717.18	717.16	0.23	720.11	720.23	4.99	2.83	1.6	718.71	718.7
CO-300	CI-M-1	T-27	Circle - 18.0 in	7	716.98	716.96	0.29	720.02	719.84	5.62	2.13	2.96	718.43	718.43
CO-301	T-27	T-59	Circle - 18.0 in	10	716.96	716.93	0.29	719.84	719.96	5.61	2.13	2.96	718.42	718.41
CO-302	CI-P-3	T-28	Circle - 18.0 in	11	716.16	714.34	17.22	718.99	718.64	43.59	5.15	16.55	717.03	715.43
CO-303	T-28	T-61	Circle - 18.0 in	9	714.34	712.83	17.22	718.64	718.74	43.59	5.15	16.55	715.21	713.29
CO-306	CI-U-2	T-65	Circle - 18.0 in	17	709.58	708.44	6.6	713.75	714.49	26.98	1.09	0.62	711.9	711.9
CO-313	CI-U-4	T-34	Circle - 18.0 in	17	711.28	709.53	10.32	715	715.71	33.74	1.09	0.62	713.96	713.96
CO-316	CI-U-5	T-35	Circle - 18.0 in	17	712.48	710.27	13.36	716.67	716.52	38.4	6.53	3.7	715.36	715.29
CO-318	CI-U-6	T-68	Circle - 18.0 in	17	712.51	710.45	12.01	717.01	716.74	36.4	3.96	2.24	715.89	715.87
CO-320	CI-U-7	T-69	Circle - 18.0 in	17	713	710.61	14.36	716.91	716.99	39.8	1.15	0.65	716.36	716.35
CO-322	CI-U-8	T-70	Circle - 18.0 in	18	713.28	710.77	14.17	717	717.33	39.54	2.87	1.62	716.88	716.86
CO-324	CI-U-9	T-71	Circle - 18.0 in	17	713.98	711.12	16.96	718.04	718.03	43.26	4.37	2.47	717.56	717.53
CO-326	CI-U-10	T-72	Circle - 18.0 in	17	714.6	711.43	18.6	718.95	718.65	45.3	0.58	0.33	718.12	718.12
CO-334	T-49	T-46	Circle - 18.0 in	14	720.12	719.06	7.85	726.12	726.11	29.42	1.83	9.26	721.33	721.33
CO-335	T-46	T-50	Circle - 18.0 in	9	719.06	718.37	7.85	726.11	726.11	29.43	1.83	1.03	721.32	721.32
CO-341	T-79	MH-81	Circle - 18.0 in	82	712.17	711.85	0.39	723.14	722.52	6.56	6.42	3.63	720.1	719.79
CO-342	CI-U-21	T-80	Circle - 18.0 in	9	718.27	715.4	30.39	723.02	723.12	57.91	6.45	3.65	720.42	720.38
CO-343	T-80	T-79	Circle - 18.0 in	11	715.4	712.17	30.39	723.12	723.14	57.9	6.43	3.64	720.26	720.22
CO-17	JB-K-1	T-55	Circle - 24.0 in	37	718.34	718.18	0.43	721.26	721.12	14.83	6.01	4.47	719.92	719.9
CO-46	JB-P-2	T-61	Circle - 24.0 in	172	713.85	712.33	0.88	719.34	718.74	21.25	3.24	4.89	714.48	713.58
CO-83	CI-U-14	JB-U-5	Circle - 24.0 in	20	715.23	711.38	19.04	719.48	719.56	98.72	3.92	1.25	719.12	719.11
CO-36	Culvert M-1	JB-M-1	Circle - 24.0 in	34	718.86	716.38	7.36	720.6	719.9	61.39	1.67	8.49	719.31	718.1
CO-178	T-61	JB-P-1	Circle - 24.0 in	343	712.33	708.1	1.23	718.74	713.29	25.11	8.05	7.11	713.34	710.41
CO-224	JB-U-4	JB-U-3	Circle - 24.0 in	57	718	711.16	11.99	721.92	719.12	78.32	15.21	19.3	719.41	718.82
CO-266	Culvert K-1	T-56	Circle - 24.0 in	47	719	718	2.12	721	720.73	32.97	1.34	5.14	719.62	719.65
CO-267	T-56	Culvert K-1	Circle - 24.0 in	20	718	717.95	0.28	720.73	720.99	11.96	9.82	4.25	719.51	719.47
CO-269	JB-M-1	Culvert M-1	Circle - 24.0 in	32	716.37	716.22	0.47	719.9	719.25	15.43	10.63	5.29	717.8	717.75
CO-270	Culvert M-1	Outfall	Circle - 24.0 in	4	716.22	716.2	0.47	719.25	719	15.5	11.4	5.39	717.47	717.41
CO-293	T-55	T-24	Circle - 24.0 in	39	718.18	718.05	0.33	721.12	721	12.96	8.76	4.43	719.81	719.76
CO-294	T-24	T-56	Circle - 24.0 in	16	718.05	718	0.33	721	720.73	12.9	8.71	4.41	719.67	719.65
CO-295	Culvert K-1	Outfall	Circle - 24.0 in	16	717.95	717.9	0.28	720.99	721	11.87	10.65	4.27	719.25	719.07
CO-328	JB-U-9	MH-81	Circle - 24.0 in	58	719.63	712.8	11.7	722.38	722.52	77.38	16.48	19.58	721.09	719.79
CO-5	T-50	Outfall	Circle - 30.0 in	26	717.54	716.6	3.64	726.11	725	78.25	56.39	11.49	720.09	719.6
CO-5	Culvert C	T-51	Circle - 30.0 in	62	718.7	718.17	0.86	724.93	725.84	37.97	33.64	6.85	724.5	724.08
CO-280	T-51	T-18	Circle - 30.0 in	6	718.17	718	2.62	725.84	725.94	66.43	54.37	11.08	722.94	722.82
CO-281	T-18	T-50	Circle - 30.0 in	18	718	717.54	2.58	725.94	726.11	65.84	55.25	11.26	721.64	721.32
CO-221	JB-U-7	JB-U-6	Circle - 36.0 in	67	718.4	710.94	11.05	721.73	720.64	221.73	23.33	20.36	719.96	719.59
CO-304	JB-P-1	T-29	Circle - 36.0 in	152	707.1	706.71	0.26	713.29	713.81	33.79	11.32	1.6	710.37	710.33

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
JOSEPH V. DIVIS
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN DRAINAGE CALCULATIONS-5 YEAR

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-DT-CALC.dwg

NO. REVISION BY DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0" 1"

SHEET 147
TOTAL 292

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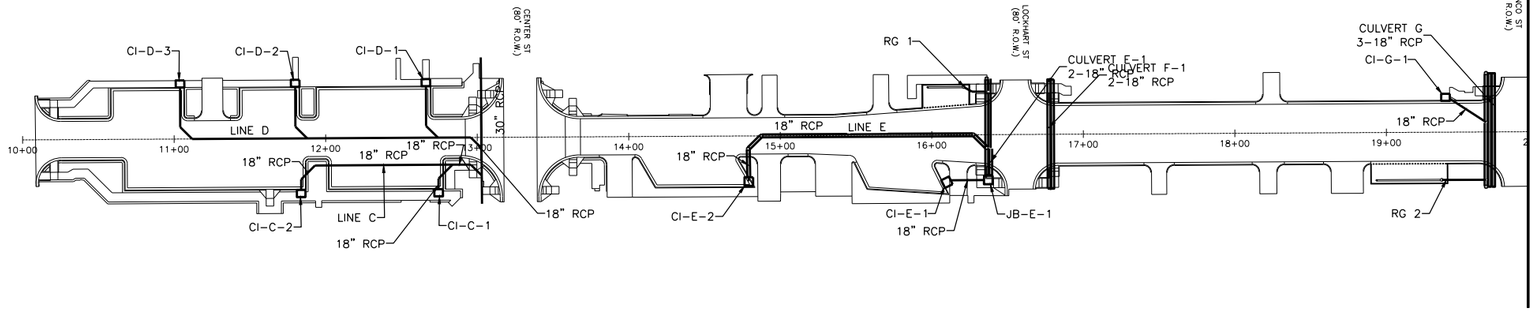
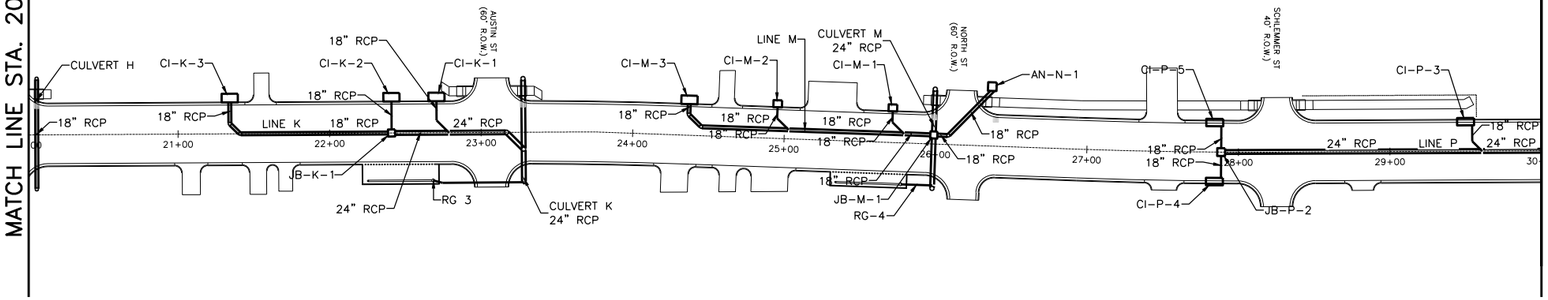


MATCH LINE STA. 20+00

MATCH LINE STA. 20+00

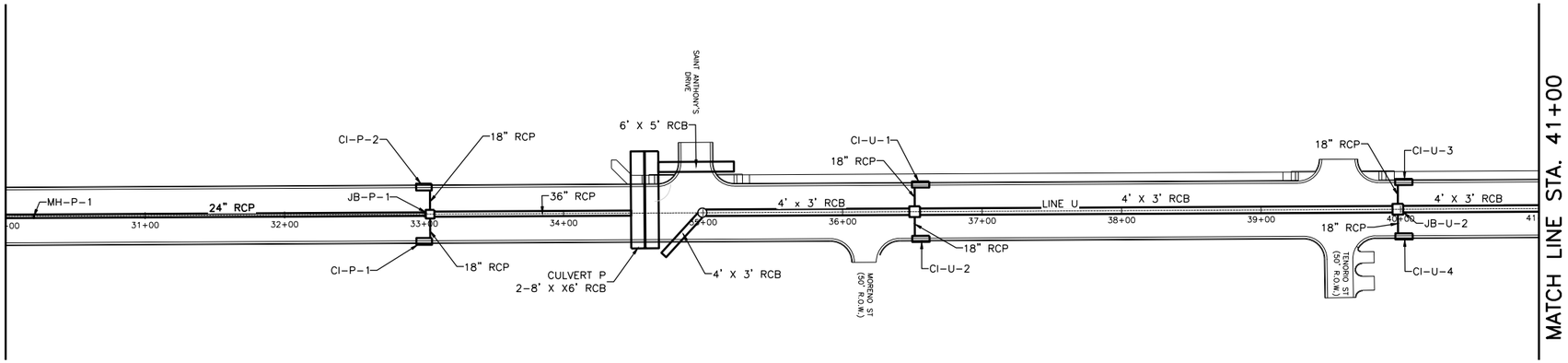
BURLESON STREET



MATCH LINE STA. 30+00

MATCH LINE STA. 30+00

BURLESON STREET



MATCH LINE STA. 41+00

BURLESON STREET

0 50' 100'
SCALE IN FEET

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
CHRISTOPHER A. GOEDEKE
97367
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PROPOSED STORM DRAIN SCHEMATIC I

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-SCHM.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 148
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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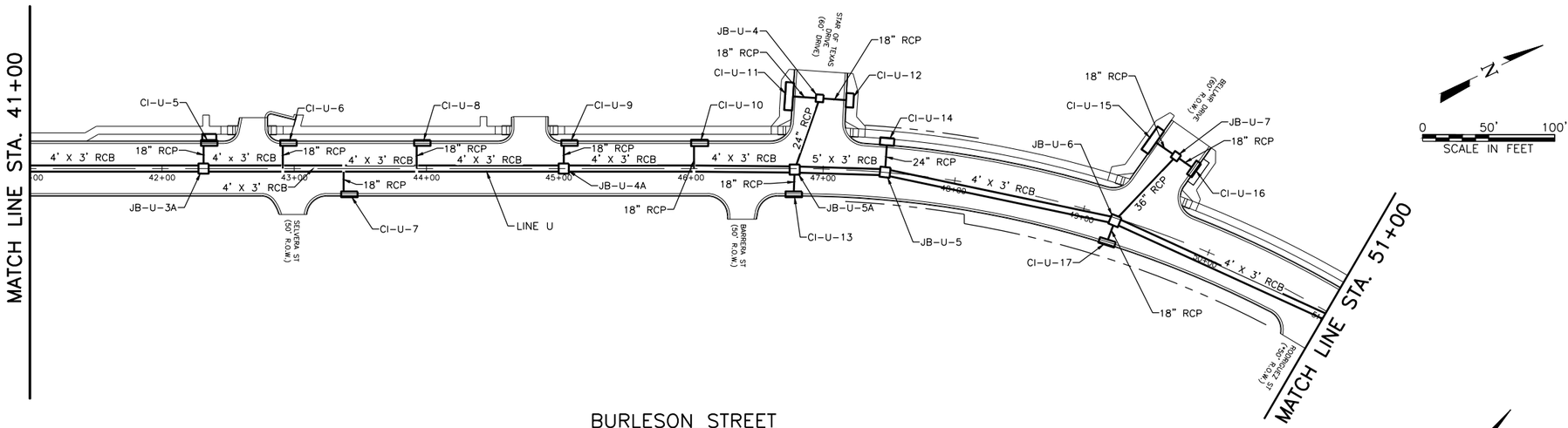

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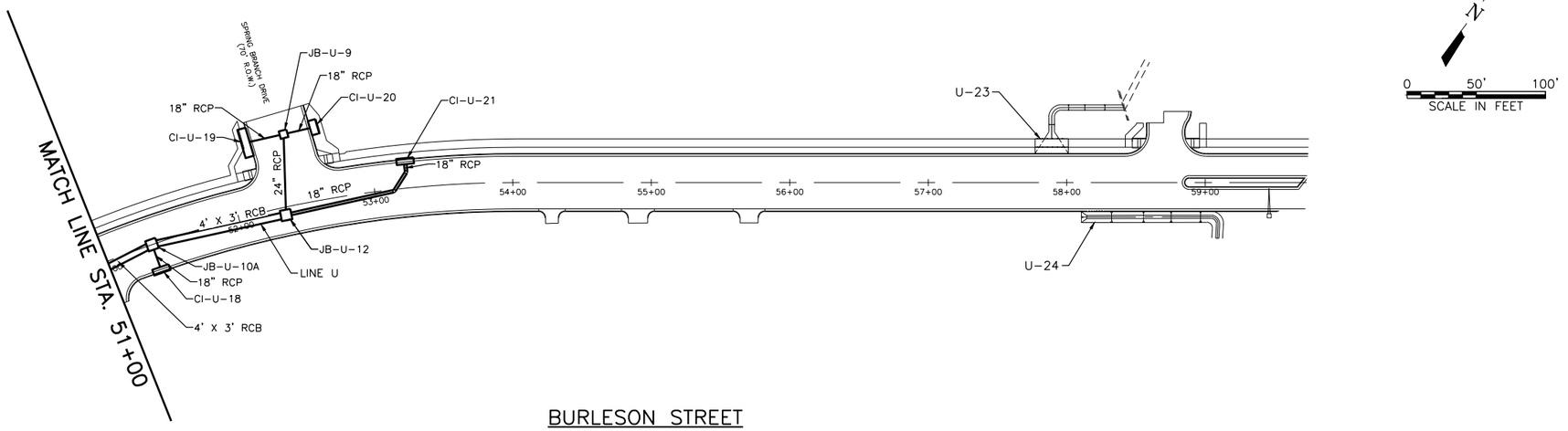

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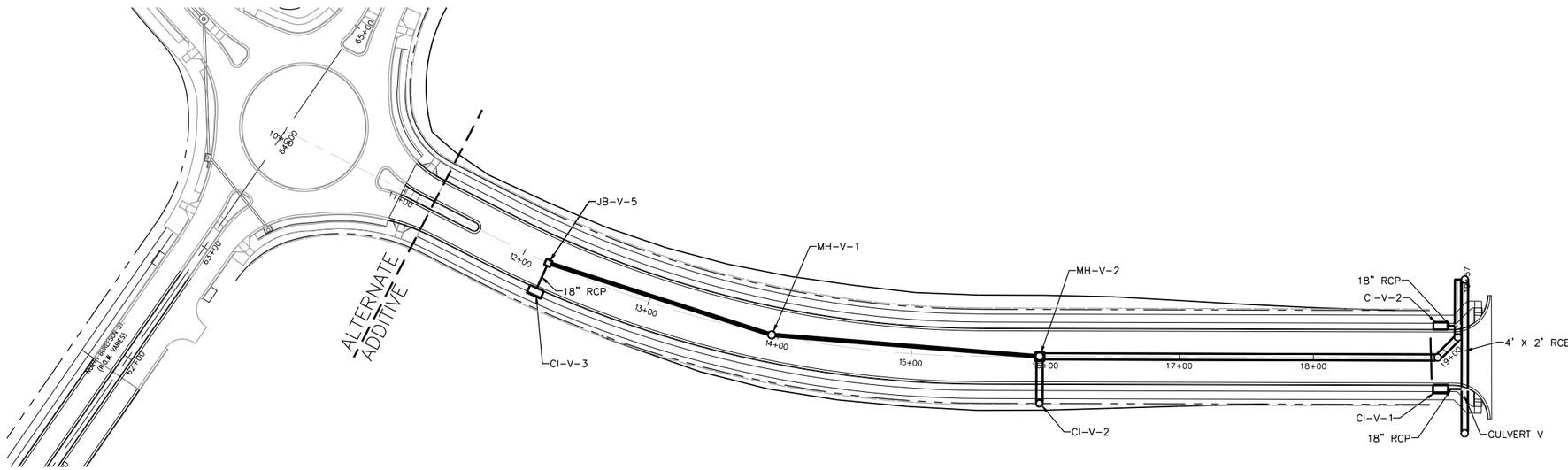

MARKETPLACE AVE.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
JOSEPH D. VOLEK
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LICENSED
PROFESSIONAL ENGINEER
5/22/2018
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PROPOSED STORM DRAIN SCHEMATIC II

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CC
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PL-SCHM.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 149
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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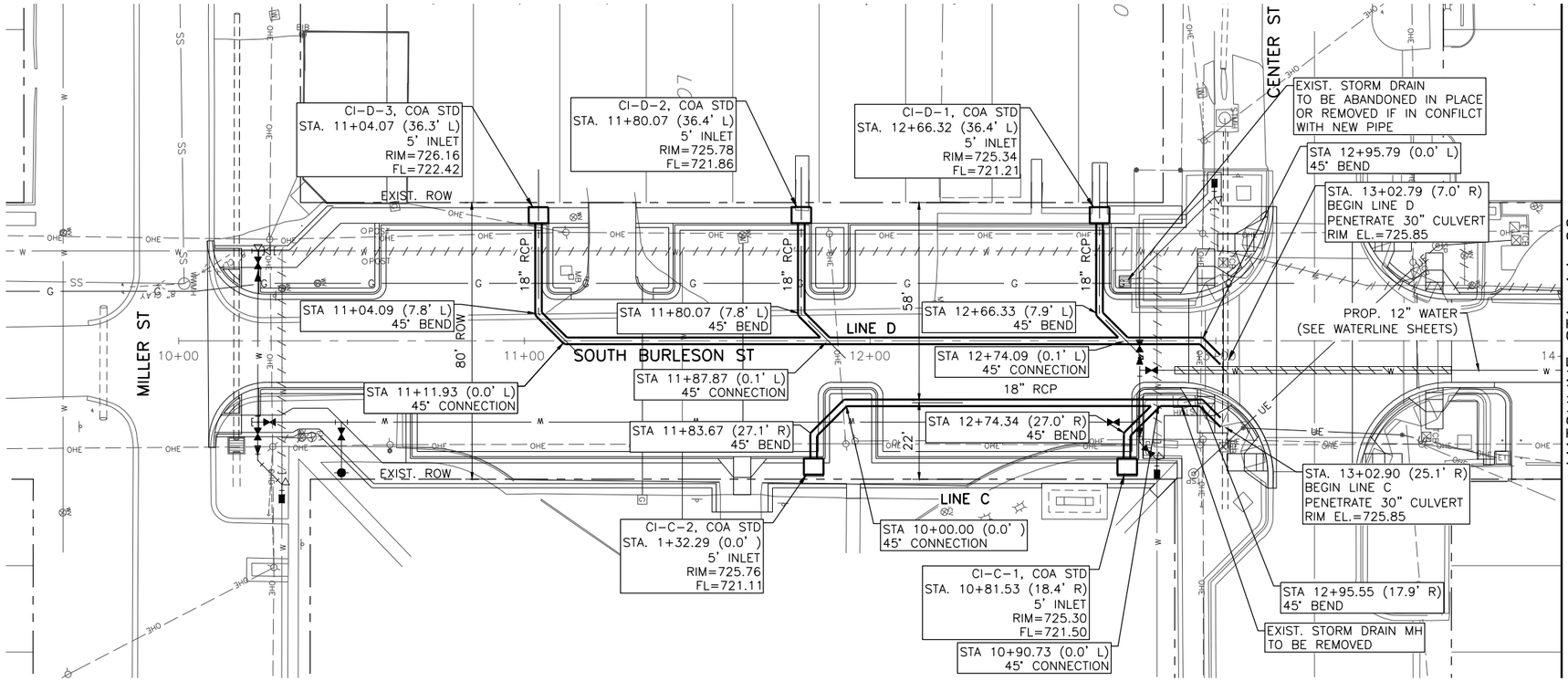


PLAN VIEW–LINES C & D

NOTE:
1. SEE SHEETS 162 & 163 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

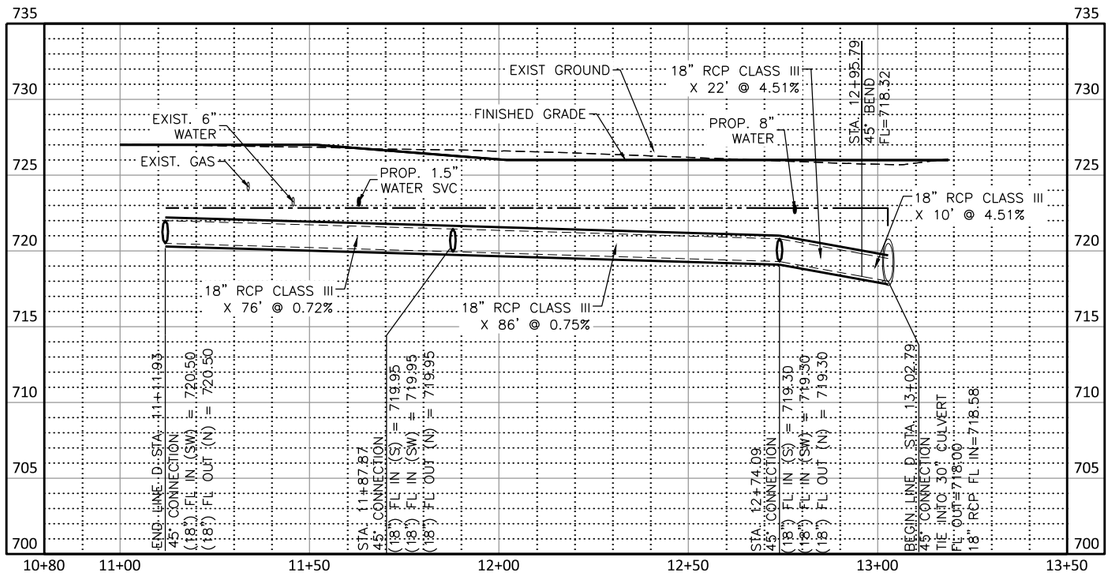
N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

CAUTION!!
OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

PROFILE LINE D



Freese and Nichols Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
AMBERLY NICOLE RUMMEL
97367
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
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CITY OF KYLE, TEXAS
CIVIL
N. BURLESON ST. IMPROVEMENTS
STORM DRAIN PLAN AND PROFILE STA. 10+00 TO STA. 14+00

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 150
TOTAL 292

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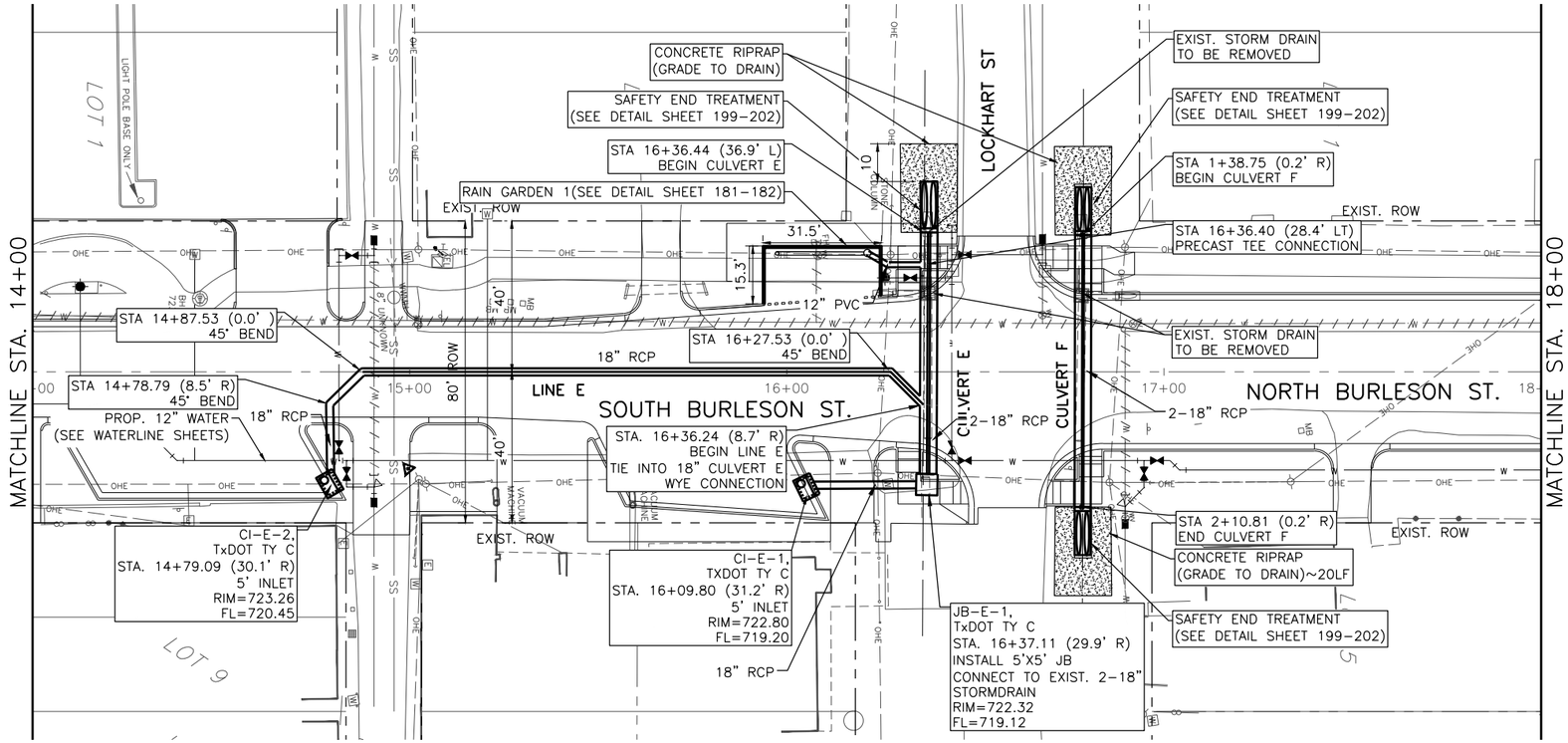


PLAN VIEW LINE E

NOTE:

1. SEE SHEETS 162 & 163 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

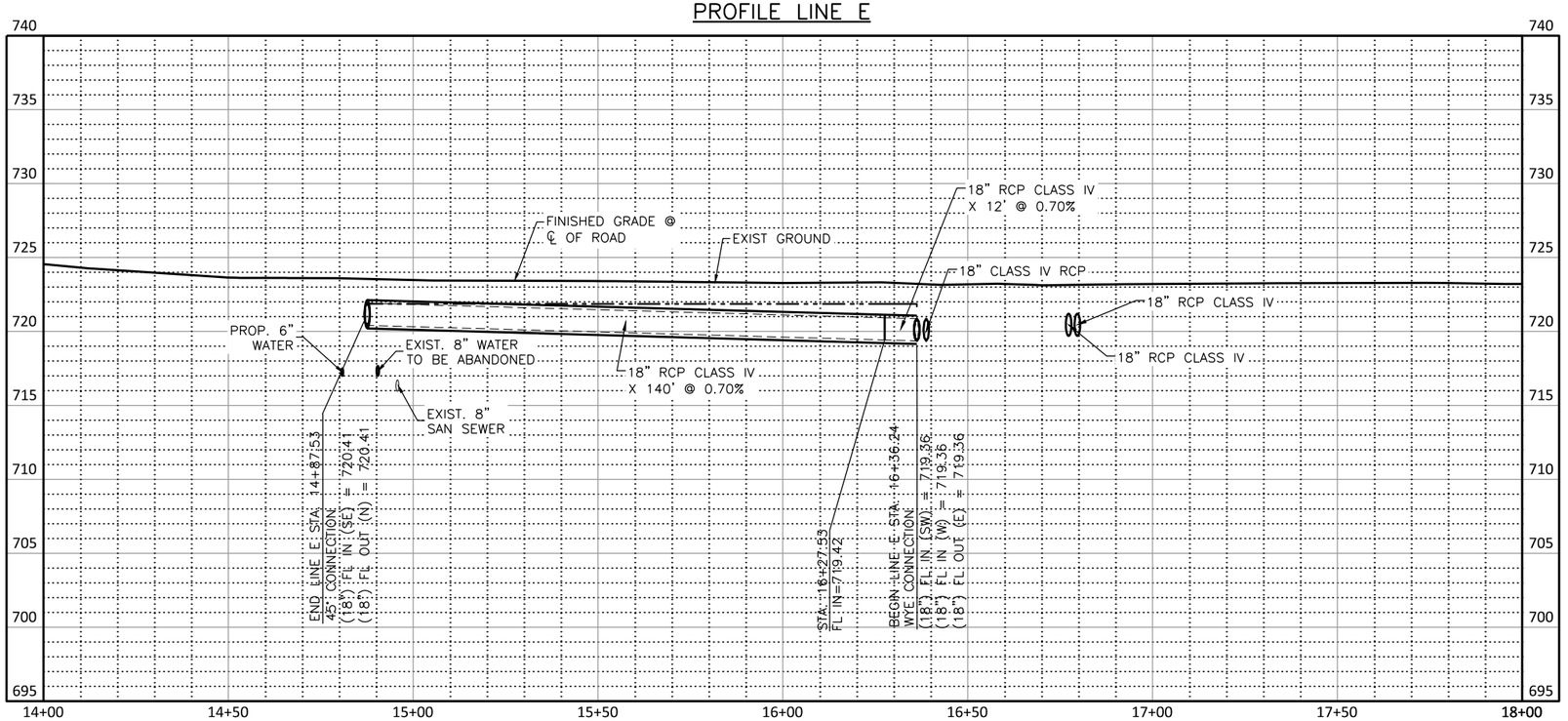
N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

CAUTION!!
OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

PROFILE LINE E



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Plot Date: 5/22/2018 12:47 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM01.dwg

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
AMBERLY K. RUPPERT
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PROFESSIONAL ENGINEER
5/22/2018

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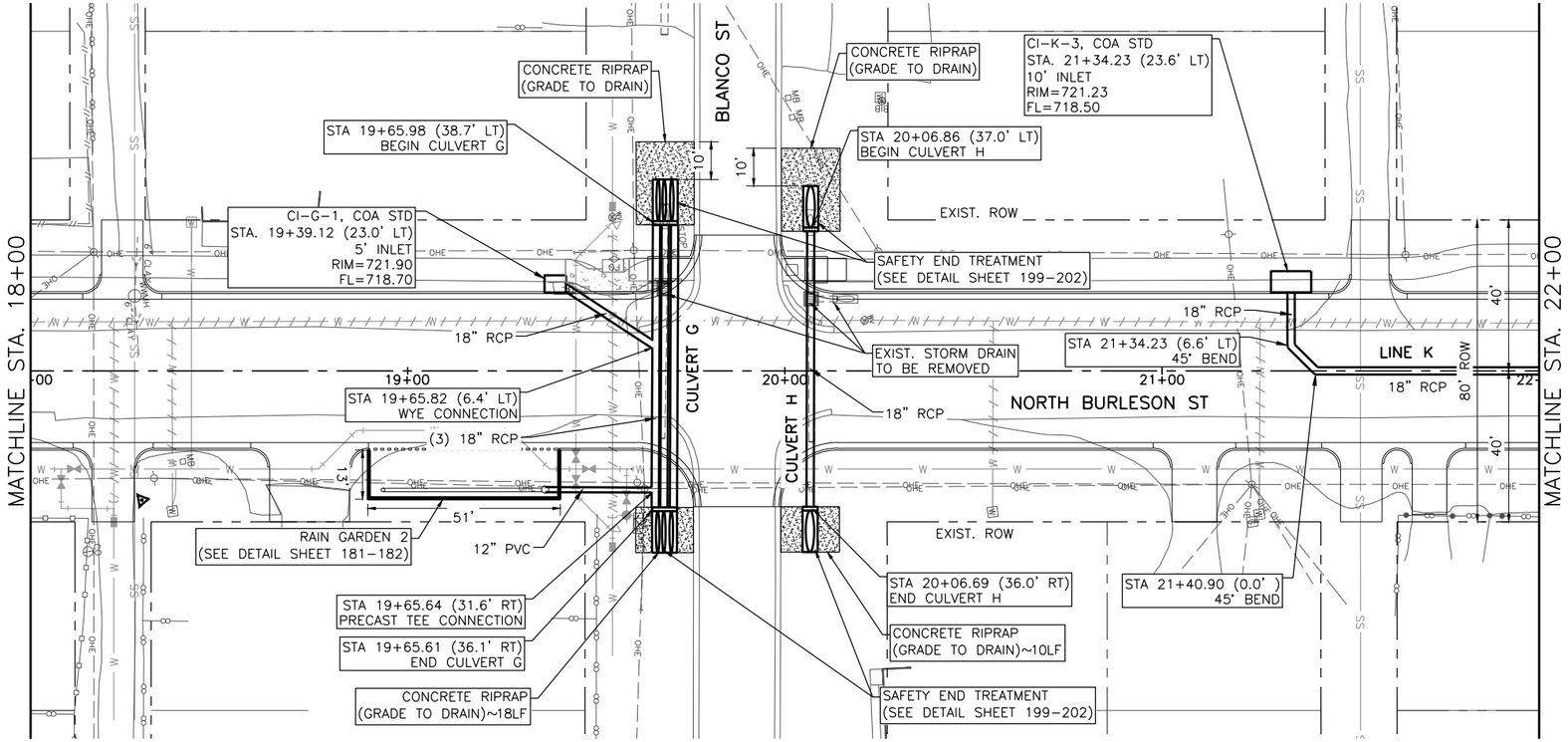
CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE STA. 14+00 TO STA. 18+00

FAN JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	CG
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PP-STRM01.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

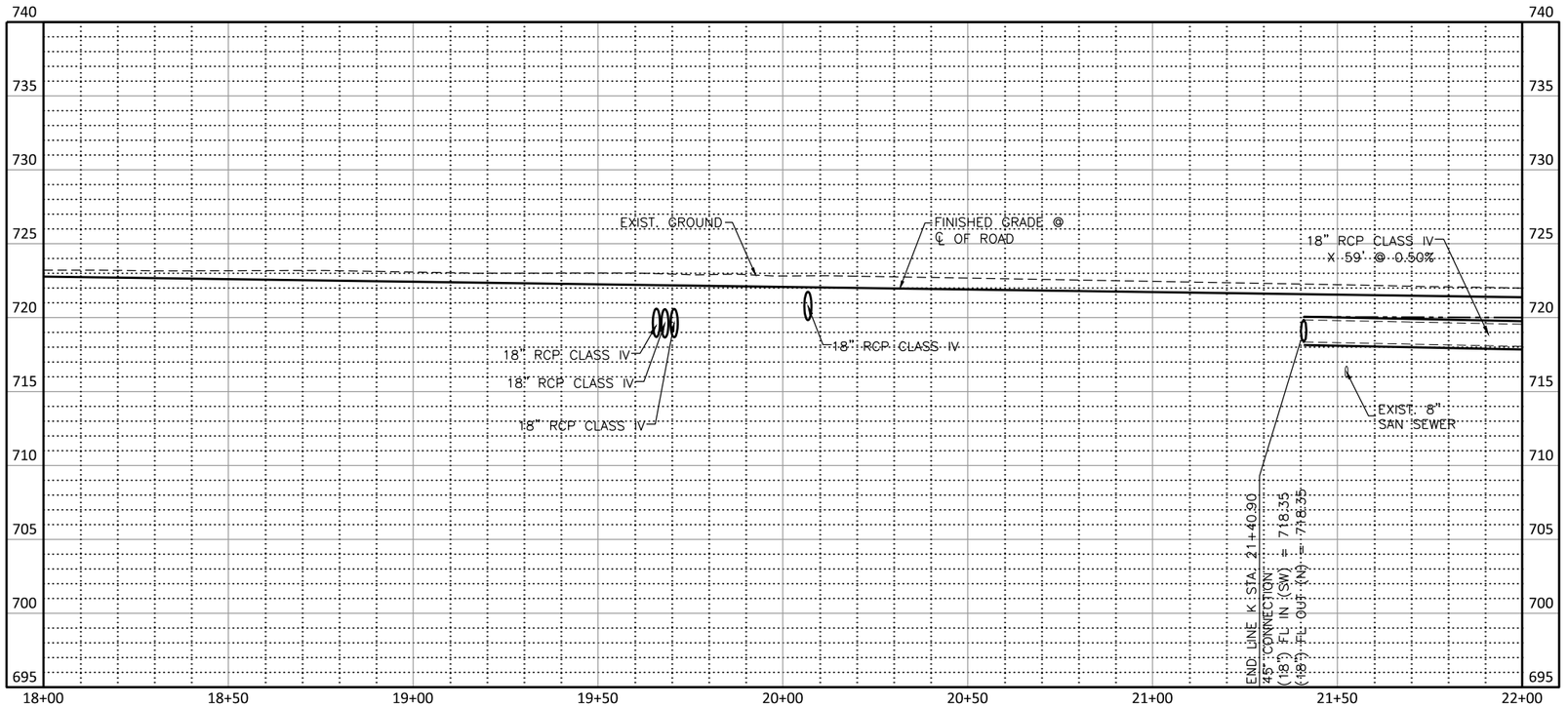
SHEET 151
TOTAL 292



PLAN VIEW-LINE K, CULVERTS G AND H

NOTE:
1. SEE SHEETS 164 & 165 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE K



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

N
0 10' 20' 40'
SCALE IN FEET
0 5' 10'
VERTICAL SCALE

CAUTION!!
OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS · JAMES D. VANDERSLICE · 97367 · LICENSED PROFESSIONAL ENGINEER
5/22/2018

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Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 18+00 TO STA. 22+00

FAN JOB NO. KYL14284	NO.	REVISION	BY	DATE
DATE 5/22/2018				
DESIGNED CG				
DRAWN NO				
REVISED NO				
CHECKED JDV				
FILE NAME C-KYL-PP-STRM02.dwg				

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 152
TOTAL 292

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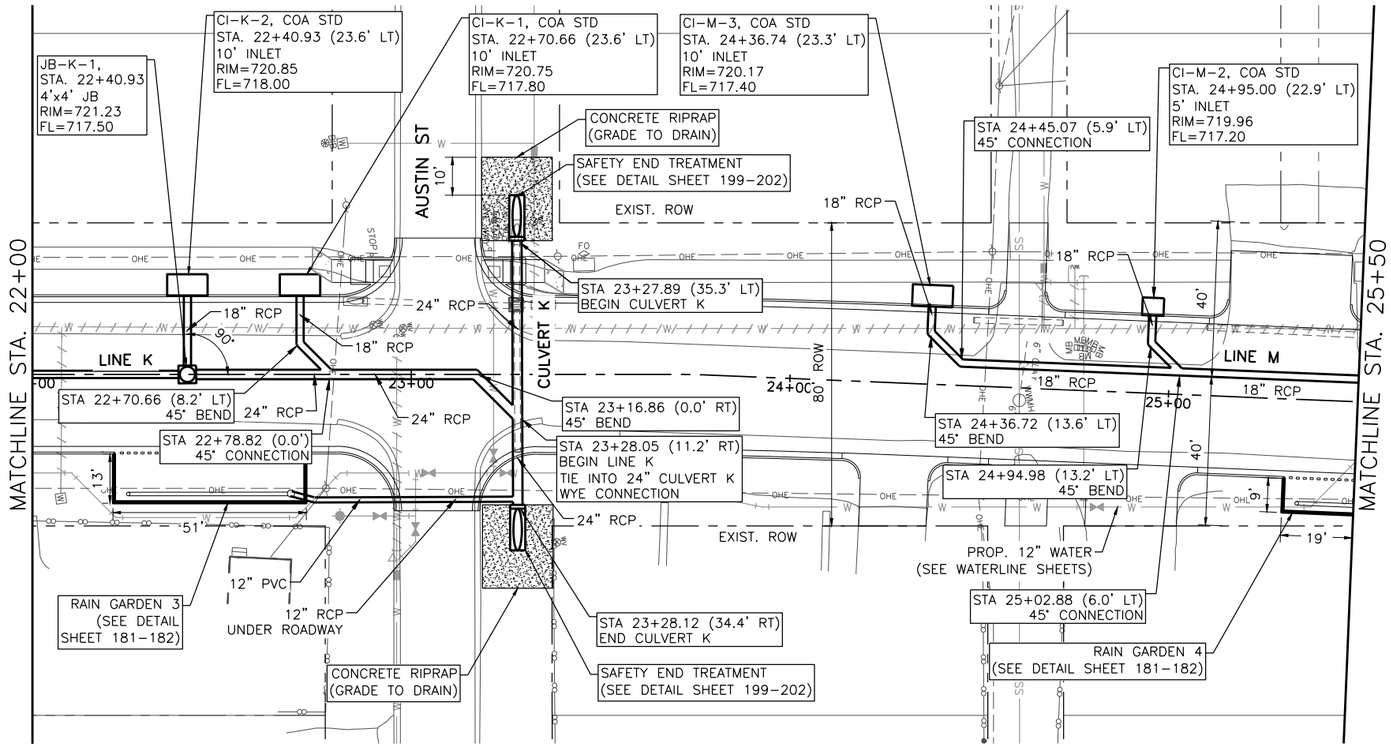
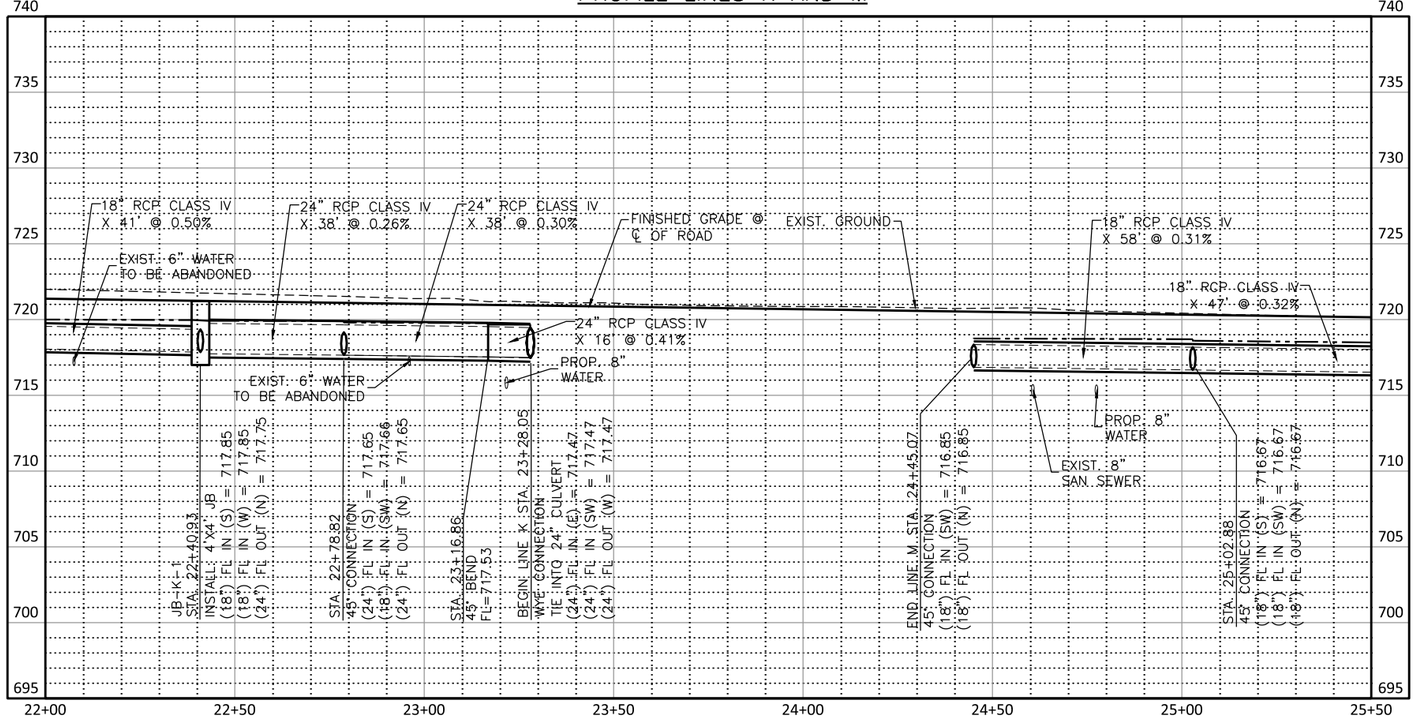


PLAN VIEW–LINES K, M AND CULVERT K

NOTE:
1. SEE SHEETS 164 & 165 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINES K AND M



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

N
0 10' 20' 40'
SCALE IN FEET
0 5' 10'
VERTICAL SCALE

CAUTION!!
OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
JAMES R. MURPHY
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

FREESE NICHOLS
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 22+00 TO STA. 25+50

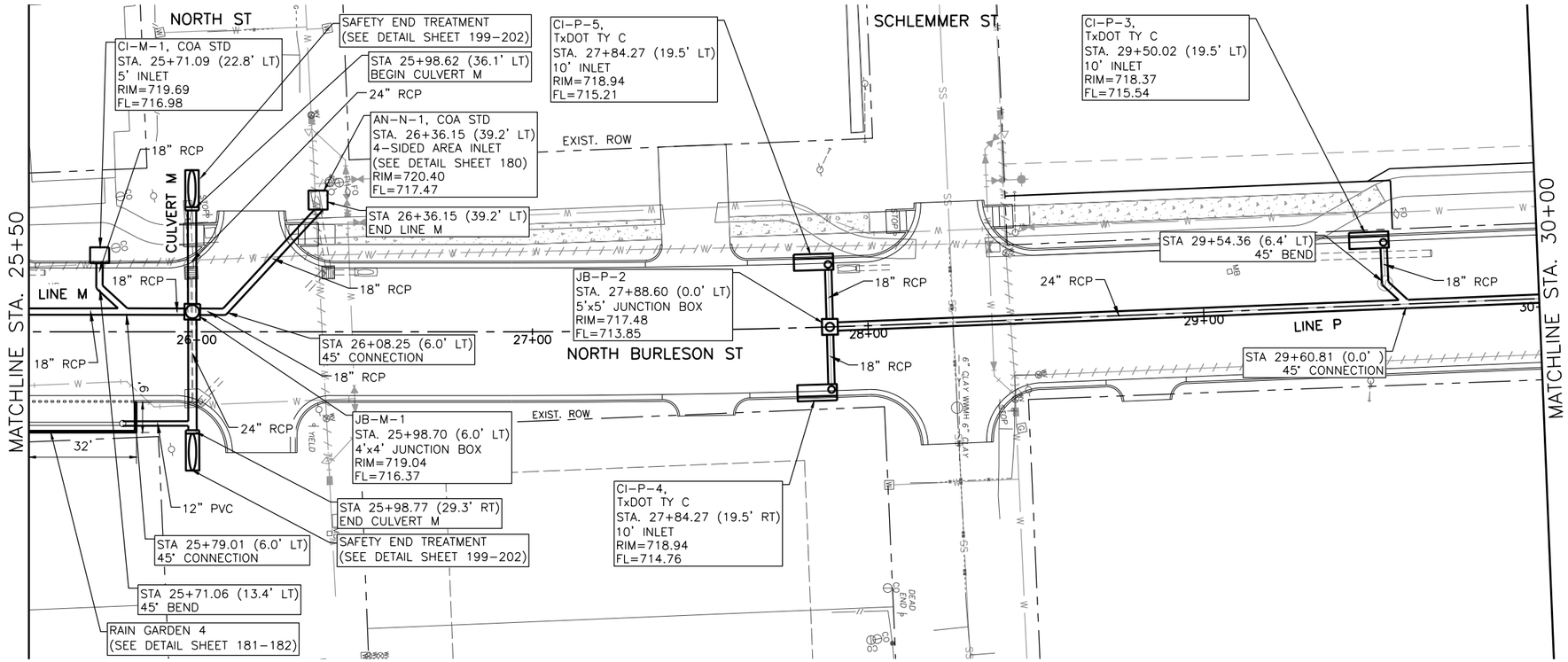
FAN JOB NO.	KYL.14284
DATE	5/22/2018
DESIGNED	CG
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PP-STRM02.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 153
TOTAL 292

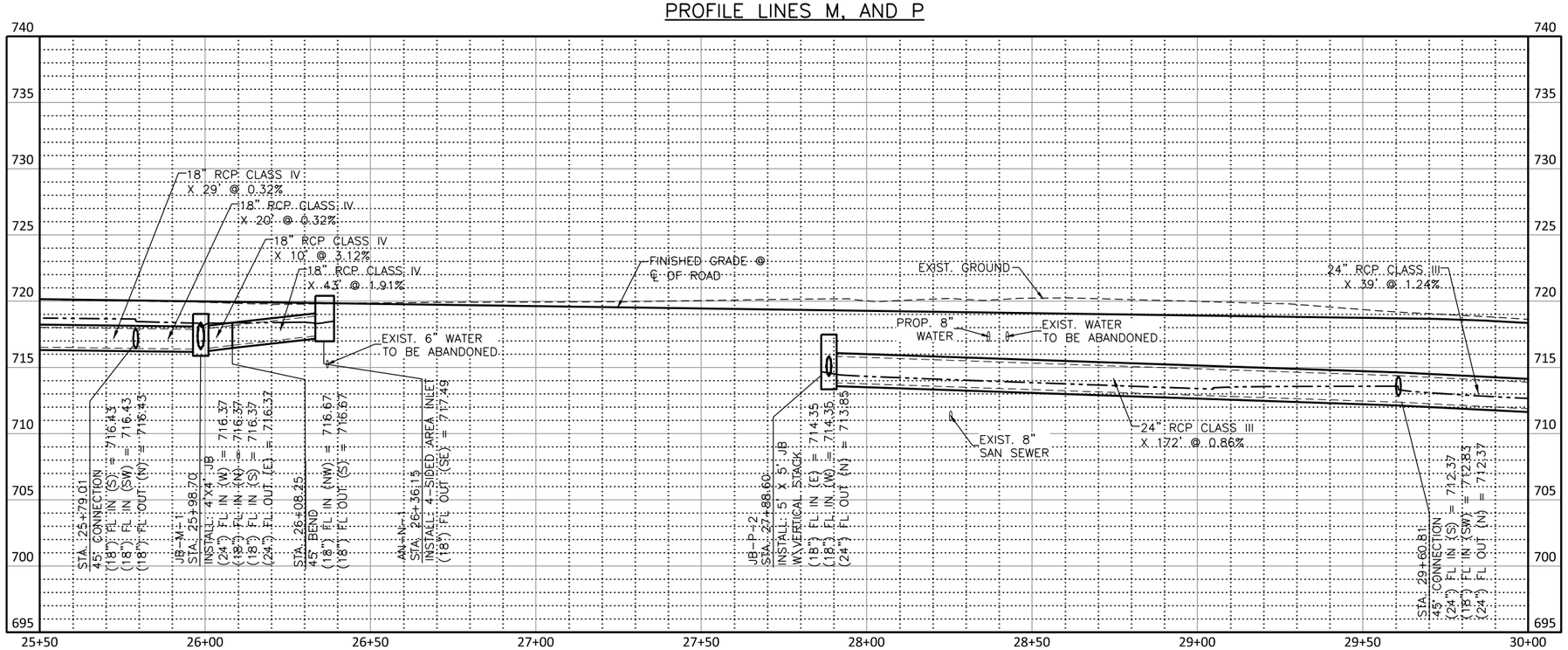
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM02.dwg
Last Saved: 5/22/2018 12:38 PM Saved By: no
Plot Date: 5/22/2018 12:50 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM02.dwg



PLAN VIEW–LINES M, P AND CULVERT M

NOTE:
1. SEE SHEETS 164 & 165 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINES M, AND P



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

N

0 10' 20' 40'
SCALE IN FEET

0 5' 10'
VERTICAL SCALE

CAUTION!!
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Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS · JAMES WILLIAM PARKER · 97367 · LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE STA. 25+50 TO STA. 30+00

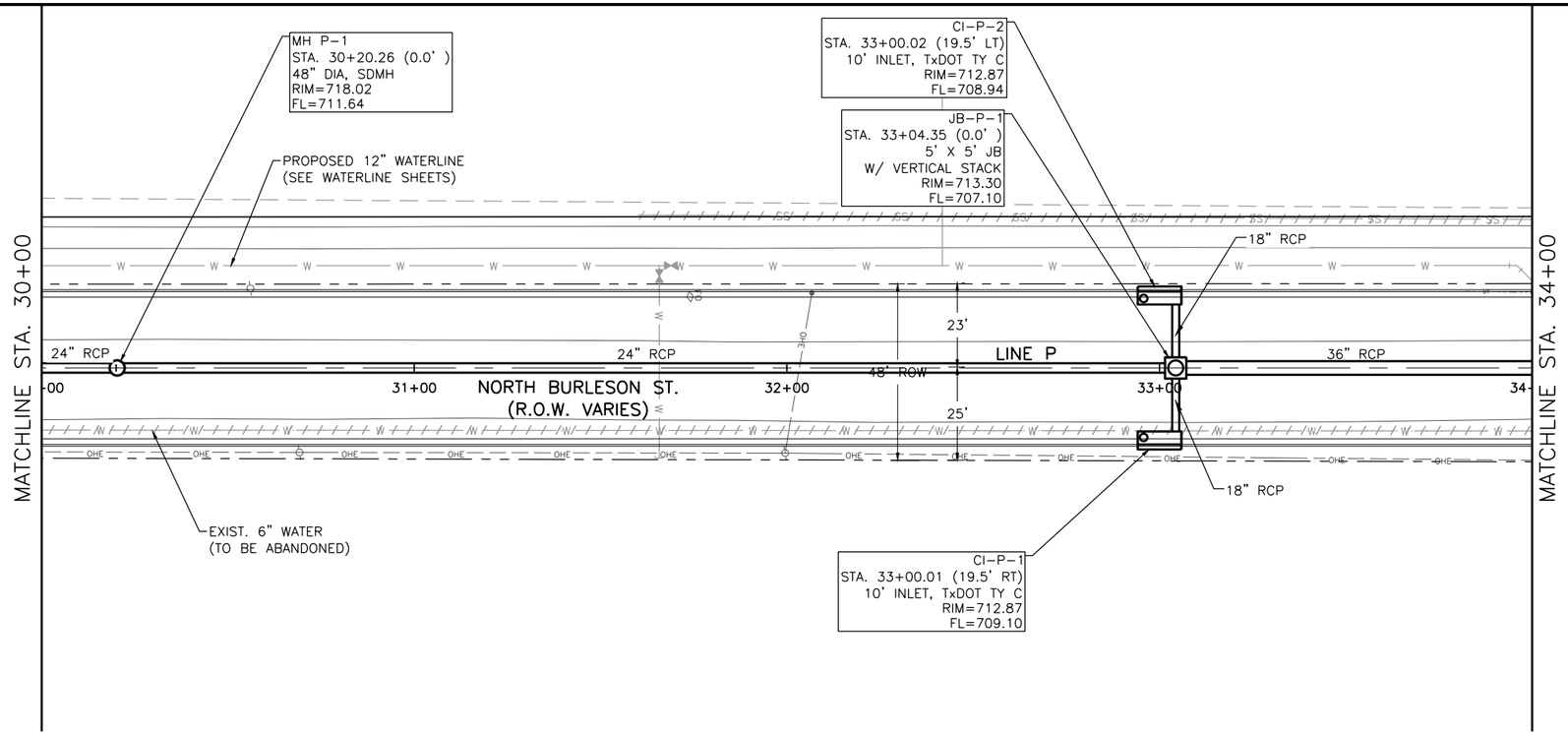
FAN. JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	CG
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PP-STRM02.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on orignol drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 154
TOTAL 292

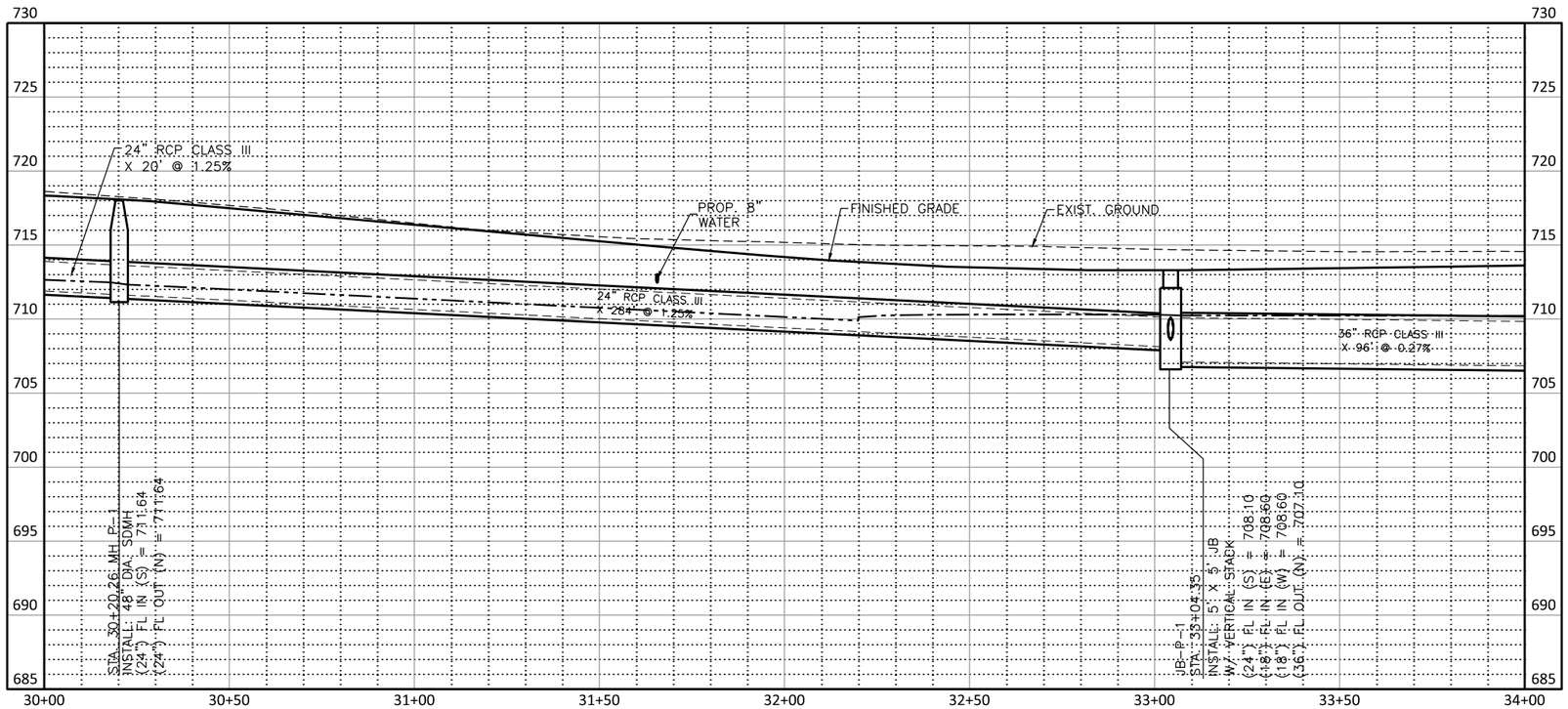
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM02.dwg
Last Saved: 5/22/2018 12:38 PM Saved By: no
Plot Date: 5/22/2018 12:50 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM02.dwg



PLAN VIEW-LINE P

NOTE:
1. SEE SHEETS 166-168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE-P



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

CAUTION!!
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Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
ANDREW T. HUNKER
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PROFESSIONAL
ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 30+00 TO STA. 34+00

FAN JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	CC
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PP-STRM04.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

N

0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

SHEET 155
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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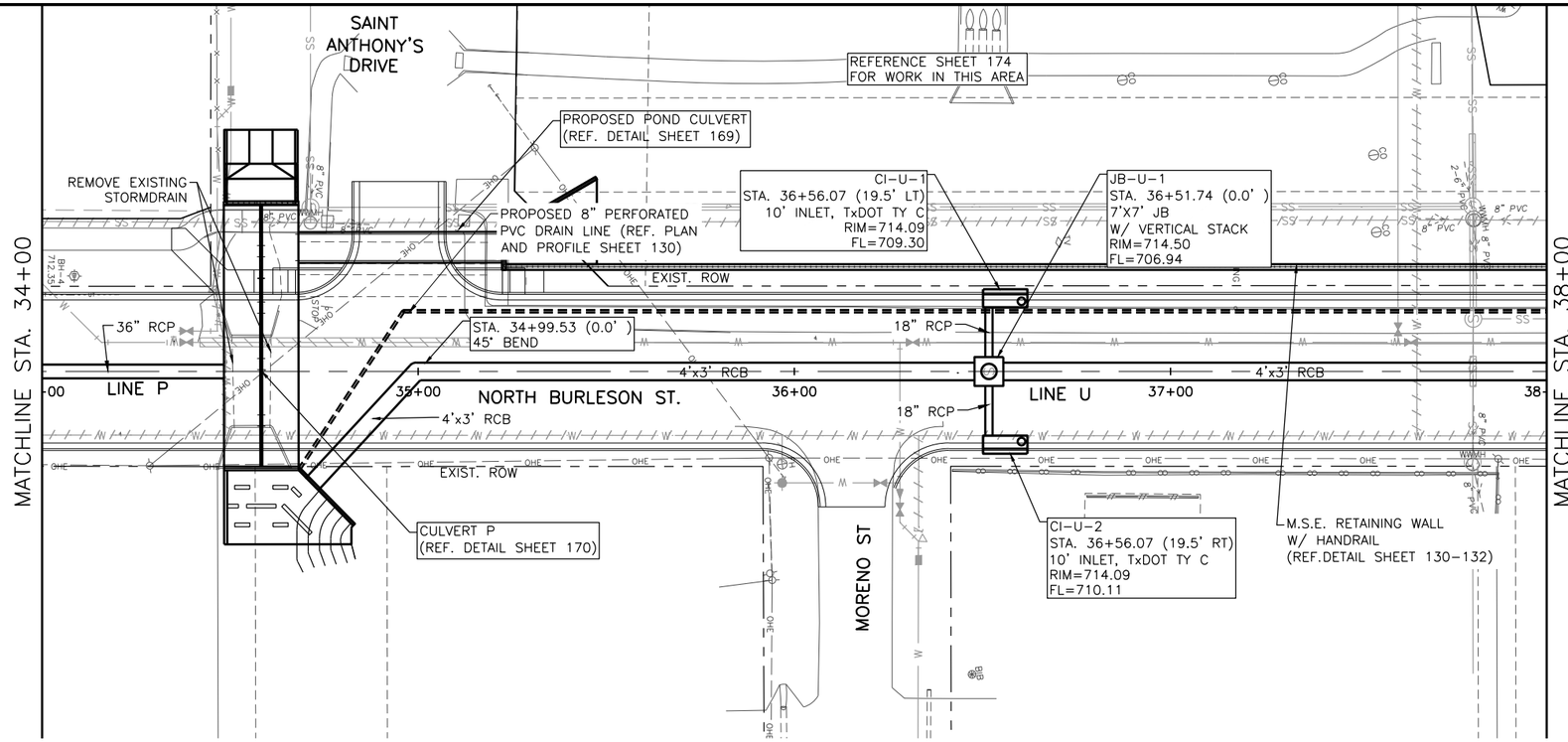
Plot Date: 5/22/2018 12:51 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg

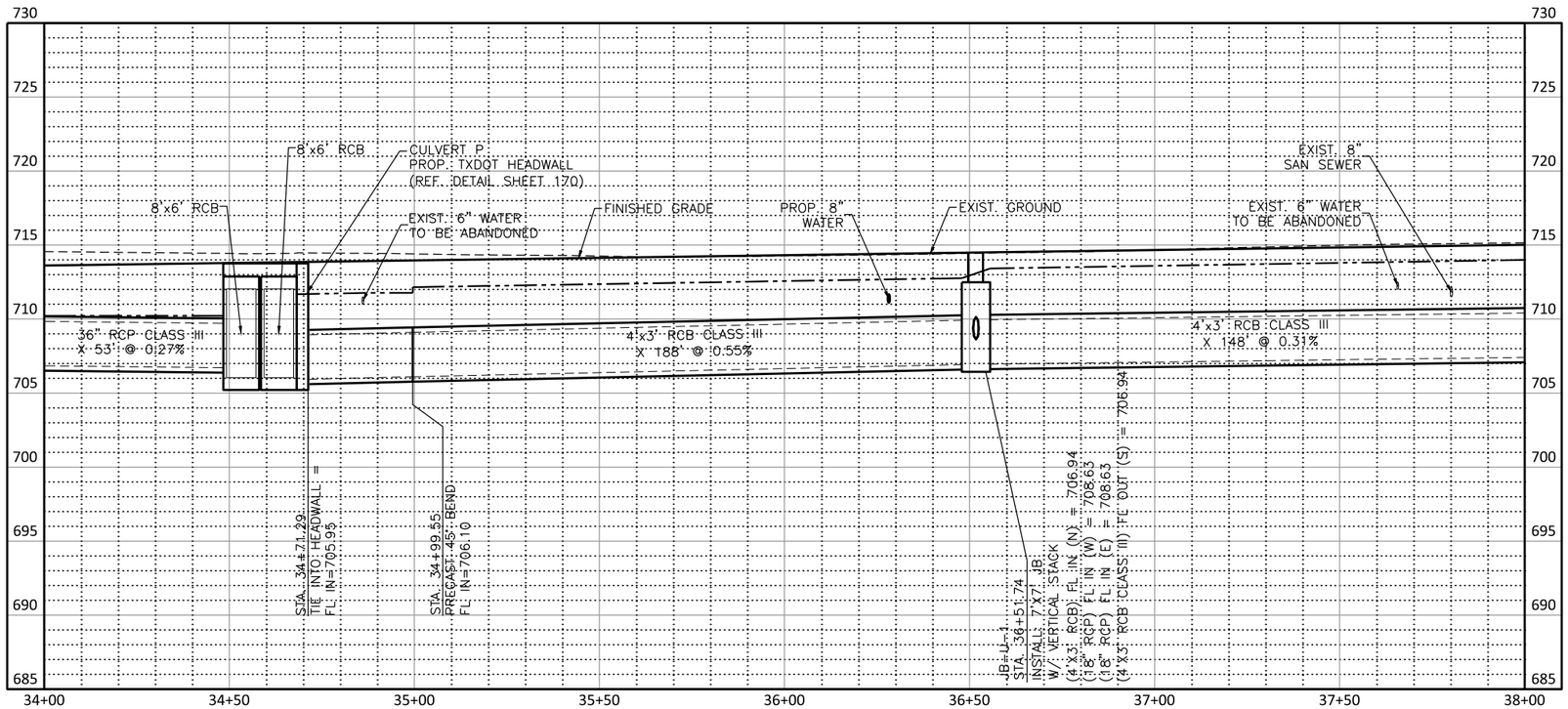


PLAN VIEW-LINES P & U

NOTE:

1. SEE SHEETS 166 – 168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINES P AND U



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

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0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
JAMES V. MARTIN
97367
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

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Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 34+00 TO STA. 38+00

FAN JOB NO. KYL14284		
DATE 5/22/2018		
DESIGNED	CC	
DRAWN	NO	
REVISED	NO	
CHECKED	JDV	
FILE NAME C-KYL-PP-STRM04.dwg		

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 156
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
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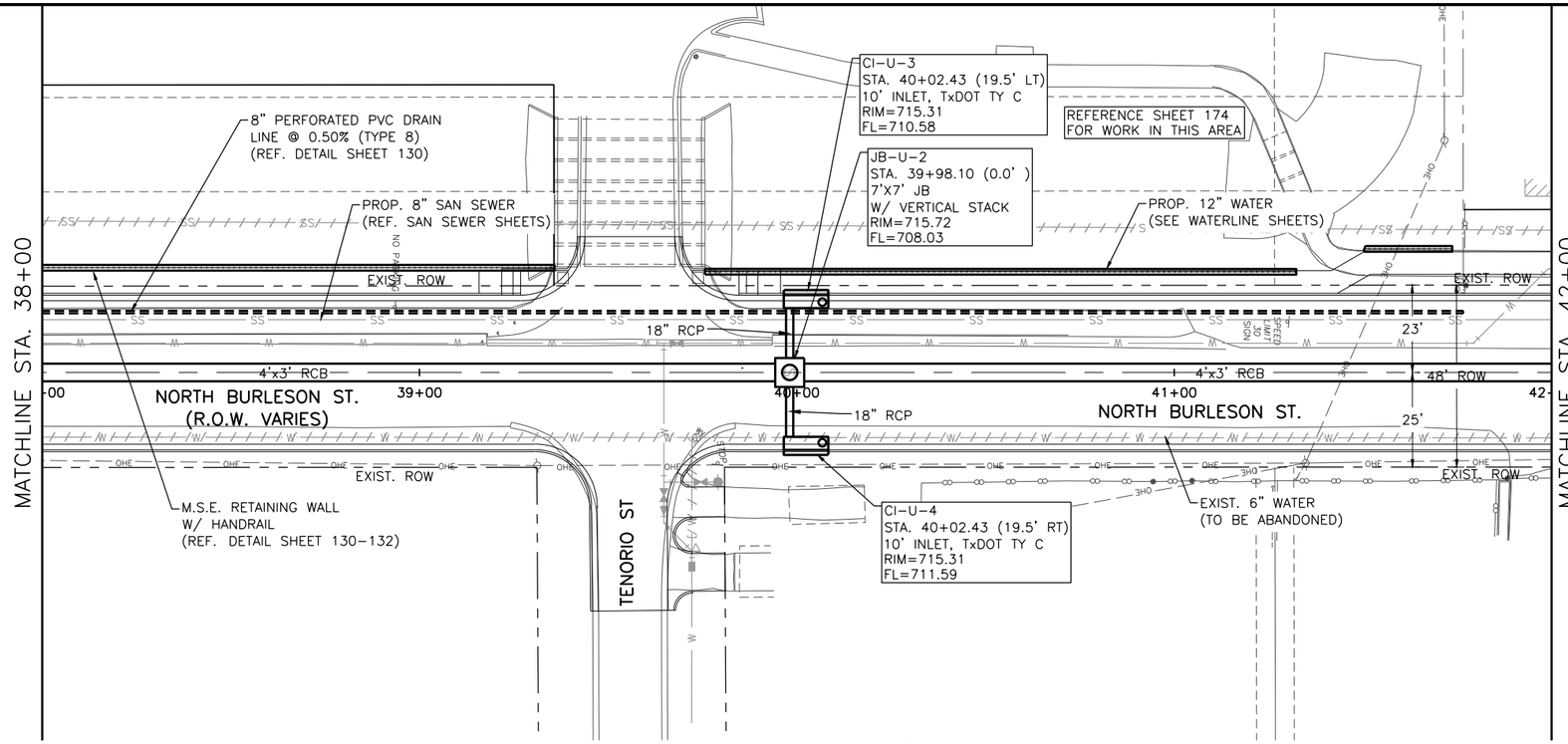
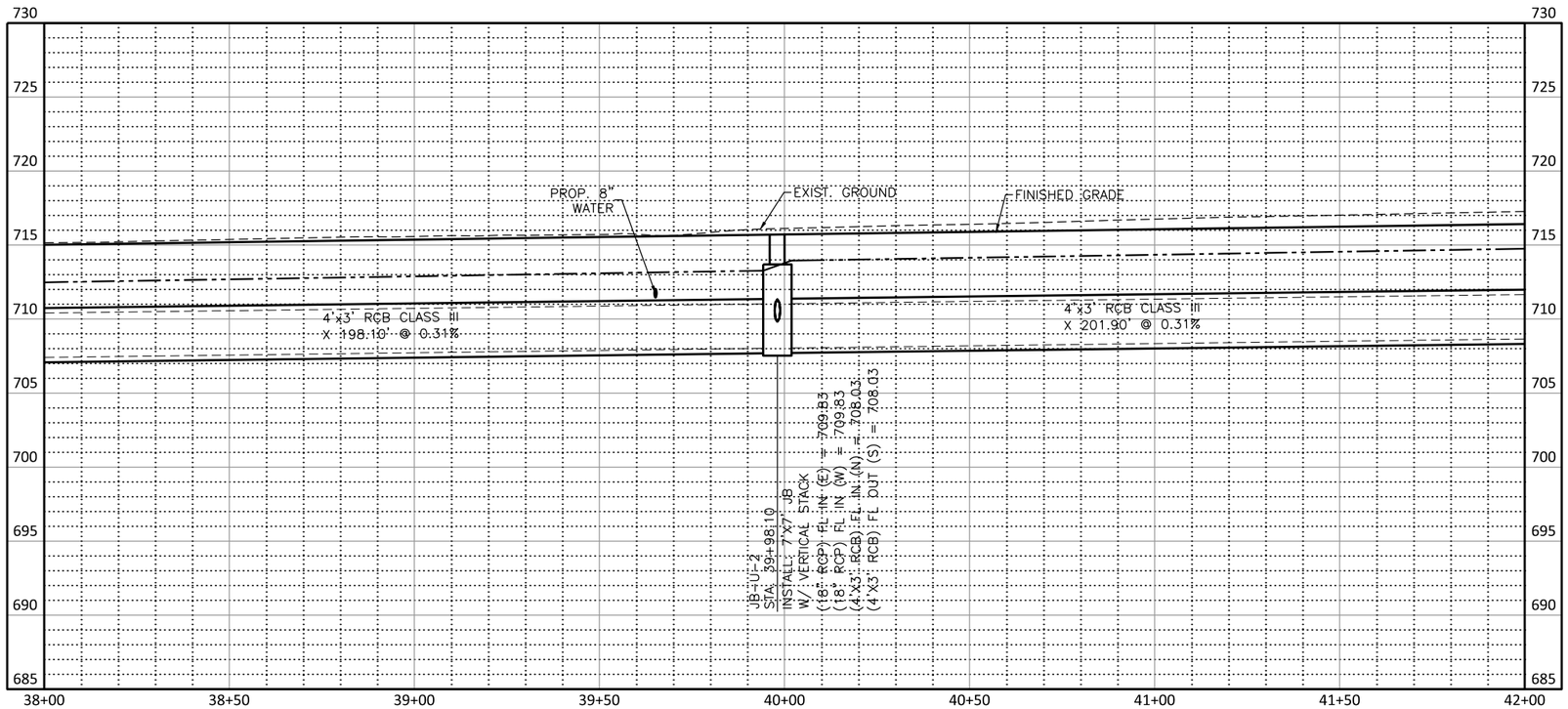


PLAN VIEW-LINE U

NOTE:
1. SEE SHEETS 166 - 168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE U



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

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N
0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS · JAMES R. WILLIAMS · 97367 · LICENSED PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 38+00 TO STA. 42+00

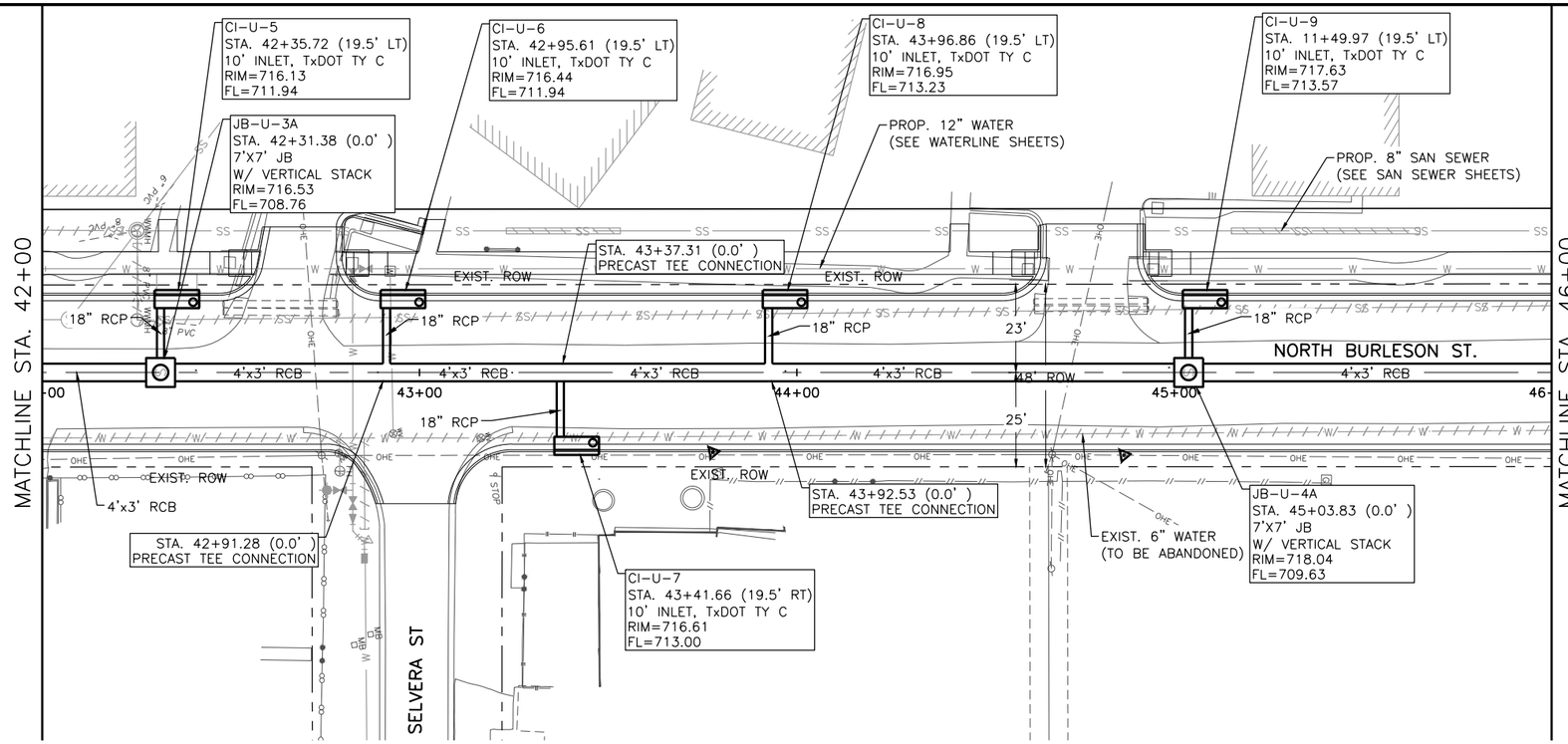
NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CC
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 157
TOTAL 292

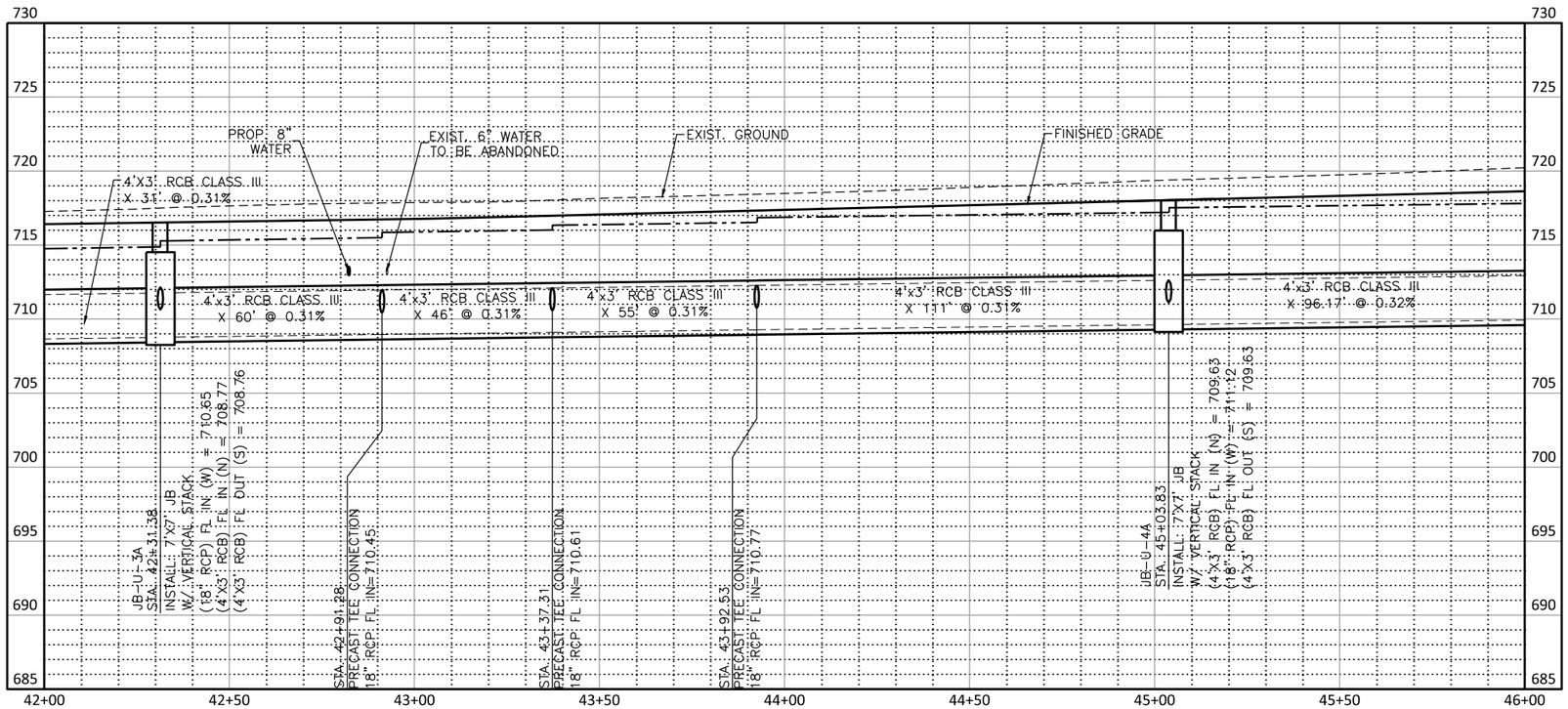
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
Last Saved: 5/22/2018 11:31 AM Saved By: 02641
Plot Date: 5/22/2018 12:51 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg



PLAN VIEW-LINE U

NOTE:
1. SEE SHEETS 166 - 168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE U



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

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Texas Registered Engineering Firm F-2144
STATE OF TEXAS
JAMES V. DUNN
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PROFESSIONAL ENGINEER
5/22/2018

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Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN PLAN AND PROFILE STA. 42+00 TO STA. 46+00

NO.	REVISION	BY	DATE

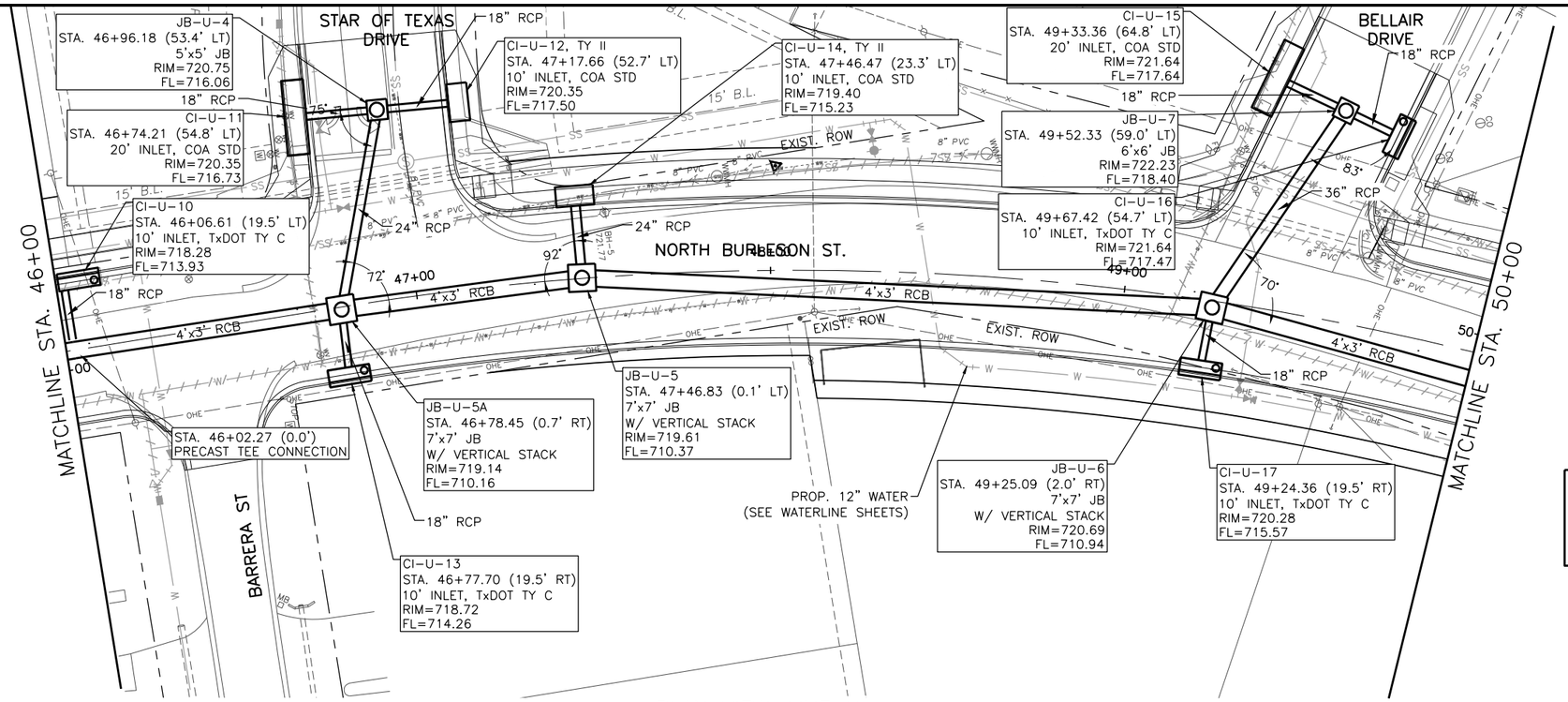
FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 158
TOTAL 292

HORIZONTAL 0 20' 40'
VERTICAL 0 5' 10'

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
Last Saved: 5/22/2018 11:31 AM Saved By: 02641
Plot Date: 5/22/2018 12:52 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg



PLAN VIEW–LINE U

LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT–OF–WAY
- PROP. EASEMENT
- EX RIGHT–OF–WAY
- 5–YR HYDRAULIC GRADE LINE

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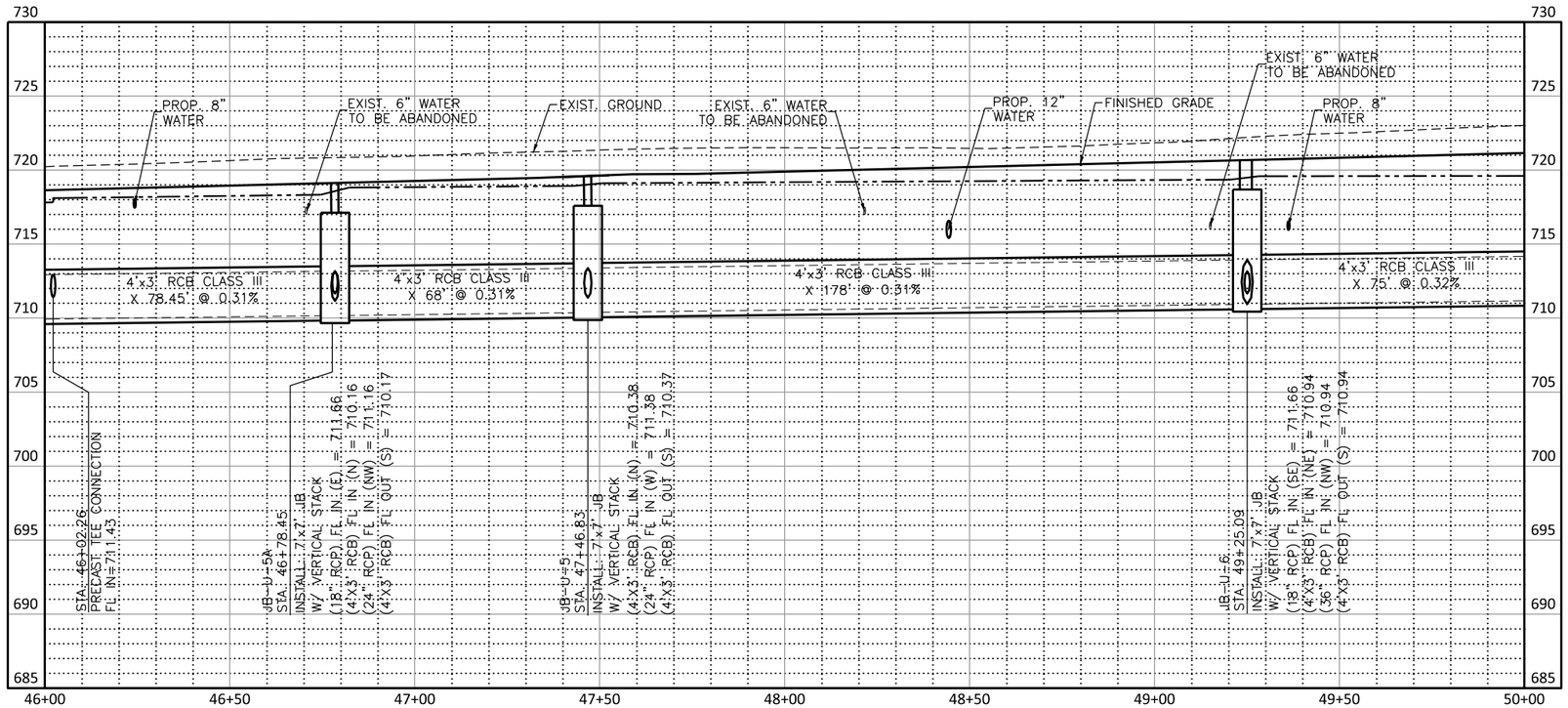
NOTE:
1. SEE SHEETS 166 – 168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE U



0 20' 40' HORIZONTAL
0 5' 10' VERTICAL

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5/22/2018

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Fax – (512) 617–3101
Web – www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
STORM DRAIN PLAN AND PROFILE
STA. 46+00 TO STA. 50+00

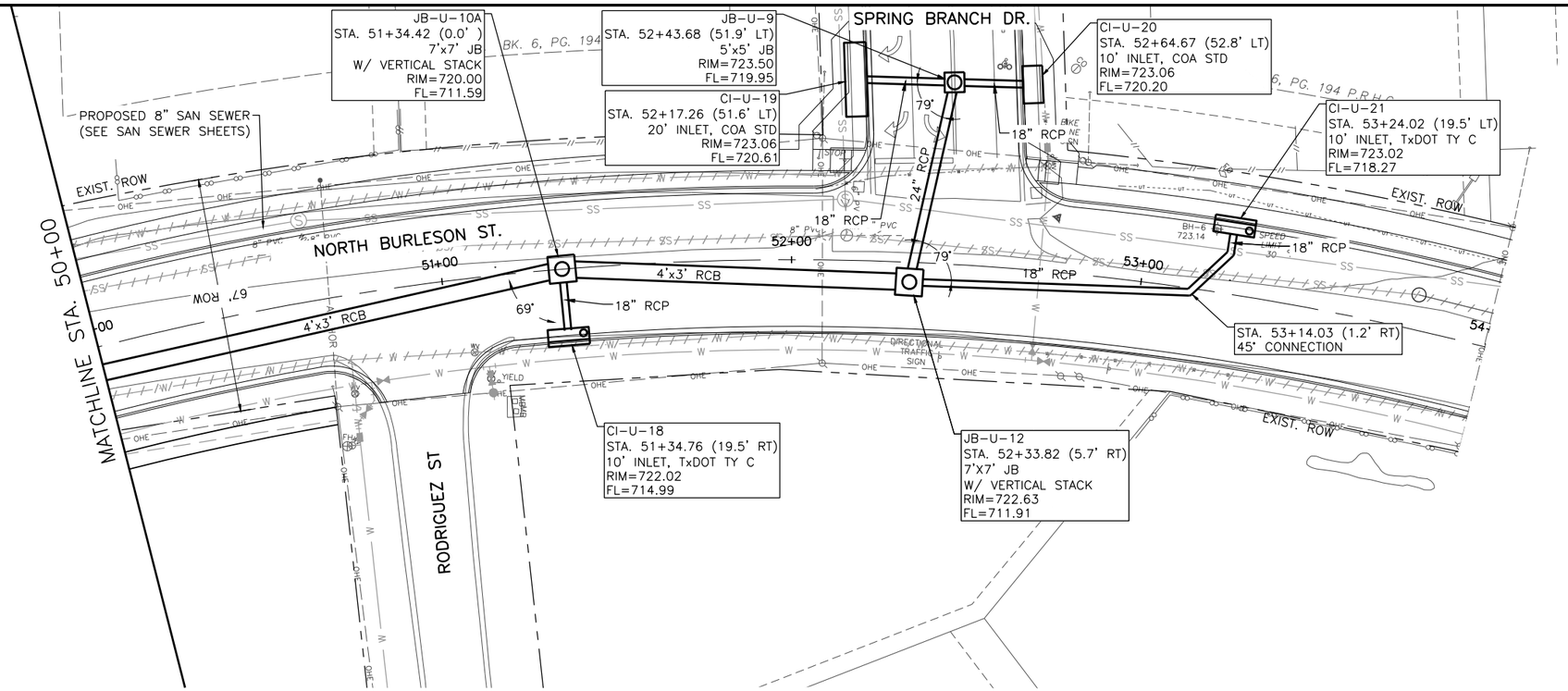
NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

SHEET 159
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
Last Saved: 5/22/2018 11:31 AM Saved By: 02641

Plot Date: 5/22/2018 12:52 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg



PLAN VIEW–LINE U

LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

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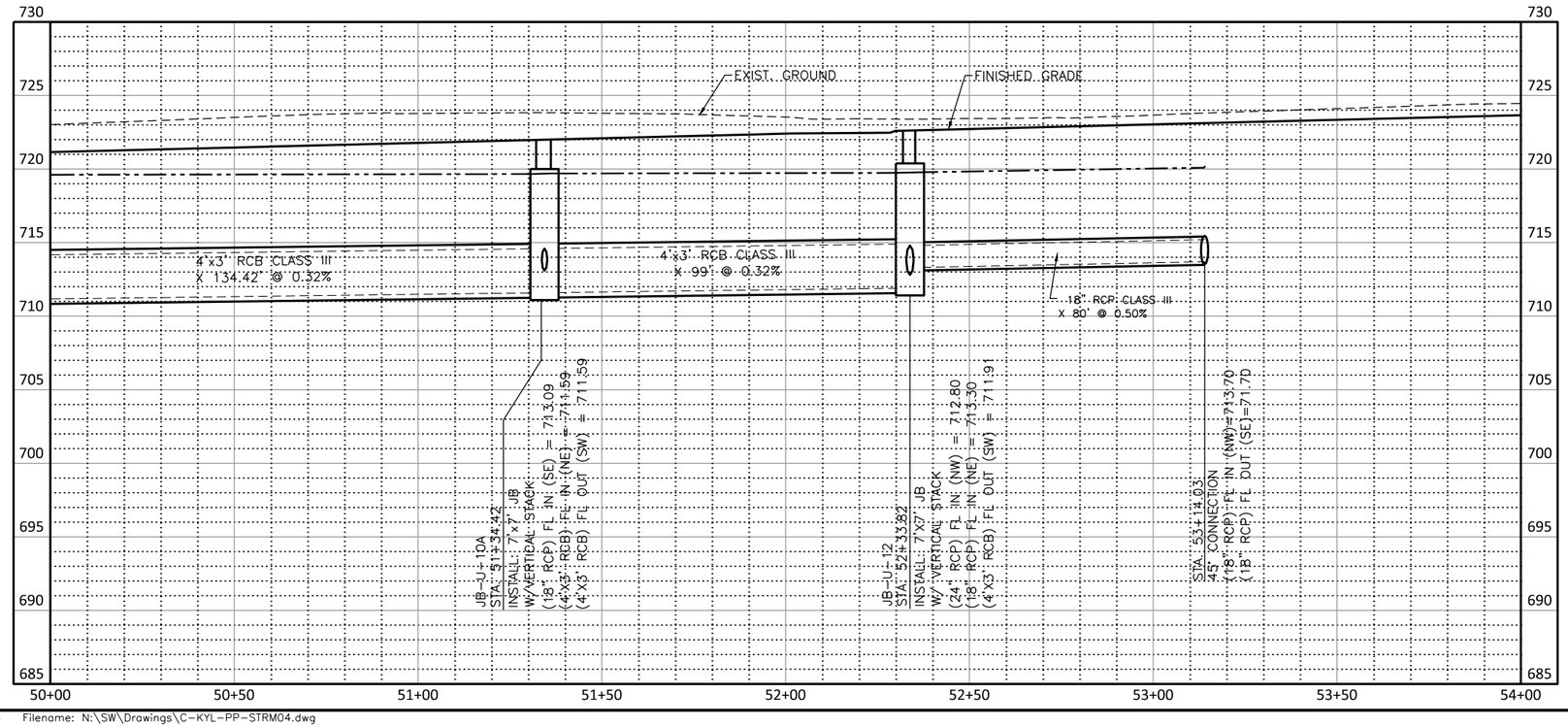
NOTE:
1. SEE SHEETS 166 – 168 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE LINE U



0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES P. WILSON
97367
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN PLAN AND PROFILE STA. 50+00 TO END

NO.	REVISION	BY	DATE

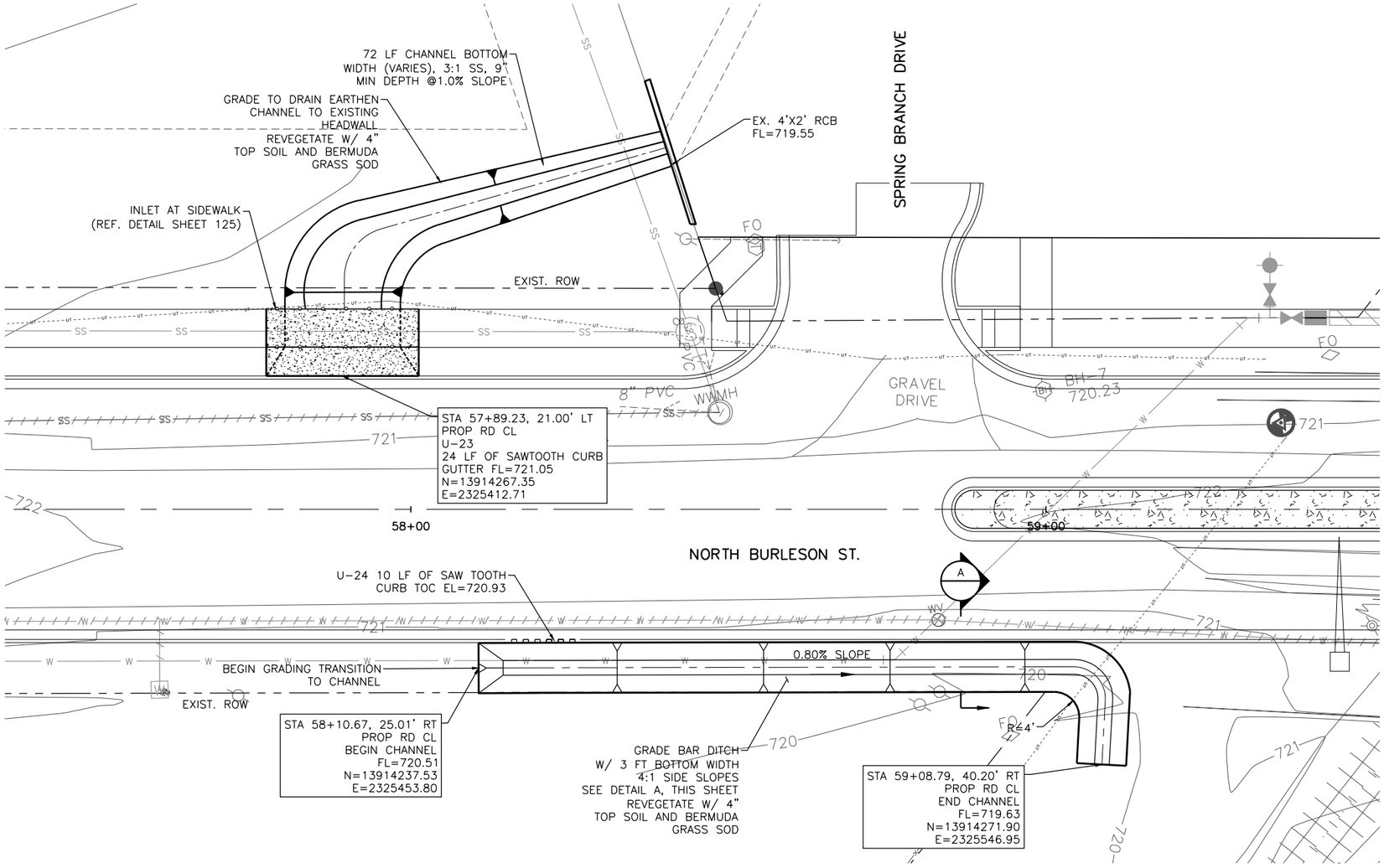
FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CC
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 160
TOTAL 292

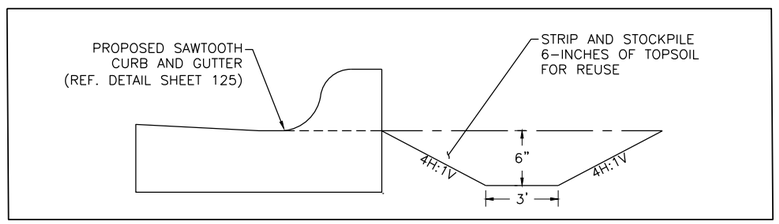
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
Last Saved: 5/22/2018 11:31 AM Saved By: 02641

Plot Date: 5/22/2018 12:52 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg



1 BAR DITCH AND EARTHEN CHANNEL TO EXISTING HEADWALL–PLAN VIEW

NOT TO SCALE



A BAR DITCH TYPICAL SECTION A–A

NOT TO SCALE

LEGEND

PROP. STORM DRAIN PIPE	PROP. SAN SEWER
EX STORM DRAIN PIPE	EX. SAN SEWER
EX STORM DRAIN MH	EX GAS
PROP. WATERLINE	EX OVERHEAD ELECTRIC
EX WATERLINE	PROP. RIGHT-OF-WAY
EX WATERLINE TO BE ABANDONED	PROP. EASEMENT
	EX RIGHT-OF-WAY

CAUTION!!

OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

CHANNEL AND BAR DITCH PLAN VIEW

F&N JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	CC
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-P-CHNL.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

SHEET 161

TOTAL 292

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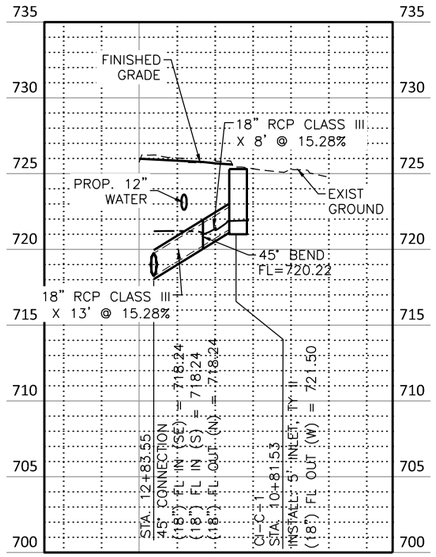
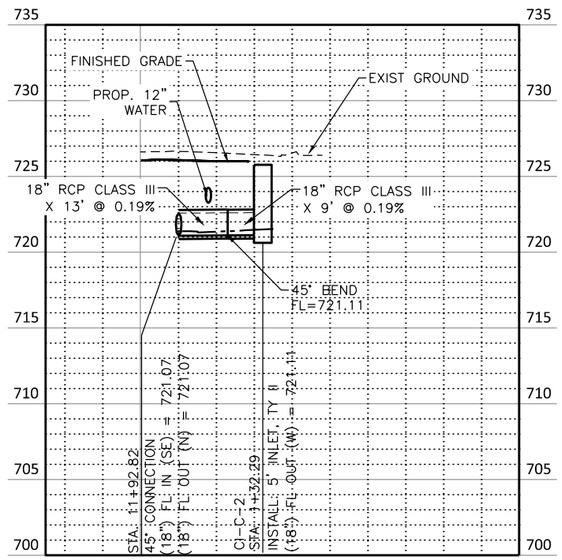
Last Saved: 5/22/2018 11:20 AM Saved By: 02641

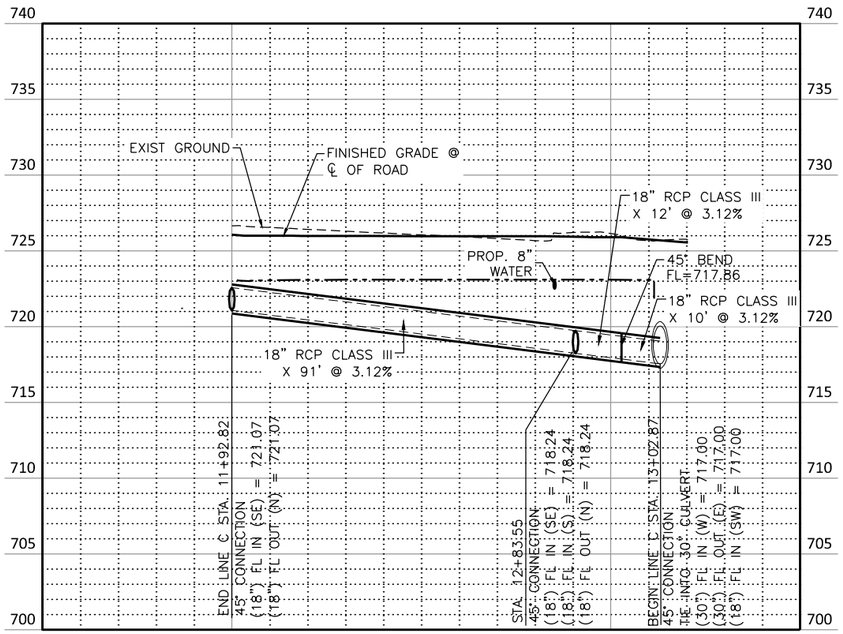
Plot Date: 5/22/2018 11:57 AM Plot By: no Filename: N:\SW\Drawings\C-KYL-P-CHNL.dwg



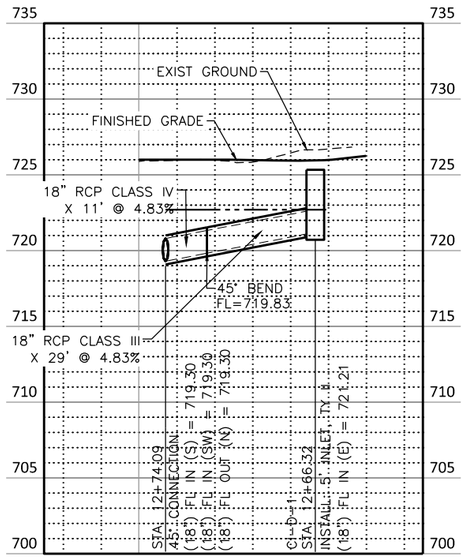
CI-C-1 TO LINE C



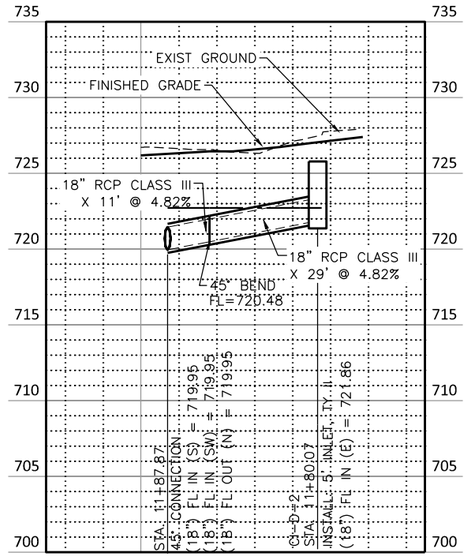
CI-C-2 TO LINE C



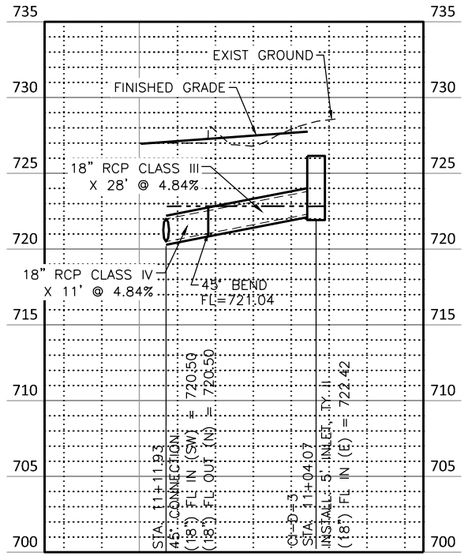
LINE C



CI-D-1 TO LINE D



CI-D-2 TO LINE D



CI-D-3 TO LINE D

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL

0 5' 10'
VERTICAL

Freese and Nichols, Inc.
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINES C & D LATERALS

FAN JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	CG
DRAWN	NO
REVISED	NO
CHECKED	JDV
FILE NAME	C-KYL-PP-STRM01.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1

SHEET 162

TOTAL 292

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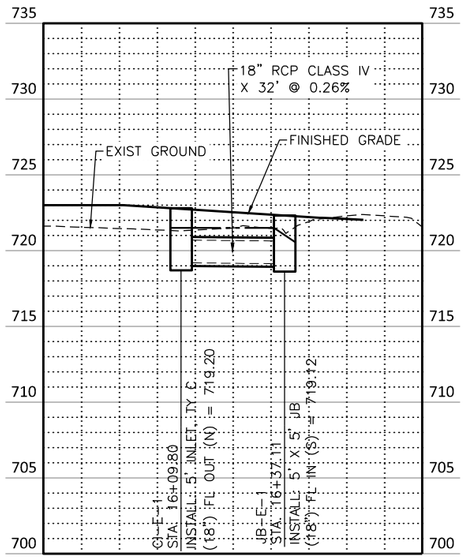
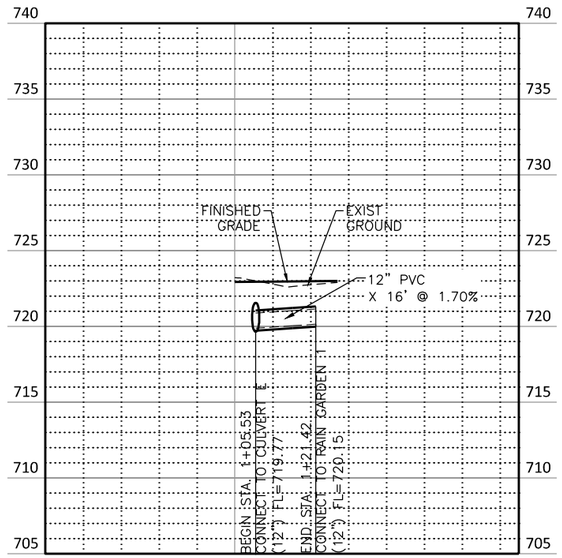
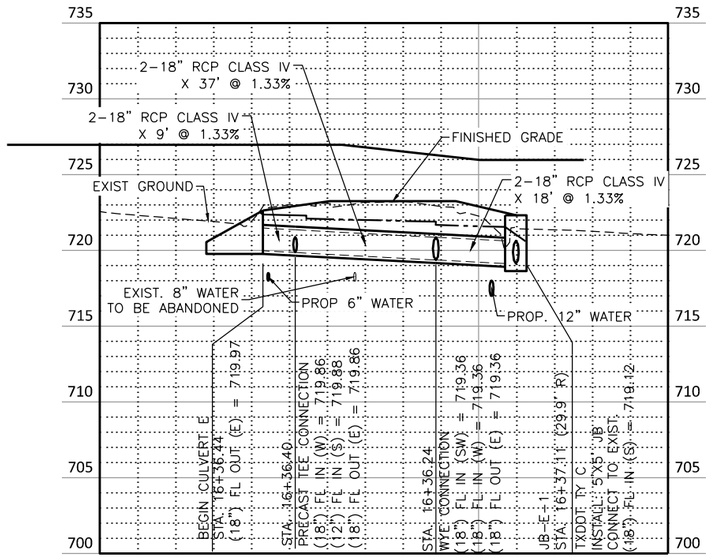


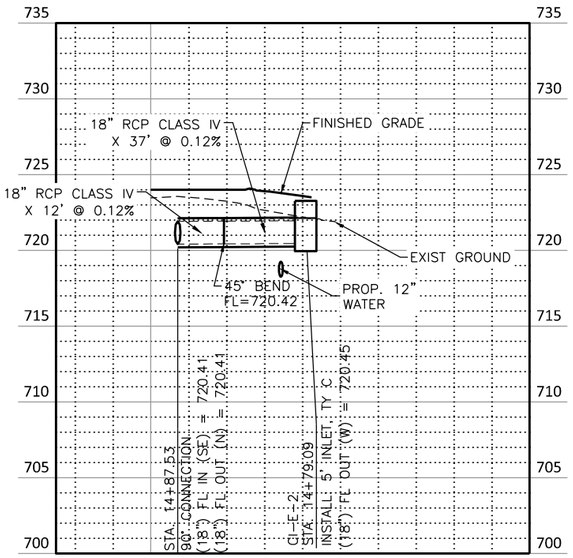
CI-E-1 TO JB-E-1



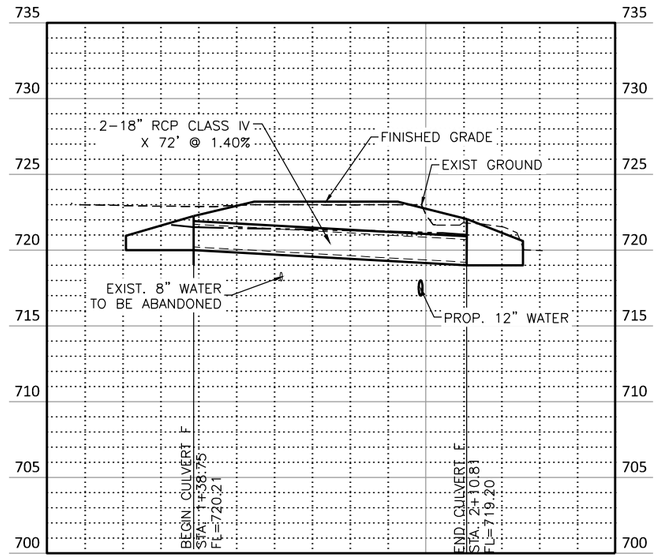
RAIN GARDEN 1 TO CULVERT E



CULVERT E



CI-E-2 TO LINE E



CULVERT F

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL

0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINES E & F LATERALS

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 163
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/22/2018 12:38 PM Saved By: no

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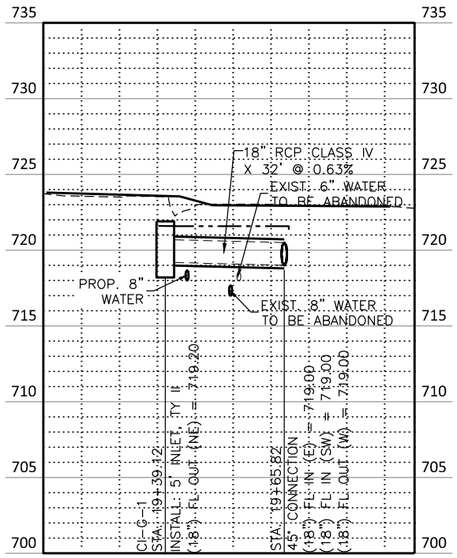
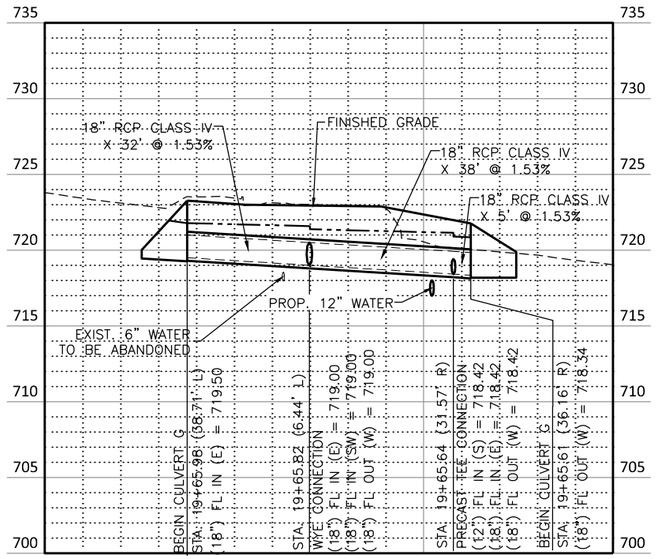
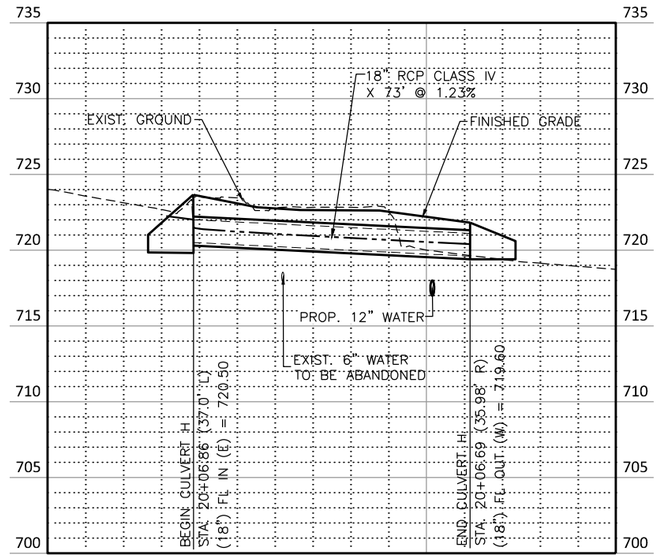


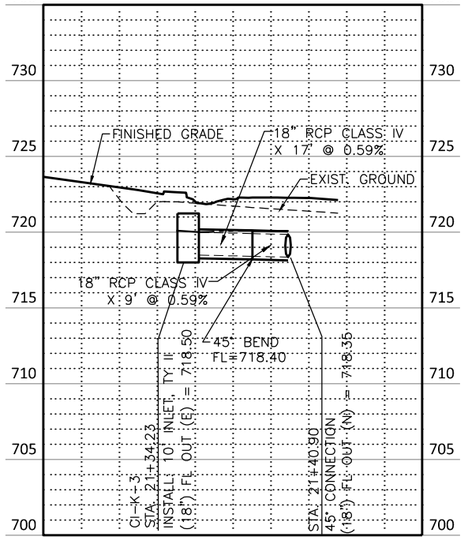
CI-G TO CULVERT G



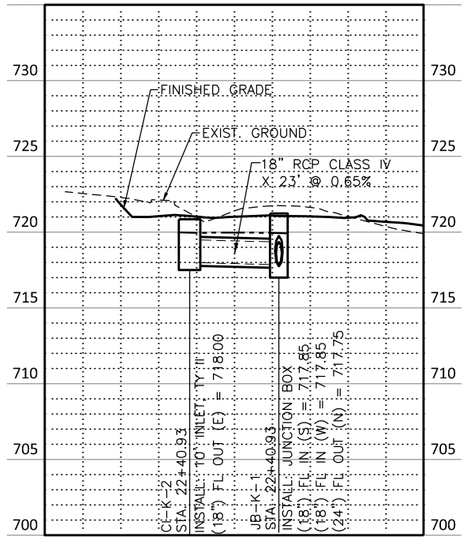
CULVERT G



CULVERT H



CI-K-3 TO LINE K



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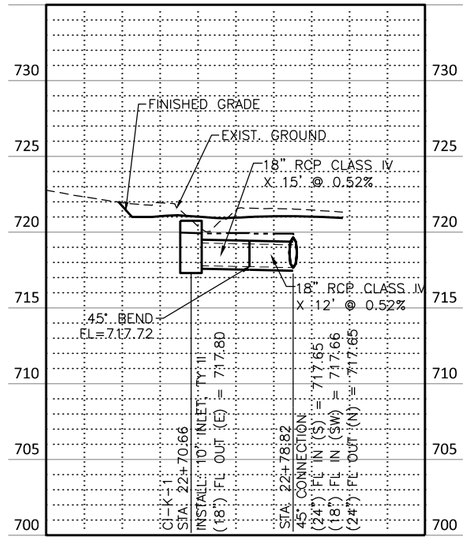
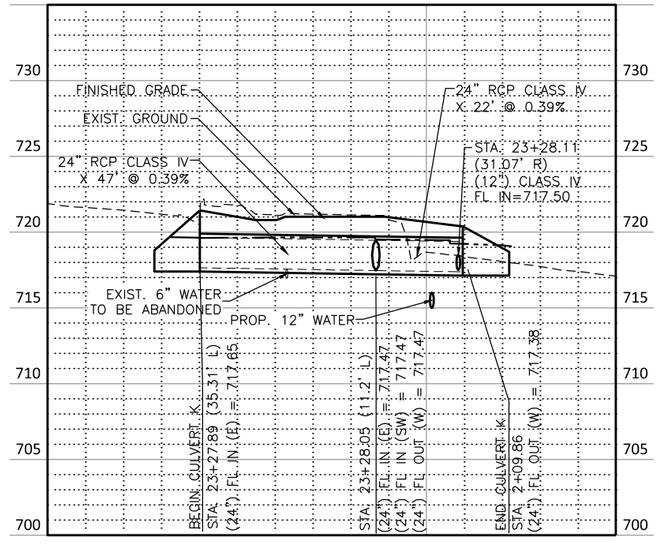


CI-K-1 TO LINE K



CULVERT K

NOTE:
1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL

0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINES G, H, & K LATERALS

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 164
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM02.dwg
Last Saved: 5/22/2018 12:38 PM Saved By: no

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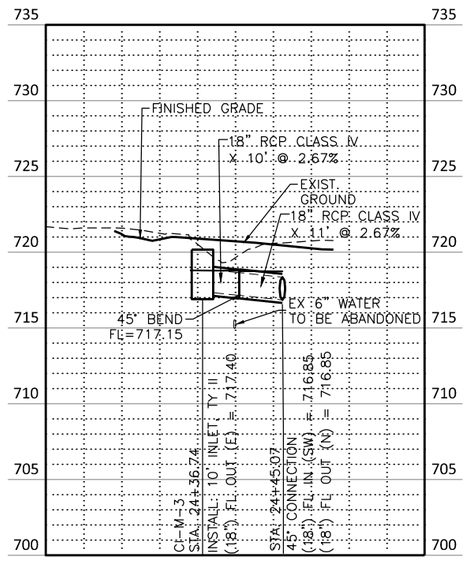
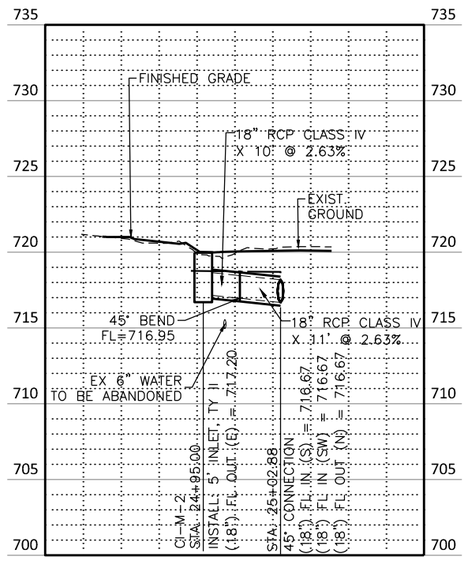
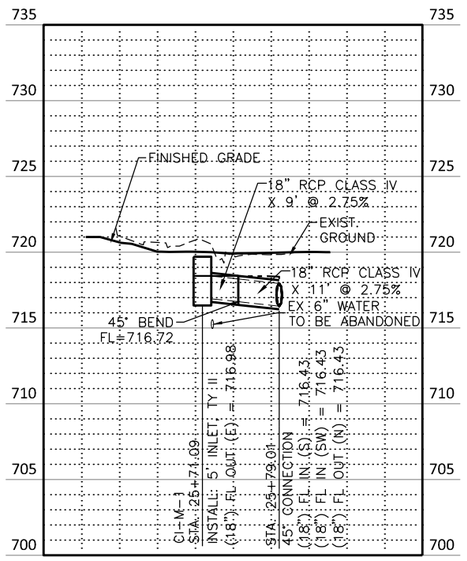


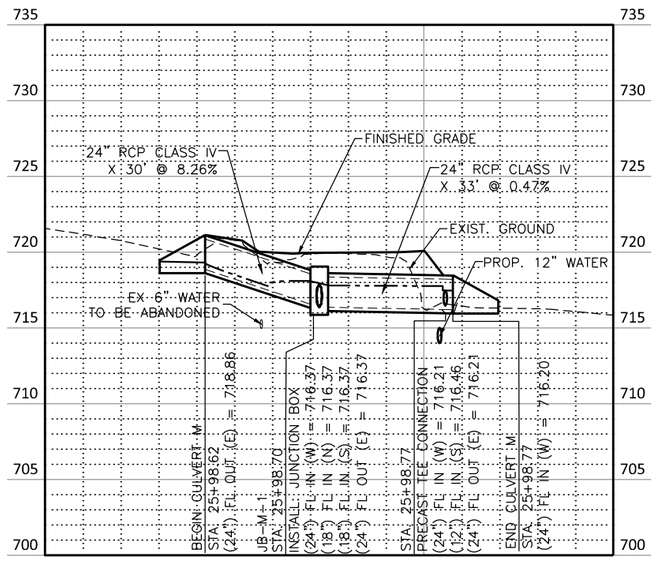
CI-M-3 TO LINE M



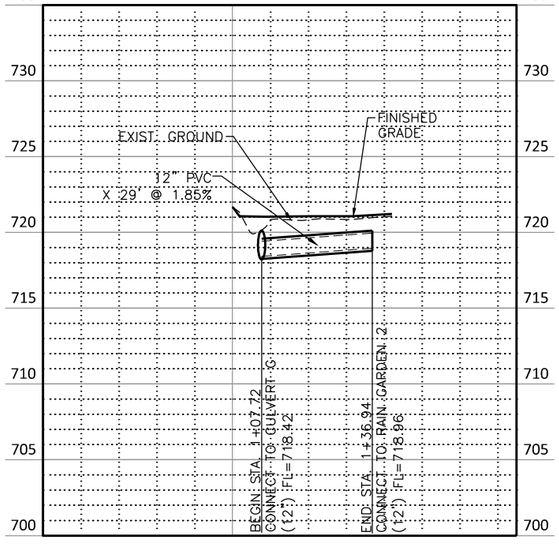
CI-M-2 TO LINE M



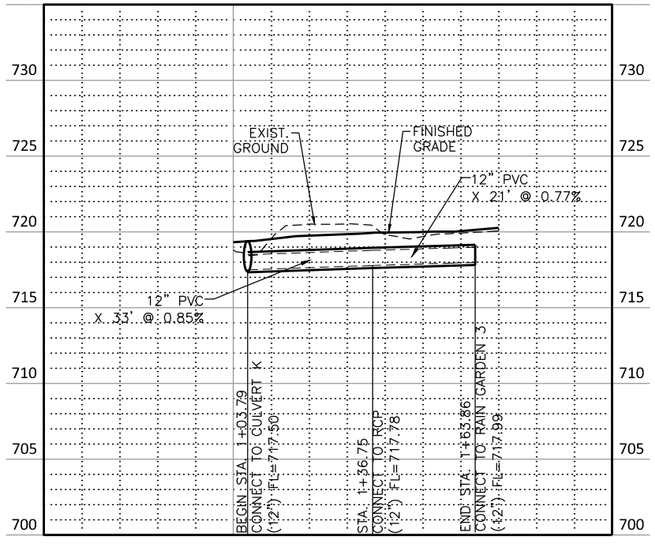
CI-M-1 TO LINE M



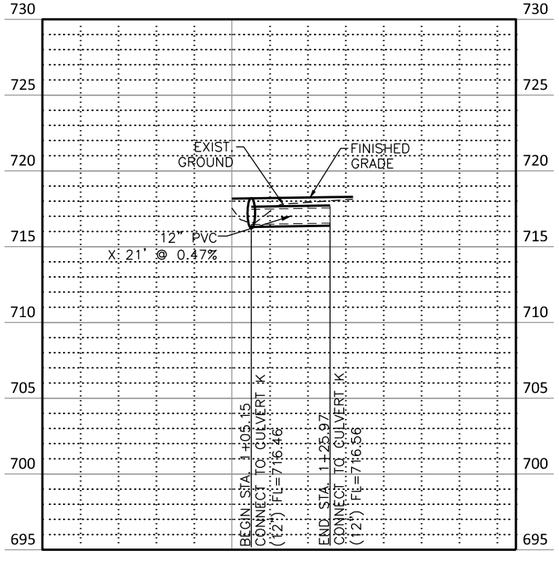
CULVERT M



RAIN GARDEN 2 TO CULVERT G



RAIN GARDEN 3 TO CULVERT K



RAIN GARDEN 4 TO CULVERT M

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL

0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINE M LATERALS

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 165
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/22/2018 12:38 PM Saved By: no

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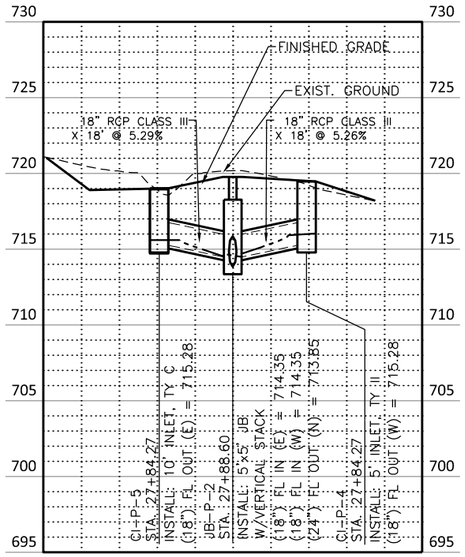
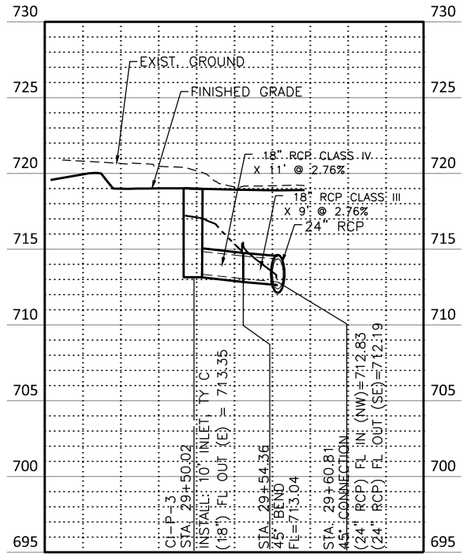
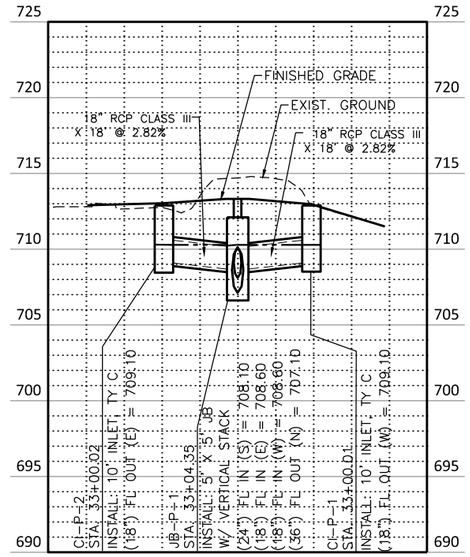


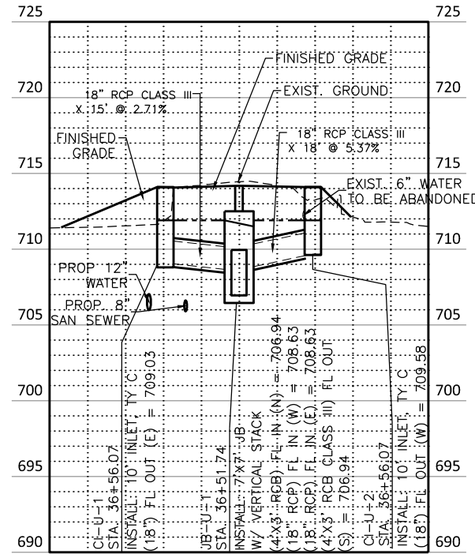
CI-P-4 & CI-P-5 TO JB-P-2



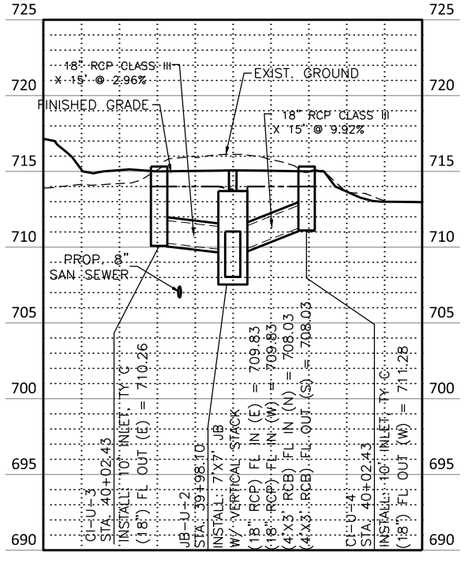
CI-P-3 TO LINE P



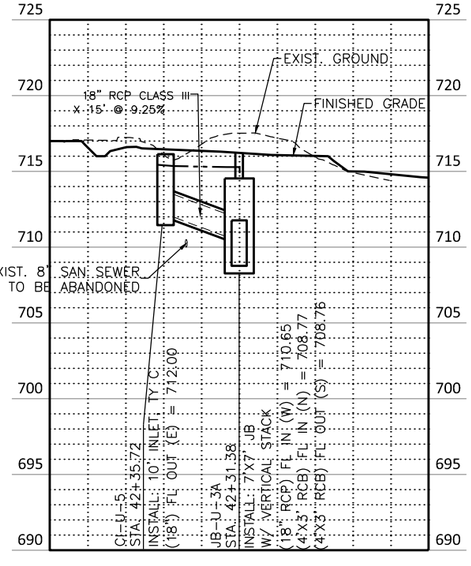
CI-P-1 & CI-P-2 TO JB-P-1



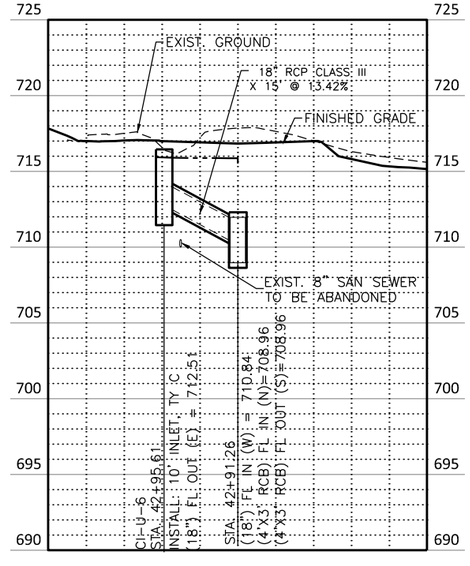
CI-U-1 & CI-U-2 TO JB-U-1



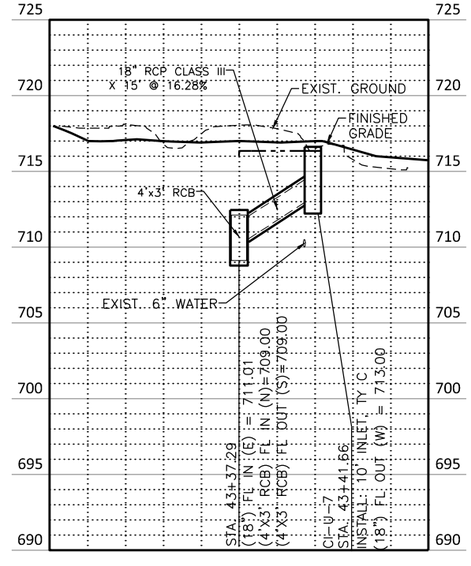
CI-U-3 & CI-U-4 TO JB-U-2



CI-U-5 TO JB-U-3A



CI-U-6 TO LINE U



CI-U-7 TO LINE U

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL

0 5' 10'
VERTICAL

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINES P & U LATERALS

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

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0 1"

SHEET 166
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/22/2018 1:13 PM Saved By: no

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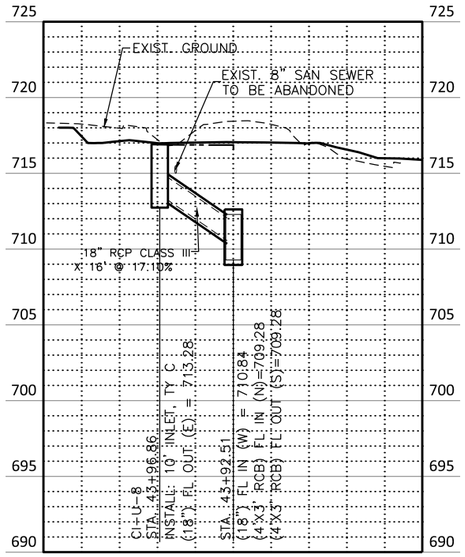
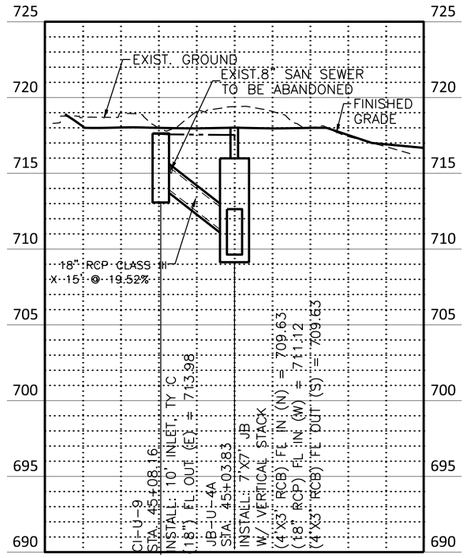
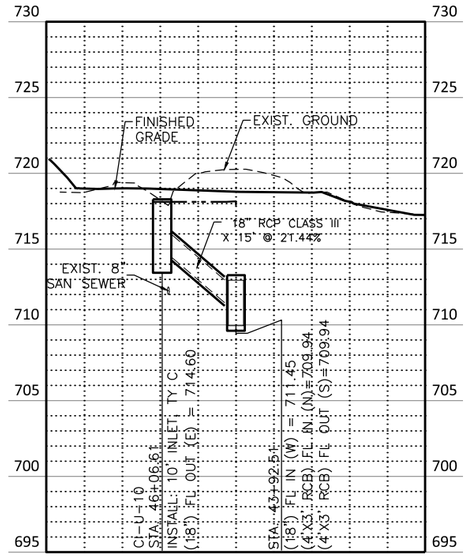


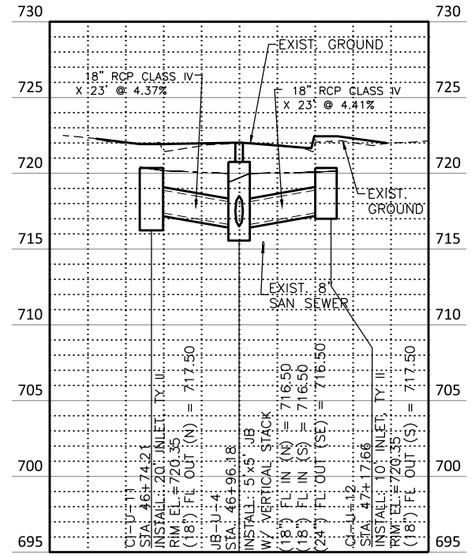
CI-U-8 TO LINE U



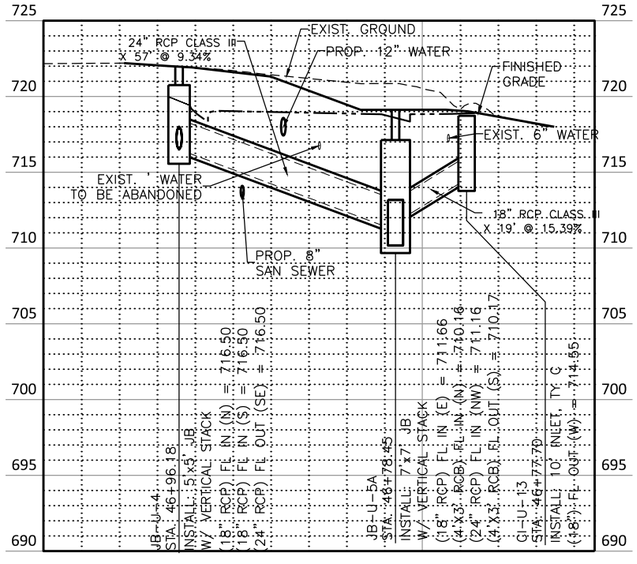
CI-U-9 TO LINE U



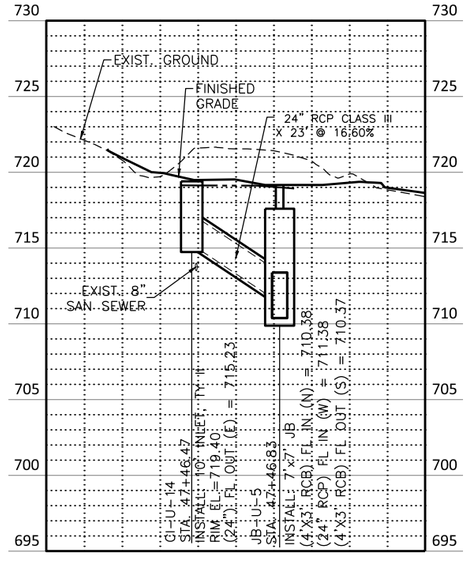
CI-U-10 TO LINE U



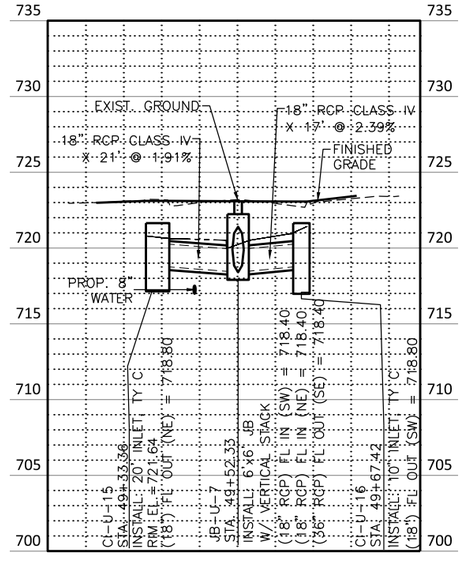
CI-U-11 & CI-U-12 TO JB-U-4



JB-U-4 & CI-U-13 TO JB-U-5A



CI-U-14 TO JB-U-5



CI-U-15 & CI-U-16 TO JB-U-7

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
KIMBERLY M. PRUITT
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LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINE U LATERALS I

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

SHEET 167
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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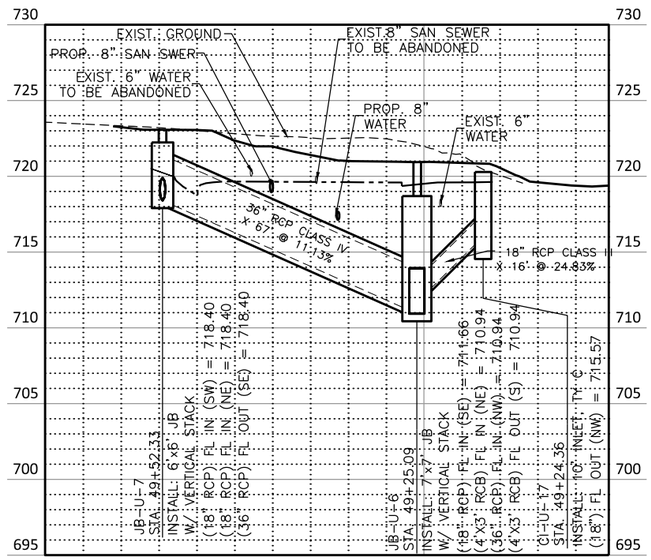
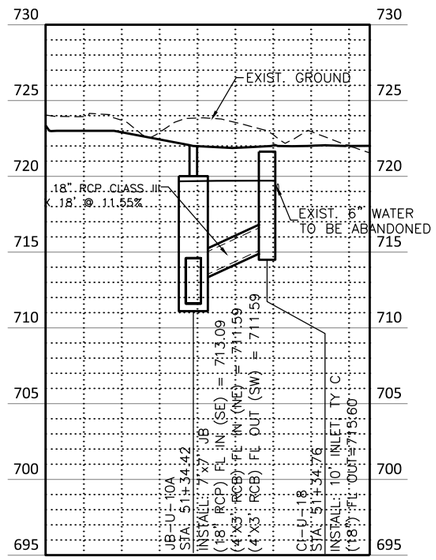
Last Saved: 5/22/2018 11:31 AM Saved By: 02641

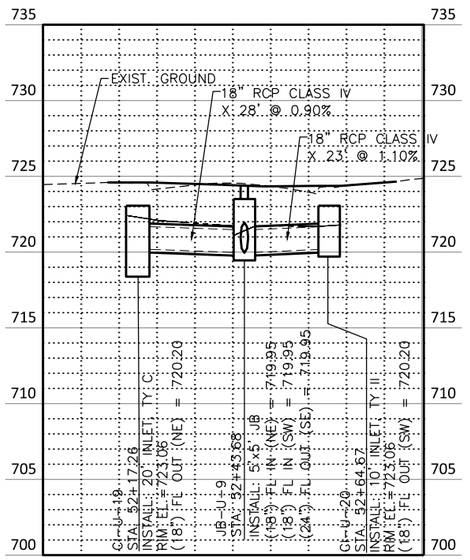
Plot Date: 5/22/2018 12:58 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg



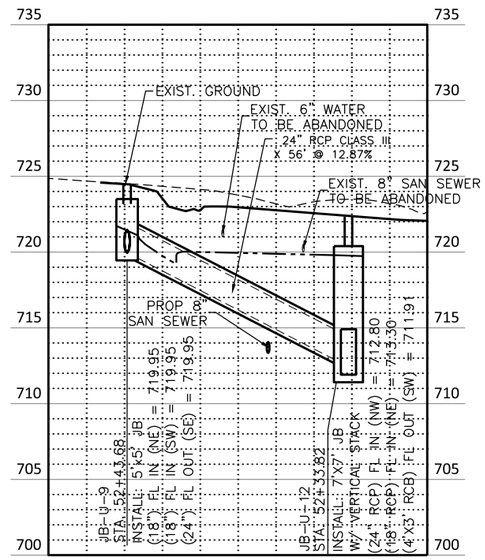
JB-U-7 & CI-U-17 TO JB-U-6



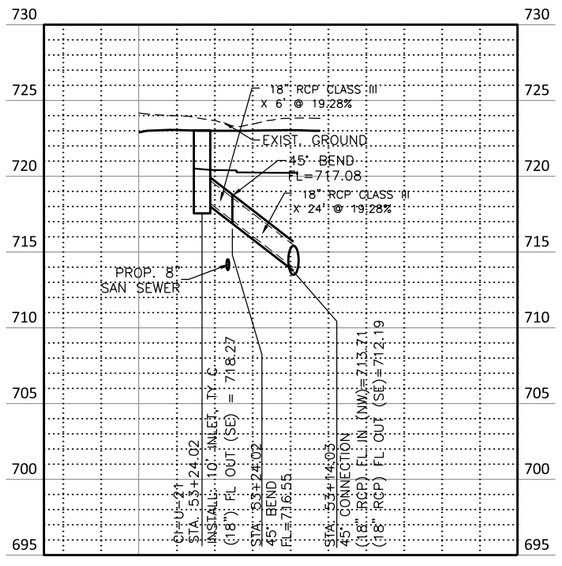
CI-U-18 TO JB-U-10A



CI-U-19 & CI-U-20 TO JB-U-9



JB-U-9 TO JB-U-12



CI-U-21 TO LINE U

NOTE:

1. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

LEGEND

5-YR HYDRAULIC GRADE LINE

0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JEREMY D. JOHNSON
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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

STORM DRAIN LINE U LATERALS II

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 168
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM04.dwg
Last Saved: 5/22/2018 11:31 AM Saved By: 02641

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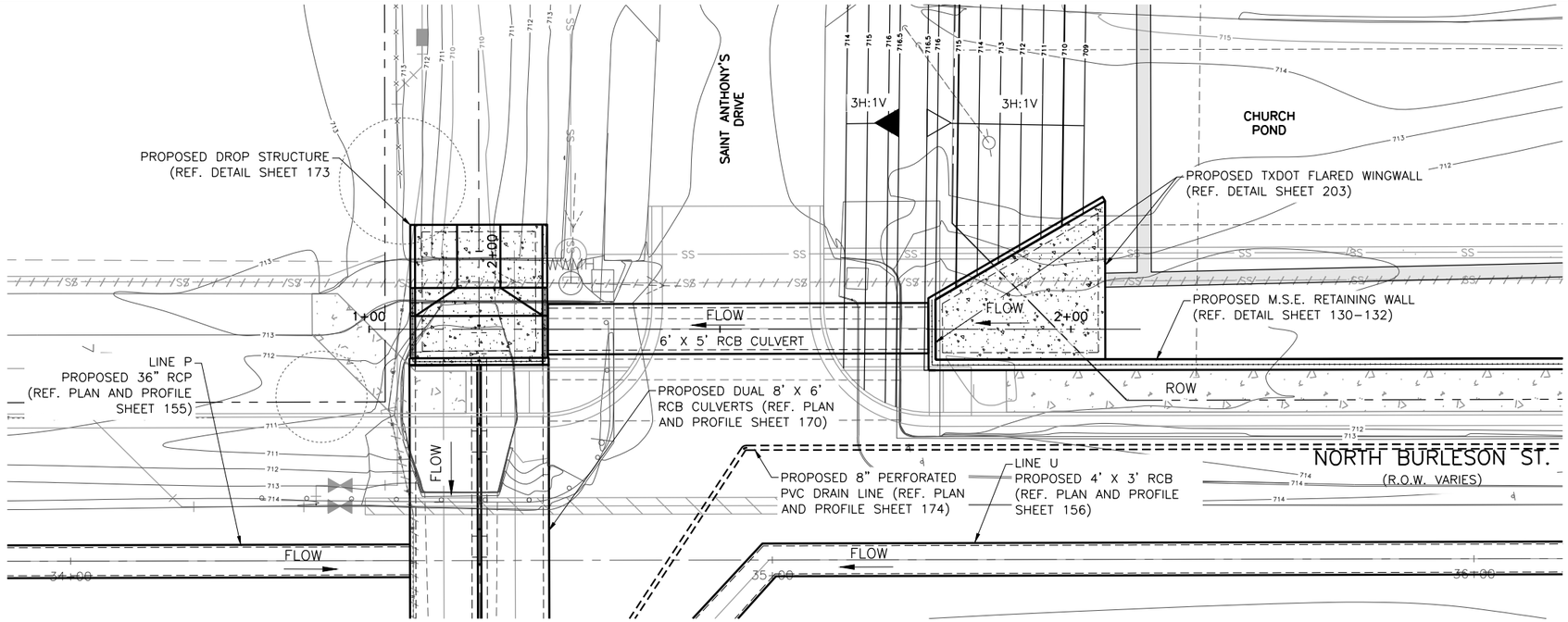
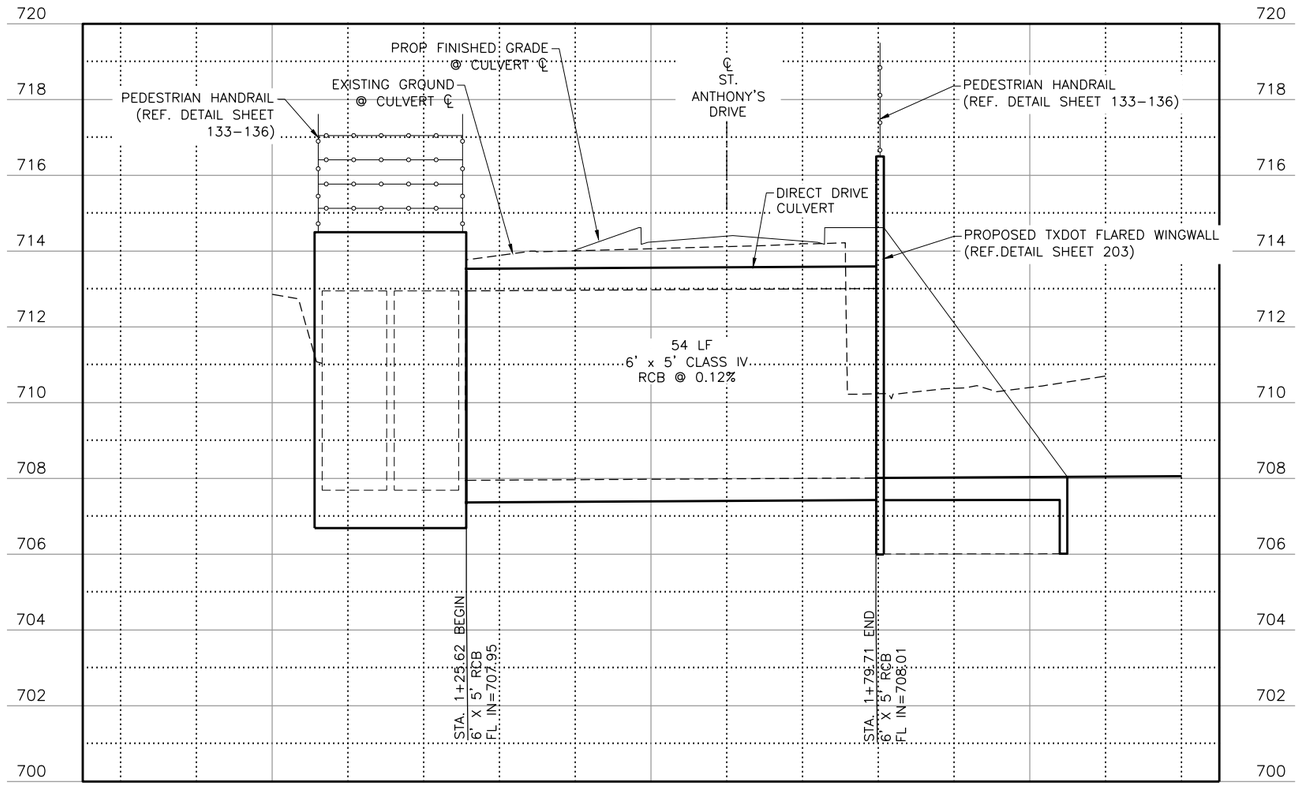


POND CULVERT PLAN



POND CULVERT PROFILE

0 10' 20'
SCALE IN FEET

0 2' 4'
SCALE IN FEET

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAL
JOSEPH D. VILLARREAL
97367
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PROFESSIONAL
ENGINEER
5/22/2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
ST ANTHONYS POND CULVERT

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PI-POND.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 169
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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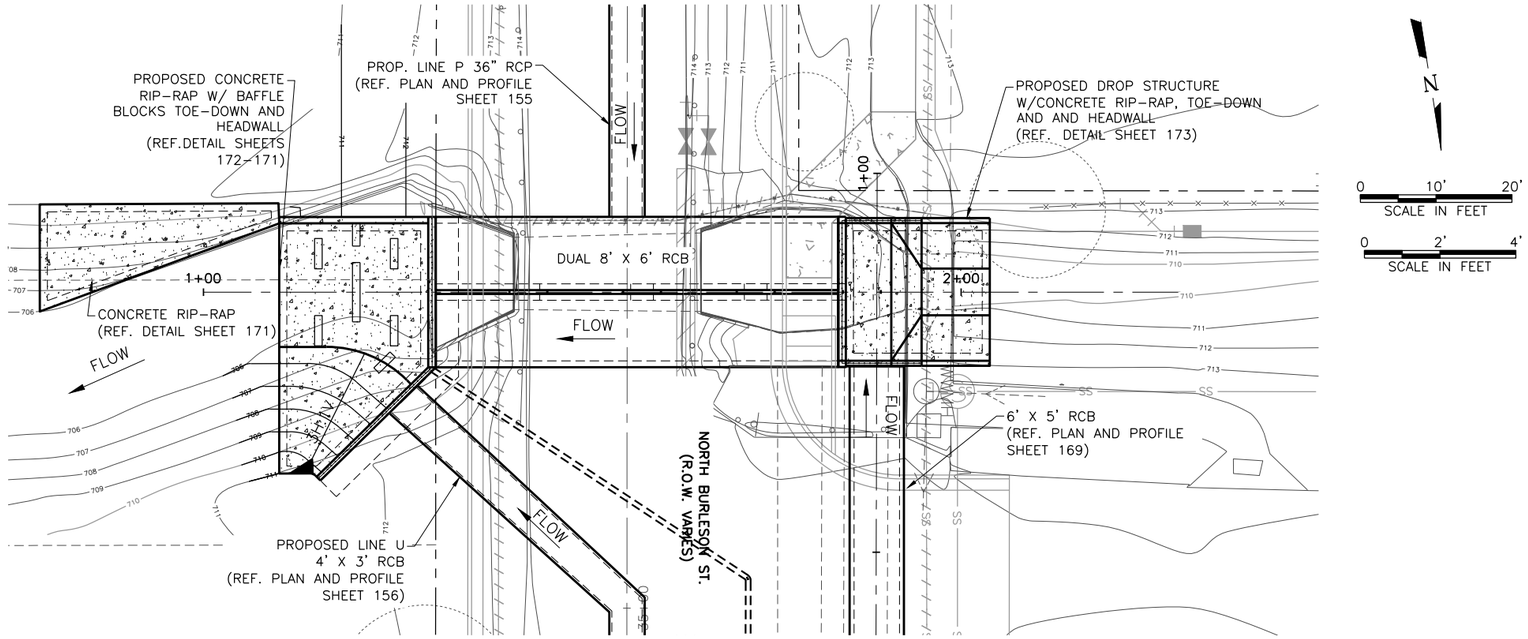
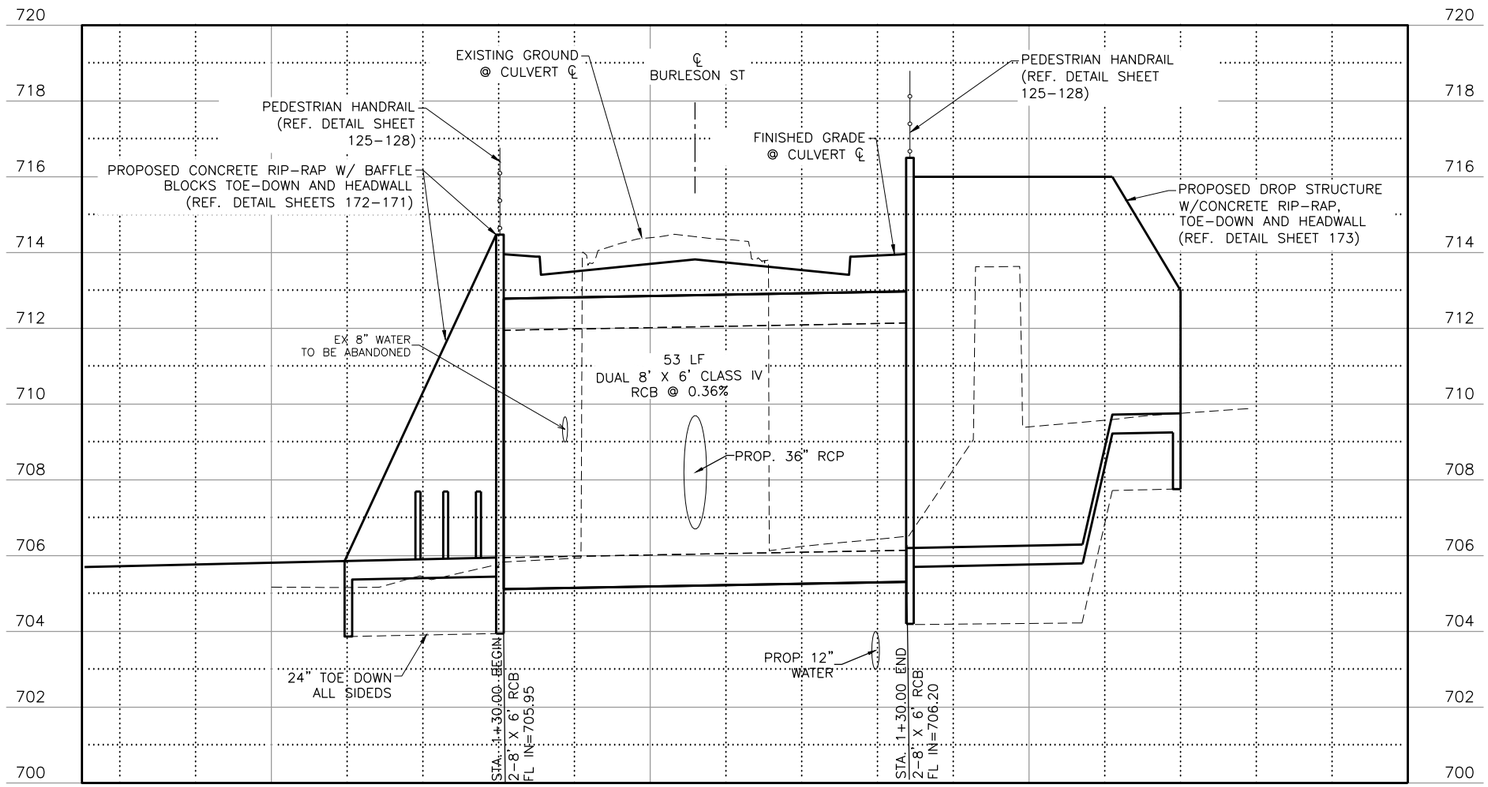


CULVERT P PLAN



CULVERT P PROFILE

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

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PROFESSIONAL
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5/22/2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET CULVERT

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PI-POND.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 170
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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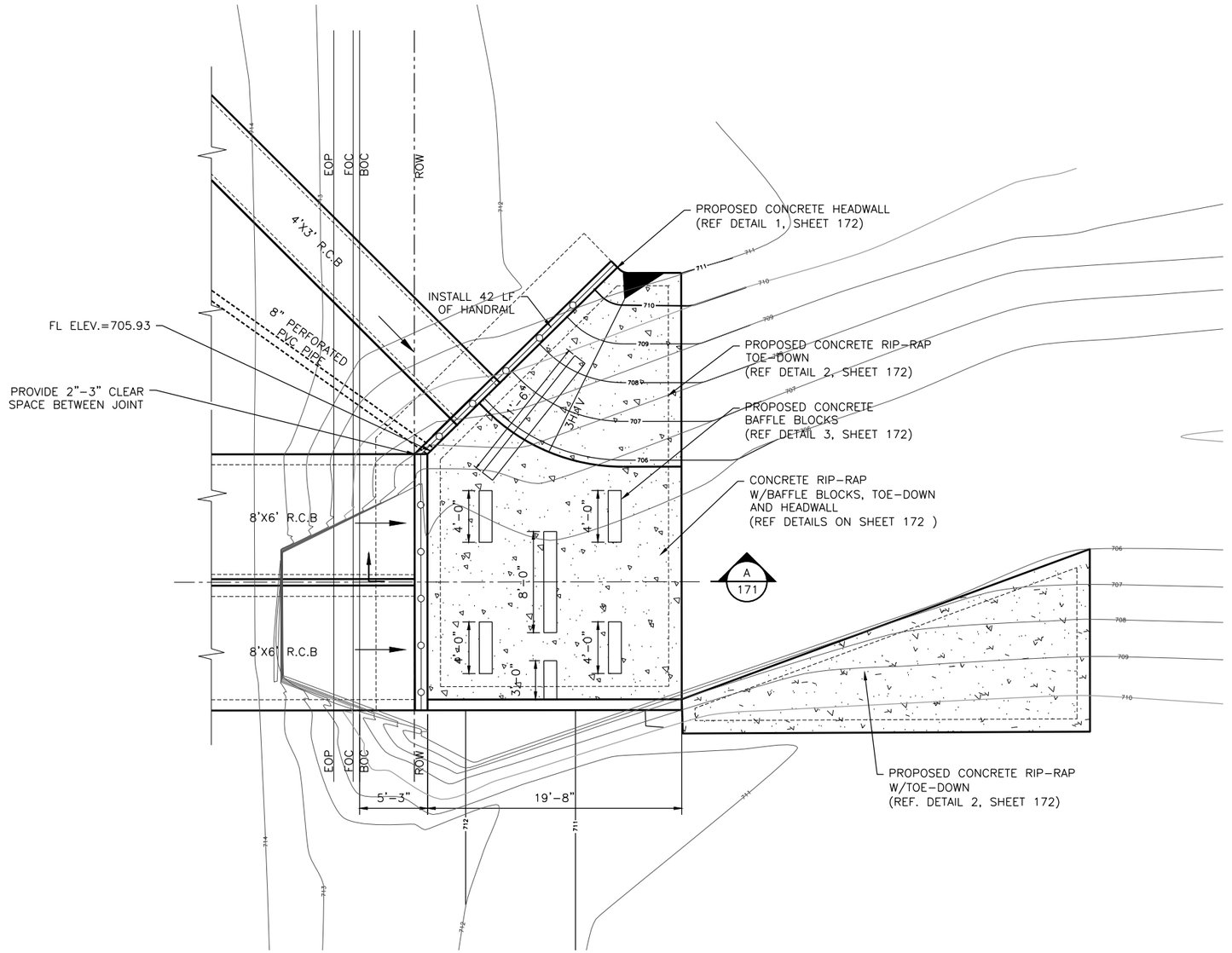

N

CULVERT P-DOWNSTREAM CONCRETE APRON W/BAFFLE BLOCKS

SCALE: 1"=5'-0"

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
SHANE RAY TORNO
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5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET STRUCTURAL DETAILS

NO.	REVISION	BY	DATE

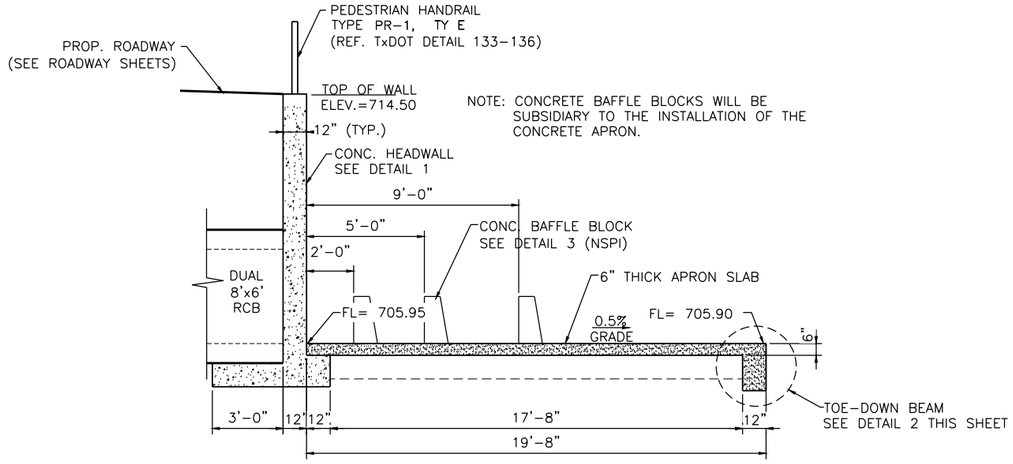
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-DT-CULV.dwg

SHEET 171
TOTAL 292

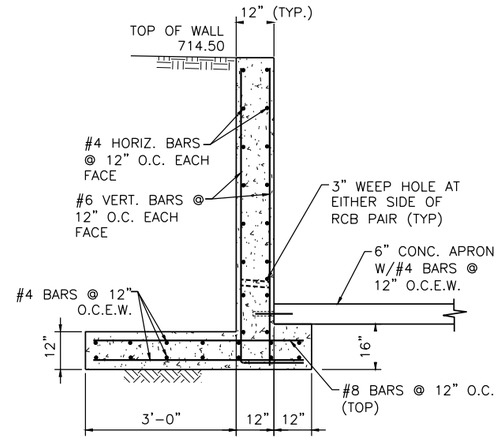
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-DT-CULV.dwg
Last Saved: 5/21/2018 9:18 AM Saved By: no

Plot Date: 5/21/2018 3:38 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-DT-CULV.dwg



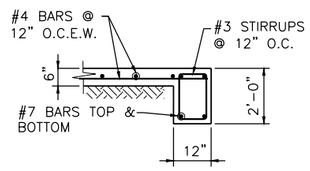
A — APRON SLAB – SECTION

NOT TO SCALE



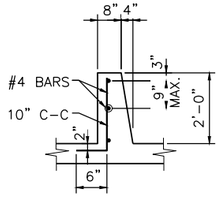
1 — HEADWALL DETAIL

SCALE: NOT TO SCALE



2 — TOE-DOWN BEAM

SCALE: NOT TO SCALE



3 — BAFFLE BLOCK DETAIL

SCALE: NOT TO SCALE

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
SHANE RAY TORNO
89499
LICENSED PROFESSIONAL ENGINEER
5-22-2018

FREESE NICHOLS
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Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
BURLESON STREET OUTFALL
STRUCTURAL DETAILS

NO.	REVISION	BY	DATE

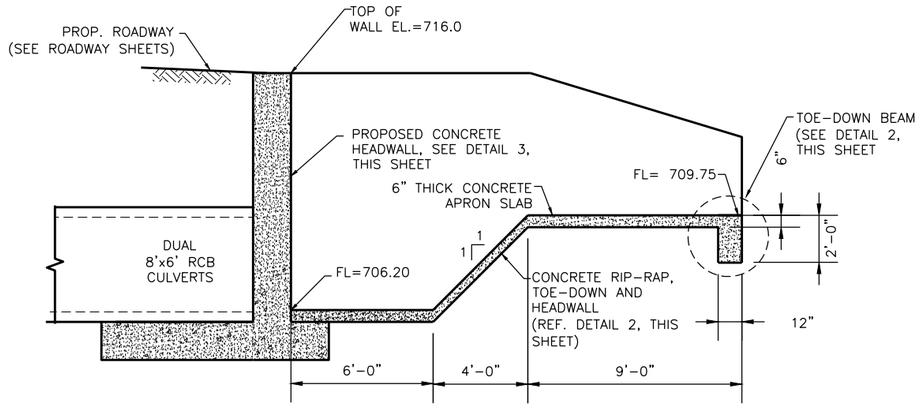
F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CC
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-DT-CULV.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 172
TOTAL 292

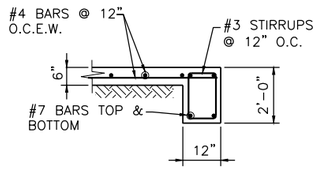
ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-DT-CULV.dwg
Last Saved: 5/21/2018 9:18 AM Saved By: no

Plot Date: 5/21/2018 3:38 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-DT-CULV.dwg



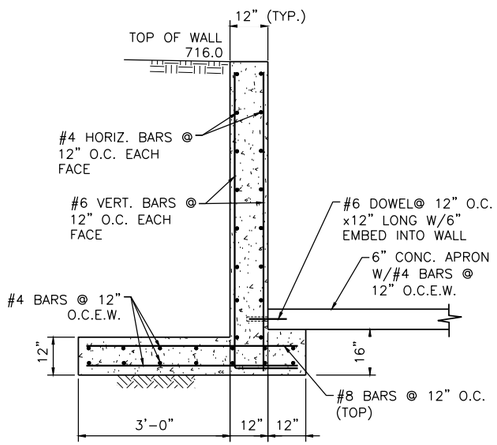
1 — CULVERT P-UPSTREAM DROP STRUCTURE SECTION

NO TO SCALE



2 — TOE-DOWN BEAM

SCALE: NOT TO SCALE



3 — HEADWALL DETAIL

SCALE: NOT TO SCALE

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
SHANE RAY TORNO
89499
LICENSED
PROFESSIONAL ENGINEER

5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

BURLESON STREET ENTRANCE STRUCTURAL DETAILS

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-DT-CULV2.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 173

TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/18/2018 9:31 AM Saved By: 02762

Plot Date: 5/21/2018 3:40 PM Plot By: no Filename: N:\SW\Drawings\C-KYL-DT-CULV2.dwg

50' DRAINAGE ESMT.
VOL. 1864, PG. 521, O.P.R.H.C.

N

0 15' 30' 60'
SCALE IN FEET

D
175

N=13913008.91
E=2324180.12

N=13913058.29
E=2324187.93

INSTALL PTRM (NORTH AMERICAN) GREEN P300 OR APPROVED EQUAL (REF. DETAILS SHEET 175)

5' WIDE BOTTOM (204 LF), TRANSITION TO 17' WIDE BOTTOM (145 LF) CHANNEL W/3:1 SIDE SLOPES

N=13912977.15
E=2324380.87

N=13913026.53
E=2324388.72

CONTRACTOR TO PROTECT PIPE RIPRAP/OUTFALL, OR REMOVE & REPLACE AS REQ'D FOR CONSTRUCTION

MITER EXISTING 24" CMP WITH GROUTED RIP RAP (REF. DETAIL 5 ON SHEET 180)

N=13912419.51
E=2324318.56

N=13912400.34
E=2324315.51

N=13912438.00
E=2324348.70

A
176

MITER (3) EXIST. 8" PVC W/ GROUTED ROCK RIPRAP (REF. DETAIL 5 ON SHEET 173)

CATHOLIC DIOCESE OF AUSTIN
801 N. BURLESON RD.
KYLE, TX. 78640

N=13912597.36
E=2324377.97

PROPOSED CONC. PILOT CHANNEL (TYP) (REF. SHEET 180)

MITER EXIST. 24"x32" ELLIPTICAL CMP W/GROUTED ROCK RIPRAP (REF. DETAIL 5 ON SHEET 173)

CONTRACTOR TO REMOVE EXISTING MASONRY SIGN AND REINSTALL NEW MASONRY SIGN IN KIND. CONTRACTOR TO COORDINATE WITH CHURCH ON LOCATION AND FINAL CONFIGURATION. SIGN RELOCATION SHALL BE SUBSIDARY TO THE INSTALLATION OF THE POND.

MITER (2) EXIST. 6" PVC W/ GROUTED ROCK RIPRAP (REF. DETAIL 5 ON SHEET 173)

SAINT ANTHONY'S DRIVE

PROPOSED CHURCH POND

TXDOT FLARED HEADWALL (REF. DETAIL SHEET 203)

0.71% SLOPE

EXIST. DRAINAGE STRUCTURE TO BE REMOVED

GRADE TO DRAIN

EXISTING CONCRETE SIDEWALK TO BE REMOVED

B
176

C
176

6' X 5' CULVERT (REF. PLAN AND PROFILE SHEET 169

DROP STRUCTURE W/CONCRETE RIP-RAP. TOE-DOWN AND HEADWALL (REF. DETAIL SHEET 173)

ELEV. 708.00

N=13912600.15
E=2324483.27

N=13912763.65
E=2324509.28

CONCRETE HEADWALL, 18"RCP AND APRON (REF. DETAIL A ON SHEET 177)

N=13912803.01
E=2324515.69

N=13912969.32
E=2324526.84

N=13912957.83
E=2324539.50

N=13912949.58
E=2324536.05

14.00

CONCRETE HEADWALL, 18"RCP AND APRON (REF. DETAILS B-C ON SHEET 177)

23 LF OF M.S.E. RETAINING WALL W/ HANDRAIL (REF. DETAIL SHEET 130-132)

N=13912979.65
E=2324570.33

N=13912954.88
E=2324558.03

FLOW

CONCRETE SIDEWALK

N=13912758.92
E=2324538.57

N=13912798.19
E=2324545.96

N=13912952.88
E=2324570.61

56°35'56" DEFL. RT.

NORTH BURLESON ST.
(R.O.W. VARIES)

JACK AND BORE 30" CARRIER PIPE WITH SPACERS ON 2 FT CENTERS OF 18" RCP. GROUT VOIDS.

PROPOSED 36" RCP REF. PLAN AND PROFILE SHEET 156)

PROPOSED DUAL 8' X 6' RCB CULVERTS (REF. PLAN AND PROFILE SHEET 170)

PROPOSED APRON SLAB W/BAFFLE BLOCKS, TOE-DOWN AND HEADWALL (REF.DETAIL SHEET 171)

MORENO ST.

EXIST. SAN. SEWER LINE TO BE ABANDONED IN PLACE, OR REMOVED AS REQ'D FOR CONSTRUCTION

PROPOSED 4' X 3' RCB (REF. PLAN AND PROFILE SHEET 156-157)

415 LF OF M.S.E. RETAINING WALL W/ HANDRAIL (REF. DETAIL SHEET 130-132)

730 LF OF 8" PERFORATED PVC DRAIN LINE @ 0.50% (TYPE 8) (REF. DETAIL SHEET 130)

TENORIO ST.

JACK AND BORE 30" CARRIER PIPE WITH SPACERS ON 2 FT CENTERS OF 18" RCP. GROUT VOIDS.

157 LF OF M.S.E. RETAINING WALL W/ HANDRAIL (REF. DETAIL SHEET 130-132)

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES V. KOCH
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PROFESSIONAL
ENGINEER
5/22/2018

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Fax - (512) 617-3101
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

ST. ANTHONY'S POND

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PI-POND.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 174
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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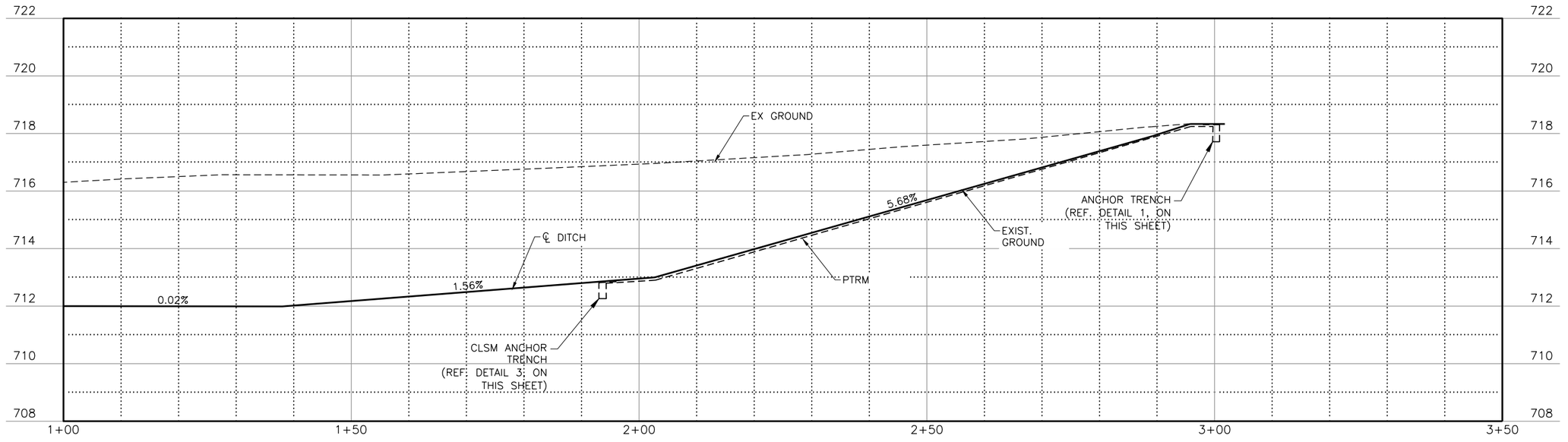
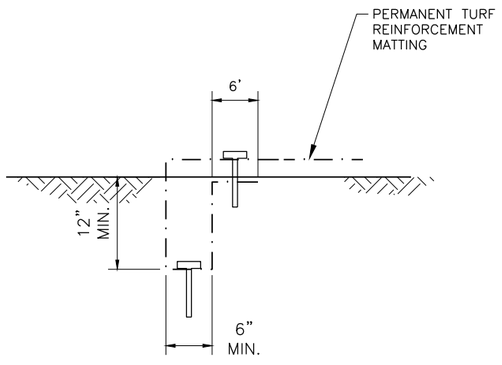


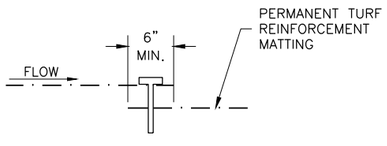
POND SECTION D–D

0 10' 20'
SCALE IN FEET

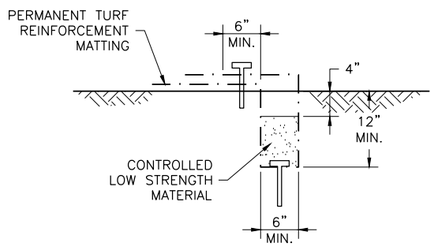
0 2' 4'
SCALE IN FEET



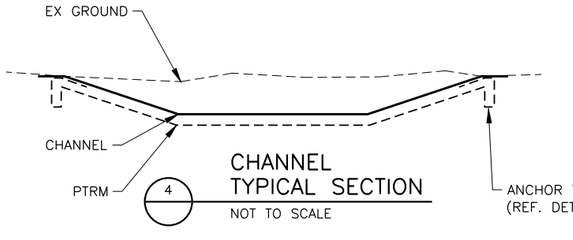
1 ANCHOR TRENCH
NOT TO SCALE



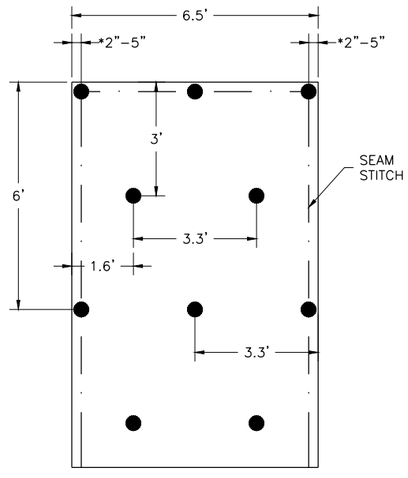
2 TYPICAL OVERLAP
NOT TO SCALE



3 CLSM ANCHOR TRENCH DETAIL
NOT TO SCALE



4 CHANNEL TYPICAL SECTION
NOT TO SCALE



1.15 STAPLES PER SQ. YD. (MIN.)

5 STAPLE LAYOUT
NOT TO SCALE

PTRM INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING PERMANENT ROLLED PERMANENT TURF REINFORCEMENT MATTING (PTRM), INCLUDING ANY NECESSARY APPLICATION, FERTILIZER, AND SEED. ALSO REMOVE ALL ROCKS, CLODS, VEGETATION OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED PTRM WILL HAVE DIRECT CONTACT WITH SOIL SURFACE.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE PTRM IN AN ANCHOR TRENCH. ANCHOR THE PTRM WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING PTRM OVER SEED AND COMPACTED SOIL. SECURE PTRM's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE PTRM.
3. ROLL THE PTRM's (A.) DOWN THE SLOPE. PTRM WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL PTRM MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE ANCHOR PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE ANCHOR PATTERN.
4. THE EDGES OF PARALLEL PTRM MUST BE STAPLED WITH APPROXIMATELY 2" – 5" OVERLAP DEPENDING ON PTRM TYPE. THE HIGHER ELEVATION PTRM SHOULD BE PLACED OVER THE LOWER PTRM.
5. CONSECUTIVE PTRM SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE PTRM WIDTH.
6. COVER PTRM WITH TOPSOIL AND SOD FOR EROSION CONTROL WITHOUT EXCEEDING 1" IN DEPTH. INSTALL ADDITIONAL STAKING OR STAPLING TO HOLD SOD IN PLACE.
7. KEEP TRAFFIC TO A MINIMUM AFTER PLACEMENT OF PTRMS.
8. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER INSTALLATION RECOMMENDATIONS.

NOTE: *IN LOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE PTRM.

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
ST. ANTHONY'S POND PTRM DETAILS

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CC
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PI-POND.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 175
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/21/2018 11:31 AM Saved By: no

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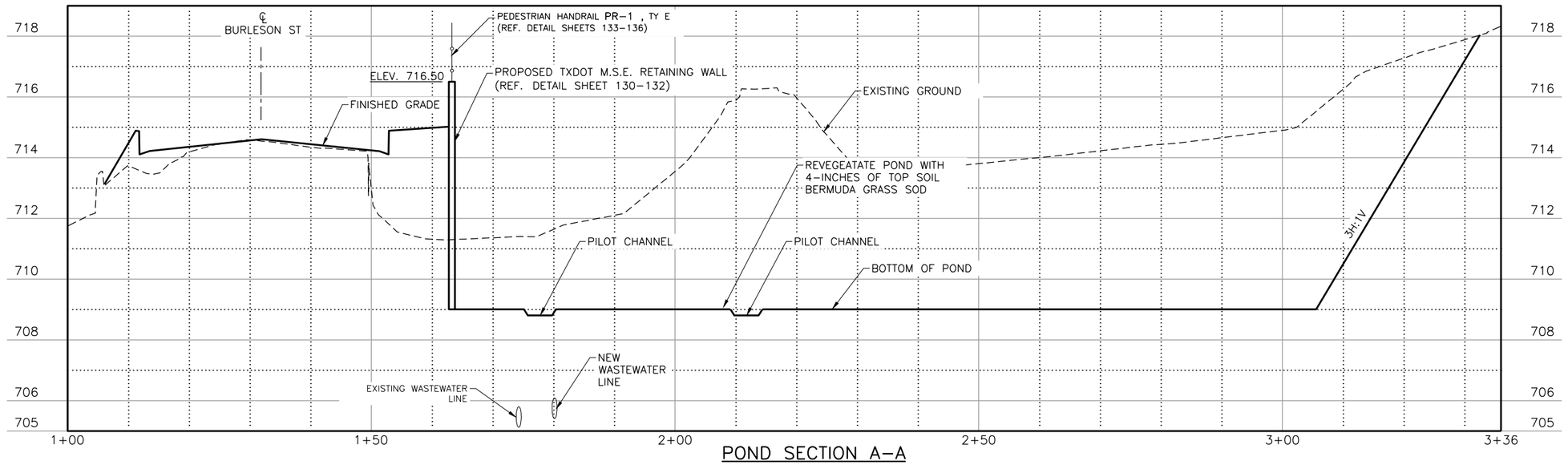
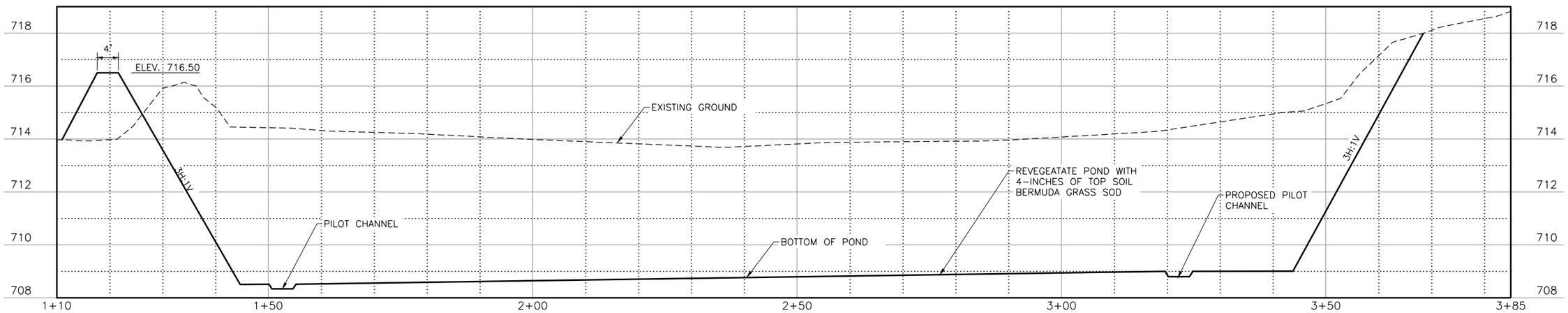


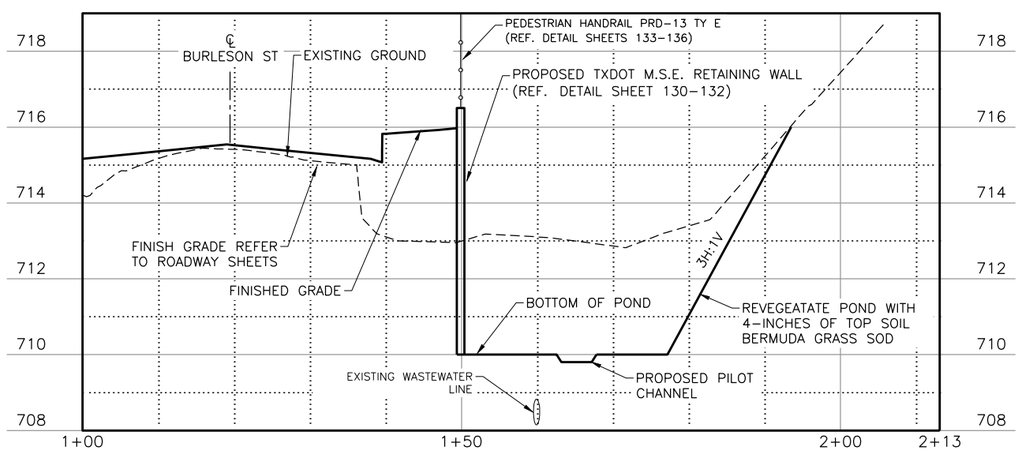
POND SECTION A-A



POND SECTION B-B

NOTES:

1. IN AREAS REQUIRING CUT/FILL CONTRACTOR SHALL STRIP 6" OF TOPSOIL (WHERE AVAILABLE) AND STOCKPILE FOR REUSE.
2. ALL DISTURBED AREAS SHALL BE REVEGETATED PER (SPECIFICATION 609).



POND SECTION C-C

0 10' 20'
SCALE IN FEET

0 2' 4'
SCALE IN FEET

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N. BURLESON ST. IMPROVEMENTS

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ST. ANTHONY'S POND SECTIONS

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REVISED NO
CHECKED JDV
FILE NAME C-KYL-PI-POND.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 176
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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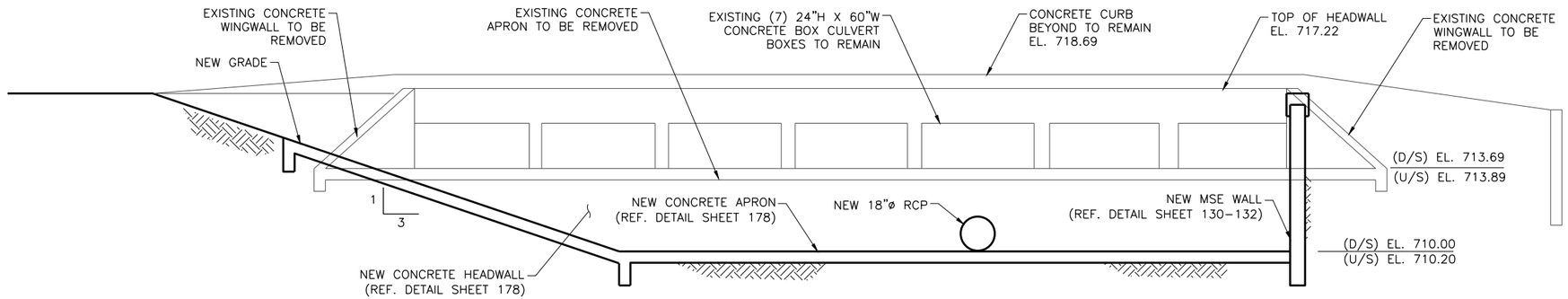
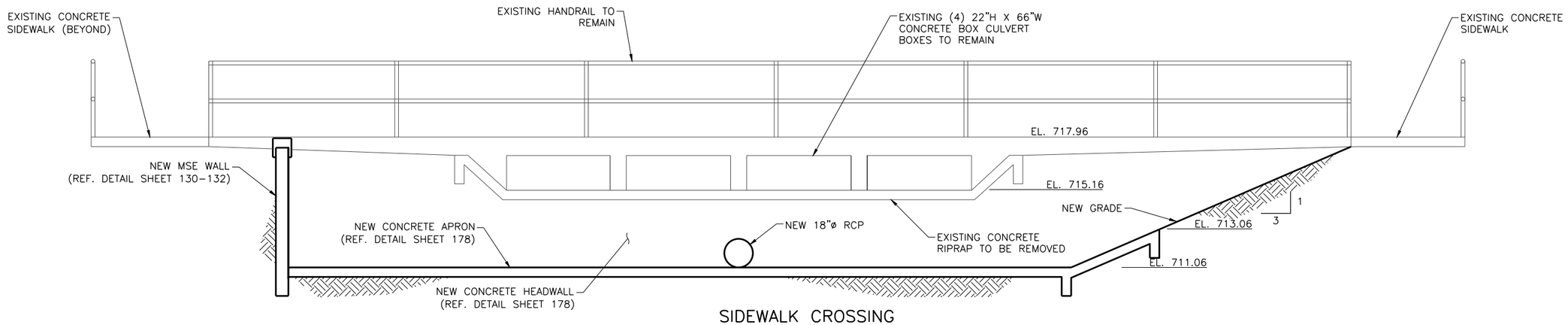


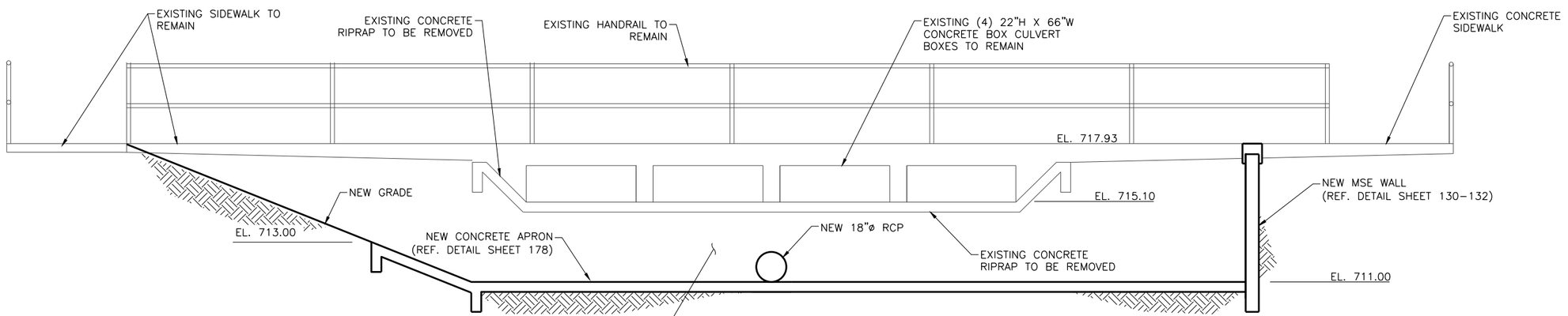
A DRIVEWAY CROSSING ELEVATION

NOT TO SCALE



B SIDEWALK CROSSING UPSTREAM ELEVATION

NOT TO SCALE



C SIDEWALK CROSSING DOWNSTREAM ELEVATION

NOT TO SCALE

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CIVIL

ST. ATHONY'S POND CROSSING SECTIONS

FNI JOB NO. KYL14284		
DATE 5/21/2018		
DESIGNED	CK	
DRAWN	NO	
REVISED	NO	
CHECKED	JBL	
FILE NAME	ST-KYL-DT-STRC01.dwg	

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

SHEET 177

TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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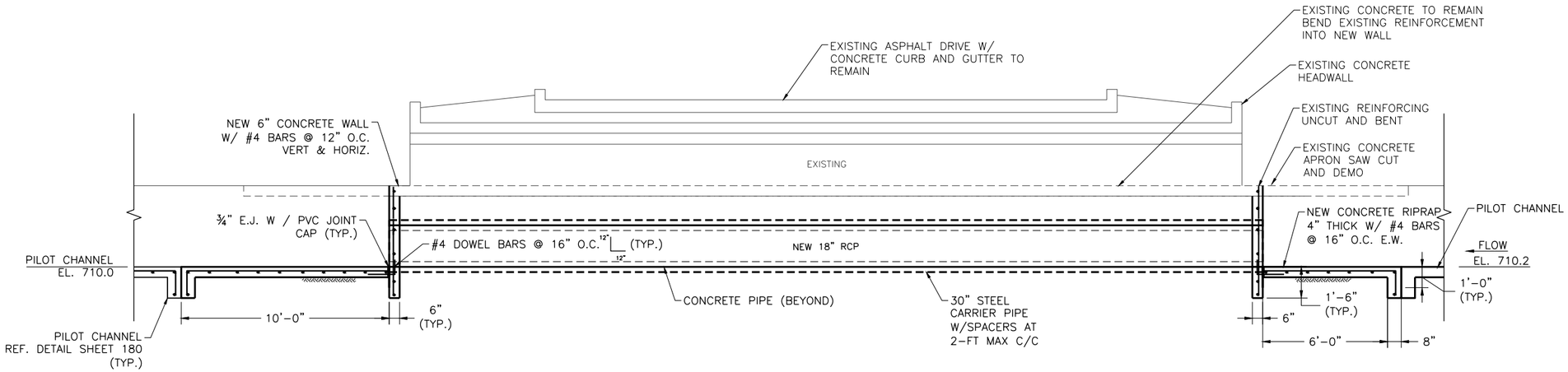
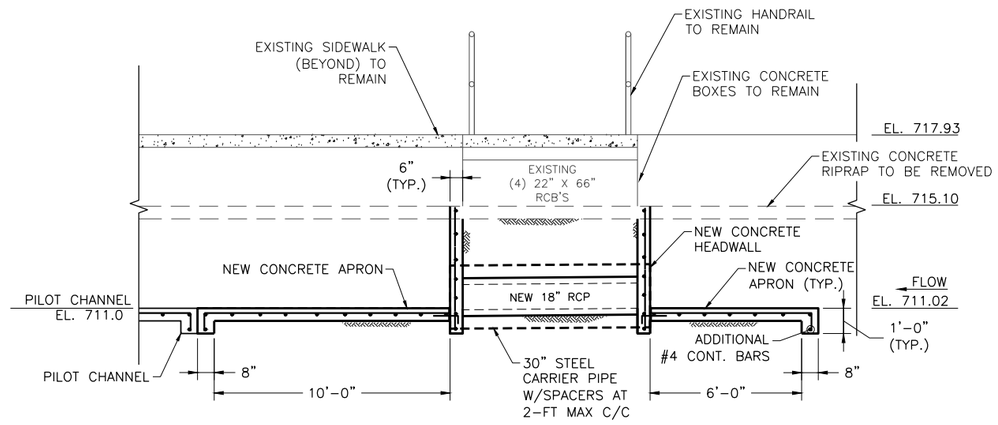


A / SK5 SECTION @ EXISTING DRIVEWAY

0 3' 6'
SCALE IN FEET



A / SK3 SECTION @ SIDEWALK CROSSING

0 3' 6'
SCALE IN FEET

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

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ST. ATHONY'S POND CROSSING
STRUCTURAL DETAILS I

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
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REVISED NO
CHECKED JBL
FILE NAME ST-KYL-DT-STRC02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 178
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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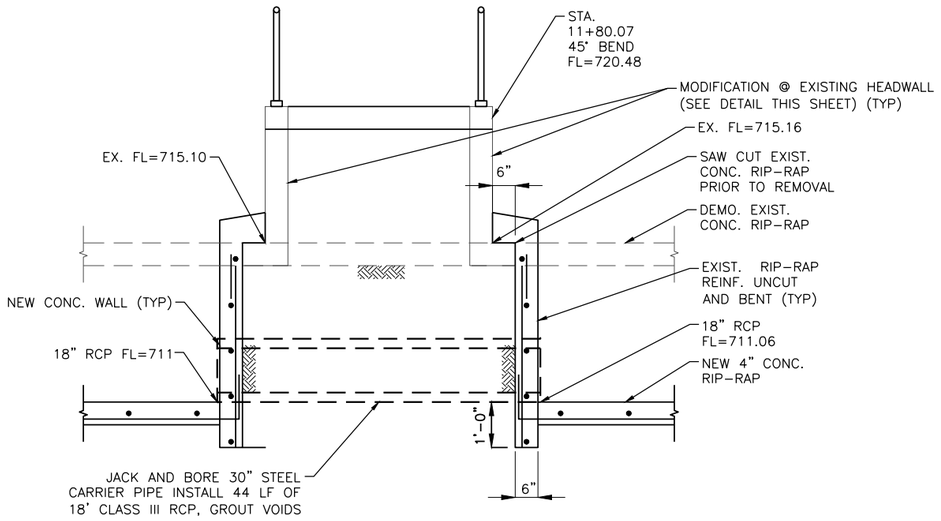
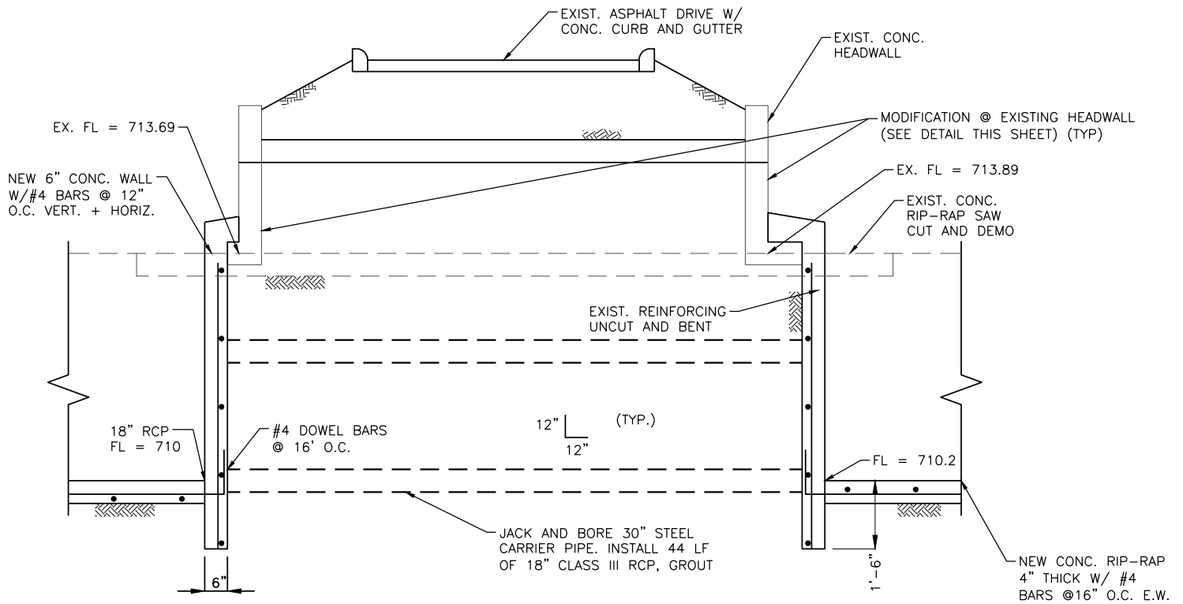


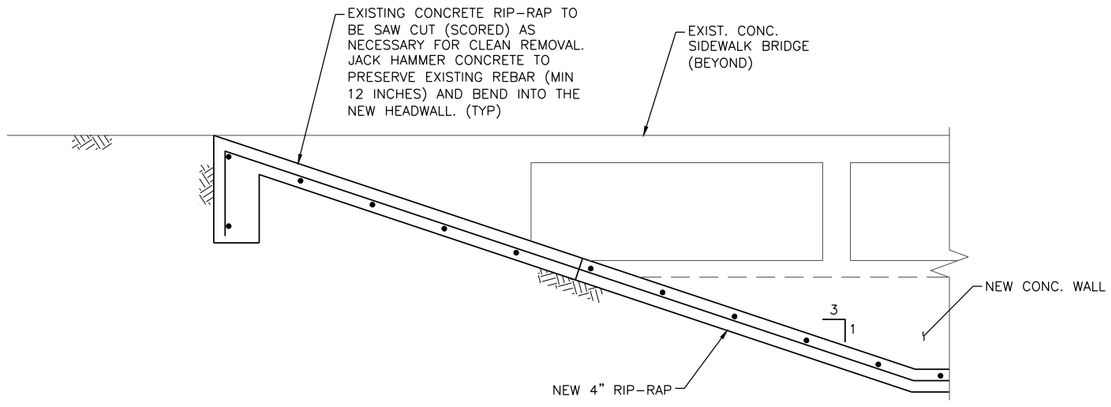
A — MODIFICATION @ EXIST. SIDEWALK BRIDGE

NOT TO SCALE



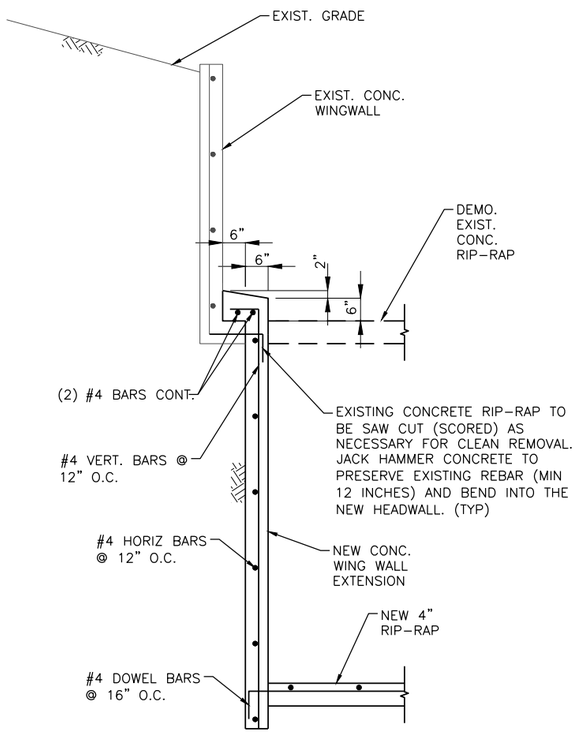
B — MODIFICATION @ EXIST. DRIVE

NOT TO SCALE



C — MODIFICATION @ SIDEWALK BRIDGE

NOT TO SCALE



D — MODIFICATION @ EXIST. HEADWALL @ DRIVE

NOT TO SCALE

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

ST. ATHONY'S POND CROSSING
STRUCTURAL DETAILS II

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
DRAWN NO
REVISED NO
CHECKED JBL
FILE NAME C-KYL DT-BRDG.dwg

SHEET 179
TOTAL 292

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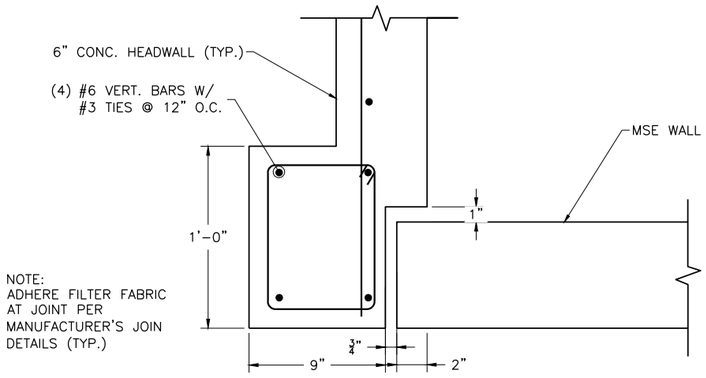
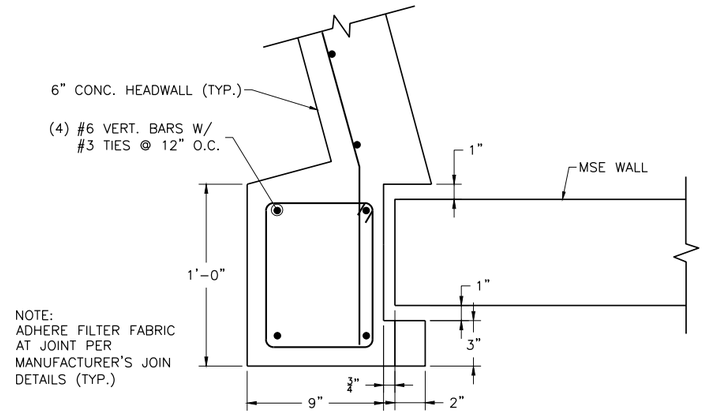


1 DETAIL @ MSE/HEADWALL JOINT

0 5' 10'

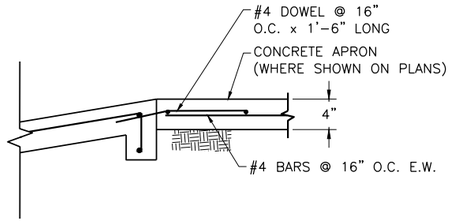
SCALE IN FEET



2 DETAIL @ MSE/HEADWALL JOINT

0 5' 10'

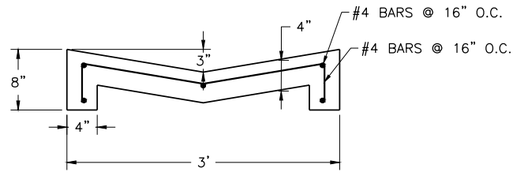
SCALE IN FEET



3 CONCRETE PILOT CHANNEL CONNECTION TYPICAL DETAIL

0 10' 20'

SCALE IN FEET

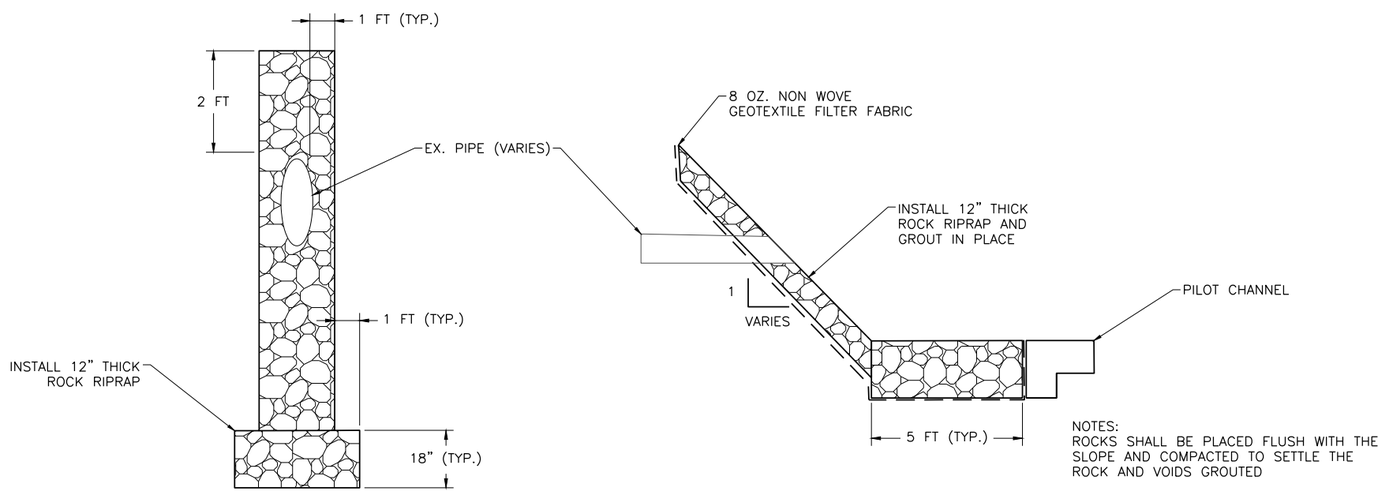


4 CONCRETE PILOT CHANNEL

0 10' 20'

SCALE IN FEET

RIPRAP GRADATIONS	
12" THICKNESS OF RIPRAP	
SIEVE SIZE SQURE MESH	PERCENT PASSING
15 INCH	100
12 INCH	70-100
8 INCH	45-75
6 INCH	30-55
3 INCH	10-30
1-1/2 INCH	0-10



MITERED ROCK RIPRAP SLOPE PROTECTION (PLAN)

5 MITERED EXISTING PIPE W/ GROUTED ROCK RIPRAP

NOT TO SCALE

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5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

ST. ANTHONY'S POND CROSSING CONNECTION DETAILS

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
DRAWN NO
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CHECKED JBL
FILE NAME ST-KYL-DT-STRC03.dwg

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VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

SHEET 180

TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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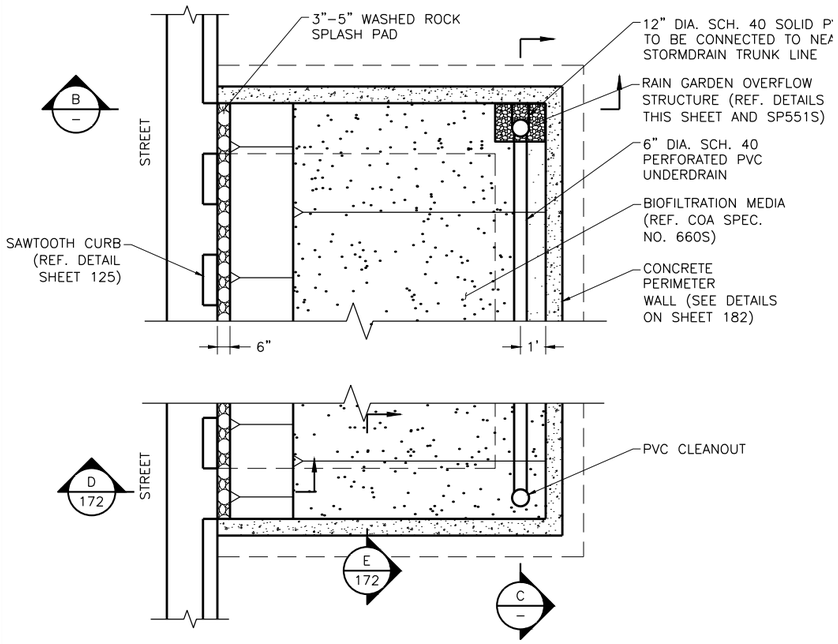
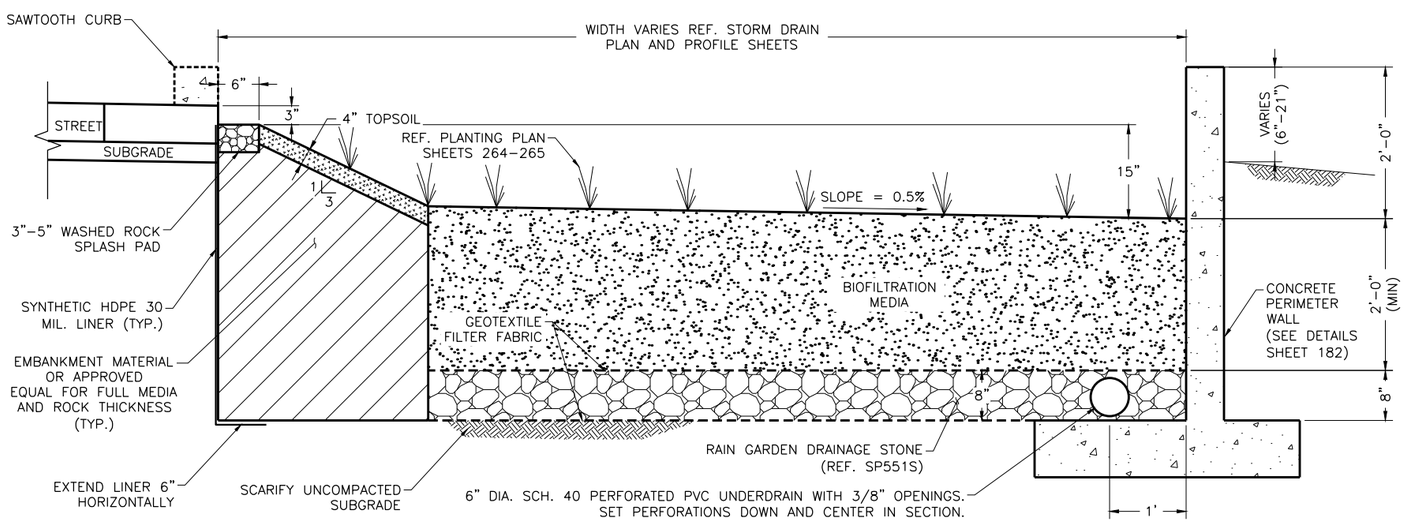


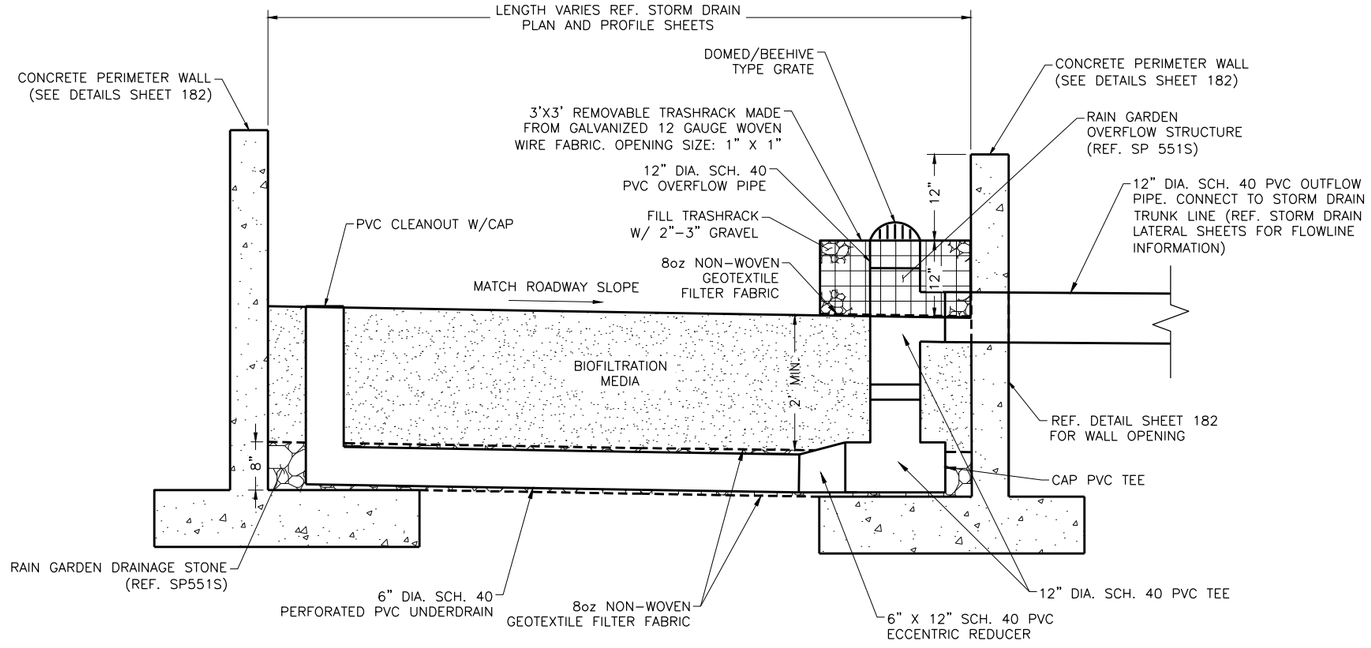
A RAIN GARDEN TYPICAL PLAN VIEW

NOT TO SCALE



B SECTION @ RAIN GARDEN WALL

NOT TO SCALE



C RAIN GARDEN TYPICAL PROFILE

NOT TO SCALE

Freese and Nichols, Inc.
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RAIN GARDEN DETAILS

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DATE 5/22/2018
DESIGNED CK
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REVISED NO
CHECKED JBL
FILE NAME ST–KYL–DT–STRC04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 181
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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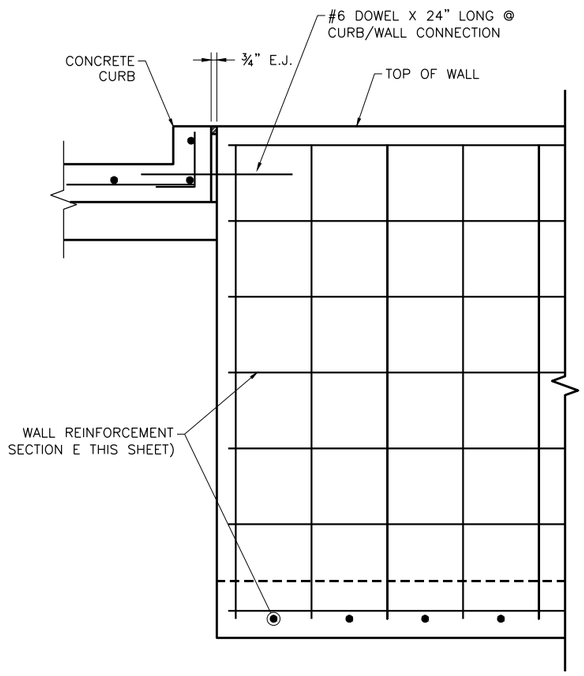
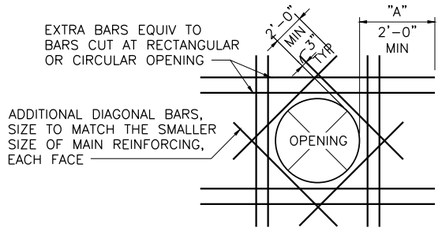


D / 171 RAIN GARDEN SECTION

NOT TO SCALE

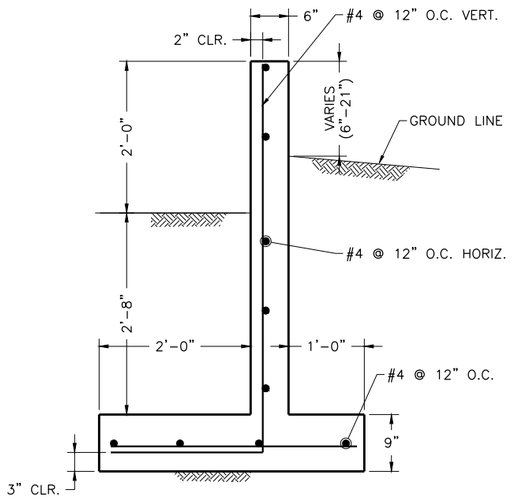


CIRCULAR OPENING

NOTES:
1. DISCONTINUE TYPICAL REINFORCING AT OPENING.
2. PLACE ADDITIONAL BARS IN SAME ORIENTATION AND POSITION AS BARS CUT BY OPENING. PROVIDE ONE SET OF BARS FOR EACH LAYER OF REINFORCING CUT.
3. "A" = TOP BAR EMBEDMENT LENGTH (24" MINIMUM). PROVIDE STANDARD HOOK IF FULL EMBEDMENT LENGTH IS NOT POSSIBLE.
4. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
5. SEE MECHANICAL AND ARCHITECTURAL DRAWINGS FOR SLAB AND WALL OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS.
6. ADDITIONAL REINFORCING MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
7. ADDITIONAL REINFORCING NOT REQUIRED WHEN SPECIFIED REINFORCING IS NOT CUT.
8. ALL REINFORCING SPACING SHALL BE GREATER THAN 3" CENTER TO CENTER.

1 TYPICAL WALL OPENING ADDITIONAL REINFORCEMNETS

NOT TO SCALE



E / 171 SECTION @ RAIN GARDEN WALL

NOT TO SCALE

Freese and Nichols, Inc.
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

RAIN GARDEN STRUCTURAL DETAILS

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
DRAWN NO
REVISED NO
CHECKED JBL
FILE NAME ST-KYL-DT-STRC04.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 182
TOTAL 292

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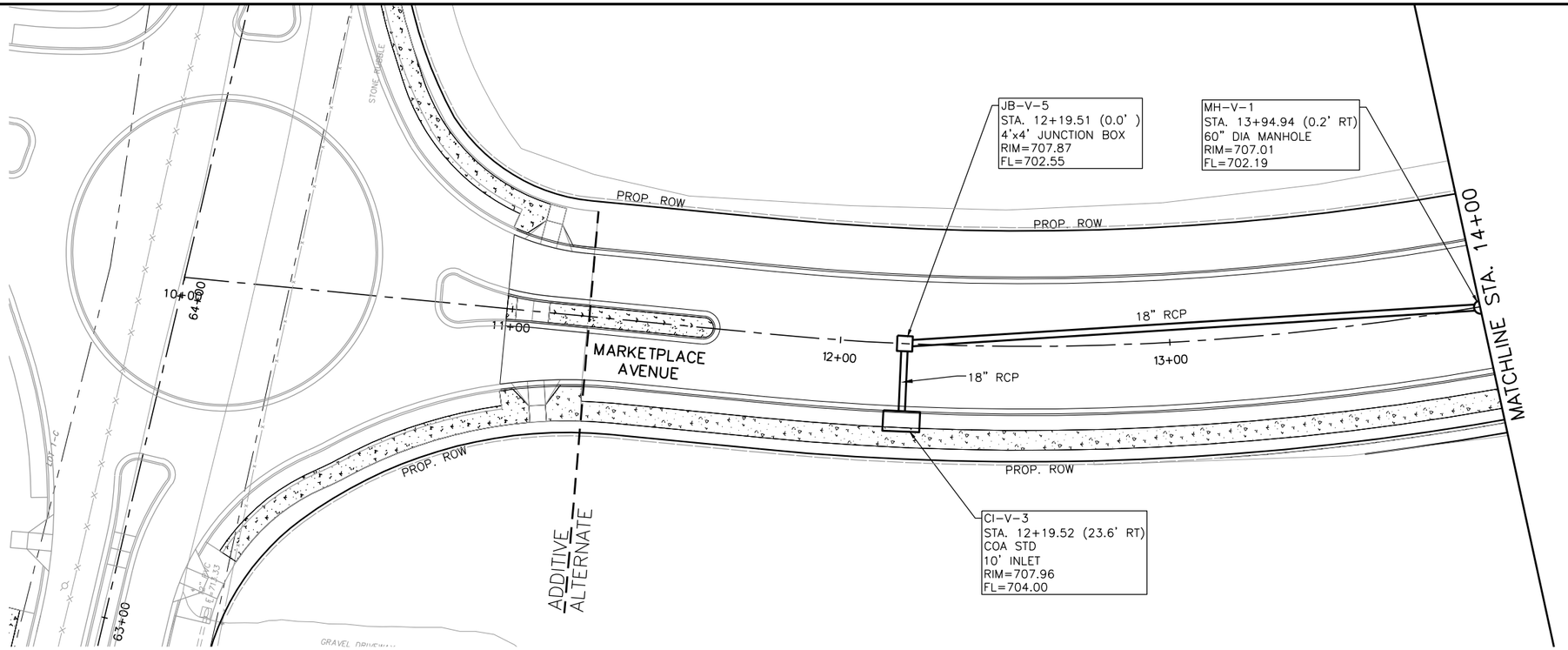
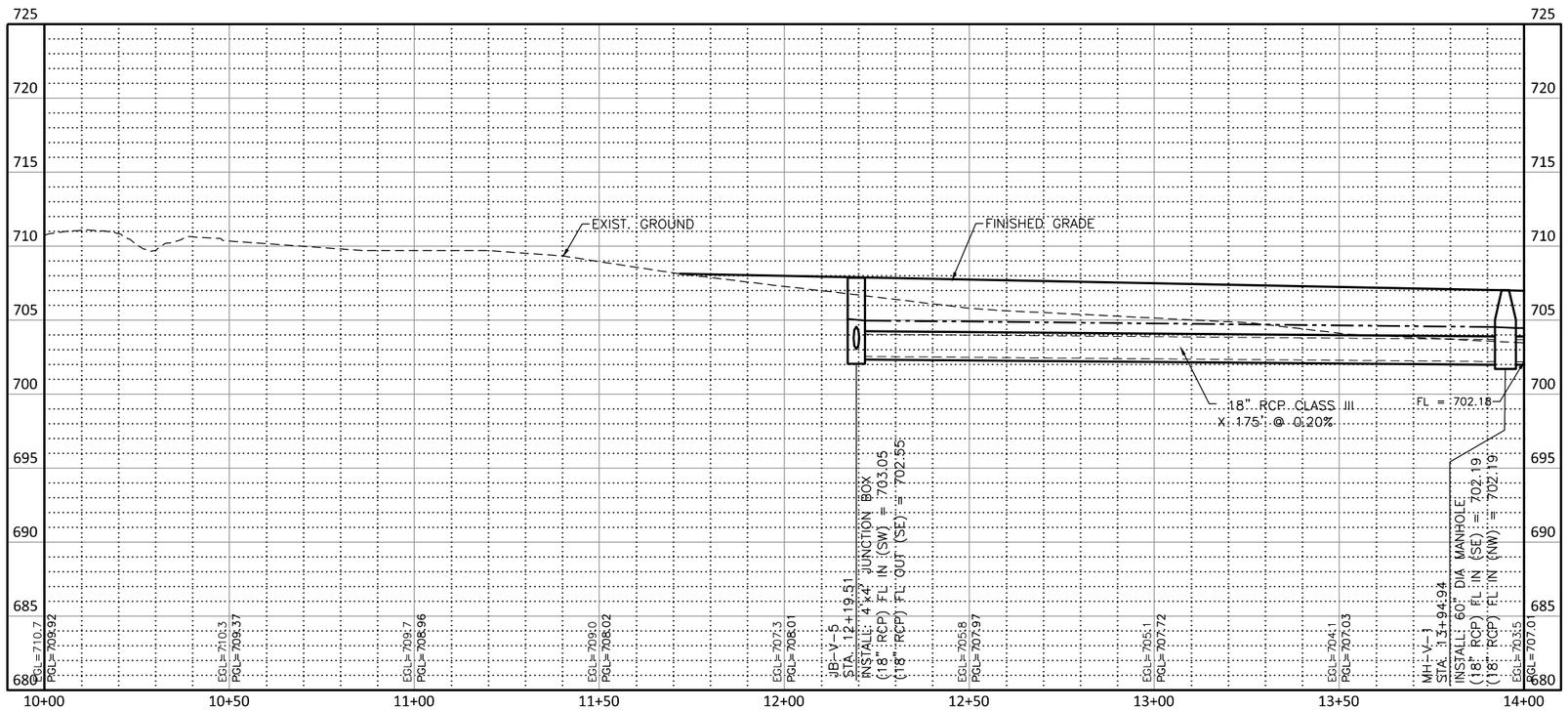


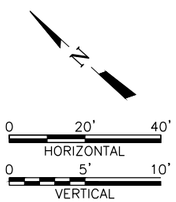
PLAN VIEW–LINE V

NOTE:

1. SEE SHEETS 186 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE–LINE V





LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

CAUTION!!

OVERHEAD ELECTRIC LINES EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA AND MAY NOT BE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ALL UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES K. PAUL
97360
LICENSED
PROFESSIONAL
ENGINEER
5/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MARKETPLACE PLAN AND PROFILE STA. 10+00 TO STA. 14+00

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/25/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM05.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 183
TOTAL 292

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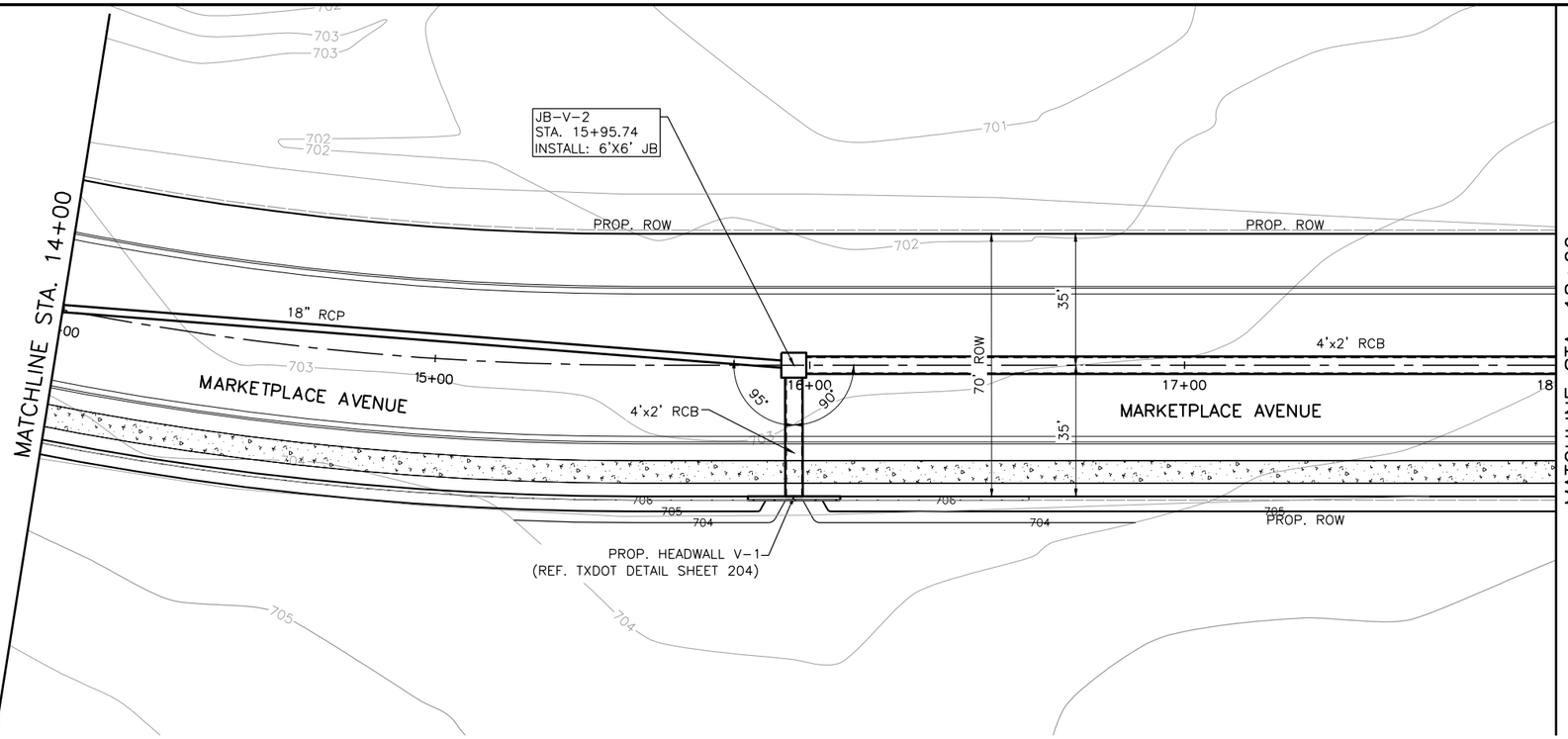
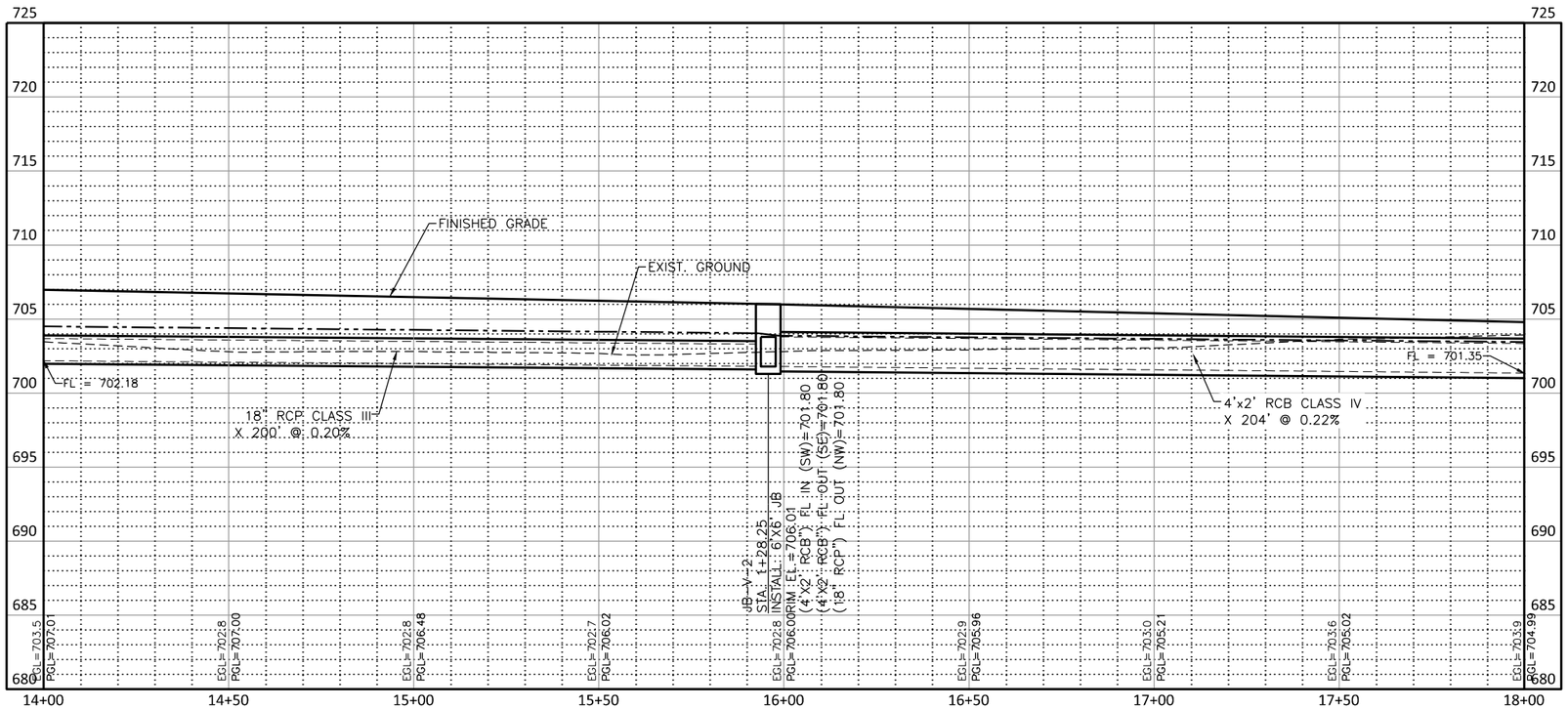


PLAN VIEW–LINE V

NOTE:
1. SEE SHEETS 186 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.

PROFILE–LINE V



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT–OF–WAY
- PROP. EASEMENT
- EX RIGHT–OF–WAY
- 5–YR HYDRAULIC GRADE LINE

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Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS · JAMES D. NORMAN · 97367 · LICENSED PROFESSIONAL ENGINEER · 5/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
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Fax - (512) 617-3101
Web - www.freese.com

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MARKETPLACE AVENUE PLAN AND PROFILE STA. 14+00 TO STA. 18+00

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/25/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM05.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 184
TOTAL 292

0 20' 40'
HORIZONTAL
0 5' 10'
VERTICAL

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\C-KYL-PP-STRM05.dwg
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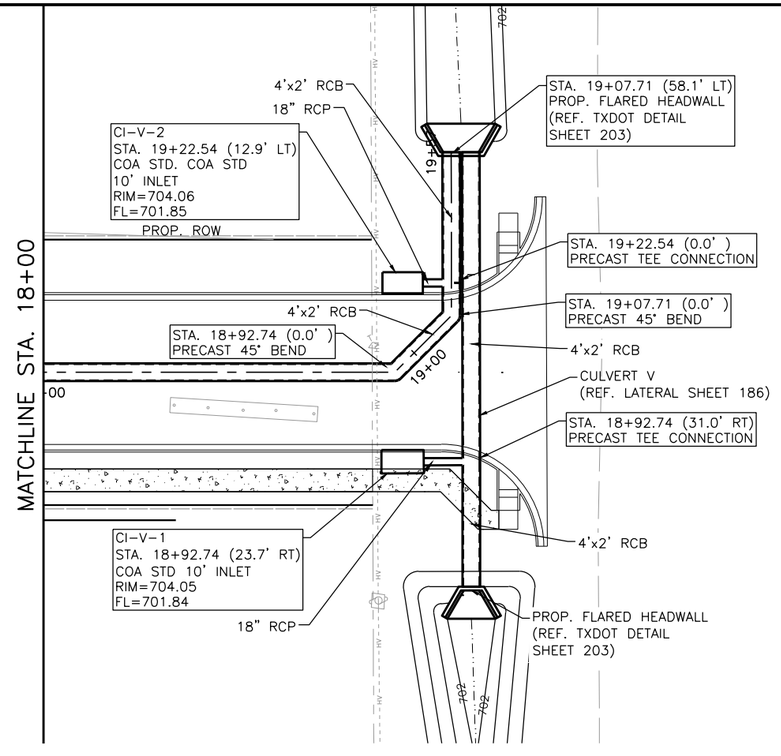
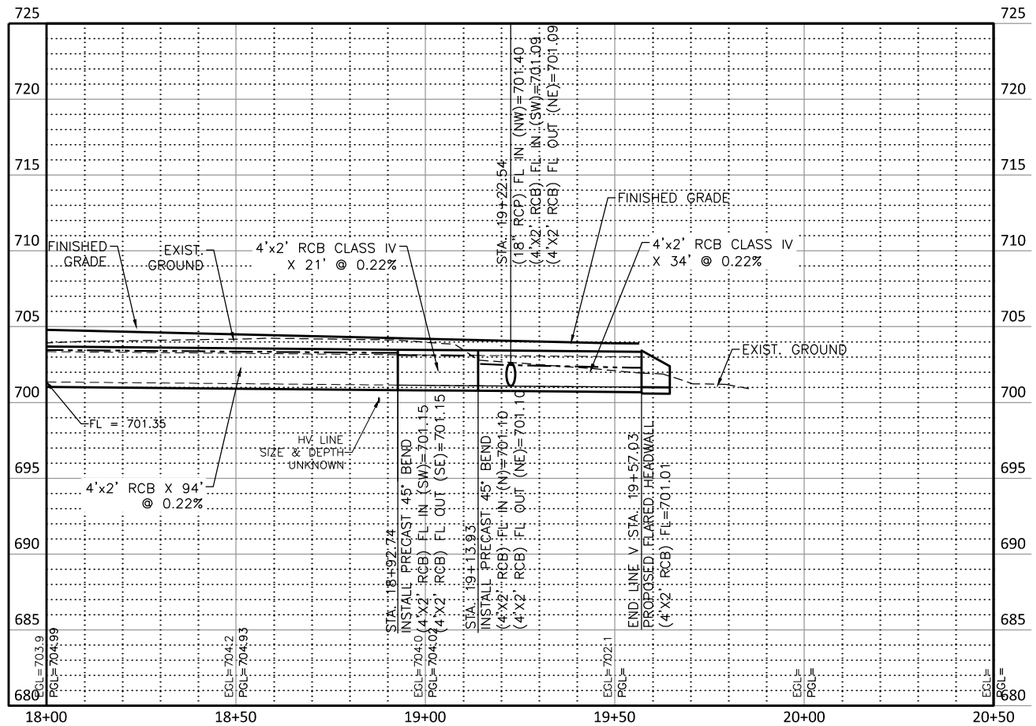


NOTE:

1. SEE SHEETS 186 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.



LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- PROP. SAN SEWER
- EX. SAN SEWER
- EX GAS
- EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

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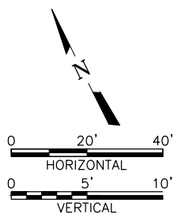

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS · AMBERLY K. PRUESS · 97367 · LICENSED PROFESSIONAL ENGINEER · 5/25/2018

FREESE NICHOLS
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Austin, Texas 78759
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ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

MARKETPLACE PLAN AND PROFILE STA. 18+00 TO END

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-STRM05.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 185
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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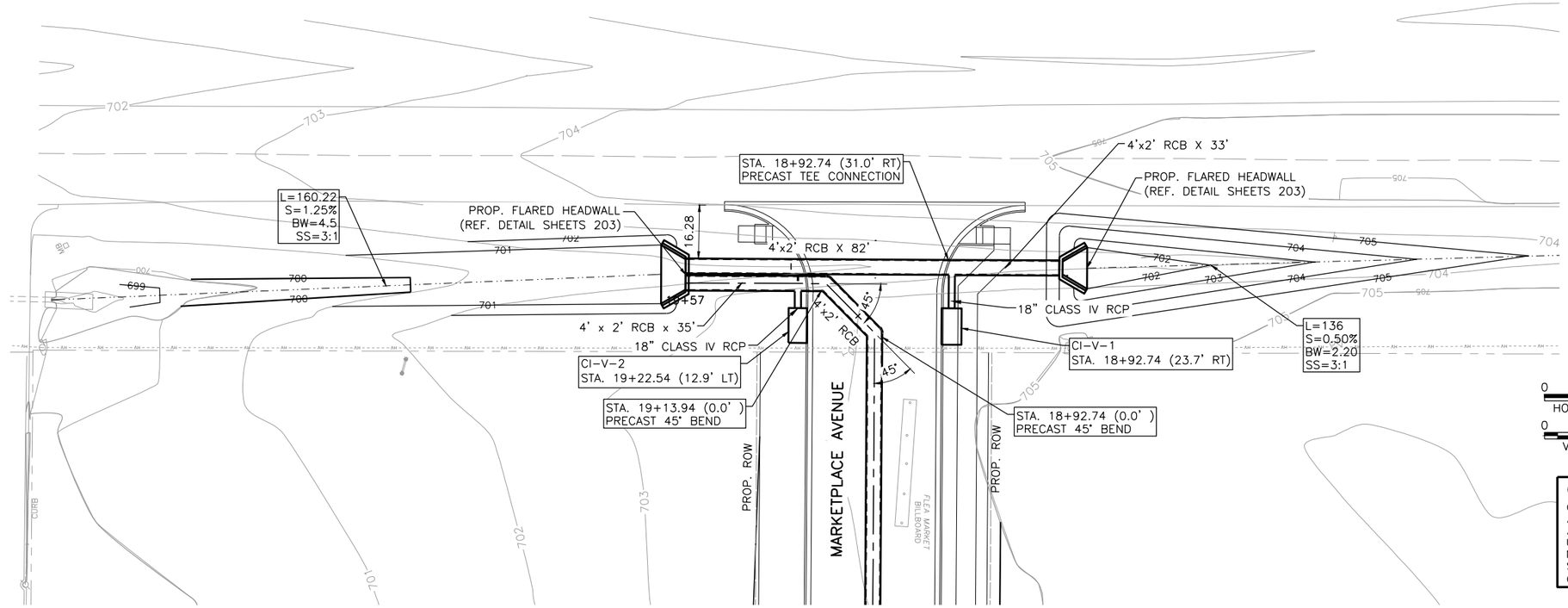

LEGEND

- PROP. STORM DRAIN PIPE
- PROP. STORM DRAIN MH
- PROP. CURB INLET
- EX STORM DRAIN PIPE
- EX STORM DRAIN MH
- W — PROP. WATERLINE
- EX WATERLINE
- EX WATERLINE TO BE ABANDONED
- SS — PROP. SAN SEWER
- SS — EX. SAN SEWER
- G — EX GAS
- OHE — EX OVERHEAD ELECTRIC
- PROP. RIGHT-OF-WAY
- PROP. EASEMENT
- EX RIGHT-OF-WAY
- 5-YR HYDRAULIC GRADE LINE

N

0 10' 20' 40'
HORIZONTAL SCALE

0 5' 10'
VERTICAL SCALE

CAUTION!!
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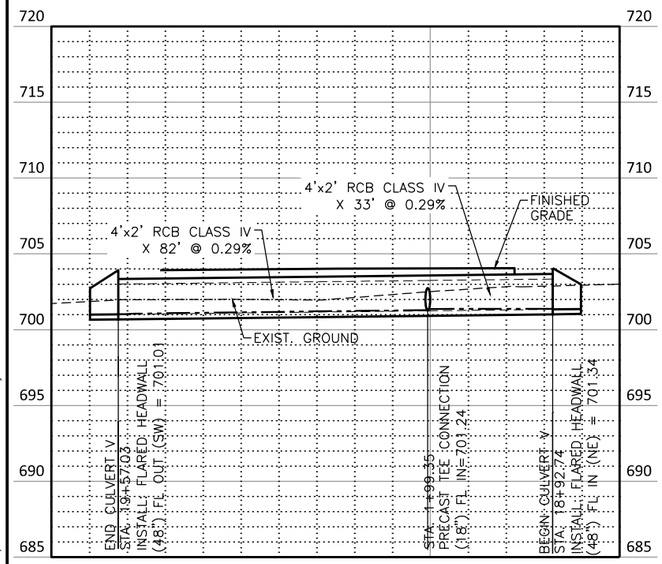
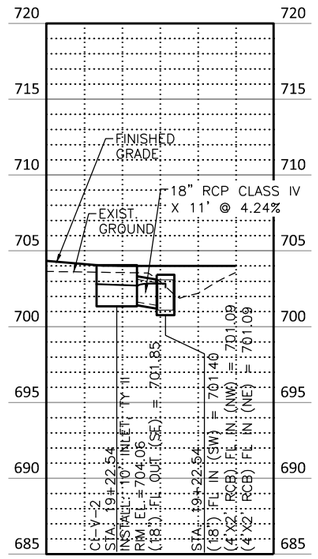
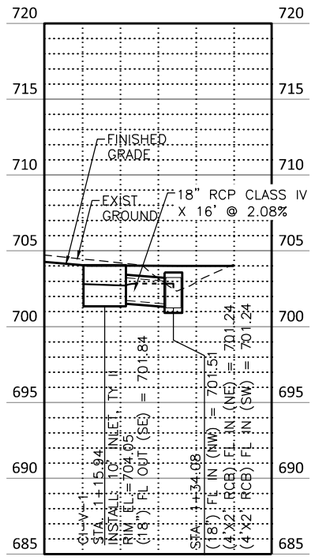
NOTE:
1. SEE SHEETS 186 FOR PROFILE AND LATERALS.
2. RIM ELEVATIONS REFERS TO GUTTER LINE ELEVATION.



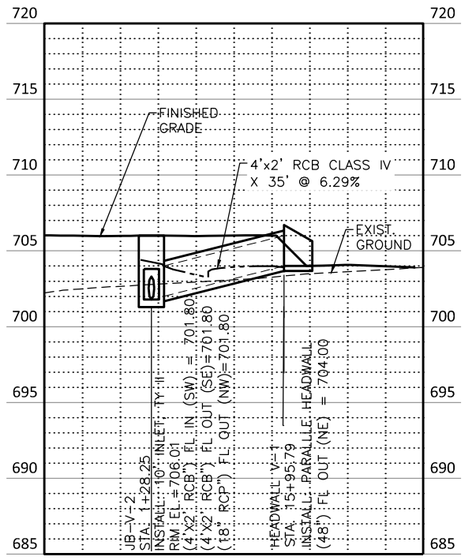
CULVERT V



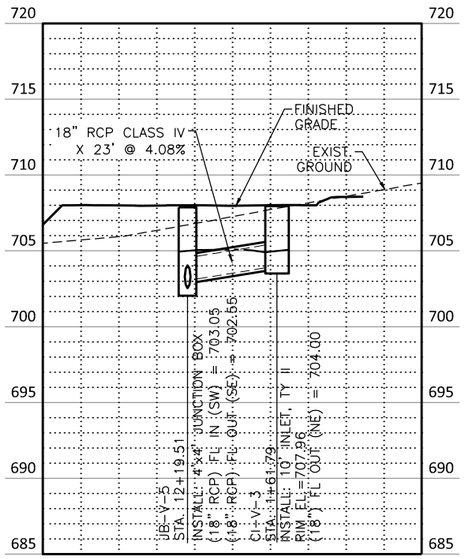
CI-V-2 TO LINE V



CI-V-1 TO CULVERT V-1



JB-V-2 TO HEADWALL V-1



CI-V-3 TO JB-V-5

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES T. PHILLIPS
97367
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PROFESSIONAL
ENGINEER
5/25/2018

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Web - www.freese.com

CITY OF KYLE, TEXAS
CIVIL
N. BURLESON ST. IMPROVEMENTS
MARKETPLACE LINE V LATERALS

NO.	REVISION	BY	DATE

FAN JOB NO. KYL14284
DATE 5/25/2018
DESIGNED CG
DRAWN NO
REVISED NO
CHECKED JDV
FILE NAME C-KYL-PP-CULV1.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 186
TOTAL 292

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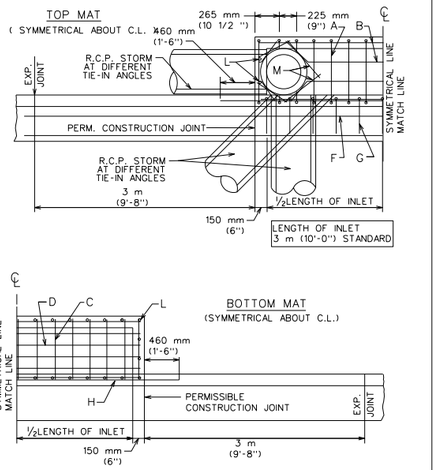
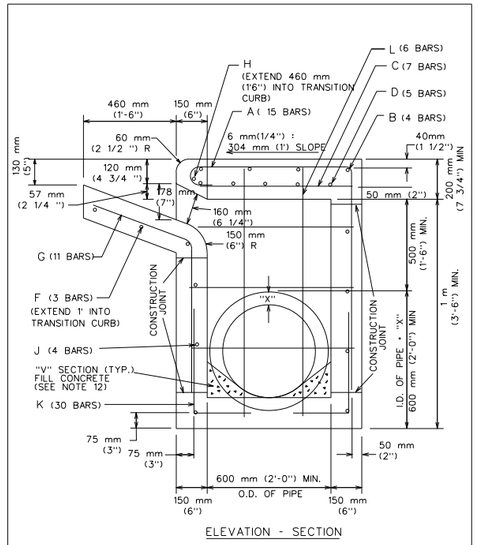


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER	*12/09/08* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 1 OF 4



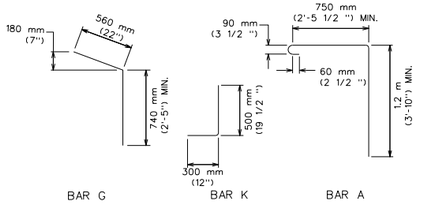
ELEVATION - SECTION

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER	*12/09/08* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 2 OF 4

TABLE OF QUANTITIES
FOR 18" OUTLET PIPE
REINFORCING STEEL QUANTITIES

BARS	SIZE	SPACING	NUMBER	LENGTH	WEIGHT
A	4	230mm (9")•	15	2 m (7'-0")	73
B	4	250 mm (10")	4	3.25 m (10'-8")	29
C	4	460 mm (18")	7	760 mm (2'-6")	12
D	6	150 mm (6")	5	3.25 m (10'-8")	80
E	4	300 mm (12")	6	760 mm (2'-6")	10
F	4	250 mm (10")	3	4 m (13'-0")	35
G	4	300 mm (12")	11	1.25 m (4'-3")	31
H	6	–	1	4.25 m (14'-0")	20
J	4	300 mm (12")	7	3.25 m (10'-8")	50
K	4	230 mm (9")•	30	800 mm (2'-7 1/2")	52
L	4	300 mm (12")•	6	1.3 m (4'-4")	17
M	4	-	4	500 mm (1'-8") AVG	4
TOTAL STEEL, LB.					413
TOTAL CONCRETE, C.Y.					4.06

• EXCEPT AS SHOWN ON PLAN



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER	*12/09/08* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 3 OF 4

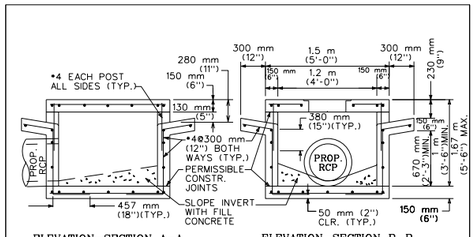
NOTES:
1. ALL CONCRETE SHALL BE CLASS "A"
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. VERTICAL STEEL MAY BE SPLICED (380 mm or 15" MIN. LAP) IN THE LOWER ONE-HALF OF ALL INLET WALLS.5. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
6. QUANTITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S INFORMATION ONLY. PAYMENT WILL BE MADE FOR EACH INLET OF THE TYPE SPECIFIED, COMPLETE IN PLACE INCLUDING MANHOLE FRAME AND OVER.
7. CHAMFER ALL EXPOSED EDGES 20 mm (3/4 ").
8. MANHOLE FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
9. THE CONTRACTOR MAY PROPOSE ALTERNATE PROCEDURES FOR THE CONSTRUCTION OF INLETS, INCLUDING PRECAST UNITS. PLANS FOR SUCH PROPOSED ALTERNATES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE CONSTRUCTION.
10. ALL INLET WALLS SHALL BE FORMED EXCEPT WHERE THE NATURE OF THE SURROUNDING MATERIAL IS SUCH THAT IT CAN BE TRIMMED TO A SMOOTH VERTICAL FACE. WHEN INLET WALLS ARE PLACED TO NEAT EXCAVATION LINES THE WALL THICKNESS SHALL NOT EXCEED 10 INCHES.
11. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB.
12. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE, SHAPED AS "V" SECTION
13. NO SPLICING OF REINFORCING STEEL SHALL BE PERMITTED UNLESS OTHERWISE NOTED ON THE PLANS OR PERMITTED IN WRITING BY THE ENGINEER.

REFERENCES:

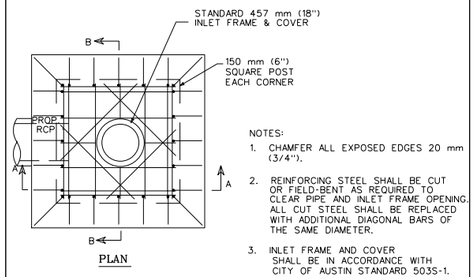
FOR EXPANSION JOINT DOWEL AND DOWEL LOCATION DETAILS SEE STD. 430S-3, "CURB EXPANSION JOINT DOWEL DETAIL"

FOR 18" MANHOLE FRAME AND COVER DETAILS SEE STD. 503S-1, "18" COVER AND FRAME".

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		TYPICAL DETAILS FOR CURB INLET	
RECORD COPY SIGNED BY BILL GARDNER	*12/09/08* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-3 4 OF 4



ELEVATION–SECTION A–A ELEVATION–SECTION B–B



PLAN

NOTES:
1. CHAMFER ALL EXPOSED EDGES 20 mm (3/4").
2. REINFORCING STEEL SHALL BE CUT OR FIELD-BENT AS REQUIRED TO CLEAR PIPE AND INLET FRAME OPENING. ALL CUT STEEL SHALL BE REPLACED WITH ADDITIONAL DIAGONAL BARS OF THE SAME DIAMETER.
3. INLET FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. CONCRETE COVERAGE OF STEEL SHALL BE 50 mm (2") MIN. AT ALL SURFACES.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		4–SIDED AREA INLET	
RECORD COPY SIGNED BY ARTHUR C. ROMERO 08/18/2010	ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S–9

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JOHANNE BAY TORNO
89499
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
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Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
MISCELLANEOUS DETAILS I

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
DRAWN NO
REVISED NO
CHECKED JBL
FILE NAME ST-KYL-DT-MISC01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 187
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\SW\Drawings\ST-KYL-DT-MISC01.dwg
Last Saved: 5/18/2018 9:36 AM Saved By: no

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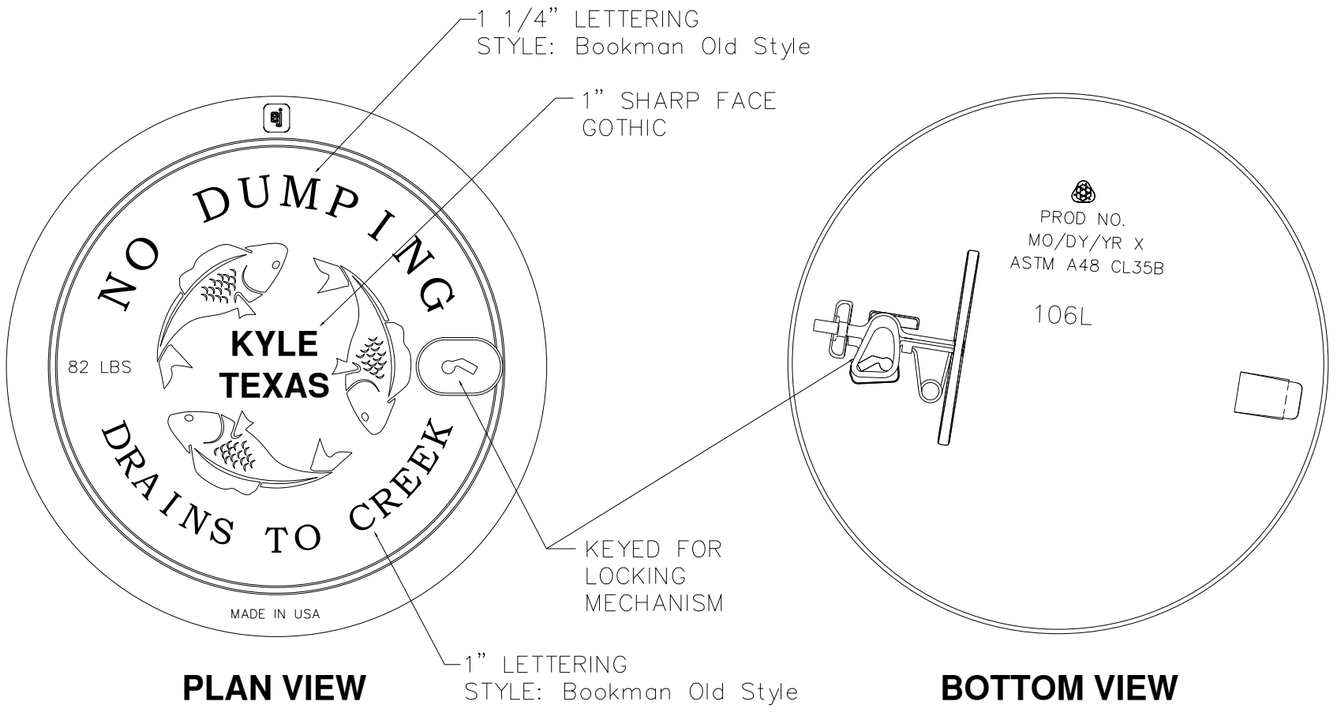
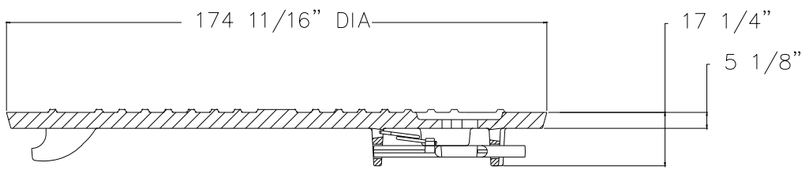
106L Cover



PLAN VIEW

BOTTOM VIEW



COVER SECTION

OR APPROVED EQUAL

Product Number
35106134A01

Design Features
-Materials
Gray Iron (CL35B)
-Design Load
Light Duty
-Open Area
n/a
-Coating
Undipped
-√ Designates Machined Surface

Certification
- ASTM A48
-
-
-Country of Origin: USA

Drawing Revision
10/27/2017 Designer: MAH
11/3/2017 Revised By: MAH

Disclaimer
Weights (lbs./kg) dimensions (inches/mm) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

Contact
800 626 4653
ejco.com

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
KIMBERLY K. PATAK
97367
LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
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Web - www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
MISCELLANEOUS DETAILS II

F&N JOB NO. KYL14284
DATE 5/21/2018
DESIGNED CK
DRAWN NO
REVISED NO
CHECKED JBL
FILE NAME ST-KYL-DT-MISC00.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 188
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/18/2018 9:36 AM Saved By: no

Plot Date: 5/21/2018 3:59 PM Plot By: no Filename: N:\SW\Drawings\ST-KYL-DT-MISC00.dwg

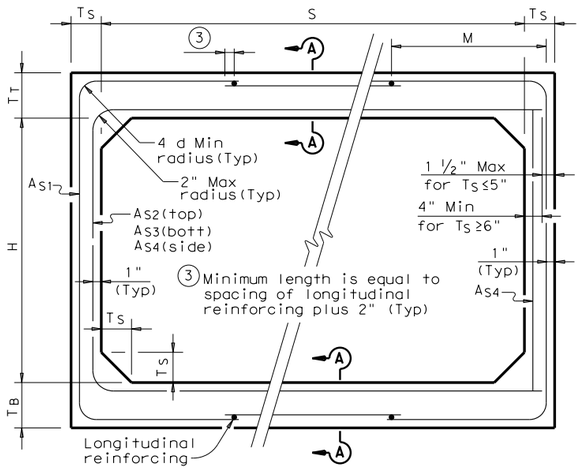
DATE:
FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Lift Weight (Tons)
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
4	2	7.5	6	5	<2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.18	0.14	4.5
4	2	5	5	5	2<3	38	0.18	0.19	0.17	0.12	-	-	-	-	3.6
4	2	5	5	5	3-5	38	0.13	0.13	0.13	0.12	-	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	-	3.6
4	3	7.5	6	5	<2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.18	0.14	5.0
4	3	5	5	5	2<3	38	0.15	0.23	0.20	0.12	-	-	-	-	4.1
4	3	5	5	5	3-5	38	0.12	0.16	0.16	0.12	-	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	-	4.1
4	4	7.5	6	5	<2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.18	0.14	5.5
4	4	5	5	5	2<3	38	0.12	0.26	0.23	0.12	-	-	-	-	4.6
4	4	5	5	5	3-5	38	0.12	0.18	0.18	0.12	-	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	-	4.6

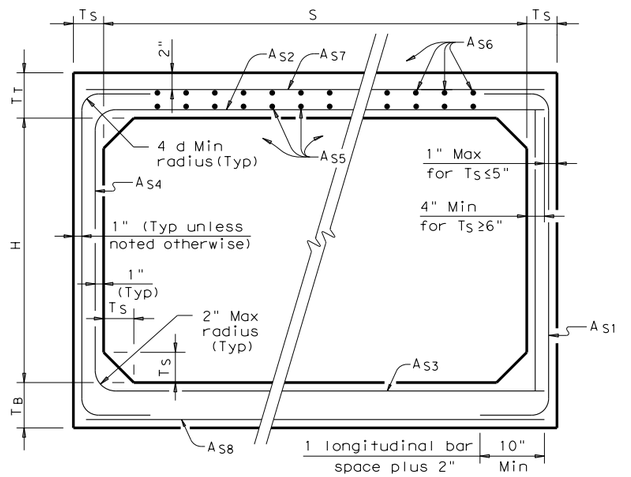
① For Box Length = 8'-0"

② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S6} and A_{S5} are minimum required areas of reinforcement per linear foot of box width.



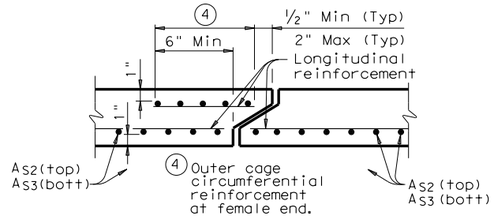
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

All concrete shall be Class "H" Concrete with a minimum compressive strength of 5,000 psi.

See SCP-MD standard sheet for miscellaneous details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Shop plans for alternate designs shall be submitted in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

4'-0" SPAN

SCP-4

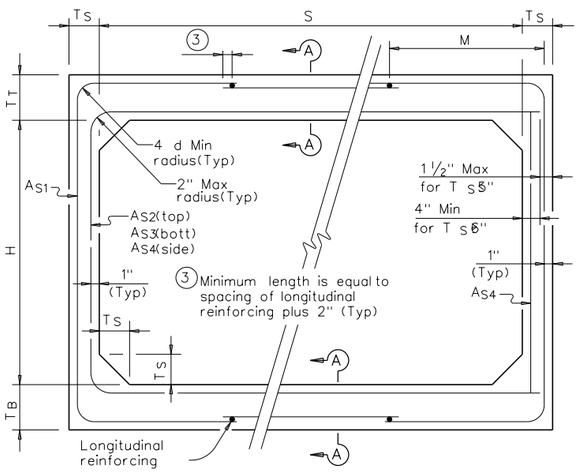
FILE: scp04sts.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				189

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in ²/ft) ②								Lift Weight (Tons) ①
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
6	3	8	7	7	<2	-	0.20	0.31	0.22	0.17	0.19	0.19	0.19	0.17	7.9
6	3	7	7	7	2<3	43	0.21	0.24	0.19	0.17	-	-	-	-	7.5
6	3	7	7	7	3-5	39	0.17	0.18	0.17	0.17	-	-	-	-	7.5
6	3	7	7	7	10	39	0.17	0.18	0.19	0.17	-	-	-	-	7.5
6	3	7	7	7	15	38	0.22	0.24	0.24	0.17	-	-	-	-	7.5
6	3	7	7	7	20	38	0.28	0.31	0.31	0.17	-	-	-	-	7.5
6	3	7	7	7	25	38	0.35	0.38	0.39	0.17	-	-	-	-	7.5
6	3	7	7	7	30	38	0.42	0.46	0.46	0.17	-	-	-	-	7.5
6	4	8	7	7	<2	-	0.19	0.34	0.25	0.17	0.19	0.19	0.19	0.17	8.6
6	4	7	7	7	2<3	43	0.19	0.27	0.21	0.17	-	-	-	-	8.2
6	4	7	7	7	3-5	39	0.17	0.21	0.19	0.17	-	-	-	-	8.2
6	4	7	7	7	10	39	0.17	0.20	0.21	0.17	-	-	-	-	8.2
6	4	7	7	7	15	38	0.18	0.27	0.27	0.17	-	-	-	-	8.2
6	4	7	7	7	20	38	0.24	0.34	0.35	0.17	-	-	-	-	8.2
6	4	7	7	7	25	38	0.29	0.43	0.42	0.17	-	-	-	-	8.2
6	4	7	7	7	30	38	0.35	0.51	0.52	0.17	-	-	-	8.2	
6	5	8	7	7	<2	-	0.19	0.37	0.28	0.17	0.19	0.19	0.19	0.17	9.3
6	5	7	7	7	2<3	43	0.17	0.30	0.24	0.17	-	-	-	-	8.9
6	5	7	7	7	3-5	43	0.17	0.23	0.21	0.17	-	-	-	-	8.9
6	5	7	7	7	10	39	0.17	0.22	0.23	0.17	-	-	-	-	8.9
6	5	7	7	7	15	38	0.17	0.28	0.29	0.17	-	-	-	-	8.9
6	5	7	7	7	20	38	0.20	0.37	0.38	0.17	-	-	-	-	8.9
6	5	7	7	7	25	38	0.25	0.45	0.46	0.17	-	-	-	-	8.9
6	5	7	7	7	30	38	0.30	0.54	0.55	0.17	-	-	-	-	8.9
6	6	8	7	7	<2	-	0.19	0.38	0.30	0.17	0.19	0.19	0.19	0.17	10.0
6	6	7	7	7	2<3	52	0.17	0.32	0.26	0.17	-	-	-	-	9.6
6	6	7	7	7	3-5	52	0.17	0.24	0.22	0.17	-	-	-	-	9.6
6	6	7	7	7	10	43	0.17	0.23	0.24	0.17	-	-	-	-	9.6
6	6	7	7	7	15	39	0.17	0.29	0.31	0.17	-	-	-	-	9.6
6	6	7	7	7	20	39	0.18	0.38	0.39	0.17	-	-	-	-	9.6
6	6	7	7	7	25	38	0.23	0.46	0.48	0.17	-	-	-	-	9.6
6	6	7	7	7	30	38	0.27	0.55	0.57	0.17	-	-	-	-	9.6

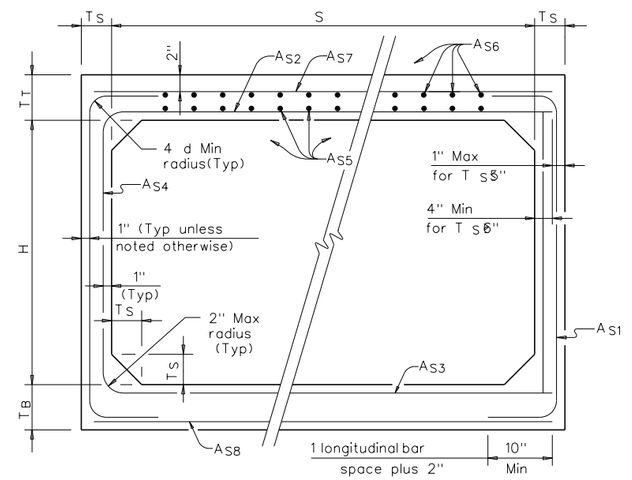
① For Box Length = 8'-0"

② A_{S1} thru A_{S4}, A_{S7} and A_{S8} are minimum required areas of reinforcement per linear foot of box length. A_{S5} and A_{S6} are minimum required areas of reinforcement per linear foot of box width.



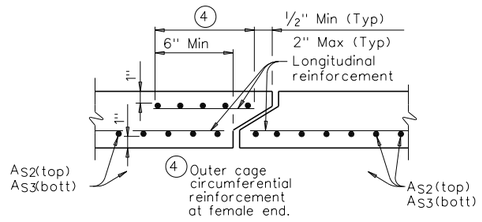
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

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See SCP-MD standard sheet for miscellaneous details and notes not shown.

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HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

6'-0" SPAN

SCP-6

FILE: scp06sts.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				190

DATE: Apr-28, 2016 - 06:10:49 PM
FILE: N:\IFD-Drawings\CV-STM-DT-scp06sts.dgn

DATE:
FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (in²/ft) ②								① Lift Weight (Tons)
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	(ft)	(in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}	A_{S6}	A_{S7}	A_{S8}	
8	4	8	8	8	<2	-	0.27	0.38	0.29	0.19	0.19	0.19	0.19	0.19	11.2
8	4	8	8	8	2<3	50	0.31	0.34	0.32	0.19	-	-	-	-	11.2
8	4	8	8	8	3-5	50	0.25	0.27	0.27	0.19	-	-	-	-	11.2
8	4	8	8	8	10	45	0.26	0.28	0.29	0.19	-	-	-	-	11.2
8	4	8	8	8	15	41	0.34	0.37	0.38	0.19	-	-	-	-	11.2
8	4	8	8	8	20	41	0.44	0.48	0.49	0.19	-	-	-	-	11.2
8	5	8	8	8	<2	-	0.24	0.40	0.32	0.19	0.19	0.19	0.19	0.19	12.0
8	5	8	8	8	2<3	50	0.28	0.37	0.35	0.19	-	-	-	-	12.0
8	5	8	8	8	3-5	45	0.23	0.29	0.30	0.19	-	-	-	-	12.0
8	5	8	8	8	10	45	0.23	0.31	0.32	0.19	-	-	-	-	12.0
8	5	8	8	8	15	41	0.30	0.41	0.42	0.19	-	-	-	-	12.0
8	5	8	8	8	20	41	0.39	0.52	0.54	0.19	-	-	-	-	12.0
8	6	8	8	8	<2	-	0.22	0.42	0.35	0.19	0.19	0.19	0.19	0.19	12.8
8	6	8	8	8	2<3	50	0.25	0.40	0.38	0.19	-	-	-	-	12.8
8	6	8	8	8	3-5	50	0.21	0.32	0.33	0.19	-	-	-	-	12.8
8	6	8	8	8	10	45	0.22	0.33	0.34	0.19	-	-	-	-	12.8
8	6	8	8	8	15	41	0.28	0.43	0.45	0.19	-	-	-	-	12.8
8	6	8	8	8	20	41	0.36	0.55	0.57	0.19	-	-	-	-	12.8
8	7	8	8	8	<2	-	0.20	0.44	0.37	0.19	0.19	0.19	0.19	0.19	13.6
8	7	8	8	8	2<3	55	0.23	0.43	0.41	0.19	-	-	-	-	13.6
8	7	8	8	8	3-5	55	0.19	0.34	0.35	0.19	-	-	-	-	13.6
8	7	8	8	8	10	50	0.20	0.34	0.36	0.19	-	-	-	-	13.6
8	7	8	8	8	15	41	0.26	0.45	0.47	0.19	-	-	-	-	13.6
8	7	8	8	8	20	41	0.33	0.57	0.60	0.19	-	-	-	-	13.6
8	8	8	8	8	<2	-	0.20	0.45	0.40	0.19	0.19	0.19	0.19	0.19	14.4
8	8	8	8	8	2<3	65	0.21	0.45	0.44	0.19	-	-	-	-	14.4
8	8	8	8	8	3-5	65	0.19	0.36	0.38	0.19	-	-	-	-	14.4
8	8	8	8	8	10	55	0.19	0.35	0.38	0.19	-	-	-	-	14.4
8	8	8	8	8	15	45	0.24	0.46	0.49	0.19	-	-	-	-	14.4
8	8	8	8	8	20	45	0.31	0.59	0.62	0.19	-	-	-	-	14.4

① For Box Length = 8'-0"

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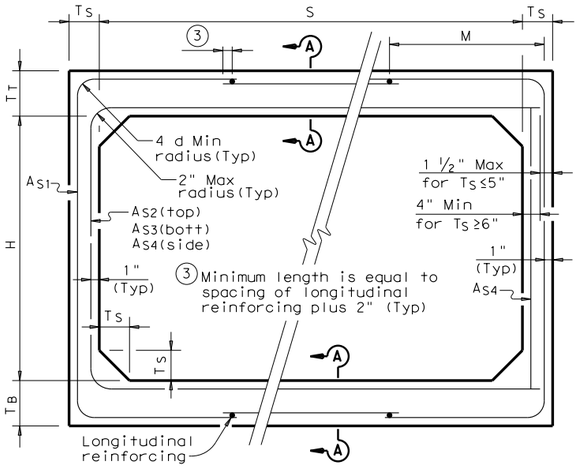
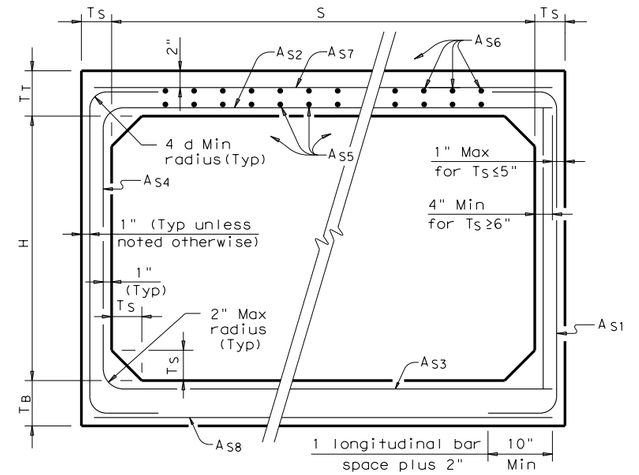


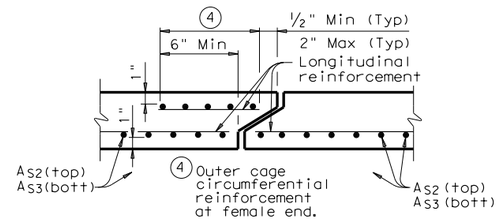
CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT



SECTION A-A

(TOP AND BOTTOM SLAB JOINT REINFORCEMENT)

GENERAL NOTES:

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HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

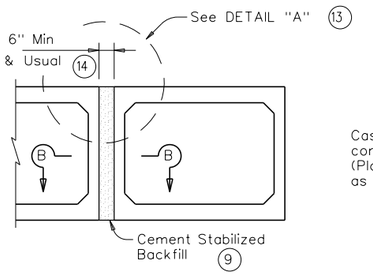
SINGLE BOX CULVERTS PRECAST

8'-0" SPAN

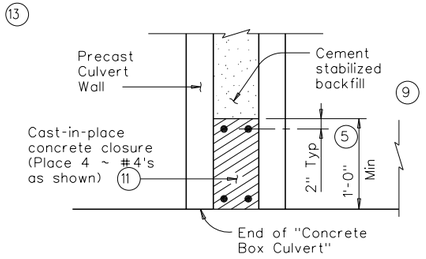
SCP-8

FILE: scp08sts.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010 REVISIONS	CONT	SECT	JOB	HIGHWAY
	DIST	COUNTY		SHEET NO.
				191

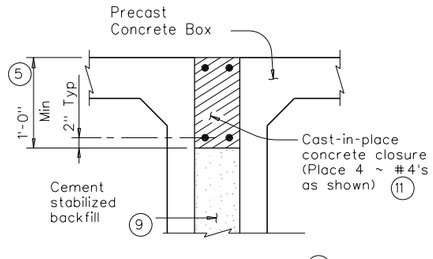
DATE: Apr-28, 2016 - 06:10:51 PM
FILE: N:\IF\Drawings\CV-STM-DT-scpmdsts.dgn



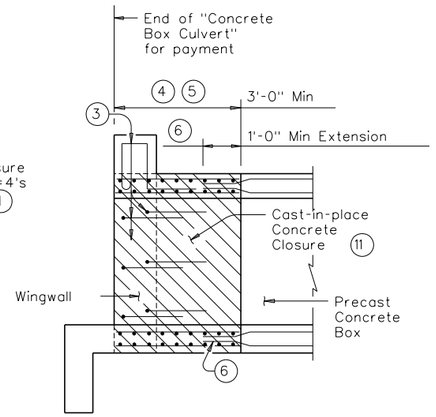
MULTIPLE UNIT PLACEMENT



SECTION B-B

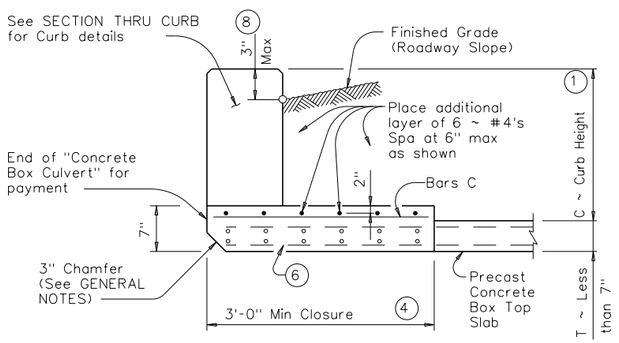


DETAIL "A" (13)

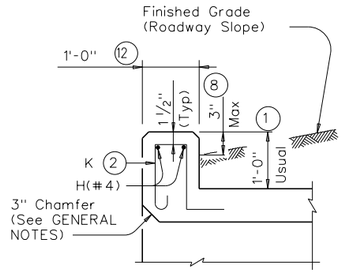


WINGWALL CONNECTION

(Also applies to Safety End Treatment)

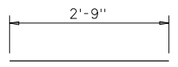


SECTION THRU TOP SLABS LESS THAN 7"

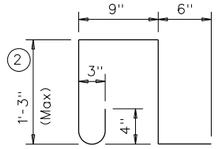


SECTION THRU CURB

(10) QUANTITIES PER FOOT OF CURB	
Reinforcing Steel	4.18 Lb
Concrete	0.037 CY



BARS C ~ #4
(Spa = 1'-0" Max)



BARS K ~ #4
(Spa = 1'-0" Max)
(Length = 4'-3")

(1) 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 traffic rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.

(2) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(3) Curb, Wingwall or Safety End Treatment reinforcing shall extend into concrete closure. Any reinforcing that does not fit into the closure shall be bent or trimmed as necessary.

(4) Cast-in-place concrete closure shall be 3'-0" min. Boxes shall be cast short or broken back in the field. All reinforcing in the closure shall be the same size and spacing as in the precast box section. Except where shown otherwise, the cast-in-place closure shall be flush with the inside and outside faces of the precast box section.

(5) For multiple unit placements the length of the closure for the interior walls may be adjusted as necessary. The length of the top slab, bottom slab, and exterior wall closure shall not be less than 3'-0". See Section B-B detail when interior walls are cast full length.

(6) Precast box reinforcing shall extend a minimum of 1'-0" into concrete closure (Typ).

(7) Bands of reinforcing matching the inside and outside face reinforcing shall be placed in the gaps of the top and bottom slabs. A band matching the outside face reinforcing of the wall shall be placed in the gaps of the walls (placed in the outside face only). The bands shall be tack welded to the exposed reinforcing at each point of contact.

(8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, curbs shall project no more than 3" above finished grade.
- For structures with bridge rail, curbs shall be flush with finished grade.

Curb heights shall be reduced, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) Cement Stabilized Backfill between boxes is considered part of the Box Culvert for payment.

(10) All curb concrete and reinforcing is considered part of the Box Culvert for payment.

(11) Any additional concrete and reinforcing required for the closures shall be considered as subsidiary to the Concrete Box Culvert.

(12) 1'-0" typical. 2'-0" when RAC standard is referred to elsewhere in the plans.

(13) For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in DETAIL "A".

(14) This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

GENERAL NOTES:

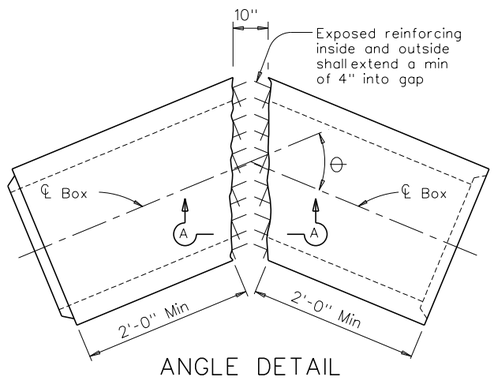
Designed according to AASHTO LRFD Specifications.

All closure concrete shall be Class "C" with a minimum compressive strength of 3600 psi and shall be placed according to the Item, "Concrete Substructures".

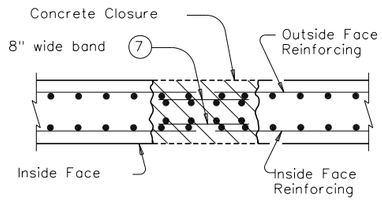
Any additional concrete required for the closures shall be considered as subsidiary to the Concrete Box Culvert.

Refer to the Single Box Culverts Precast standard for details not shown.

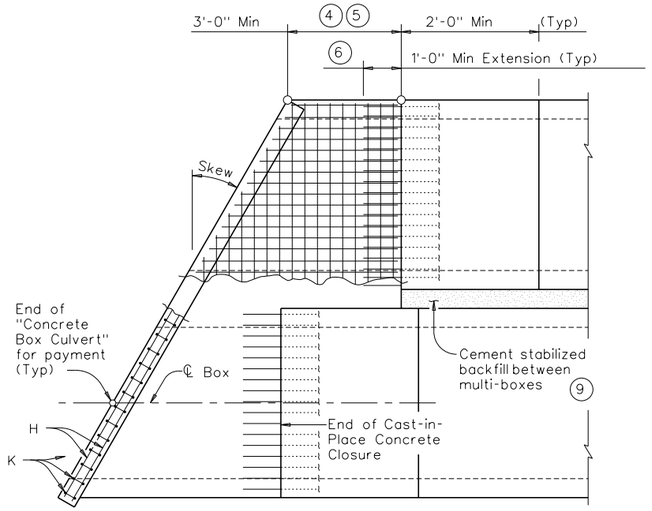
The bottom edge of the top slab closure shall be chamfered 3 inches at the entrance.



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement)

HL93 LOADING

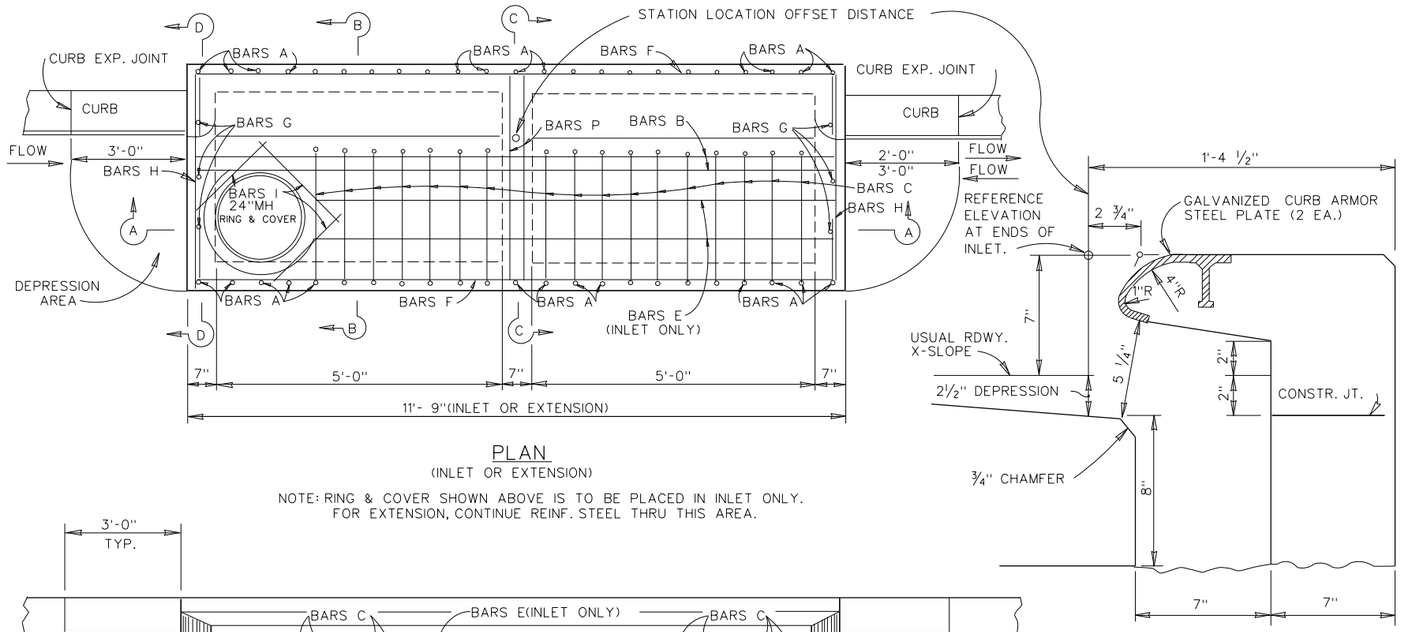
Texas Department of Transportation

Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: scpmdsts.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				192

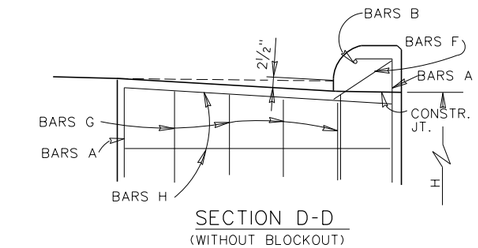


PLAN

(INLET OR EXTENSION)

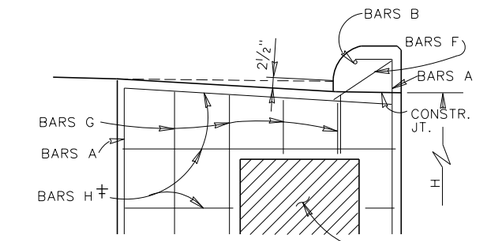
NOTE: RING & COVER SHOWN ABOVE IS TO BE PLACED IN INLET ONLY.
FOR EXTENSION, CONTINUE REINF. STEEL THRU THIS AREA.

THROAT DETAIL



SECTION D-D

(WITHOUT BLOCKOUT)



‡CUT OR BEND STEEL FOR BLOCKOUT AREA.

SECTION D-D

(WITH BLOCKOUT)

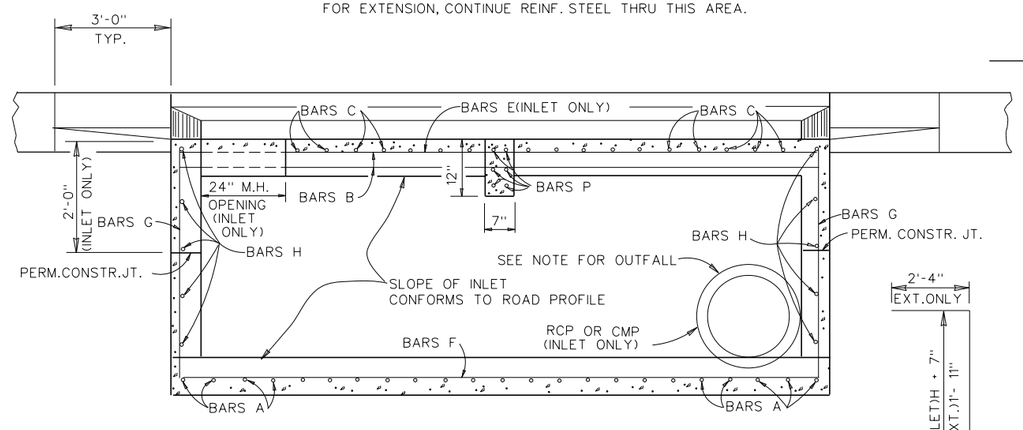
HATCHED AREA INDICATES PORTION OF CURB INLET WALL TO BE BLOCKED OUT FOR CURB INLET EXTENSION.

REINFORCING STEEL

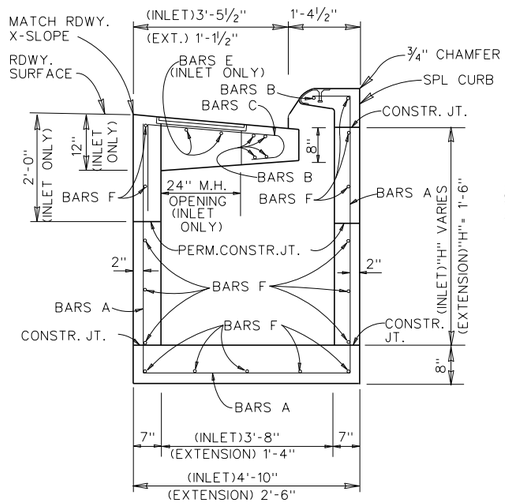
ESTIMATED QUANTITIES - FOR "H" = 4'-10"

BAR	NO.	SIZE	SPAC	LENGTH	WEIGHT
A	29	#4	5"	16'-8"	323
B	5	#5	3"	11'-5"	60
C	17	#5	6"	5'-7"	99
D	2	#5	—	7'-8"	16
E	2	#4	8"	9'-5"	13
F	17	#4	11"	14'-1"	160
G	6	#4	11"	4'-11"	20
H	10	#4	11"	4'-4"	29
I	3	#4	-	2'-4"	5
P	6	#5	-	4'-4"	27
TOTAL - REINF. STEEL - LBS.					752 ✳
TOTAL - CLASS "C" CONC. - CY.					5.60 ✳

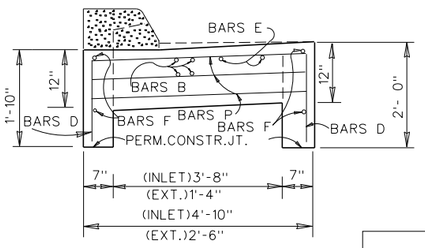
✳ FOR CONTRACTOR'S INFORMATION ONLY.
NO DEDUCTION MADE FOR PIPES.
QUANTITIES SHOWN ARE FOR "H" = 4'-10".
"H" MAY VARY



SECTION A-A

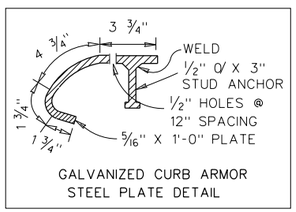


SECTION B-B

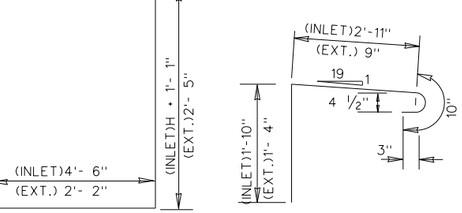


SECTION C-C

BEAM DETAIL

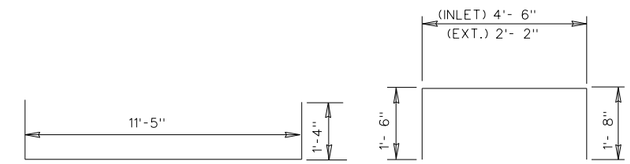


GALVANIZED CURB ARMOR
STEEL PLATE DETAIL



BAR A

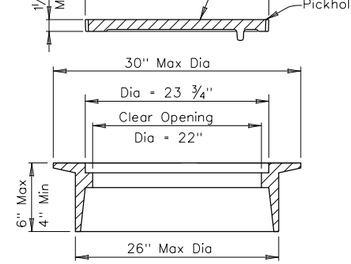
BAR C



BAR F

BAR D

BAR DETAILS



RING AND COVER DETAILS

Approximate Weight = 255 lb

GENERAL NOTES :

CURB MUST BE CAST-IN-PLACE FROM BEGIN GUTTER TRANSITION TO END GUTTER TRANSITION INCLUDING OVER INLET.

OUTFALL PIPES WHICH LAY TRANSVERSE TO ROADWAY, AT INLETS ON GRADE, WILL BE PLACED AT LOW END OF INLET. OTHER PIPES MAY BE PLACED ON ANY SIDE OF INLET.

ALL EXPOSED CORNERS SHALL HAVE A ¾" CHAMFER.

FOR REINFORCING STEEL AND CONCRETE QUANTITIES FOR THE EXTENSION, SEE SHEET 2 OF 2.

IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE TOP OF THE INLET, TRANSITION THE ROADWAY CURB AT 40:1

PAYMENT FOR CONC., REINF. STEEL, M H RING & COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN UNIT COST OF ITEM 465 "MANHOLE & INLETS".

STRUCTURE DESIGN
/BRIDGE/STDS/CURBINCE.DGN

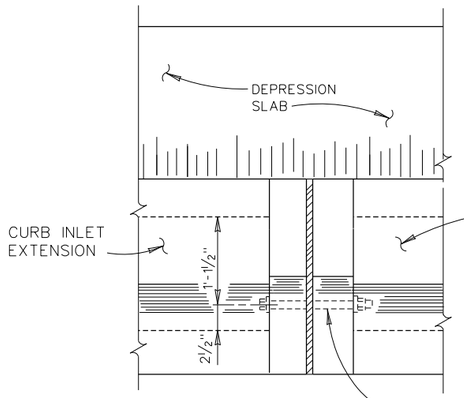
SAN ANTONIO DISTRICT STANDARD

CURB INLET TYPE C WITH INLET EXTENSION TYPE C-E

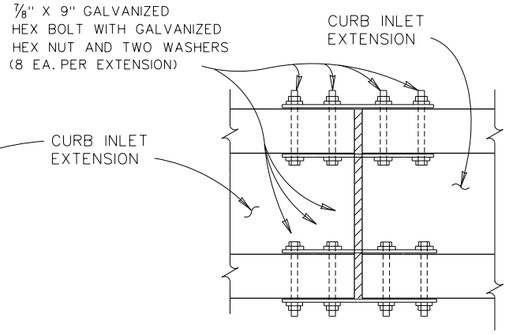
SHEET 1 OF 2

FED.RD. DIV.NO.	PROJECT NO.			SHEET NO.
6				193
STATE	STATE DISTRICT	COUNTY		
TEXAS	SAT			
CONT.	SECT.	JOB	HIGHWAY NO.	

3/01

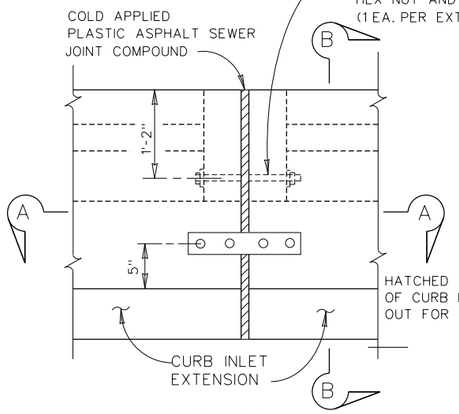


PLAN VIEW

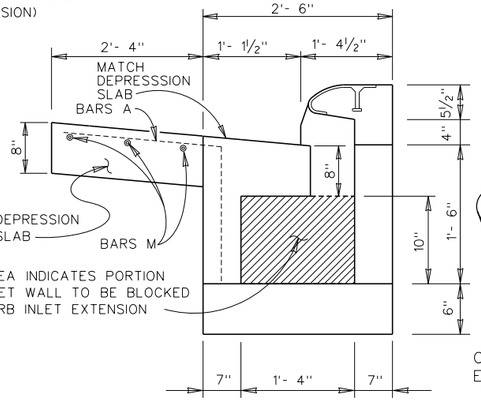


SECTION A-A

⅞" X 1'- 3½" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (1 EA. PER EXTENSION)



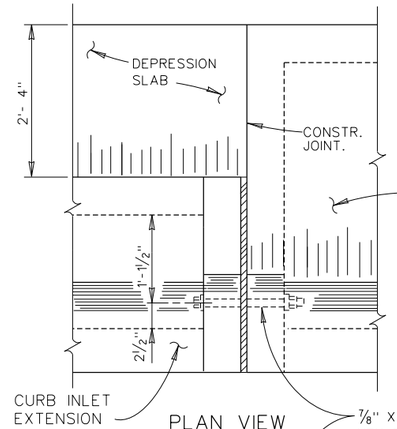
ELEVATION



SECTION B-B

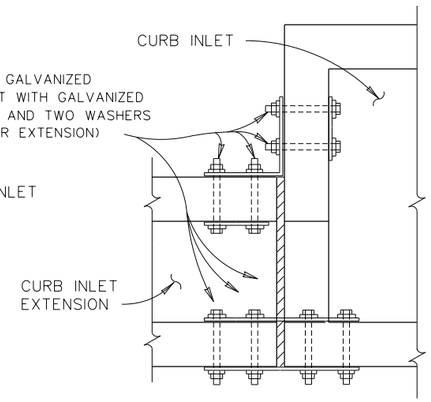
INLET BOLTING DETAILS

(SHOWING EXTENSION TO EXTENSION)



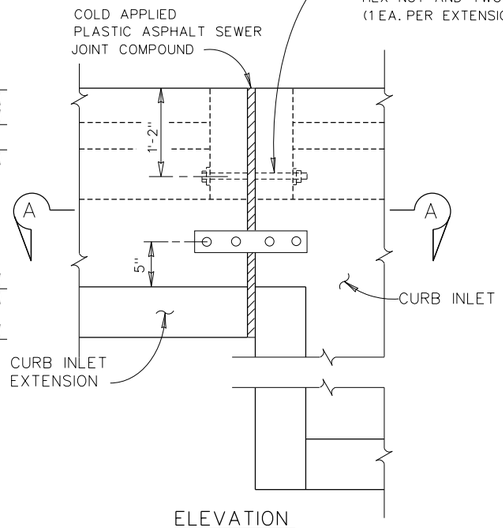
PLAN VIEW

⅞" X 9" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (8 EA. PER EXTENSION)



SECTION A-A

⅞" X 1'- 3½" GALVANIZED HEX BOLT WITH GALVANIZED HEX NUT AND TWO WASHERS (1 EA. PER EXTENSION)



ELEVATION

INLET BOLTING DETAILS

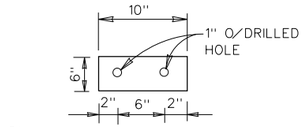
(SHOWING CURB INLET TO EXTENSION)

REINFORCING STEEL

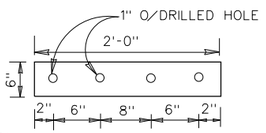
ESTIMATED QUANTITIES - (EXTENSION)

BAR	NO.	SIZE	SPAC	LENGTH	WEIGHT
A	29	#4	5"	9'-8"	187
B	5	#5	3"	11'-5"	60
C	20	#5	6"	2'-11"	61
F	12	#4	11"	14'-1"	113
G	4	#4	11"	1'-11"	5
H	6	#4	11"	2'-2"	9
P	4	#5	-	2'-2"	9
M	3	#4	10"	11'-5"	23
D	2	#5	-	5'-0"	11
TOTAL - REINF. STEEL - LBS.					478 ✳
TOTAL - CLASS "C" CONC. - CY.					3.55 ✳
TOTAL - CLASS "C" CONC. - CY. DEPRESSION SLAB					0.80 ✳

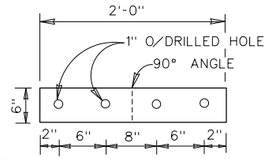
✳ FOR CONTRACTOR'S INFORMATION ONLY. NO DEDUCTION MADE FOR PIPES. QUANTITIES SHOWN ARE FOR "H" = 4'-10". "H" MAY VARY



⅜" X 6" X 10" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED



⅜" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED
BOLTING EXTENSION TO EXTENSION
4 EACH REQUIRED



⅜" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
1 EACH REQUIRED

PLATES

NOTES:
WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSION(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEET 1.

SAN ANTONIO DISTRICT STANDARD

CURB INLET EXTENSION

TYPE C-E

SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.			SHEET NO.
6				194
STATE	STATE DISTRICT	COUNTY		
TEXAS	SAT			
CONT.	SECT.	JOB	HIGHWAY NO.	

8/01

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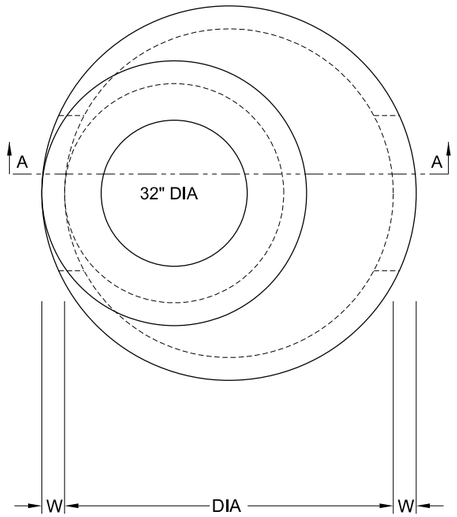
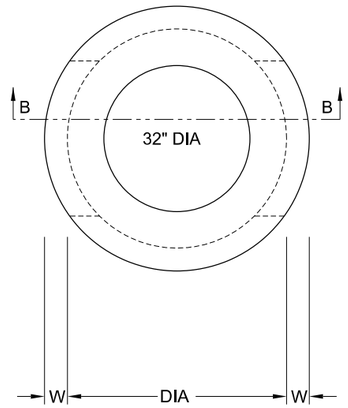
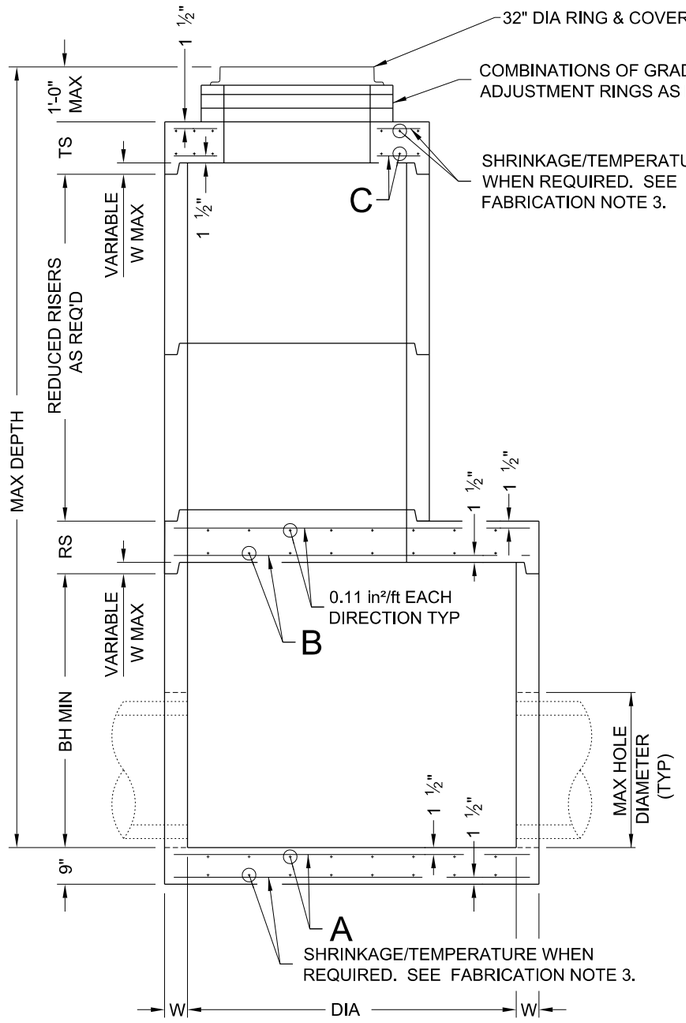


PLAN VIEW "A"

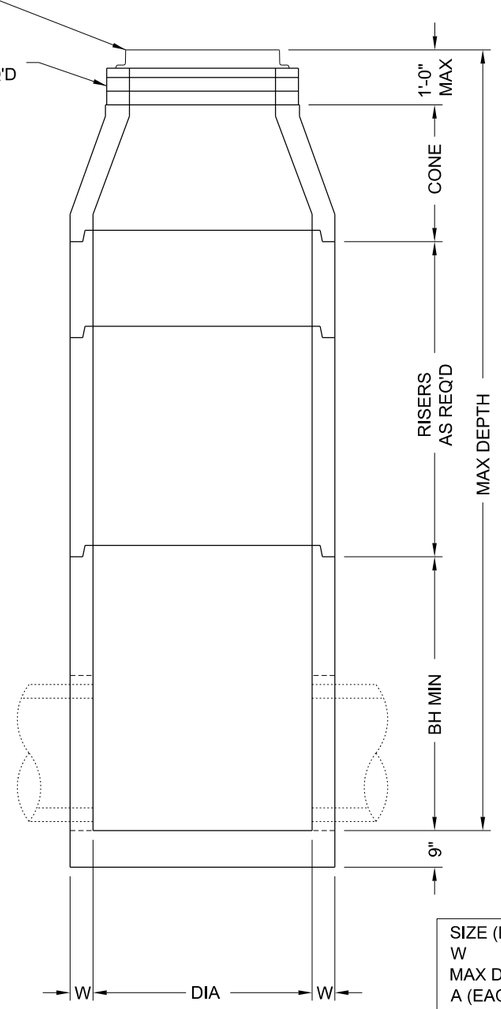


PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increment.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST ROUND MANHOLE

PRM

FILE: prestd02.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				195

DATE: Apr. 28, 2016 - 06:10:42 PM
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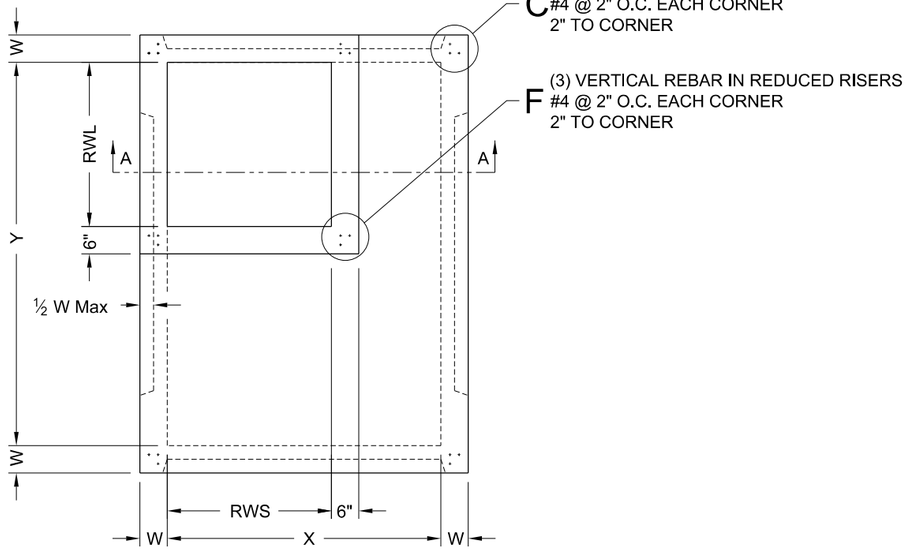
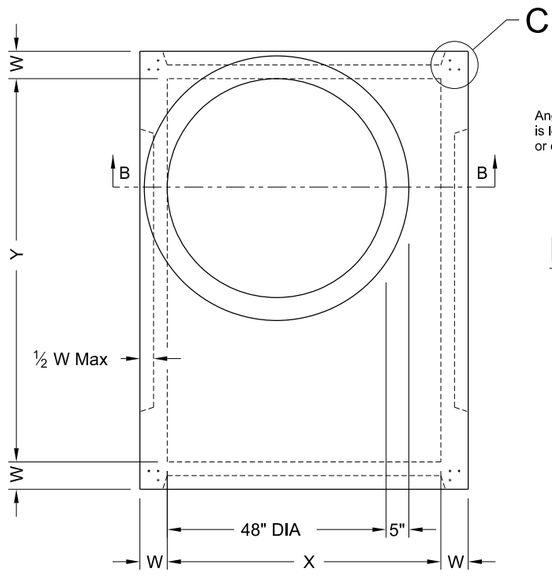


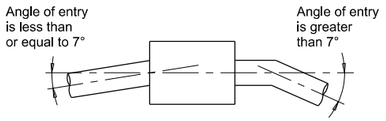
PLAN VIEW "A"

SQUARE REDUCED RISER OPTION



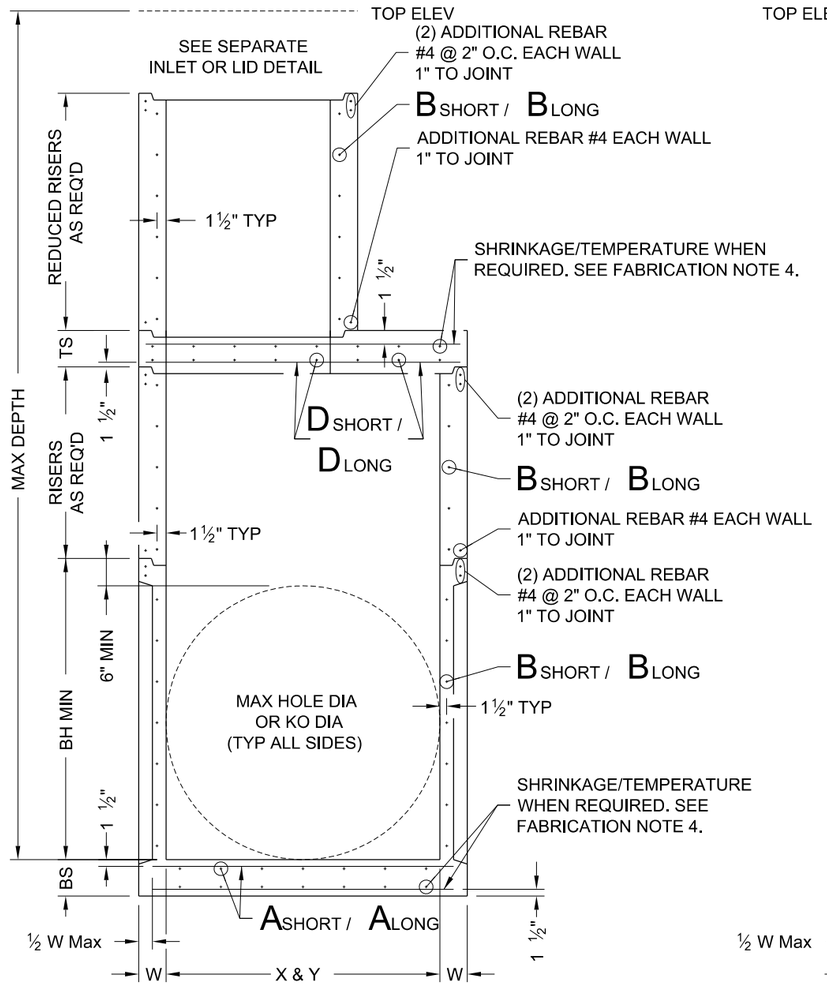
PLAN VIEW "B"

ROUND REDUCED RISER OPTION



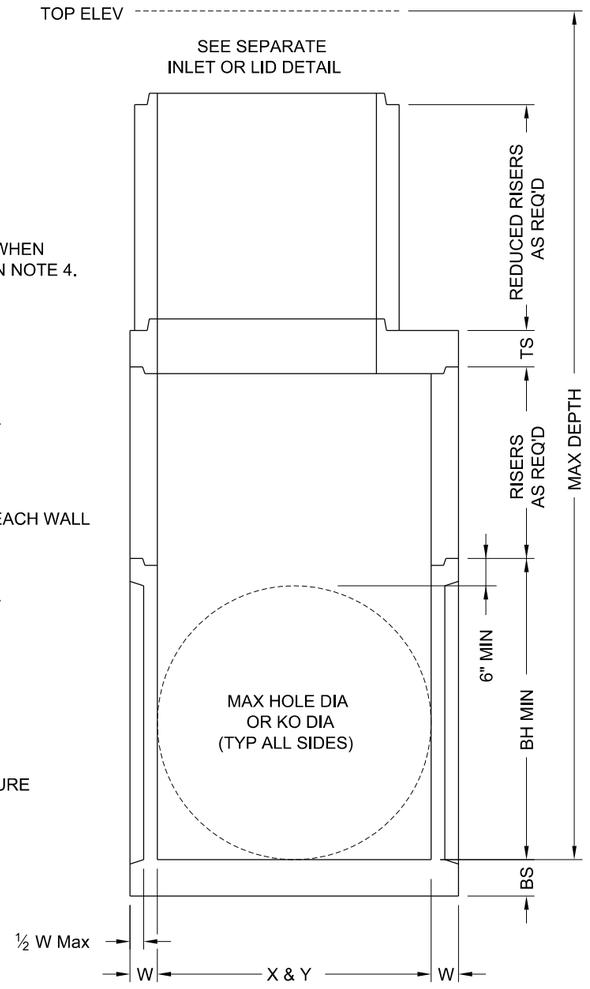
PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PB wall.
If necessary, use pipe elbow or curved
approach alignment to stay within this limit.



SECTION A-A

SQUARE REDUCED RISER OPTION



SECTION B-B

ROUND REDUCED RISER OPTION

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

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Bridge Division Standard

PRECAST BASE

PB

FILE: prestd01.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				196

DATE: Apr-28,2016 - 06:10:39 PM
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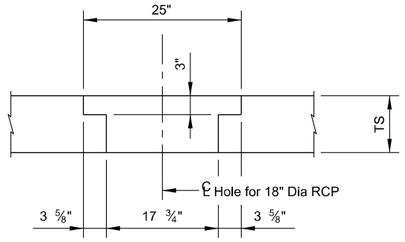
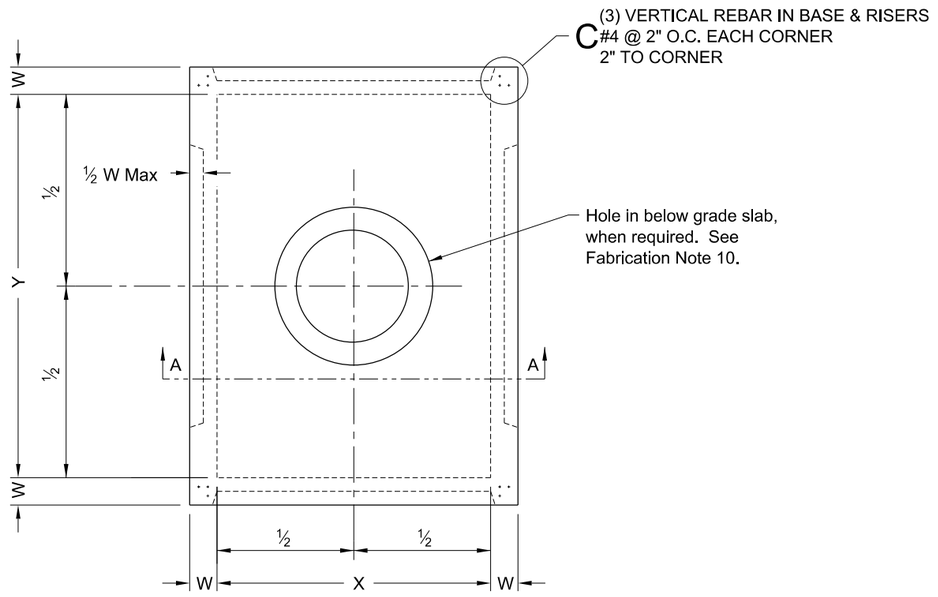
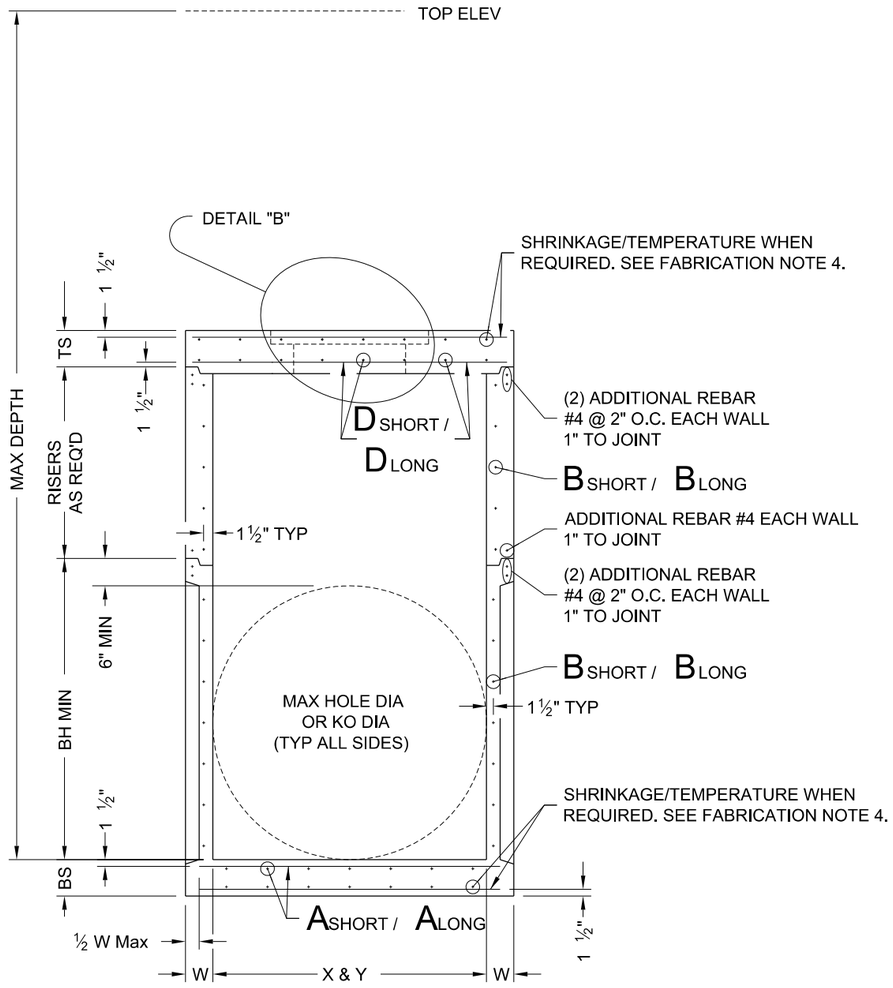


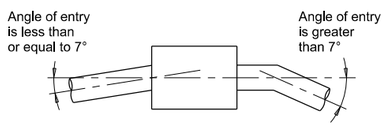
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PJB wall.
If necessary, use pipe elbow or curved approach alignment to stay within this limit.

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

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PRECAST JUNCTION BOX

PJB

FILE: prestd09.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.
				197

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DATE:
FILE:

	Size	MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB										Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
		Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)						
		Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness			
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
	ft.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

** Unless otherwise indicated.

FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

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DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

PDD

FILE: prestd10.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
	DIST	COUNTY		SHEET NO.
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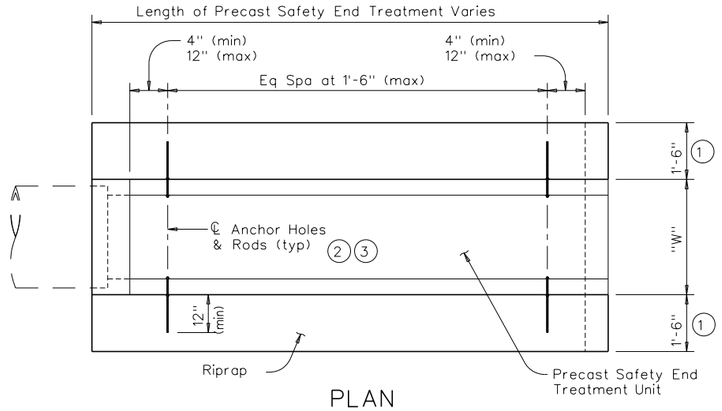
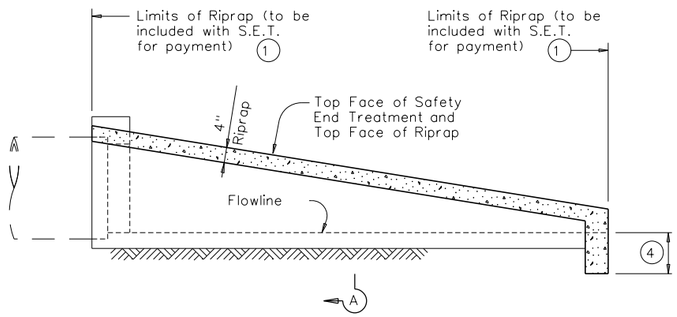
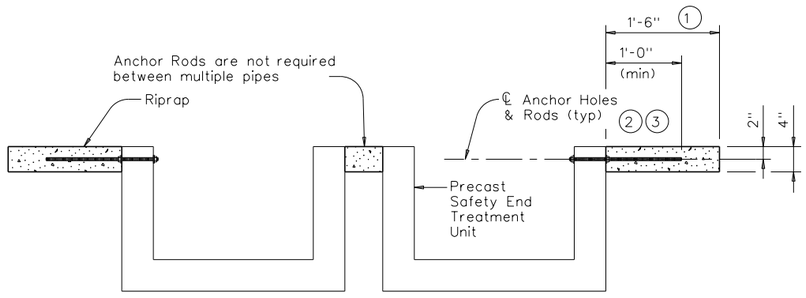


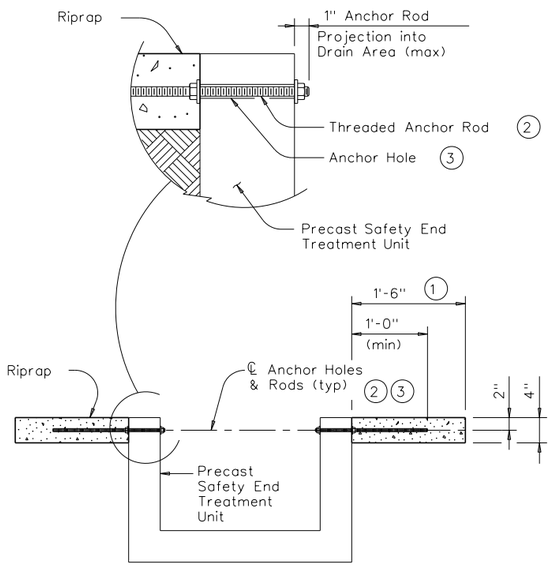
PLAN



LONGITUDINAL ELEVATION



MULTIPLE PIPE INSTALLATION



SINGLE PIPE INSTALLATION

SECTION A-A

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) (5)

Nominal Culvert (Pipe) I.D.	PSET-SC & PSET-SP Standards				PSET-RC & PSET-RP Standards			
	Unit Width "W"	Side Slope			Unit Width "W"	Side Slope		
		3:1	4:1	6:1		3:1	4:1	6:1
12"	23.0"	0.1	0.2	0.2	16.0"	0.1	0.1	0.2
15"	26.5"	0.2	0.2	0.3	19.5"	0.1	0.2	0.2
18"	30.0"	0.2	0.2	0.3	23.0"	0.2	0.2	0.3
24"	37.0"	0.3	0.3	0.5	30.0"	0.2	0.3	0.4
30"	44.5"	0.3	0.4	0.6	37.0"	0.3	0.3	0.5
36"	51.5"	0.4	0.5	0.7	44.0"	0.3	0.4	0.6
42"	58.5"	0.5	0.6	0.8	51.0"	0.4	0.5	0.7

(1) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap". When Riprap is cast integrally with the Precast Safety End Treatment, this dimension shall be 1'-0" minimum.

(2) ½" Diam A307 Gr.A threaded Anchor Rod w/ 2 nuts & 2 washers. All components shall be galvanized in accordance with Item 445, "Galvanizing". Galvanizing that is damaged during transport or construction shall be repaired in accordance with the specifications.

(3) ¾" through holes in walls of Safety End Treatment for Riprap Anchor Rods may be drilled with rotary (coring or masonry) type drilling equipment or may be formed. Percussive (star) type drilling equipment shall not be used. If holes are drilled, spalls in the inside face of the wall exceeding ½" from the holes shall be patched.

(4) Provide Riprap Toe Wall when dimension is shown elsewhere in the plans or when field conditions require a Toe Wall.

(5) Quantities shown are for one end of one reinforced concrete pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only. Quantities are based on the minimum unit lengths shown on the Precast S.E.T. standards.

GENERAL NOTES:

Precast Safety End Treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item 467, "Safety End Treatment".

Riprap shall be Class "B" Riprap in accordance with Item 432, "Riprap".

Payment for Riprap and Toewalls is included in the Price Bid for each Safety End Treatment.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise. The anchor rods shown are always required.

Refer to PSET-SC or PSET-SP standard sheets for details of square Safety End Treatments not shown. Refer to PSET-RC or PSET-RP standard sheets for details of round Safety End Treatments not shown.

For precast units with integrally cast Riprap, reinforcing steel in the amount on 0.26 sq in/ft minimum shall be substituted for the threaded anchor rods shown. When requested, sealed engineering drawings shall be submitted for approval prior to construction. Shop drawings will not be required. Note that a proprietary precast unit with integral Riprap is available from L&R Precast Concrete Works, Inc. (956) 583-6293 or www.lrprecast.com.

These Riprap details are only applicable when notes that require placement of Riprap with Precast Safety End Treatments are shown elsewhere in the plans.

Precast units with integrally cast Riprap shall be permitted unless noted otherwise on the plans.

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PRECAST SAFETY END TREATMENT

TYPE II RIPRAP DETAILS

PSET-RR

FILE: psetrrse.dgn	DN: GAF	CK: TxDOT	DW: JRP	CK: GAF
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REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
				199

DATE: Apr. 28, 2016 - 06:10:53 PM
FILE: N:\IF\Drawings\CV-STM-DT-psetrrse.dgn

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Maximum Wingwall Height Hw (9)	W	X	Y	Z	Variable Reinforcing Bars J 1 Size	Bars J 1 Spa	Bars J 2 Size	Bars J 2 Spa	Estimated Quantities (3) per ft of wing length (2~Wings) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721

TABLE OF WING WALL REINFORCING (2~Wings)

Bar	Size	Nb.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	Nb.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

TABLE OF ESTIMATED ANCHOR TOEWALL QUANTITIES

Bar	Size	Nb.	Spa
K	#4	~	1'-0"
N	#5	6	~
OL	#4	6	~
Reinf (Lb/Ft)			9.82
Conc (CY/Ft)			0.074

(1) Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.

(2) Adjust to fit as necessary to maintain 1¼" clear cover and 4" minimum between bars.

(3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.

(4) Recommended values of Slope are: 3:1, 4:1, & 6:1. Slope shall be 3:1 or flatter.

(5) When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, construction joints or grooved joints, oriented in the direction of flow, and shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

(6) At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.

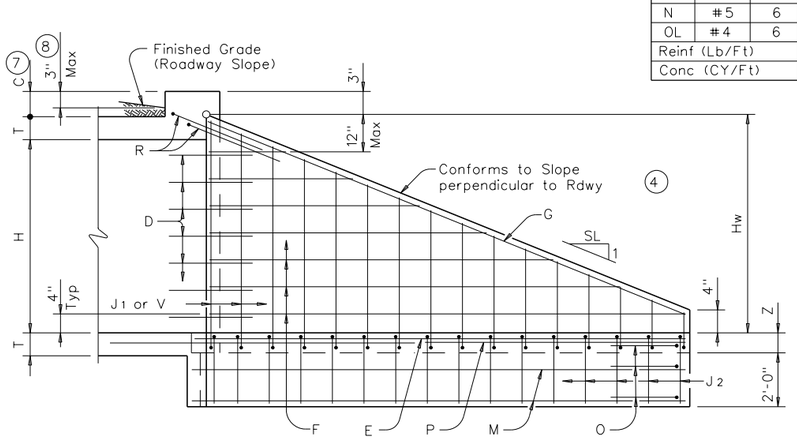
(7) 3" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to ECD standard.

(8) For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) See "Table Of Maximum Wing Heights" for various slopes. Height is limited based on a 33'-6" maximum safety pipe runner length.

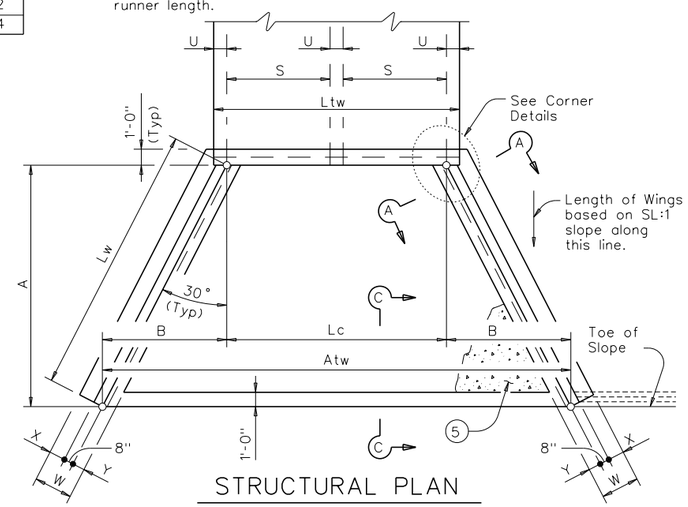
TABLE OF MAXIMUM WING HEIGHTS (Hw max) (9)

Side Slope	Hw max
3:1	11'- 5"
4:1	8'-10"
6:1	6'- 1"



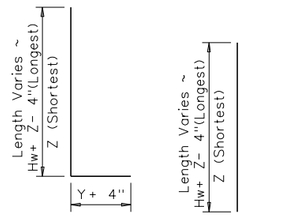
INSIDE ELEVATION OF WINGWALL

(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)

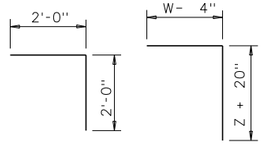


STRUCTURAL PLAN

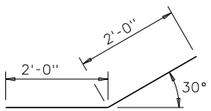
(Showing dimensions.)



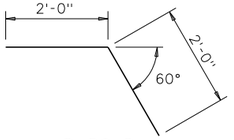
BARS J1 BARS V



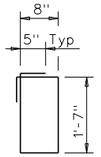
BARS L BARS J2



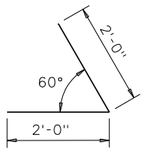
BARS D



BARS R



BARS K
(Length = 5'-4")



BARS OL

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)
Hw = H + T + C - 0.250' (9)
A = (Hw - 0.333') (SL)
B = (A) (Tangent 30°)
Lw = (A) (Cosine 30°)

For Cast-in-place culverts:
Ltw = (N) (S) (N+ 1) (+U)
For Precast culverts:
Ltw = (N) (2U - 9") (N+ 1) (+0.500')

Lc = (Ltw) (2U)
Atw = (Lc) (+2B)
Total Wingwall Area (Two Wings ~ S.F.)
= (Hw + 0.333') (Lw)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal : 1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
Lc = Culvert Curb between Wings
Atw = Anchor Toewall Length
N = Number of Culvert Spans

See applicable box culvert standard for H, S, T, and U values. See Table of Maximum Wall Heights for limits on Hw.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

The Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Pipe Runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

All reinforcing steel shall be Grade 60.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

All reinforcing bars shall be adjusted to provide a minimum of 1¼" clear cover.

When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.

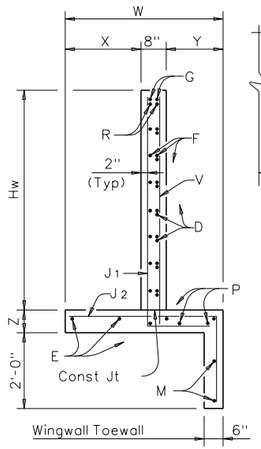
See BCS sheet for additional dimensions and information.

All bolts, nuts, washers, brackets, angles, and pipe runners are considered parts of the Safety End Treatment for payment.

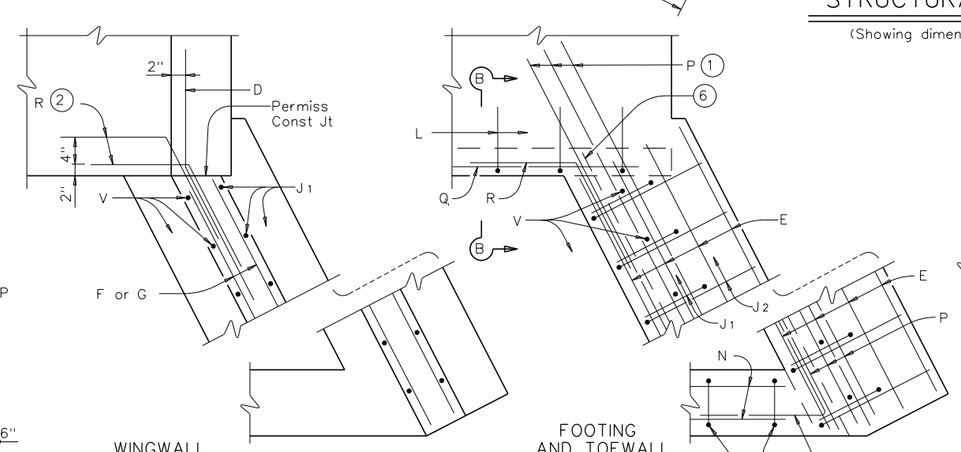
Pipe Runners shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307. Steel plates shall conform to ASTM A36. All steel components, except reinforcing, shall be galvanized. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

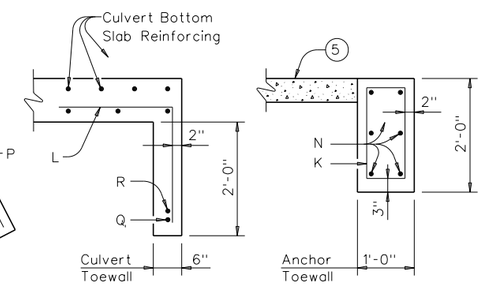


SECTION A-A



CORNER DETAILS

(Culvert and Culvert Toewall reinforcing not shown for clarity.)



SECTION B-B (5)

SECTION C-C

SHEET 1 OF 3

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-FW-0

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©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
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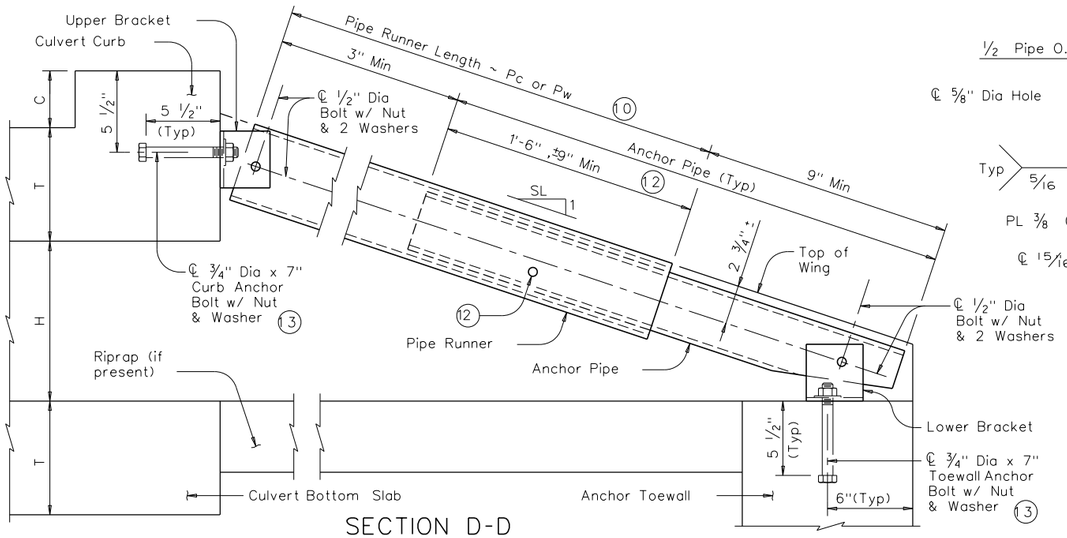
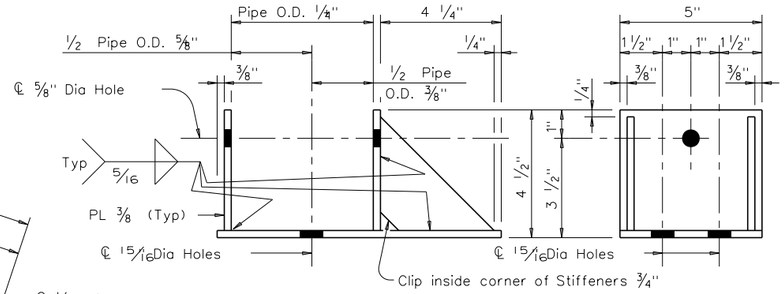


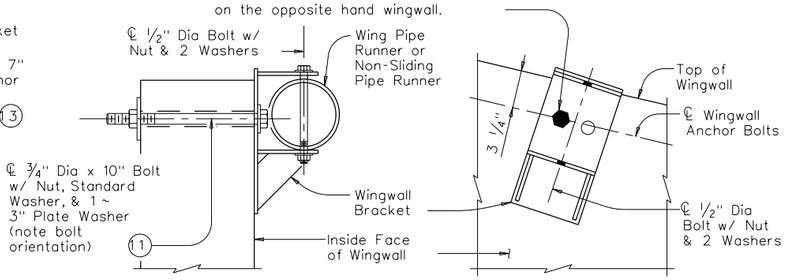
SECTION D-D

(Showing Curb Pipe Runner. Except for upper bracket, Wingwall Pipe Runners are similar.)



ELEVATION SIDE VIEW

3/4" Anchor Bolt shall be installed in hole nearest to the culvert curb. Other bolt hole is intended for use on the opposite hand wingwall.

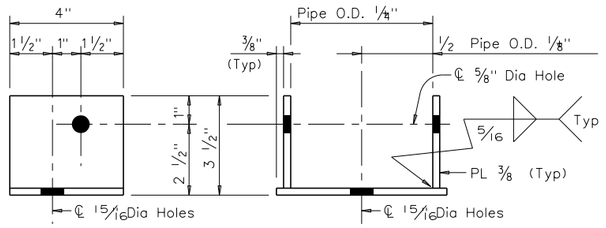


SECTION E-E (Showing installed bracket.)

ELEVATION (Showing installed bracket normal to Wall. Pipe not shown for clarity.)

Note: Wingwall Bracket shall match the Upper Curb Bracket size.

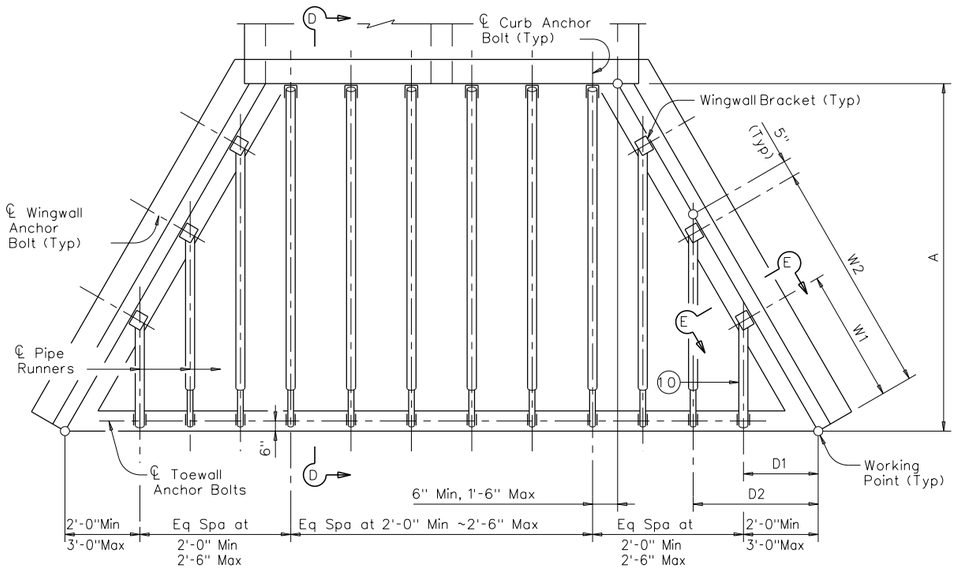
WINGWALL BRACKET DETAILS



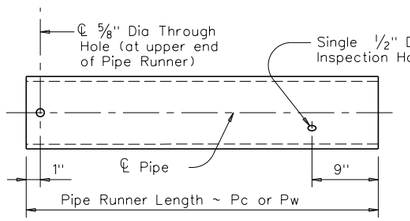
SIDE VIEW ELEVATION

Note: Upper and Lower Brackets shall, except for the brackets used with Non-Sliding Pipe Runners, match the required pipe diameters as shown in the table.

UPPER & LOWER BRACKET DETAILS

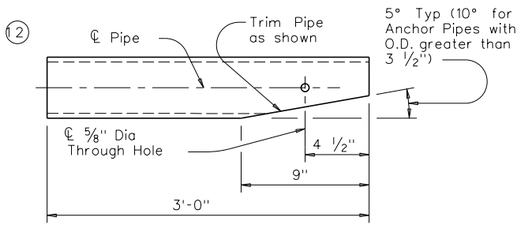


PIPE RUNNER PLAN

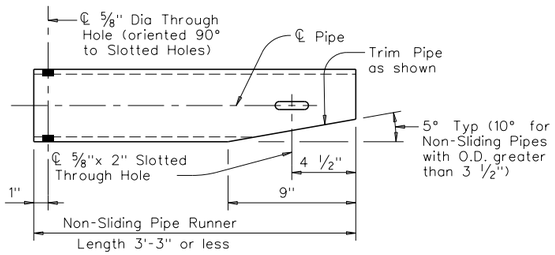


Note: Pipe diameter required for curb pipe runner shall also be used for wingwall pipe runner.

PIPE RUNNER DETAILS



ANCHOR PIPE DETAILS



Note: Pipe size shall be same as required for curb pipe runner. Adjust the corresponding Lower Bracket accordingly.

NON-SLIDING PIPE RUNNER DETAILS

MAXIMUM PIPE RUNNER LENGTHS & REQUIRED PIPE RUNNER SIZES

Maximum Pipe Runner Length (Pc or Pw)	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

(10) If Pipe Runner Length Pw is 1'-9" or less, a single Non-Sliding Pipe Runner shall replace the normal Pipe Runner and Anchor Pipe. See NON-SLIDING PIPE RUNNER DETAILS for additional information.

(11) At Contractor's option, 7/8" diameter hole may be formed or cored drilled. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes.

(12) After installation of Pipe Runner, the 1/2" inspection hole shall be utilized to ensure that the lap of the Anchor Pipe with the Pipe Runner is adequate.

(13) At Contractor's option, an epoxy anchorage system may be used. Anchorage system chosen must be able to achieve an ultimate tensile resistance of 20 kips. Anchor diameter shall be 3/4". The Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's recommendations.

PIPE RUNNER DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)
W"n" = (2.000) (D"n") (0.446)
Pw"n" = (D"n") (K2) (2.963)
Pw1 Non-Sliding Pipe Runner (If required)
= (D1) (K2) (0.563)
Pc = (A) (K1) (1.688)

W"n" = Distance from Working Point to centerline Anchor Bolt measured along bottom inside face of Wing
D"n" = Distance from Working Point to centerline Pipe Runner measured along outside face of Anchor Toewall
Pw = Wingwall Pipe Runner Length
Pc = Curb Pipe Runner Length
K = Constant Values for use in formulas

Slope SL:1	K1	K2
3:1 ~	1.054 ~	1.826
4:1 ~	1.031 ~	1.785
6:1 ~	1.014 ~	1.756

"n" = Wing Pipe Runner Number

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-FW-0

FILE: setbf0se.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
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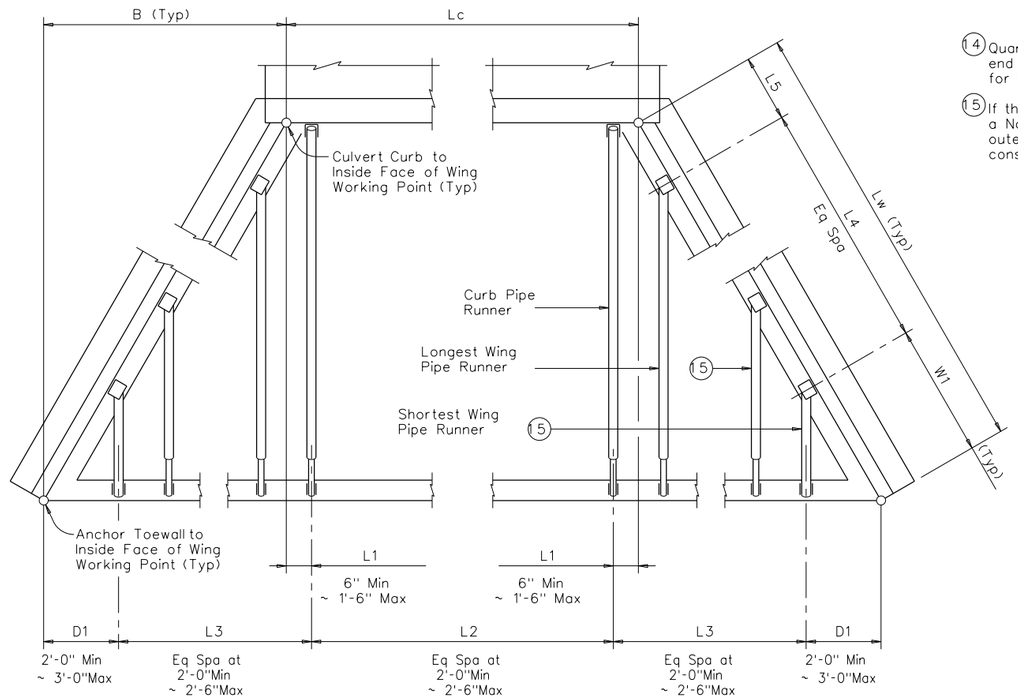
REVISIONS 11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO. 201

Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both) (14)	Lc (Ft)	L1 (Ft)	L2 No. Spa	L2 Spa at (Ft)	L2 Overall Length (Ft)	D1 (Ft)	L3 No. Spa	L3 Spa at (Ft)	L3 Overall Length (Ft)	W1 (Ft)	L4 No. Spa	L4 Spa at (Ft)	L4 Overall Length (Ft)	L5 (Ft)	Curb Pipe Runner (Pc) No.	Curb Pipe Runner (Pc) Length (Ft)	Longest Wing Pipe Runner (Pw) (Ft)	Shortest Wing Pipe Runner (Pw) (Ft)	Non-Sliding Wing Pipe Runner (if applicable) (Ft)	Curb, Wing, and/or Non-Sliding Pipe Runners Size (3",4" or 5")	Curb, Wing, and/or Non-Sliding Pipe Runners Total Length (14) (Ft)	3'-0" Anchor Pipe Size (2",3" or 4")	3'-0" Anchor Pipe Total Length (14) (Ft)



PIPE RUNNER LAYOUT

(14) Quantities shown are for one structure end if Lt or Rt. Quantities shown are for two structure ends if Both.

(15) If the outermost Wing Pipe Runner is a Non-Sliding Pipe Runner, the next outermost Wing Pipe Runner shall be considered the Shortest.

SPECIAL NOTE:

This tabular sheet is to be filled out by the culvert specifier and provides information for the construction details and quantities of Pipe Runners.

An Excel 97 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site. The completed sheet shall be signed, sealed, and dated by a licensed Professional Engineer.

Note that the tabular quantities are given for estimating purposes only. It is likely that these quantities will change due to field conditions. Therefore, all dimensions shall be verified by the Contractor in the field prior to fabrication of the Safety End Treatment components.

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SHEET 3 OF 3

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS
TYPE I ~ CROSS DRAINAGE

SETB-FW-0

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TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

Dimensions					Variable Reinforcing				Estimated (3) Quantities per ft of wing length (2~Wings)	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'- 5"	1'- 0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'- 2"	1'- 6"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'- 8"	1'- 9"	1'- 3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'- 2"	2'- 0"	1'- 6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'- 8"	2'- 3"	1'- 9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'- 2"	2'- 6"	2'- 0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'- 8"	2'- 9"	2'- 3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'- 2"	3'- 0"	2'- 6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'- 8"	3'- 3"	2'- 9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'- 2"	3'- 6"	3'- 0"	1'- 0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'- 8"	4'- 0"	3'- 0"	1'- 1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'- 2"	4'- 6"	3'- 0"	1'- 3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2~Wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

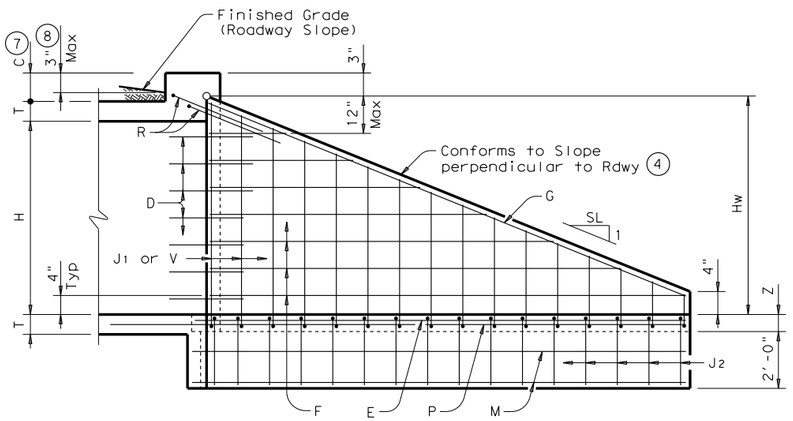
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION CALCULATIONS:

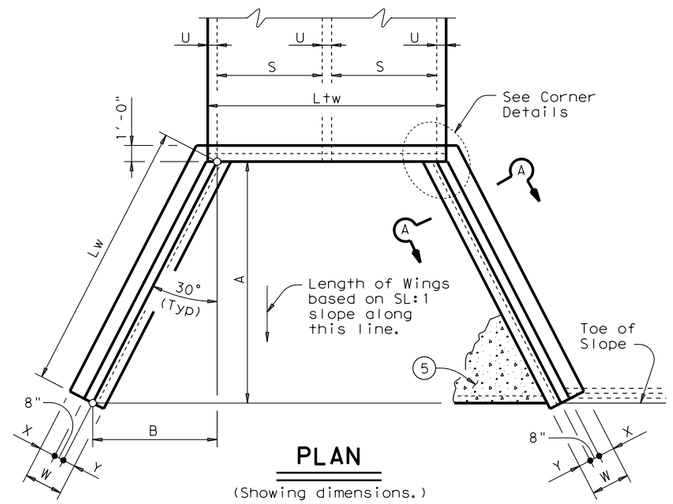
Formulas: (All values are in Feet)
Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) Tangent (30°)
Lw = (A) ÷ Cosine (30°)
For Cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)
For Precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.500')
Total Wingwall Area (Two Wings ~ S.F.) = (Hw + 0.333') (Lw)

Hw = Height of Wingwall
SL:1 = Side Slope Ratio (Horizontal:1 Vertical)
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans

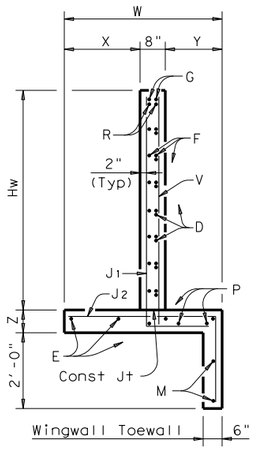
See applicable box culvert standard for H, S, T, and U values.



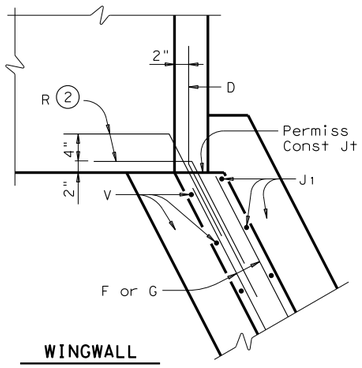
INSIDE ELEVATION
(Showing reinforcing. Culvert and Culvert Toewall reinforcing not shown for clarity.)



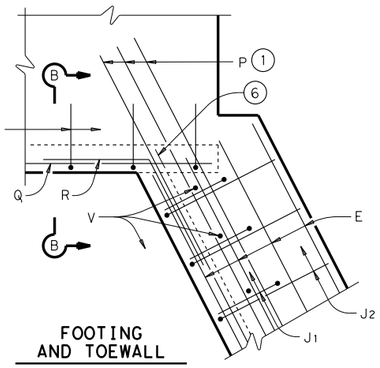
PLAN
(Showing dimensions.)



SECTION A-A

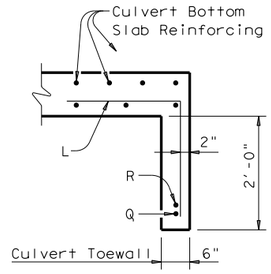


WINGWALL

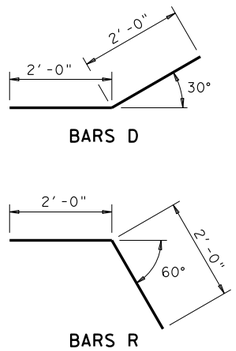


FOOTING AND TOEWALL

CORNER DETAILS
(Culvert and Culvert Toewall reinforcing not shown for clarity.)

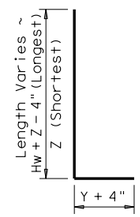


SECTION B-B 5

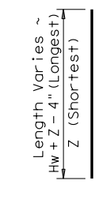


BARS D

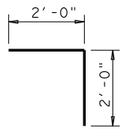
BARS R



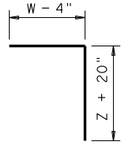
BARS J1



BARS V



BARS L



BARS J2

1. Extend Bars P 3'-0" minimum into bottom slab of Box Culvert.
2. Adjust to fit as necessary to maintain 1 ¼" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings multiply the tabulated values by Lw.
4. Recommended values of Slope are: 2:1, 3:1, 4:1, & 6:1.
5. When shown elsewhere on the plans, a 5" deep concrete riprap shall be constructed. Payment for riprap shall be as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, the riprap shall have a 6" wide by 1'-6" deep reinforced concrete toewall along all edges adjacent to natural ground; the toewall shall be reinforced by extending typical riprap reinforcing into the toewall; construction joints or grooved joints, oriented in the direction of flow, shall extend across the full distance of the riprap, at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
6. At Contractor's option, Culvert Toewall may be ended flush with Wingwall Toewall. Adjust reinforcing from that shown as necessary.
7. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.
8. For vehicle safety, curb heights and wall heights shall be reduced, if necessary, to provide a maximum 3" projection above finished grade. No changes will be made in quantities and no additional compensation will be allowed for this work.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.
All reinforcing steel shall be Grade 60.
Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.
All reinforcing bars shall be adjusted to provide a minimum of 1 ¼" clear cover.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See BCS sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Texas Department of Transportation

Bridge Division Standard

CONCRETE WINGWALLS
WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: fw-0stde.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.
				203

DATE: Apr-28, 2016 - 06:11:02 PM
FILE: N:\IF\Drawings\CV-STM-DT-pwstde01.dgn

TABLE OF DIMENSIONS & REINFORCING STEEL
(Wings for One Structure End)

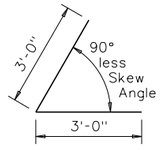
Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing (2~Wings) ④		Estimated Quantities per ft of Toewall (1~Toewall)	
					Bars J1		Bars J2					
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'- 2"	1'- 2"	1'- 0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'- 9"	1'- 7"	1'- 2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'- 4"	2'- 0"	1'- 4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'- 0"	2'- 3"	1'- 9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'- 6"	2'- 8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'- 0"	2'-10"	2'- 2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'- 5"	3'- 0"	2'- 5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'- 2"	3'- 6"	2'- 8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'- 8"	3'- 9"	2'-11"	1'- 0"	#7	6"	#6	6"	285.41	1.592	9.74	0.157
13'-6"	8'- 2"	4'- 0"	3'- 2"	1'- 2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'- 5"	3'- 5"	1'- 4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'- 6"	4'-10"	3'- 8"	1'- 6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'- 0"	3'-11"	1'- 7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING (2~Wings)

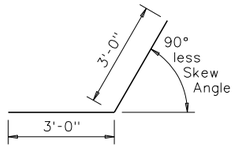
Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

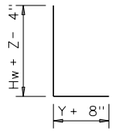
Bar	Size	No	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"



BARS D1



BARS D2



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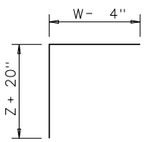
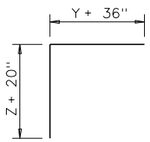


BARS J2



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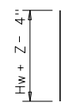


BARS V

WING DIMENSION CALCULATIONS:

Formulas: (All values are in Feet)

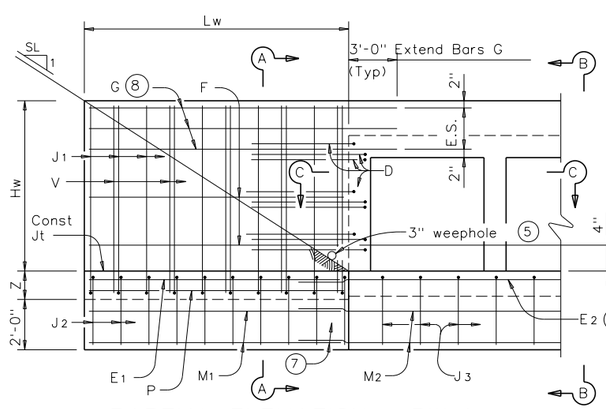
Hw = H + T + C
Lw = (Hw) (SL) Cosine θ for Ty PW-1
= (Hw - 1') (SL) Cosine θ for Ty PW-2 and Hw 4' ≥
= (Hw - 0.5') (SL) Cosine θ for Ty PW-2 and Hw 4' <

For Cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] Cosine θ —

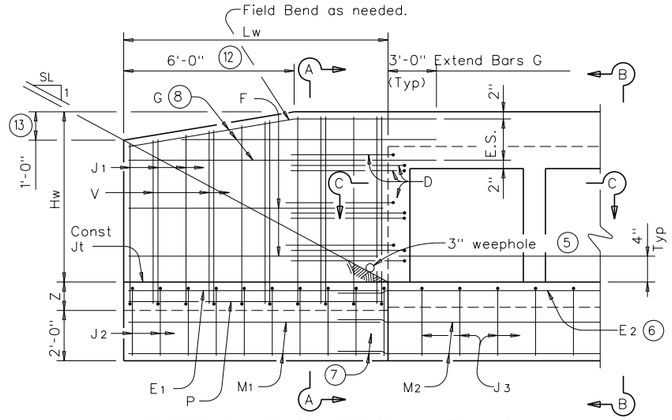
For Precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] Cosine θ —
Total Wingwall Area (Two Wings ~ SF)
= (2)(Hw)(Lw) for Ty PW-1
= (2)(Hw)(Lw) - 6 SF for Ty PW-2 and Hw 4' ≥
= (2)(Hw)(Lw) - 1.5 SF for Ty PW-2 and Hw 4' <

Hw = Height of Wingwall
Lw = Length of Wingwall
Ltw = Culvert Toewall Length
N = Number of Culvert Spans
SL:1 = Channel Slope ratio. (Horizontal: 1 Vertical, Usual value is 2:1)
θ = Culvert Skew

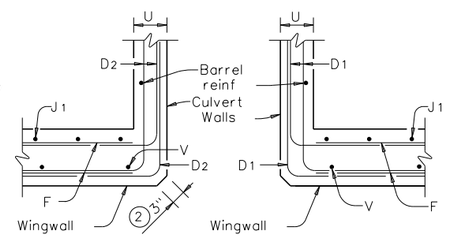
See applicable box culvert standard for S, H, T and U values.



PARTIAL ELEVATION - PW-1



PARTIAL ELEVATION - PW-2



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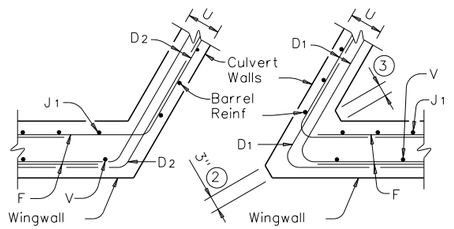

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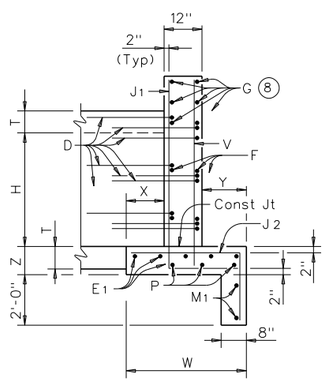

SECTION A-A
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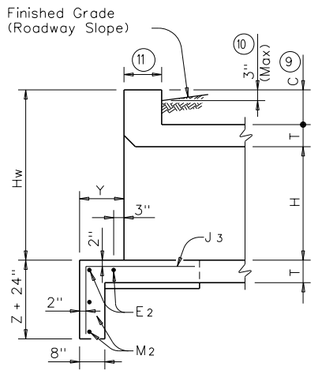
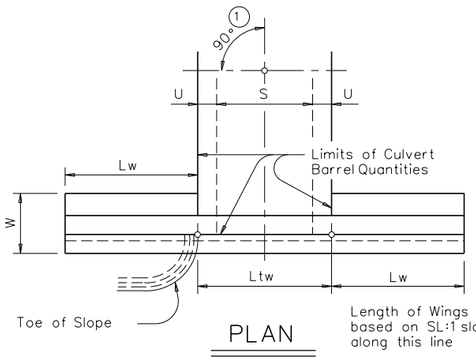
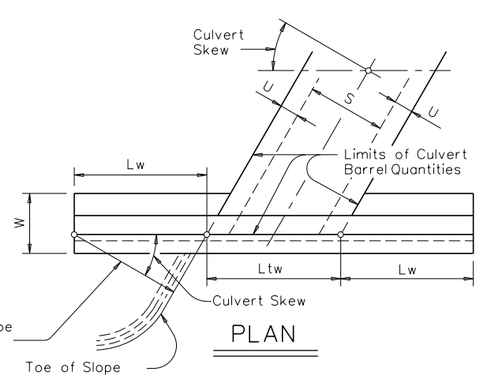


SECTION B-B
(Showing Wing Reinf)



PLAN

DETAILS FOR
NON-SKEWED BOX CULVERTS



PLAN

DETAILS FOR
SKEWED BOX CULVERTS
(Showing 30° Skew)

1. Skew Angle = 0°
2. At discharge end, chamfer may be ¾".
3. For 15° Skew ~ 1"
   For 30° Skew ~ 2"
   For 45° Skew ~ 3"
4. Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
5. Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
6. Extend Bars E 2'-6" minimum into the wingwall footing.
7. Lap Bars M 1 1'-6" minimum with Bars M 2.
8. Bars G equally spaced at 8" maximum, place as shown. Provide at least two pair Bars G per wing.
9. 0" min to 5'-0" max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail or curbs taller than 1'-0", refer to ECD standard. For structures with T6 bridge rail, refer to T6-CM standard. For structures with traffic rail, other than T6, refer to RAC standard.
10. For vehicle safety, the following requirements must be met:
    - For structures without bridge rail, curbs cannot project more than 3" above finished grade.
    - For structures with bridge rail, build curbs flush with finished grade.

    Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
11. 1'-0" typical. 2'-0" typical when RAC standard is referenced elsewhere in the plans.
12. 3'-0" for Hw 4'.
13. 6" for Hw <4'.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.

Provide Class "C" Concrete (f'c = 3,600 psi Min) and Grade 60 reinforcing steel.

Provide 1¼" Min clear cover to reinforcing steel.

Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.

See BCS sheet for wingwall type and additional dimensions and information.

The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

DESIGNER NOTES:

Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.

Type PW-2 can only be used for applications without a railing mounted to the wingwall.

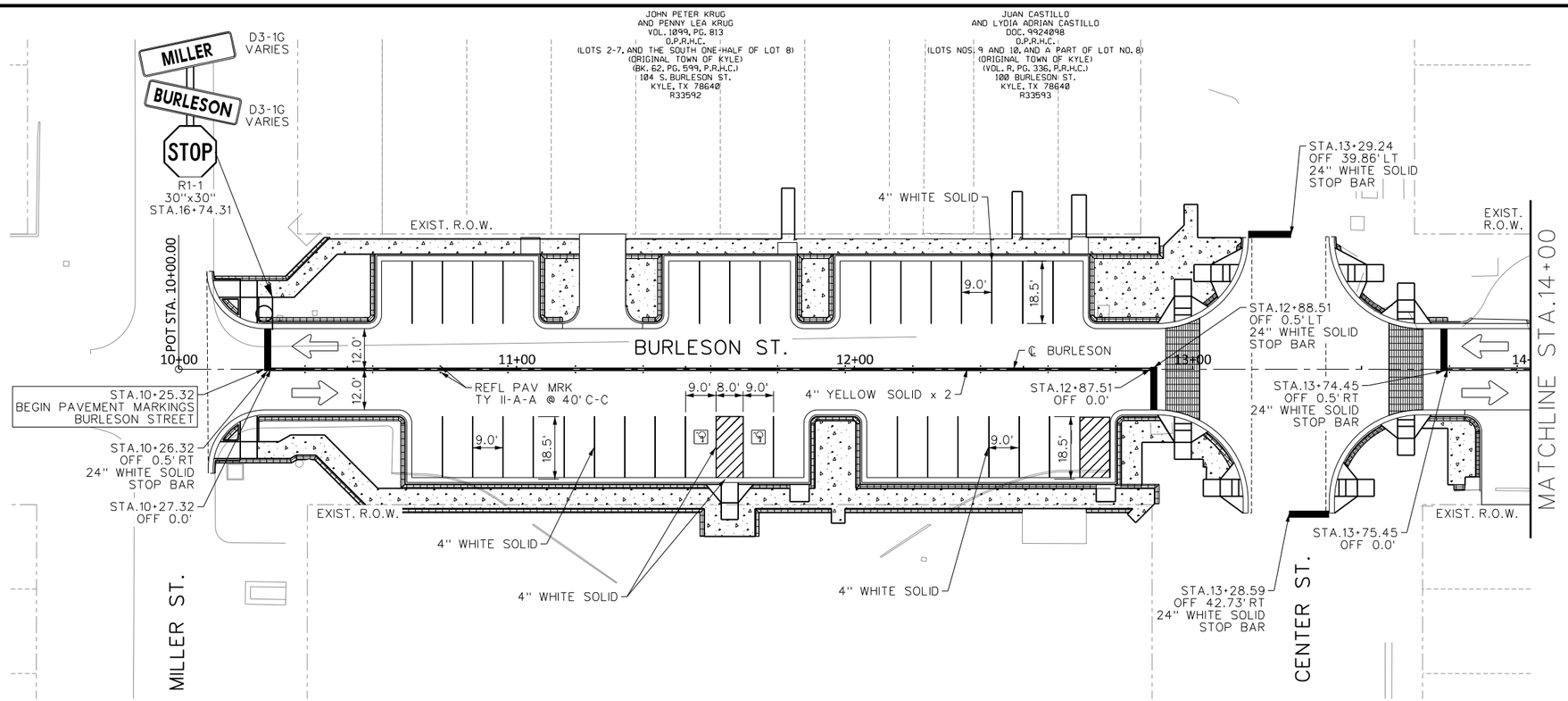
Texas Department of Transportation

Bridge Division Standard

CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2

PW

FILE: pwstde01.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Reinforcing Quantities. 01-12: PW-1 & PW-2.	DIST	COUNTY		SHEET NO.
				204



LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.

N

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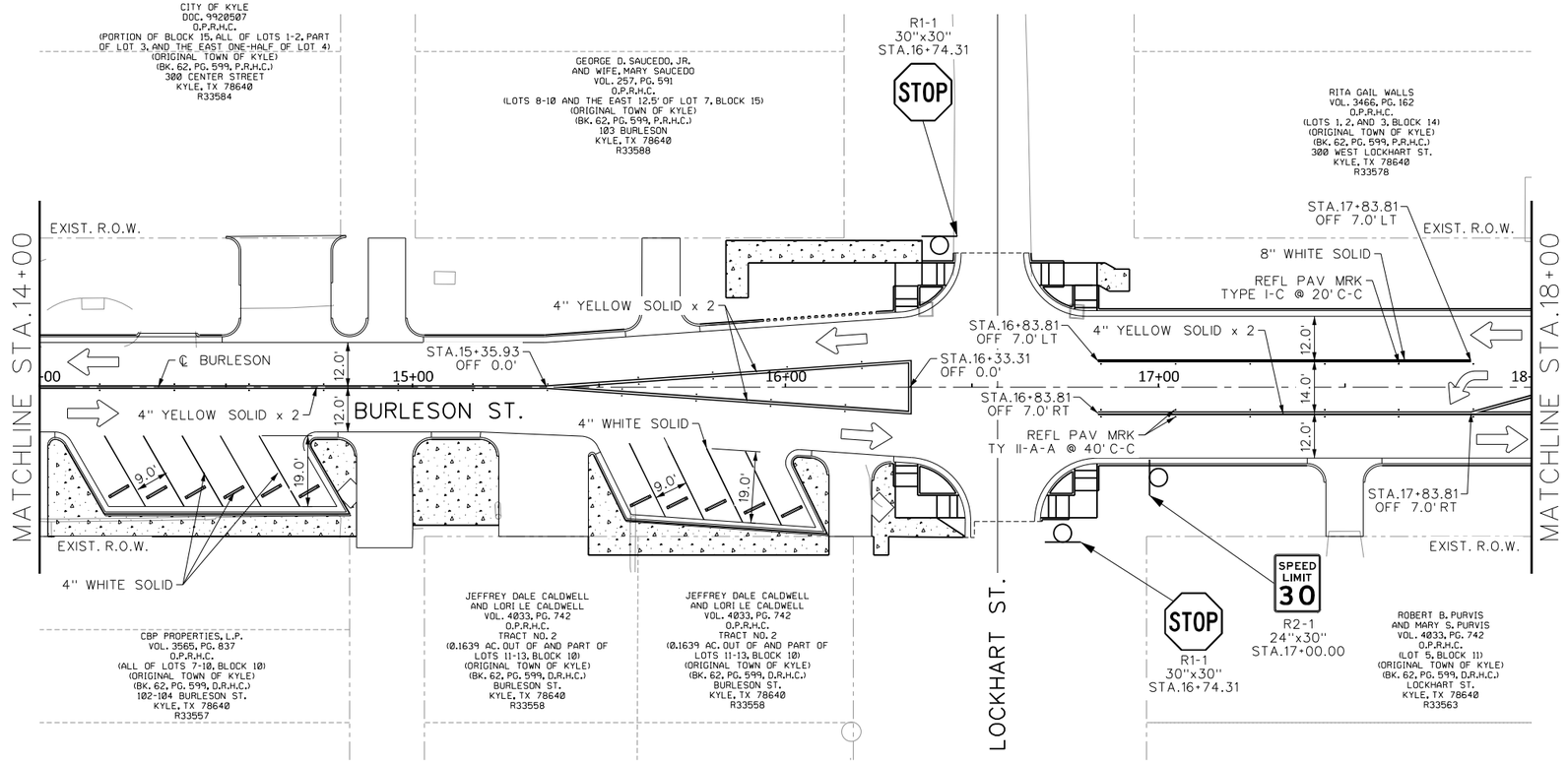
SCALE IN FEET



N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS SEAN D. BARRY 114177 LICENSED PROFESSIONAL ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS STA.10+00 TO STA.18+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK01.sht

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0 1"

SHEET 205
TOTAL 292

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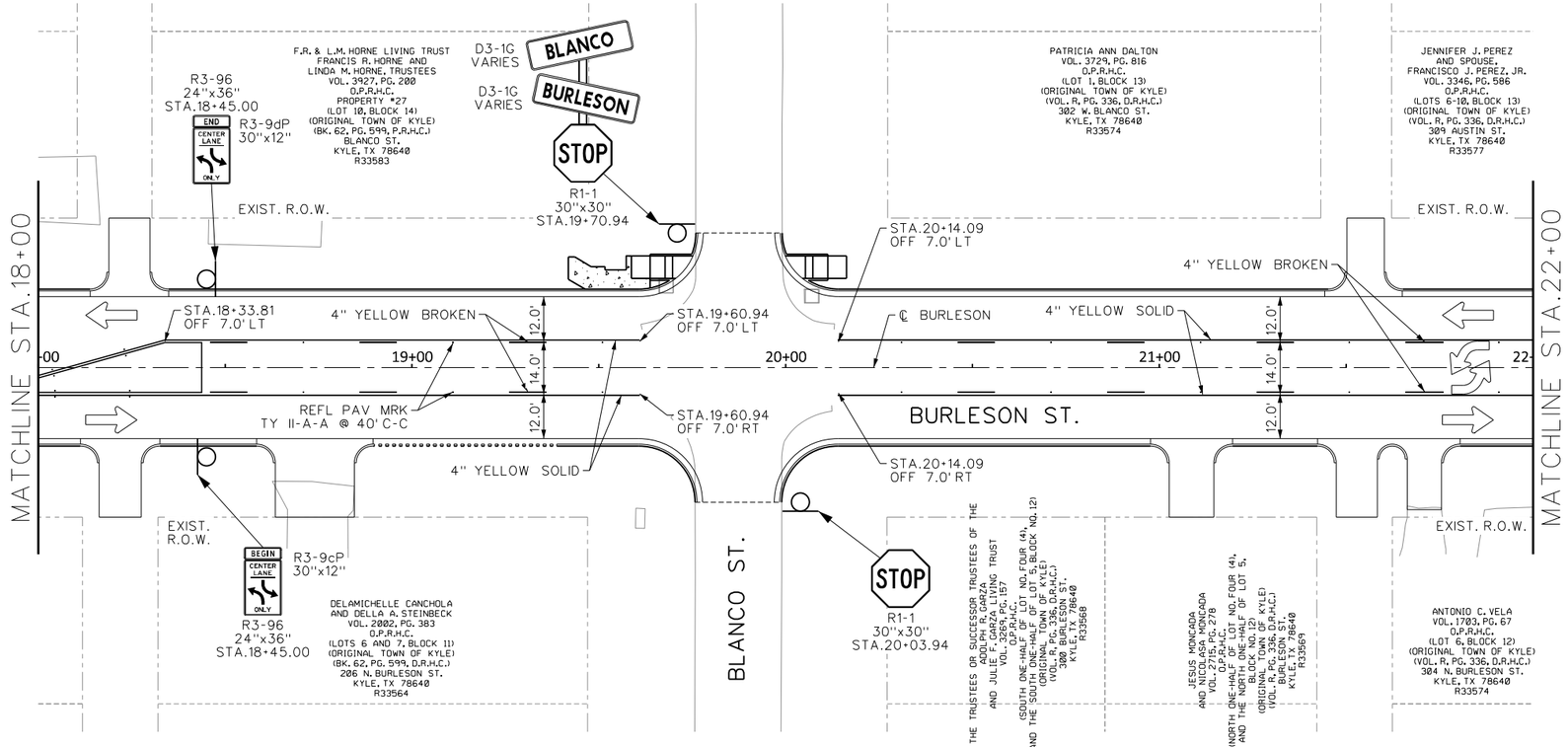

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018
FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS STA.18+00 TO STA.25+50

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK02.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
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SHEET 206
TOTAL 292

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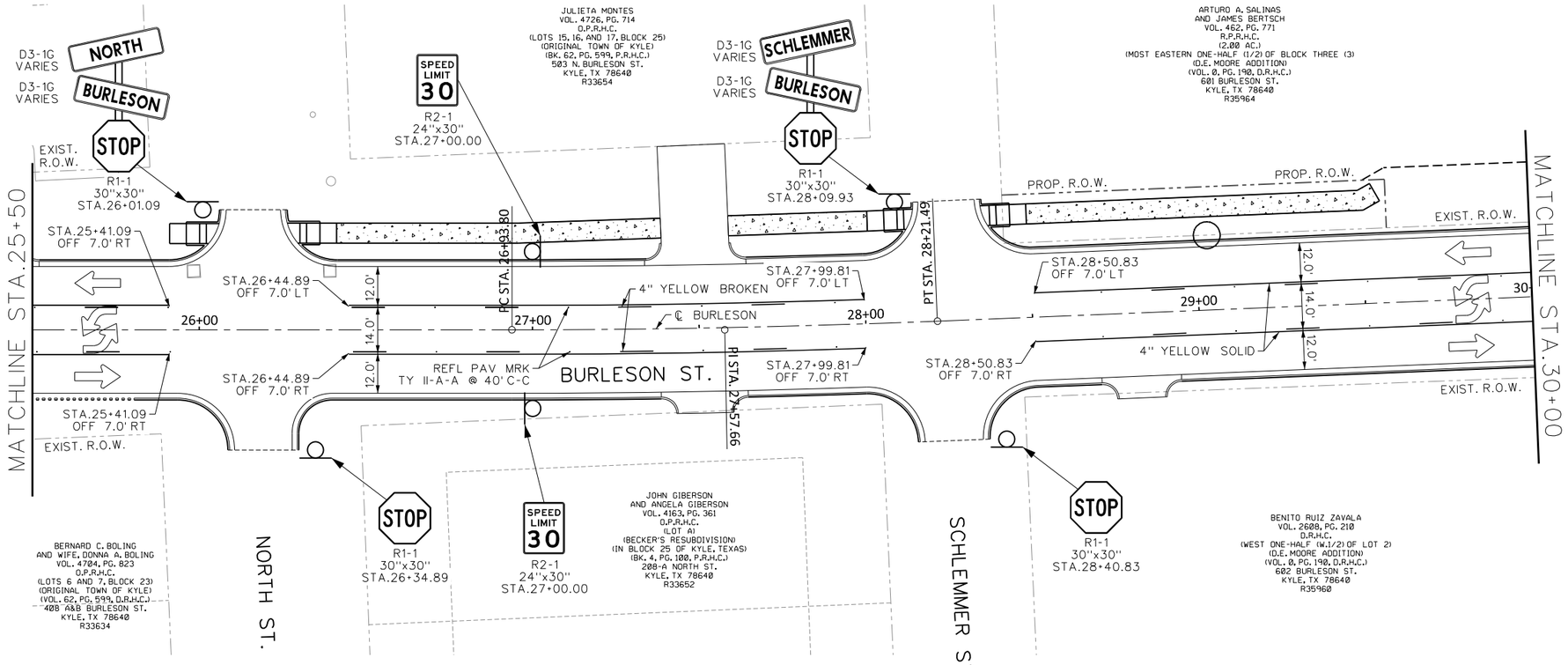
Plot Scale: 40.0000 ' / 1 in
Model: Default
Project: Freese and Nichols, Inc.

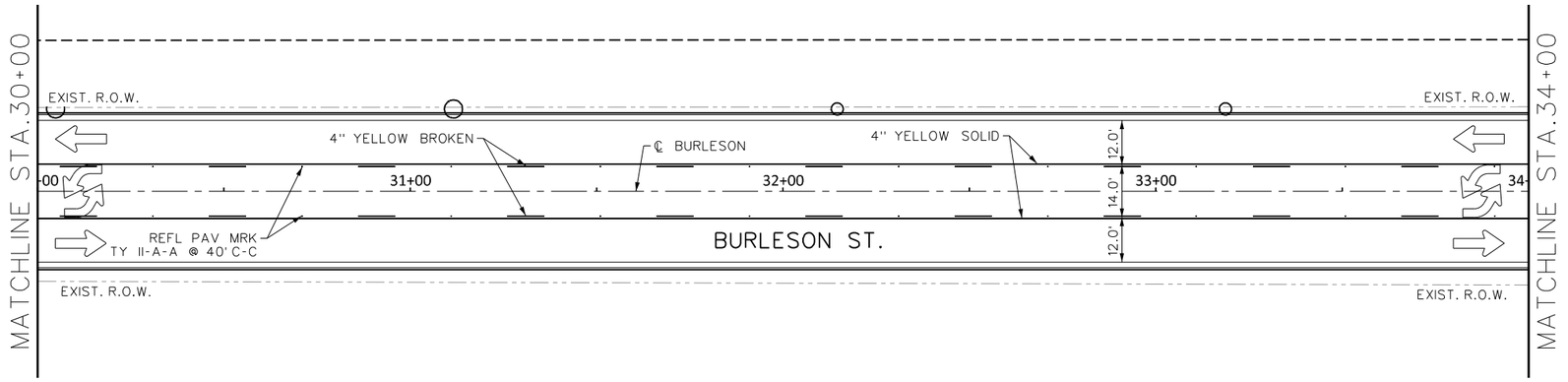
Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:52 AM User: 02590File: N:\tf\Drawings\CV-TRT-PL-PVMNTMRK02.sht



LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.25+50 TO STA.34+00

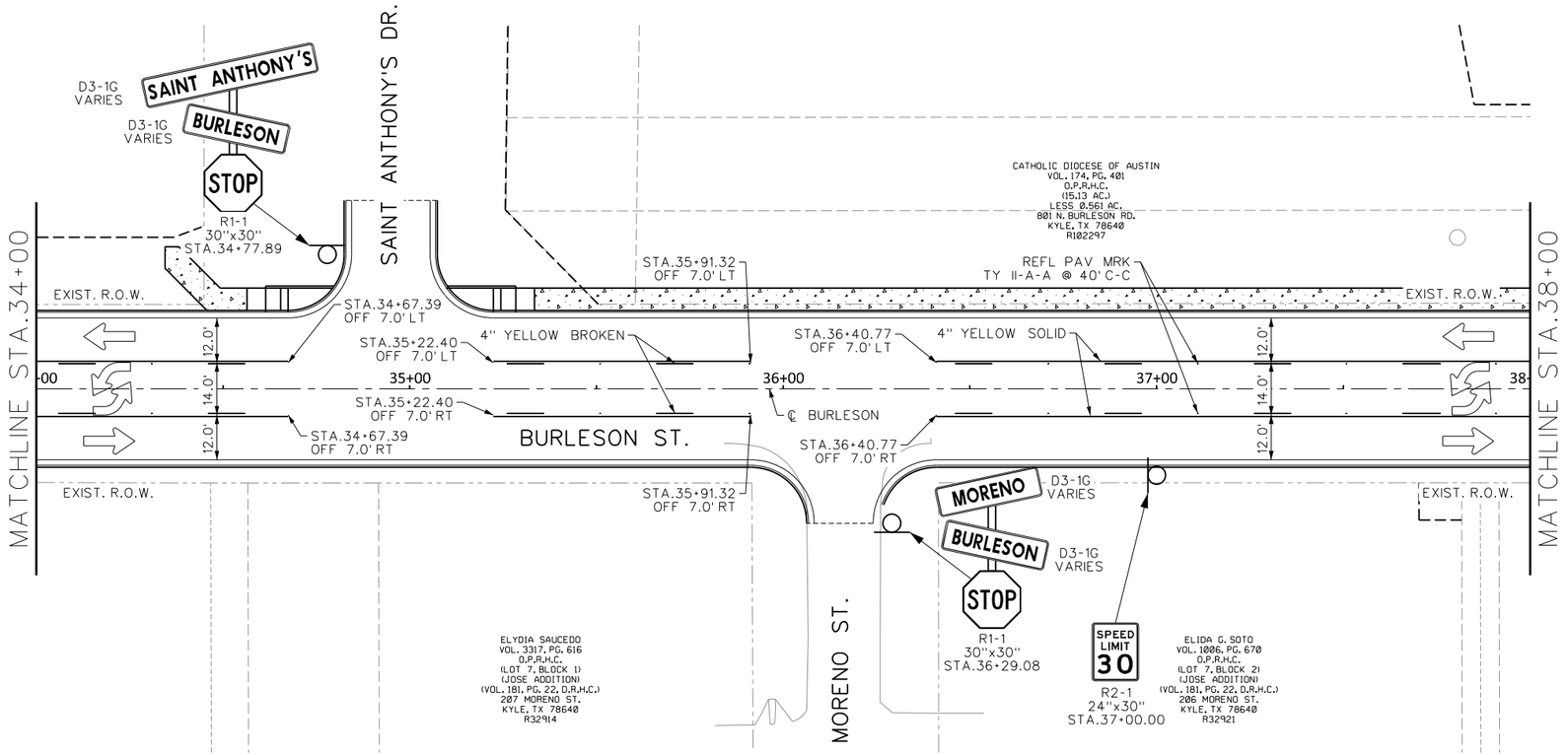
NO.	ISSUES	BY	DATE

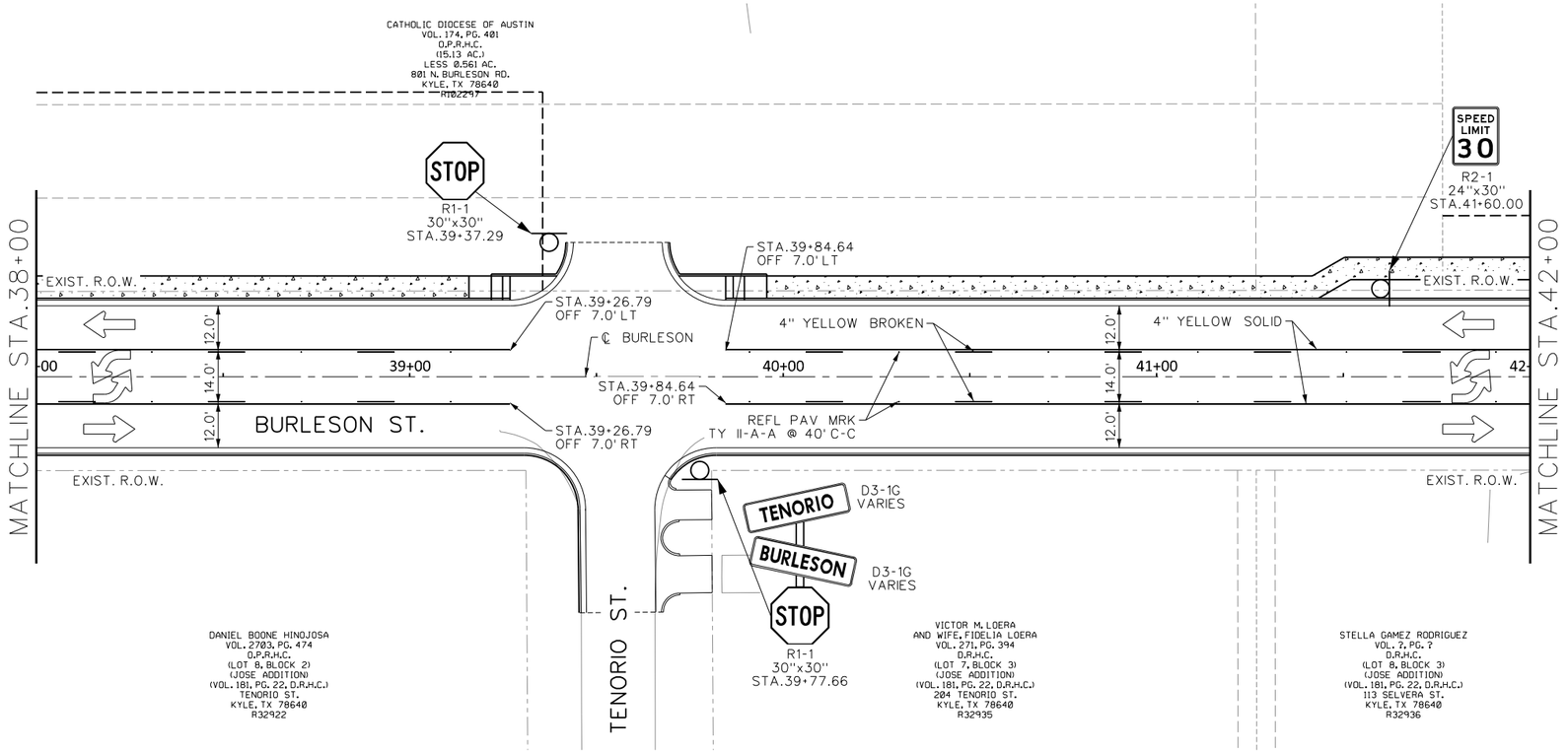
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK03.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 207
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK03.sht
Plot Driver: DWG To HPGL2.plt Pen Table: Mono.tbl
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:57:53 AM
Model: Default
Project: Freese and Nichols, Inc.





LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
2nd Floor
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.34+00 TO STA.42+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK04.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 208
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK04.sht
Plot Driver: HP DesignJet 4xxPS.pltcfg Plot Offset: 0.00, 0.00
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:57:54 AM Project: Freese and Nichols, Inc.

HOUSING AUTHORITY OF
THE CITY OF KYLE, TEXAS
VOL. 334, PG. 492
D.R.H.C.
(3.31 AC.)
801 N. BURLESON RD.
KYLE, TX 78640
R102297

MATCHLINE STA.42+00

EXIST. R.O.W.

STA.42+72.73
OFF 7.0' LT

STA.43+24.54
OFF 7.0' LT

4" YELLOW BROKEN

℄ BURLESON

4" YELLOW SOLID

EXIST. R.O.W.

42+00

43+00

44+00

45+00

46+

12.0'

14.0'

12.0'

STA.43+24.54
OFF 7.0' RT

STA.42+72.73
OFF 7.0' RT

REFL PAV MRK
TY II-A-A @ 40' C-C

BURLESON ST.

EXIST. R.O.W.

EXIST. R.O.W.

MATCHLINE STA.46+00

SELVERA

D3-1G
VARIES

BURLESON

D3-1G
VARIES

STOP

R1-1
30"x30"
STA.43+14.59

SELVERA ST.

STELLA GAMEZ RODRIGUEZ
VOL. ?, PG. ?
D.R.H.C.
(LOT 8, BLOCK 3)
(JOSE ADDITION)
(VOL. 181, PG. 22, D.R.H.C.)
113 SELVERA ST.
KYLE, TX 78640
R32936

VELIA D. MORENO, TRUSTEE
AND ETAL.
VOL. 271, PG. 394
D.P.R.H.C.
(LOT 7, BLOCK 4)
(JOSE ADDITION)
(VOL. 181, PG. 22, D.R.H.C.)
112 SELVERA ST.
KYLE, TX 78640
R32949

MIKE MELENDEZ
AND IRENE MELENDEZ
VOL. 831, PG. 11
D.P.R.H.C.
(LOT 8, BLOCK 4)
(JOSE ADDITION)
(VOL. 181, PG. 22, D.R.H.C.)
205 BARRERA ST.
KYLE, TX 78640
R32950

N

0 10' 20' 40'
SCALE IN FEET

STAR OF TEXAS

D3-1G
VARIES

BURLESON

D3-1G
VARIES

STOP

R1-1
30"x30"
STA.46+70.76

STA.46+91.02
OFF 74.09' LT

8" WHITE SOLID
ARROW WHITE

STA.47+01.99
OFF 73.54' LT

4" YELLOW SOLID x2

STAR OF TEXAS DR.

SILVERADO HOMEOWNERS
ASSOCIATION, INC.
VOL. 2100, PG. 115
O.P.R.H.C.
(LOT 23, BLOCK K)
(SILVERADO AT PLUM CREEK, SEC. 2A)
(BK. 10, PGS. 288-289)
P.R.H.C.
100 STAR OF TEXAS DR.
KYLE, TX 78640
R104417

STA.47+00.05
OFF 34.54' LT
24" WHITE SOLID
STOP BAR

EXIST. R.O.W.

PROP. R.O.W.

EXIST. R.O.W.

BELLAIR

BURLESON

STOP

R1-1
30"x30"
STA.49+21.96

BELLAIR DR.

EXIST. R.O.W.

STA.46+28.05
OFF 7.0' LT

STA.47+00.49
OFF 33.52' LT

STA.46+89.54
OFF 36.04' LT

4" YELLOW BROKEN

4" YELLOW SOLID

12.0'

14.0'

12.0'

48+00

49+00

℄ BURLESON

EXIST. R.O.W.

REFL PAV MRK
TYPE I-C @ 20' C-C

47+00

STA.47+14.64
OFF 7.0' LT

BURLESON ST.

EXIST. R.O.W.

EXIST. R.O.W.

MATCHLINE STA.46+00

STA.46+50.14
OFF 7.0' LT

PC STA.46+79.20

PROP. R.O.W.

STA.46+75.94
OFF 7.0' LT

STA.47+16.64
OFF 7.0' RT

REFL PAV MRK
TY II-A-A @ 40' C-C

PROP. R.O.W.

MATCHLINE STA.50+00

STA.46+75.94
OFF 7.0' RT

W1-7
36"x18"
STA.46+88.69

BARRERA

D3-1G
VARIES

STOP

R1-1
30"x30"
STA.46+54.65

STA.46+28.05
OFF 7.0' RT

STA.46+50.14
OFF 7.0' RT

BARRERA ST.

GRACIE GARCIA
AND SPOUSE, CARLOS GARCIA
VOL. 1979, PG. 26
O.P.R.H.C.
(LOT 7, BLOCK 5)
(JOSE ADDITION)
(VOL. 181, PG. 22, D.R.H.C.)
204 BARRERA ST.
KYLE, TX 78640
R32963

MARIA L. MOLINA
VOL. 1328, PG. 745
O.P.R.H.C.
(LOT 8, BLOCK 5)
(JOSE ADDITION)
(VOL. 181, PG. 22, D.R.H.C.)
RODRIGUEZ ST.
KYLE, TX 78640
R32964

W1-7
36"x18"
STA.49+26.42

N

0 10' 20' 40'
SCALE IN FEET

LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.42+00 TO STA.50+00

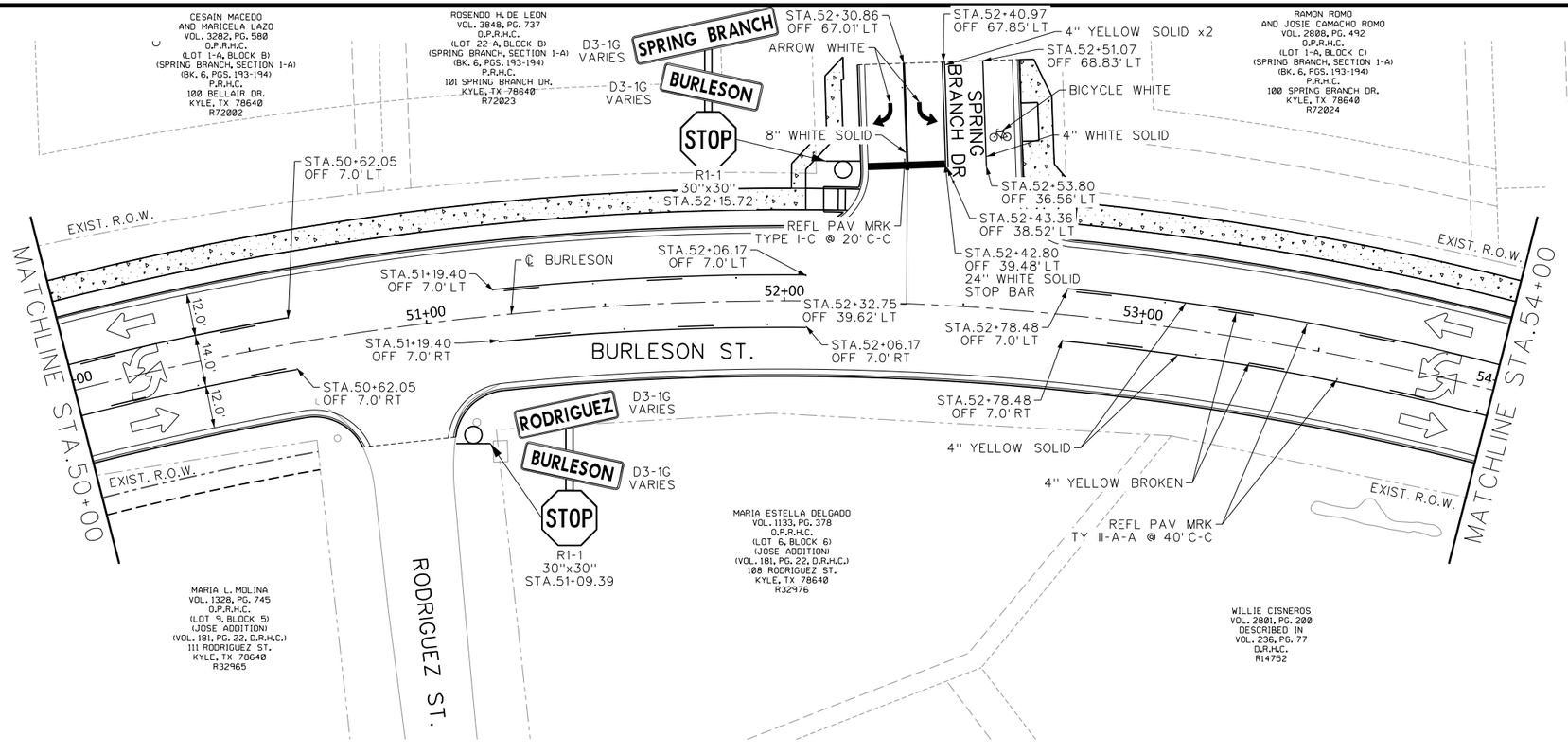
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK05.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET
209
TOTAL
292

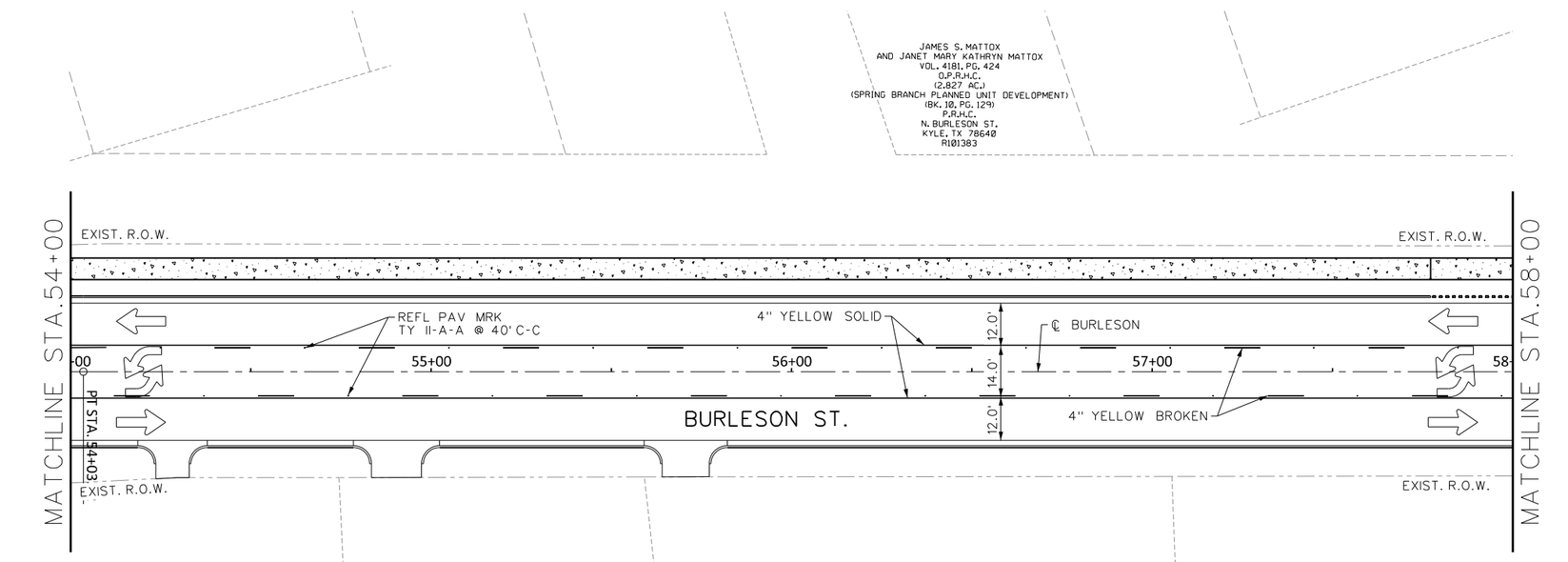
MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK05.sht
Plot Driver: HP DesignJet 500 PS for HP-GL/2 and RTL.pltcfg
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:57:55 AM
Model: Default
Project: Freese and Nichols, Inc.



LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.50+00 TO STA.58+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK06.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 210
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK06.sht
Plot Driver: HP DesignJet 750C+ PS.pltcfg Medium (E)
Plot Scale: 40.0000 ' / in.
Date: May. 22, 2018 - 11:57:56 AM
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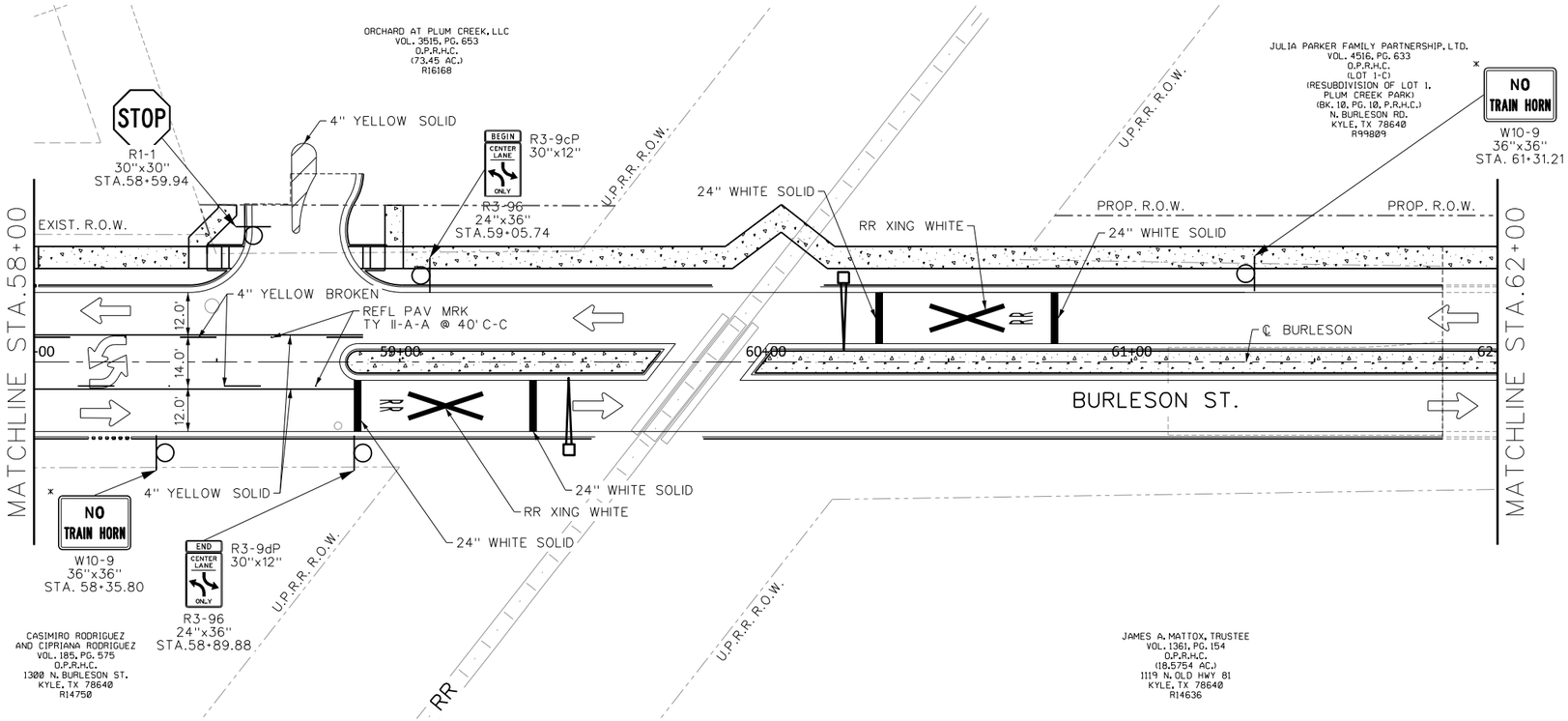
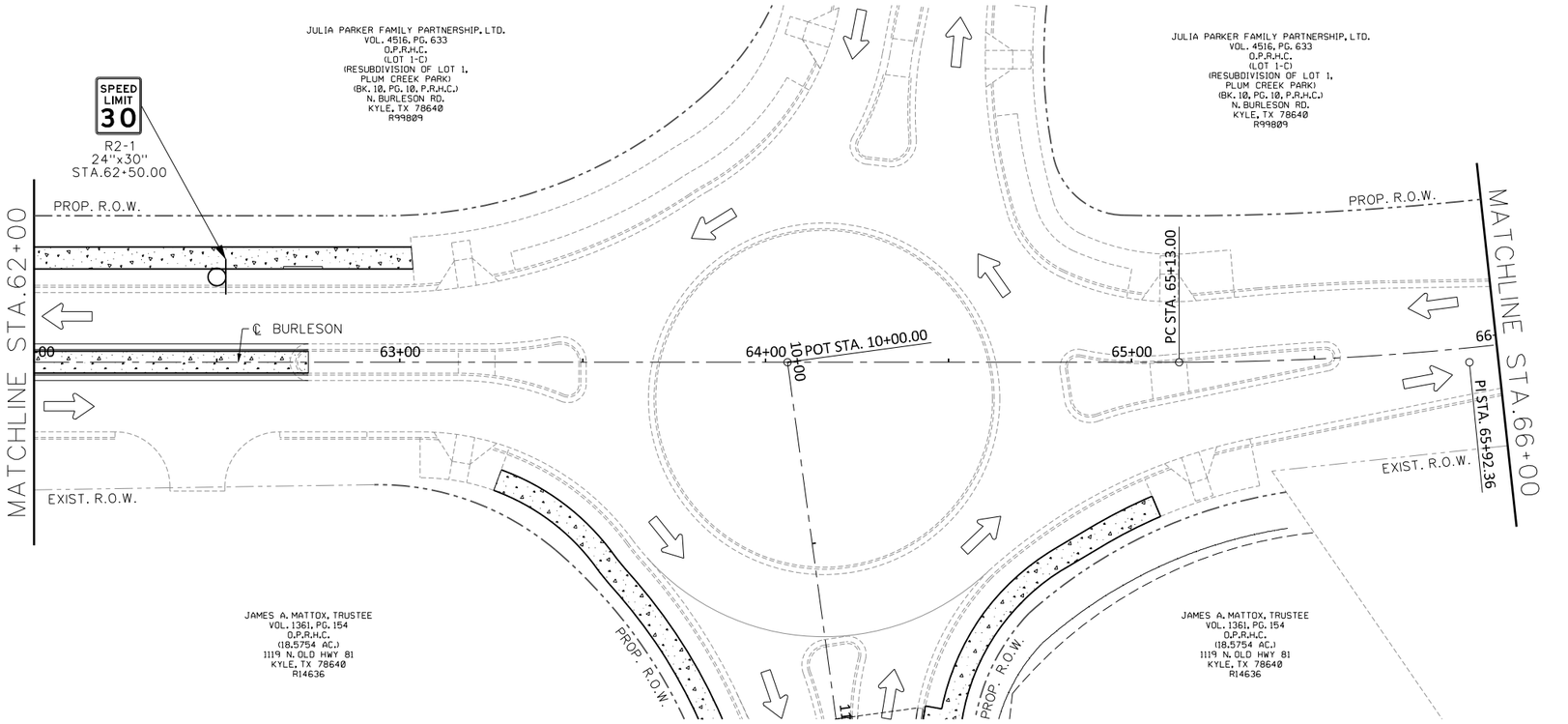
Project: Freese and Nichols, Inc.





LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES

× DO NOT INSTALL "NO TRAIN HORN" SIGNS W10-9 UNTIL APPROVED BY THE CITY OF KYLE.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.58+00 TO STA.66+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK07.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0" 1"

SHEET 211
TOTAL 292

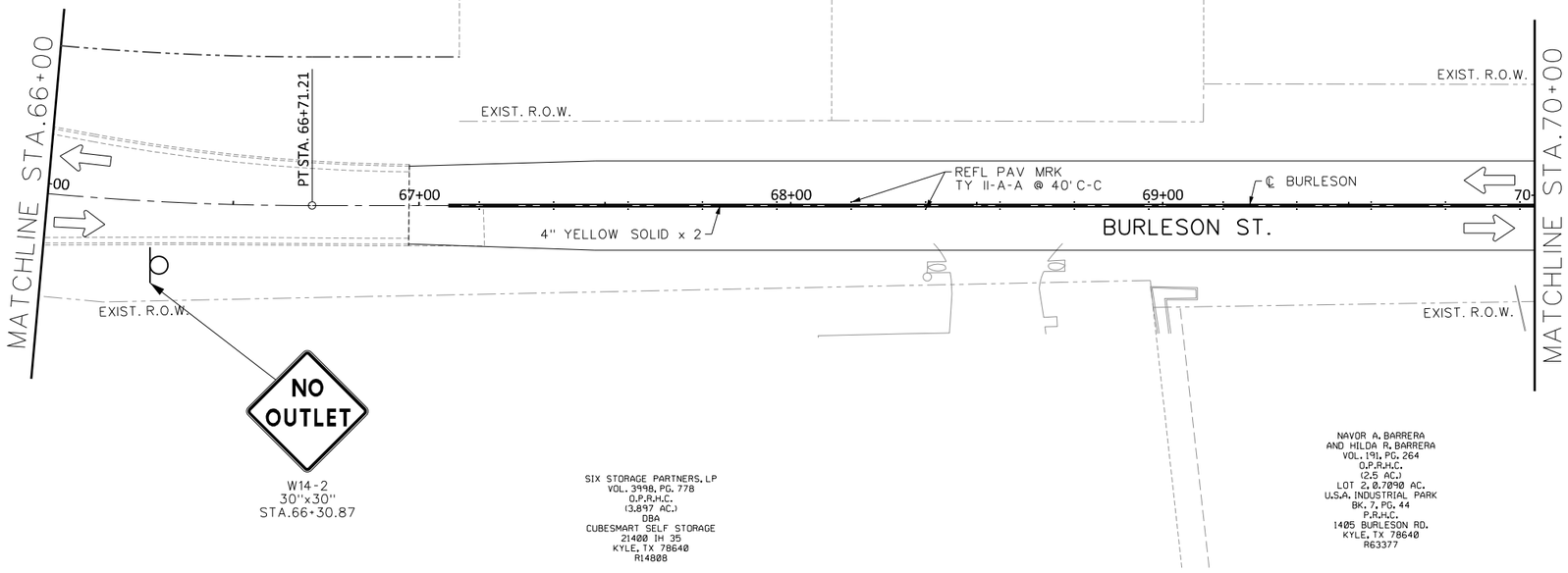
MicroStation V8 User: 02590Office: Austin
KYL14284 N:\lf\Drawings\CV-TRT-PL-PVMNTMRK07.sht
Plot Date: May 22, 2018 - 11:57:57 AM Plot Scale: 40.0000 ' / in. Plot Driver: HP DesignJet 500ROP Network.pltg
Model: Default
Project: Freese and Nichols, Inc.

JULIA PARKER FAMILY PARTNERSHIP, LTD.
VOL. 4516, PG. 633
O.P.R.H.C.
(LOT 1-C)
(RESUBDIVISION OF LOT 1.
PLUM CREEK PARK)
(BK. 10, PG. 10, P.R.H.C.)
N. BURLESON RD.
KYLE, TX 78640
R99809

BLUE MOON PROPERTIES
VOL. 3179, PG. 600
O.P.R.H.C.
(0.50 AC.)
1501 N. BURLESON ST.
KYLE, TX 78640
R91954

DIANNA LYN ASTON
VOL. 3093, PG. 751
O.P.R.H.C.
(0.50 AC.)
1503 N. BURLESON ST.
KYLE, TX 78640
R14792

JULIA PARKER FAMILY PARTNERSHIP, LTD.
VOL. 4516, PG. 633
O.P.R.H.C.
(LOT 1-B)
(RESUBDIVISION OF LOT 1.
PLUM CREEK PARK)
(BK. 10, PG. 10, P.R.H.C.)
N. BURLESON RD.
KYLE, TX 78640
R99808



SIX STORAGE PARTNERS, LP
VOL. 3998, PG. 778
O.P.R.H.C.
(3.897 AC.)
DBA
CUBESMART SELF STORAGE
21400 IH 35
KYLE, TX 78640
R14808

NAVOR A. BARRERA
AND HILDA R. BARRERA
VOL. 191, PG. 264
O.P.R.H.C.
(2.5 AC.)
LOT 2, 0.7090 AC.
U.S.A. INDUSTRIAL PARK
BK. 7, PG. 44
P.R.H.C.
1405 BURLESON RD.
KYLE, TX 78640
R63377

LEGEND

TRAFFIC DIRECTION

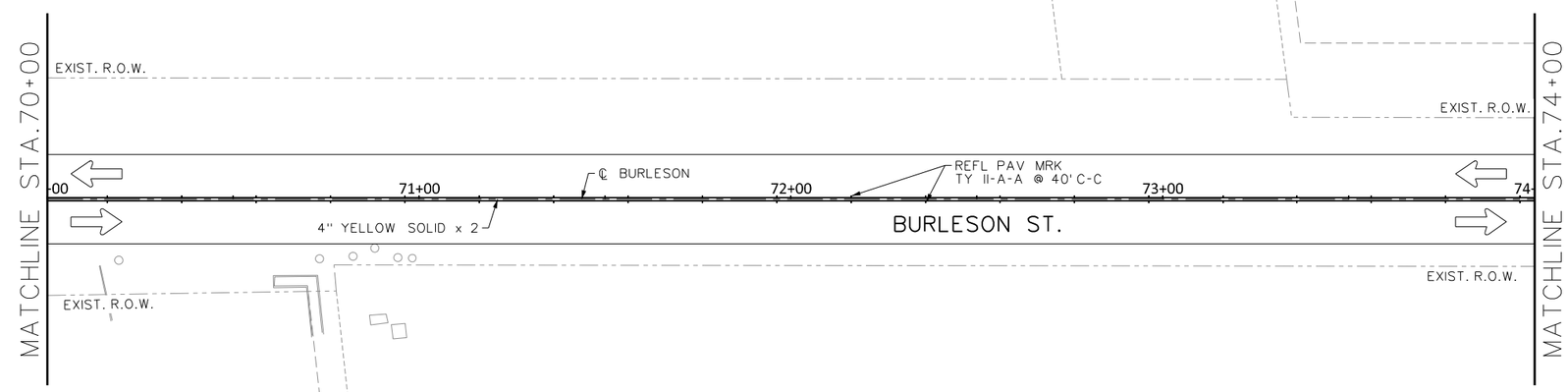
NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.

N

0 10' 20' 40'
SCALE IN FEET

JULIA PARKER FAMILY PARTNERSHIP, LTD.
VOL. 4516, PG. 633
O.P.R.H.C.
(LOT 1-B)
(RESUBDIVISION OF LOT 1.
PLUM CREEK PARK)
(BK. 10, PG. 10, P.R.H.C.)
N. BURLESON RD.
KYLE, TX 78640
R99808

JULIA PARKER FAMILY PARTNERSHIP, LTD.
VOL. 4516, PG. 633
O.P.R.H.C.
(LOT 1-A)
(RESUBDIVISION OF LOT 1.
PLUM CREEK PARK)
(BK. 10, PG. 10, P.R.H.C.)
BURLESON RD.
KYLE, TX 78640
R99807



NAVOR A. BARRERA
AND HILDA R. BARRERA
VOL. 191, PG. 264
O.P.R.H.C.
(2.5 AC.)
LOT 2, 0.7090 AC.
U.S.A. INDUSTRIAL PARK
BK. 7, PG. 44
P.R.H.C.
1405 BURLESON RD.
KYLE, TX 78640
R63377

MAHOGANY RUN INVESTMENTS, L.P.
VOL. 2430, PG. 749
O.P.R.H.C.
(8.626 AC.)
DBA
EXPLOREUSA RV SUPERCENTER
21320 IH 35
KYLE, TX 78640
R14790

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.66+00 TO STA.74+00

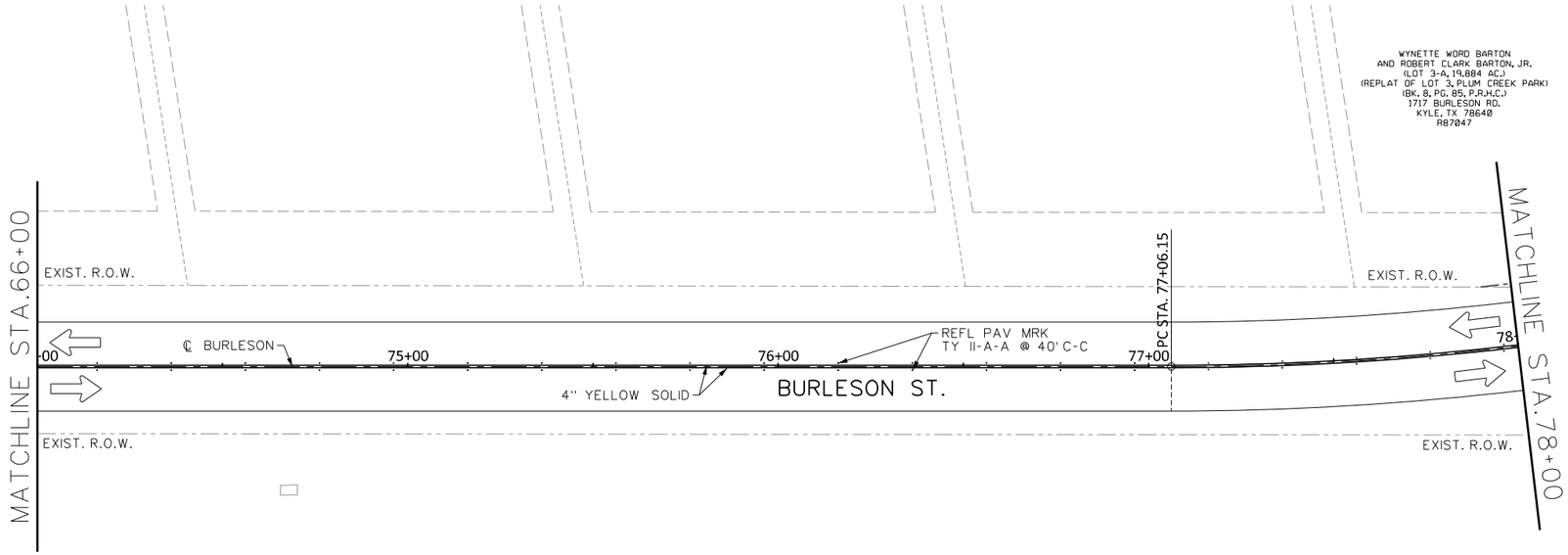
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK08.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 212
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK08.sht
Plot Driver: HP DesignJet 4xxPS Model Config: Default
Plot Scale: 40.0000 ' / in. Model: Default
Date: May. 22, 2018 - 11:57:58 AM Project: Freese and Nichols, Inc.



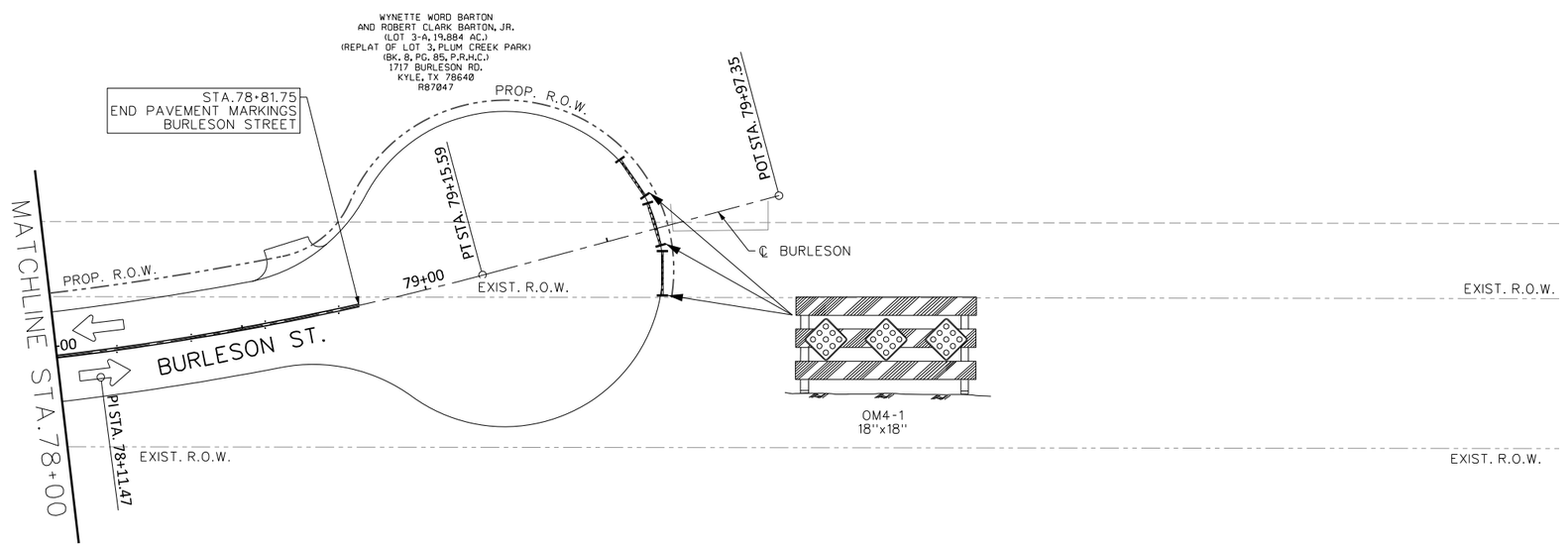
LEGEND

TRAFFIC DIRECTION

NOTE:
STREET NAME SIGNS SHALL BE FURNISHED TO MATCH CITY OF KYLE STANDARD STREET NAME SIGN DESIGN. SEE GENERAL NOTES ITEM 644.

N

0 10' 20' 40'
SCALE IN FEET



N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS STA.74+00 TO STA.79+97.35

NO.	ISSUES	BY	DATE

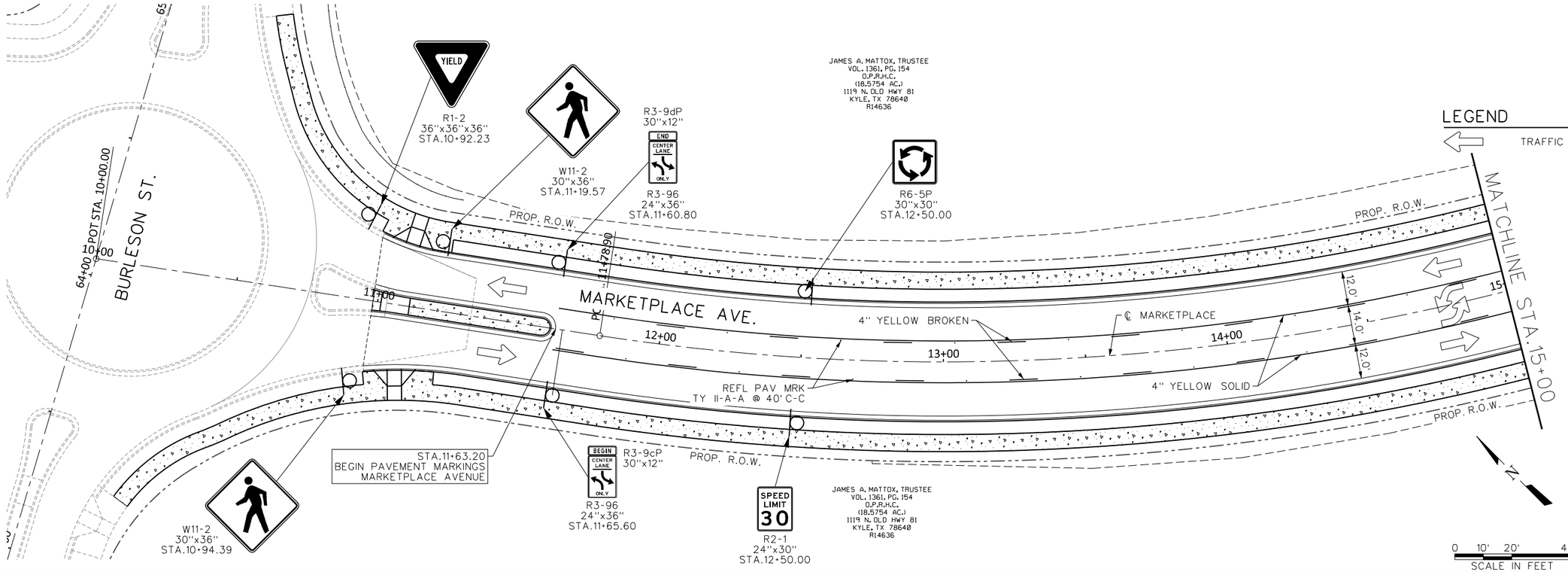
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK09.sht

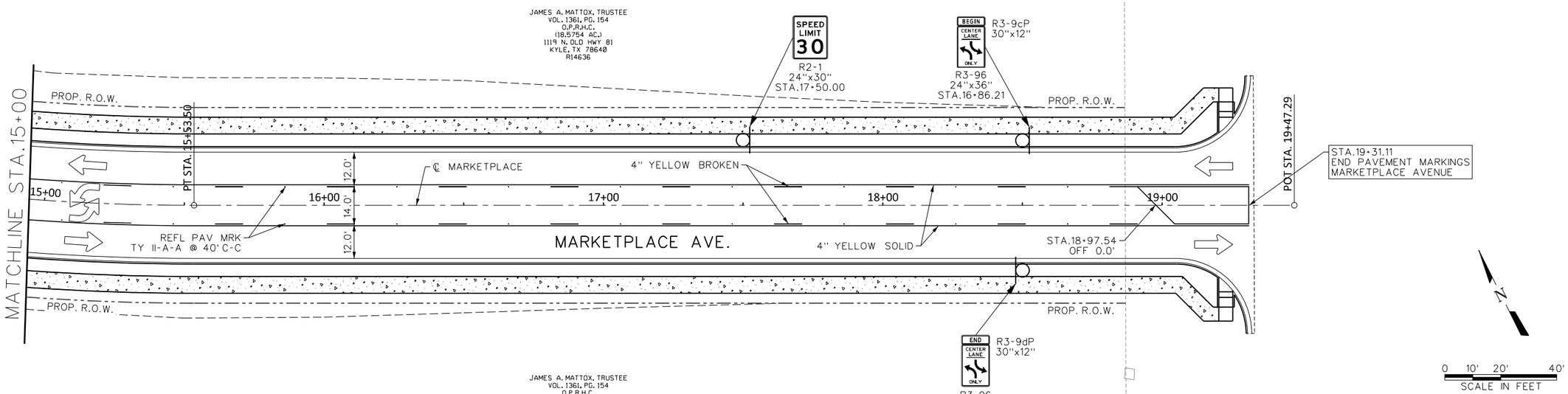
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 213
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\If\Drawings\CV-TRT-PL-PVMNTMRK09.sht
Plot Driver: HP DesignJet 500 PostScript Model: Default
Plot Scale: 40.0000 '/ in. Project Faces: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:57:59 AM

Office: Austin KYL14284 Date: May. 22, 2018 - 11:57:59 AM User: 02590File: N:\If\Drawings\CV-TRT-PL-PVMNTMRK09.sht





ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
STA.10+00 TO END

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-PVMNTMRK10.sht

SHEET
214
TOTAL
292

MicroStation V8 User: 02590Office: Austin
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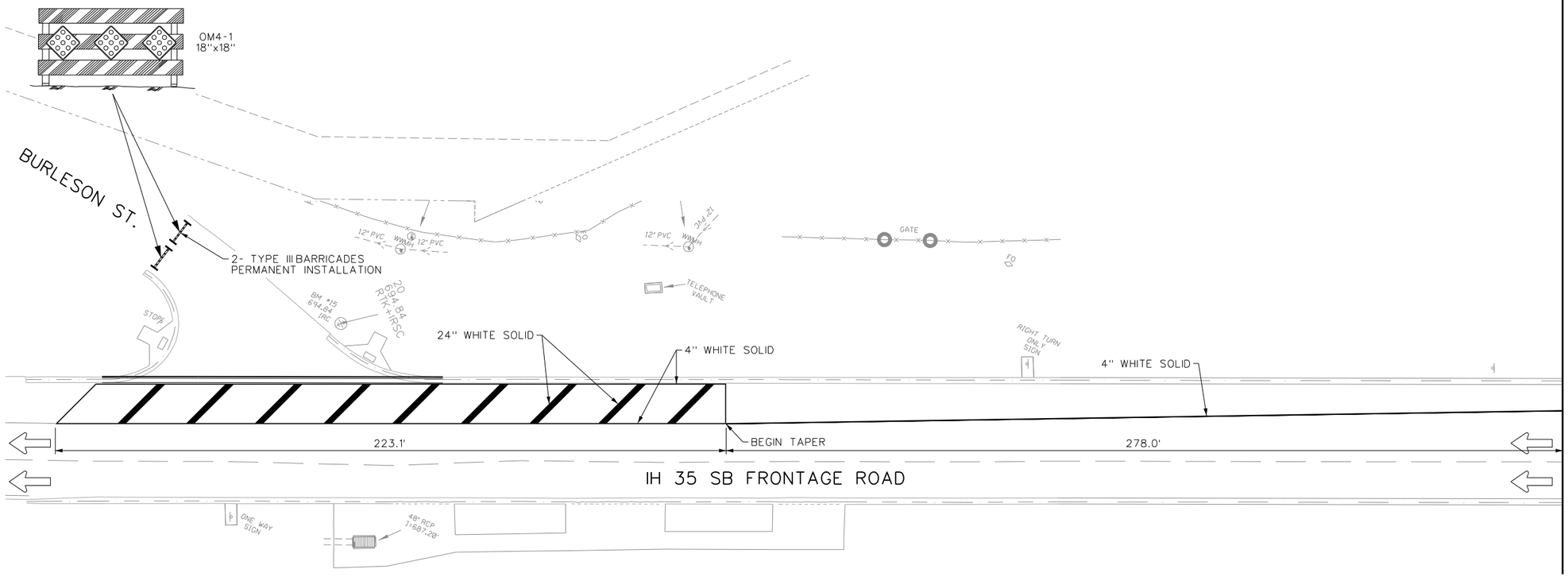
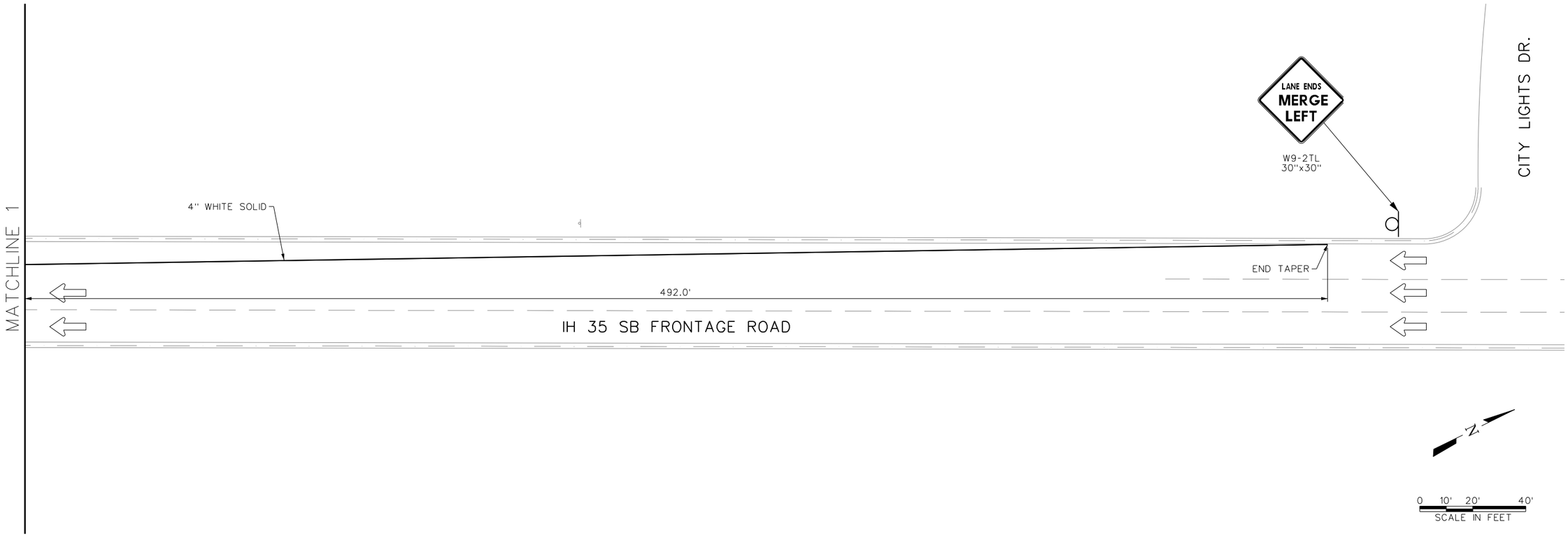
Plot Scale: 40.0000 '/ in. Project: Freese and Nichols, Inc.
Date: May. 22, 2018 - 11:58:01 AM





FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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Phone: (512) 617-3100
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Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

PAVEMENT MARKING AND SIGN PLANS
IH 35 SOUTHBOUND ROAD

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR
FILE NAME CV-TRT-PL-PVMNTMRK11.sht

SHEET 215
TOTAL 292

MicroStation V8 User: 02590Office: Austin
KYL14284 - N:\tf\Drawings\CV-TRT-PL-PVMNTMRK11.sht
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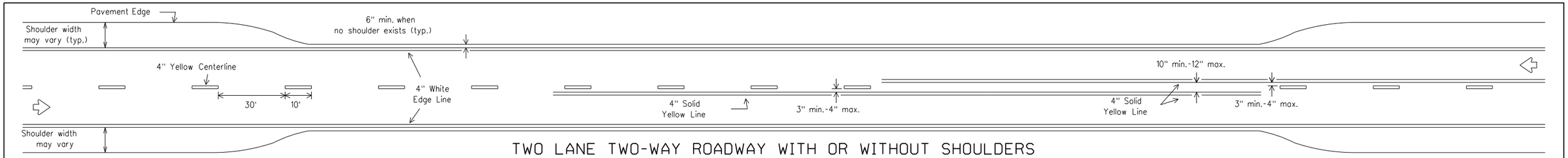
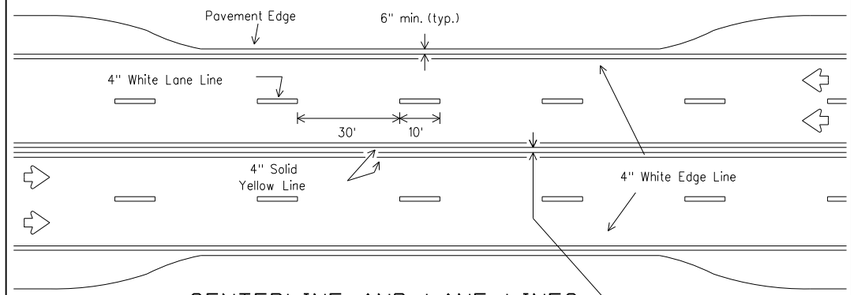
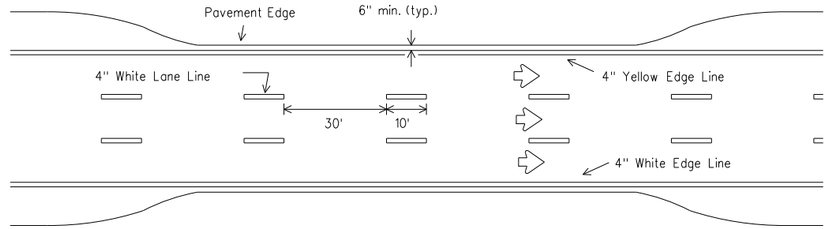
Project Freese and Nichols, Inc.



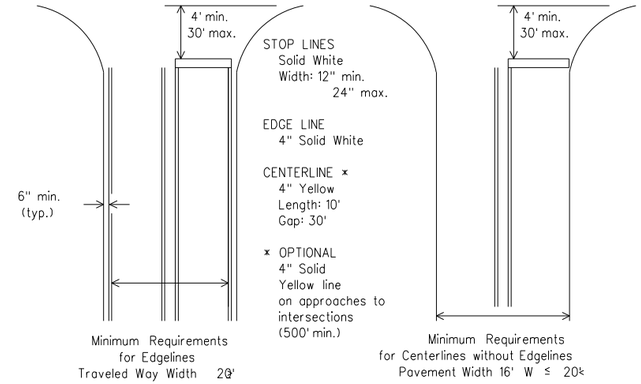
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

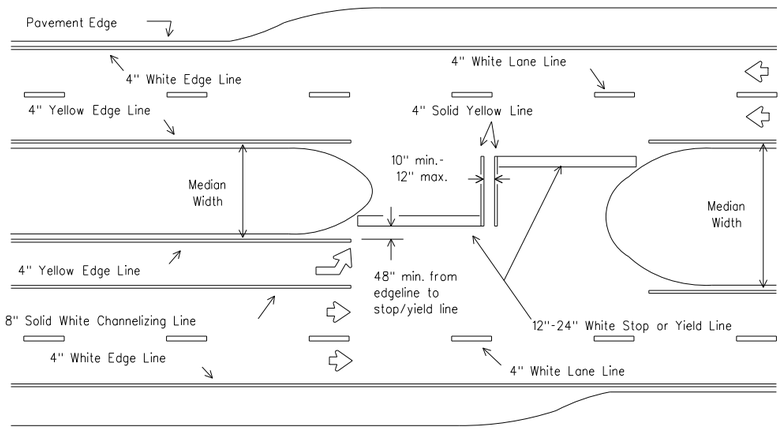


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



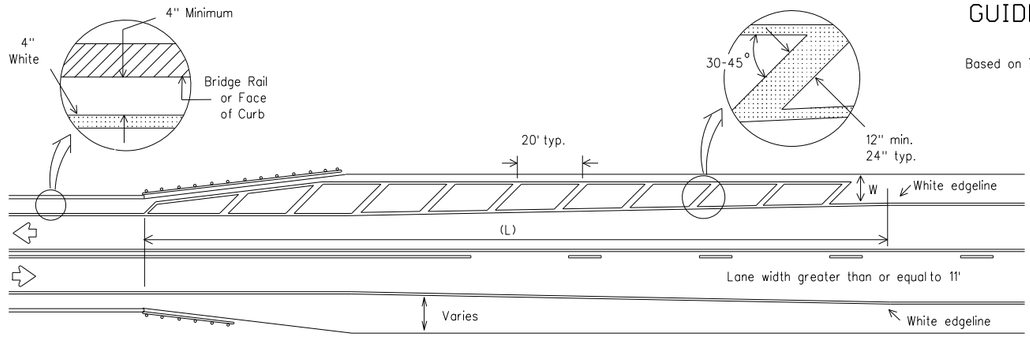
GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways



All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



NOTES:

1. No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
2. For crosshatching length (L) see Table 1.
3. The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
4. The crosshatching is not required if delineators or barrier reflectors are used along the structure.
5. For guard fence details, refer elsewhere in the plans.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed *	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	L = WS

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.

L = Length of Crosshatching (FT.) W = Width of Offset (FT.)
S = Posted Speed (MPH)

EXAMPLES:

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:

L = 8 x 70 = 560 ft.

A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:

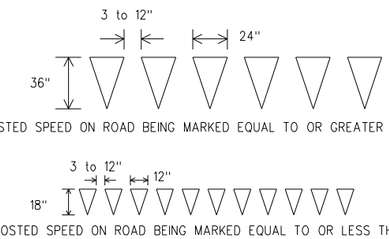
L = 4(40) ? 60 = 106.67 ft. rounded to 110 ft.

GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



YIELD LINES

Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

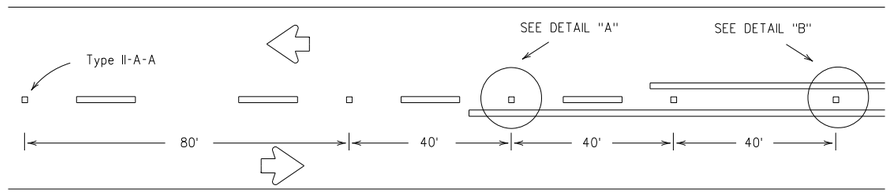
PM(1)-12

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

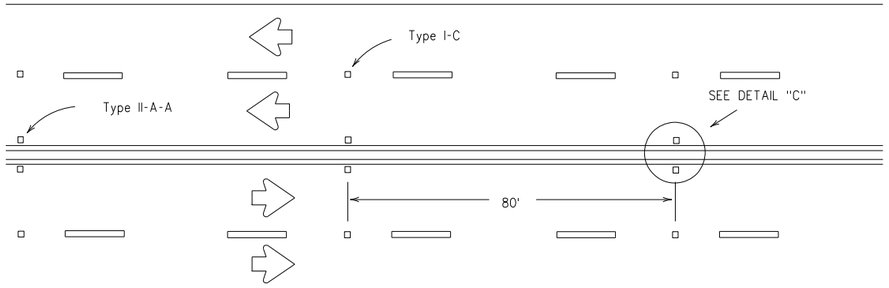
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				
5-00				
8-00	DIST	COUNTY		SHEET NO.
3-03				216
22A				

DATE: May. 22, 2018 - 11:58:03 AM
FILE: N:\IF\Drawings\CV-TRT-DT-PM1-12.sht

REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

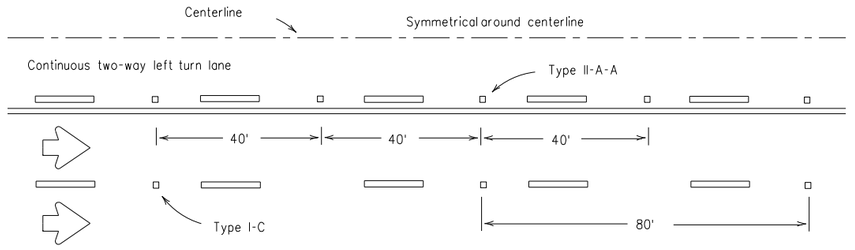


CENTERLINE FOR ALL TWO LANE ROADWAYS

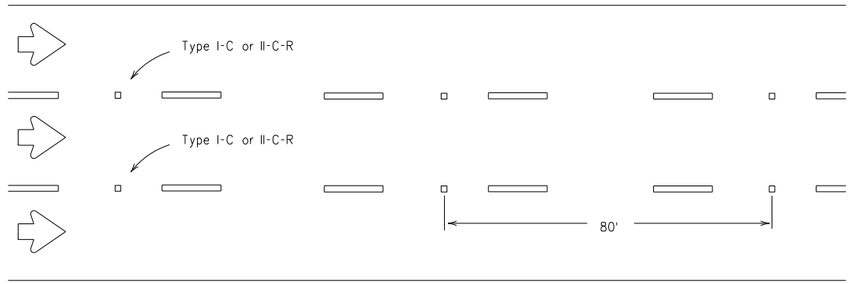


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

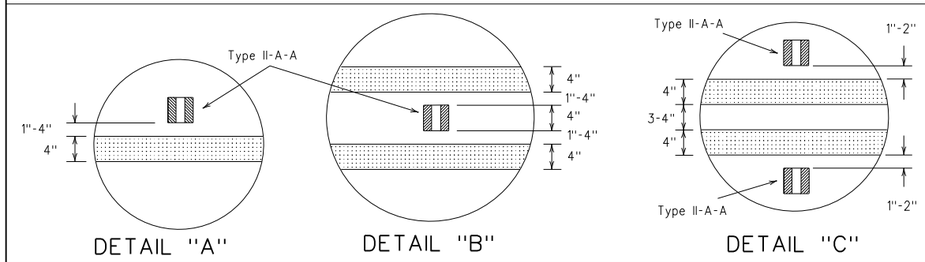


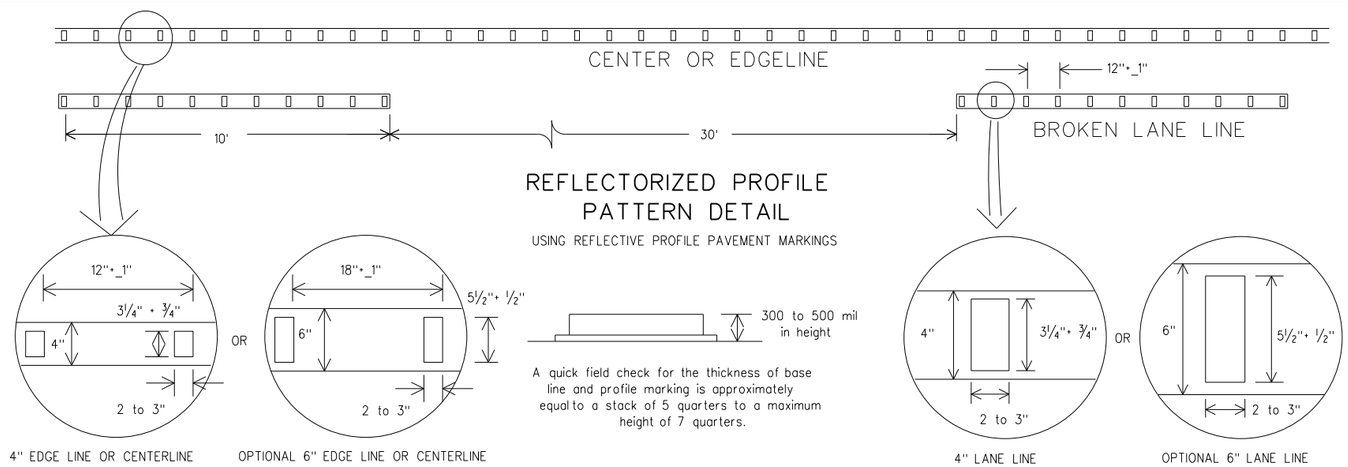
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.





4" EDGE LINE OR CENTERLINE

OPTIONAL 6" EDGE LINE OR CENTERLINE

4" LANE LINE

OPTIONAL 6" LANE LINE

NOTE:

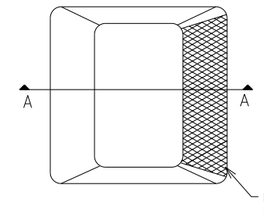
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

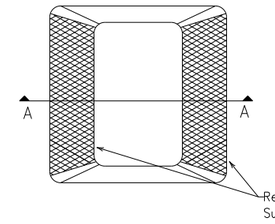
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

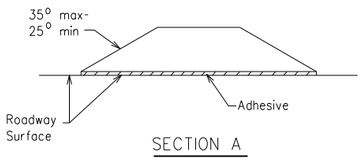
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS

REFLECTORIZED PROFILE MARKINGS

PM(2)-12

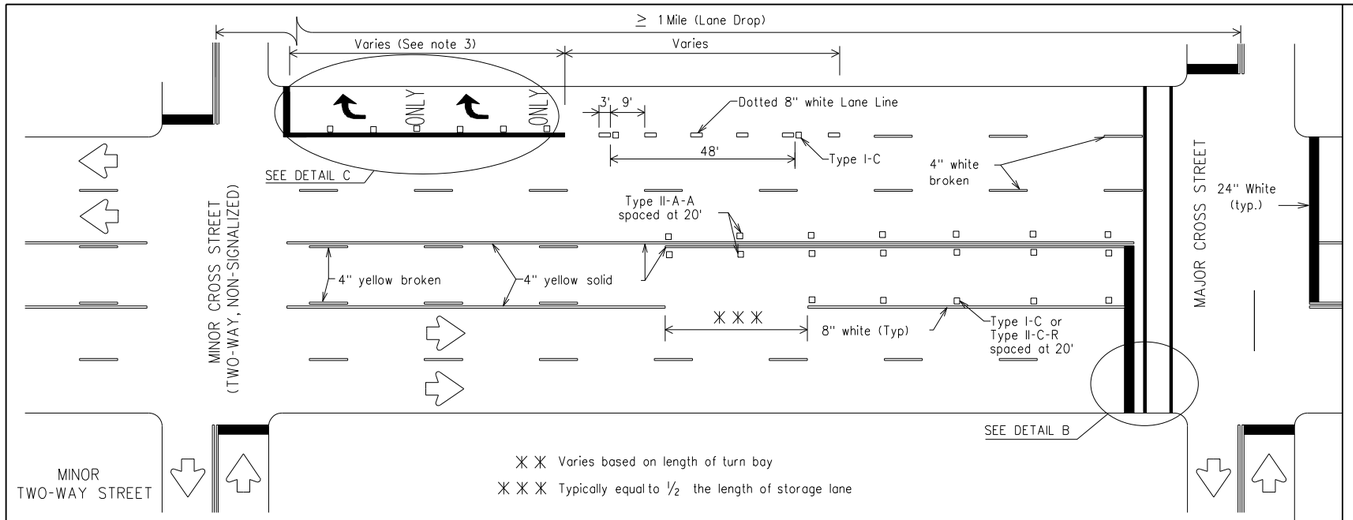
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
4-92 2-10
5-00 2-12
8-00
2-08

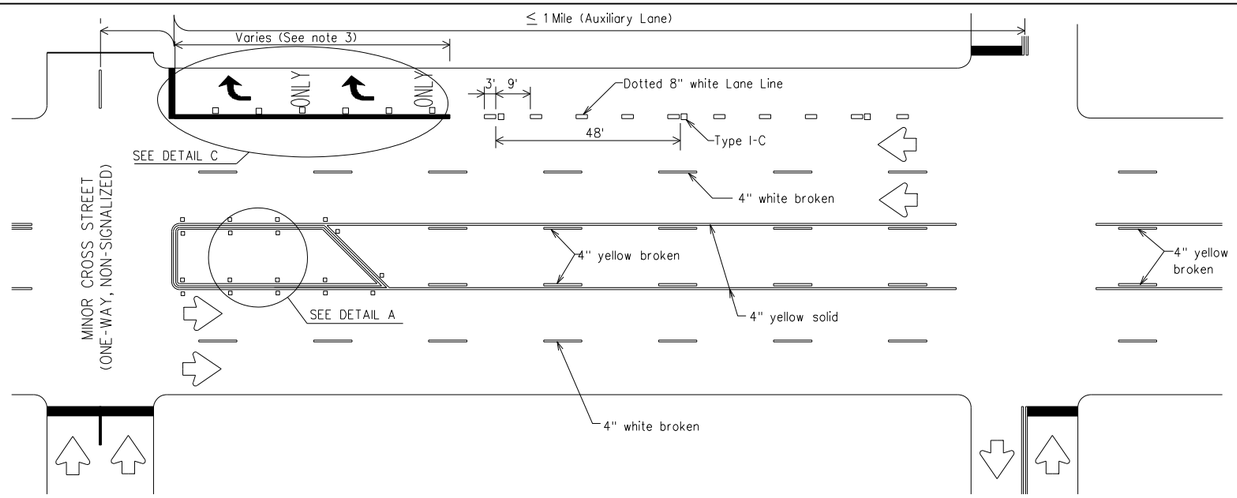
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			217

22B

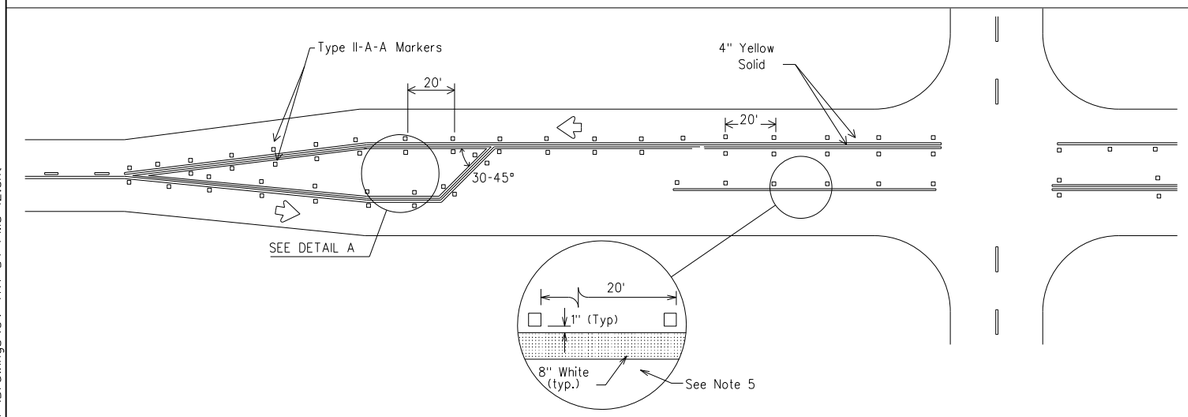
DATE: May. 22, 2018 - 11:58:04 AM
FILE: N:\IF\Drawings\CV-TRT-DT-PM2-12.sht



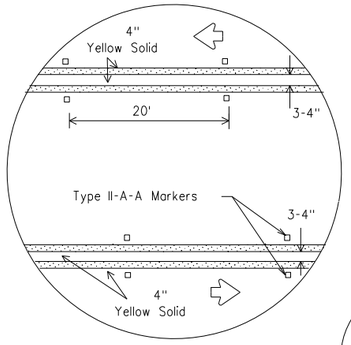
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



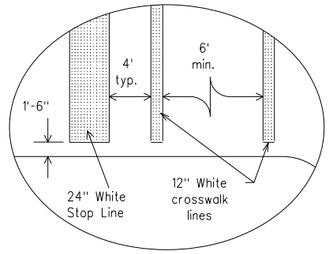
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS

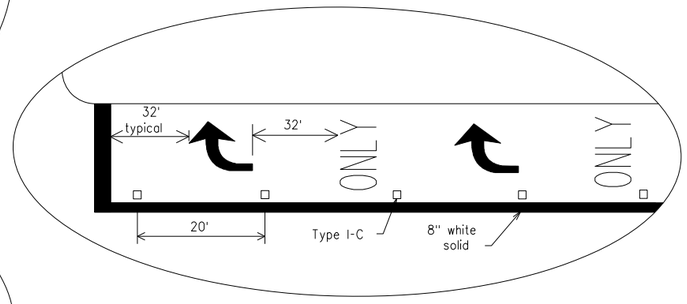


DETAIL A



Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

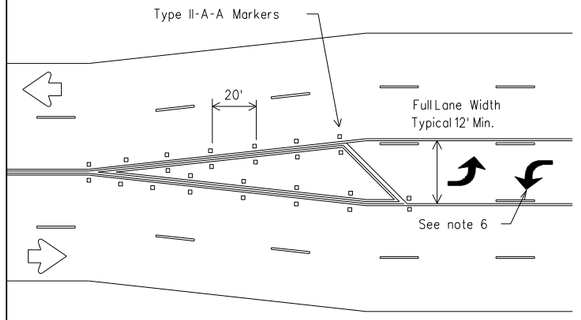
DETAIL B



DETAIL C

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

1. Refer elsewhere in plans for additional RPM placement and details.
2. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows as shown in the Standard Highway Sign Designs for Texas.
3. When lane used word and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
4. Other crosswalk paterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
5. Raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Raised pavement marker Type II-C-R with divided highways and raised medians.
6. A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

Texas Department of Transportation
Traffic Operations Division

PAVEMENT MARKINGS FOR TWO-WAY LEFT TURN LANES DIVIDED HIGHWAYS AND RURAL LEFT TURN BAYS

PM(3)-12

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
5-00 2-12
8-00
3-03
2-10

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
		218

22C

DATE: May. 22, 2018 - 11:58:05 AM
FILE: N:\IF\Drawings\CV-TRT-DT-PM3-12.sht

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

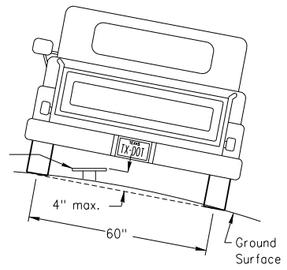
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

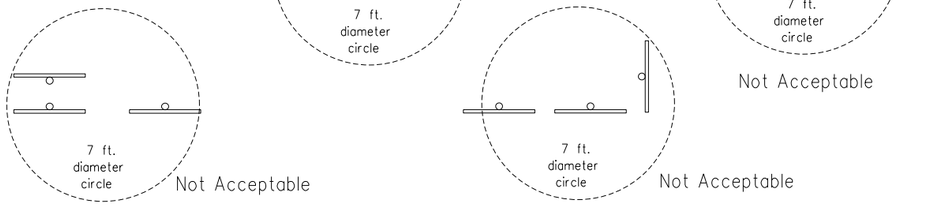
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



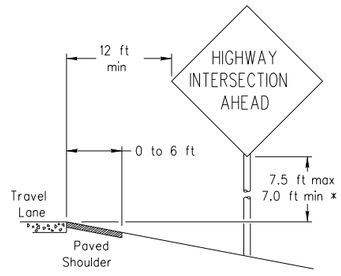
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

No more than 2 sign posts should be located within a 7 ft. circle.



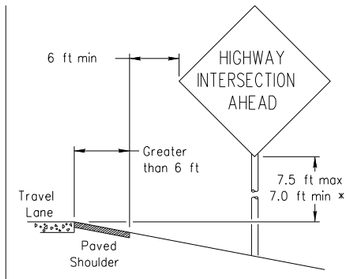
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

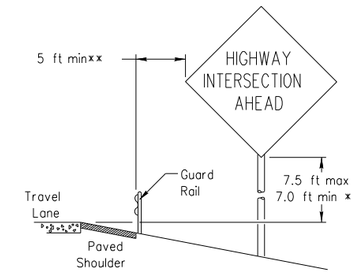
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



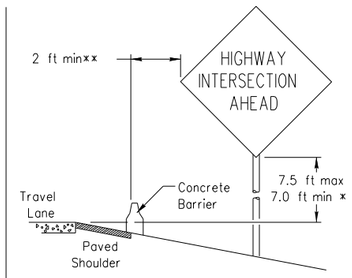
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



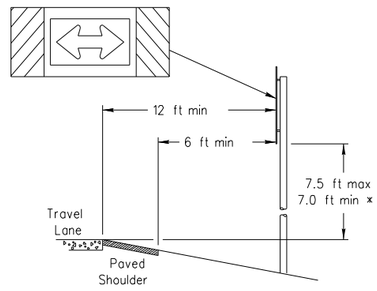
BEHIND GUARDRAIL



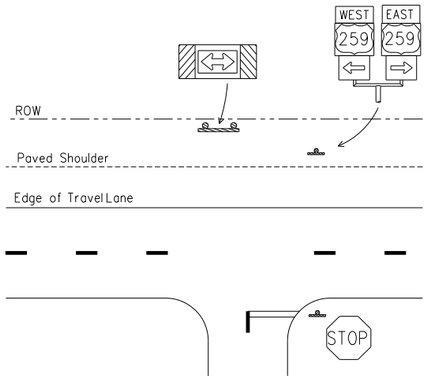
BEHIND CONCRETE BARRIER

xx Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



x Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

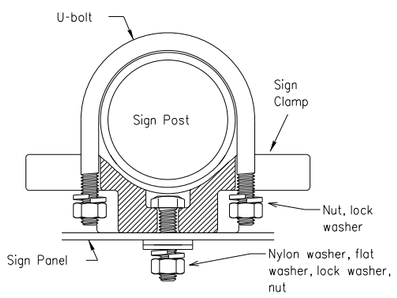
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

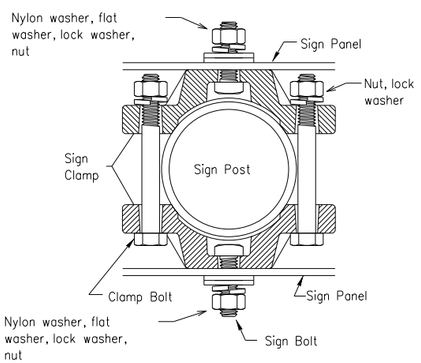


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

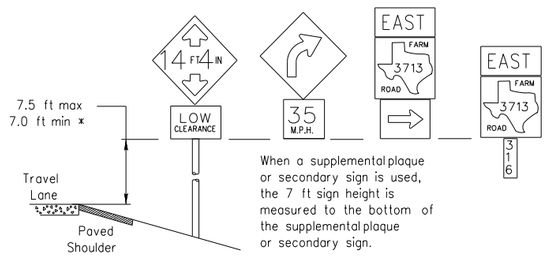
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



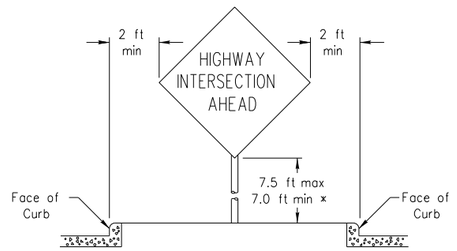
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



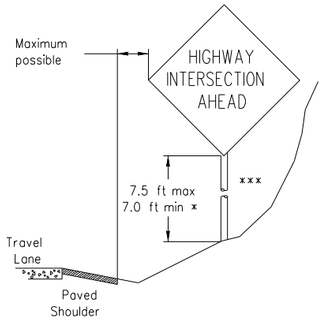
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

xxx Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			219

9-08 REVISIONS

26A

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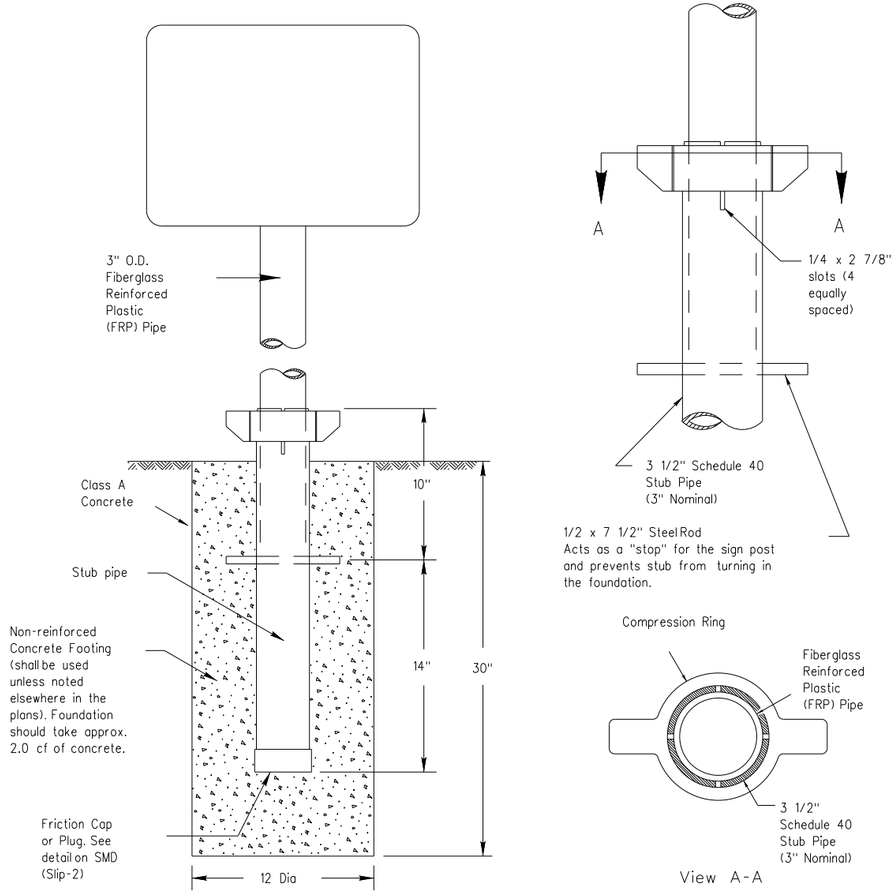
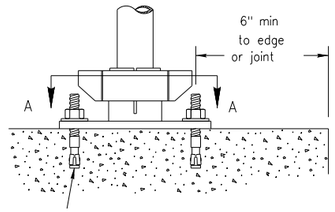
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post



1/2 x 7 1/2" Steel Rod
Acts as a "stop" for the sign post and prevents stub from turning in the foundation.

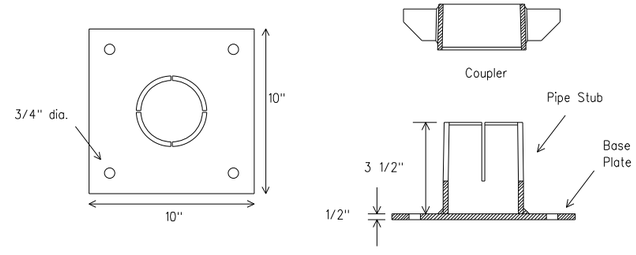
SM RD SGN ASSM TY FRP(X)UA(P)



5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

BOLT-DOWN DETAILS



SM RD SGN ASSM TY FRP(X)UB(P)

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:
   Texas Department of Transportation
   Traffic Operations Division
   125 East 11th Street
   Austin, Texas 78701-2483

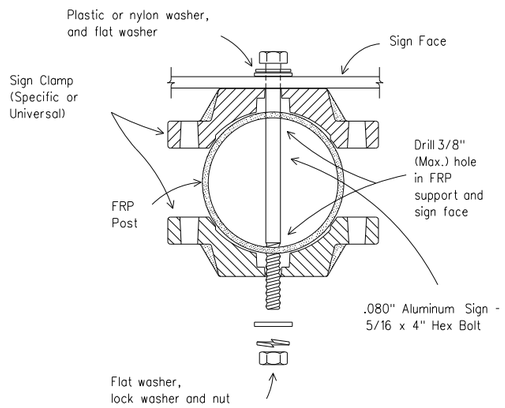
UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

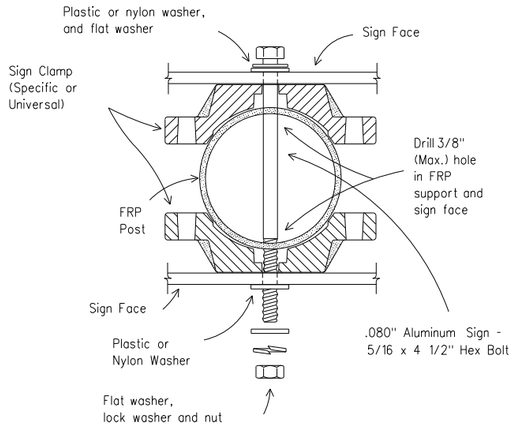
BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Typical Sign Mounting Detail for FRP Support with Single Sign



Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD(FRP)-08

© TxDOT July 2002	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08				
	DIST	COUNTY		SHEET NO.
				220

26F

DATE: May. 22, 2018 - 11:58:06 AM
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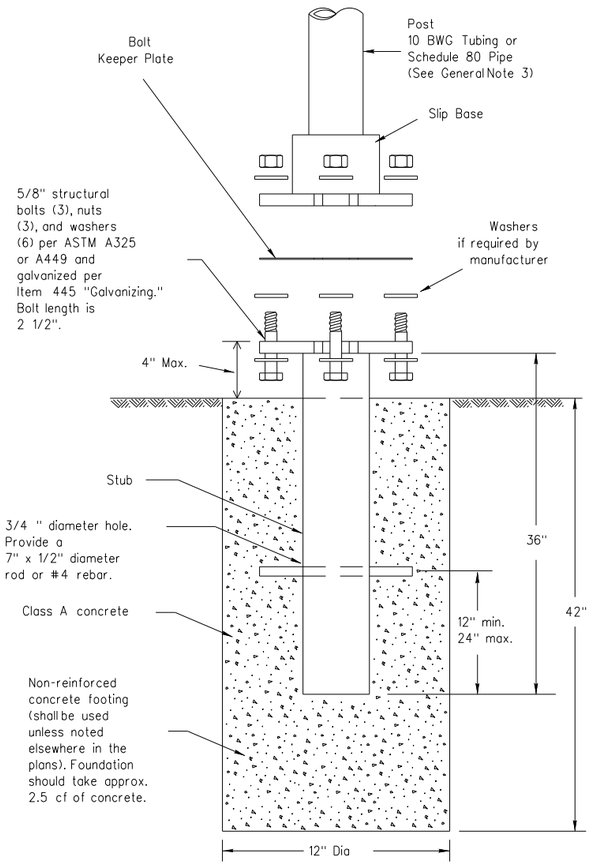
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved
for the Triangular Slipbase System.
Please reference the Material Producer
List for approved slip base systems.
http://www.txdot.gov/business/producer list.htm_
The devices shall be installed per
manufacturers' recommendations.
Installation procedures shall be
provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   - 10 BWG Tubing (2.875" outside diameter)
     - 0.134" nominal wall thickness
     - Seamless or electric-resistance welded steel tubing or pipe
     - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
     - Other steels may be used if they meet the following:
       - 55,000 PSI minimum yield strength
       - 70,000 PSI minimum tensile strength
       - 20% minimum elongation in 2"
     - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
     - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
     - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   - Schedule 80 Pipe (2.875" outside diameter)
     - 0.276" nominal wall thickness
     - Steel tubing per ASTM A500 Gr C
     - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
       - 46,000 PSI minimum yield strength
       - 62,000 PSI minimum tensile strength
       - 21% minimum elongation in 2"
     - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
     - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
     - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

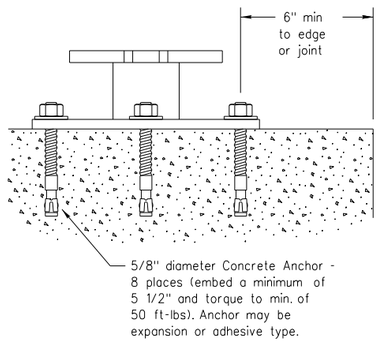
Foundation

1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
		221

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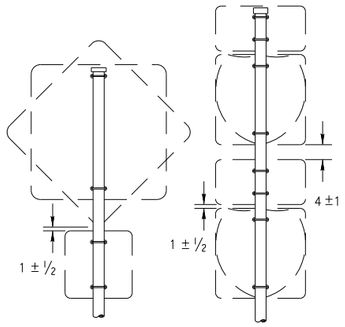
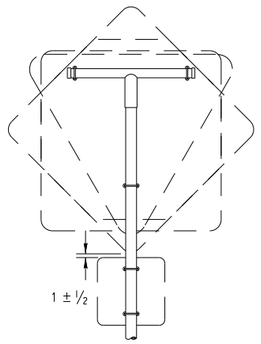


SM RD SGN ASSM TY XXXXX(1)XX(P)



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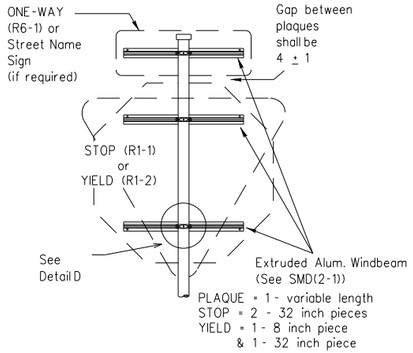

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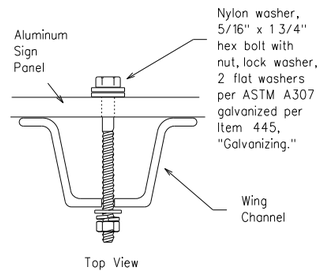
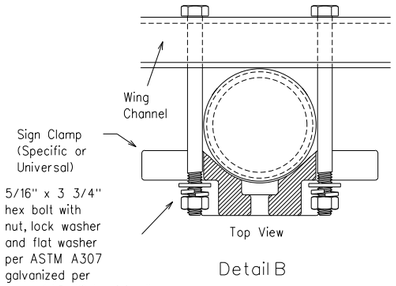


Detail A



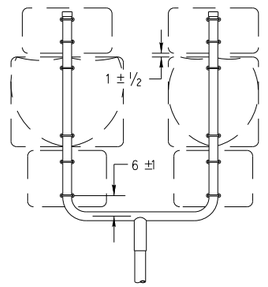
Detail B

GENERAL NOTES:

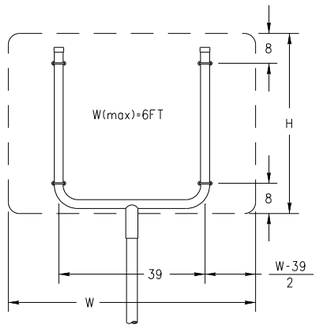
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



SM RD SGN ASSM TY XXXXX(1)XX(U)



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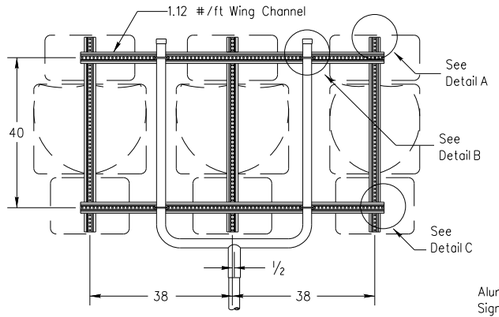
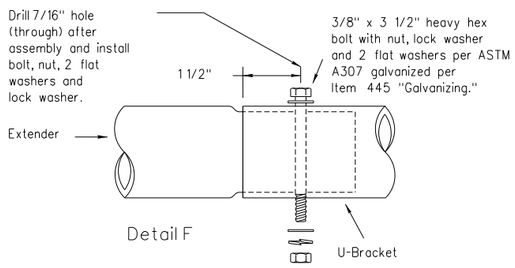
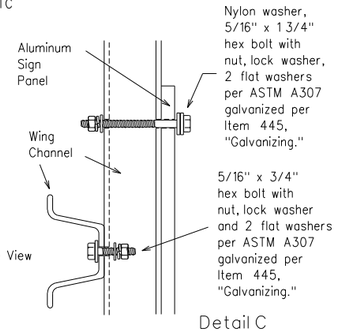


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

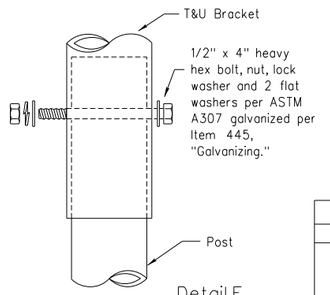


Detail F

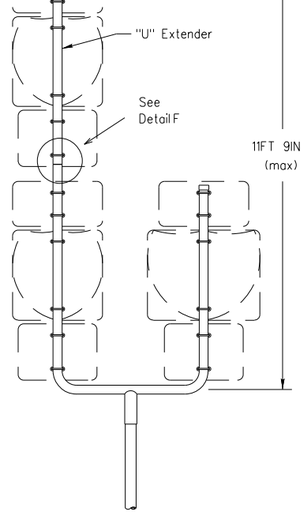
Splices shall only be allowed behind the sign substrate.



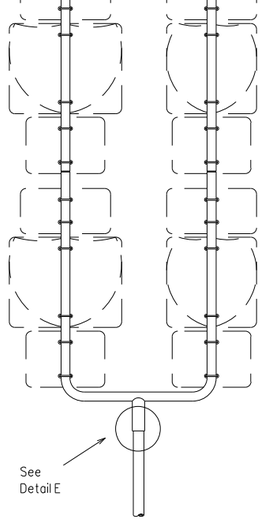
Detail C



Detail E



SM RD SGN ASSM TY S80(1)XX(U-1EXT)



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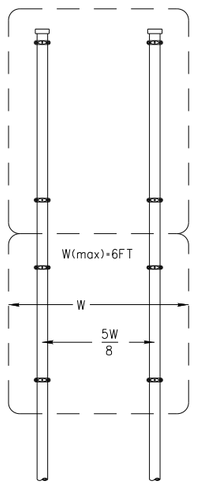
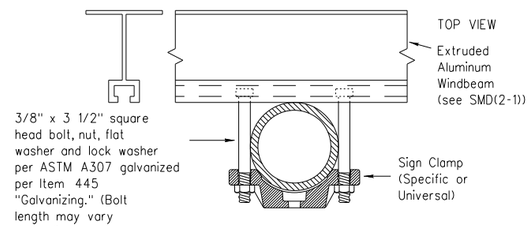
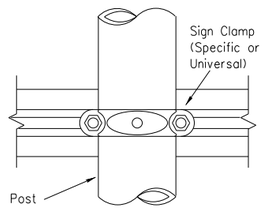


SM RD SGN ASSYM TY XXXXX(2)XX(P)

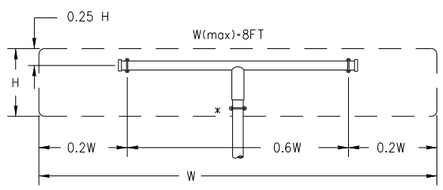
SIDE VIEW



Detail D



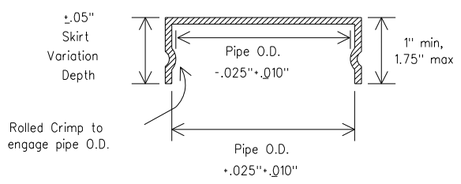
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(x - See Note 12)

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			222

9-08 REVISIONS

26C

DATE: May. 22, 2018 - 11:58:08 AM
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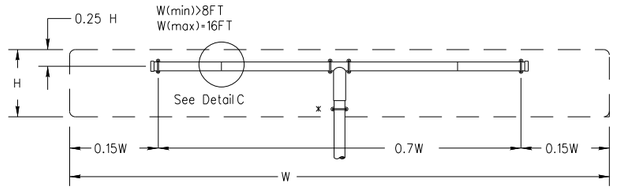
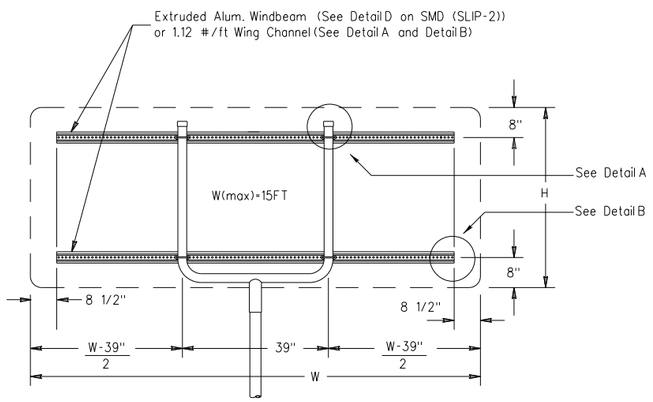
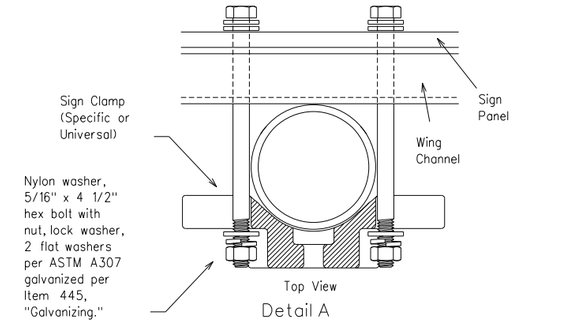


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

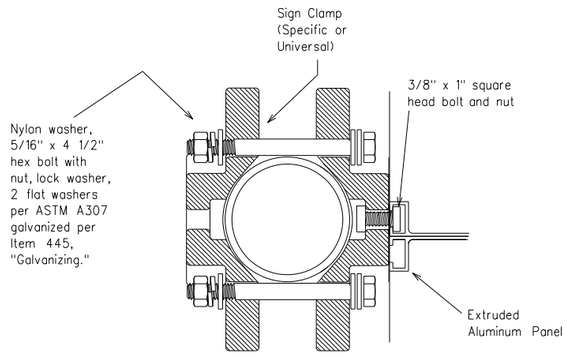
(x - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

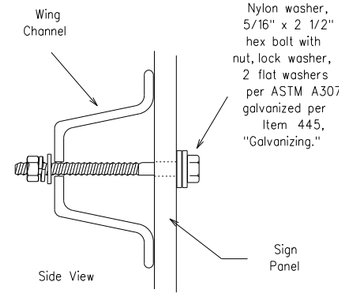


Detail A

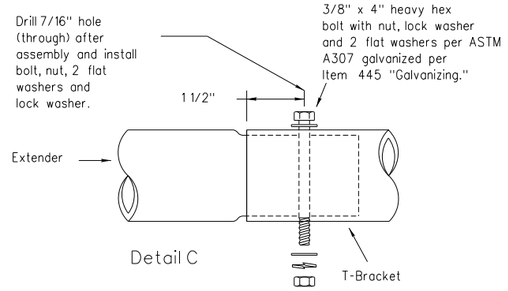


Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET

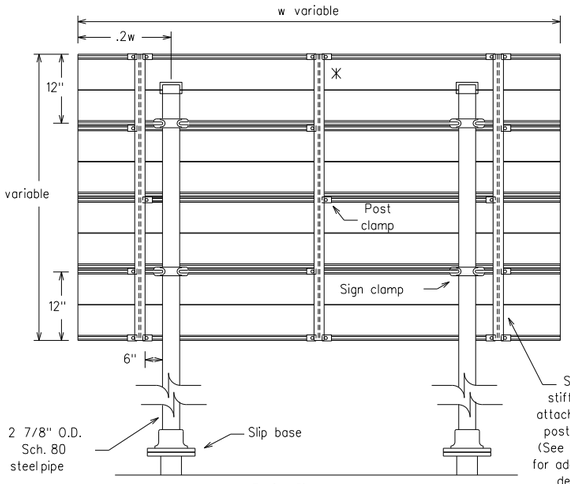


Detail B



Detail C

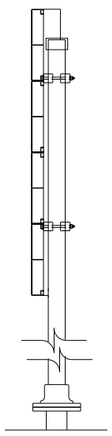
Splices shall only be allowed behind the sign substrate.



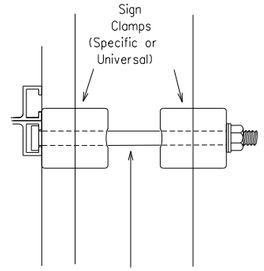
Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

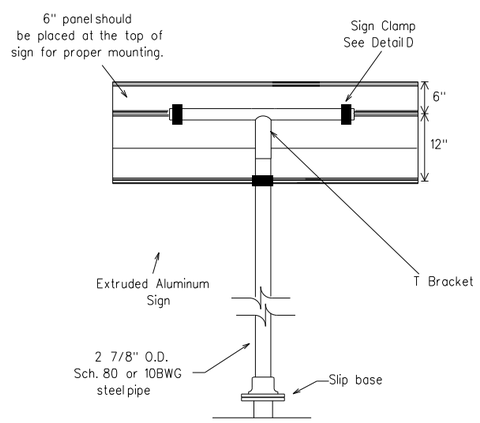
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



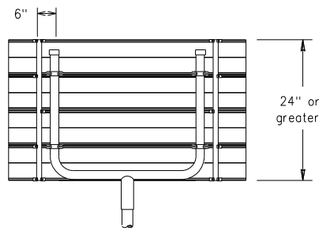
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
		223

REVISIONS
9-08

26D

DATE: May. 22, 2018 - 11:58:09 AM
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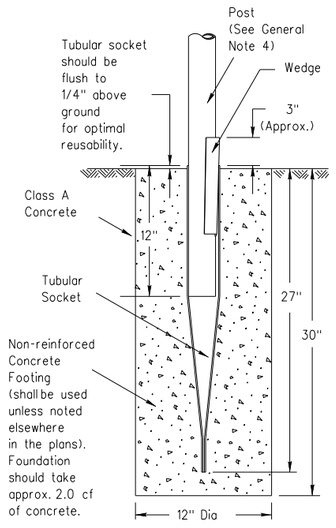
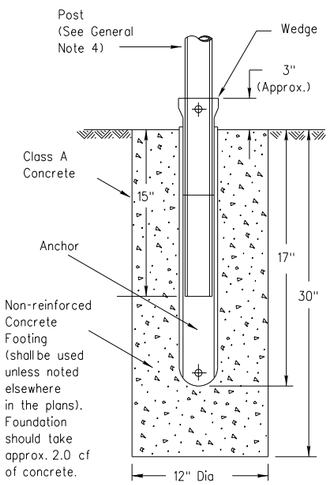
Wedge Anchor Steel System



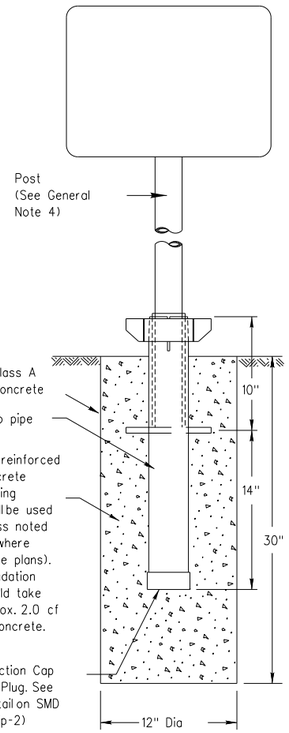
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

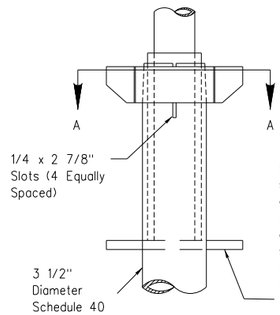


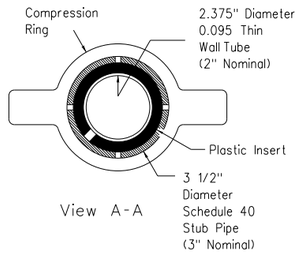
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



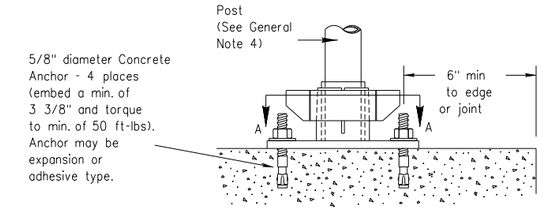
SM RD SGN ASSM TY TWT(X)UA(P)



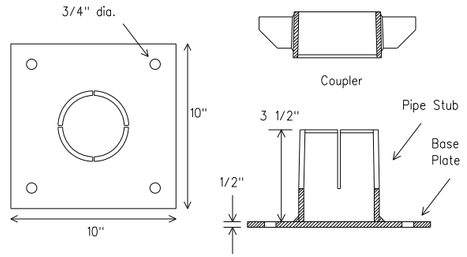


View A-A

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

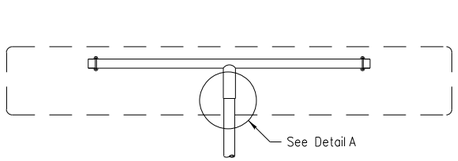


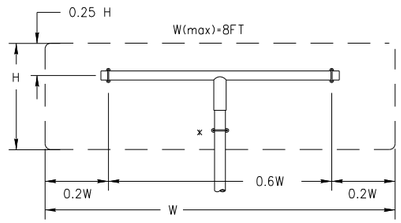
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



SM RD SGN ASSM TY TWT(X)UB(P)

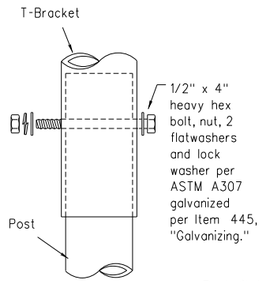
Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)

(x - See General Note 6)



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
		224

26E

DATE: May. 22, 2018 - 11:58:10 AM
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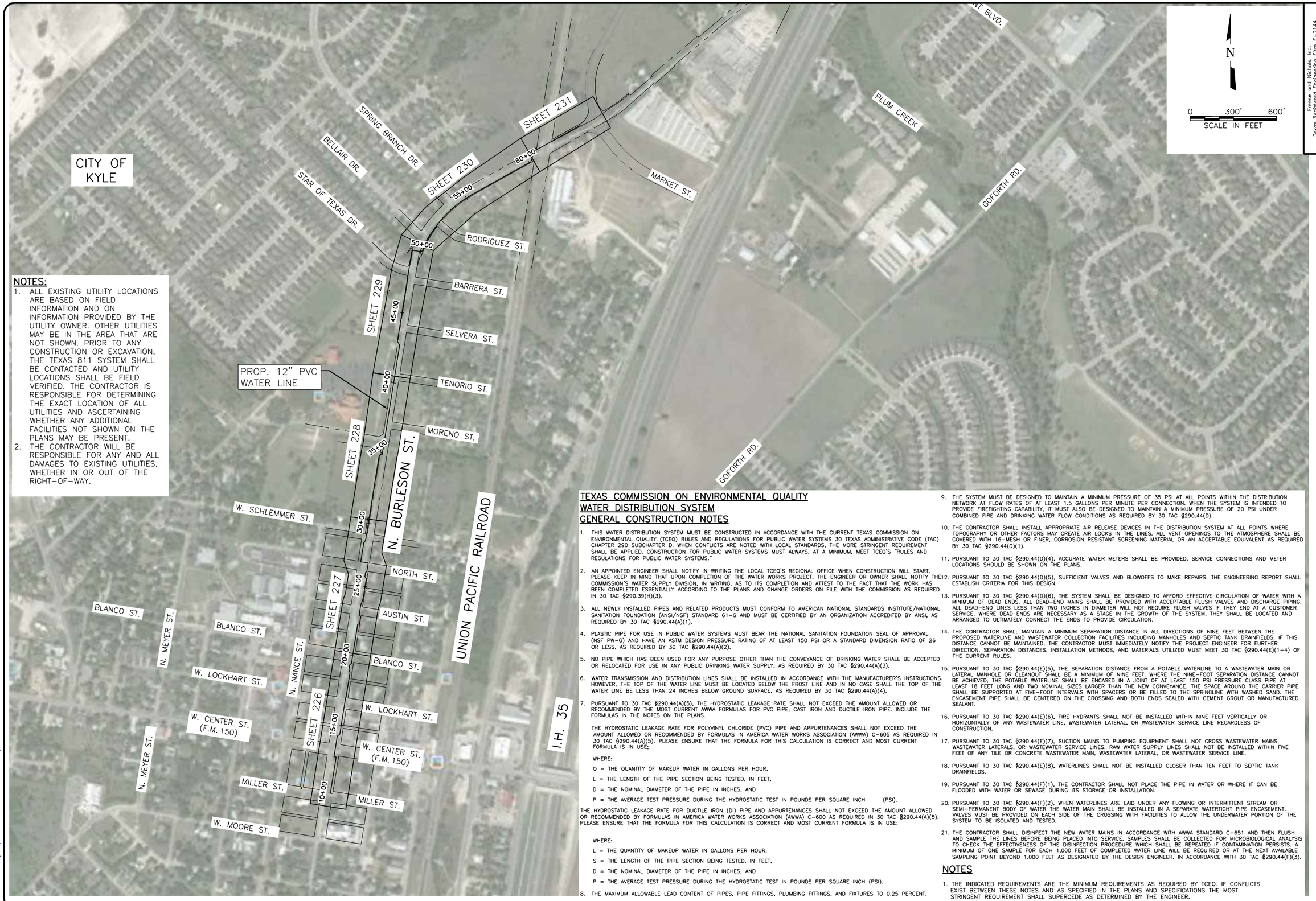

NOTES:

1. ALL EXISTING UTILITY LOCATIONS ARE BASED ON FIELD INFORMATION AND ON INFORMATION PROVIDED BY THE UTILITY OWNER. OTHER UTILITIES MAY BE IN THE AREA THAT ARE NOT SHOWN. PRIOR TO ANY CONSTRUCTION OR EXCAVATION, THE TEXAS 811 SYSTEM SHALL BE CONTACTED AND UTILITY LOCATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND ASCERTAINING WHETHER ANY ADDITIONAL FACILITIES NOT SHOWN ON THE PLANS MAY BE PRESENT.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UTILITIES, WHETHER IN OR OUT OF THE RIGHT-OF-WAY.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
WATER DISTRIBUTION SYSTEM
GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS, AT A MINIMUM, MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2. AN APPOINTED ENGINEER SHALL NOTIFY IN WRITING THE LOCAL TCEQ'S REGIONAL OFFICE WHEN CONSTRUCTION WILL START. PLEASE KEEP IN MIND THAT UPON COMPLETION OF THE WATER WORKS PROJECT, THE ENGINEER OR OWNER SHALL NOTIFY THE COMMISSION'S WATER SUPPLY DIVISION, IN WRITING, AS TO ITS COMPLETION AND ATTEST TO THE FACT THAT THE WORK HAS BEEN COMPLETED ESSENTIALLY ACCORDING TO THE PLANS AND CHANGE ORDERS ON FILE WITH THE COMMISSION AS REQUIRED IN 30 TAC §290.39(H)(3).
3. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61-G AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI, AS REQUIRED BY 30 TAC §290.44(A)(1).
4. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF PW-G) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS, AS REQUIRED BY 30 TAC §290.44(A)(2).
5. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY, AS REQUIRED BY 30 TAC §290.44(A)(3).
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE, AS REQUIRED BY 30 TAC §290.44(A)(4).
7. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

   THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

   WHERE:

   Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,

   L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,

   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND

   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

   THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

   WHERE:

   L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,

   S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,

   D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND

   P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).
8. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES TO 0.25 PERCENT.
9. THE SYSTEM MUST BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 35 PSI AT ALL POINTS WITHIN THE DISTRIBUTION NETWORK AT FLOW RATES OF AT LEAST 1.5 GALLONS PER MINUTE PER CONNECTION. WHEN THE SYSTEM IS INTENDED TO PROVIDE FIREFIGHTING CAPABILITY, IT MUST ALSO BE DESIGNED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI UNDER COMBINED FIRE AND DRINKING WATER FLOW CONDITIONS AS REQUIRED BY 30 TAC §290.44(D).
10. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES IN THE DISTRIBUTION SYSTEM AT ALL POINTS WHERE TOPOGRAPHY OR OTHER FACTORS MAY CREATE AIR LOCKS IN THE LINES. ALL VENT OPENINGS TO THE ATMOSPHERE SHALL BE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT AS REQUIRED BY 30 TAC §290.44(D)(1).
11. PURSUANT TO 30 TAC §290.44(D)(4), ACCURATE WATER METERS SHALL BE PROVIDED. SERVICE CONNECTIONS AND METER LOCATIONS SHOULD BE SHOWN ON THE PLANS.
12. PURSUANT TO 30 TAC §290.44(D)(5), SUFFICIENT VALVES AND BLOWOFFS TO MAKE REPAIRS. THE ENGINEERING REPORT SHALL ESTABLISH CRITERIA FOR THIS DESIGN.
13. PURSUANT TO 30 TAC §290.44(D)(6), THE SYSTEM SHALL BE DESIGNED TO AFFORD EFFECTIVE CIRCULATION OF WATER WITH A MINIMUM OF DEAD ENDS. ALL DEAD-END MAINS SHALL BE PROVIDED WITH ACCEPTABLE FLUSH VALVES AND DISCHARGE PIPING. ALL DEAD-END LINES LESS THAN TWO INCHES IN DIAMETER WILL NOT REQUIRE FLUSH VALVES IF THEY END AT A CUSTOMER SERVICE. WHERE DEAD ENDS ARE NECESSARY AS A STAGE IN THE GROWTH OF THE SYSTEM, THEY SHALL BE LOCATED AND ARRANGED TO ULTIMATELY CONNECT THE ENDS TO PROVIDE CIRCULATION.
14. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES AND SEPTIC TANK DRAINFIELDS. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET 30 TAC §290.44(E)(1-4) OF THE CURRENT RULES.
15. PURSUANT TO 30 TAC §290.44(E)(5), THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT.
16. PURSUANT TO 30 TAC §290.44(E)(6), FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION.
17. PURSUANT TO 30 TAC §290.44(E)(7), SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE.
18. PURSUANT TO 30 TAC §290.44(E)(8), WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS.
19. PURSUANT TO 30 TAC §290.44(F)(1), THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION.
20. PURSUANT TO 30 TAC §290.44(F)(2), WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATER MAIN SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED.
21. THE CONTRACTOR SHALL DISINFECT THE NEW WATER MAINS IN ACCORDANCE WITH AWWA STANDARD C-651 AND THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATER LINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER, IN ACCORDANCE WITH 30 TAC §290.44(F)(3).

NOTES

1. THE INDICATED REQUIREMENTS ARE THE MINIMUM REQUIREMENTS AS REQUIRED BY TCEQ. IF CONFLICTS EXIST BETWEEN THESE NOTES AND AS SPECIFIED IN THE PLANS AND SPECIFICATIONS THE MOST STRINGENT REQUIREMENT SHALL SUPERCEDE AS DETERMINED BY THE ENGINEER.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

05-28-18

STATE OF TEXAS — SCOTT CHRISTOPHER MCGREGOR — 103447 — LICENSED PROFESSIONAL ENGINEER

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
OVERALL WATER PLAN AND KEY MAP

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
DRAWN KV
REVISED
CHECKED
FILE NAME GN-BUR-PL-OVR01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 225
TOTAL 292

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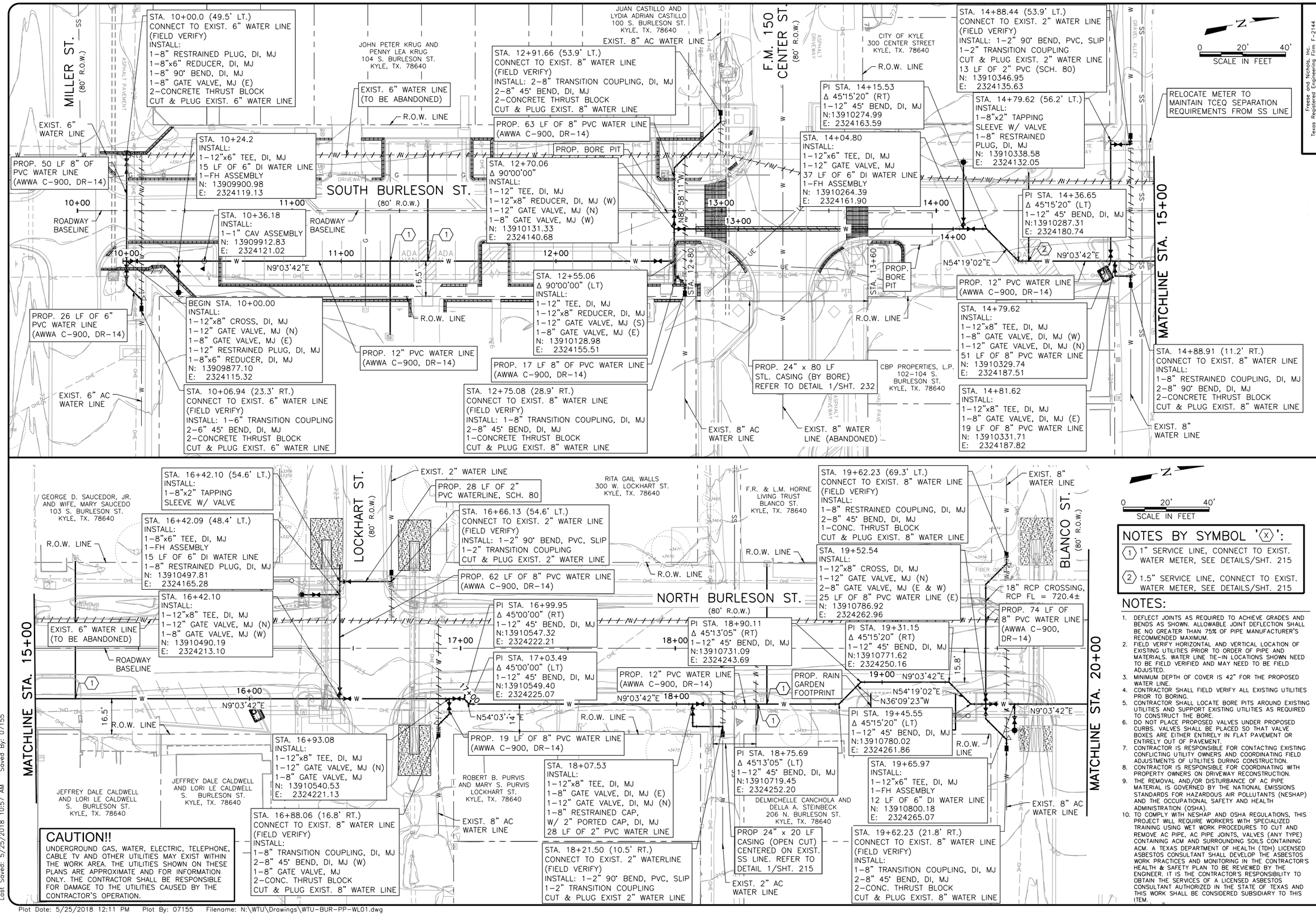

NOTES BY SYMBOL '(X)':

(1) 1" SERVICE LINE, CONNECT TO EXIST. WATER METER, SEE DETAILS/SHT. 215

(2) 1.5" SERVICE LINE, CONNECT TO EXIST. WATER METER, SEE DETAILS/SHT. 215

NOTES:

1. DEFLECT JOINTS AS REQUIRED TO ACHIEVE GRADES AND BENDS AS SHOWN. ALLOWABLE JOINT DEFLECTION SHALL BE NO GREATER THAN 75% OF PIPE MANUFACTURER'S RECOMMENDED MAXIMUM.
2. FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS. WATER LINE TIE-IN LOCATIONS SHOWN NEED TO BE FIELD VERIFIED AND MAY NEED TO BE FIELD ADJUSTED.
3. MINIMUM DEPTH OF COVER IS 42" FOR THE PROPOSED WATER LINE.
4. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO BORING.
5. CONTRACTOR SHALL LOCATE BORE PITS AROUND EXISTING UTILITIES AND SUPPORT EXISTING UTILITIES AS REQUIRED TO CONSTRUCT THE BORE.
6. DO NOT PLACE PROPOSED VALVES UNDER PROPOSED CURBS. VALVES SHALL BE PLACED SO THAT VALVE BOXES ARE EITHER ENTIRELY IN FLAT PAVEMENT OR ENTIRELY OUT OF PAVEMENT.
7. CONTRACTOR IS RESPONSIBLE FOR CONTACTING EXISTING CONFLICTING UTILITY OWNERS AND COORDINATING FIELD ADJUSTMENTS OF UTILITIES DURING CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS ON DRIVEWAY RECONSTRUCTION.
9. THE REMOVAL AND/OR DISTURBANCE OF AC PIPE MATERIAL IS GOVERNED BY THE NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
10. TO COMPLY WITH NESHAP AND OSHA REGULATIONS, THIS PROJECT WILL REQUIRE WORKERS WITH SPECIALIZED TRAINING USING WET WORK PROCEDURES TO CUT AND REMOVE AC PIPE, AC PIPE JOINTS, VALVES (ANY TYPE) CONTAINING ACM AND SURROUNDING SOILS CONTAINING ACM. A TEXAS DEPARTMENT OF HEALTH (TDH) LICENSED ASBESTOS CONSULTANT SHALL DEVELOP THE ASBESTOS WORK PRACTICES AND MONITORING IN THE CONTRACTOR'S HEALTH & SAFETY PLAN TO BE REVIEWED BY THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE SERVICES OF A LICENSED ASBESTOS CONSULTANT AUTHORIZED IN THE STATE OF TEXAS AND THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THIS ITEM.

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Texas Registered Engineering Firm F-2144

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CITY OF KYLE, TEXAS
SOUTH BURLESON ST. IMPROVEMENTS
CIVIL
WATER LINE PLAN
STA. 10+00 TO STA. 20+00
N. BURLESON ST.
STA. 10+00 TO STA. 15+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
DRAWN DDH
CHECKED DTB
REVISED
FILE NAME WTU-BUR-PP-WL01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 226
TOTAL 292

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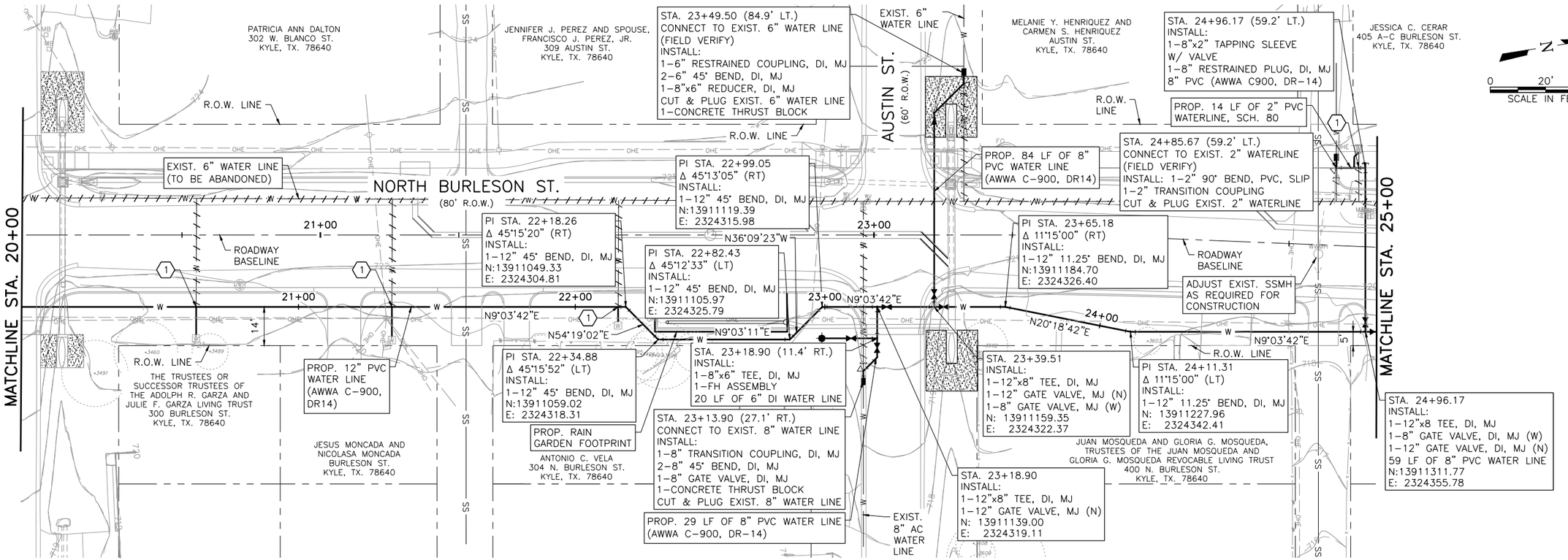

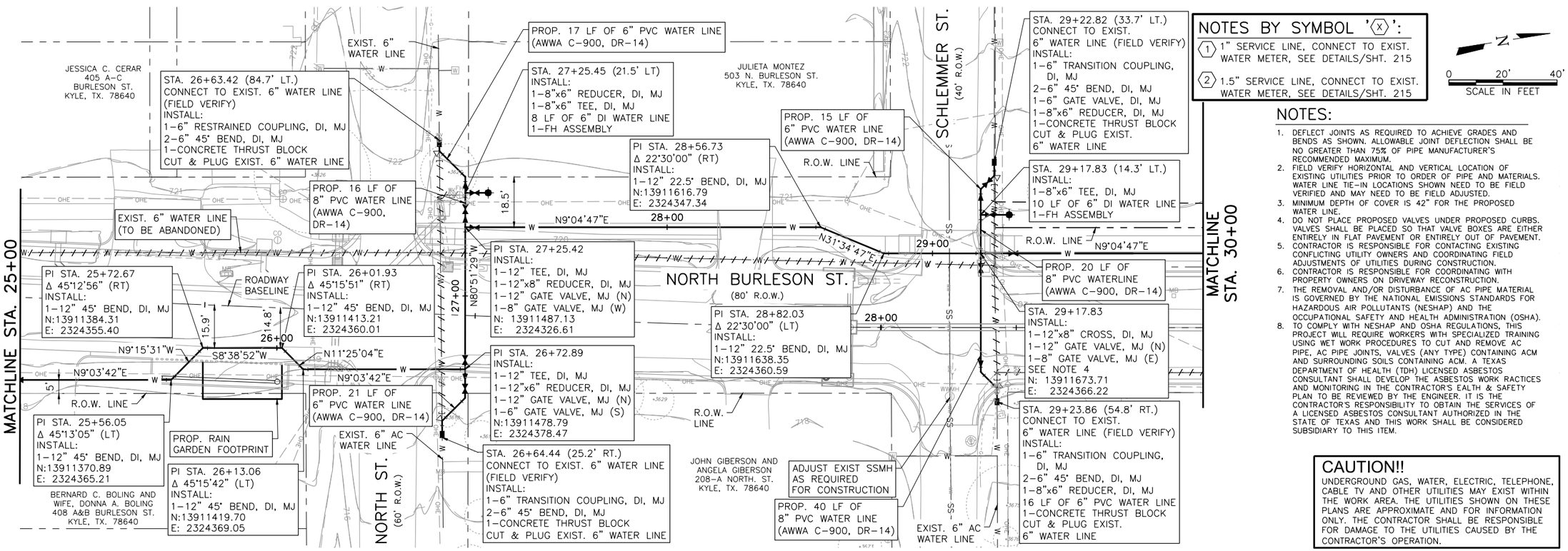

NOTES BY SYMBOL '⟨X⟩':

⟨1⟩ 1" SERVICE LINE, CONNECT TO EXIST. WATER METER, SEE DETAILS/SHT. 215

⟨2⟩ 1.5" SERVICE LINE, CONNECT TO EXIST. WATER METER, SEE DETAILS/SHT. 215

NOTES:

1. DEFLECT JOINTS AS REQUIRED TO ACHIEVE GRADES AND BENDS AS SHOWN. ALLOWABLE JOINT DEFLECTION SHALL BE NO GREATER THAN 75% OF PIPE MANUFACTURER'S RECOMMENDED MAXIMUM.
2. FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS. WATER LINE TIE-IN LOCATIONS SHOWN NEED TO BE FIELD VERIFIED AND MAY NEED TO BE FIELD ADJUSTED.
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CAUTION!!

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE PLAN
STA. 20+00 TO STA. 30+00

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
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FILE NAME WTU-BUR-PP-WL01.dwg

SHEET 227
TOTAL 292

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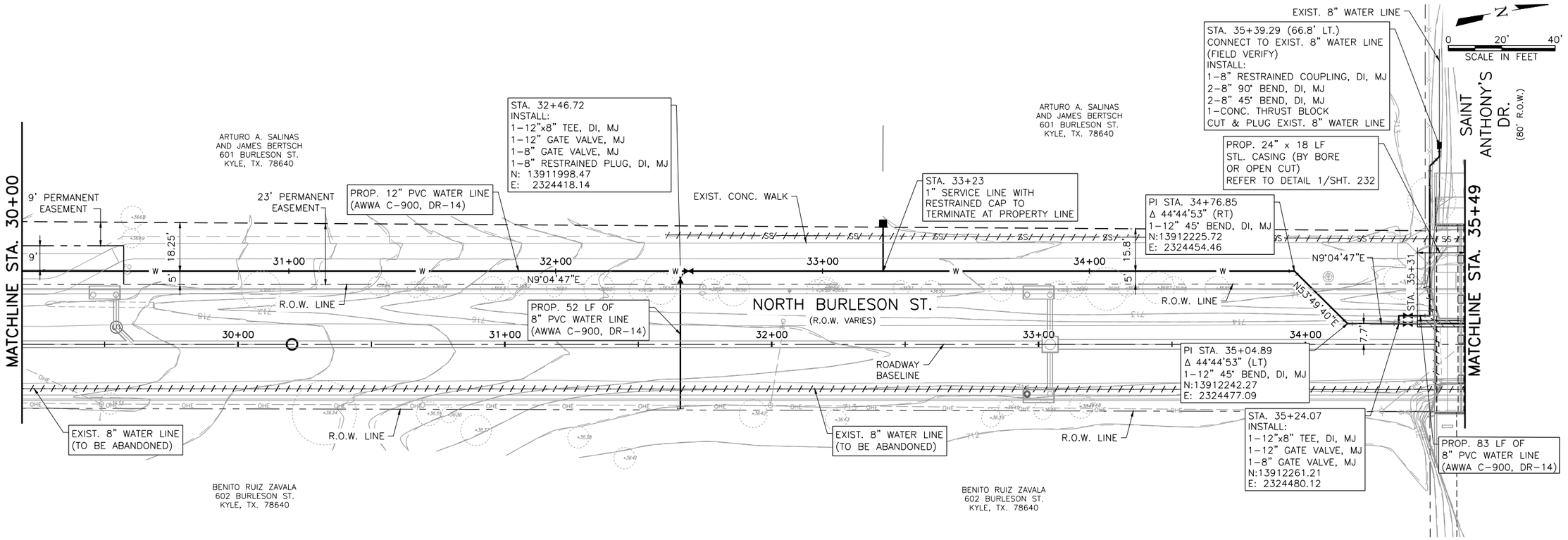

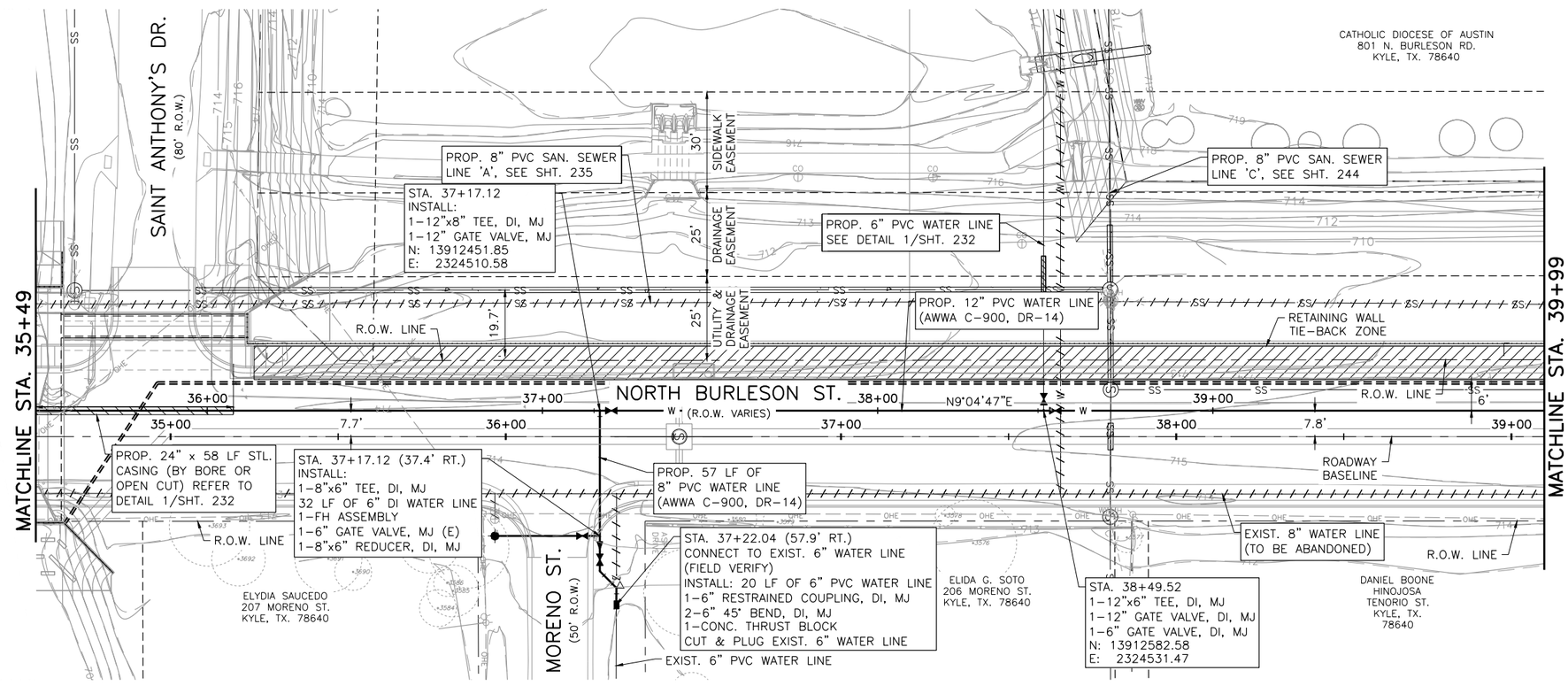

NOTES BY SYMBOL '⟨X⟩':

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE PLAN
STA. 30+00 TO STA. 40+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
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FILE NAME WTU-BUR-PP-WL01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
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SHEET 228
TOTAL 292

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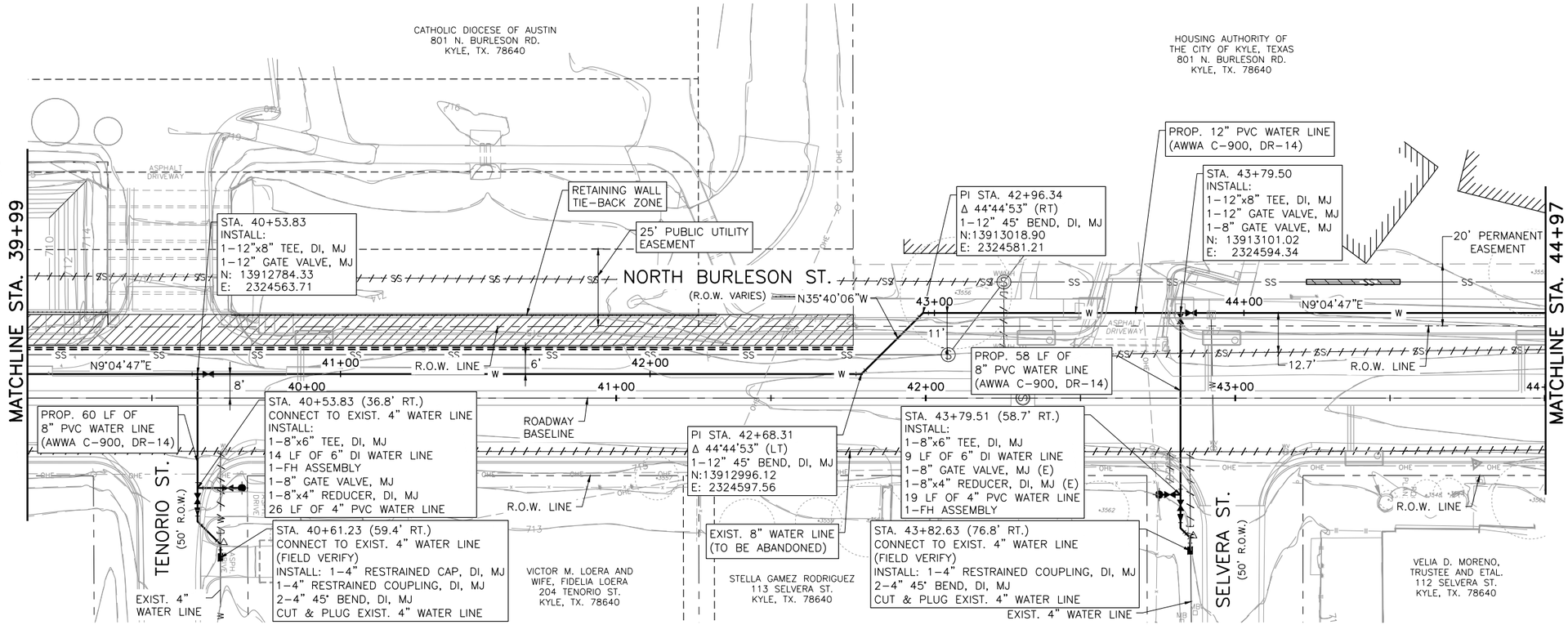

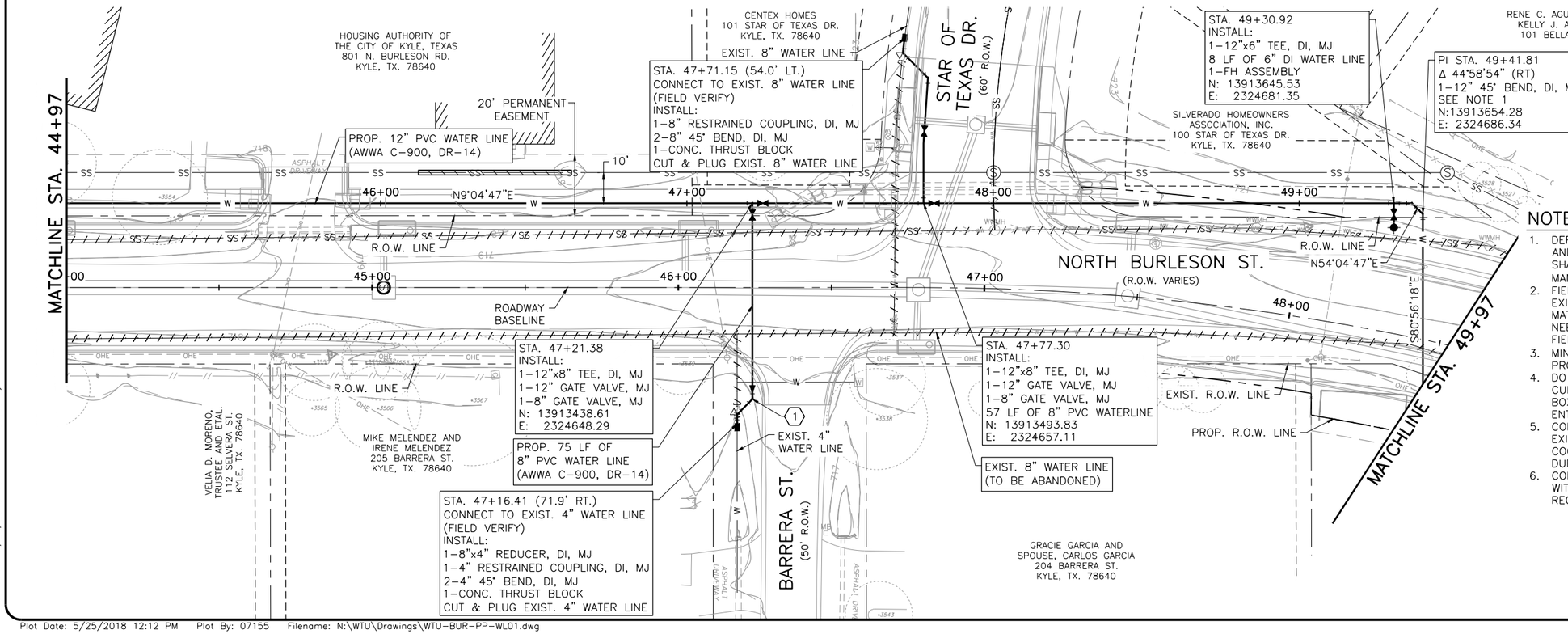

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05-28-18
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE PLAN
STA. 40+00 TO STA. 50+00

FAN JOB NO.	KYL14284
DATE	5/25/2018
DESIGNED	SC
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FILE NAME	WTU-BUR-PP-WL01.dwg

NO.	REVISION	BY	DATE

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SHEET 229

TOTAL 292

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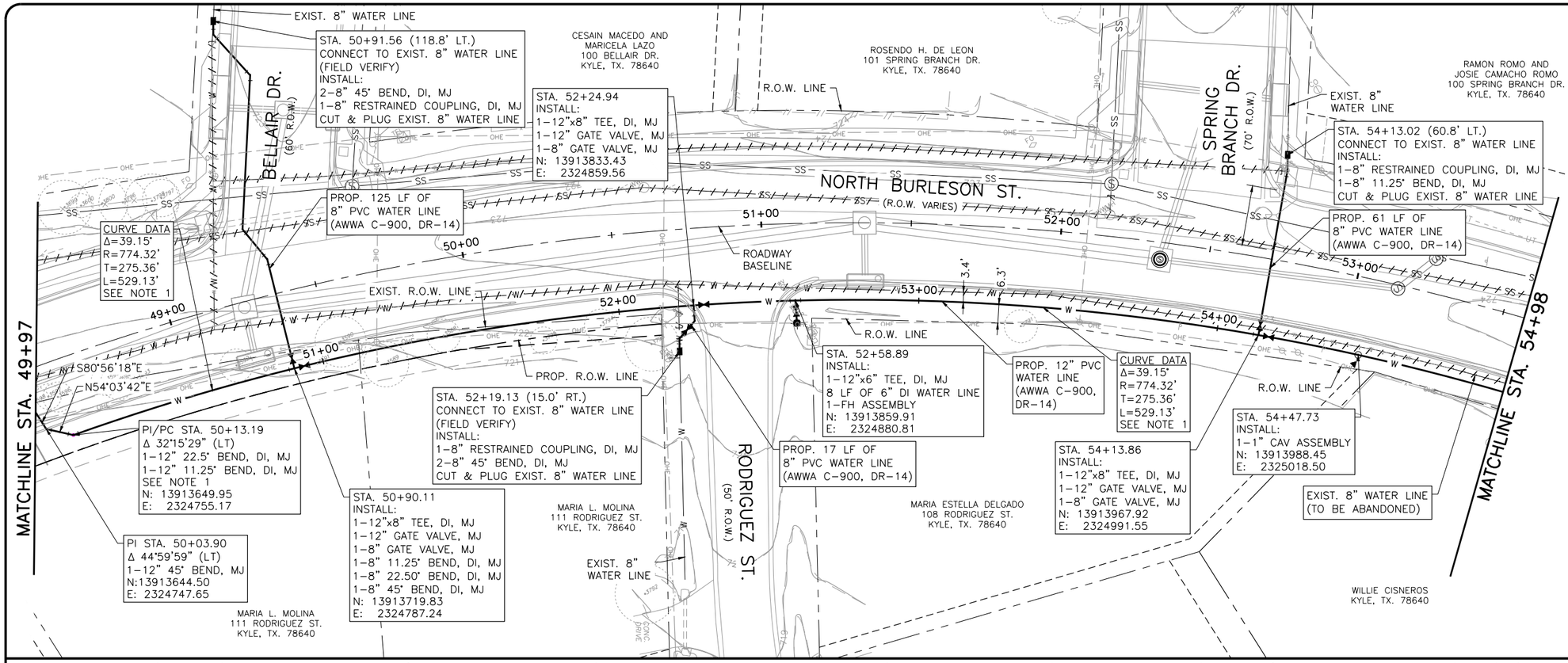

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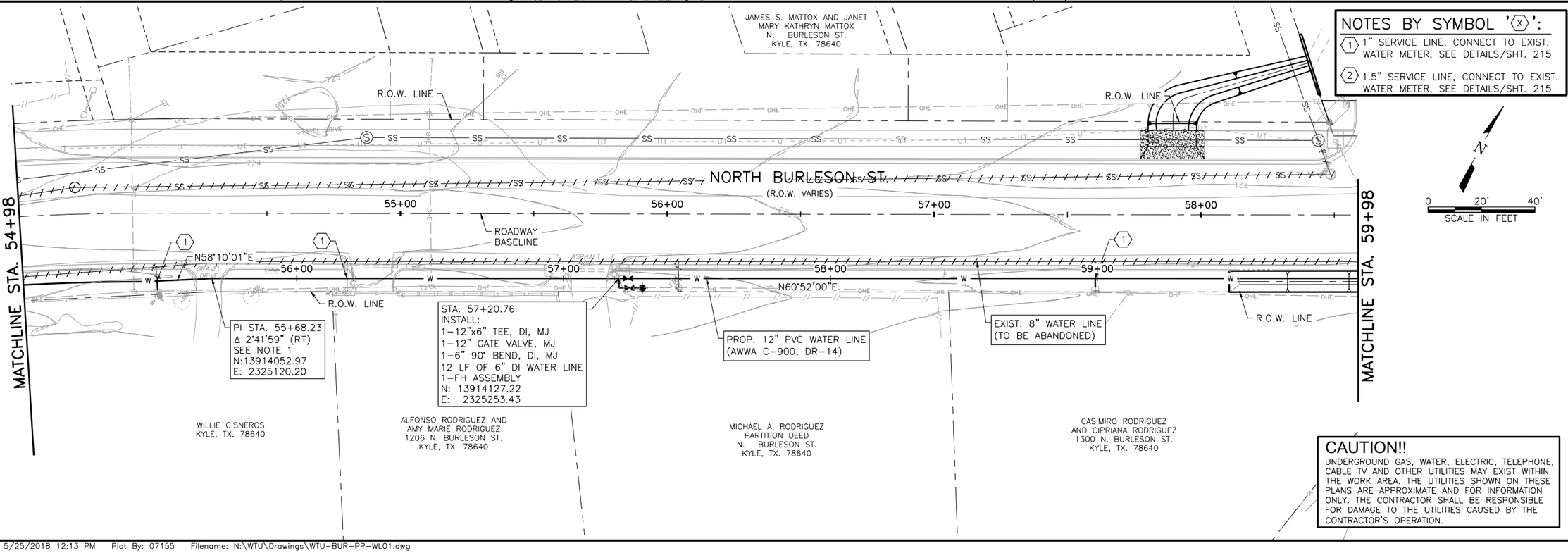

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05-28-18

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE PLAN
STA. 50+00 TO STA. 60+00

NO.	REVISION	BY	DATE

F&N JOB NO.	KYL14284
DATE	5/25/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
CHECKED	DTB
FILE NAME	WTU-BUR-PP-WL01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
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SHEET 230

TOTAL 292

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Plot Date: 5/25/2018 12:13 PM Plot By: 07155 Filename: N:\WTU\Drawings\WTU-BUR-PP-WL01.dwg

ORCHARD AT PLUM CREEK, LLC.
KYLE, TX. 78640

JULIA PARKER FAMILY PARTNERSHIP, LTD.
N. BURLESON RD.
KYLE, TX. 78640

UNION PACIFIC RAIL ROAD (100' R.O.W.)

MARKET PLACE (70' R.O.W.)

NORTH BURLESON ST. (R.O.W. VARIES)

MATCHLINE STA. 59+98

STA. 61+03.09
TRANSITION COUPLING
PVC TO DUCTILE IRON

PI STA. 60+92.38
Δ 44°06'05" (RT)
INSTALL:
1-12" 45° BEND, DI, MJ
SEE NOTE 1
N:13914344.54
E: 2325532.87

PROP. R.O.W. LINE

R.O.W. LINE

STA. 61+05

STA. 62+37

PROP. 24" x 132 LF
STL. CASING (BY BORE)
WITH 12" DUCTILE IRON CARRIER PIPE,
PRESSURE CLASS 350
REFER TO DETAIL 1/SHT. 232
SEE NOTE 6

WARNING! OVERHEAD ELECTRICAL CROSSING

PROP. 12" PVC WATER LINE
(AWWA C-900, DR-14)

STA. 63+00.00
INSTALL:
1-12" TEE, DI, MJ
2-12" GATE VALVES, MJ
1-12" RESTRAINED COUPLING, DI, MJ
N:13914445.33±
E: 2325714.38±

PROP. 8" WASTEWATER LINE
(BY OTHERS)

PROP. 12" WATER LINE
(BY OTHERS)

PROP. R.O.W. LINE

N16°51'25"E

N60°57'30"E

WARNING! UNDERGROUND COMMUNICATIONS LINES CROSSING

TOP OF CASING
ELEV. 717.00

TOP OF CASING
ELEV. 714.50

ROADWAY BASELINE

END STA. 64+46.92
CONNECT TO PROP. 12"
WATER LINE (BY OTHERS)
(LOCATION TO BE FIELD VERIFIED)
INSTALL:
1-12" GATE VALVE, DI, MJ
N:13914516.65
E: 2325842.83

EXIST. 8" WATER LINE
(TO BE ABANDONED)

STA. 60+95.87
INSTALL:
1-12"x6" TEE DI, MJ
8 LF OF 6" DI WATER LINE
1-FH ASSEMBLY
1-12" GATE VALVE, DI, MJ (E)
N:13914346.23
E: 2325535.92

STA. 62+47.15
TRANSITION COUPLING
DUCTILE IRON
TO PVC

PROP. 64 LF OF
12" WATER LINE
(AWWA C-900, DR-14)

STA. 63+00.07 (60.65' RT)
INSTALL:
1-12"x6" TEE DI, MJ
1-FH ASSEMBLY
8 LF OF 6" DI WATER LINE
1-12" GATE VALVE, DI, MJ (N)
1-12" RESTRAINED PLUG, DI, MJ
N:13914392.34
E: 2325743.88

PI STA. 60+14.97
Δ 44°00'36" (RT)
1-12" 45° BEND, DI, MJ
N:13914270.46
E: 2325510.42

PROP. 12" PVC WATER LINE
(AWWA C-900, DR-14)

R.O.W. LINE

R.O.W. LINE

JAMES A. MATTOX, TRUSTEE
1119 N. OLD HWY 81
KYLE, TX. 78640

EXIST. 8" WATER LINE
(TO BE ABANDONED)

0 20' 40'
SCALE IN FEET

NOTES:

1. DEFLECT JOINTS AS REQUIRED TO ACHIEVE GRADES AND BENDS AS SHOWN. ALLOWABLE JOINT DEFLECTION SHALL BE NO GREATER THAN 75% OF PIPE MANUFACTURER'S RECOMMENDED MAXIMUM.
2. FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS. WATER LINE TIE-IN LOCATIONS SHOWN NEED TO BE FIELD VERIFIED AND MAY NEED TO BE FIELD ADJUSTED.
3. MINIMUM DEPTH OF COVER IS 42" FOR THE PROPOSED WATER LINE.
4. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO BORING.
5. CONTRACTOR SHALL LOCATE BORE PITS AROUND EXISTING UTILITIES AND SUPPORT EXISTING UTILITIES AS REQUIRED TO CONSTRUCT THE BORE.
6. CONTRACTOR SHALL CONTACT UPPR A MINIMUM OF 2 WEEKS PRIOR TO BEGINNING WORK. MINIMUM STEEL CASING THICKNESS IS 0.400" FOR UPRR CROSSING. MINIMUM DEPTH OF COVER UNDER UPRR IS 72" FOR THE PROPOSED CASING.
7. CONTRACTOR IS RESPONSIBLE FOR CONTACTING EXISTING CONFLICTING UTILITY OWNERS AND COORDINATING FIELD ADJUSTMENTS OF UTILITIES DURING CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS ON DRIVEWAY RECONSTRUCTION.

CAUTION!!
UNDERGROUND GAS, WATER, ELECTRIC, TELEPHONE, CABLE TV AND OTHER UTILITIES MAY EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.

R.O.W. LINE

R.O.W. LINE

ROADWAY BASELINE

PROP. 12" PVC WATER LINE
SEE SHT. 211

N9°04'47"E

STA. 38+49.52
1-12"x6" TEE, DI, MJ
1-12" GATE VALVE, DI, MJ
1-6" GATE VALVE, DI, MJ
N: 13912582.58
E: 2324531.47

PROP. SAN. SEWER LINE 'A'
SEE SHT. 218

PROP. POND
IMPROVEMENTS
SEE DRAINAGE PLANS

CATHOLIC DIOCESE OF AUSTIN
801 BURLESON RD.
KYLE, TX. 78640

25' UTILITY & DRAINAGE EASEMENT

25' DRAINAGE EASEMENT

30' SIDEWALK EASEMENT

PROP. RETAINING WALL
SEE ROADWAY SHEETS

PROP. 16"X20' STL CASING
(BY OPEN CUT)
WITH 8" CARRIER PIPE

PROP. 170 LF OF
6" PVC WATER LINE
(AWWA C-900, DR-14)

LIMITS OF POND EASEMENT

EXIST. 6" WATER LINE
(TO BE ABANDONED)

PROP. SAN. SEWER
LINE 'C'
SEE SHT. 227

STA. 38+24.05 (167.4' LT.)
CONNECT TO EXIST. 6" SERVICE LINE
(FIELD VERIFY)
INSTALL:
1-TRANSITION COUPLING
1-CONC. THRUST BLOCK
2-6" 45° BEND, DI, MJ
CUT & PLUG EXIST. 6" WATER LINE
N: 13912616.49
E: 2324350.92

NORTH BURLESON ST.

38+00

0 10' 20'
SCALE IN FEET

1 POND SERVICE DETAIL
N.T.S.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

05-28-18

STATE OF TEXAS
STEPHEN C. MARSH
103447
LICENSED
PROFESSIONAL
ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone (512) 617-3100
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Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE PLAN
STA. 60+00 TO END

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED DTB
FILE NAME WTU-BUR-PP-WL01.dwg

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SHEET 231
TOTAL 292

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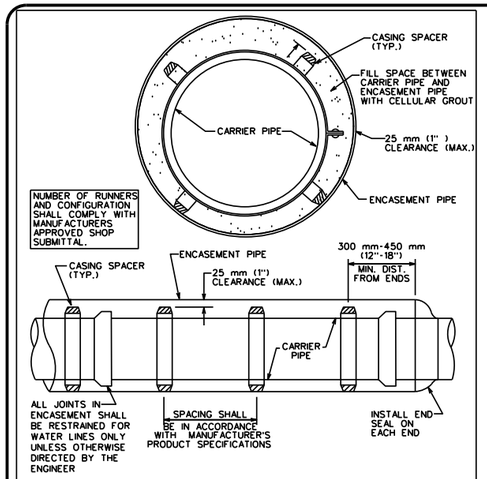


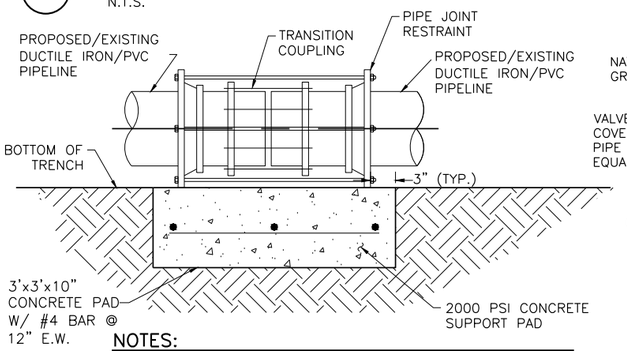
APPLICABLE REFERENCES

STANDARD SPECIFICATION: ITEM 510S.3 (19) W/WW STANDARD PRODUCTS LIST: SPLWW-575 FOR CASING SPACER AND SPLWW-575A FOR END SEAL.

AUSTIN WATER UTILITY		ENCASEMENT DETAIL W/ CASING SPACERS	
RECORD COPY SIGNED BY KATHI L. FLOWERS	2/28/05 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 501S-1

1 ENCASEMENT DETAIL W/ CASING SPACERS

N.T.S.

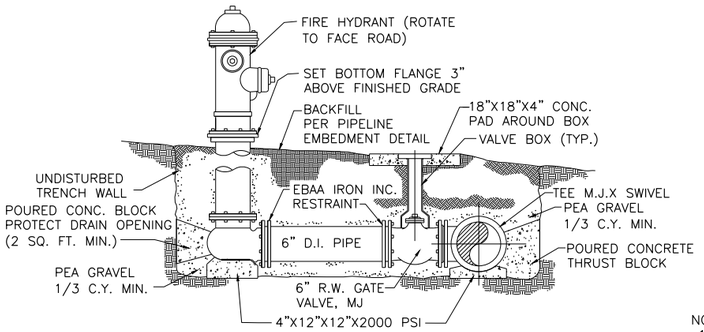


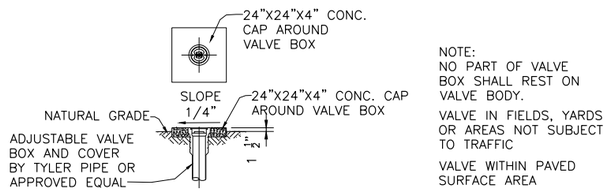
NOTES:

1. ADDITIONAL REDUCERS, BENDS, AND FITTINGS MAY BE REQUIRED. SUBSIDIARY TO WATER PIPELINE.
2. ALL COUPLINGS SHALL BE WRAPPED IN POLYETHYLENE.

2 FIRE HYDRANT ASSEMBLY

N.T.S.

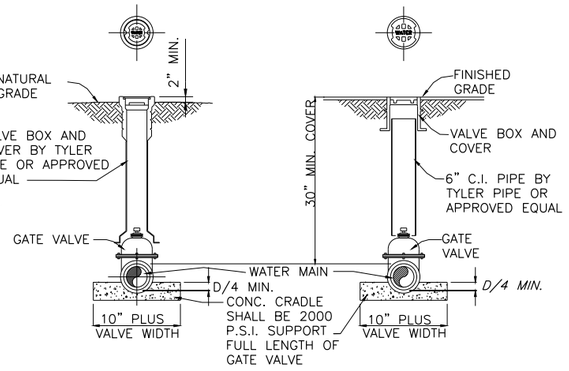




NOTE:
NO PART OF VALVE BOX SHALL REST ON VALVE BODY.

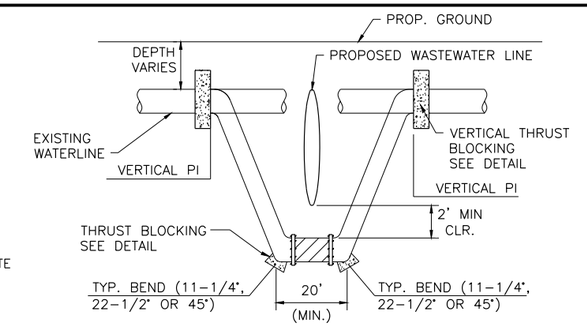
VALVE IN FIELDS, YARDS OR AREAS NOT SUBJECT TO TRAFFIC

VALVE WITHIN PAVED SURFACE AREA



6 GATE VALVE & BOX DETAILS

N.T.S.

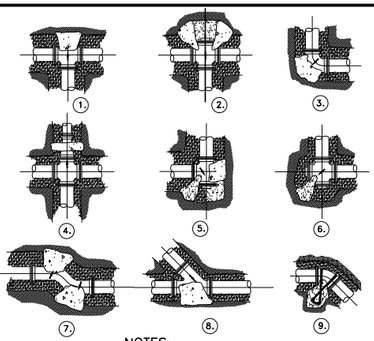


NOTES:

1. CONTRACTOR SHALL FIELD VERIFY HORIZ. AND VERT. LOCATION OF EXISTING UTILITY LINE.
2. NOTIFY ENGINEER TO ALLOW FOR ANY ADJUSTMENTS TO PROPOSED DESIGN, BASED ON FIELD VERIFICATION.
3. DO NOT CONSTRUCT ADJUSTMENT UNTIL APPROVAL IS GIVEN BY ENGINEER. VERTICAL PI'S SHALL BE CONSTRUCTED USING STANDARD BENDS.
4. JOINT DEFLECTIONS NOT TO EXCEED 75% OF PIPE MANUFACTURER'S MAXIMUM RECOMMENDATIONS.
5. USE MEGALUGS (RESTRAINED JOINTS) AND THRUST BLOCKS ON ALL BENDS.

3 WATERLINE ADJUSTMENT

NOT TO SCALE



NOTES:

1. THRU LINE CONNECTION,TEE
2. THRU LINE CONNECTION, CROSS USED AS TEE
3. DIRECTIONAL CHANGE, ELBOW
4. CHANGE LINE SIZE, REDUCER
5. DIRECTION CHANGE, TEE USED AS ELBOW
6. DIRECTION CHANGE, CROSS USED AS ELBOW
7. DIRECTION CHANGE
8. THRU LINE CONNECTION
9. DIRECTION CHANGE VERTICAL, BEND ANCHOR
10. VALVE ANCHOR

PIPE DIA.	FITTINGS	BLOCK DIMENSION HORIZ.	VERT.
8"	Tee,Cross,Valve	2.0	2.0
8"	90° Bend	2.0	2.5
10"	45° Bend	2.5	2.5
10"	90° Bend	2.5	2.5
12"	Tee,Valve	3.0	3.0
12"	90° Bend	4.5	2.5
12"	45° Bend	2.5	2.5

NOTES:

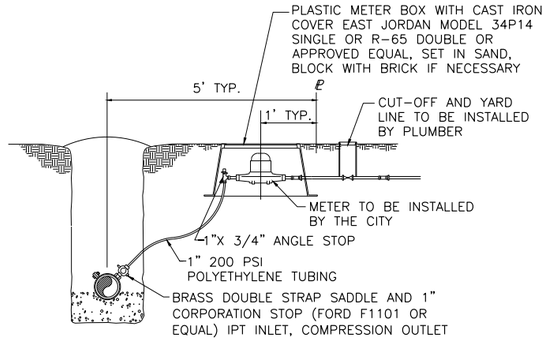
-ALL M.J. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS

-COPPER SERVICES ARE PROHIBITED. ALL SERVICES SHALL BE 200 P.S.I. OR GREATER POLYETHYLENE TUBING.

-ALL BRASS FITTINGS SHALL CONFORM TO U.S. PUBLIC LAW 111-380 ("REDUCTION OF LEAD IN DRINKING WATER ACT")

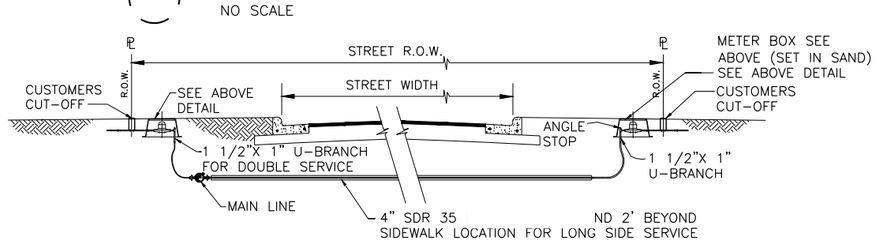
4 TYPICAL THRUST BLOCKING

N.T.S.



7 METER SETTING DETAIL

N.T.S.



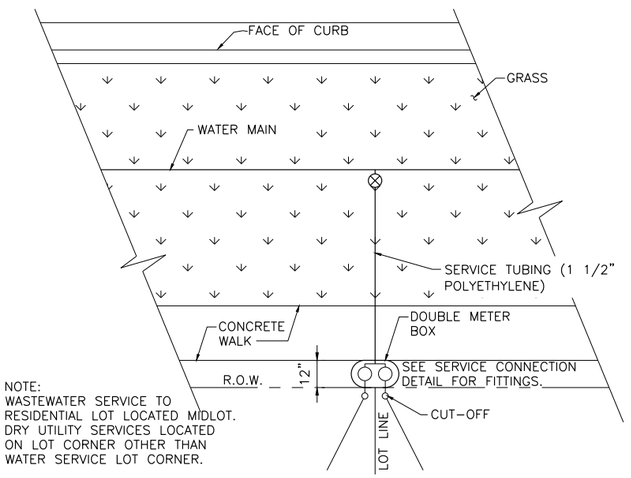
5 COUPLING SUPPORT DETAIL

NO SCALE

SHORT SIDE AND LONG SIDE SINGLE SERVICE	SHORT SIDE AND LONG SIDE DOUBLE SERVICE
1" DOUBLE STRAP SERVICE SADDLE , SMITH BLAIR OR EQUAL	1 1/2" DOUBLE STRAP SERVICE, SMITH BLAIR OR EQUAL
1" CORPORATION STOP, MUELLER OR EQUAL	1 1/2" CORPORATION STOP MUELLER OR EQUAL
1" POLYETHYLENE TUBING, CL. 200	1 1/2" CL. 200 POLYETHYLENE TUBING
4" SDR 35 PVC CASING (LONG SIDE SERVICE ONLY)	4" SDR 35 PVC CASING (LONG SIDE SERVICE)
1" BALL VALVE (LONG SIDE SERVICE ONLY)	1 1/2" X 1" X 1" U-BRANCH (COMPRESSION FITTINGS)
3/4" ANGLE STOP VALVE (LOCK WING TYPE)	2 -1" x 3/4"ANGLE STOP VALVES (LOCK WING TYPE)
1" X 3/4" ANGLE STOP, VALVE ALL BRASS FITTINGS	ALL BRASS FITTINGS

8 SERVICE CONNECTION DETAIL

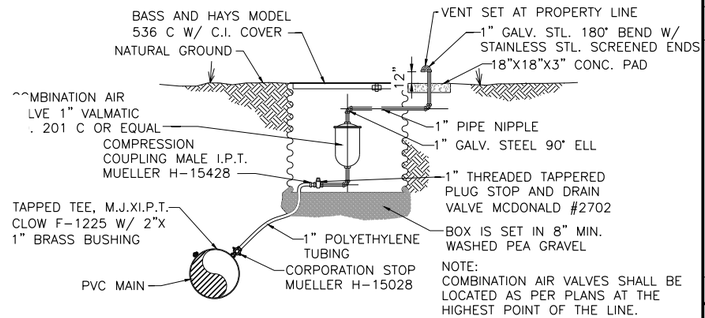
N.T.S.



NOTE:
WASTEWATER SERVICE TO RESIDENTIAL LOT LOCATED MIDLOT. DRY UTILITY SERVICES LOCATED ON LOT CORNER OTHER THAN WATER SERVICE LOT CORNER.

9 TYPICAL WATER SERVICE PLAN

N.T.S.



NOTE:
COMBINATION AIR VALVES SHALL BE LOCATED AS PER PLANS AT THE HIGHEST POINT OF THE LINE.

10 COMBINATION AIR VALVE

N.T.S.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
STEPHEN CHRISTOPHER
10344?
LICENSED
PROFESSIONAL ENGINEER
05-28-18

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE MISCELLANEOUS DETAILS I

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
DRAWN DDH
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CHECKED
FILE NAME WTU-BUR-DT-WT01.dwg

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TOTAL 292

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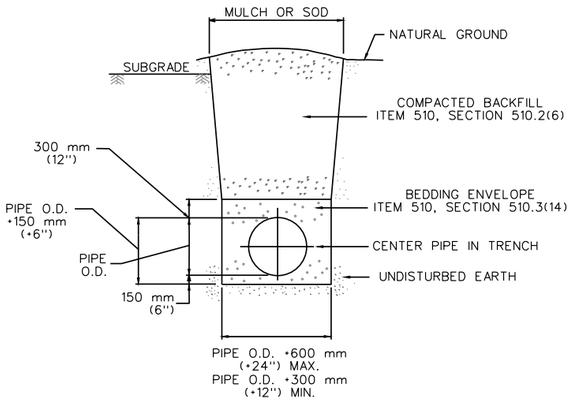
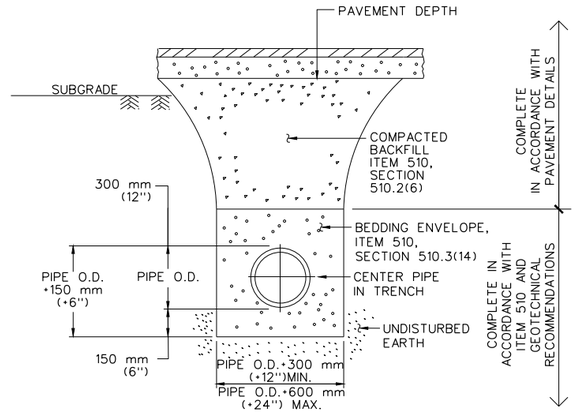


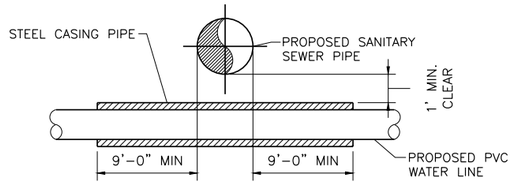
1 TRENCH DETAIL – UNFINISHED SURFACE

N.T.S.



2 TRENCH DETAIL – FINISHED SURFACE

N.T.S.



WATER LINE PROFILE

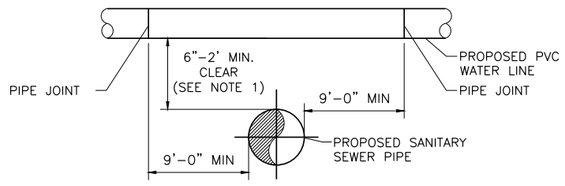
PVC CARRIER PIPE DIAMETER	STEEL CASING PIPE DIAMETER
2"	4"
4"	10"
6"	12"
8"	16"
12"	24"
16"	30"
24"	36"

NOTES:

1. CARRIER PIPE SHALL BE SUPPORTED AT 5–FOOT (OR LESS) INTERVALS WITH SPACERS.
2. EACH END OF THE CASING PIPE SHALL BE SEALED WITH A MANUFACTURED WATER TIGHT SEAL.
3. CASING PIPE THICKNESS FOR ALL DIAMETERS SHALL BE 0.375–INCHES.

3 – PROPOSED ENCASED WATER LINE CROSSING UNDER SANITARY SEWER LINE DETAIL (TAC 290.44.E.4.B)

N.T.S.



NOTES:

1. WHERE A NEW POTABLE WATERLINE CROSSES ABOVE A WASTEWATER MAIN OR LATERAL, THE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND MUST BE PERPENDICULAR TO THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST 24" ABOVE AN EXISTING NON PRESSURE RATED, WASTEWATER MAIN OR LATERAL AND AND 6" ABOVE AN EXISTING PRESSURE RATED WASTEWATER MAIN OR LATERAL.

4 – PROPOSED WATER LINE CROSSING OVER PROPOSED WASTEWATER MAIN (TAC 290.44.E.4.B.I)

N.T.S.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F–2144

05-28-18

STATE OF TEXAS
SARAH CROSSLEY
103447
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PROFESSIONAL
ENGINEER

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

WATER LINE
MISCELLANEOUS DETAILS II

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/25/2018
DESIGNED SC
DRAWN DDH
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CHECKED
FILE NAME WTU–BUR–DT–WL02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not, one inch on this sheet, adjust scale.
0 1"

SHEET 233

TOTAL 292

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Last Saved: 5/25/2018 7:28 AM Saved By: 07155

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NOTES:

1. ALL EXISTING UTILITY LOCATIONS ARE BASED ON FIELD INFORMATION AND ON INFORMATION PROVIDED BY THE UTILITY OWNER. OTHER UTILITIES MAY BE IN THE AREA THAT ARE NOT SHOWN. PRIOR TO ANY CONSTRUCTION OR EXCAVATION, THE TEXAS 811 SYSTEM SHALL BE CONTACTED AND UTILITY LOCATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES AND ASCERTAINING WHETHER ANY ADDITIONAL FACILITIES NOT SHOWN ON THE PLANS MAY BE PRESENT.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING UTILITIES, WHETHER IN OR OUT OF THE RIGHT-OF-WAY.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

STATE OF TEXAS
ANNE C. HOSKINS
103447
LICENSED
PROFESSIONAL
ENGINEER

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

OVERALL SANITARY SEWER PLAN AND KEY MAP

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED
FILE NAME GN-BUR-PL-OVR01.dwg

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SHEET 234
TOTAL 292

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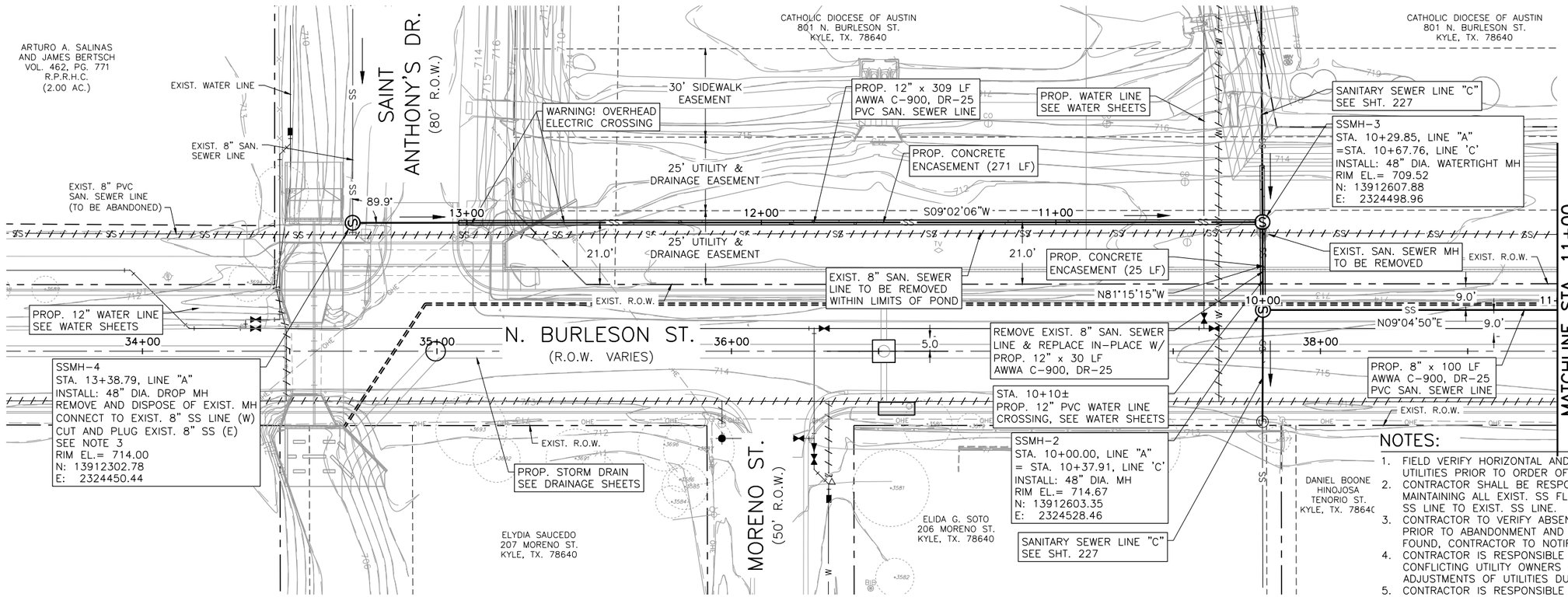

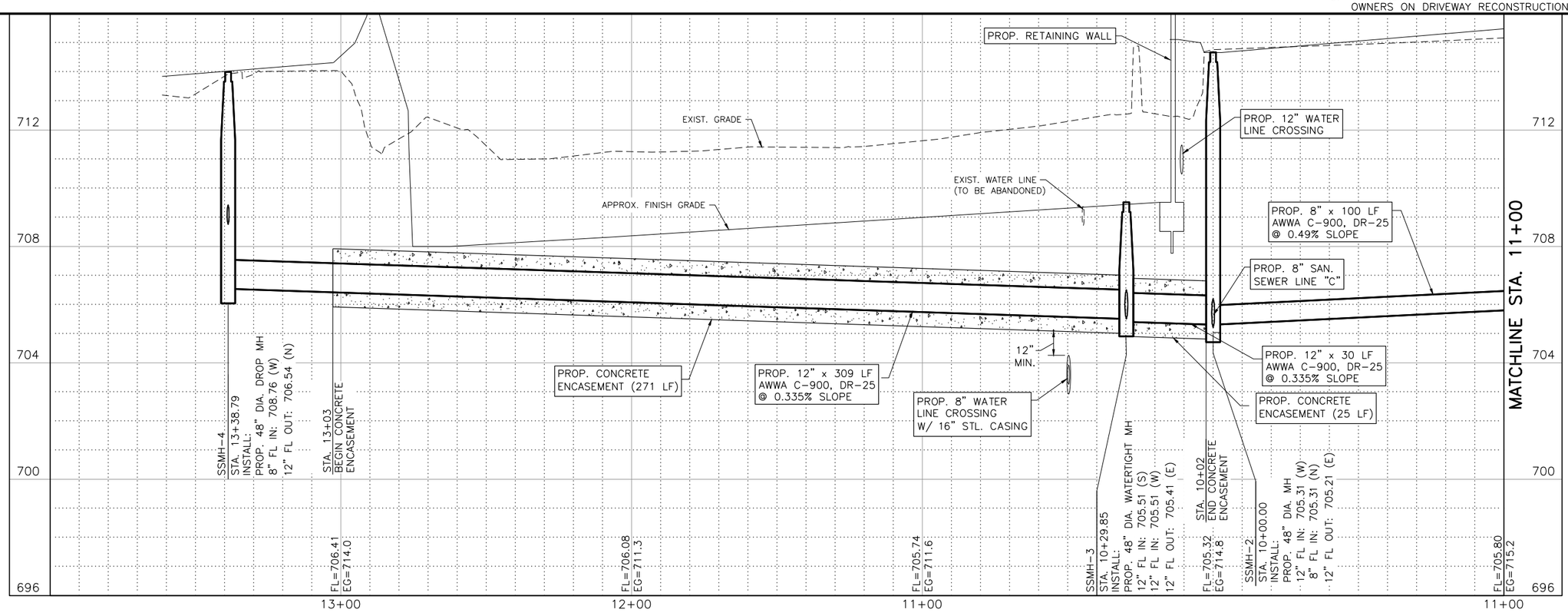

0 20' 40'
SCALE IN FEET HORIZONTAL
0 2' 4'
SCALE IN FEET VERTICAL

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

STATE OF TEXAS
ANNE C. HOSKINS
103447
LICENSED
PROFESSIONAL
ENGINEER

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone - (512) 617-3100
Fax - (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'A' START TO STA. 11+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 235
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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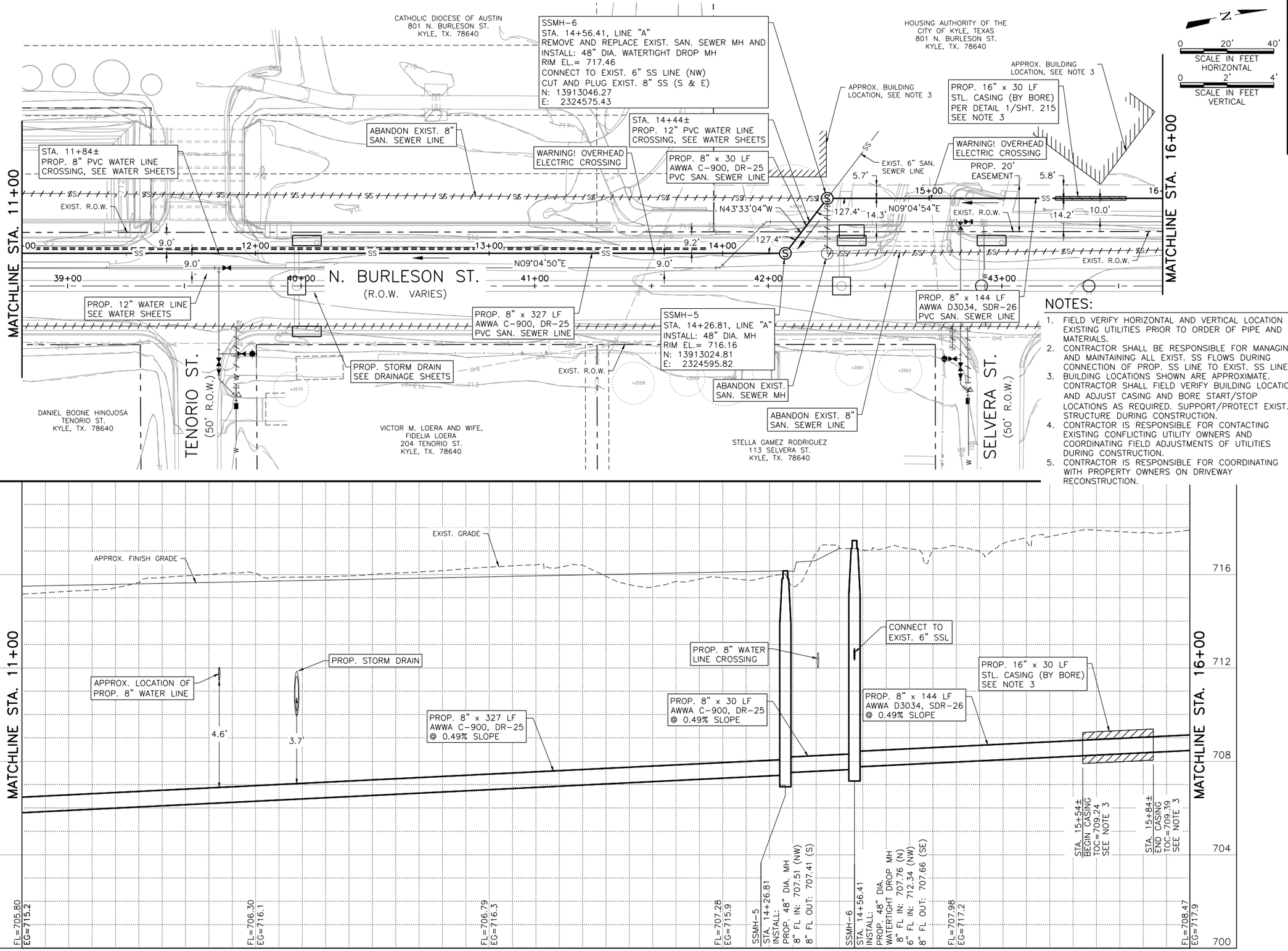
Plot Date: 5/22/2018 9:11 AM Plot By: 07155 Filename: N:\WTU\Drawings\WTU-BUR-PP-SS01.dwg



NOTES:

1. FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES PRIOR TO ORDER OF PIPE AND MATERIALS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXIST. SS FLOWS DURING CONNECTION OF PROP. SS LINE TO EXIST. SS LINE.
3. BUILDING LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY BUILDING LOCATION, AND ADJUST CASING AND BORE START/STOP LOCATIONS AS REQUIRED. SUPPORT/PROTECT EXIST. STRUCTURE DURING CONSTRUCTION.
4. CONTRACTOR IS RESPONSIBLE FOR CONTACTING EXISTING CONFLICTING UTILITY OWNERS AND COORDINATING FIELD ADJUSTMENTS OF UTILITIES DURING CONSTRUCTION.
5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS ON DRIVEWAY RECONSTRUCTION.

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5-22-2018

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'A'
STA. 11+00 TO STA. 16+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED EJC
DRAWN KV
CHECKED ERB
FILE NAME WTU-BUR-PP-SS01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 236
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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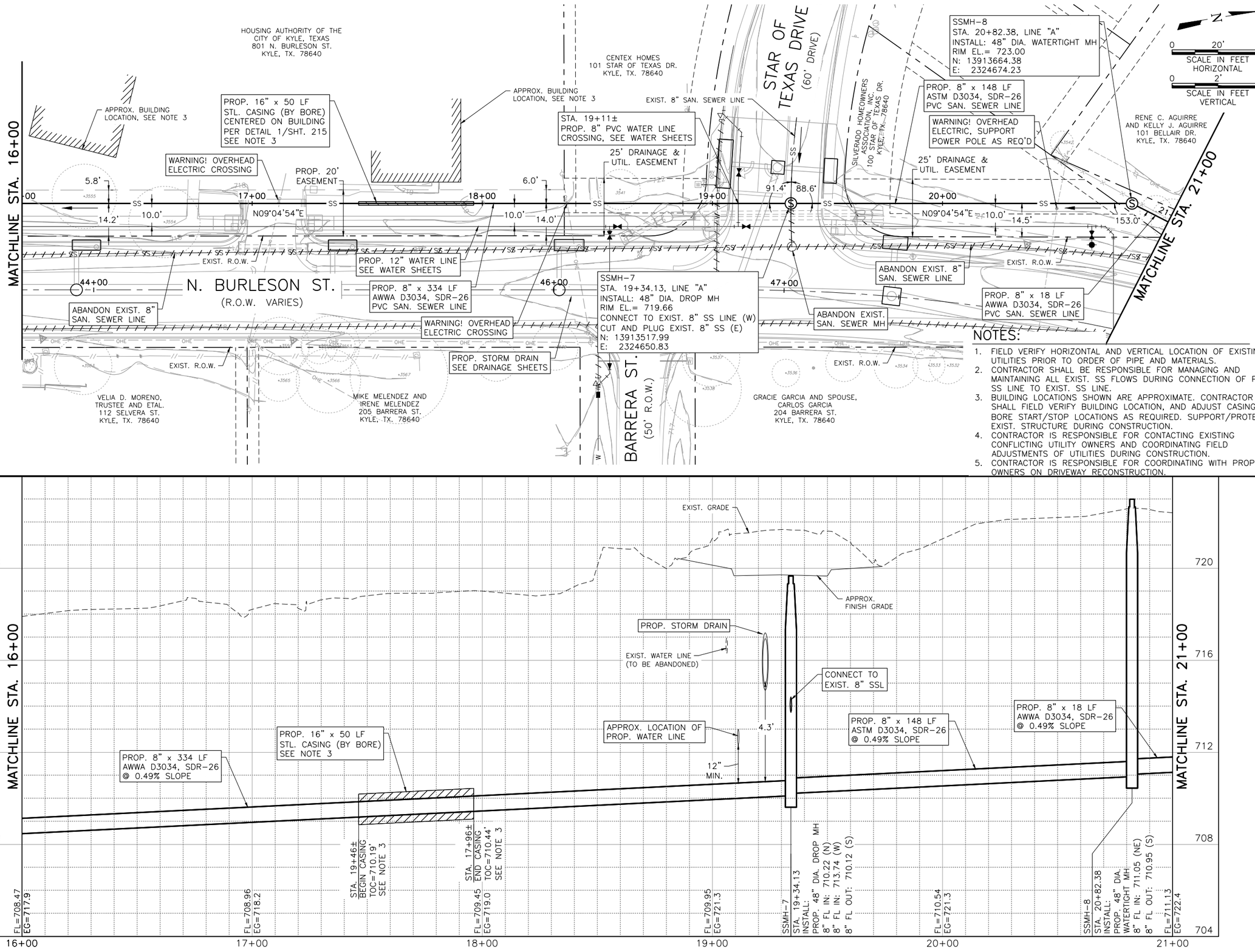

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Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

STATE OF TEXAS · SARAH CHRISTINE · 103447 · LICENSED PROFESSIONAL ENGINEER

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'A'
STA. 16+00 TO STA. 21+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 237
TOTAL 292

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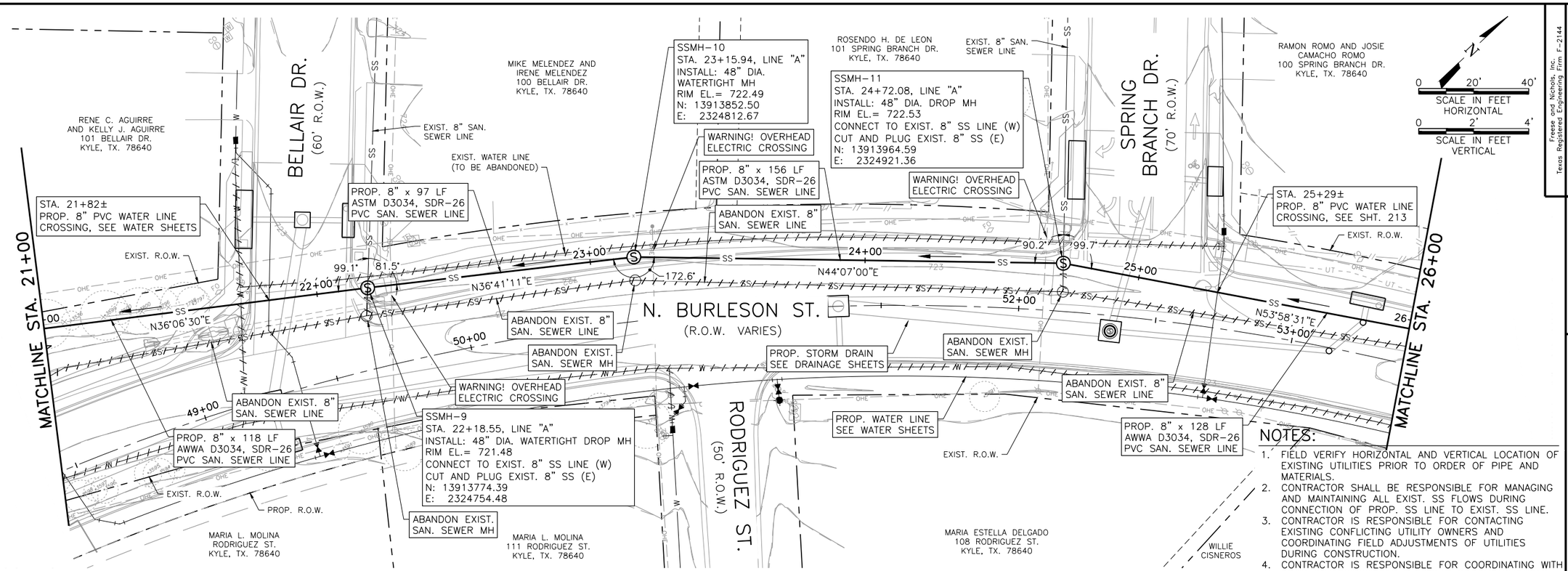

NOTES:

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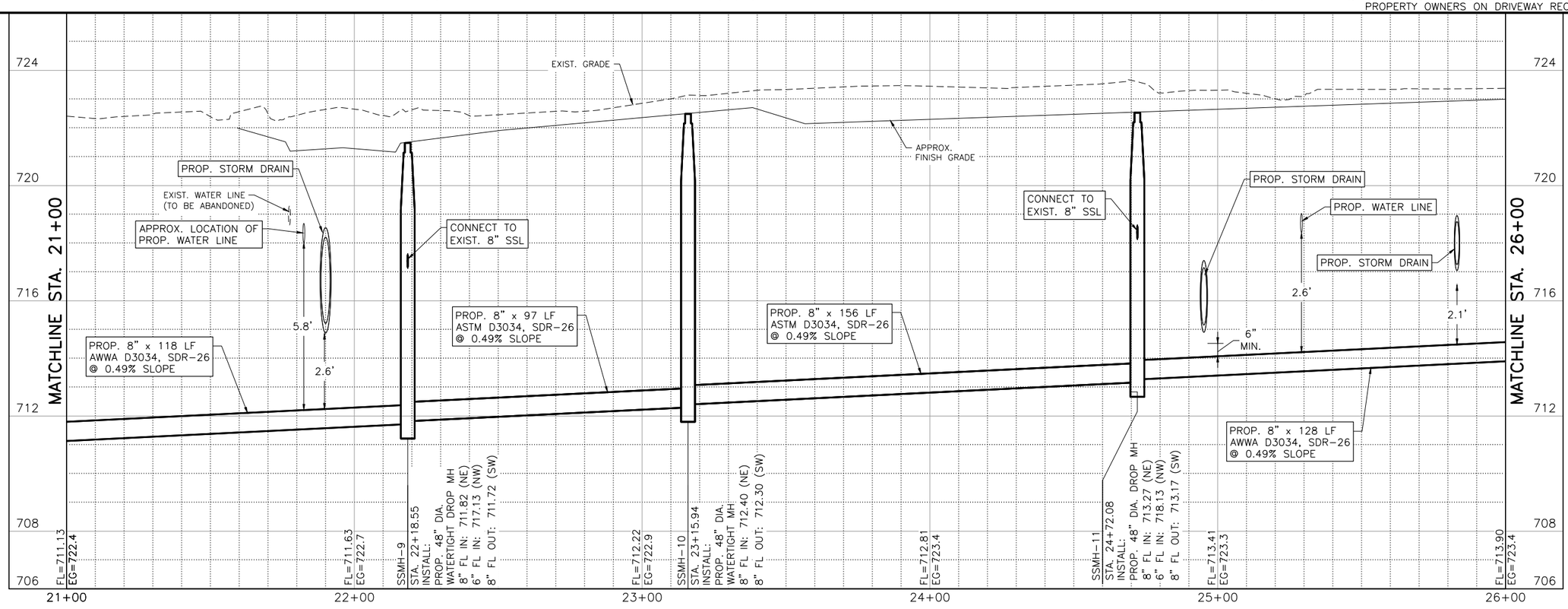

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

STATE OF TEXAS
SARAH CHAMBERS
103447
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PROFESSIONAL
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'A'
STA. 21+00 TO STA. 26+00

F&N JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
CHECKED	ERB
FILE NAME	WTU-BUR-PP-SS01.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 238

TOTAL 292

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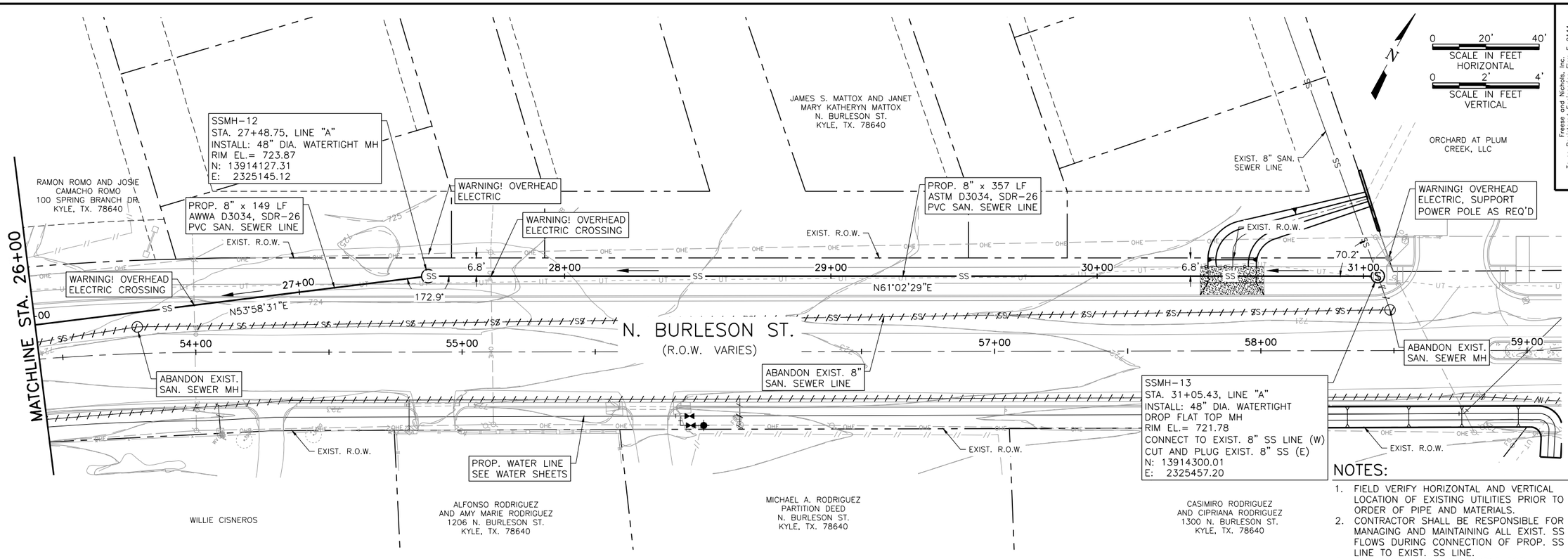

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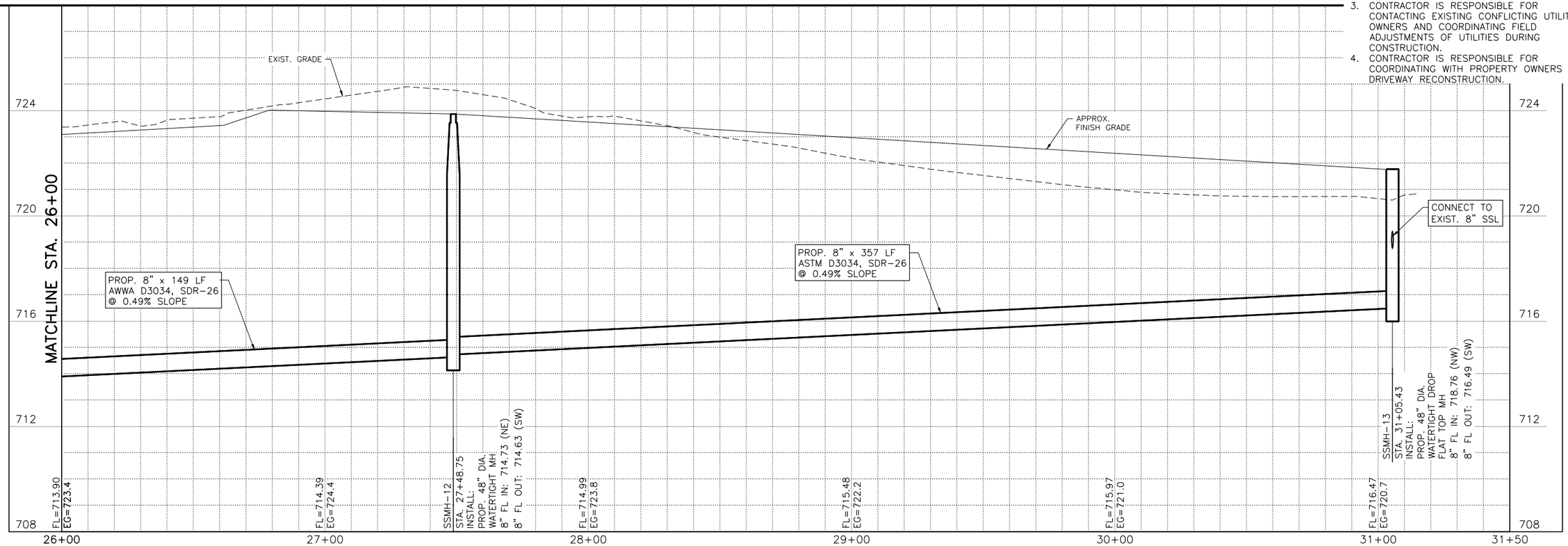

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

STATE OF TEXAS
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103447
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'A'
STA. 26+00 TO END

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS01.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 239
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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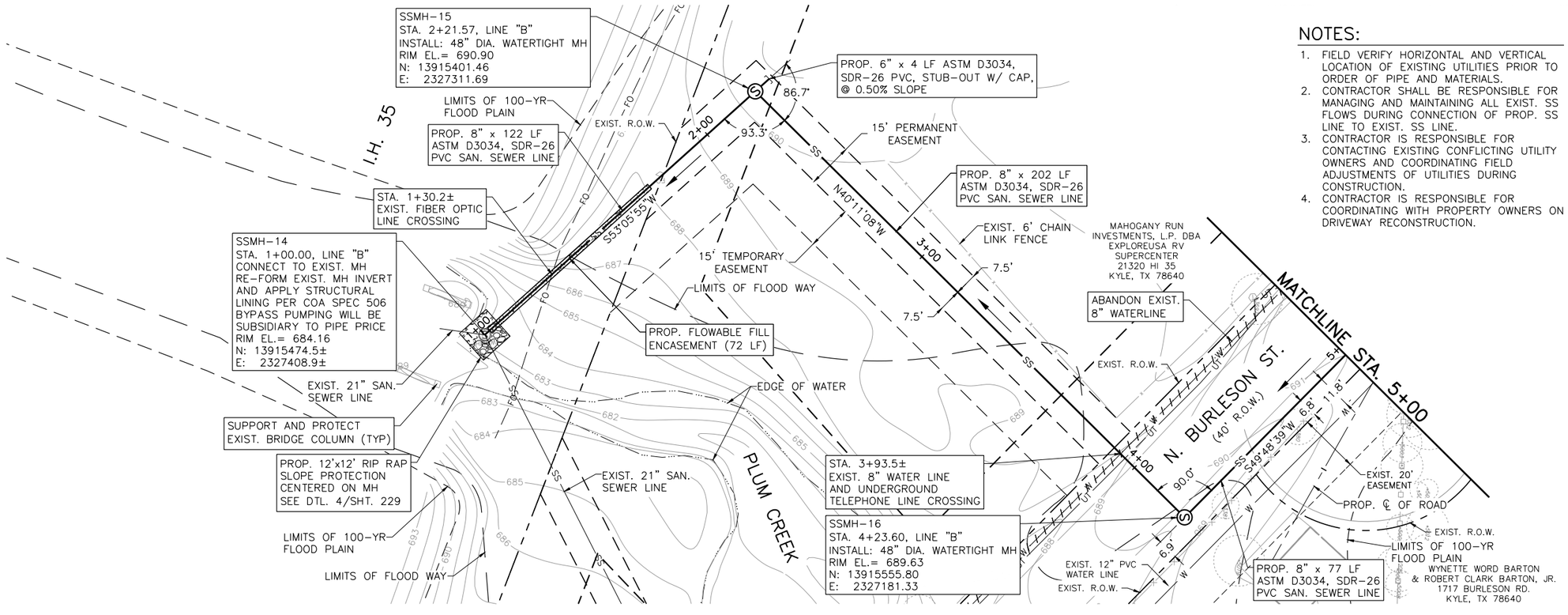

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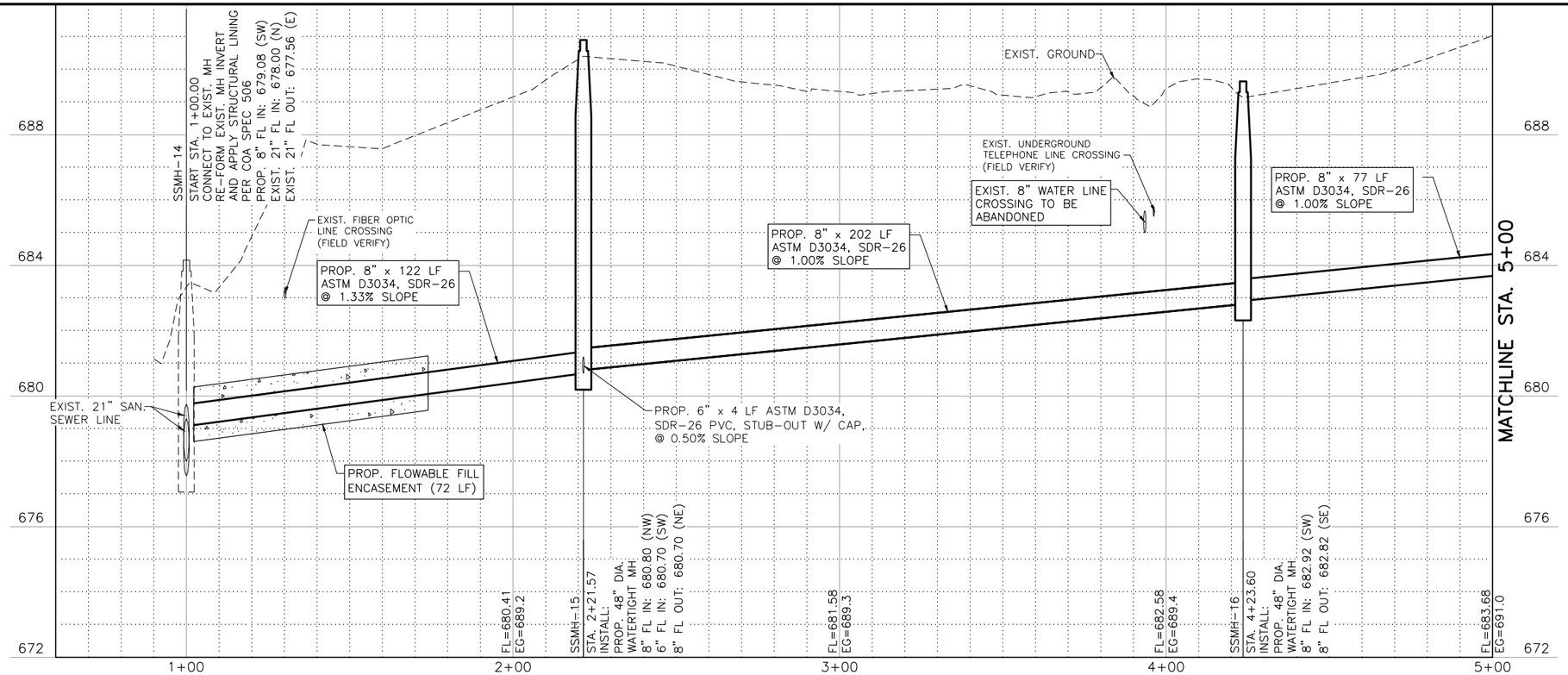
N

0 20' 40'
SCALE IN FEET
HORIZONTAL

0 2' 4'
SCALE IN FEET
VERTICAL



Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

STATE OF TEXAS
JAMES M. MCCLENDON
103447
LICENSED
PROFESSIONAL
ENGINEER
5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'B'
STA. 1+00 TO STA. 5+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 240
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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Last Saved: 5/22/2018 8:52 AM Saved By: 07155

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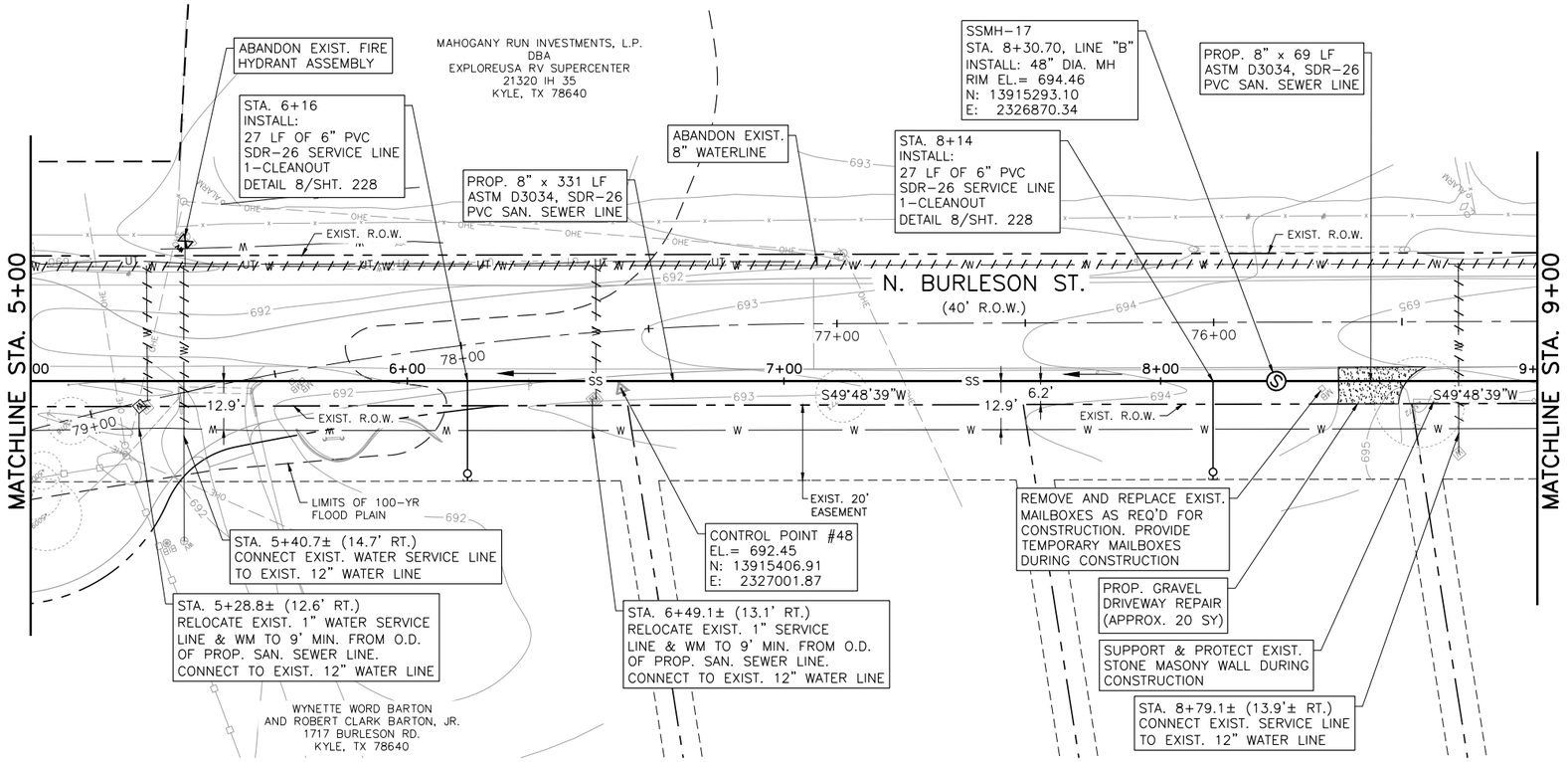

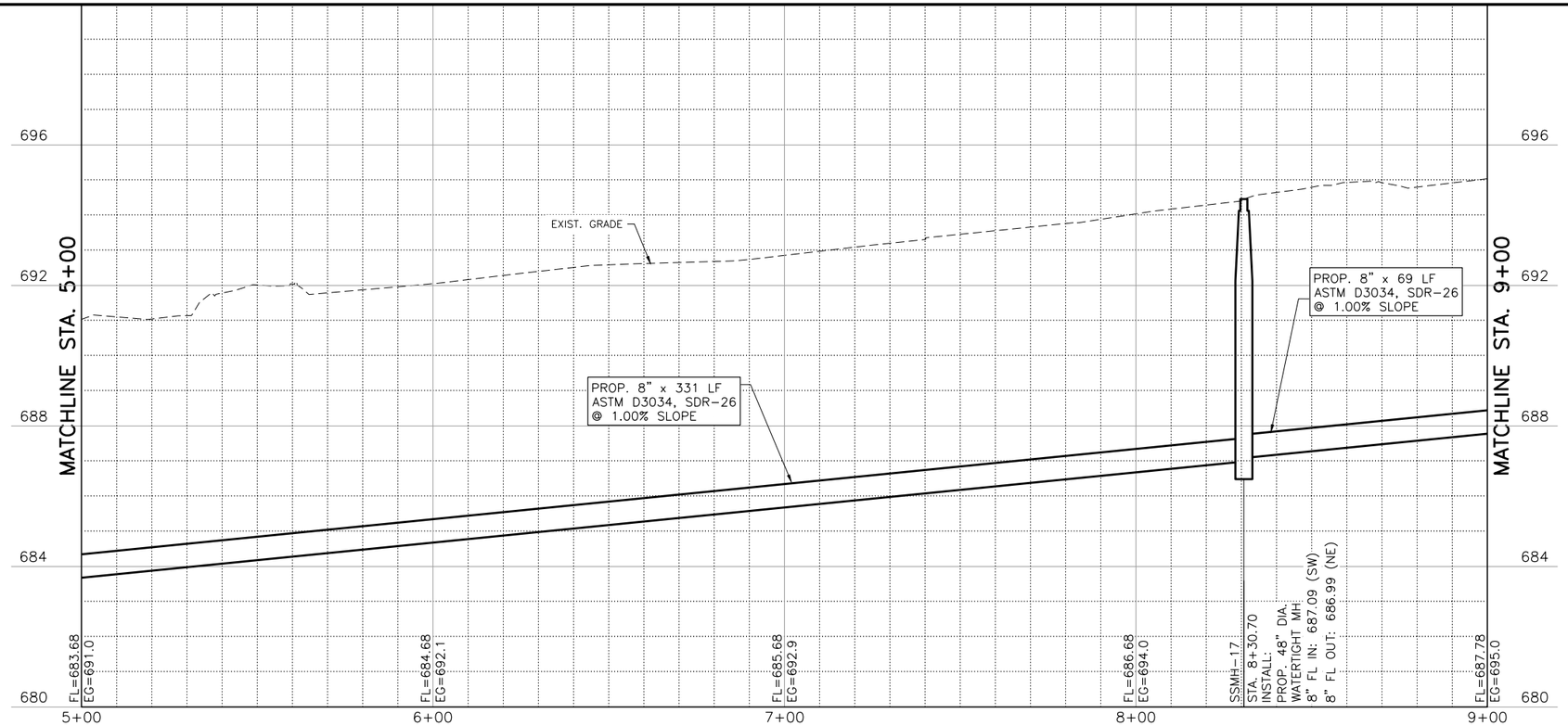

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5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS ON DRIVEWAY RECONSTRUCTION.

SCALE IN FEET HORIZONTAL: 0, 20', 40'
SCALE IN FEET VERTICAL: 0, 2', 4'

Freese and Nichols, Inc.
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Austin, Texas 78759
Phone - (512) 617-3100
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5-22-2018

STATE OF TEXAS — DANIEL D. HARRIS — 103447 — LICENSED PROFESSIONAL ENGINEER

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SANITARY SEWER LINE 'B'
STA. 5+00 TO STA. 9+00

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED SC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS02.dwg

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 241
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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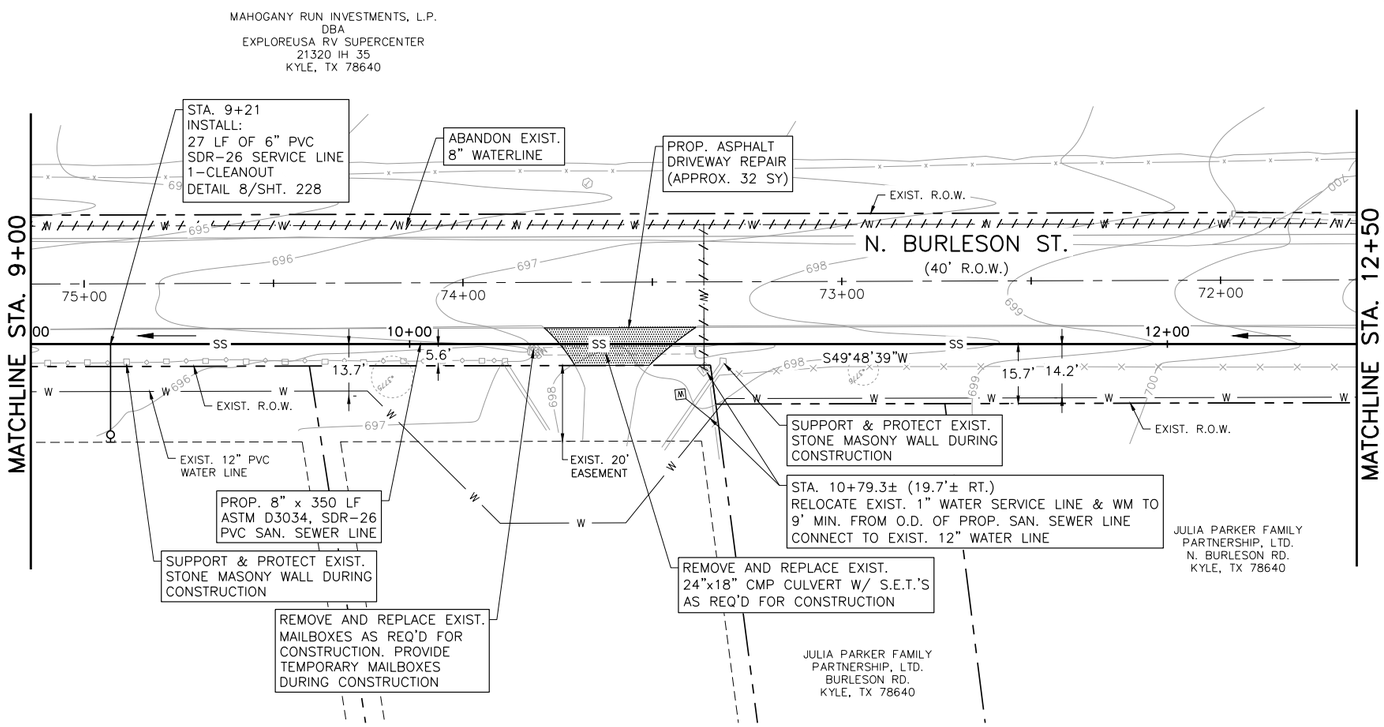

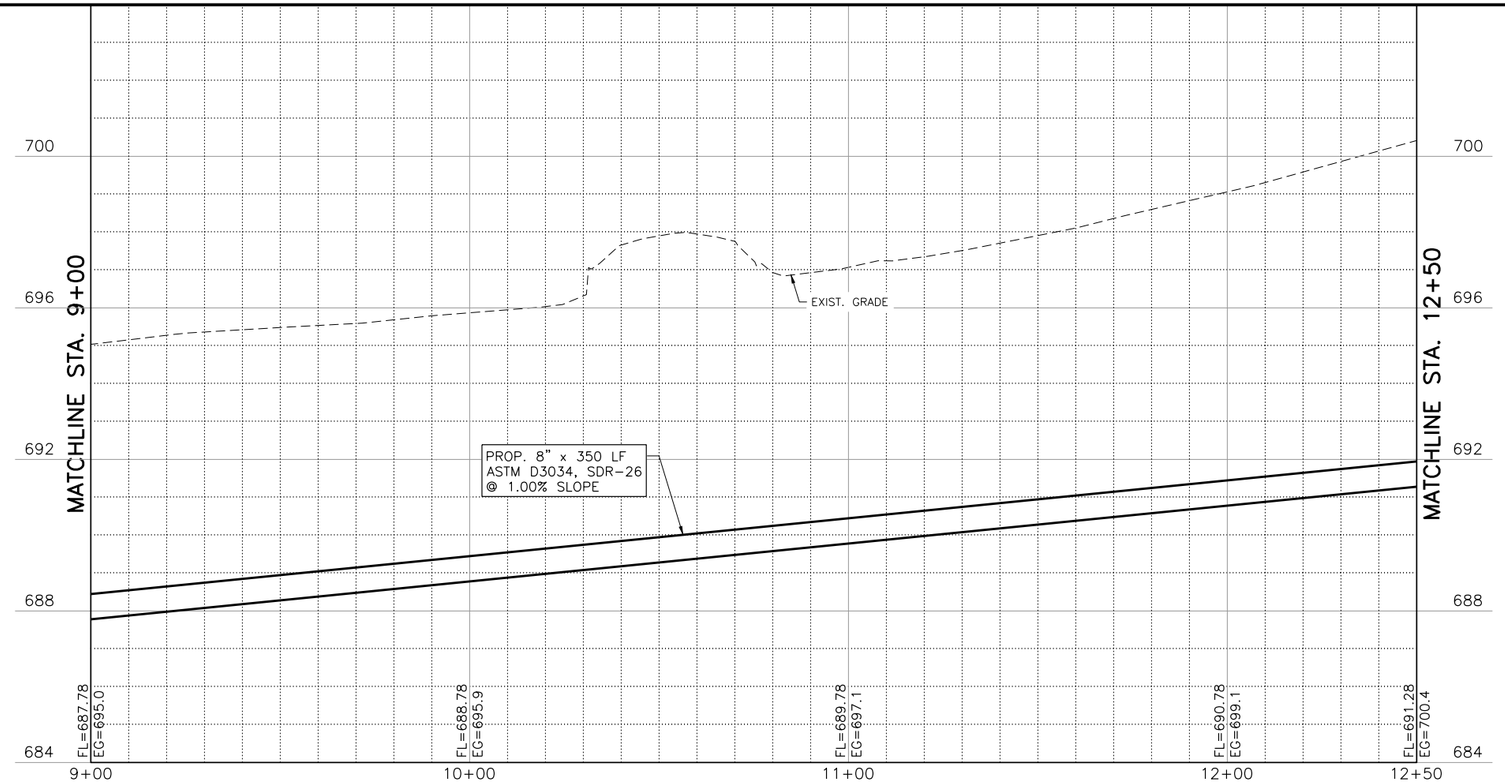

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SCALE IN FEET HORIZONTAL: 0 20' 40'
SCALE IN FEET VERTICAL: 0 2' 4'

5-22-2018

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144
STATE OF TEXAS
ANNE C. HOSKINS
103447
LICENSED
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'B'
STA. 9+00 TO STA. 12+50

F&N JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
CHECKED	ERB
FILE NAME	WTU-BUR-PP-SS02.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 242
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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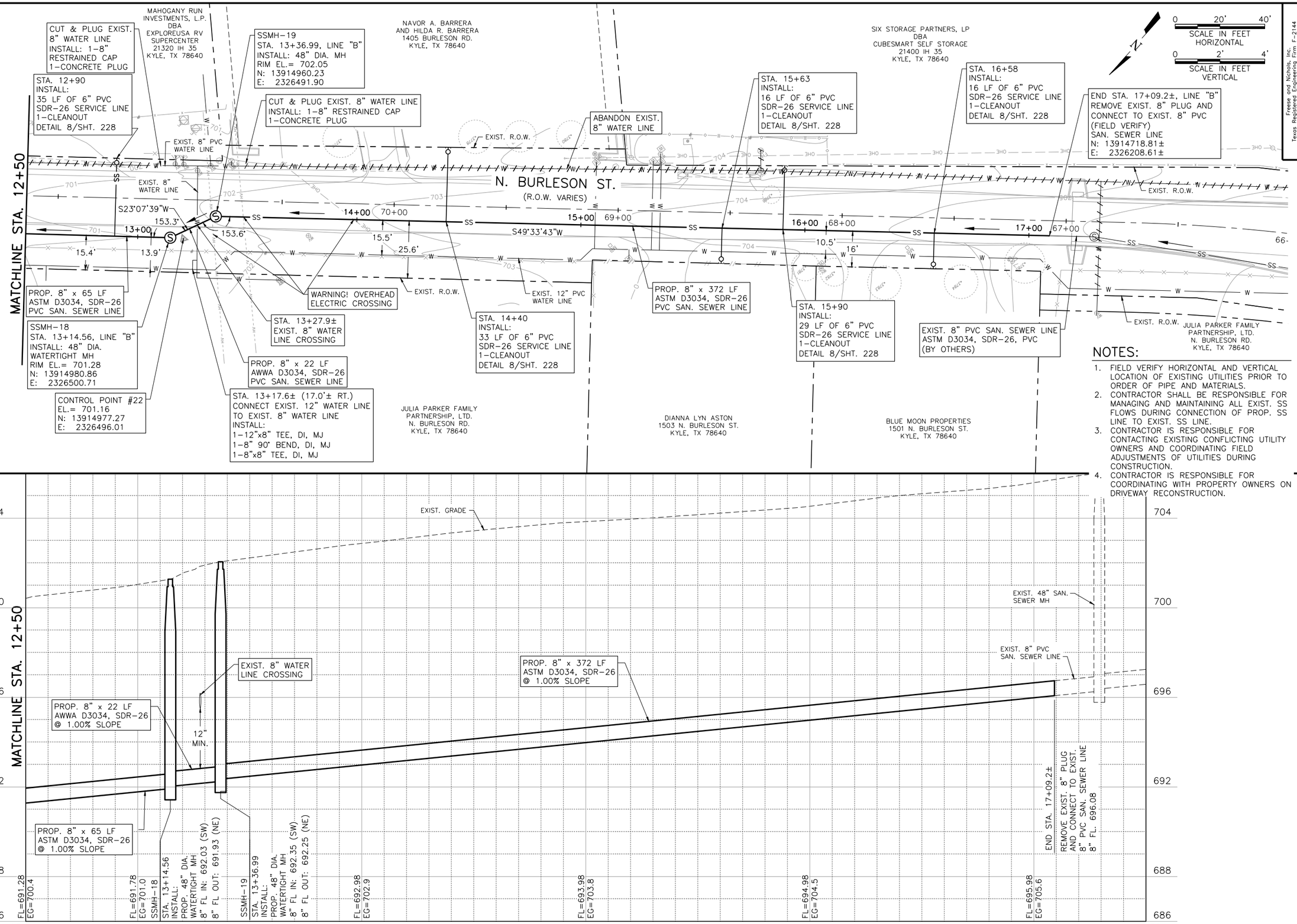

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5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'B'
STA. 12+50 TO END

NO.	REVISION	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/2018
DESIGNED EJC
DRAWN DDH
REVISED
CHECKED ERB
FILE NAME WTU-BUR-PP-SS02.dwg

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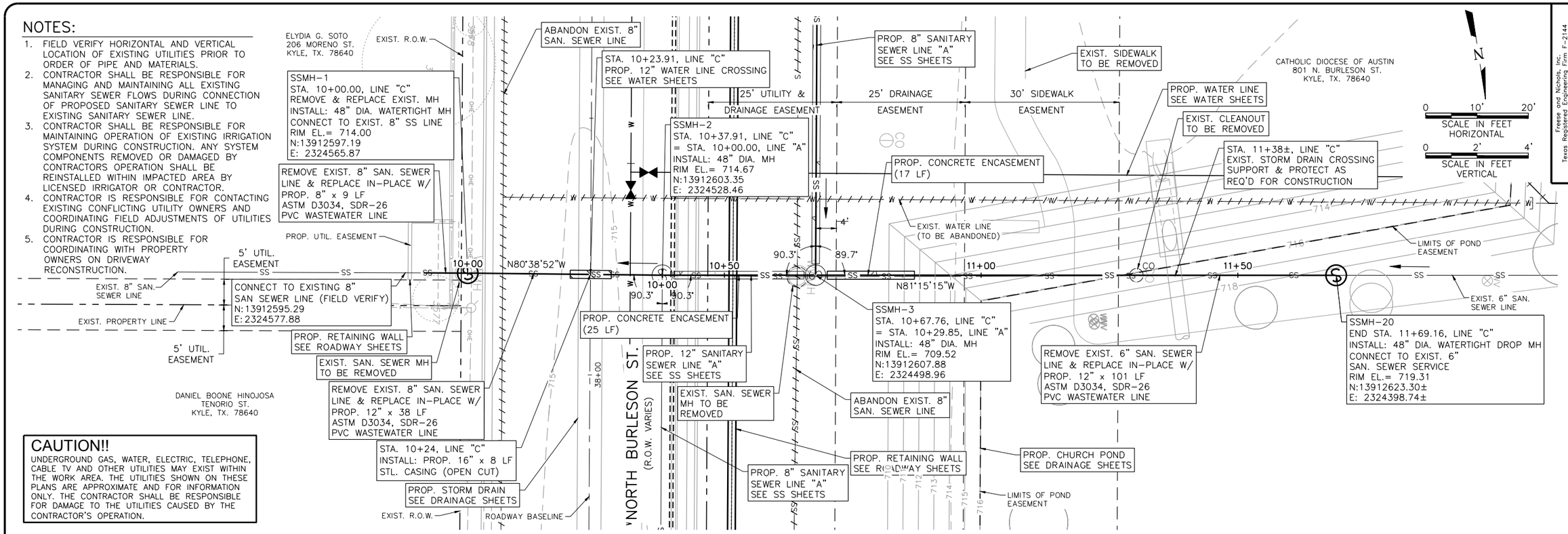
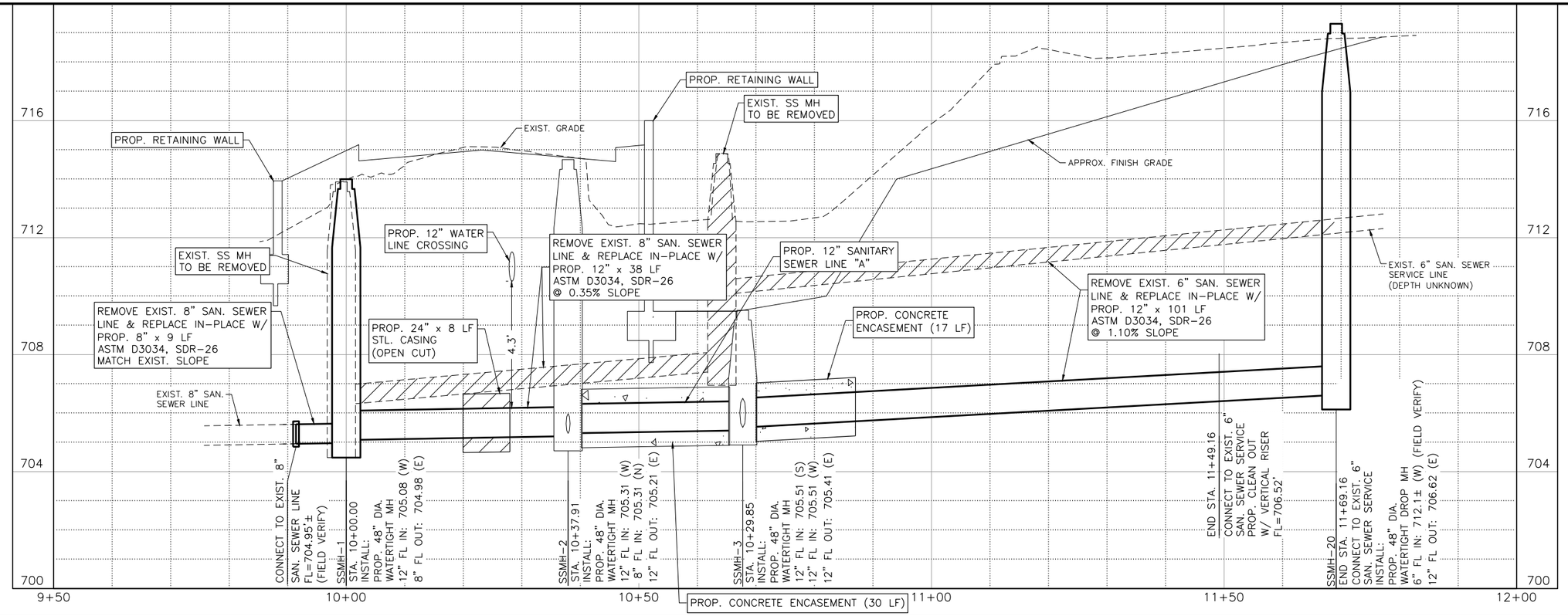
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING ALL EXISTING SANITARY SEWER FLOWS DURING CONNECTION OF PROPOSED SANITARY SEWER LINE TO EXISTING SANITARY SEWER LINE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF EXISTING IRRIGATION SYSTEM DURING CONSTRUCTION. ANY SYSTEM COMPONENTS REMOVED OR DAMAGED BY CONTRACTORS OPERATION SHALL BE REINSTALLED WITHIN IMPACTED AREA BY LICENSED IRRIGATOR OR CONTRACTOR.
4. CONTRACTOR IS RESPONSIBLE FOR CONTACTING EXISTING CONFLICTING UTILITY OWNERS AND COORDINATING FIELD ADJUSTMENTS OF UTILITIES DURING CONSTRUCTION.
5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH PROPERTY OWNERS ON DRIVEWAY RECONSTRUCTION.

CAUTION!!
UNDERGROUND GAS, WATER, ELECTRIC, TELEPHONE, CABLE TV AND OTHER UTILITIES MAY EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.





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5-22-2018

STATE OF TEXAS — 103447 — LICENSED PROFESSIONAL ENGINEER

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE 'C' STA. 10+00 TO END

FAN JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
CHECKED	DTB
FILE NAME	WTU-BUR-PP-SS03.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 244
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\WTU\Drawings\WTU-BUR-PP-SS03.dwg
Last Saved: 5/18/2018 11:27 AM Saved By: 07155

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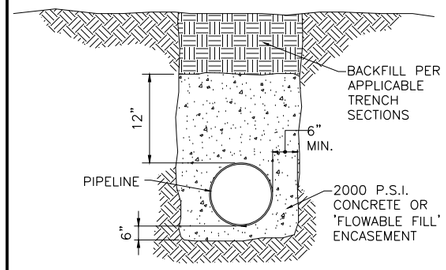
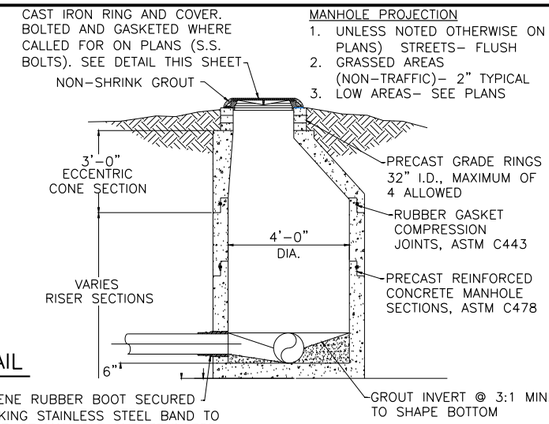


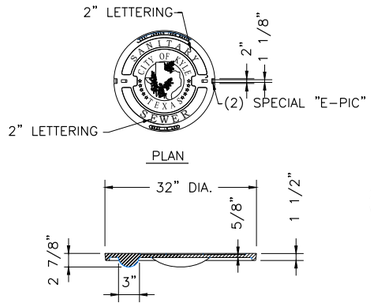
1 CONCRETE ENCASEMENT DETAIL
N.T.S.



MANHOLE PROJECTION
1. UNLESS NOTED OTHERWISE ON PLANS) STREETS- FLUSH
2. GRASSED AREAS (NON-TRAFFIC)- 2" TYPICAL
3. LOW AREAS- SEE PLANS

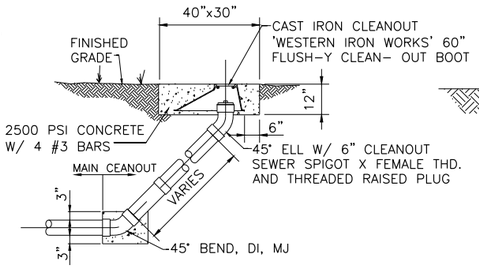
NOTES:
1. CONCRETE BOTTOMS SHALL BE PRECAST WITH FLOWLINE AS SPECIFIED ON PLANS.
2. CAST-IN PLACE BOTTOMS ARE ALLOWABLE WITH PIPES 18" DIAMETER AND LARGER.

2 TYPICAL MANHOLE
N.T.S.



EAST JORDAN IRON WORKS PRODUCT NO. 41432027 WITH PICK SLOT OR PRODUCT NO. 42432008, BOLTED

3 MANHOLE COVER
N.T.S.



4 SEWER MAIN CLEANOUT
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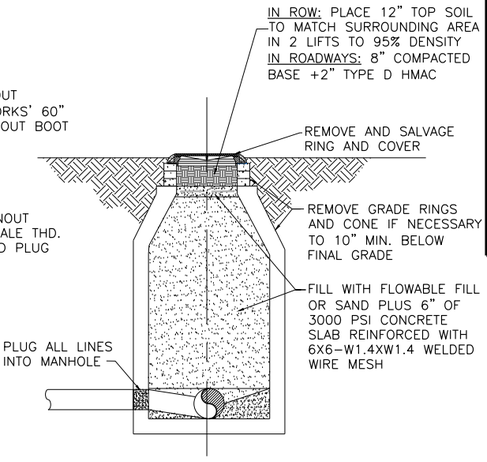

5 ABANDON MANHOLE
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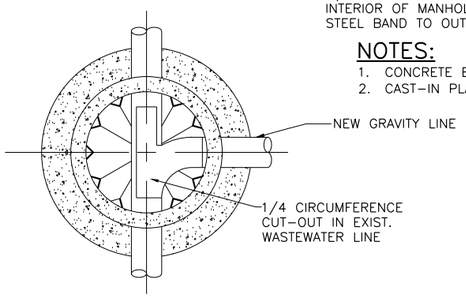
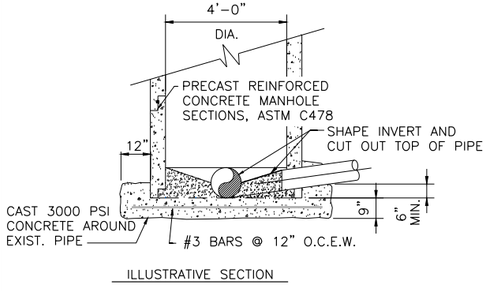
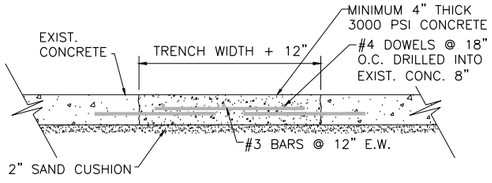


PLAN

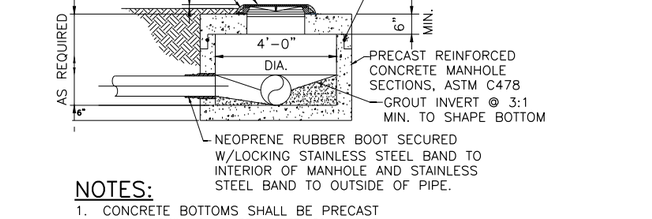


ILLUSTRATIVE SECTION

6 CAST-IN-PLACE MANHOLE BOTTOM
N.T.S.



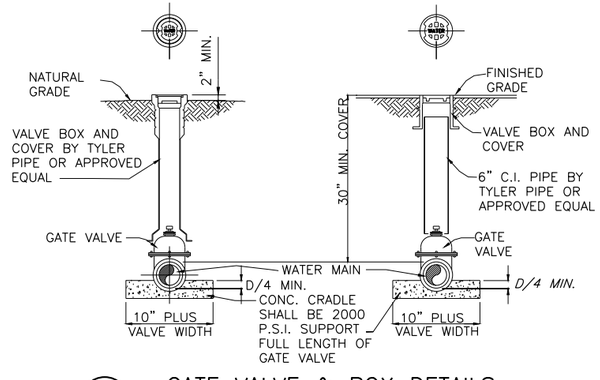
9 CONCRETE REPAIR
N.T.S.



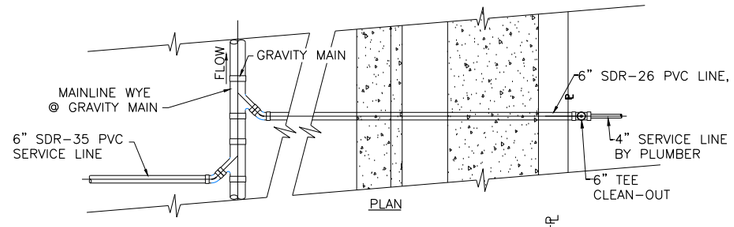
MANHOLE PROJECTION
(UNLESS NOTED OTHERWISE ON PLANS)
1. STREETS- FLUSH
2. GRASSED AREAS (NON-TRAFFIC) - 2" TYPICAL
3. LOW AREAS- SEE PLANS

NOTES:
1. CONCRETE BOTTOMS SHALL BE PRECAST WITH FLOWLINE AS SPECIFIED ON PLANS.
2. CAST-IN PLACE BOTTOMS ARE ALLOWABLE WITH PIPES 18" DIAMETER AND LARGER.

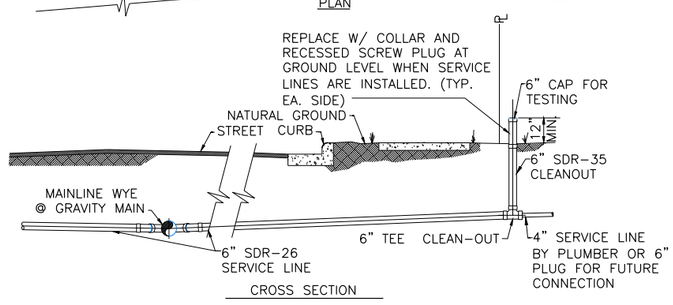
7 FLAT-TOP MANHOLE
N.T.S.



10 GATE VALVE & BOX DETAILS
N.T.S.



PLAN



CROSS SECTION

8 WASTEWATER SERVICE CONNECTION
N.T.S.

NOTES:
1. WASTEWATER SERVICE TO BE LOCATED AS SHOWN ON THE PLANS.
2. PROVIDE MINIMUM 2' SEPARATION BETWEEN OD'S OF SERVICE CONNECTION AND WATER LINES.

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
CIVIL
SANITARY SEWER LINE MISCELLANEOUS DETAILS I

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
CHECKED	
FILE NAME	WTU-BUR-DT-MISC01.dwg

SHEET 245
TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
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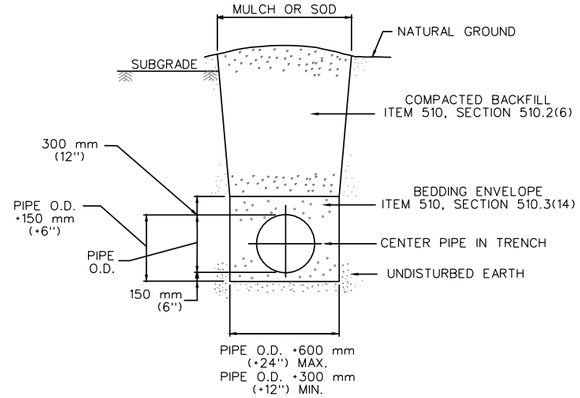
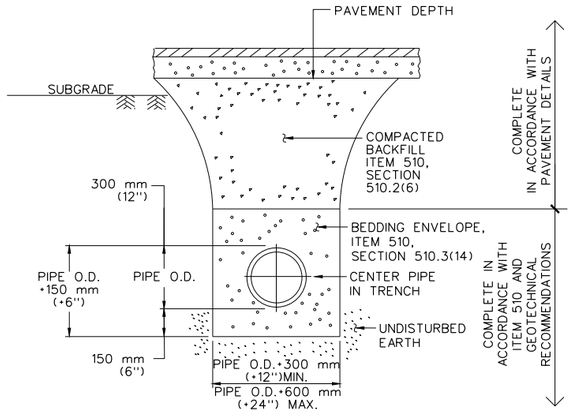


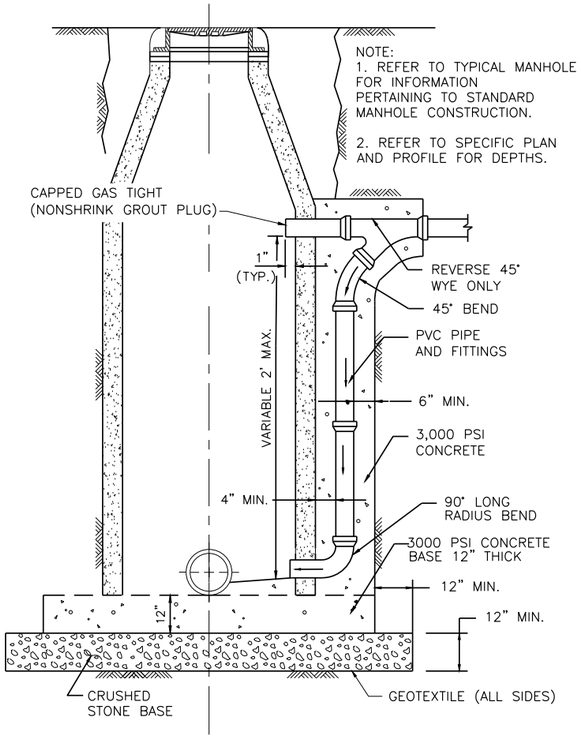
1 TRENCH DETAIL – UNFINISHED SURFACE

N.T.S.



2 TRENCH DETAIL – FINISHED SURFACE

N.T.S.

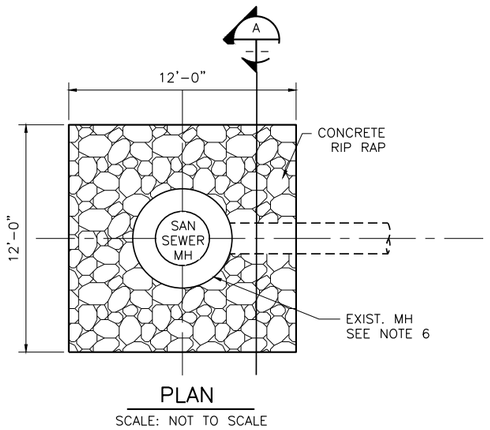


3 STANDARD DROP CONNECTION

N.T.S.

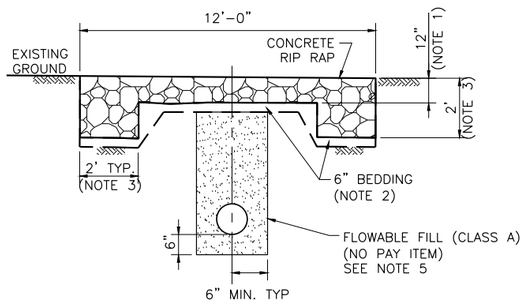
NOTES:

1. CONCRETE RIP RAP SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 12", CONCRETE RIP RAP SHALL BE PER TXDOT ITEM 432.
2. BEDDING SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 6". GEOTEXTILE FABRIC MAY BE USED IN PLACE OF BEDDING WITH ENGINEER APPROVAL.
3. THE CONCRETE RIP RAP SHALL BE CONTINUOUS. A TOE WILL BE CONSTRUCTED ALONG THE SIDES OF THE RIP RAP. THE RIP RAP TOE WILL HAVE A MINIMUM DEPTH AND WIDTH OF 2 TIMES THE MINIMUM THICKNESS OF THE ROCK RIP RAP SPECIFIED. THE FINISHED SURFACE OF THE RIP RAP SHALL NOT EXTEND ABOVE PRE CONSTRUCTION GRADE.
4. RIP RAP SHALL BE PLACED ON THE NATURAL SLOPE.
5. INSTALL FLOWABLE FILL BACKFILL IN MAXIMUM 12" LIFTS.
6. SUPPORT/PROTECT EXIST. MH DURING CONSTRUCTION. ENSURE RIP RAP PLACEMENT WILL NOT OBSTRUCT OPERATIONS AND MAINTENANCE OF MANHOLE, INCLUDING OPENING AND CLOSING OF MANHOLE COVER.



PLAN

SCALE: NOT TO SCALE



SECTION "A"

SCALE: NOT TO SCALE

4 RIP-RAP SLOPE PROTECTION DETAILS

SCALE: NOT TO SCALE

Freese and Nichols, Inc.
Texas Registered Engineering Firm F-2144

5-22-2018

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SANITARY SEWER LINE
MISCELLANEOUS DETAILS II

F&N JOB NO.	KYL14284
DATE	5/22/2018
DESIGNED	SC
DRAWN	DDH
REVISED	
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FILE NAME	WTU-BUR-DT-MISC01.dwg

NO.	REVISION	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

0 1"

SHEET 246

TOTAL 292

ACAD Rel: 21.0s (LMS Tech)
Filename: N:\WTU\Drawings\WTU-BUR-DT-MISC01.dwg
Last Saved: 5/17/2018 3:35 PM Saved By: 02568

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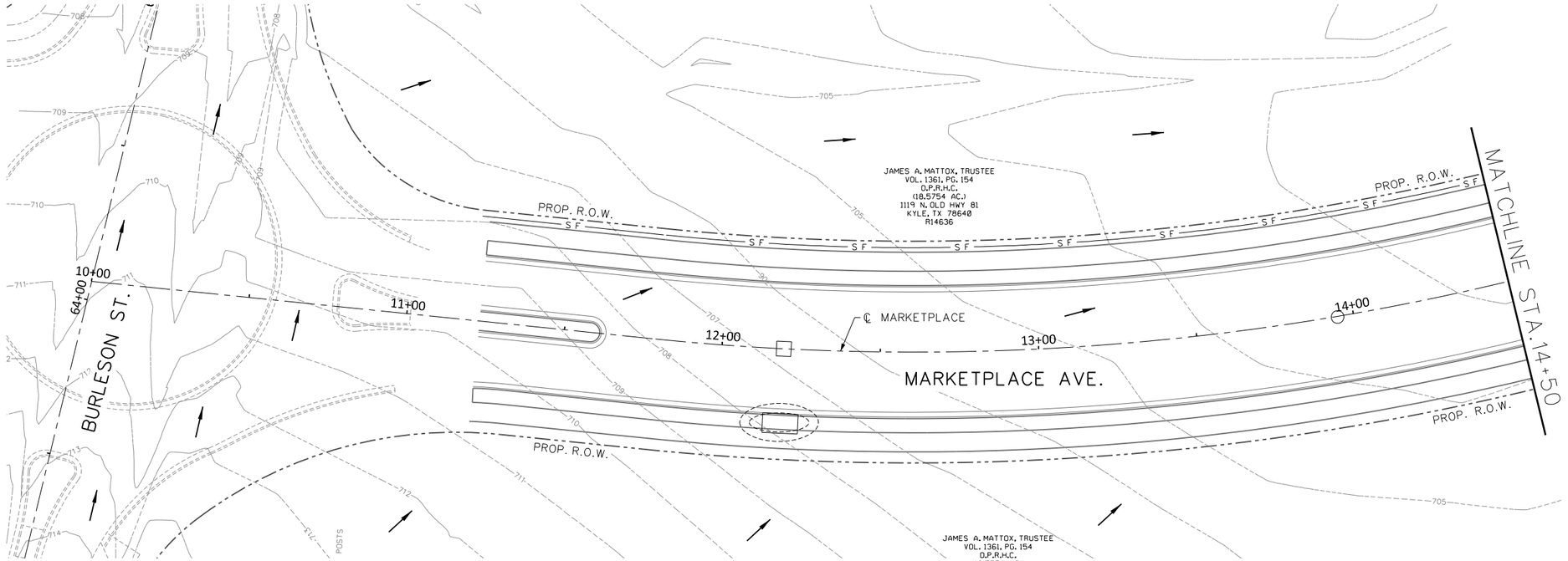

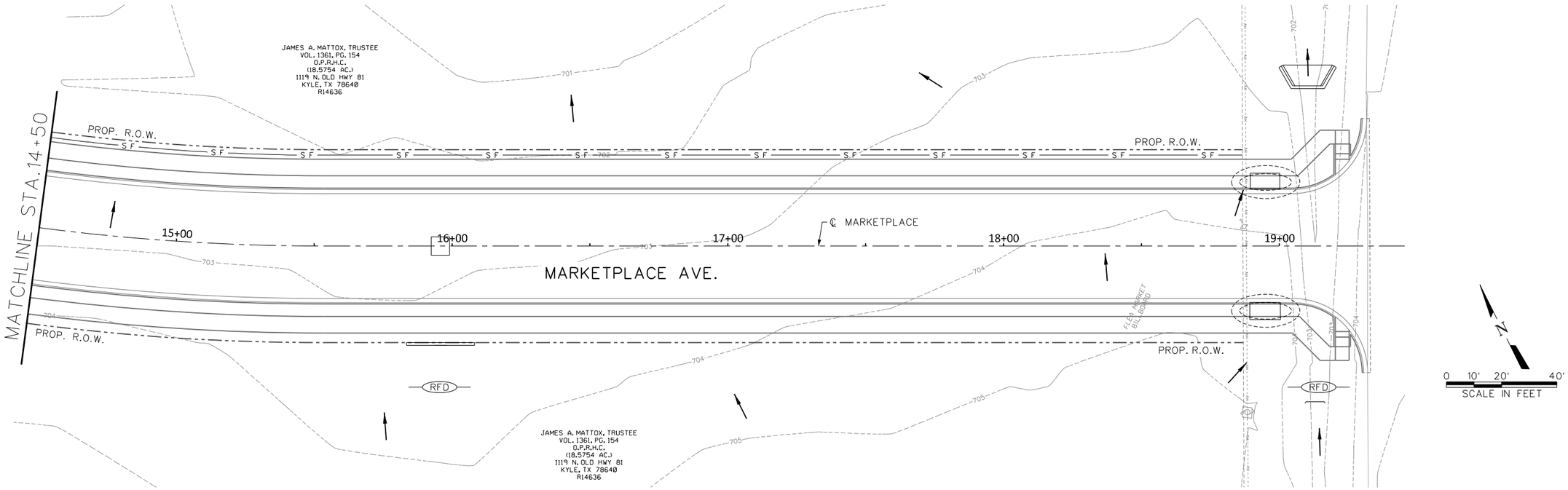

LEGEND

- SF — SILT FENCE
- FLOW ARROW
- INLET PROTECTION
- RFD — ROCK FILTER DAM

0 10' 20' 40'
SCALE IN FEET

ADDITIVE ALTERNATE

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 1
STA.10+00 TO STA.19+31.11

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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PROFESSIONAL ENGINEER
5/22/2018

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FNI JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-SW3P PHASE0101.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

NO. | ISSUES | BY | DATE

SHEET 247
TOTAL 292

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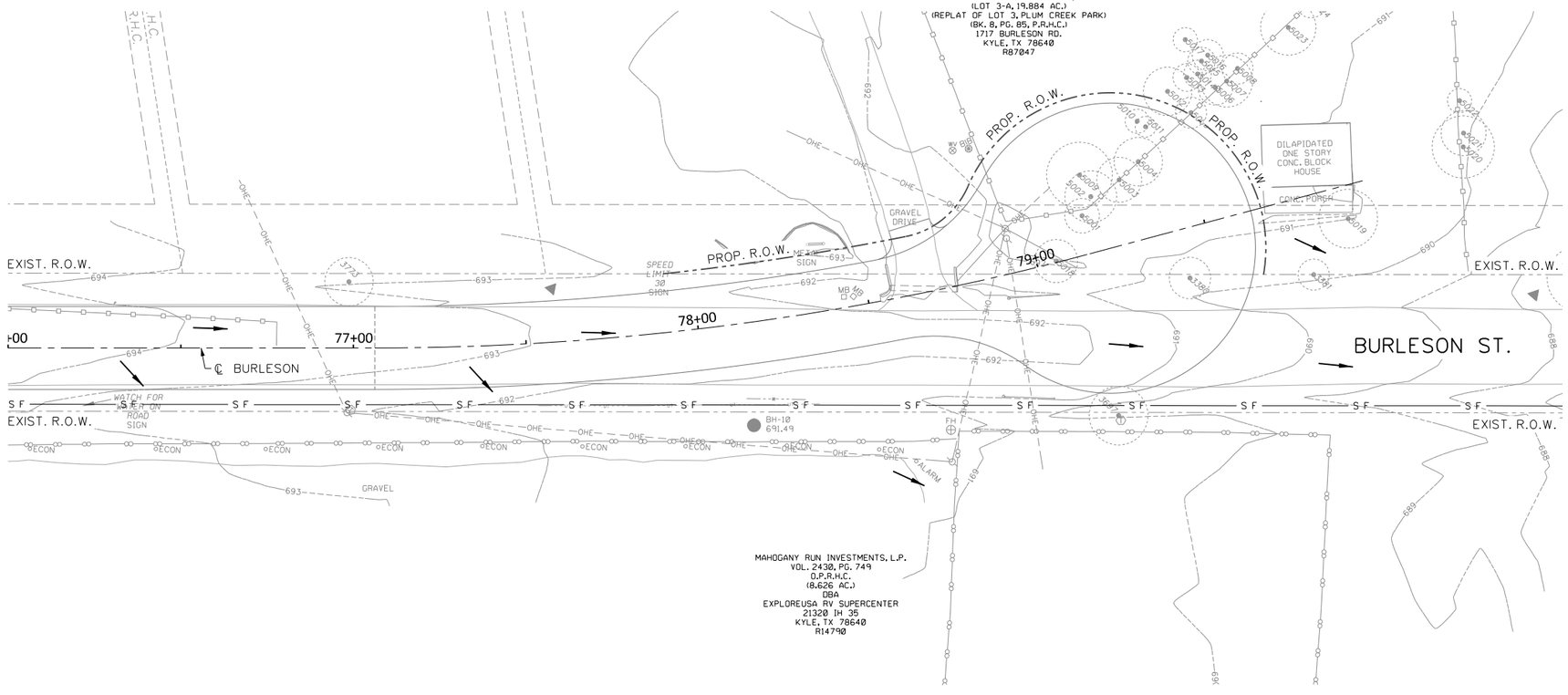

LEGEND

- SF — SILT FENCE
- FLOW ARROW
- INLET PROTECTION
- RFD — ROCK FILTER DAM

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 2
STA.66+00 TO STA.74+00

NO.	ISSUES	BY	DATE

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F&N JOB NO.	KYL14284
DATE	5/22/18
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REVISED	
CHECKED	TRPM/S
FILE NAME	CV-TRT-PL-SW3P PHASE0201.sht

SHEET 248
TOTAL 292

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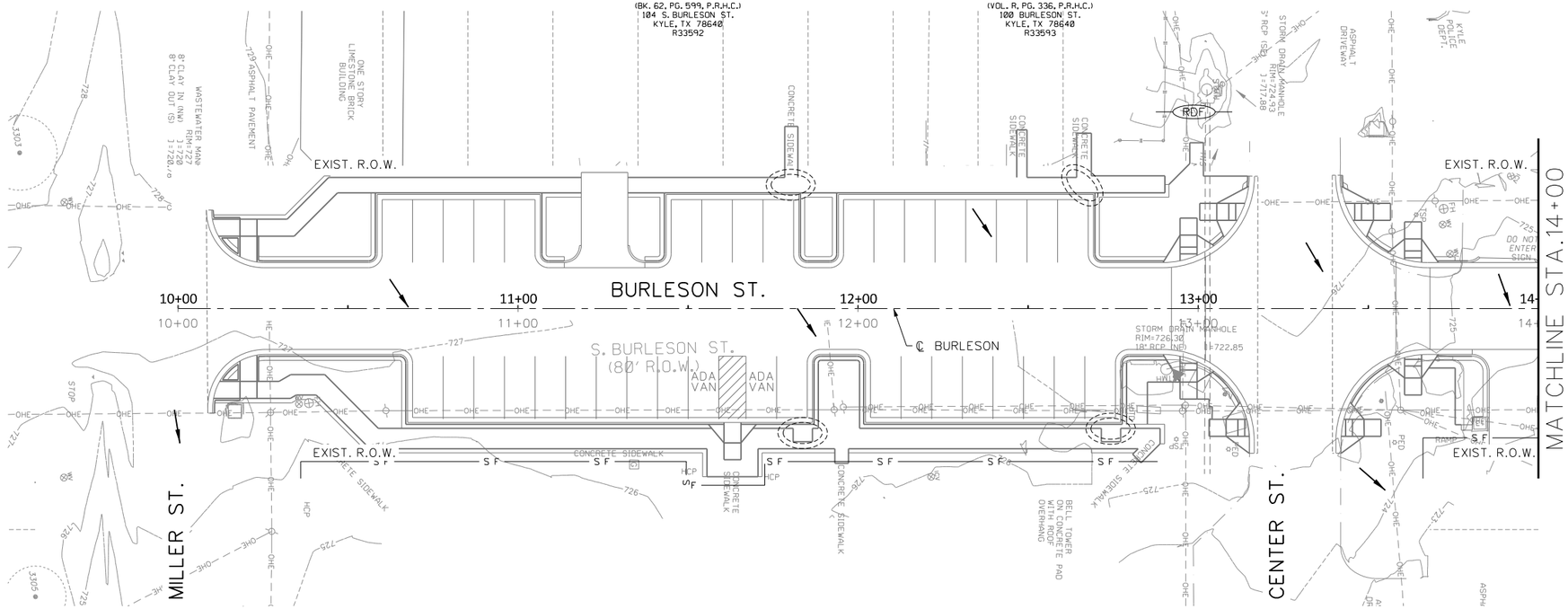

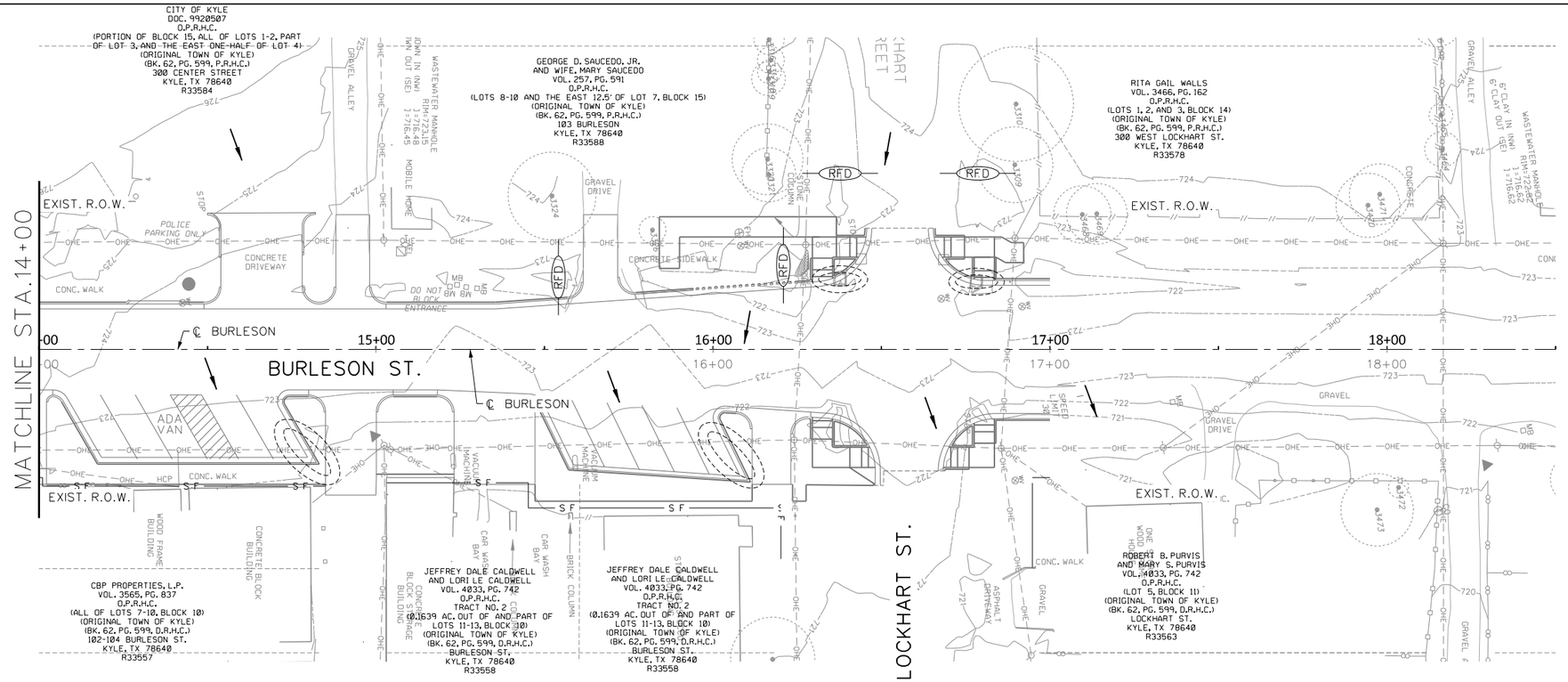

LEGEND

- SF — SILT FENCE
- FLOW ARROW
- INLET PROTECTION
- RFD — ROCK FILTER DAM

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
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CIVIL

SW3P PHASE 3
STA.10+00 TO STA.18+50

NO.	ISSUES	BY	DATE

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DATE	5/22/18
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REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-SW3P PHASE0301.sht

SHEET
249
TOTAL
292

MicroStation V8 User: 02590Office: Austin
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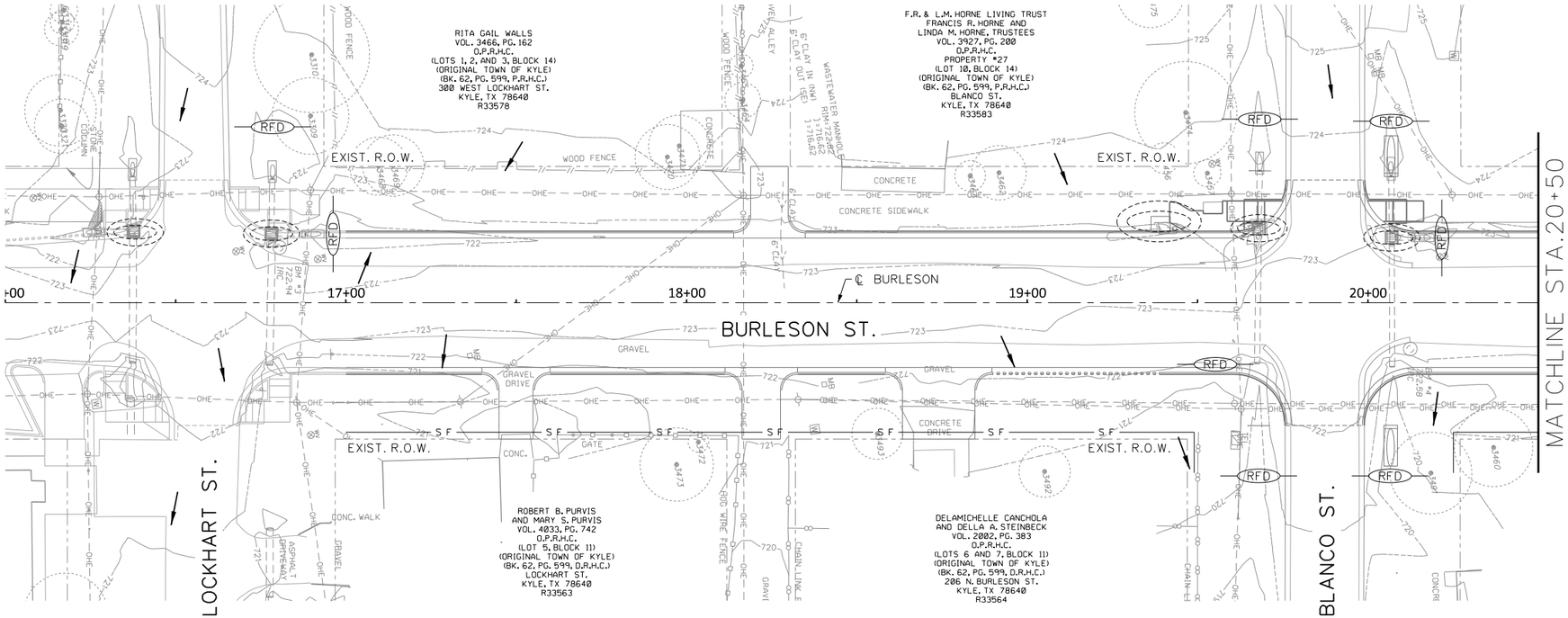

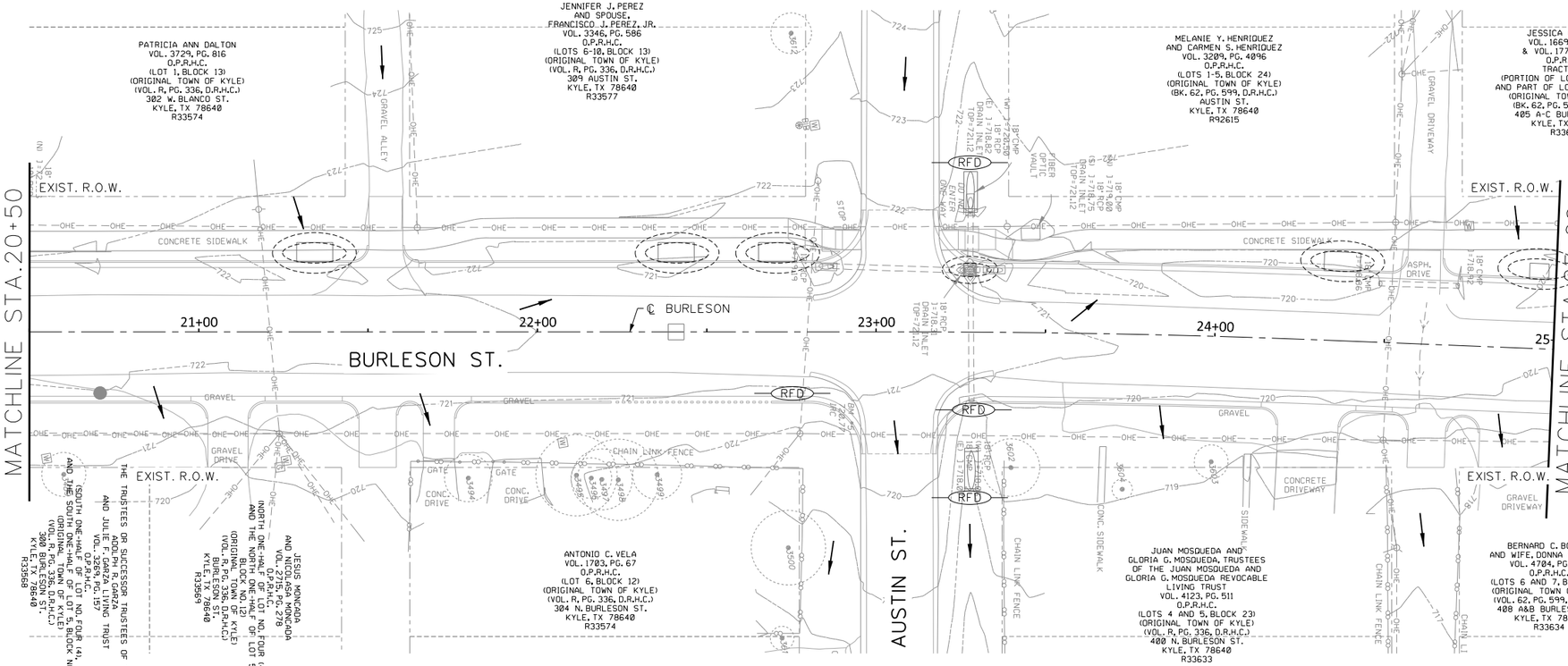

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 4
STA.16+00 TO STA.25+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284

DATE	5/22/18
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REVISED	
CHECKED	JNR
FILE NAME	CV-TRT-PL-SW3P PHASE0401.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

SHEET 250

TOTAL 292

MicroStation V8 User: 02590Office: Austin
PLOTTED BY: Mike Dafnat
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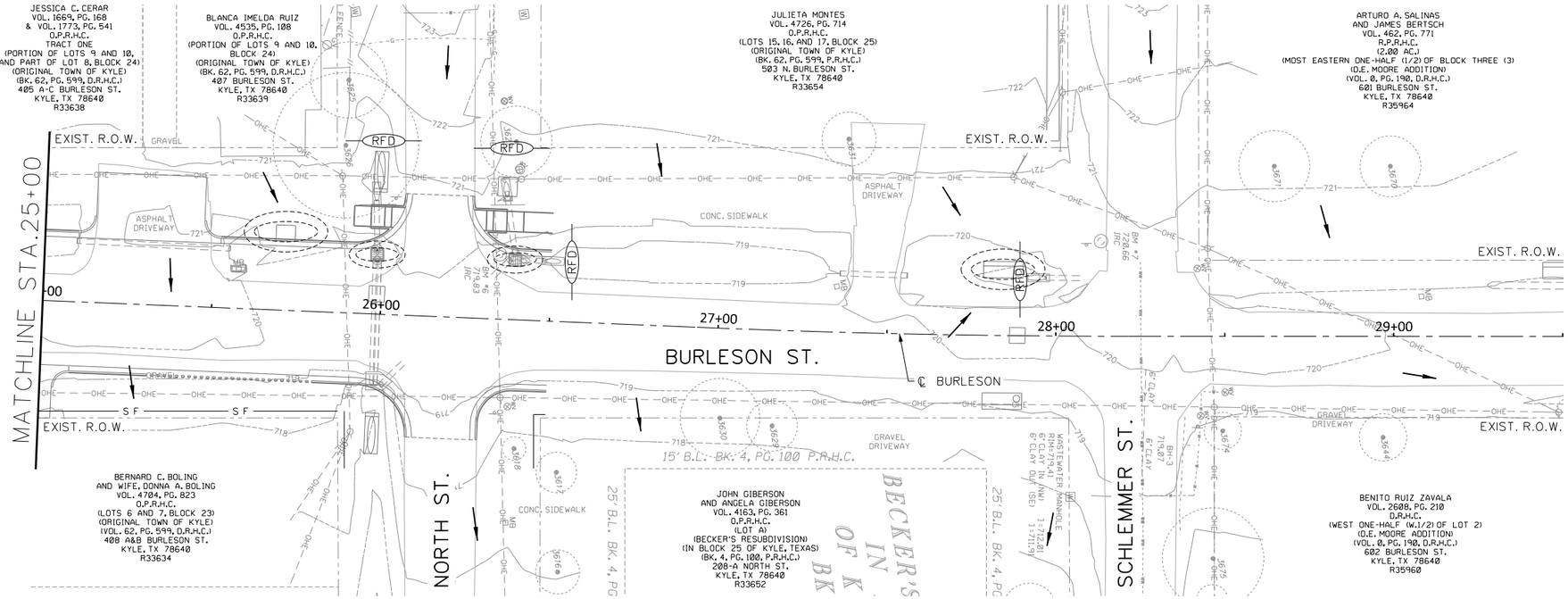

LEGEND

- SILT FENCE
- FLOW ARROW
- INLET PROTECTION
- ROCK FILTER DAM

N

0 10' 20' 40'

SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
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CIVIL

SW3P PHASE 4
STA.25+00 TO STA.29+50

NO.	ISSUES	BY	DATE

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CV-TRT-PL-SW3P PHASE0402.sht

F&N JOB NO. KYL14284

DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR

FILE NAME PL-SW3P PHASE0402.sht

SHEET 251

TOTAL 292

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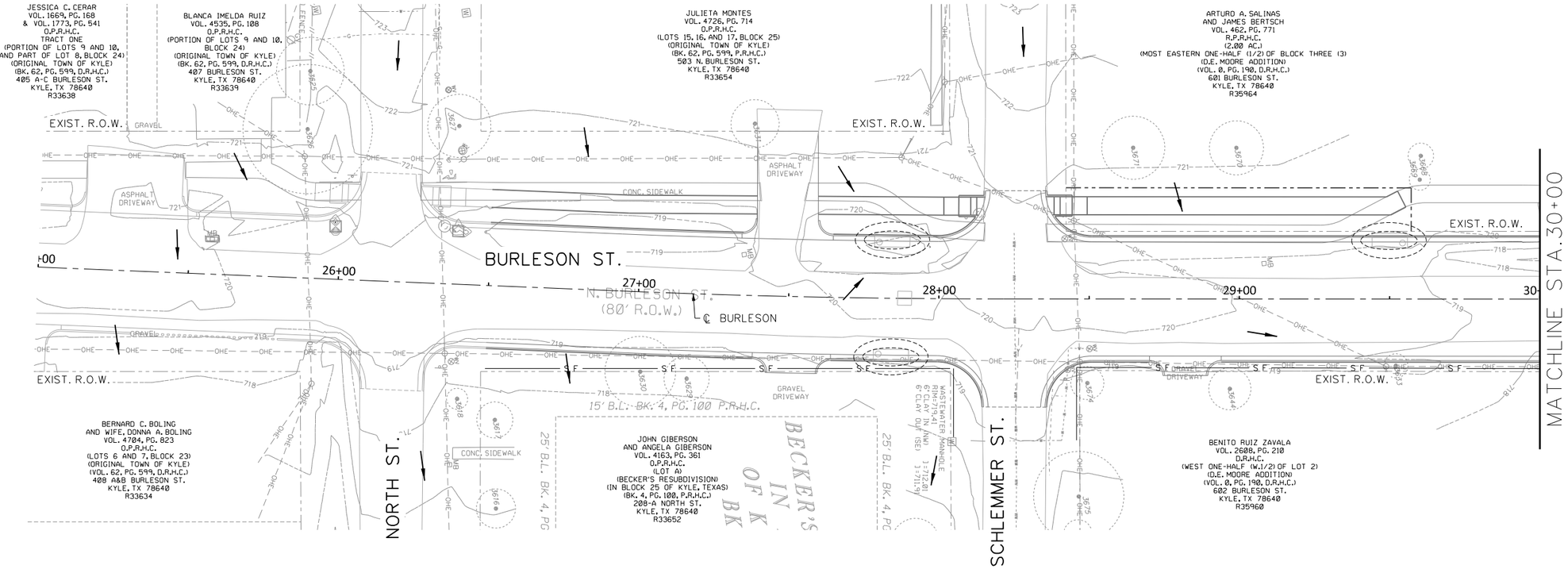

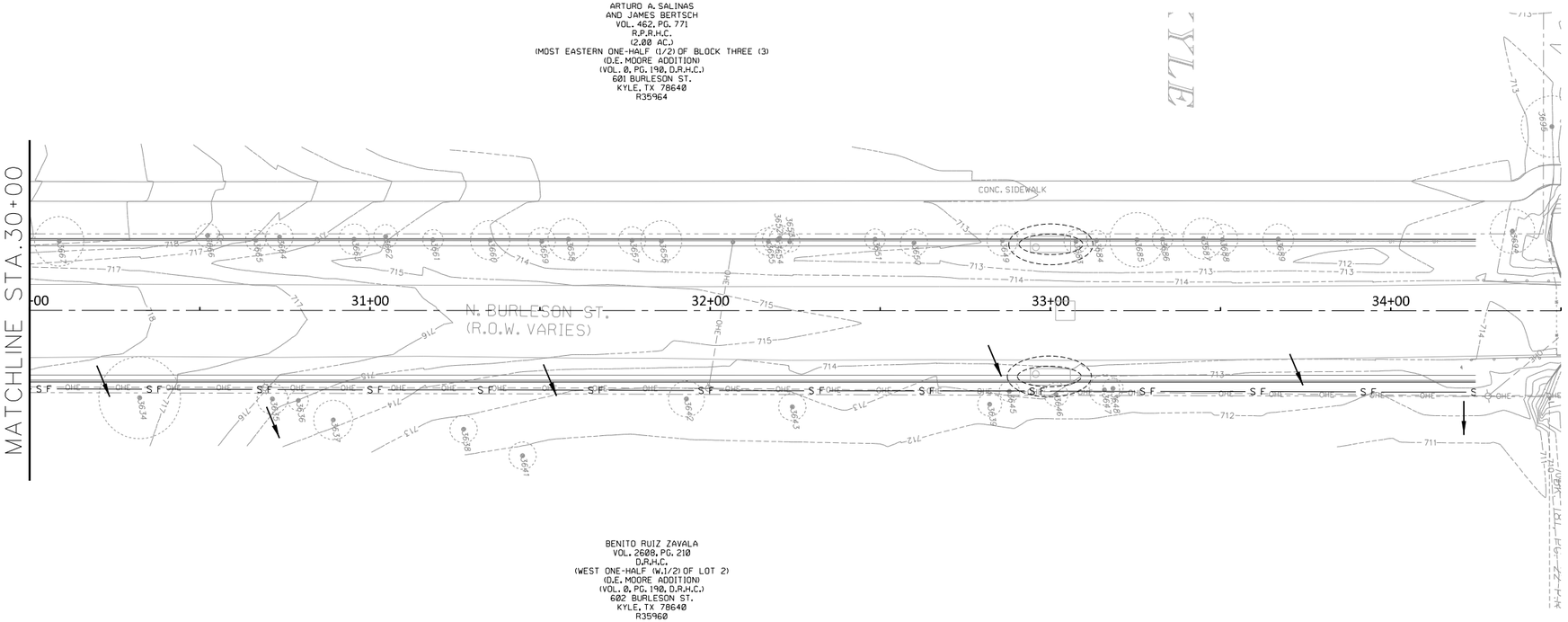

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 5
STA.25+00 TO STA.34+50

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.

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F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	SDB
DRAWN	MJM
REVISED	
CHECKED	JNR

SHEET 252
TOTAL 292

MicroStation V8 User: 02590Office: Austin
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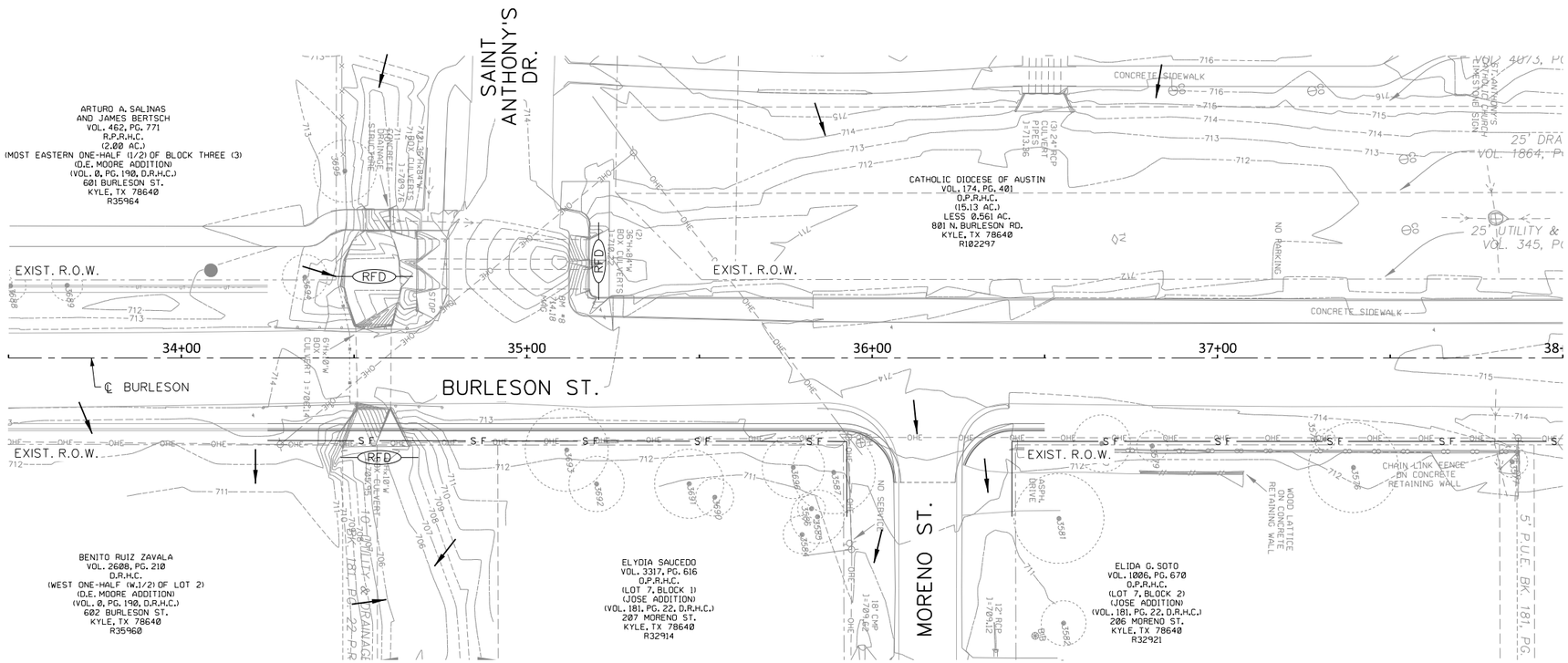

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
SEAN D. BARRY
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N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 6
STA.33+50 TO STA.38+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
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REVISED
CHECKED JNR
FILE NAME I-PL-SW3P PHASE0601.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. CV-TR1

SHEET 253
TOTAL 292

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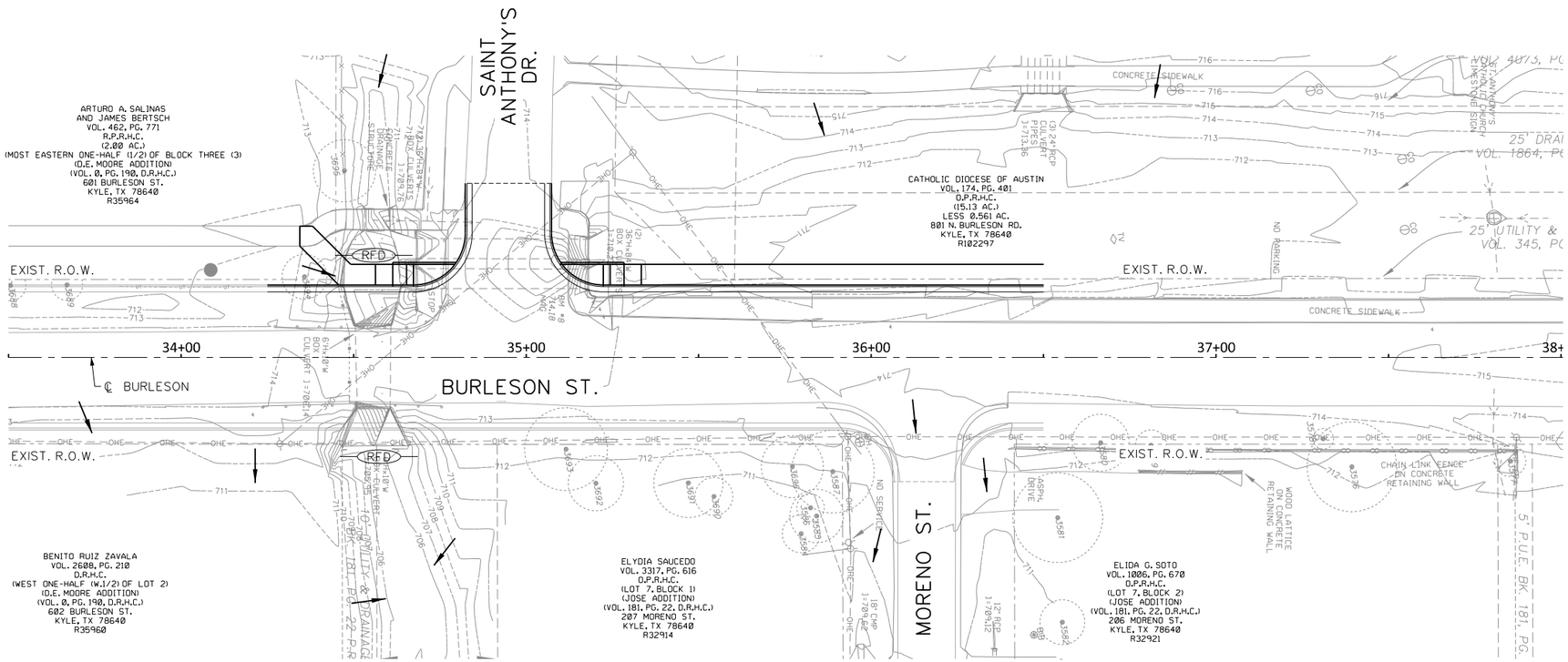

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 7
STA.35+50 TO STA.38+00

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED SDB
DRAWN MJM
REVISED
CHECKED JNR

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"

FILE NAME CV-TRT-PL-SW3P PHASE0701.sht

SHEET 254
TOTAL 292

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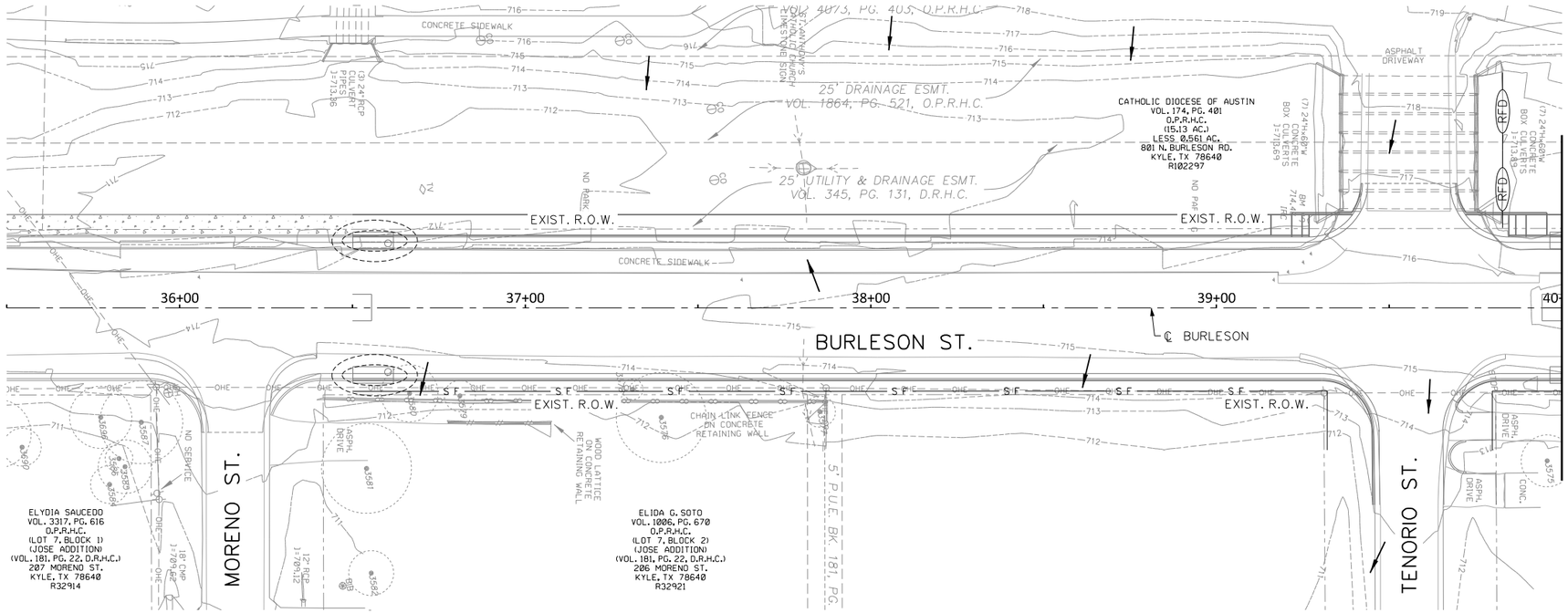

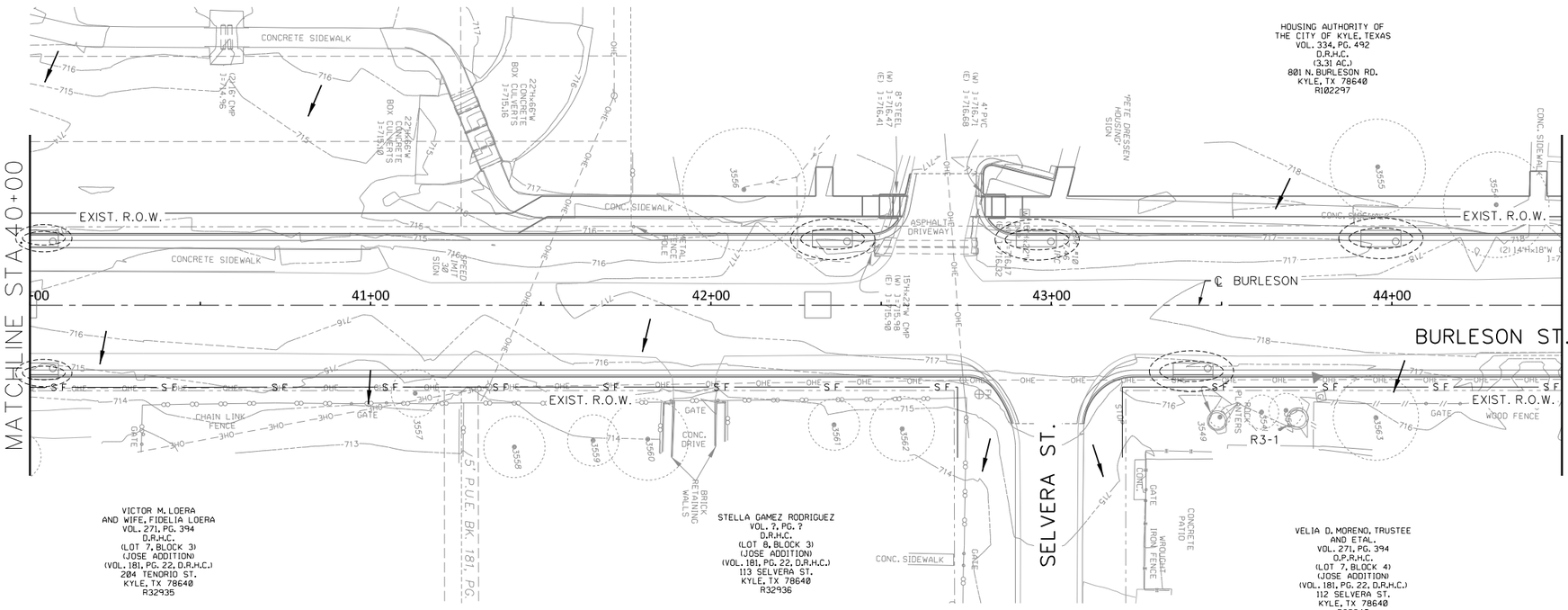

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 8
STA.35+50 TO STA.44+50

NO.	ISSUES	BY	DATE

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SHEET
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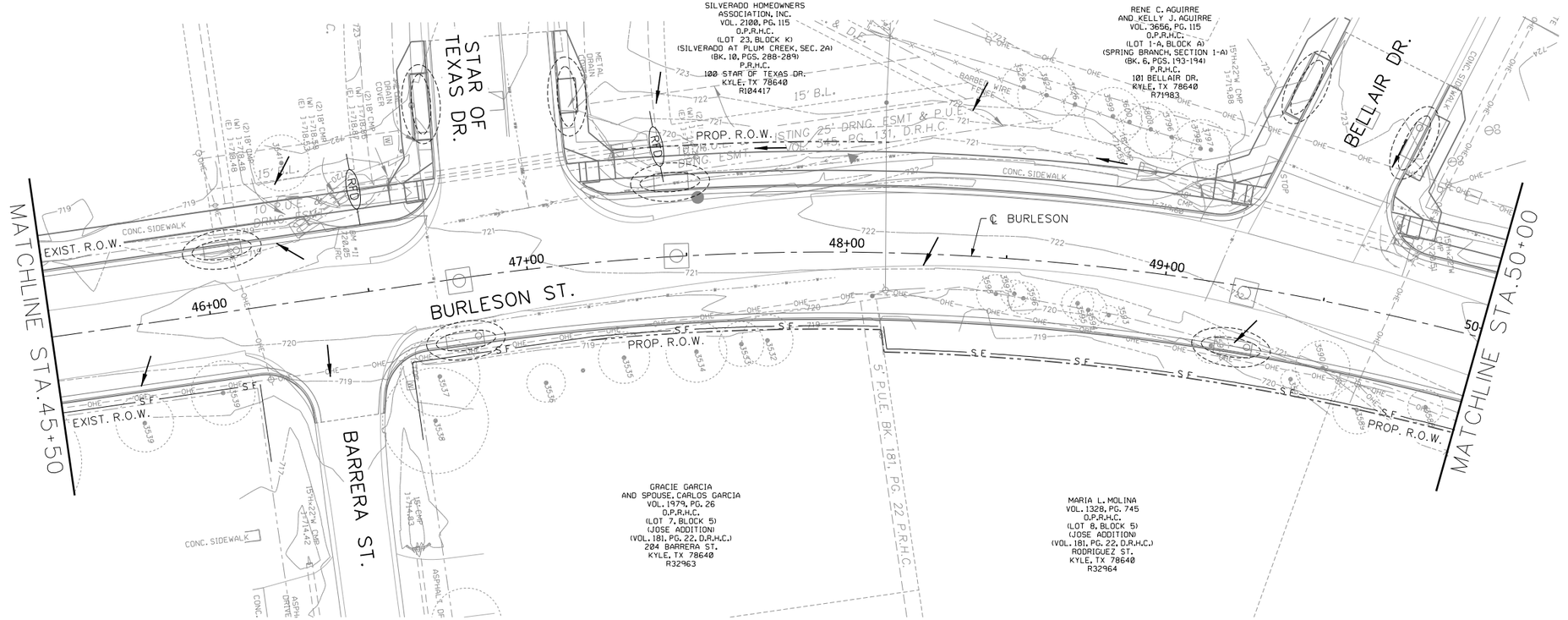

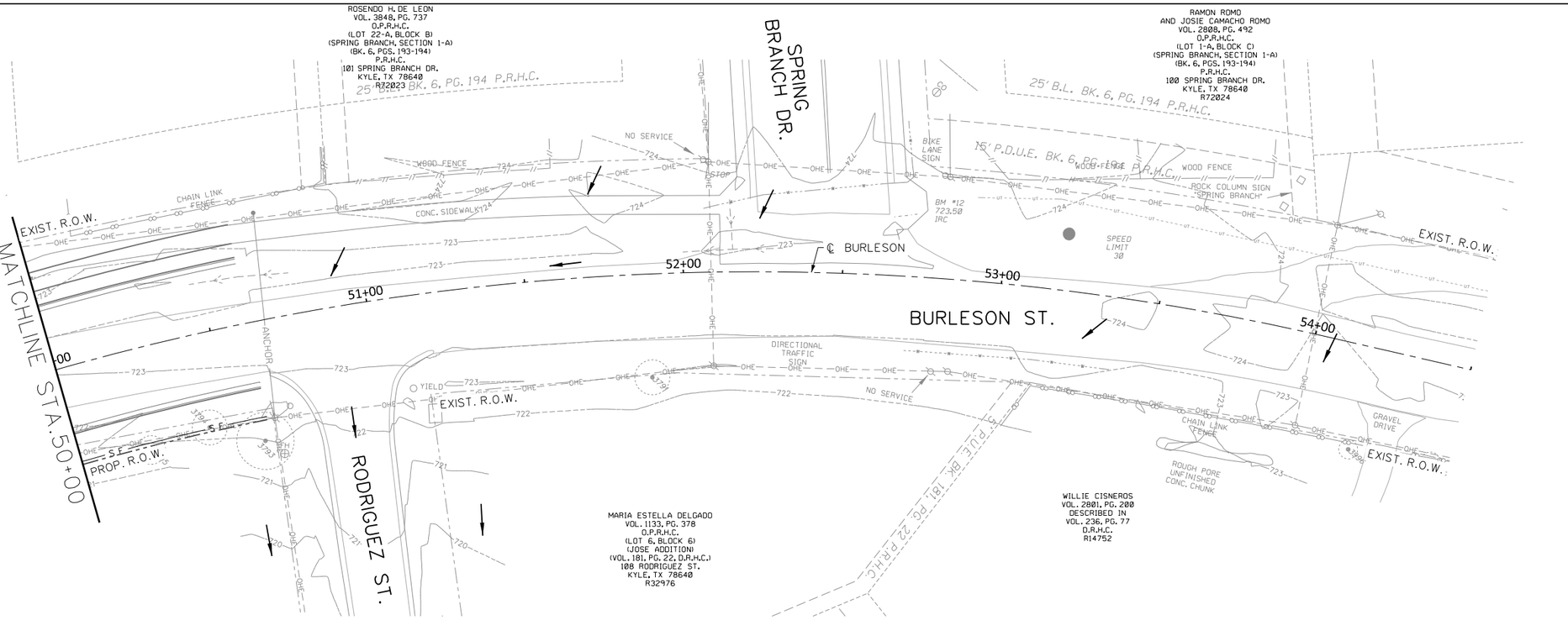

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 8
STA.45+50 TO STA.55+00

NO.	ISSUES	BY	DATE

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REVISED	
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SHEET 256
TOTAL 292

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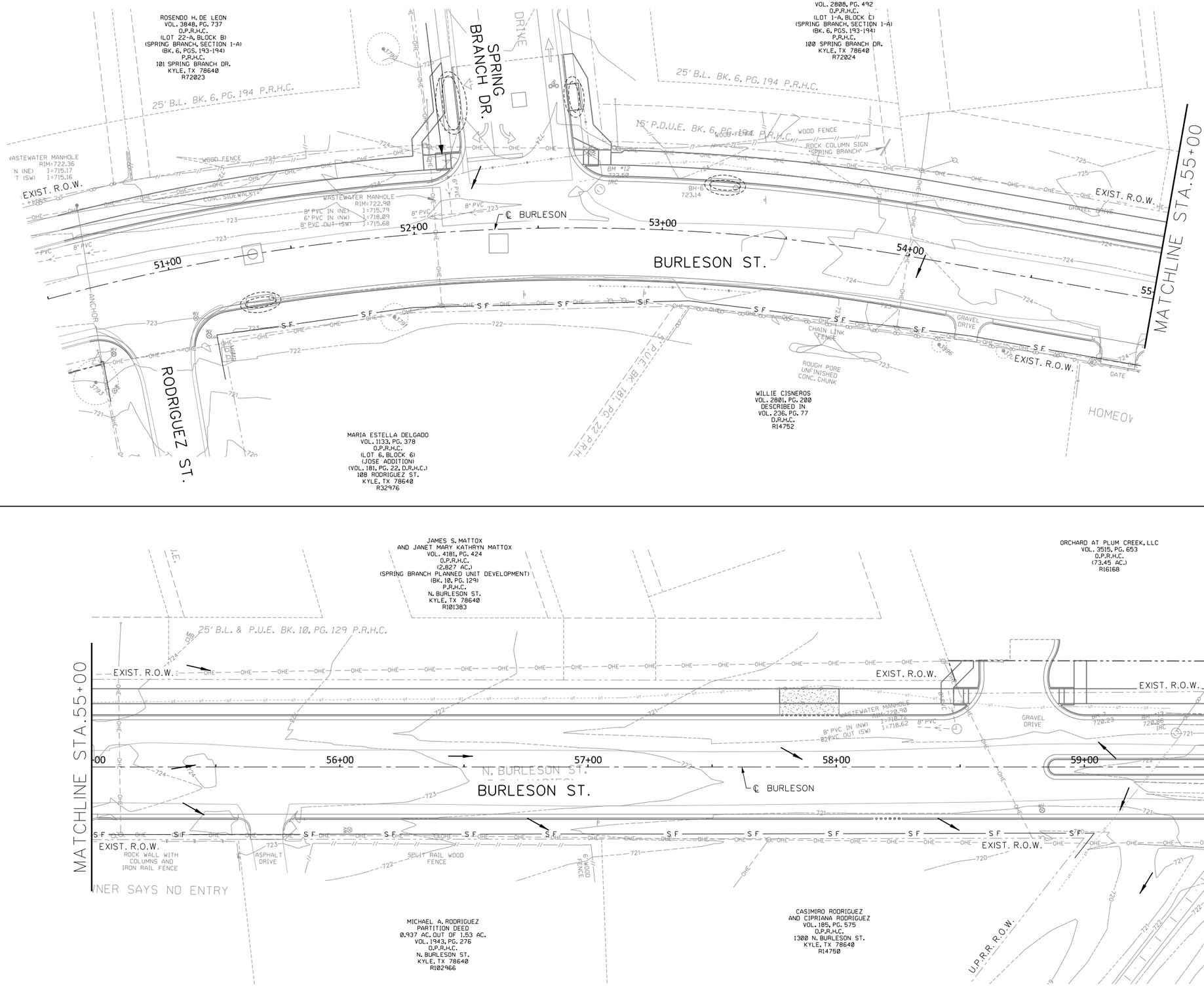

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL ENGINEER
5/22/2018

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10431 Morado Circle, Suite 300
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 9
STA.49+50 TO STA.59+50

NO.	ISSUES	BY	DATE

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DATE 5/22/18
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DRAWN MJM
REVISED
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SHEET 257
TOTAL 292

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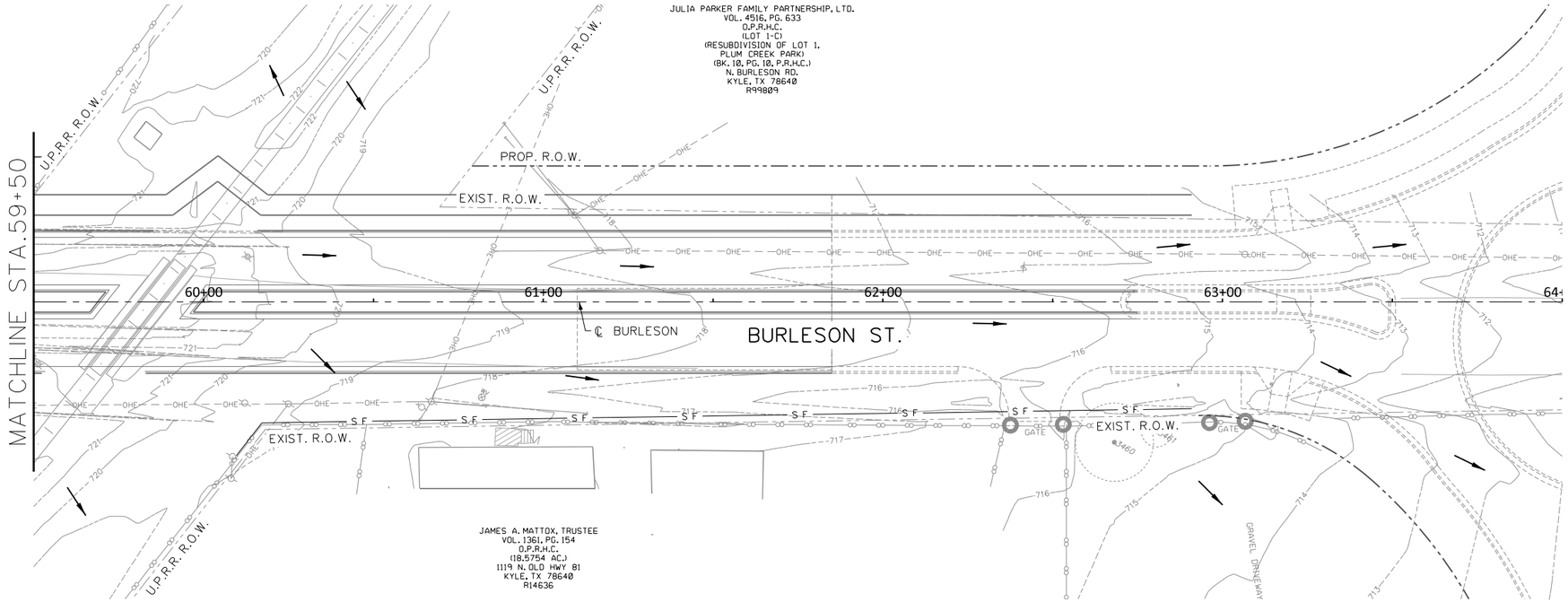

LEGEND

- SF — SILT FENCE
- FLOW ARROW
- INLET PROTECTION
- RFD — ROCK FILTER DAM

N

0 10' 20' 40'
SCALE IN FEET

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
SEAN D. BARRY
114177
LICENSED
PROFESSIONAL
ENGINEER
5/22/2018

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10431 Morado Circle, Suite 300
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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

CIVIL

SW3P PHASE 9
STA.59+50 TO STA.64+00

NO.	ISSUES	BY	DATE

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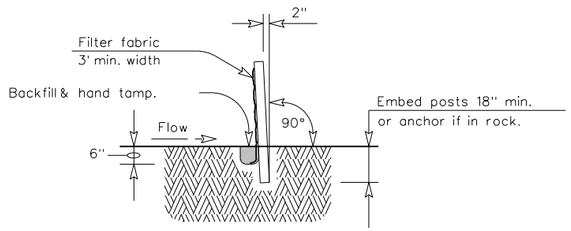


SECTION A-A

GENERAL NOTES

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

PLAN SHEET LEGEND

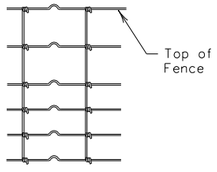
Sediment Control Fence — SCF

SEDIMENT CONTROL FENCE USAGE GUIDELINES

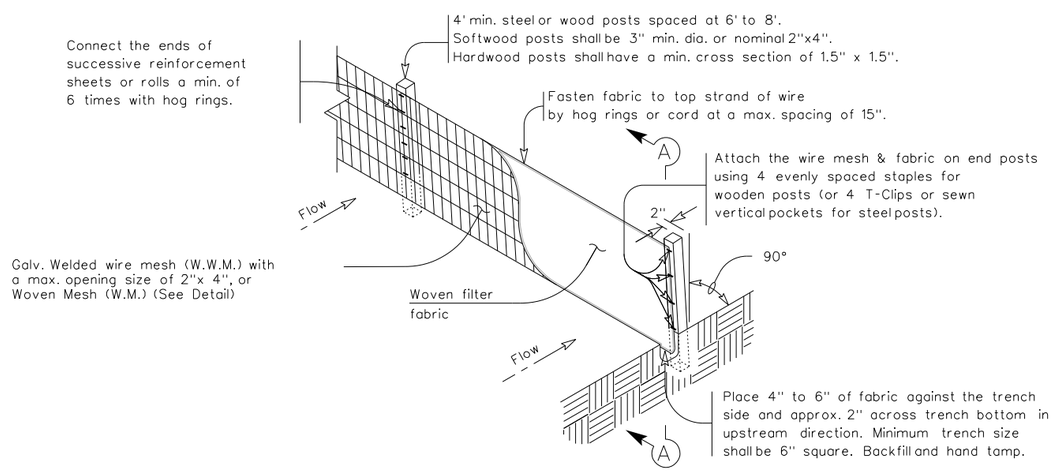
A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

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

Galv. Hinge joint knot woven mesh (12.5 Ga. Min.) requires a minimum of five horizontal wires spaced at a max.12 inches apart and all vertical wires spaced at a max. 12 inches apart.

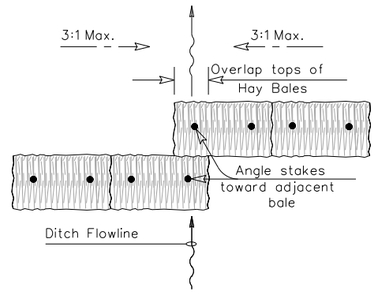


Hinge Joint Knot Woven Mesh (Option)

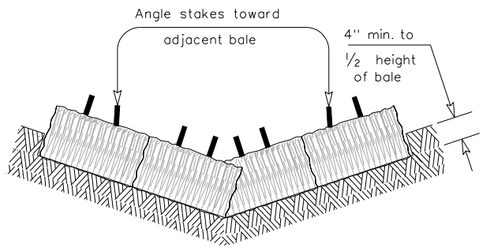


TEMPORARY SEDIMENT CONTROL FENCE

SCF



PLAN VIEW



PROFILE VIEW

PLANS SHEET LEGEND

Baled Hay — BH

BALED HAY USAGE GUIDELINES

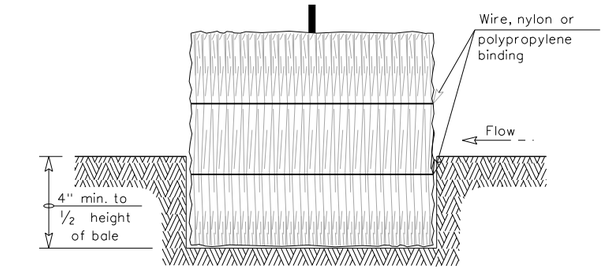
A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT^2 of cross sectional area. Baled hay may be used at the following locations:

1. Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
2. Where the installation will be required for less than 3 months.
3. Where the contributing drainage area is less than ½ acre.

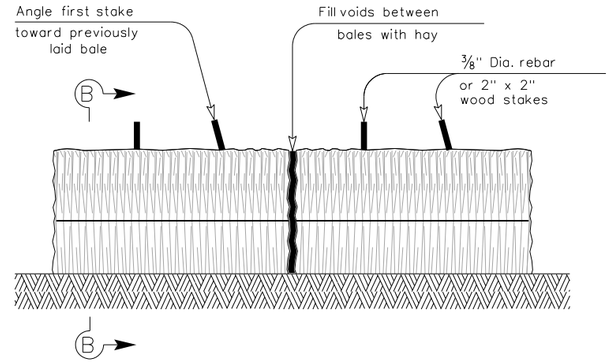
For Baled Hay installations in small ditches, the additional following considerations apply:

1. The ditch sideslopes should be graded as flat as possible to maximize the drainage flowrate thru the hay.
2. The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled hay.

Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.



SECTION B-B



BALED HAY FOR EROSION CONTROL

BH

GENERAL NOTES

1. Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
2. Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetative matter.
3. Hay bales shall be embedded in the soil a minimum of 4" and where possible ½ the height of the bale.
4. Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
5. Hay bales shall be securely anchored in place with ⅜" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & BALED HAY

EC(1)-09

FILE: ec109.dgn	DN: TxDOT	CK: AM	DW: TV	CK: BD
© TxDOT June 1993	CONT	SECT	JOB	HIGHWAY
REVISIONS				
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				259

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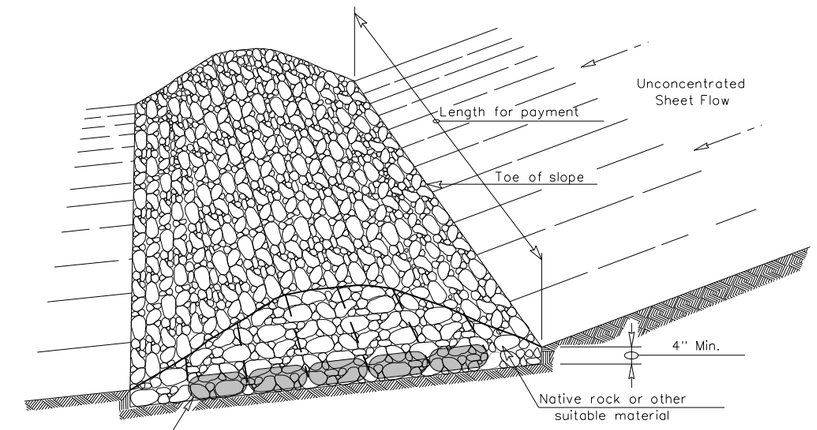
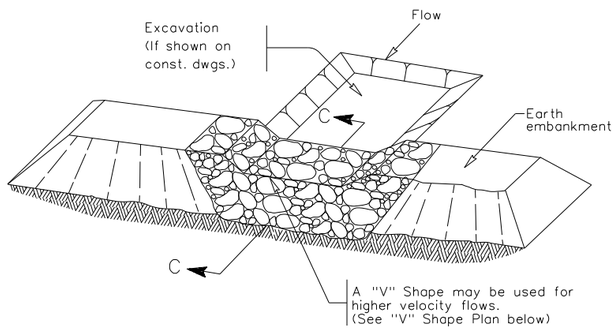


FILTER DAM AT TOE OF SLOPE

RFD1

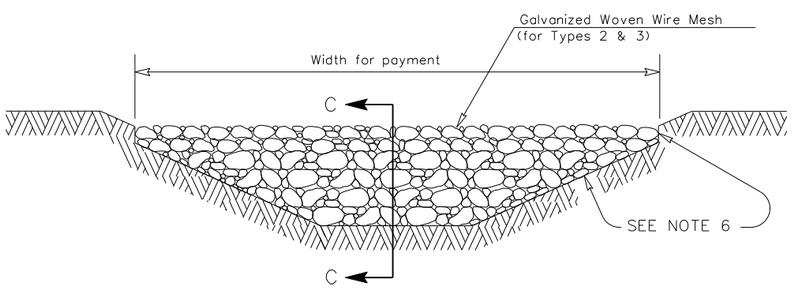
TYPE 1



FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2

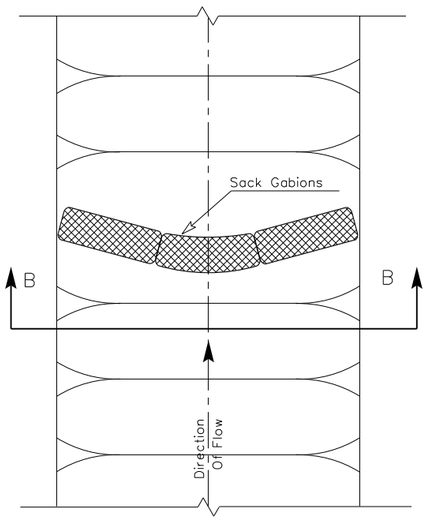
TYPE 1 OR TYPE 2



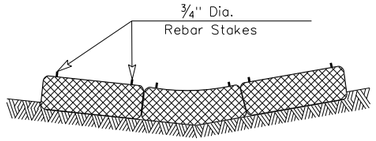
FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

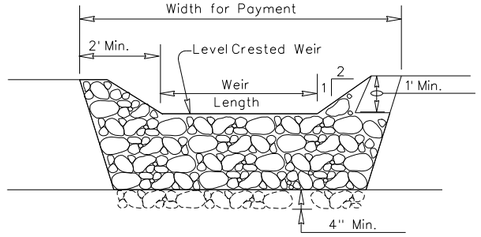
TYPE 1 OR TYPE 2



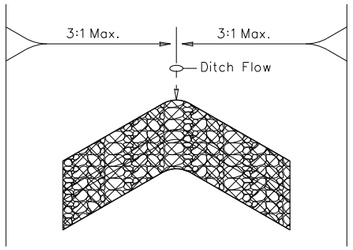
PLAN VIEW



SECTION B-B

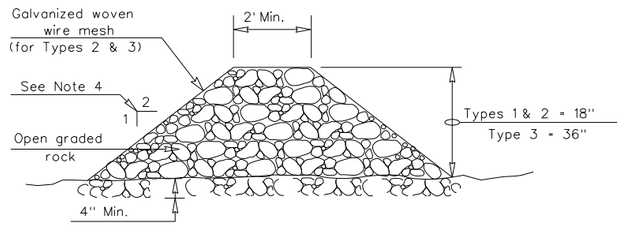


PROFILE



"V" SHAPE

(Plan View)



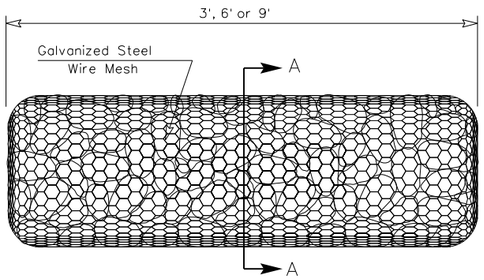
SECTION C-C

PLANS SHEET LEGEND

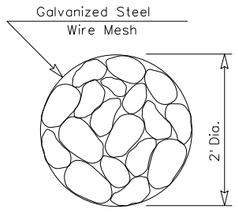
Type 1 Rock Filter Dam — RFD1

Type 2 Rock Filter Dam — RFD2

Type 3 Rock Filter Dam — RFD3



TYPE 4 (SACK GABIONS)



SECTION A-A

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/FT^2 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.

Type 3 (36" high with wire mesh): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

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. Sack Gabions should be staked down with ¾" dia. rebar stakes.
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-93

FILE: ec293.dgn	DN: TxDOT	CK: HEJ	DW: BD	CK:
©TxDOT June 1993	CONT	SECT	JOB	HIGHWAY
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				260

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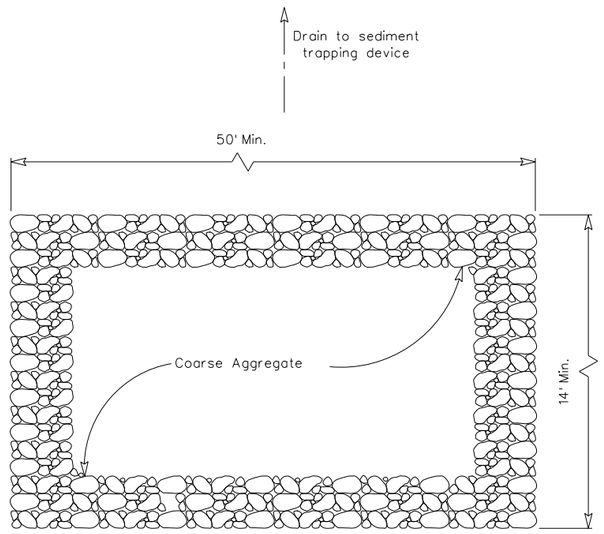

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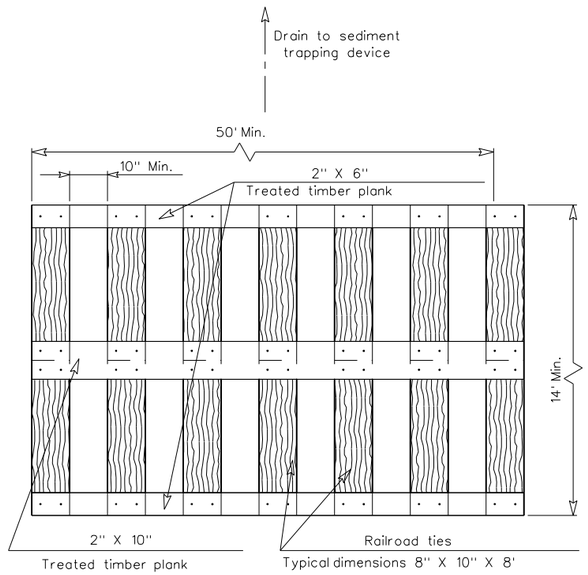

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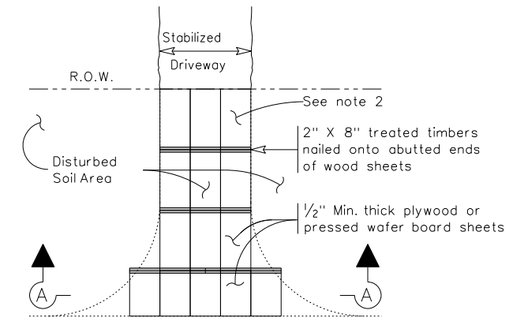

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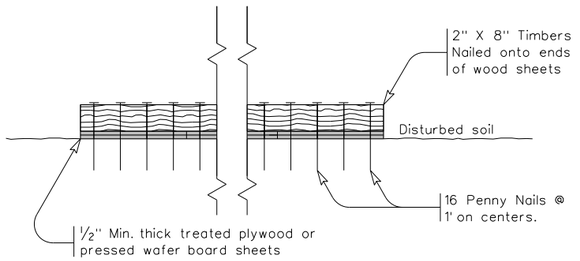
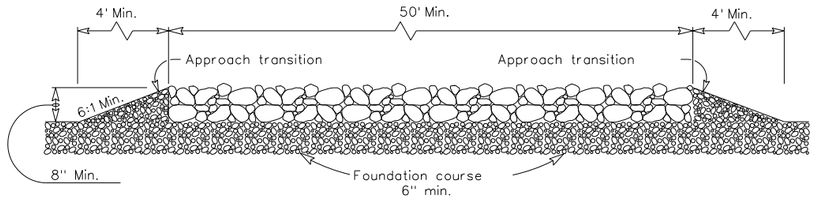


SECTION A-A

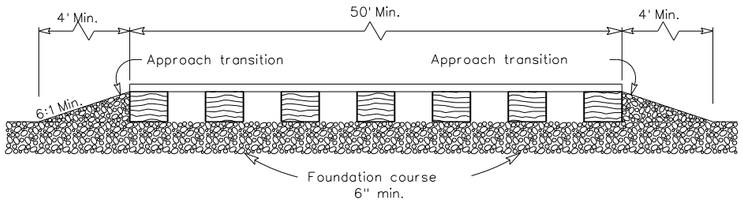


PROFILE

CONSTRUCTION EXIT (TYPE 1)

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.



PROFILE

CONSTRUCTION EXIT (TYPE 2)

GENERAL NOTES

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

CONSTRUCTION EXIT (TYPE 3)

GENERAL NOTES

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-93

FILE: ec393.dgn	DN: TxDOT	CK: HEJ	DW: BD	CK:
©TxDOT June 1993	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				261

DATE: May 22, 2018 - 11:58:42 AM
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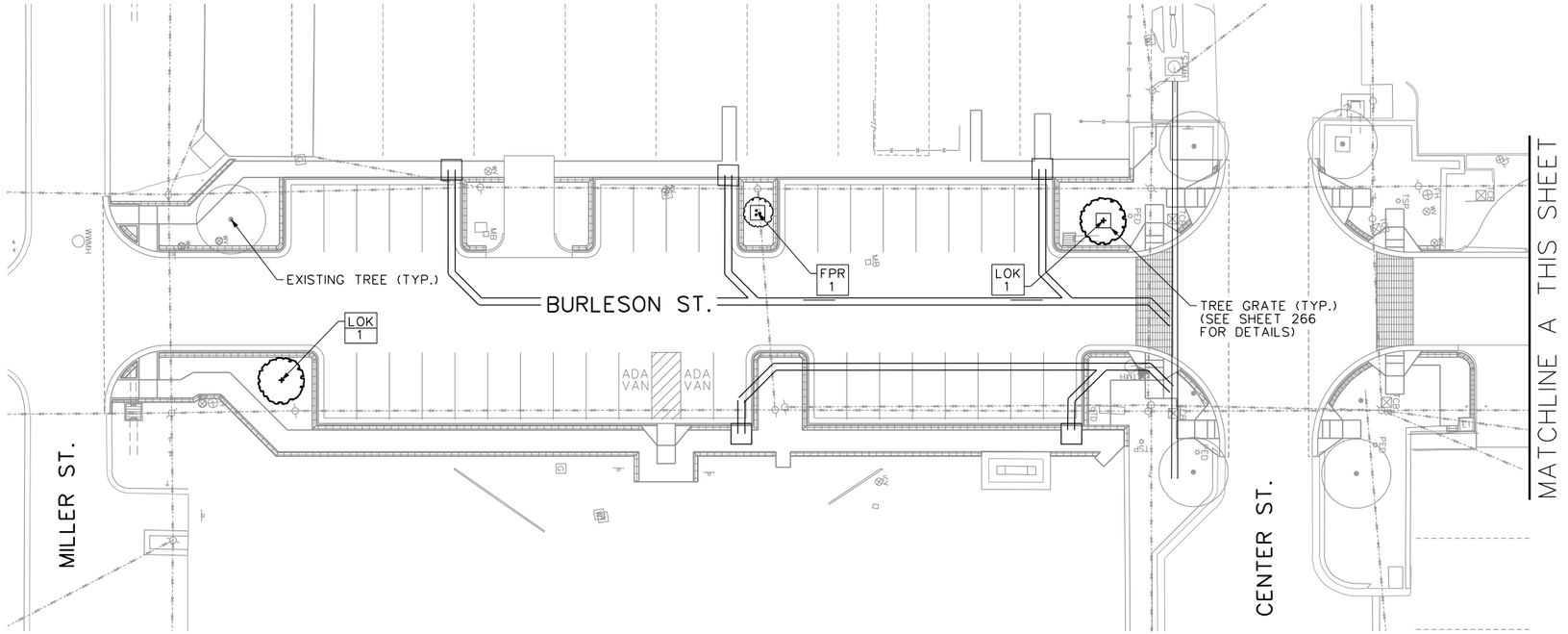

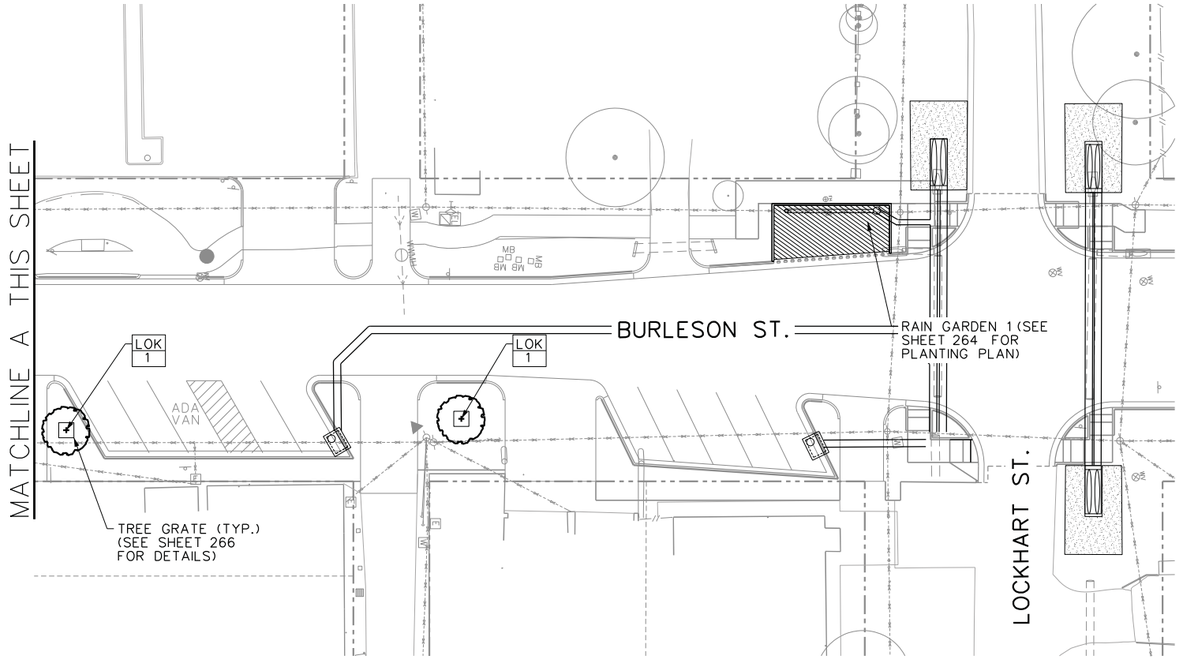

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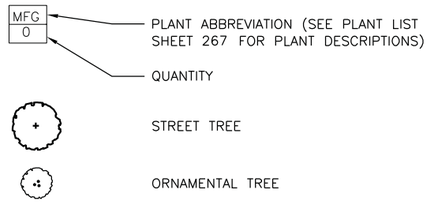


PLANT LIST:

PLANT ABBREVIATION	COMMON NAME
STREET TREE / ORNAMENTAL TREE	
FPR	FOREST PANSY REDBUD
LOK	LACEY OAK

NOTES:

1. ALL PLANT MATERIAL LOCATIONS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.

2. THE CONTRACTOR SHALL VERIFY ALL BUILDING SETBACK LINES, EASEMENT LINES, AND VISIBILITY LINES IN THE FIELD PRIOR TO CONSTRUCTION.

3. THE CONTRACTOR SHALL VERIFY LOCATIONS OF AND PROTECT ALL UTILITIES IN THE FIELD PRIOR TO COMMENCEMENT OF WORK.

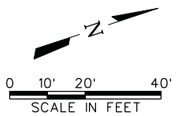
4. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SITE FEATURES.

5. SEE SHEET 266 & 267 FOR PLANT LIST AND PLANTING DETAILS

6. WHEN PLANTING TREES UNDER DISTRIBUTION LINES, MATURE TREE HEIGHTS SHALL NOT EXCEED 16'.

7. PROVIDE A COMPLETE LANDSCAPE IRRIGATION SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 32 84 23 = LANDSCAPE IRRIGATION.

8. PROVIDE TWO ROOT ZONE WATERING SYSTEMS (RZWS) PER TREE.



FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

REGISTERED LANDSCAPE ARCHITECT
PITTMAN
2778
STATE OF TEXAS

Rebecca Pittman 05/22/18

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

LANDSCAPE ARCHITECTURE
PLANTING PLAN

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	RSP
DRAWN	KVW
REVISED	YC
CHECKED	JHH
FILE NAME	CV-TRT-PL-PLANT01.sht

SHEET 262
TOTAL 292

MicroStation V8 User: 02589Office: Dallas
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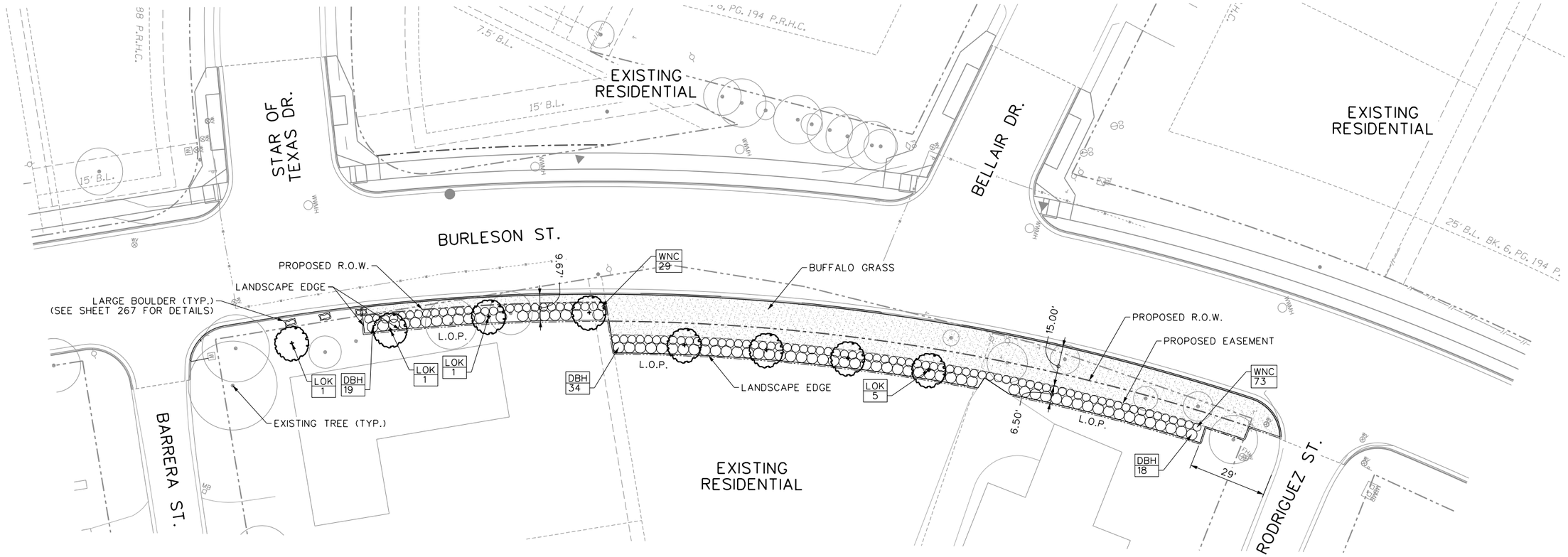
Date: May. 22, 2018 - 09:34:02 AM Project: Freese and Nichols, Inc.



NOTES:

1. ALL PLANT MATERIAL LOCATIONS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.

2. THE CONTRACTOR SHALL VERIFY ALL BUILDING SETBACK LINES, EASEMENT LINES, AND VISIBILITY LINES IN THE FIELD PRIOR TO CONSTRUCTION.

3. THE CONTRACTOR SHALL VERIFY LOCATIONS OF AND PROTECT ALL UTILITIES IN THE FIELD PRIOR TO COMMENCEMENT OF WORK.

4. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SITE FEATURES.

5. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A PERMANENT STAND OF BERMUDA GRASS IN ALL DISTURBED AREAS DUE TO CONSTRUCTION NOT OTHERWISE REQUIRED TO HAVE OTHER PLANT MATERIAL.

6. SEE SHEET 266 & 267 FOR PLANT LIST AND PLANTING DETAILS

7. WHEN PLANTING TREES UNDER DISTRIBUTION LINES, MATURE TREE HEIGHTS SHALL NOT EXCEED 16'.

8. IRRIGATION IS NOT INCLUDED FOR THE PLANT MATERIAL SHOWN ON THIS DRAWING. THE HOMEOWNERS WILL BE RESPONSIBLE FOR IRRIGATING THIS PLANT MATERIAL.

9. BOULDERS TO BE FIELD LOCATED. FINAL LOCATION OF THE BOULDER TO BE APPROVED BY THE CITY.

LEGEND:

LAR / 0 — PLANT ABBREVIATION (SEE PLANT LIST SHEET 267 FOR PLANT DESCRIPTIONS)
QUANTITY

L.O.P. — LIMITS OF PLANTING

BUFFALO GRASS

SHADE TREE

LARGE LIMESTONE BOULDER
3' X 3' X 3' MAX. SIZE

BOULDER NOTE:

1. SUBMIT PRODUCT INFORMATION FOR LIMESTONE BOULDER TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO ORDERING AND INSTALLATION.

2. PRODUCT SUPPLIES: WHITTLESEY LANDSCAPE SUPPLIES OR APPROVED EQUAL.

PLANT LIST:

PLANT ABBREVIATION	COMMON NAME
SMALL SHADE / ORNAMENTAL TREES	
LOK	LACEY OAK
SHRUBS / ORNAMENTAL GRASSES	
DBH	DWARF BURFORD HOLLY
WNC	WINECUP
TURF	
SOD	BUFFALO GRASS

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
REGISTERED LANDSCAPE ARCHITECT REBECCA PITTMAN 2778 STATE OF TEXAS
05/25/18
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

LANDSCAPE ARCHITECTURE

PLANTING PLAN

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/29/18
DESIGNED RSP
DRAWN KVW
REVISED KVW
CHECKED JHH
FILE NAME CV-TRT-PL-PLANT02.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 263
TOTAL 292

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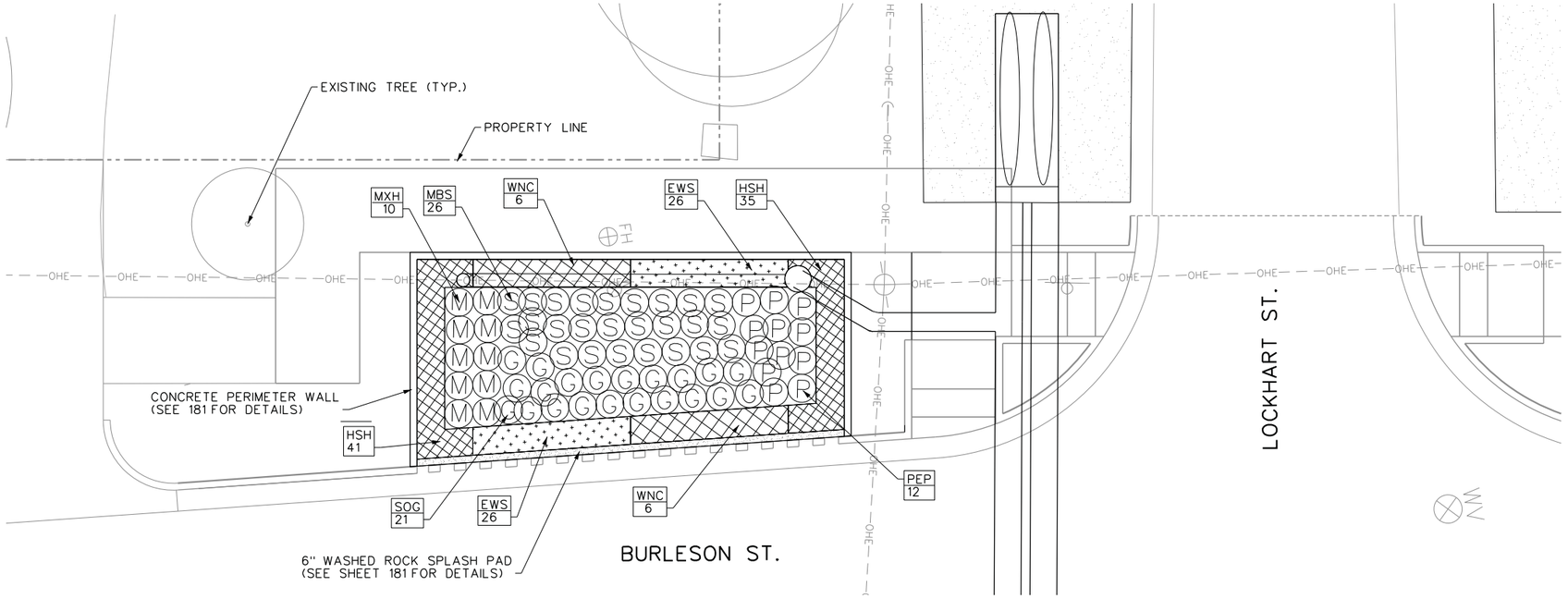
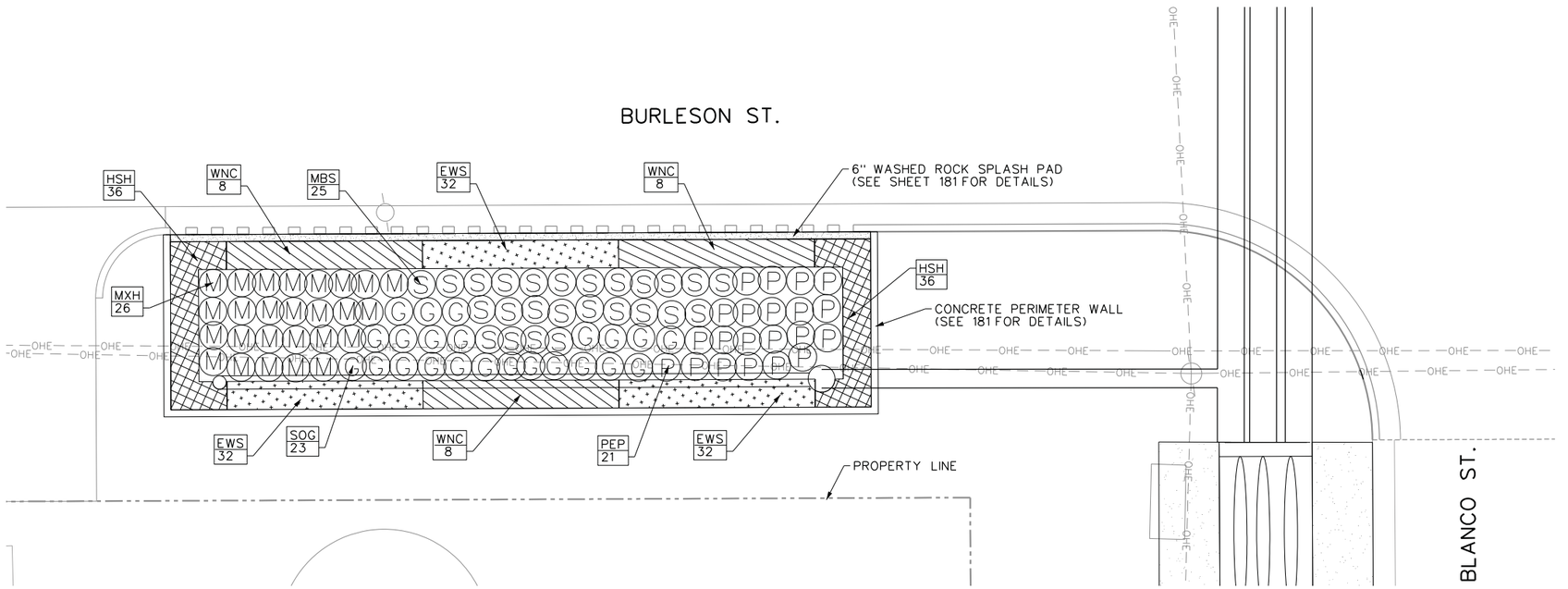


1/264 RAIN GARDEN 1 AT BURLESON ST. AND LOCKHART ST.

1"=5'



2/264 RAIN GARDEN 2 AT BURLESON ST. AND BLANCO ST.

1"=5'

LEGEND:

LAR 0 — PLANT ABBREVIATION (SEE PLANT LIST SHEET 267 FOR PLANT DESCRIPTIONS)

QUANTITY

PLANT LIST:

SHRUBS / ORNAMENTAL GRASSES	
EWS	EASTERN WOODLAND SEDGE
HSH	HORSEHERB
WNC	WINECUP
MBS	MEALY BLUE SAGE
MXH	MEXICAN HAT
PEP	PINK EVENING PRIMROSE
SOG	SIDEOATS GRAMA

NOTES:

1. ALL PLANT MATERIAL LOCATIONS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.

2. THE CONTRACTOR SHALL VERIFY ALL BUILDING SETBACK LINES, EASEMENT LINES, AND VISIBILITY LINES IN THE FIELD PRIOR TO CONSTRUCTION.

3. THE CONTRACTOR SHALL VERIFY LOCATIONS OF AND PROTECT ALL UTILITIES IN THE FIELD PRIOR TO COMMENCEMENT OF WORK.

4. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SITE FEATURES.

5. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A PERMANENT STAND OF BERMUDA GRASS IN ALL DISTURBED AREAS DUE TO CONSTRUCTION NOT OTHERWISE REQUIRED TO HAVE OTHER PLANT MATERIAL.

6. SEE SHEET 266 & 267 FOR PLANT LIST AND PLANTING DETAILS

7. WHEN PLANTING TREES UNDER DISTRIBUTION LINES, MATURE TREE HEIGHTS SHALL NOT EXCEED 16'.

8. PROVIDE DRIP IRRIGATION SYSTEM IN BIOSWALE AREAS UTILIZING RAINBIRD DRIPLINE EMITTER TUBING SYSTEMS OR APPROVED EQUAL. PROVIDE DRIPLINE INDICATOR KITS AT THE END OF EVERY INDIVIDUAL RUN.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
REGISTERED LANDSCAPE ARCHITECT REBECCA PITTMAN 2778 STATE OF TEXAS
Rebecca Pittman 05/22/18

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Austin, Texas 78759
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Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

LANDSCAPE ARCHITECTURE

RAIN GARDEN PLANTING PLAN

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
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FAN JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	RSP
DRAWN	KVW
REVISED	YC
CHECKED	JHH
FILE NAME	CV-TRT-PL-RG1.sht

SHEET 264

TOTAL 292

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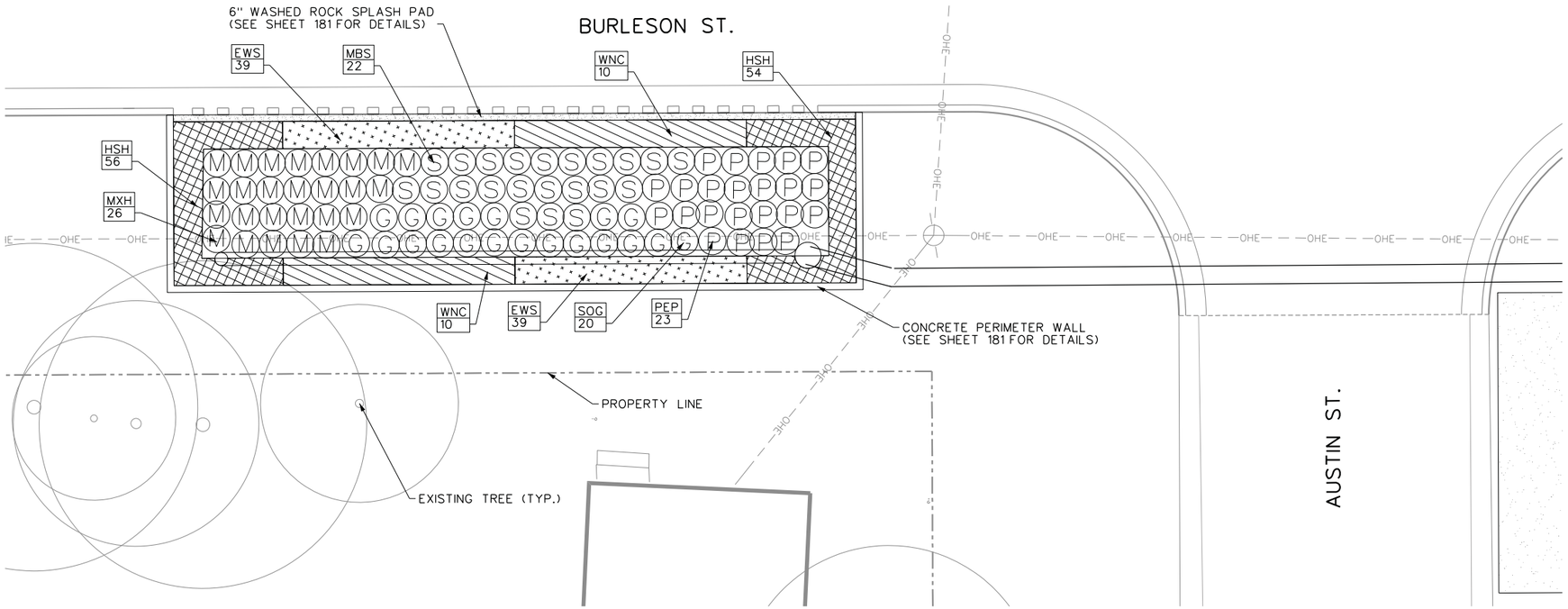
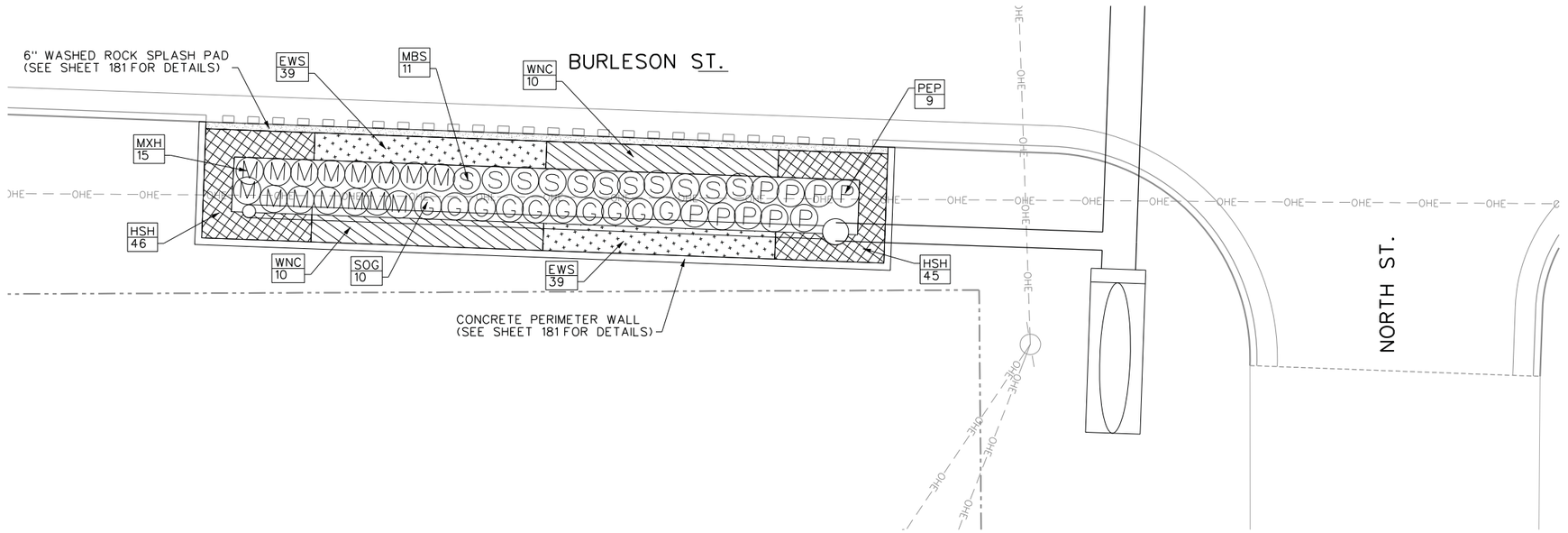


1/265 RAIN GARDEN 3 AT BURLESON ST. AND AUSTIN ST.

1"=5'



1/265 RAIN GARDEN 4 AT BURLESON ST. AND NORTH ST.

1"=5'

LEGEND:

LAR 0 — PLANT ABBREVIATION (SEE PLANT LIST SHEET 267 FOR PLANT DESCRIPTIONS)

0 — QUANTITY

PLANT LIST:

SHRUBS / ORNAMENTAL GRASSES	
EWS	EASTERN WOODLAND SEDGE
HSH	HORSEHERB
WNC	WINECUP
MBS	MEALY BLUE SAGE
MXH	MEXICAN HAT
PEP	PINK EVENING PRIMROSE
SOG	SIDEOATS GRAMA

NOTES:

1. ALL PLANT MATERIAL LOCATIONS SHALL BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.

2. THE CONTRACTOR SHALL VERIFY ALL BUILDING SETBACK LINES, EASEMENT LINES, AND VISIBILITY LINES IN THE FIELD PRIOR TO CONSTRUCTION.

3. THE CONTRACTOR SHALL VERIFY LOCATIONS OF AND PROTECT ALL UTILITIES IN THE FIELD PRIOR TO COMMENCEMENT OF WORK.

4. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SITE FEATURES.

5. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING A PERMANENT STAND OF BERMUDA GRASS IN ALL DISTURBED AREAS DUE TO CONSTRUCTION NOT OTHERWISE REQUIRED TO HAVE OTHER PLANT MATERIAL.

6. SEE SHEET 266 & 267 FOR PLANT LIST AND PLANTING DETAILS

7. WHEN PLANTING TREES UNDER DISTRIBUTION LINES, MATURE TREE HEIGHTS SHALL NOT EXCEED 16'.

8. PROVIDE DRIP IRRIGATION SYSTEM IN BIOSWALE AREAS UTILIZING RAINBIRD DRIPLINE EMITTER TUBING SYSTEMS OR APPROVED EQUAL. PROVIDE DRIPLINE INDICATOR KITS AT THE END OF EVERY INDIVIDUAL RUN.

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
REGISTERED LANDSCAPE ARCHITECT
PITTMAN
2778
STATE OF TEXAS
Rebecca Pittman 05/22/18

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CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

LANDSCAPE ARCHITECTURE

RAIN GARDEN PLANTING PLAN

NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED RSP
DRAWN KVW
REVISED YC
CHECKED JHH
FILE NAME CV-TRT-PL-RG2.sht

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SHEET 265
TOTAL 292

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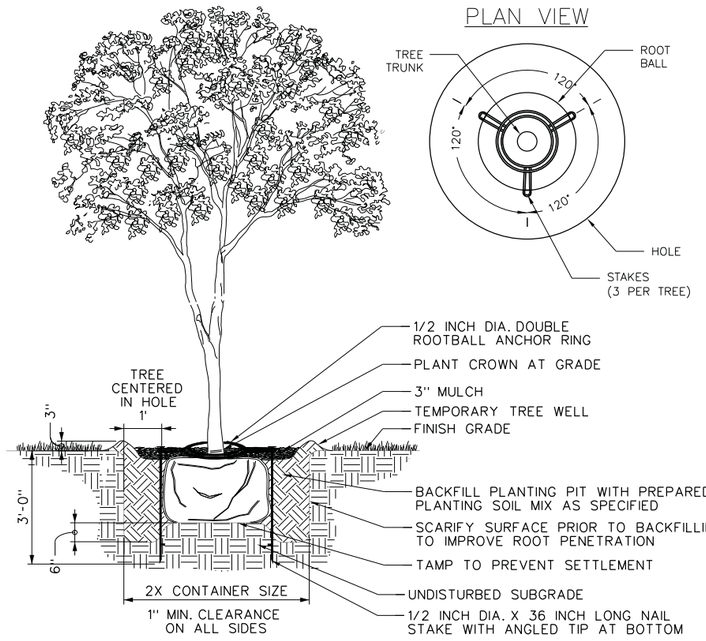
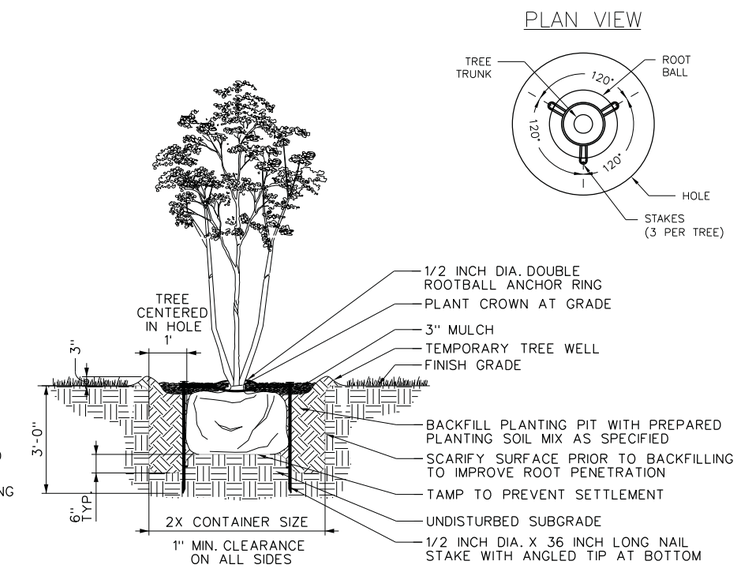
Office: Dallas KYL14284 Date: May. 22, 2018 - 11:21:15 AM User: 02589File: N:\LA\Drawings\CV-TRT-PL-RG2.sht



1 266 TREE PLANTING AND STAKING DETAIL

1/2"=1'-0"

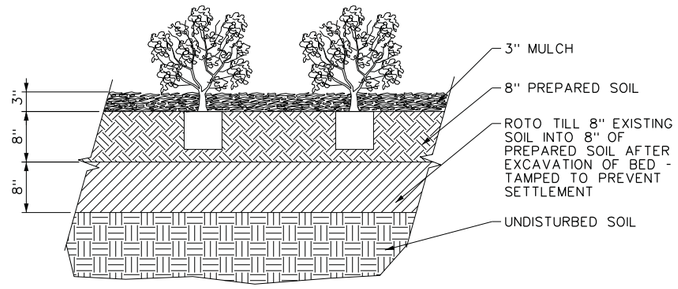


2 266 ORNAMENTAL TREE PLANTING AND STAKING DETAIL

1/2"=1'-0"

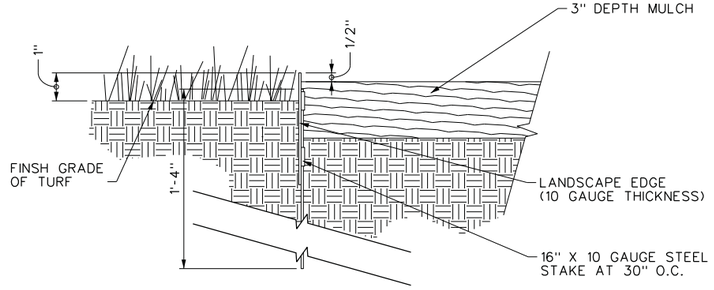
NOTES:
1. FOR MASSED AND ROW PLANTINGS
2. PLANT SHRUBS USING SPACING AS DESIGNATED IN MASTER PLANT LIST AND SHOWN ON PLANTING PLANS.

CONTAINER



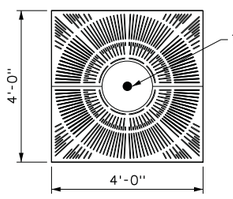
3 266 SHRUB PLANTING DETAIL

1"=1'-0"



4 266 LANDSCAPE EDGE DETAIL

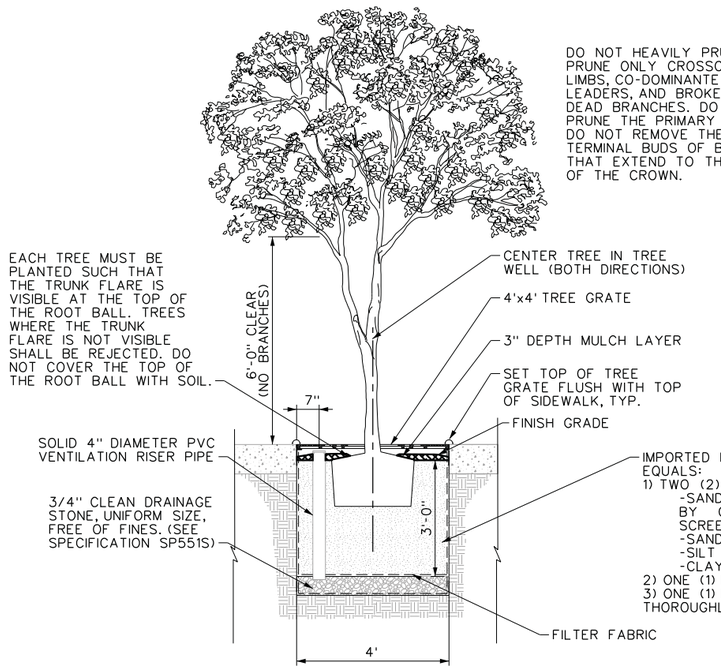
3"=1'-0"



NOTE:
CONTRACTOR TO COORDINATE WITH OWNER TO OBTAIN TREE GRATE MANUFACTURER AND INSTALLATION DETAIL INFORMATION.

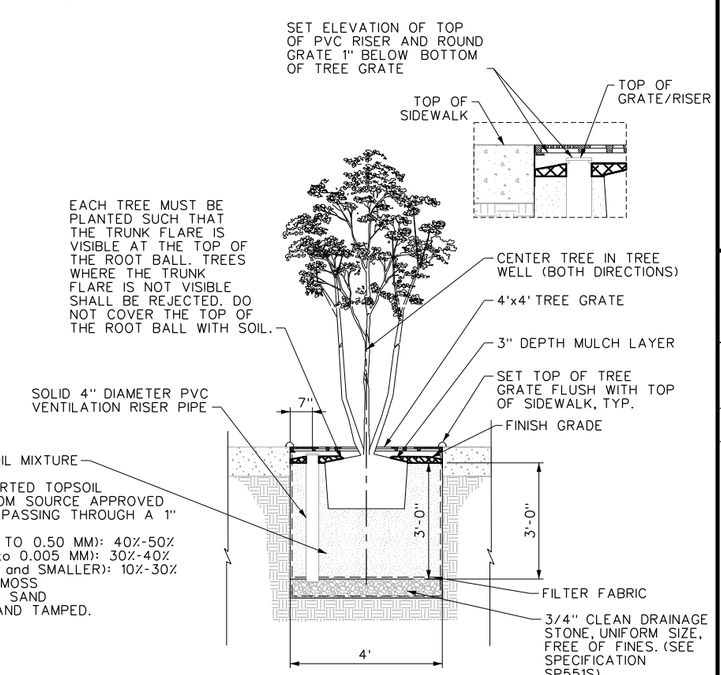
5 266 TREE GRATE DETAIL

1/2"=1'-0"



6 266 STREET TREE IN TREE WELL DETAIL

1/2"=1'-0"



7 266 ORNAMENTAL TREE IN TREE WELL DETAIL

1/2"=1'-0"

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

REGISTERED LANDSCAPE ARCHITECT REBECCA PITTMAN 2778 STATE OF TEXAS

Rebecca Pittman 05/22/18

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Fax: (512) 617-3101
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CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
LANDSCAPE ARCHITECTURE
PLANTING DETAILS

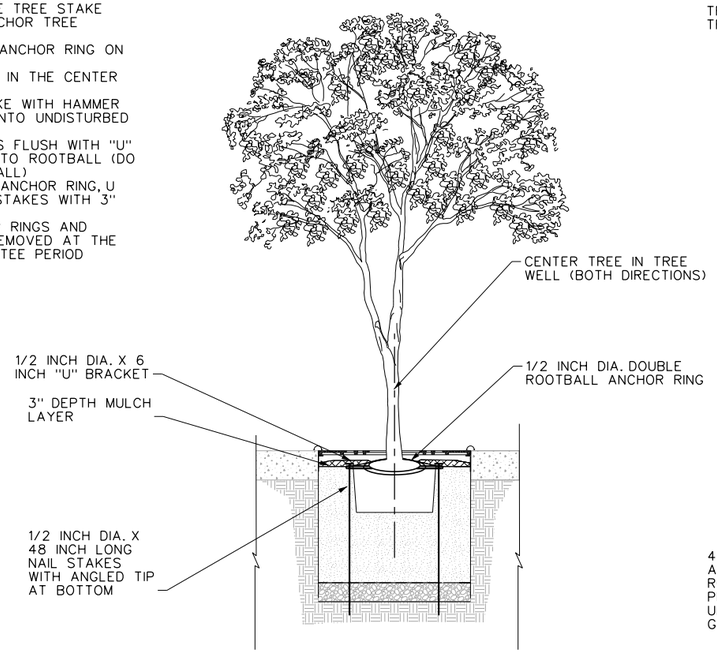
NO.	ISSUES	BY	DATE

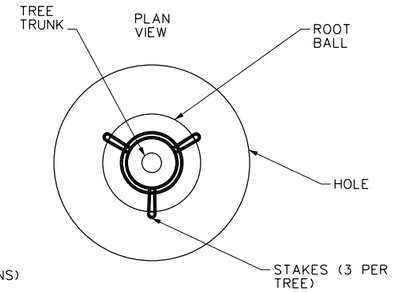
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED RSP
DRAWN KVW
REVISED YC
CHECKED JHH
FILE NAME CV-TRT-DT-01.dgn

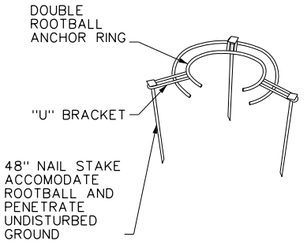
VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0" 1"

SHEET 266
TOTAL 292

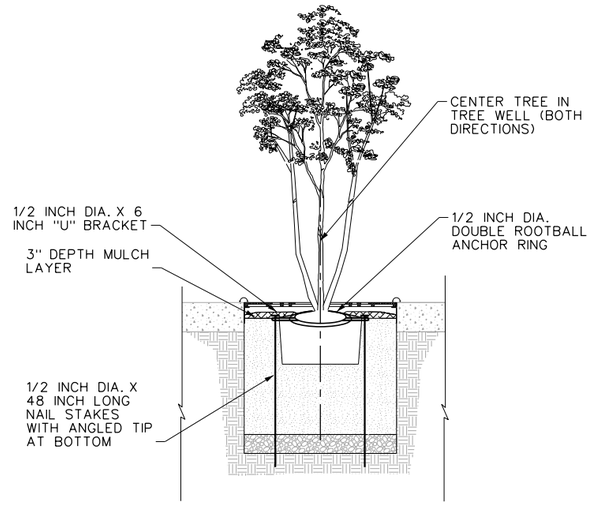
TREE STAKING NOTES:
1. TREE STAKE TO BE TREE STAKE SOLUTIONS ROOT ANCHOR TREE SUPPORT PRODUCT.
2. PLACE ROOTBALL ANCHOR RING ON BASE OF ROOTBALL.
3. TRUNK SHOULD BE IN THE CENTER OF THE RING
4. INSTALL NAIL STAKE WITH HAMMER OR MALLET FIRMLY INTO UNDISTURBED SOIL
5. DRIVE NAIL STAKES FLUSH WITH "U" BRACKET ADJACENT TO ROOTBALL (DO NOT DISTURB ROOTBALL)
6. COVER ROOTBALL ANCHOR RING, U BRACKET, AND NAIL STAKES WITH 3" LAYER OF MULCH
7. ROOTBALL ANCHOR RINGS AND STAKES SHALL BE REMOVED AT THE END OF THE GUARANTEE PERIOD







1/267 STREET TREE WELL STAKING DETAIL
1/2"=1'-0"



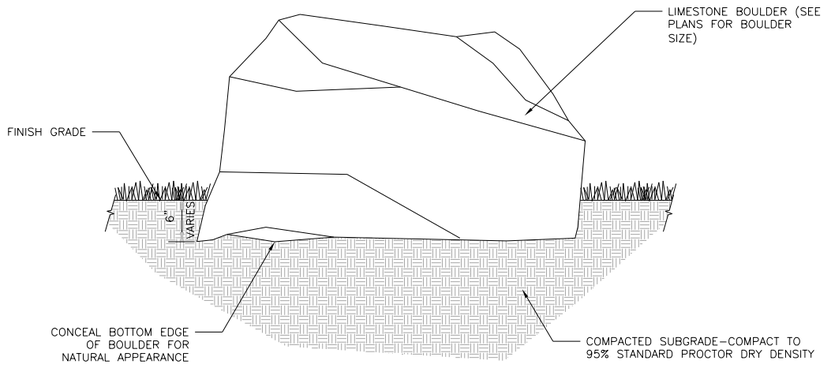
2/267 ORNAMENTAL TREE WELL STAKING DETAIL
1/2"=1'-0"

PLANT LIST

PLANT ABBREVIATION	QUANTITY	SIZE	COMMON NAME	BOTANICAL NAME	CONDITION	COMMENTS
STREET / SMALL SHADE / ORNAMENTAL TREES						
LOK	12	65 GALLON 4" CALIPER 12' HEIGHT 6' SPREAD	LACEY OAK	QUERCUS LACEYI	CONTAINER	FULL DENSE CANOPY; MATCH SELECTIONS FOR UNIFORM HEIGHT AND SPREAD
FPR	1	30 GALLON 2" CALIPER 8' HEIGHT 4' SPREAD	FOREST PANSY REDBUD	CERCIS CANADENSIS 'FOREST PANSY'	CONTAINER	FULL DENSE CANOPY; MATCH SELECTIONS FOR UNIFORM HEIGHT AND SPREAD
STREET / ORNAMENTAL SHRUBS						
DBH	71	5 GAL.	DWARF BURFORD HOLLY	ILEX CORNUTA 'DWARF BURFORD'	CONTAINER	36" O.C.; SPACING AS SHOWN
WNC	102	1 GAL.	WINECUP	CALLIRHOE INVOLUCRATA	CONTAINER	18" O.C.; SPACING AS SHOWN
SOD						
BFG	445 SY		BUFFALO GRASS	BOUTELOUA DACTYLOIDES	CONTAINER	BLOCK SODDING (SEE SPECIFICATIONS)

RAIN GARDEN PLANT LIST

PLANT ABBREVIATION	QUANTITY	SIZE	COMMON NAME	BOTANICAL NAME	CONDITION	COMMENTS
STREET / ORNAMENTAL GRASSES						
EWS	304	2 GAL.	EASTERN WOODLAND SEDGE	CAREX BLANDA	CONTAINER	12" O.C.; SPACING AS SHOWN
HSH	349	2 GAL.	HORSEHERB	CALYPTOCARPUS VIALIS	CONTAINER	12" O.C.; SPACING AS SHOWN
WNC	76	3 GAL.	WINECUP	CALLIRHOE INVOLUCRATA	CONTAINER	24" O.C.; SPACING AS SHOWN
MBS	84	3 GAL.	MEALY BLUE SAGE	SALVIA FARINACEA	CONTAINER	24" O.C.; SPACING AS SHOWN
MXH	77	3 GAL.	MEXICAN HAT	RATIBIDA COLUMNIFERA	CONTAINER	24" O.C.; SPACING AS SHOWN
PEP	65	3 GAL.	PINK EVENING PRIMROSE	OENOTHERA SPECIOSA	CONTAINER	24" O.C.; SPACING AS SHOWN
SOG	74	3 GAL.	SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	CONTAINER	24" O.C.; SPACING AS SHOWN



3/267 BOULDER DETAIL
NOT TO SCALE

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
REGISTERED LANDSCAPE ARCHITECT REBECCA PITTMAN 2178 STATE OF TEXAS
05/25/18
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
LANDSCAPE ARCHITECTURE
PLANTING DETAILS & PLANT LIST

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED RSP
DRAWN KVW
CHECKED JHH
FILE NAME CV-TRT-DT-02.dgn

NO.	ISSUES	BY	DATE
1	REVISED	YC	

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 267
TOTAL 292

MicroStation V8 User: 0254\Office: Dallas
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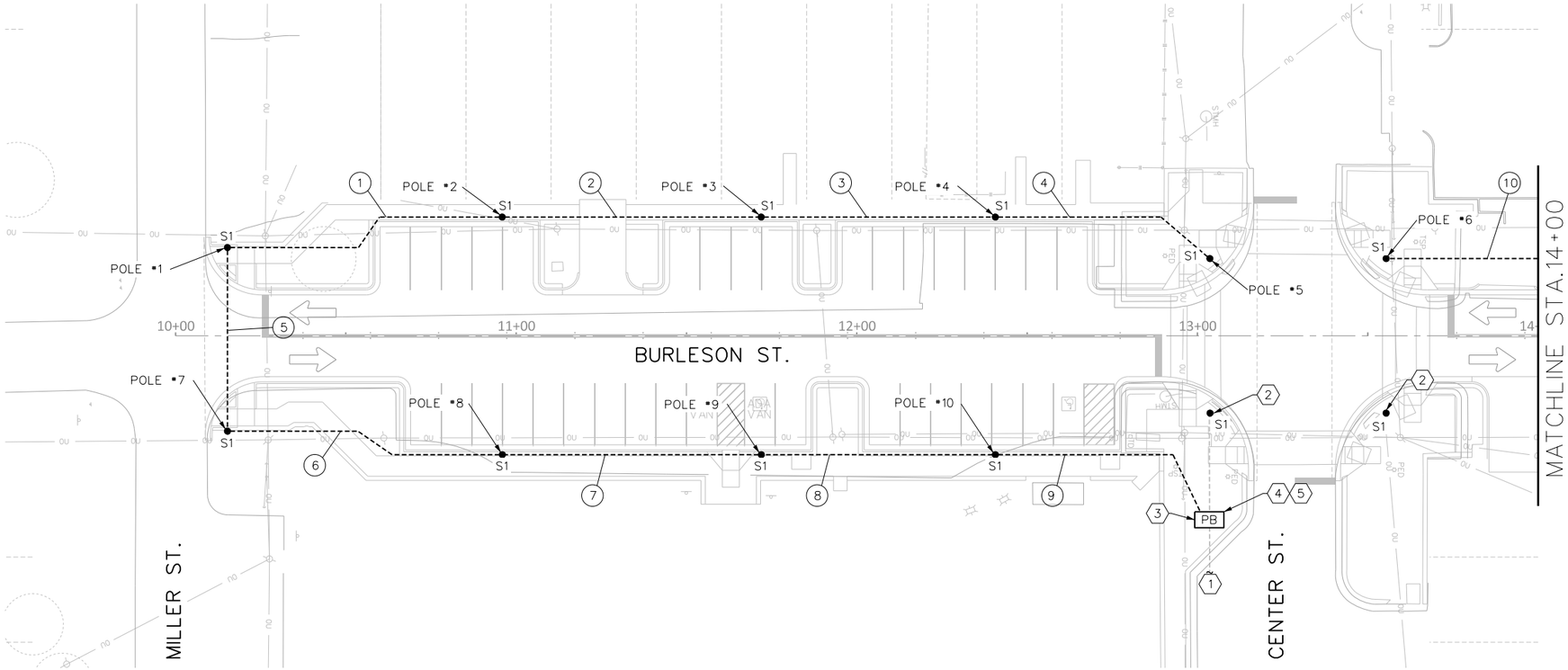
Model: Sheet
Project: Freese and Nichols, Inc.
Plot Scale: .012 '' / ft.
Date: May. 25, 2018 - 12:12:08 PM



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- ROADWAY ILLUMINATION FIXTURE (TY SA) 30T-8 LED (.25KW EQUI)
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

NOTES BY SYMBOL "⬡"

1. EXISTING UNDERGROUND CIRCUIT ROUTED ALONG CENTER STREET TO THE NE QUDRANT EXISTING METER APPROIXIMATELY 175 FEET AWAY.
2. EXISTING POLE/LIGHTING FIXTURE TO REMAIN.
3. CONNECT NEW LIGHTING CIRCUIT TO EXISTING LIGHTING CIRCUIT. RE: 3/E-292.
4. CONTRACTOR SHALL FIELD VERIFY EXISTING LIGHTING CIRCUIT & INTERCEPT/SPLICE AS REQUIRED. RE: 3/E-292.
5. PULLBOX RE: 5/E-292.

0 10' 20' 40'
SCALE IN FEET

N

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE 2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)	CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS GROUND NO.6 NO.	GROUND NO.6 LENGTH	NO.6 INSULATED NO.	NO.6 INSULATED LENGTH	RUN NO.
1	100	1		1-A	1	100	2	200	1
2	85	1		1-A	1	85	2	170	2
3	79	1		1-A	1	79	2	158	3
4	78	1		1-A	1	78	2	156	4
5	63		1	1-A	1	63	2	126	5
6	100	1		1-A	1	100	2	200	6
7	86	1		1-A	1	86	2	172	7
8	79	1		1-A	1	79	2	158	8
9	80	1		1-A	1	80	2	160	9
10	50	1		2-A	1	50	2	100	10

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	10+15.23	25.90	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	10+95.91	34.85	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	11+71.93	34.85	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	12+40.67	34.85	LEFT	"S1" DECORATIVE POLE/FIXTURE
5	BURLESON ST.	13+03.64	22.65	LEFT	"S1" DECORATIVE POLE/FIXTURE
6	BURLESON ST.	13+55.39	22.65	LEFT	"S1" DECORATIVE POLE/FIXTURE
7	BURLESON ST.	10+15.25	28.02	RIGHT	"S1" DECORATIVE POLE/FIXTURE
8	BURLESON ST.	10+95.92	34.93	RIGHT	"S1" DECORATIVE POLE/FIXTURE
9	BURLESON ST.	11+71.95	34.93	RIGHT	"S1" DECORATIVE POLE/FIXTURE
10	BURLESON ST.	12+40.65	34.93	RIGHT	"S1" DECORATIVE POLE/FIXTURE

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	10
S2	POLE FIXTURE AS PER TXDOT	0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
FRANK ZELICKOFF
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
2nd
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.10+00 TO STA.14+00

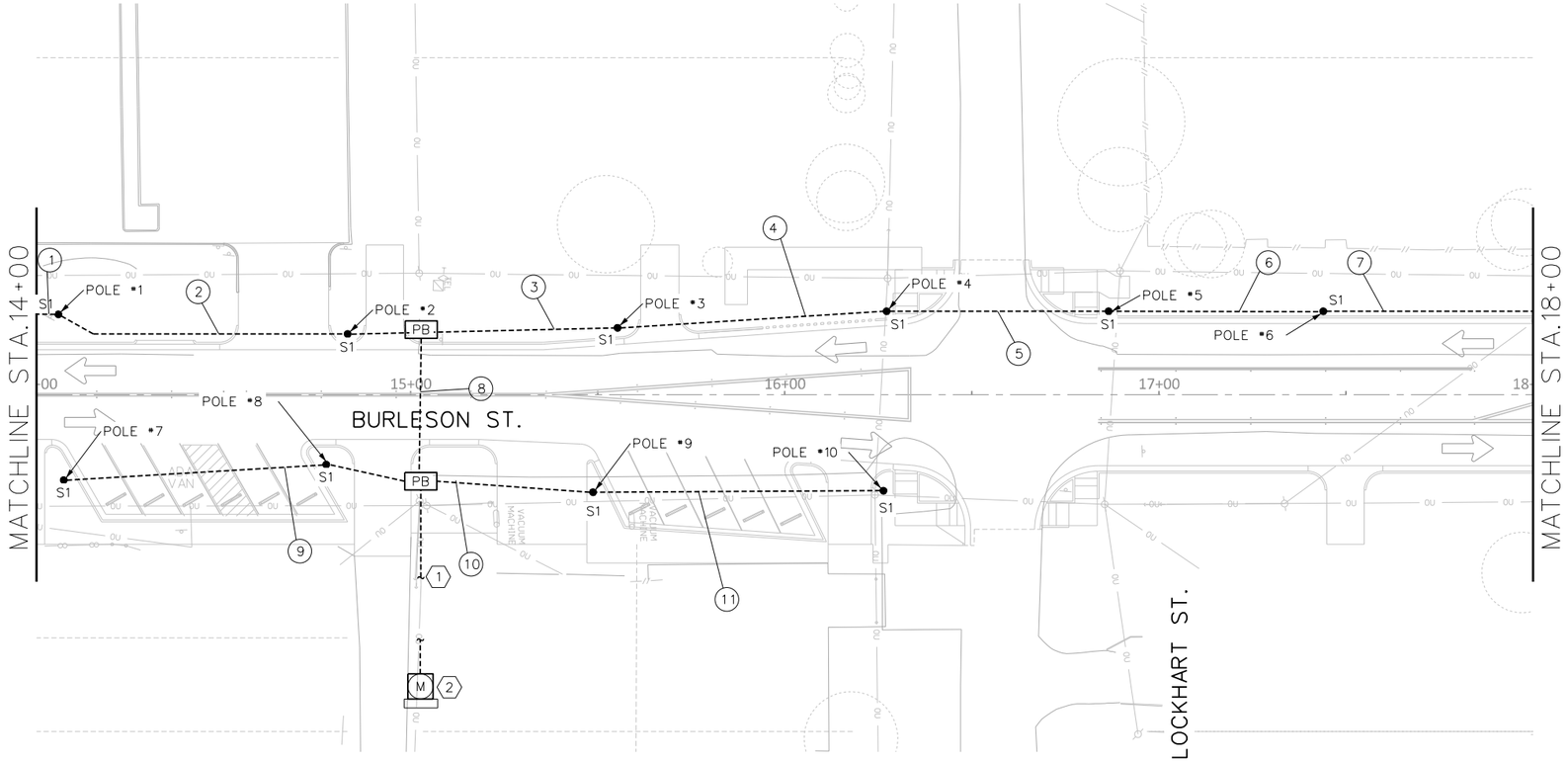
NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
CHECKED TWZ
REVISED
FILE NAME EL-KYL-PL-LTNGE1.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 268
TOTAL 292

MicroStation V8 User: 02813 Office:
N:\ELEC\EL-KYL-PL-LTNGE1.sht
Platter: Plotter Model: HP DesignJet 800ps Mono.pltcfg
Plot Scale: 40.0000 '/ in.
Date: 5/25/2018
Model: Default
Project: Untitled Project



LEGEND

●	DECORATIVE POLE/FIXTURE
--------	CONDUIT/WIRE - TRENCHED
A	ROADWAY ILLUMINATION FIXTURE
PB	TYPE "A" GROUND BOX
M	NEW ELECTRIC SERVICE
E.C.	EMPTY CONDUIT

NOTES BY SYMBOL "⬡"

1. EXISTING METER APPROXIMATELY 200 FEET AWAY FROM PULLBOX IN AN ALLEYWAY BETWEEN CENTER STREET AND LOCKHART. FIELD VERIFY EXACT LOCATION OF PULLBOX

2. EXISTING METER AND PANELBOARD. MODIFY AS SHOWN ON RE: 1/E-292 AND 4/E-292.

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	60	1		2-A	1	60	2	120	1
2	88		1	2-A	1	88	2	176	2
3	83	1		2-A	1	83	2	166	3
4	83	1		2-A	1	83	2	166	4
5	69		1	2-A	1	69	2	138	5
6	67	1		2-A	1	67	2	134	6
7	66	1		2-A	1	66	2	132	7
8	50		1	2-A	1	50	2	100	8
9	86	1		2-A	1	86	2	172	9
10	76	1		2-A	1	76	2	152	10
11	88	1		2-A	1	88	2	176	11

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	10
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	14+05.85	21.83	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	14+83.16	16.54	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	15+55.31	18.20	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	16+27.24	22.61	LEFT	"S1" DECORATIVE POLE/FIXTURE
5	BURLESON ST.	16+86.56	22.61	LEFT	"S1" DECORATIVE POLE/FIXTURE
6	BURLESON ST.	17+43.95	22.61	LEFT	"S1" DECORATIVE POLE/FIXTURE
7	BURLESON ST.	14+07.28	22.49	RIGHT	"S1" DECORATIVE POLE/FIXTURE
8	BURLESON ST.	14+77.47	18.69	RIGHT	"S1" DECORATIVE POLE/FIXTURE
9	BURLESON ST.	15+48.75	26.07	RIGHT	"S1" DECORATIVE POLE/FIXTURE
10	BURLESON ST.	16+26.39	25.71	RIGHT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
FRANK ZELICKOFF
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.10+00 TO STA.18+00

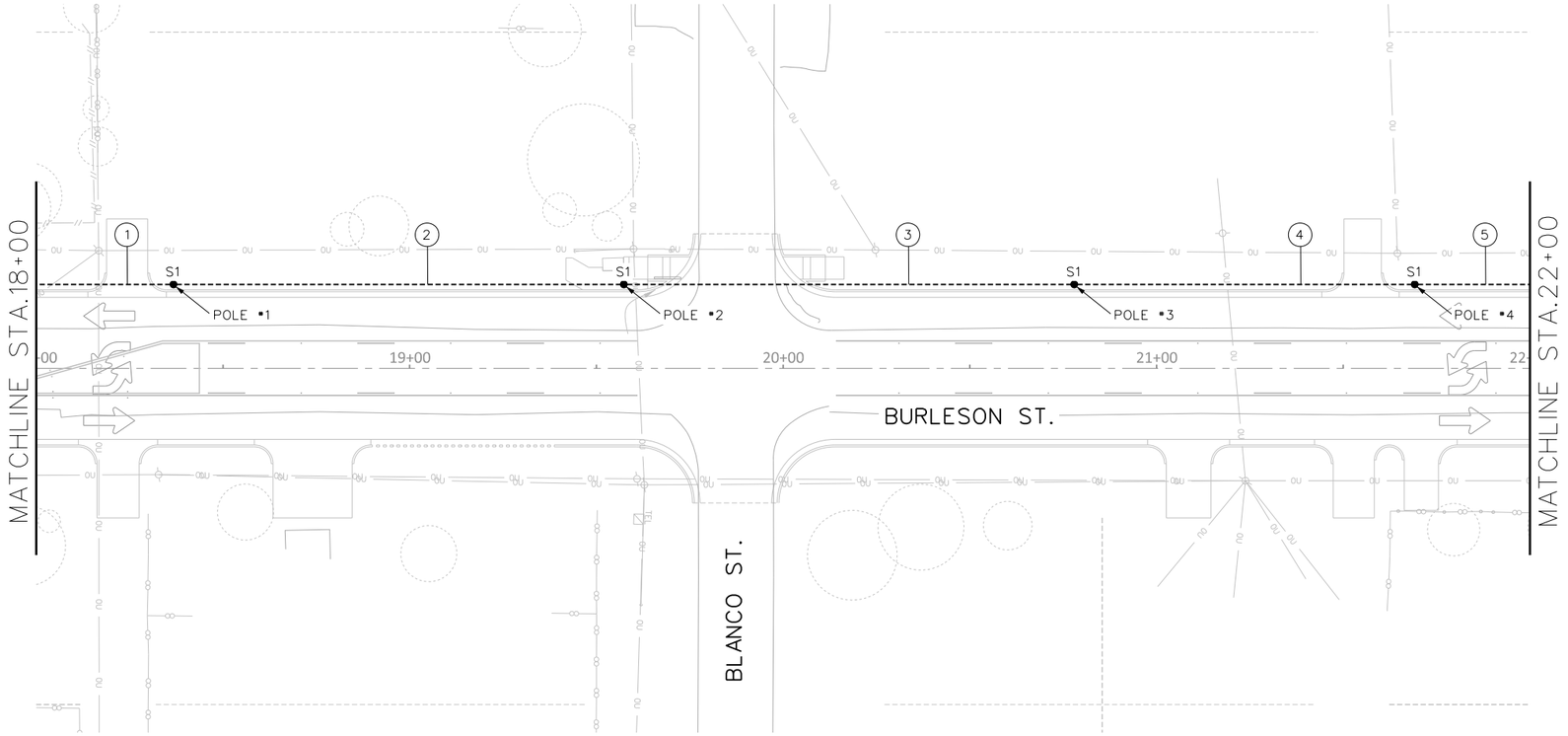
NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE2.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 269
TOTAL 292

MicroStation V8 User: 02813 Office: N:\ELEC\EL-KYL-PL-LTNGE2.sht Model: Default Plotter: J:\Bids\KYL14284_Burleson_Imp\DGN\EL-KYL-PL-LTNGE2.plt Plot Scale: 40.0000 '/ in. Date: 5/25/2018
Project: Unified Project



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	46	1		2-A	1	46	2	92	1
2	130	1		2-A	1	130	2	260	2
3	130		1	2-A	1	130	2	260	3
4	102	1		2-A	1	102	2	204	4
5	37	1		2-A	1	37	2	74	5

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	18+36.74	22.47	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	19+57.35	22.47	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	20+77.96	22.47	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	21+69.13	22.47	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
FRANK TERLECKY
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.18+00 TO STA.22+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

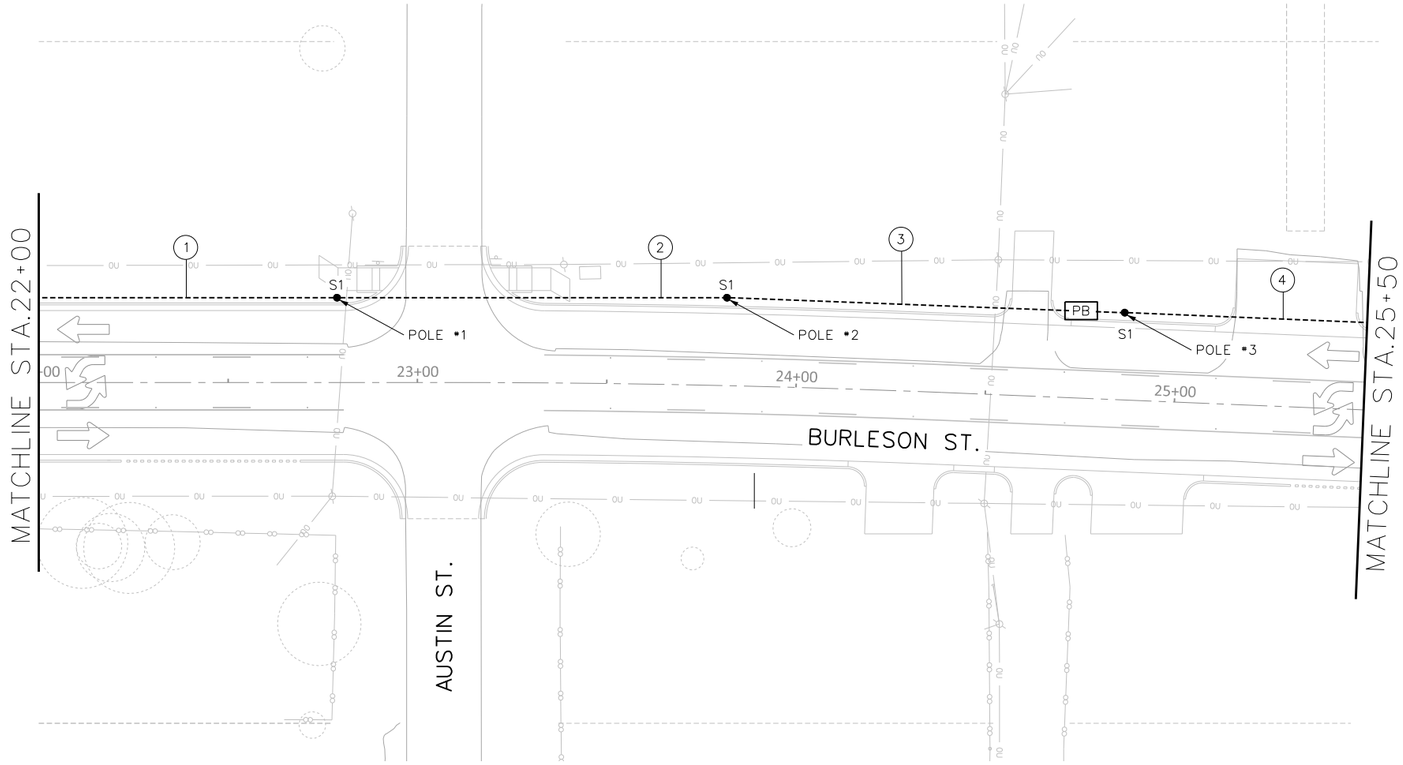
FAN JOB NO.	DATE	DESIGNED	DRAWN	CHECKED
KYL14284	5/22/18	CFB	CFB	TWZ

REVISED

FILE NAME EL-KYL-PL-LTNGE3.sht

SHEET 270

TOTAL 292



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	83	1		2-A	1	83	2	166	1
2	112		1	2-A	1	112	2	224	2
3	117	1		2-A	1	117	2	234	3
4	68		1	2-A	1	68	2	136	4

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	22+87.76	22.39	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	23+81.22	23.22	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	24+85.91	23.05	LEFT	"S1" DECORATIVE POLE/FIXTURE

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	3
S2	POLE FIXTURE AS PER TXDOT	0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE. CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS. LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
FRANK ZELICKSON
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.22+00 TO STA.25+50

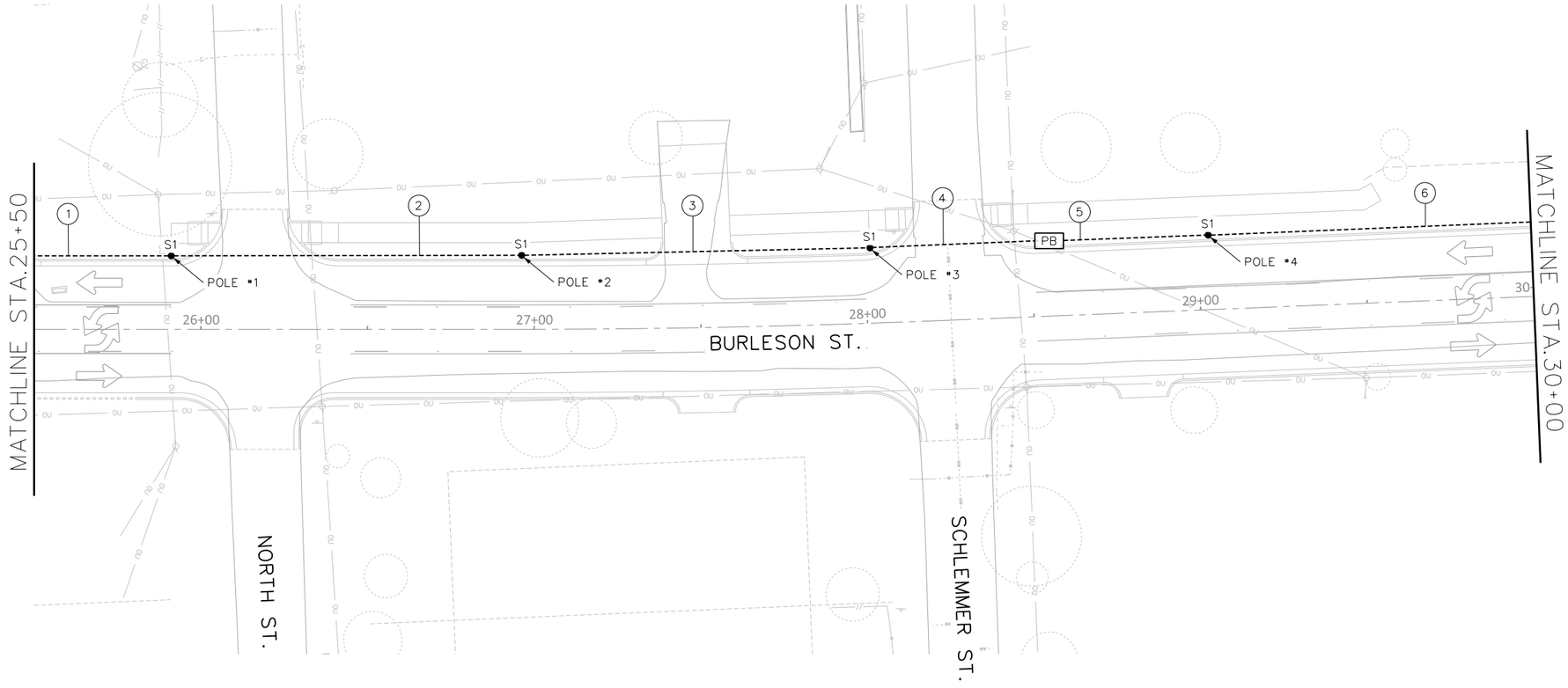
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE4.sht

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 271
TOTAL 292

MicroStation V8 User: 02813 Office:
Platter: jn Path: N:\ELEC\EL-KYL-PL-LTNGE4.sht
Plot Scale: 40.0000 '/ in. Model: Default
Date: 5/25/2018 Project: Unified Project



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

NOTES BY SYMBOL "⬡"

1. CONNECT TO NEW TYPE D SERVICE ON NE CORNER OF SCHLEMER ST.

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	48		1	2-A	1	48	2	96	1
2	116		1	2-A	1	116	2	232	2
3	115	1		2-A	1	115	2	230	3
4	60		1	E.C.	-	55	-	110	4
5	55	1		3-A	1	55	2	110	5
6	108	1		3-A	1	108	2	216	6

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	25+91.13	22.06	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	26+96.26	22.23	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	28+01.49	22.60	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	29+03.18	22.33	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
KEARBY ZELICKSON
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.25+50 TO STA.30+00

NO.	ISSUES	BY	DATE

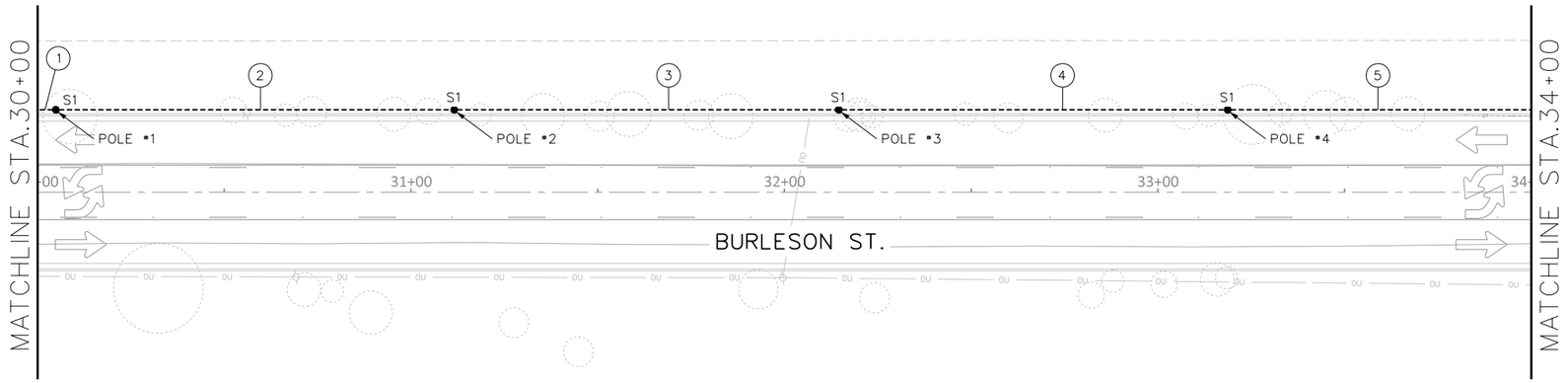
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE5.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 272
TOTAL 292

MicroStation V8 User: 02813 Office:
Platter: jn Path: N:\ELEC\EL-KYL-PL-LTNGE5.sht
Plot Scale: 40.0000 '/ in. Model: Default
Plot Date: 5/25/2018 Project: United Project

Office: Date: 5/25/2018 User: 02813 File: N:\ELEC\EL-KYL-PL-LTNGE5.sht



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	11	1		3-A	1	11	2	22	1
2	117	1		3-A	1	117	2	234	2
3	113	1		3-A	1	113	2	226	3
4	115	1		3-A	1	115	2	230	4
5	88	1		3-A	1	88	2	176	5

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	30+04.88	22.05	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	31+11.57	22.05	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	32+14.55	22.05	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	33+18.68	22.05	LEFT	"S1" DECORATIVE POLE/FIXTURE

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS
MARK TERLICKA
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.30+00 TO STA.34+00

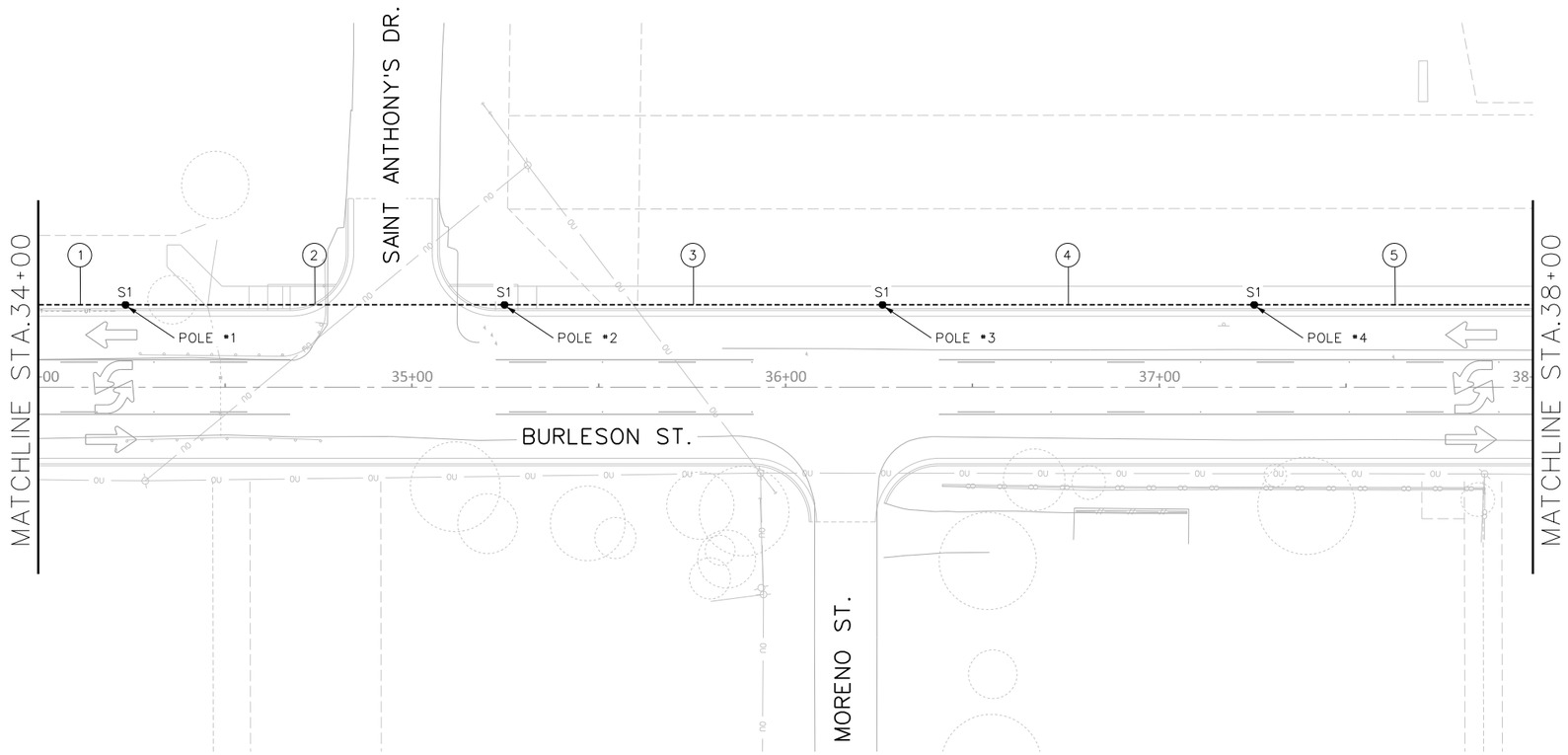
NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO.	KYL14284
DATE	5/22/18
DESIGNED	CFB
DRAWN	CFB
REVISED	
CHECKED	TWZ
FILE NAME	EL-KYL-PL-LTNGE6.sht

SHEET 273
TOTAL 292

MicroStation V8 User: 02813 Office: N:\ELEC\EL-KYL-PL-LTNGE6.sht
Platter: jh Photocell: Yes Pole_File: BP_Mono.pltcfg Model: Detour
Plot Scale: 40.0000 '/ in. Project: Untitled Project
Date: 5/25/2018



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	33	1		3-A	1	33	2	66	1
2	112		1	3-A	1	112	2	224	2
3	112	1		3-A	1	112	2	224	3
4	110	1		3-A	1	110	2	220	4
5	85	1		3-A	1	85	2	170	5

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	34+23.36	22.07	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	35+24.78	22.07	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	36+25.94	22.07	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	37+25.44	22.07	LEFT	"S1" DECORATIVE POLE/FIXTURE

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE. CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
KEARBY ZELLMER PORTER
92701
LICENSED PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
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Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.34+00 TO STA.38+00

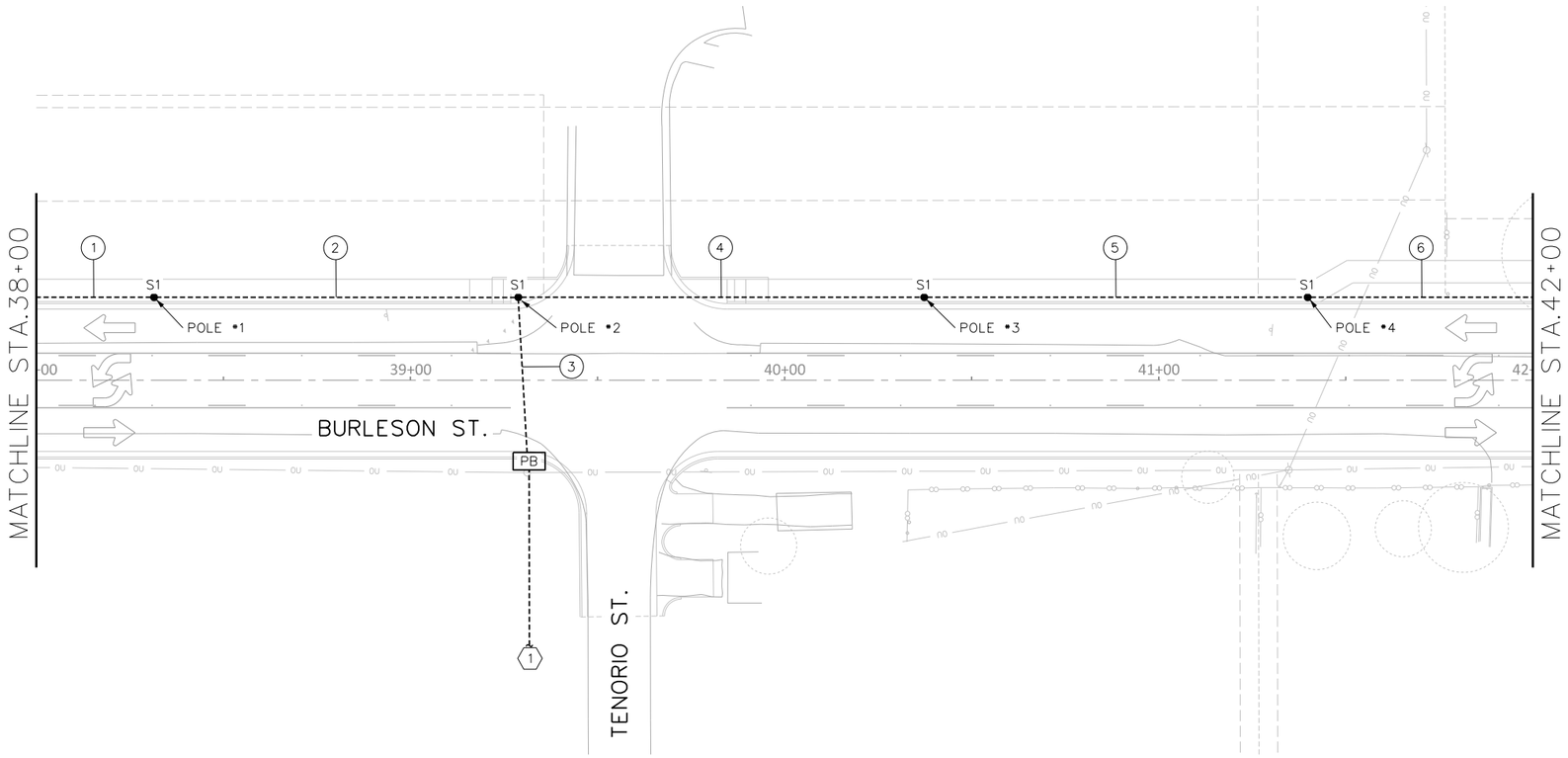
NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE7.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 274
TOTAL 292

MicroStation V8 User: 02813 Office: N:\ELEC\EL-KYL-PL-LTNGE7.dgn
Platter: Platter.pltPrinter: HP Designjet 500 42in C4705A
Plot Scale: 40.0000 '/ in.
Date: 5/25/2018
Model: Default
Project: Untitled Project



LEGEND

●	DECORATIVE POLE/FIXTURE
--------	CONDUIT/WIRE - TRENCHED
□A ●	ROADWAY ILLUMINATION FIXTURE
PB	TYPE "A" GROUND BOX
M	NEW ELECTRIC SERVICE
E.C.	EMPTY CONDUIT

NOTES BY SYMBOL "⬡"

1. PROVIDE NEW TYPE D SERVICE ON SE CORNER OF TENORIO STREET. COORDINATE NEW SERVICE WITH EXISTING UTILITY COMPANY.

2. PROVIDE TWO (2) 2P/20A CIRCUIT BREAKERS AS "SPARE".

N

0 10' 20' 40'
SCALE IN FEET

ELECTRICAL SERVICE NO. 1

SERVICE TYPE	ELECTRICAL SERVICE DESCRIPTION	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO POLE CONTACTOR AMPS	PANEL B.D/ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT./BRK POLE AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
TYPE D	(120/240) 060 (NS) AL (E) PS (U)	1 1/4"	3/•6	NA	2P/60	60	NA	3-A	2P/20	10	.66
								4-A	2P/20	10	1.26

⬡2

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	38	1		3-A	1	38	2	76	1
2	107	1		3-A	1	107	2	214	2
3	100		1	3-A, 4-A	1	100	2	200	3
4	118		1	4-A	1	118	2	236	4
5	113	1		4-A	1	113	2	226	5
6	66	1		4-A	1	66	2	132	6

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	38•31.46	22.16	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	39•28.82	22.16	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	40•37.32	22.16	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	41•39.81	22.16	LEFT	"S1" DECORATIVE POLE/FIXTURE

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
FRANKIE ZELICKSON
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.38+00 TO STA.42+00

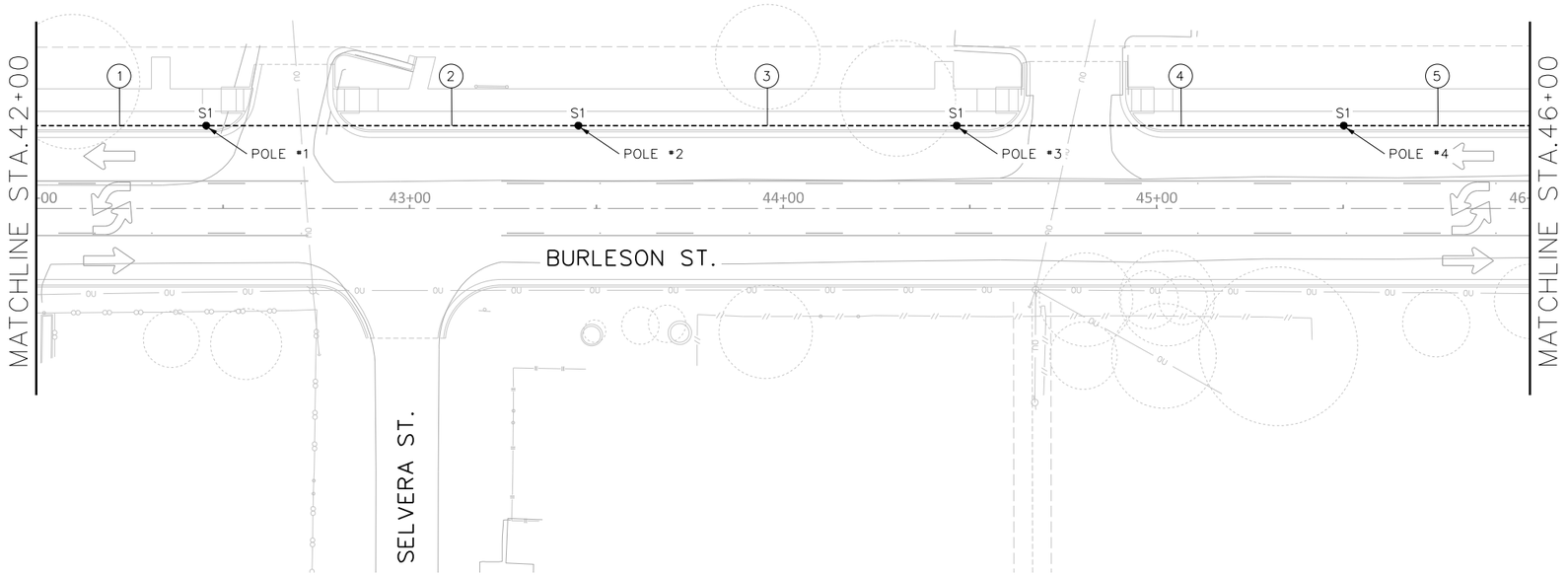
NO.	ISSUES	BY	DATE

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE8.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 275
TOTAL 292

MicroStation V8 User: 02813 Office:
Platter: J:\Projects\KYL_PL_LTNGE8.sht
Plot Scale: 40.0000 '/ in.
Plot Date: 5/25/2018
Model: Default
Project: Untitled Project



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

0 10' 20' 40'
SCALE IN FEET

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE 2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)	CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS GROUND NO.6 NO.	GROUND NO.6 LENGTH	NO.6 INSULATED NO.	NO.6 INSULATED LENGTH	RUN NO.
1	51	1		4-A	1	51	2	102	1
2	110		1	4-A	1	110	2	220	2
3	112	1		4-A	1	112	2	224	3
4	114		1	4-A	1	114	2	228	4
5	55	1		4-A	1	55	2	110	5

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	42+45.50	22.18	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	43+45.18	22.18	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	44+46.47	22.18	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	45+50.14	22.18	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE. CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
FRANK ZELICKS
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

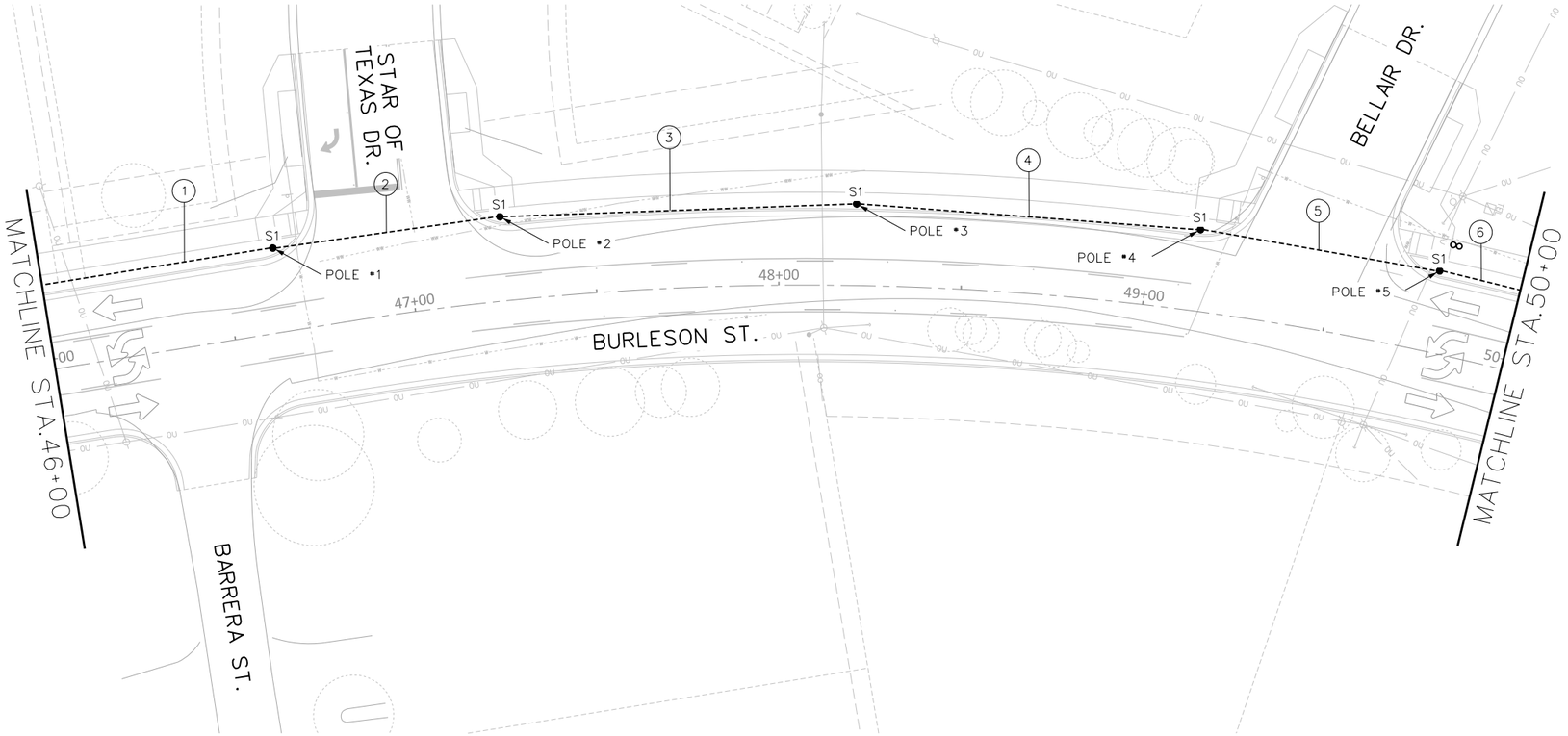
ROADWAY LIGHTING
STA.42+00 TO STA.46+00

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE9.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 276
TOTAL 292



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	75	1		4-A	1	75	2	150	1
2	73		1	4-A	1	73	2	146	2
3	110	1		4-A	1	110	2	220	3
4	106	1		4-A	1	106	2	212	4
5	76		1	4-A	1	76	2	152	5
6	32	1		4-A	1	32	2	64	6

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	5
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	46+64.13	23.22	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	47+25.67	23.10	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	48+20.96	22.39	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	49+13.06	22.34	LEFT	"S1" DECORATIVE POLE/FIXTURE
5	BURLESON ST.	49+77.86	22.40	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
TRAVIS L. BLOCKER
92701
LICENSED
PROFESSIONAL ENGINEER
05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
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Phone: (512) 617-3100
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Web: www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.46+00 TO STA.50+00

NO.	ISSUES	BY	DATE

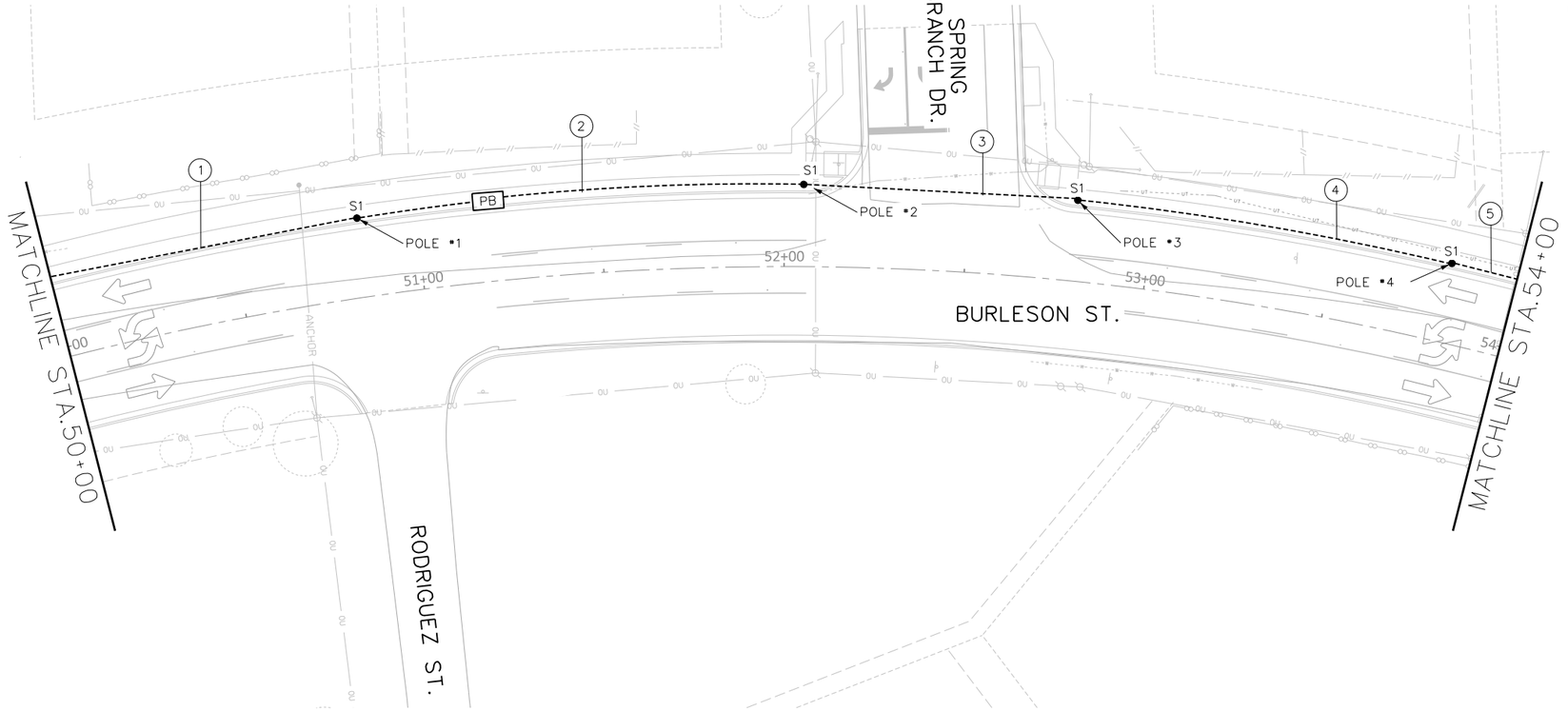
F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE10.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 277
TOTAL 292

MicroStation V8 User: 02813 Office:
N:\ELEC\EL-KYL-PL-LTNGE10.sht
Platter: jh Photocell: No_Photocell_Needed Model: Detour
Plot Scale: 40.0000 '/ in. Project: Limited Project
Date: 5/25/2018

Office: Date: 5/25/2018 User: 02813 File: N:\ELEC\EL-KYL-PL-LTNGE10.sht



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	92	1		4-A	1	92	2	184	1
2	130	1		4-A	1	130	2	260	2
3	85		1	4-A	1	85	2	170	3
4	117	1		4-A	1	117	2	234	4
5	24	1		4-A	1	24	2	48	5

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	50+84.28	22.5	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	52+05.28	22.8	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	52+79.40	22.46	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	53+81.87	22.08	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
MARK ZELICKSON
92701
LICENSED PROFESSIONAL ENGINEER
05/25/2018
FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.50+00 TO STA.54+00

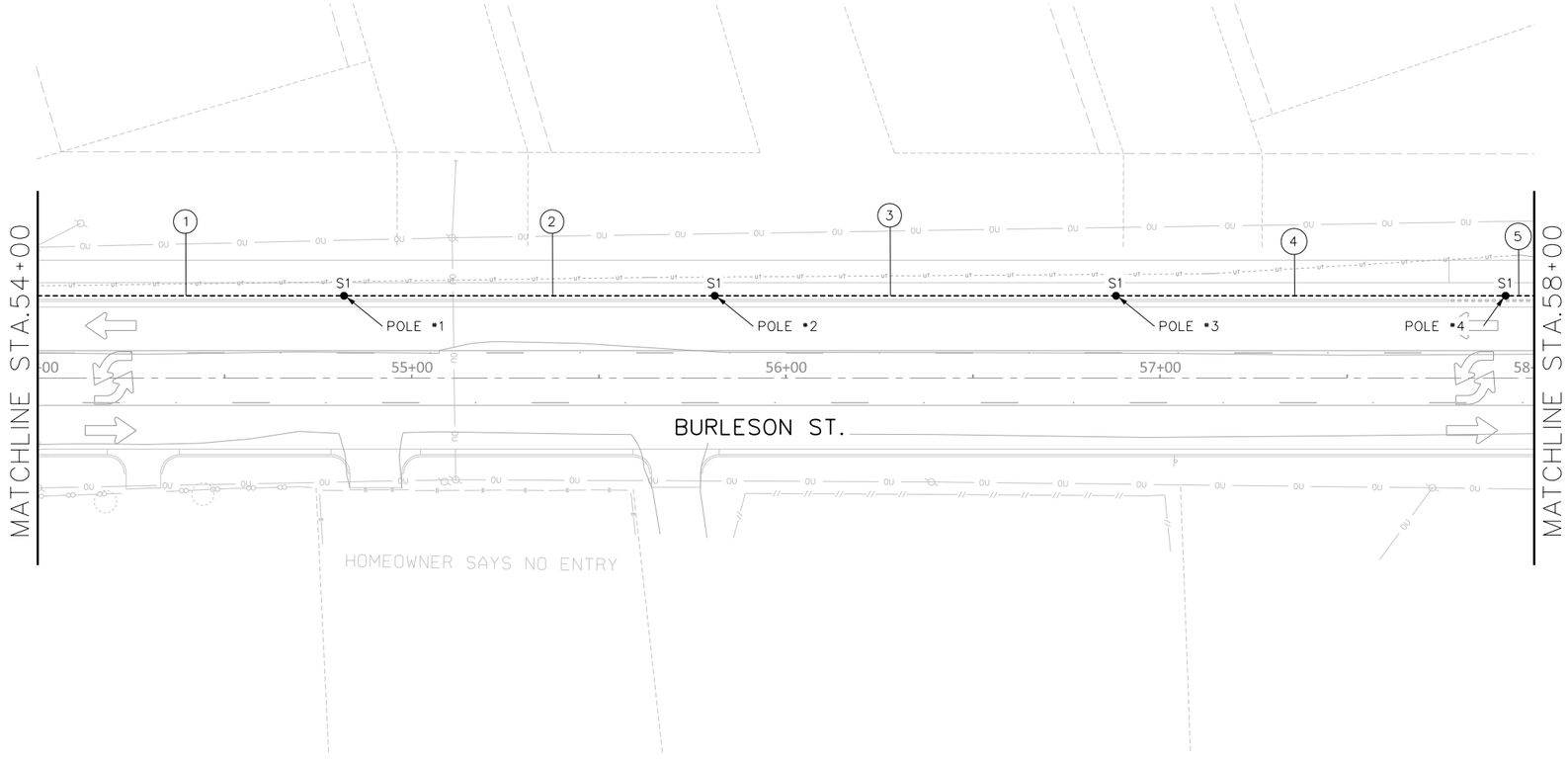
FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE11.sht

NO.	ISSUES	BY	DATE	REVISED

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

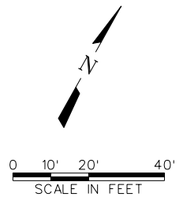
SHEET 278
TOTAL 292

MicroStation V8 User: 02813 Office: N:\ELEC\EL-KYL-PL-LTNGE11.sht
Plotter: \\Plotter_HP_Designjet_T610_24in_Color_PS_Model_Default.pltcfg
Plot Scale: 40.0000 '/ in.
Date: 5/25/2018
Model: Default
Project: Untitled Project



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT



CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	88	1		4-A	1	88	2	176	1
2	110	1		4-A	1	110	2	220	2
3	115	1		4-A	1	115	2	230	3
4	113	1		4-A	1	113	2	226	4
5	15	1		4-A	1	15	2	30	5

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	4
S2	POLE FIXTURE AS PER TXDOT	0

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	54+81.85	22.00	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	55+80.97	22.00	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	56+88.23	22.00	LEFT	"S1" DECORATIVE POLE/FIXTURE
4	BURLESON ST.	57+92.38	22.00	LEFT	"S1" DECORATIVE POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — MARK ZELICKMAN — 92701 — LICENSED PROFESSIONAL ENGINEER — 05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.54+00 TO STA.58+00

NO.	ISSUES	BY	DATE

FAN JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE12.sht

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 279
TOTAL 292

MicroStation V8 User: 02813 Office:
N:\ELEC\EL-KYL-PL-LTNGE12.sht
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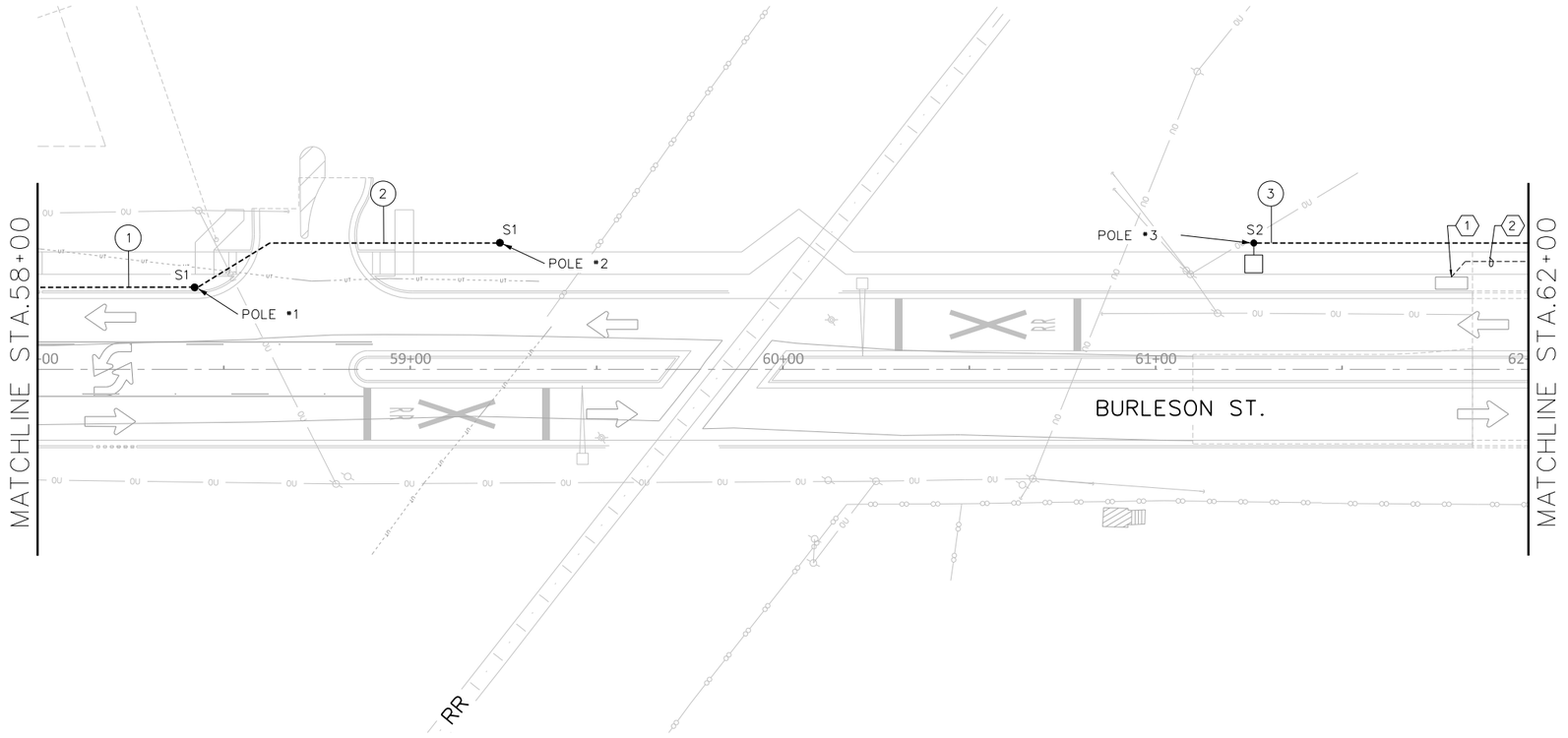
Plot Scale: 40.0000 '/ in.
Date: 5/25/2018
Model: Detroit
Project: Untitled Project



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

NOTES BY SYMBOL "⬡"

1. EXISTING ELECTRIC SERVICE.
2. EXISTING UNDERGROUD CONDUIT/WIRE TO REMAIN.

CONDUIT AND CONDUCTOR CHART WIRE SIZE AND TYPE

RUN NO.	LENGTH OF RUN (FEET)	ITEM 618 CONDUIT SIZE AND TYPE		CIRCUIT	ITEM 620 ELECTRICAL CONDUCTORS				RUN NO.
		2" SCH 40 PVC (TRENCHED)	2" SCH 80 PVC (TRENCHED)		GROUND NO.6		NO.6 INSULATED		
					NO.	LENGTH	NO.	LENGTH	
1	55	1		4-A	1	55	2	110	1
2	90		1	4-A	1	90	2	180	2
3	150	1		*	1	150	2	300	3

*NOTE: CONNECT TO EXISTING STREET LIGHTING CIRCUIT INSTALLED UNDER SEPARATE CONTRACT

ITEM NO	DESCRIPTION	QUANTITY
S1	DECORATIVE POLE FIXTURE	2
S2	POLE FIXTURE AS PER TXDOT	1

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	58+42.14	21.99	LEFT	"S1" DECORATIVE POLE/FIXTURE
2	BURLESON ST.	59+24.22	33.90	LEFT	"S1" DECORATIVE POLE/FIXTURE
3	BURLESON ST.	60+98.48	33.90	LEFT	"S2" POLE/FIXTURE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57
S2	PER TXDOT STANDARDS	PER TXDOT STANDARDS	240	TXDOT RD IL AM (TYPE SA) 30T-8LED (.25 KW EQUIVALENT) CONTRACTOR SHALL MATCH EXISTING POLE/FIXTURE INSTALLED ON ROUNDABOUT.	80

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — JAMES T. WEBB — 92701 — LICENSED PROFESSIONAL ENGINEER — 05/25/2018

FREESE NICHOLS
10431 Morado Circle Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.58+00 TO STA.62+00

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE13.sht

NO. ISSUES | BY | DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

SHEET 280
TOTAL 292

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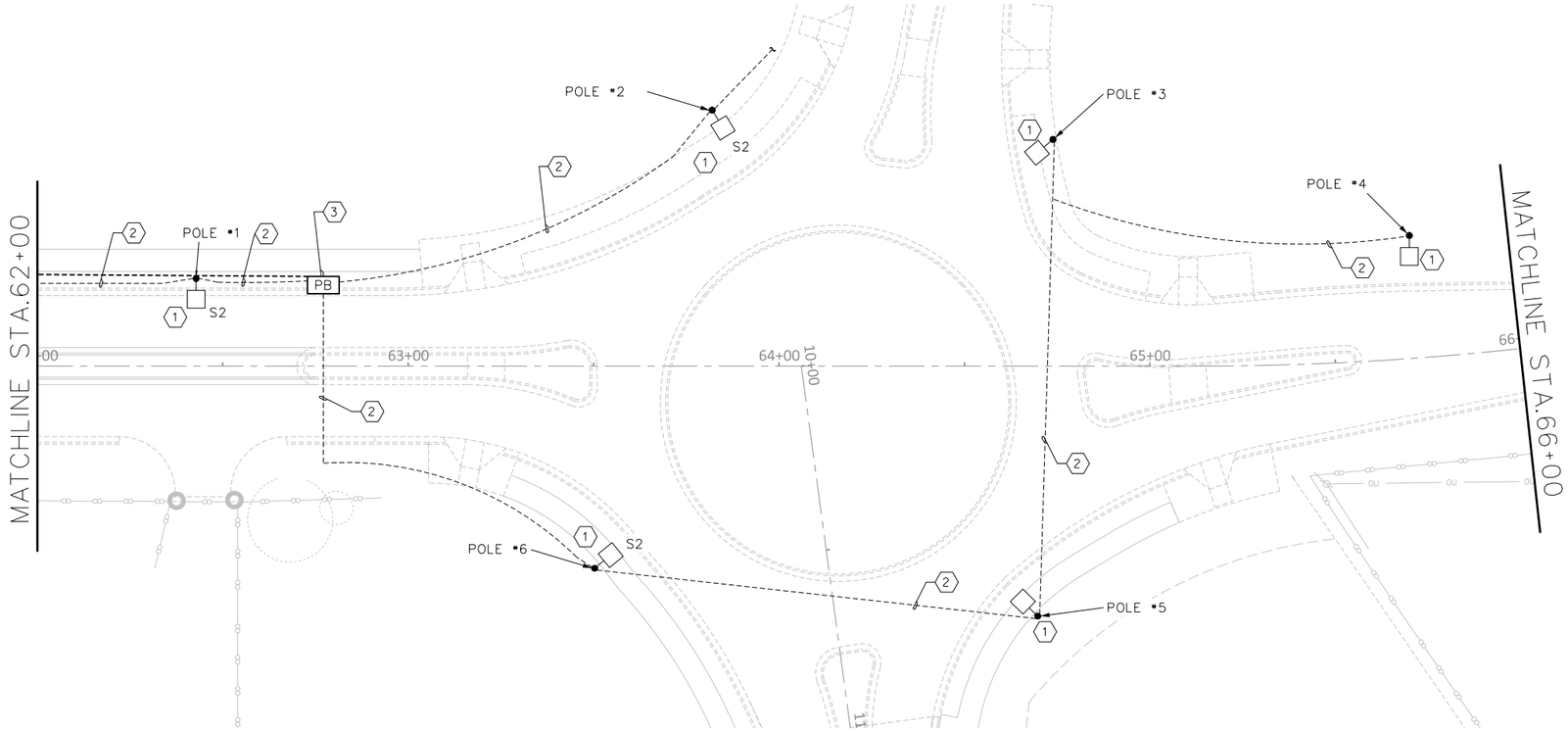
Date: 5/25/2018

Office: Date: 5/25/2018 User: 02813 File: N:\ELEC\EL-KYL-PL-LTNGE13.sht



LEGEND

- DECORATIVE POLE/FIXTURE
- CONDUIT/WIRE - TRENCHED
- A — ROADWAY ILLUMINATION FIXTURE
- PB — TYPE "A" GROUND BOX
- M — NEW ELECTRIC SERVICE
- E.C. — EMPTY CONDUIT

N

0 10' 20' 40'
SCALE IN FEET

NOTES BY SYMBOL "⬡"

1. EXISTING ROADWAY ILLUMINATION TO REMAIN.
2. EXISTING UNDERGROUND CONDUIT/WIRE TO REMAIN.
3. CONTRACTOR SHALL FIELD VERIY EXISTING LIGHTING CIRCUIT AND INTERCEPT/SPLICE AS REQUIRED, RE: 5/E-292.

SUMMARY OF ROADWAY ILLUMINATION ASSEMBLIES

POLE	ALIGN	STATION	OFFSET	DIRECTION	TYPE
1	BURLESON ST.	62+34.54	22.31	LEFT	"SA" EXISTING
2	ROUNDABOUT	63+72.09	56.89	-	"SA" EXISTING
3	ROUNDABOUT	64+83.81	40.52	-	"SA" EXISTING
4	BURLESON ST.	65+77.57	32.65	LEFT	"SA" EXISTING
5	ROUNDABOUT	64+72.17	68.36	-	"SA" EXISTING
6	ROUNDABOUT	63+51.30	57.93	-	"SA" EXISTING

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	MODEL NO.	VOLTS	DESCRIPTION	WATTS
S1	AMERLUX	079-15-POLE 0763-13-AVI-4H-FIXTURE	240	DECORATIVE ACORN STYLE STREET LIGHT FIXTURE, CAST ALUMINUM HOUSING, REFRACTIVE BOROSILICATE GLASS LENS, LED LIGHT ENGINE AND MATCHING SMOOTH CART ALUMINUM 15' POLE WITH BLACK FINISH	57
S2	PER TXDOT STANDARDS	PER TXDOT STANDARDS	240	TXDOT RD IL AM (TYPE SA) 30T-8LED (.25 KW EQUIVALENT) CONTRACTOR SHALL MATCH EXISTING POLE/FIXTURE INSTALLED ON ROUNDABOUT.	80

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144

STATE OF TEXAS — MARK ZELICKSON — 92701 — LICENSED PROFESSIONAL ENGINEER — 05/25/2018

FREESE NICHOLS
10431 Morado Circle, Suite 300
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Phone: (512) 617-3100
Fax: (512) 617-3101
Web - www.freese.com

CITY OF KYLE, TEXAS

N. BURLESON ST. IMPROVEMENTS

ELECTRICAL

ROADWAY LIGHTING
STA.62+00 TO STA.66+00

NO.	ISSUES	BY	DATE

VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale.
0 1"

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-PL-LTNGE14.sht

SHEET 281
TOTAL 292

MicroStation V8 User: 02813 Office:
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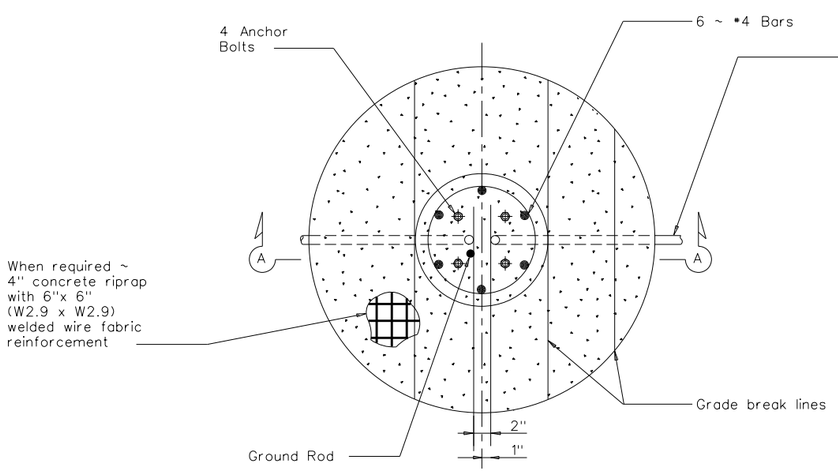
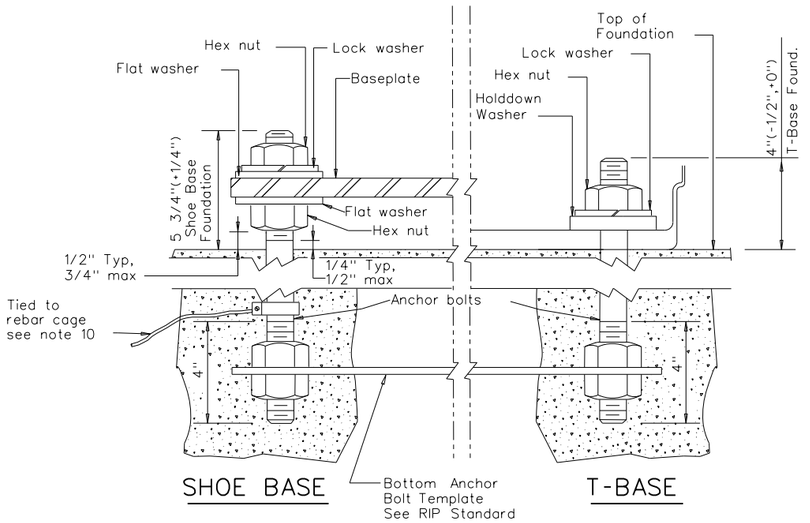
Plot Scale: 40.0000 '/ in.
Date: 5/25/2018
Model: Detour
Project: Untitled Project

DATE:
FILE:

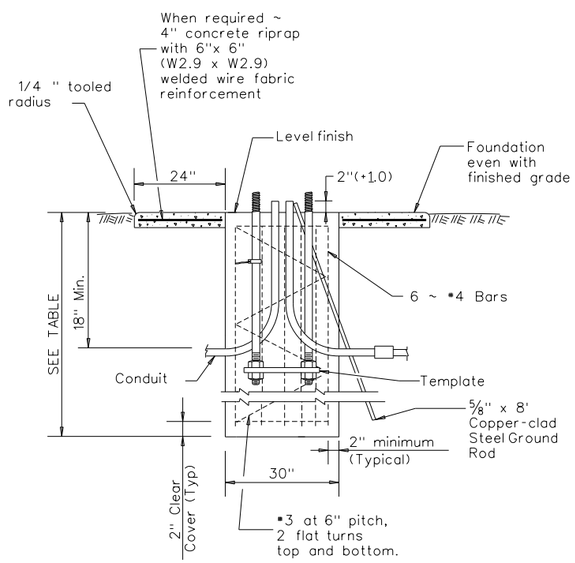


FOUNDATION DETAIL



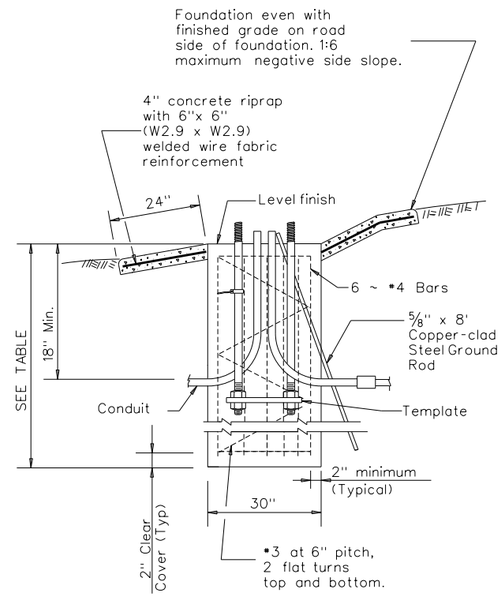
ANCHOR BOLT DETAIL

1. "Recommended Foundation Lengths" table is for information purposes only. Foundation lengths shall be as shown on the plans, or as directed by the Engineer. Foundations will be paid for under Item 416, "Drilled Shaft Foundations," unless otherwise shown on the plans.
2. Erect roadway illumination assembly poles plumb and true. Form and level the top 6" of the foundation so the pole will be plumb. Use leveling nuts to plumb shoe base poles. Do not use shims or leveling nuts under transformer bases. Do not grout between baseplate and the foundation.
3. Ensure Class 2A and 2B fit for anchor bolts and nuts. Tap and chase nuts after galvanizing. Anchor bolt body with rolled threads need not be full size.
4. Use appropriate class of concrete as specified in Items 416 and 432.
5. Place riprap around the foundation when called for elsewhere in the plans. Riprap will be paid for under Item 432.
6. Locate breakaway roadway illumination assemblies as shown in the placement table, unless otherwise dimensioned on the plans. Protect non-breakaway illumination assemblies from vehicular impact (i.e. 2 ft. behind guard rail or mounted on traffic barrier), or located outside the clear zone, except that 2.5 ft. from curb face is minimum desired for light poles on city streets, 45 mph or less, see design guidelines for further information.
7. Use 8 hold down washers on transformer base poles as recommended by the manufacturer and supplied with base.
8. Install a minimum of 2 conduits in each foundation. See lighting layout sheets for locations of foundations with more than 2 conduits. Cap unused conduits in foundations on both ends.
9. Conduit location in foundations is critical for breakaway devices. Place conduits 2 in. apart on centerline as shown.
10. Bond anchor bolt to rebar cage with #6 bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete.
11. Use rip rap on T-base foundations that are located on a sloped grades.



SECTION A-A

SHOWING CONSTANT GRADE



SECTION A-A

SHOWING SLOPED GRADE

PAY QUANTITY OF RIPRAP PER FOUNDATION (Install only when shown on the plans)		
Foundation Diameter	RIPRAP DIAMETER	RIPRAP (CONC) (CL B)
30 in.	78 in.	0.35 CY

ANCHOR BOLTS			
POLE MOUNTING HEIGHT	BOLT CIRCLE		ANCHOR BOLT SIZE
	Shoe Base	T-Base	
<40 ft.	13 in.	14 in.	1in.x 30in.
40-50 ft.	15 in.	17 1/4 in.	1 1/4in. x 30in.

RECOMMENDED FOUNDATION LENGTHS (See note 1)			
MOUNTING HEIGHT	TEXAS CONE PENETROMETER N Blows/ft		
	10	15	40
≤20 ft.	6'	6'	6'
>20 ft. to 30 ft.	8'	6'	6'
>30 ft. to 40 ft.	8'	8'	6'
>40 ft. to 50 ft.	10'	8'	6'

BREAKAWAY POLE PLACEMENT (See note 6)	
Roadway Functional Classification	** Pole offset (distance to transformer base, tolerance + 6in.-0in.)
Freeway Mainlanes (roadway with full control of access)	15 ft. (minimum and typical) from lane edge
All curbed, 45 mph or less design speed	2.5 ft. minimum (15 ft. desirable) from curb face
All others	10 ft. minimum (15 ft. desirable) from lane edge

* or as close to ROW line as is practical

** provide 2/5 of the luminaire mounting height behind the pole for "falling area" to prevent encroachment on the other travel lanes. See design guidelines.

Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS

(RDWY ILLUM FOUNDATIONS)

RID(FND)-11

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
1-11				
	DIST	COUNTY		SHEET NO.
				282

72C

ROADWAY ILLUMINATION LIGHT FIXTURES

Fixture Housing:

A. Provide *UL listed fixture suitable for use in wet locations. Ensure optical compartment meets IEC Standard 60529-IP 65. Place a permanent label inside fixture indicating fixture meets *UL, IP 65 optical, and shows date of manufacture. Meet ANSI 136.15 wattage label requirements.

B. Construct fixture housing, lens frame, and door from 96% copper-free, die cast aluminum. Provide fixture mounting to a 2-in. pipe arm. Equip fixture with a 4-bolt clamp capable of adjustments plus or minus 5 degrees from level. Meet ANSI 136.31 3.0 G vibration requirements.

C. Attach a level bubble to the fixture housing. Ensure the level bubble is sensitive to 1 degree changes in position at any point within 5 degrees of the level position. Ensure the level bubble is clearly visible from the ground up to a 50 ft. mounting height. Ensure level bubble corresponds to level position of fixture.

D. Do not exceed 1.6 sq. ft. effective projected area. Do not exceed 60 lb. maximum weight.

E. Equip fixture with a 3-prong photocell receptacle with shorting cap installed.

F. Paint inside and outside of fixture light gray, when installing on galvanized poles. For all other fixtures, paint to match the color of the pole as directed by the Department.

G. Use a thermoset powder coat system. Ensure paint exceeds 1000-hr. salt-spray test in accordance with ASTM B117. Ensure a nominal thickness of 2.5 mil and no pigment loss upon 50 double-rubs using Methyl Ethyl Ketone (MEK) solvent in accordance with ASTM D5402, "Standard Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs."

H. Fabricate brackets, nuts, bolts, washers, ballast tray, and parts from stainless-steel, or aluminum of adequate thickness as approved by the Department except that:
1. The 4 bolts/studs, 4 flat washers, 4 lock washers, and clamp that attach the luminaire to the arm may be galvanized in accordance with ASTM A123, A153 or B633. Provide means to ensure clamp is in the open position when installing.
2. Glass lens retainer spring clips may be fabricated from galvanized steel in accordance with ASTM A153.
3. Provide nylon throat or other approved locking means for all stainless steel nuts.

I. Provide optical assemblies which meet the following:
1. Polished aluminum reflectors with Alzak or equal coating.
2. Do not paint reflectors, except that, when approved by the Engineer, some surfaces may be painted with 92% reflective white paint.
3. Reflectors may be one piece or segmented as follows.
   a. One piece reflectors:
      1. Seal photometric compartment by the use of a seamless or vulcanized seam, closed-cell silicone gasket, or other method approved by the Department.
      2. Provide a non-adjustable lamp socket mounting method so the lamp center is consistent with the reflector.
   b. Segmented reflectors:
      1. Attach segments at both ends (or opposite sides if segments are square) of the segment to a rigid aluminum base plate and side wall support assembly. Seal glass lens to lens frame with a one piece seamless silicone gasket.
4. Equip the optical assembly with a lamp support in addition to the lamp socket to ensure the outer envelope is positioned as intended.

J. Provide 5/32 in. thick (min.) clear heat tempered or borosilicate glass.

Electrical Components:

K. Meet the following ballast requirements and pass tests in accordance with Test Method Tex-1130-T, "Ballasts of Lighting Assemblies."
1. Mount electrical components on a removable stainless steel or aluminum tray of adequate thickness.
2. Provide a fixture wiring diagram on or near the ballast.
3. Use a copper wound magnetic regulating three isolated coil ballast.
4. Provide ballast factor between 0.95 and 1.0.
5. When the circuit voltage indicated on the plans is applied, the ballast input wattage during fluctuations of the test voltage of plus 10 percent and minus 10 percent, do not exceed the following:
   a. 220 Watts for 150 watt nominal lamp rating
   b. 440 Watts for 250 watt nominal lamp rating
   c. 552 Watts for 400 watt nominal lamp rating
6. During fluctuation of the test voltage of plus 10 percent and minus 10 percent, ensure the lamp wattage fluctuation does not exceed a total of 20 percent and ballast maintains lamp wattage within the following limits.
   a. 110 Watts minimum and 180 Watts maximum for 150 Watt nominal lamp rating
   b. 175 Watts minimum and 370 Watts maximum for 250 Watt nominal lamp rating
   c. 280 Watts minimum and 475 Watts maximum for 400 Watt nominal lamp rating
7. Ensure the ballast power factor, when tested at circuit voltage indicated on the plans, is not less than 90%.
8. Permanently and clearly mark ballast or fixture to indicate following:
   a. Lamp type
   b. Catalog number
   c. Voltage rating
   d. Connection diagram
   e. Manufacturer
   f. *UL listing

L. Meet the following electronic starting aid requirements and pass tests in accordance with Test Method Tex-1140-T, "Electronic Starting Aids of High Pressure Sodium Vapor Lighting Assembies."
1. Provide a starting pulse with an amplitude of 2500 volts minimum, 4000 volts maximum.
2. Ensure the pulse width is a minimum of 0.8 microseconds at 2250 volts.
3. Ensure the pulse occurs when the open circuit voltage is equal to or greater than 90 percent of peak open circuit voltage.
4. Ensure pulse repetition rate is a minimum of one per cycle.
5. Provide a pulse current of 0.18 amperes (min.).
6. Discontinue to pulse when, either,
   a. the lamp starts, or
   b. after a minimum of 3 minutes and a maximum of 10 minutes if the lamp fails to start.

M. Do not place fuses inside pole mounted luminaires. For wall mount or underpass mounted luminaires, provide internal 10 amp time-delay fuses.

N. Provide a two position terminal block for connecting supply wires which meet the following requirements:
1. Insulate using nylon, porcelain, or phenolic material. Ensure phenolic terminal block is of adequate construction as approved by the Department.
2. Fabricate terminals from nickel, tin plated brass, or aluminum.

O. Equip fixture with MOV surge protection in accordance with IEEE recommendations.
1. Connect MOV from line to neutral or from line to line.
2. Install MOV on the terminal block.

Lamp & Socket:

P. Provide *UL listed mogul base lamp sockets rated for 600 V, 1500 W that can withstand a 5000 V pulse. Meet *UL 496 requirements. Use porcelain-insulated lamp sockets with nickel plated copper alloy screw shells. Equip socket shell with a spring tensioned contact. Use nickel-plated copper alloy or stainless steel for the spring and contact.

Q. Supply and secure lamps inside the fixture that meet the following:
1. Use pre-qualified high pressure sodium (HPS) lamps from TxDOT's material producers list of the wattages shown on the plans. No alternatives allowed.
2. Average rated lamp life 30,000 hours.
3. Fully extinguish at end of usable lamp life and remain extinguished without cycling.
4. Do not provide lamps that burn at reduced output at end of life.
5. Meet the Federal Toxic Characteristic Leachate Procedure (TCLP) limits.

Performance:

R. Meet the following photometric requirements using published photometric data and photometric data obtained by testing sampled fixtures.
1. 150 Watt mast arm (underpass) mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectangular area measuring 110.0 ft. by 30.0 ft., when mounted in a level position as indicated on the properly mounted fixture level bubble 20.0 ft. above the midpoint of either long side of the surface area. Do not exceed 50:1 maximum to minimum horizontal illuminance uniformity ratio within the rectangular area.
2. 250-watt mast arm mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectangular area measuring 190.0 ft. by 45.0 ft., when mounted properly in a level position as indicated on the level bubble 40.0 ft. above the midpoint either long side of the surface area. Ensure light intensities along a line parallel to and 20.0 ft. in from the long side of this rectangular area do not decrease by more than 0.50 foot-candles in any 5.0 ft. interval along the line from 10.0 ft. to 90.0 ft. on both sides of the luminaire and provide a minimum intensity of 0.30 foot-candles at any point along the line.Do not exceed 20:1 maximum-to-minimum horizontal illuminance uniformity ratio within the rectangular area.
3. 400-watt mast arm mounted luminaire. Meet IESNA Cutoff requirements. Provide a minimum intensity of 0.20 foot-candle in a rectanglular area measuring 220.0 ft. by 60.0 ft. when mounted properly in a level position as indicated on the level bubble 50.0 ft. above the midpoint of either long side of the surface area. Ensure light intensities along a line parallel to and 30.0 ft. in from the long side of this rectangular area do not decrease by more than 0.75 foot-candle in any 10.0 ft. interval along the line from 10.0 ft. to 90.0 ft. on both sides of the luminaire and provide a minimum intensity of 0.30 foot-candle at any point along the line. Do not exceed 20:1 maximum-to-minimum horizontal illuminance uniformity ratio within the rectangular area.

S. Ensure photometric data is consistent from fixture to fixture. Match published photometric data (or approved photometric reports submitted during the prequalification process as the typical photometric output instead of published data) as follows:
1. Point of maximum candela within 5 degrees horizontally and vertically.
2. Maximum candela within 20% of published maximum candela.
3. Fixture efficiency within 10% of published efficiency.

* When reference is made to UL, it can be considered to mean a Nationally Recognized Independent Testing Lab (NRTL). Comperable standards of Canadian Standard Association, Electrical Testing Laboratories or Factory Mutual can be equal to the referenced UL standard.

DATE:
FILE:

Sheet 1 of 2

Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS

(RDWY ILLUM LIGHT FIXTURES)

RID(LUM1)-07

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS

CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
		283

72A

Prequalification:

T. Use only pre-qualified fixtures. No alternates will be considered.
1. Only materials with approved product codes or designations from prequalified producers are accepted on bids. The Construction Division (CST) of the Texas Department of Transportation (TxDOT) maintains the material producers list of approved producer product codes or designations. Use the following website to view this list:
http://www.dot.state.tx.us/business/producer _list.htm
Use of prequalified material does not relieve the contractor of the responsibility to provide materials that meet the specifications. All materials, including those shown on the prequalified material list, may be inspected and tested at any time and may be rejected if not in compliance with the specifications.
2. Notify the Department in writing as to which fixture from the prequalified list of approved fixtures will be supplied on each project.
3. To have a fixture listed as pre-qualified:
a. Submit a sample of each type of luminaire and all pertinent data, including published photometric data and recently tested photometric data (IES format, both "averaged" and both sides of "un-averaged" data) to:
TXDOT- TRF 118 East Riverside Dr. Austin, TX 78704
b. Demonstrate a commitment to quality.
c. Submit the following documentation:
1. QA/QC program documentation with the following minimum requirements:
a. Written statement of the companies QA/QC policy.
b. QA/QC person employed that has special QA/QC training and has QA/QC as their primary job responsibility.
c. A written procedure specifically for handling orders for fixtures built to TxDOT specifications.
d. A written procedure for keeping track of fixtures built, certified, and tested for TxDOT orders.
e. A check list of features for TxDOT fixtures with QA/QC person signature.
2. Fixture UL certification
3. IP 65 certification
4. 3G certification
5. Aluminum casting and paint analysis
6. Socket, MOV, and shutoff ignitor data
7. Stainless steel and aluminum bracket data
8. Ballast electrical data
9. Photometric data
10. Lamp data
d. Prequalification samples, if approved, will not be returned to the manufacturer but will be retained by the the Department for comparison testing. Once a fixture has been approved, do not change any material or manufacturing method without prior approval of the Department. Unapproved changes will result in rejection of the fixture.
e. In addition, luminaires will be tested for compliance with this specification. Luminaires that inconsistently pass testing or that are inconsistent with published photometric information will be removed from the pre-qualified list at the discretion of the Department.

Sampling:

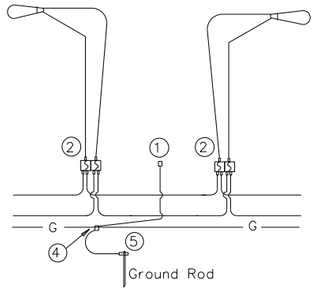
U. Sample in accordance with Test Method Tex-1110-T, "Sampling Lighting Assemblies."

Manufacturer Warranty:

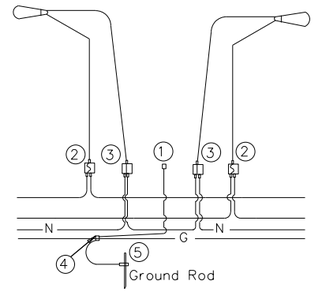
V. Replace failed fixtures, when non-operable due to defects in materials or workmanship within five years of installation with a fixture that passes all testing, delivered to the project location. Lamps and photocells are subject to the warranties of their respective manufacturers.

Testing:

W. Conduct electrical testing required in the Ballast section. Provide photometric testing of fixtures. Test fixtures at the following rates.
1. Manufactuer Testing. Before fixtures are shipped from the manufacturer, test fixtures as follows. From each lot or manufacturing run, select one completed fixture of each 25, with a minimum of 2 and a maximum of 5. Test photometrics at an independent test lab inspected and approved by TxDOT. Electrical testing may be performed at manufacturer's facility.
a. Provide IES photometric report in two formats:
1. Standard averaged format for asymmetric fixtures.
2. Un-averaged format showing both sides. Un-averaged data may be supplied in two files or as approved by the Department.
b. Provide electrical and photometric test data directly to TRF-TE electronically for evaluation prior to shipping fixtures to the project. Do not ship fixtures until test data for each lot is approved by TRF-TE.
c. Provide the following information on test reports:
1. TxDOT's Control-Section-Job number, maintenance contract number, or purchase order number the fixtures are assigned to,
2. a unique fixture test number per fixture,
3. date of manufacture, and
4. quantities supplied and lot number per fixture type.
d. Write the unique lab report number on the top of the fixture housing with permanent marker. Ensure the test lab retains the results for 5 years. Provide the Department access to documentation.
e. Retain records of manufacturing lots, test reports, lot quantities, and other pertinent details. Submit records to the Department upon request.
f. Submit to TRF-TE a daily shipment report for shipments to each job.
g. Make available to TxDOT inspectors upon request, all manufacturing facilities involved in the production of fixtures for use on Department projects, inventories of fixtures produced to Department specifications, and records of fixture testing and tracking.
2. Departmental Test Reporting. Departmental test reports will be issued in accordance with Tex 1110-T.



FOR THREE-WIRE CIRCUIT-CENTER GROUNDED
LUMINAIRES SERVED AT 480V ON 240 /480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR FOR 120 /240 VOLT SERVICE.



FOUR-WIRE CIRCUIT-CENTER GROUNDED
LUMINAIRES SERVED AT 240V
(240/480 VOLT SERVICE)

NOTES:

(1) Use 1/2 in.-13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors.
(2) (3) Use pre-qualified Breakaway Connectors for both T-Base and Shoe-Base installations.
(4) Split Bolt or other connector.
(5) Use Ground Rod Clamp listed for its intended purpose (i.e. concrete, direct burial...)

Texas Department of Transportation
Traffic Operations Division

ROADWAY ILLUMINATION DETAILS

(RDWY ILLUM LIGHT FIXTURES)

RID(LUM2)-07

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REVISIONS

CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			284

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GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

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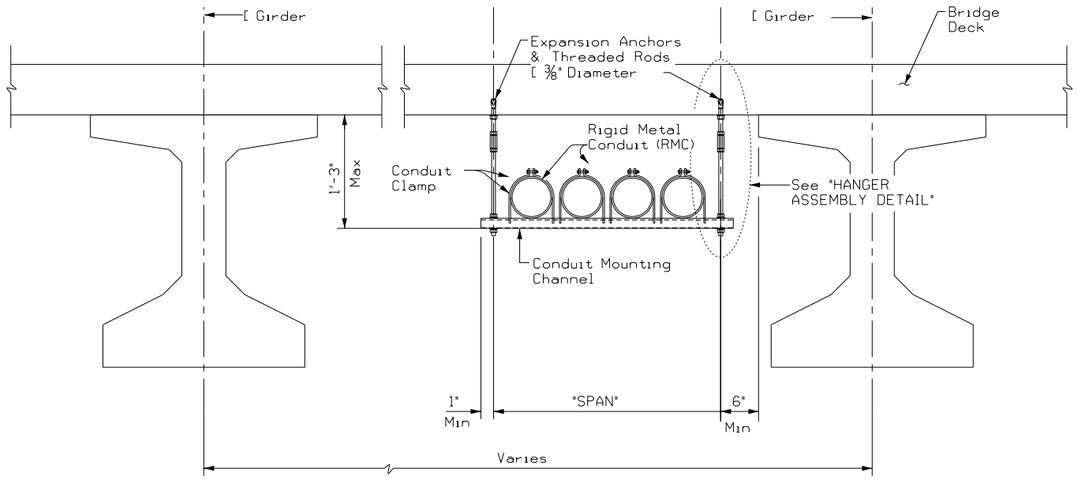
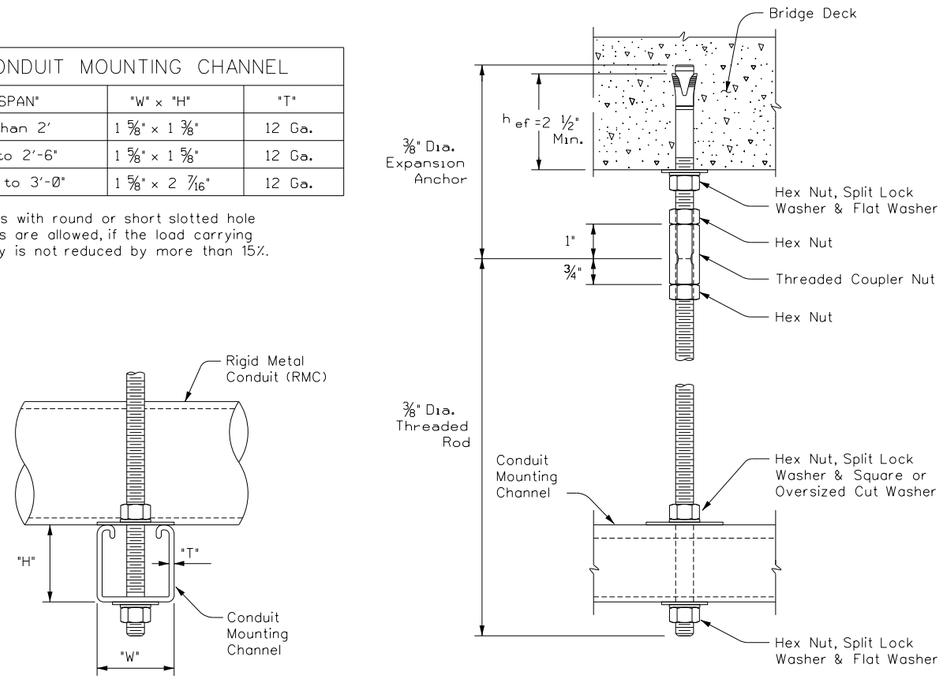


CONDUIT HANGING DETAIL

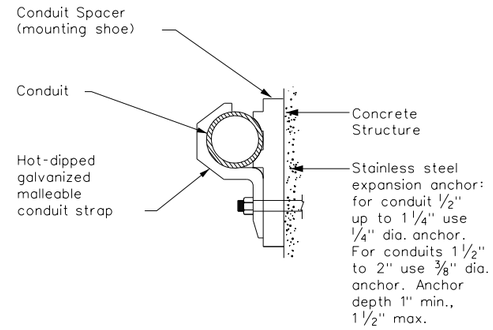
CONDUIT MOUNTING CHANNEL		
"SPAN"	"W" x "H"	"T"
less than 2'	1 5/8" x 1 3/8"	12 Ga.
2'-0" to 2'-6"	1 5/8" x 1 5/8"	12 Ga.
>2'-6" to 3'-0"	1 5/8" x 2 7/16"	12 Ga.

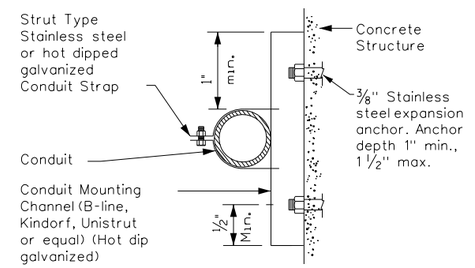
Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.



HANGER ASSEMBLY DETAIL

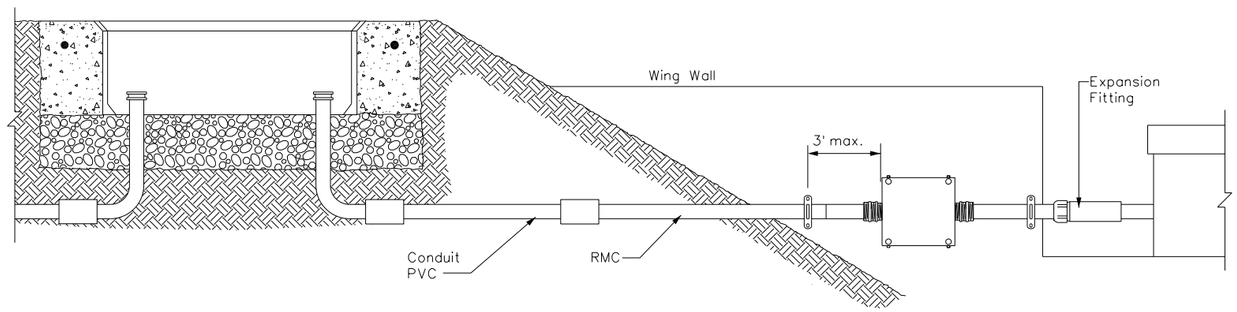
ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT





CONDUIT MOUNTING OPTIONS

Attachment to concrete surfaces
See ED(1)B.2



TYPICAL CONDUIT ENTRY TO BRIDGE STRUCTURE DETAIL

EXPANSION ANCHOR NOTES FOR BRIDGE DECK ATTACHMENT

1. Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). The chosen anchor product shall have a designated ICC-ES Evaluation Report number, and its approval status shall be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.

2. Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.

3. Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environment, both the anchor body and expansion wedge shall be stainless steel.

4. Install anchors as shown on the plans and in accordance with the anchor manufacturer's published installation instructions. Arrange a field demonstration test to evaluate the procedures and tools. The test shall be witnessed and approved by the Engineer prior to furnishing anchors on the structure.

5. Prior to hole drilling, use rebar locator to ensure clearing of existing deck strands or reinforcement. Install anchors to ensure a minimum effective embedment depth, (h_{ef}), as shown. Increase (h_{ef}) as needed to ensure sufficient thread length for proper torqueing and tightening of anchors.

6. Use anchors of minimum 1600 Lbs tensile capacity (minimum of steel, concrete breakout, and concrete pullout strengths as determined by ACI 318 Appendix D) at the required minimum embedment depth (h_{ef}). No lateral loads shall be introduced after conduit installation.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
CONDUIT SUPPORTS

ED(2)-14

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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.

2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber pole.

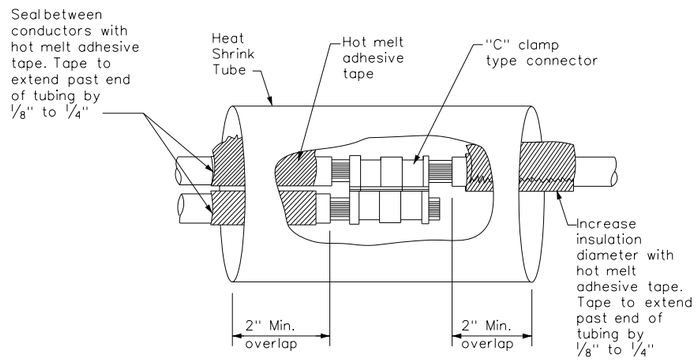
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

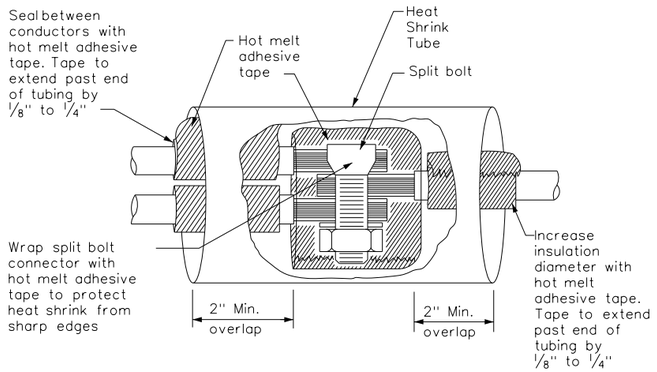
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.

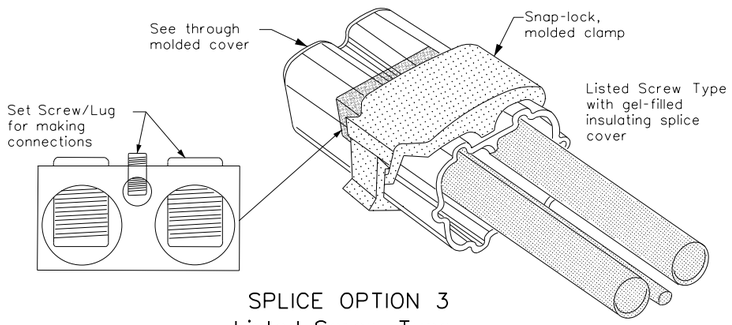
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

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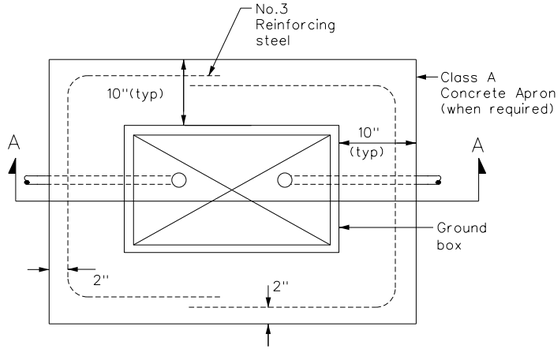
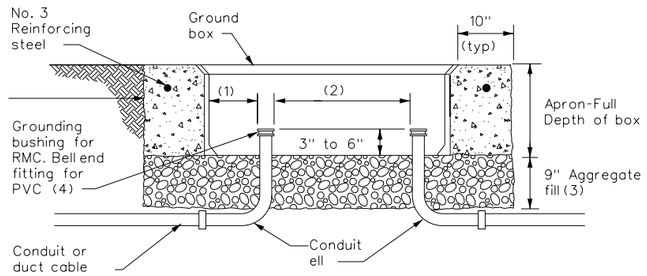


PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."

2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.

3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.

4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.

5. Temporarily seal all conduits in the ground box until conductors are installed.

6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.

7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

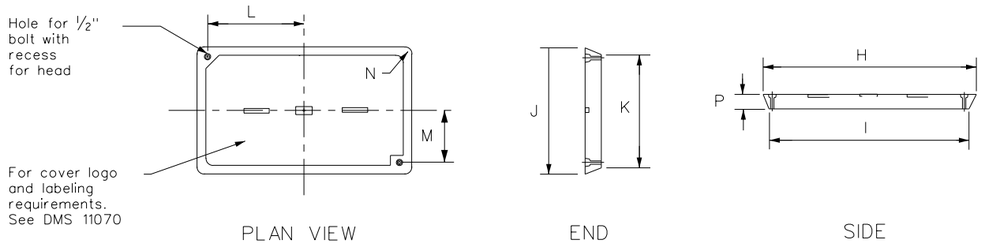
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.

10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW END SIDE

GROUND BOX COVER

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
GROUND BOXES

ED(4)-14

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DATE:
FILE:

ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75° C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

* ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit ** Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

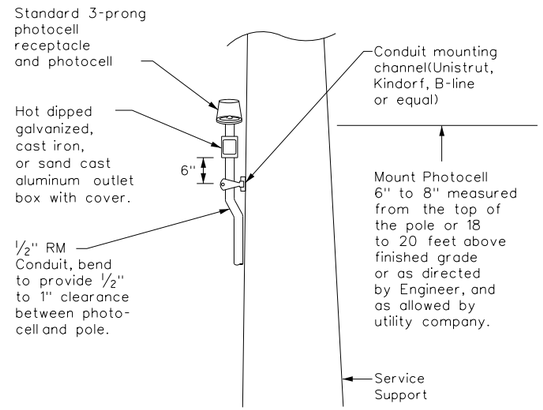
* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National Electrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

- Schematic Type
- Service Voltage V / V
- Disconnect Amp Rating
  000 indicates main lug only/
  Typically Type T
- (SS)= Safety Switch Ahead of Meter-Check with Utility
- (NS)= No safety Switch Ahead of Meter-Check with Utility
- Enclosure Type
  - GS= Galvanized steel("off the shelf")
  - SS= Stainless steel(Custom Enclosure)See MPL
  - AL= Aluminum (Custom Enclosure)See MPL
- Photocell Mounting Location
  - (E)= Inside Service/Enclosure Mounted
  - (T)= Top of pole
  - (L)= Luminaire mounted
  - (N)= None/No Photocell or Lighting Contactor Required
- Service Support Type
  - GC= Granite concrete
  - OC= Other concrete
  - TP= Timber pole
  - SP= Steel pole
  - SF= Steel frame
  - OT= Pole by others or paid for separately
  - EX= Existing pole
  - TS= Service on traffic signal pole
  - PS= Pedestal Service
- O= Overhead Service Feed from Utility
- U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

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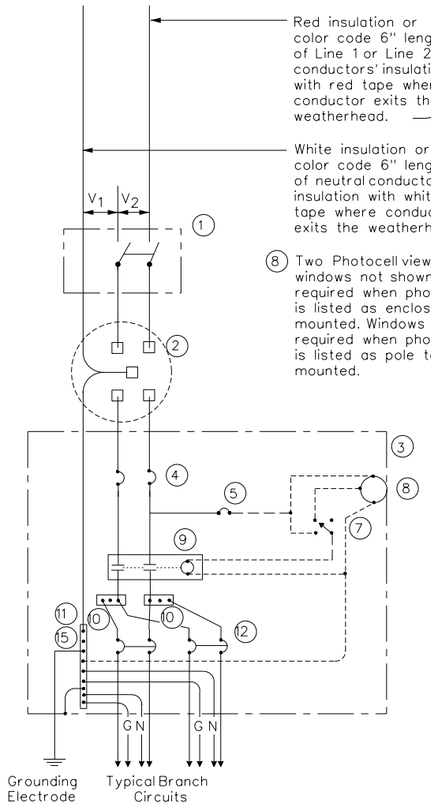
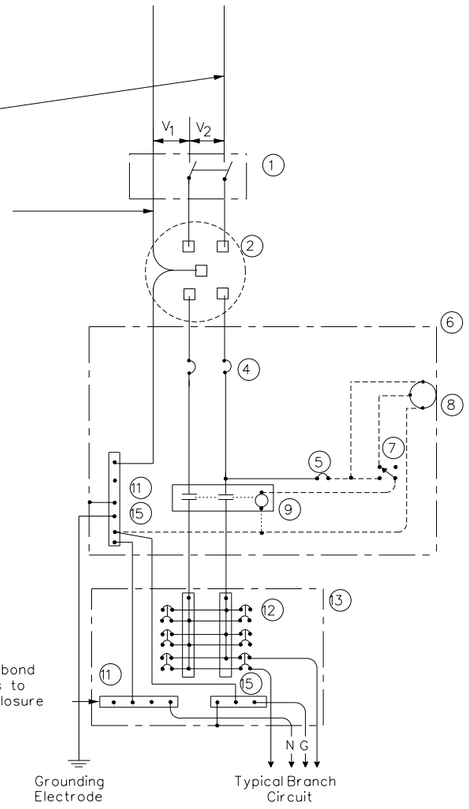
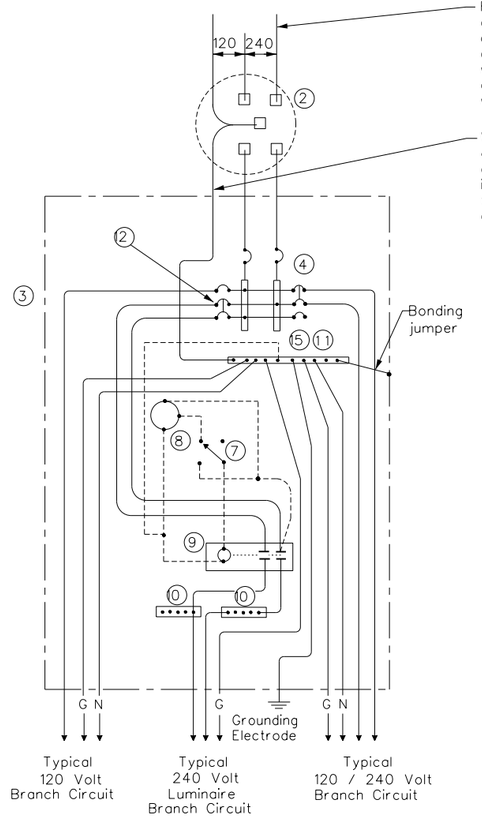


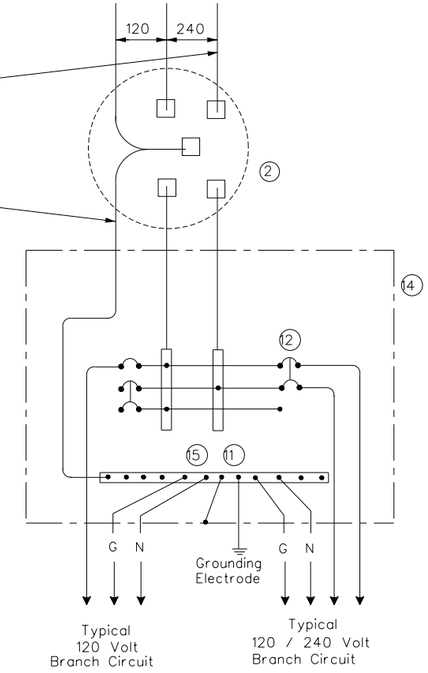
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE

Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
———	Power Wiring
- - - - - - - - -	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES

ED(6)-14

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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

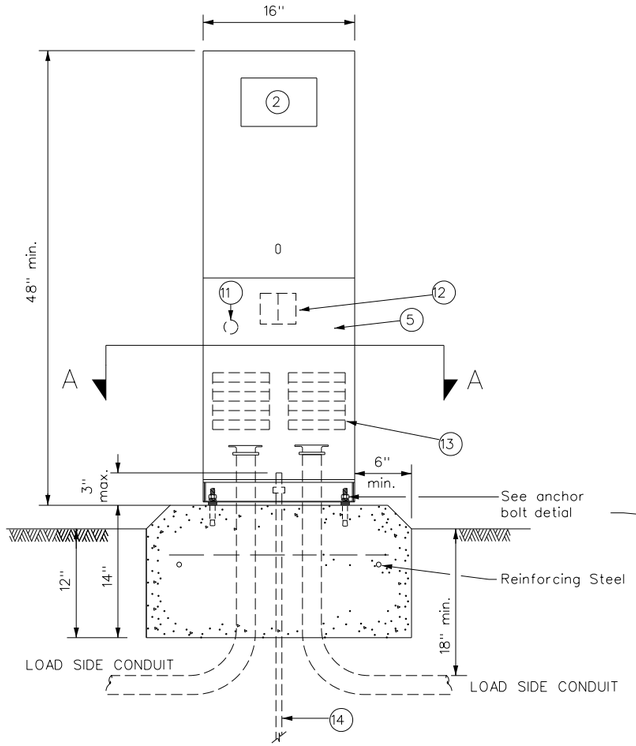
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install 1/2 in. X 2 1/16 in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a 1/2 in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than 1/8 in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of 1/8 in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within 1/4 in. Repair rocking or movement of the service enclosure at no additional cost to the department.

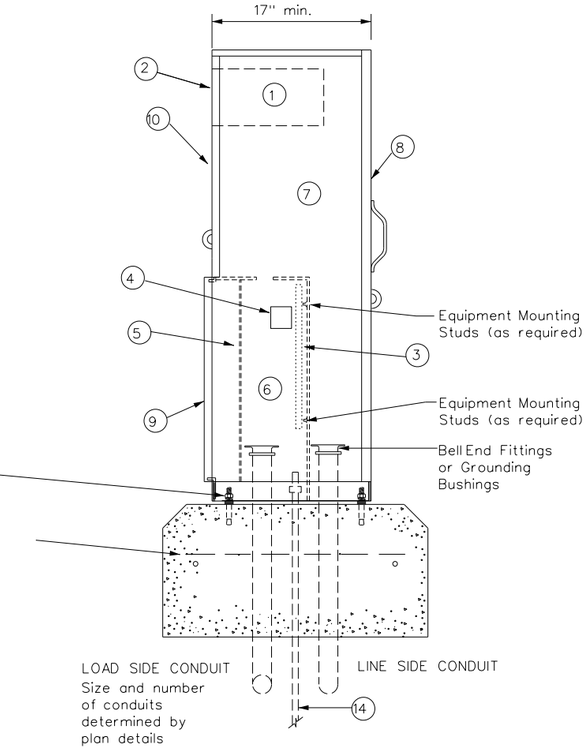
7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

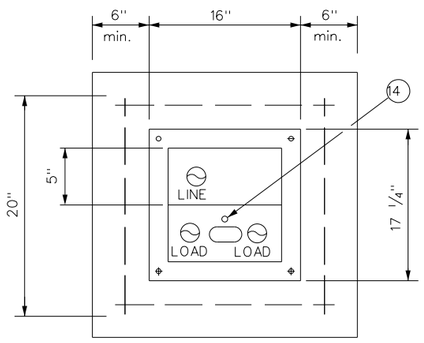


FRONT VIEW

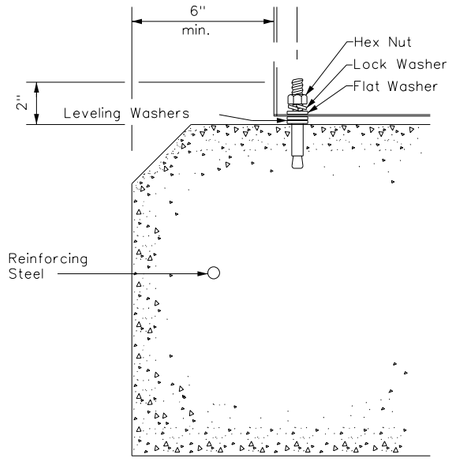
TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SIDE VIEW



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS

ED(9)-14

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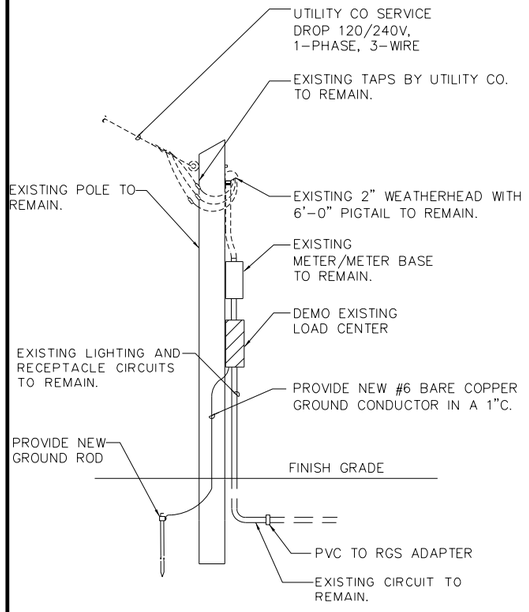
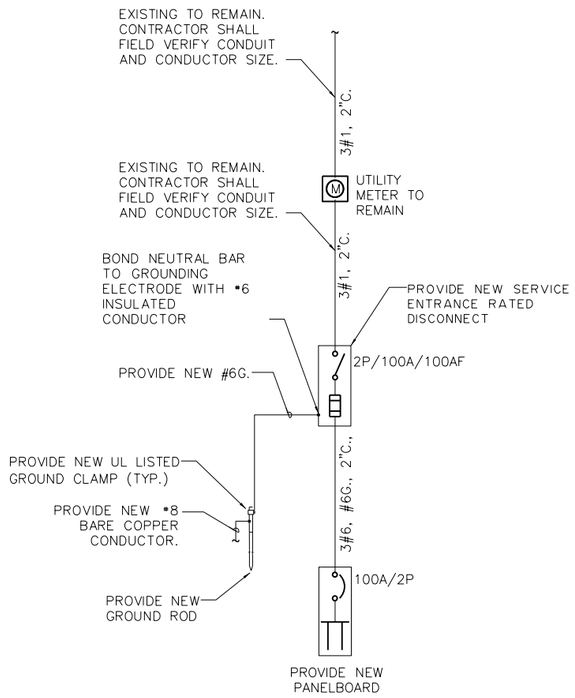
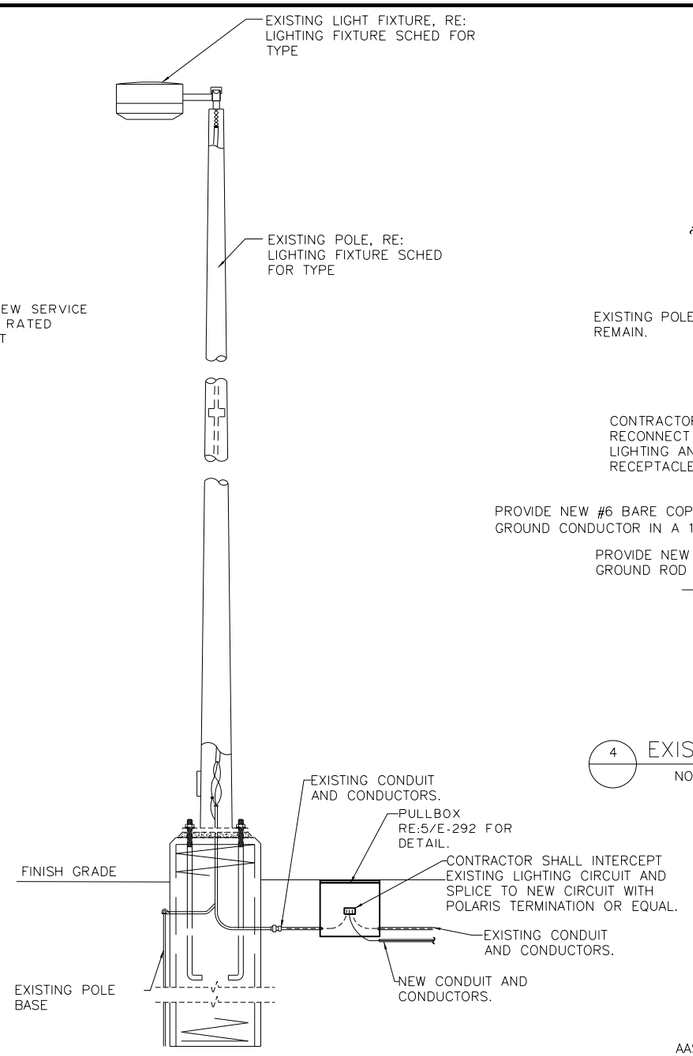


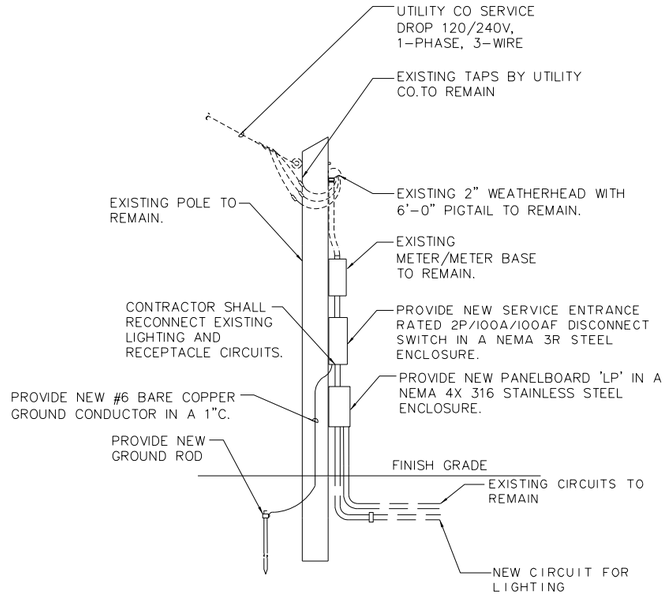
1 EXISTING 120/240V SERVICE POLE DEMO
NOT TO SCALE



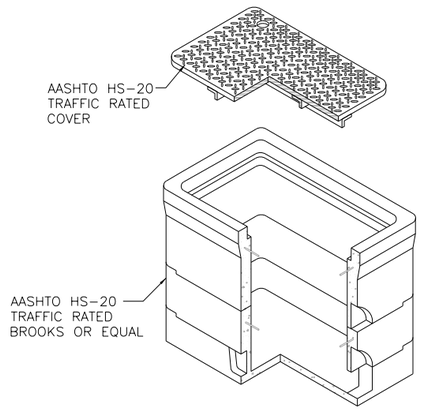
2 ONE-LINE DIAGRAM
NOT TO SCALE



3 LIGHT POLE & BASE
NOT TO SCALE



4 EXISTING 120/240V SERVICE POLE NEW
NOT TO SCALE



NO.3 GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING AND PROVIDING ALL PULL BOXES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

5 PULL BOX
NOT TO SCALE

PANEL NO. LP					MAIN 100 AMPS			LOCATION CENTER ST. METER				
SERVICE VOLTAGE 120/240 VOLTS					BUS RATING 100 AMPS							
A.I.C. 65,000					NEUTRAL BUS 100 AMPS			FEED FROM PEC UTILITY				
DESCRIPTION	BREAKER POLE	BREAKER AMP	VOLT AMPS A	VOLT AMPS B	CKT NO	BUSS CONN	CKT NO	VOLT AMPS A	VOLT AMPS B	BREAKER POLE	BREAKER AMP	DESCRIPTION
SURGE PROTECTIVE DEVICE	2	20			1		2	180		1	20	EXISTING RECEPTACLE
					3		4		200	1	20	EXISTING LIGHTING CIRCUIT
SPARE	1	20	1000		5		6	1920		1	20	NEW LIGHTING CIRCUIT
SPACE	1	20			7		8			1	20	SPACE
SPACE	1	20			9		10			1	20	SPACE
SPACE	1	20			11		12			1	20	SPACE
CONNECTED BUS A 3,100 VA			1000	0				2100	200			DEMAND KVA: 3.3
CONNECTED BUS B 200 VA					TOTAL: 3300 VA							DEMAND AMPS: 13.8

NOTE: * INDICATES GFI BREAKER

FREESE AND NICHOLS, INC.
TEXAS REGISTERED ENGINEERING FIRM F-2144
STATE OF TEXAS
BRADEE ZELMER KOCH
92701
LICENSED PROFESSIONAL ENGINEER
05/25/2018
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10431 Morado Circle, Suite 300
Austin, Texas 78759
Phone: (512) 617-3100
Fax: (512) 617-3101
Web: www.freese.com

CITY OF KYLE, TEXAS
N. BURLESON ST. IMPROVEMENTS
ELECTRICAL
DETAIL I
ROADWAY LIGHTING

NO.	ISSUES	BY	DATE
	VERIFY SCALE Bar is one inch on original drawing. If not one inch on this sheet, adjust scale. 0 1"		

F&N JOB NO. KYL14284
DATE 5/22/18
DESIGNED CFB
DRAWN CFB
REVISED
CHECKED TWZ
FILE NAME EL-KYL-DT-DTL1.dgn

SHEET 292
TOTAL 292

MicroStation V8 User: 02813 Office: N:\ELEC\EL-KYL-DT-DTL1.dgn
Plotter: \\NDWFP01\HP_Color_LaserJet_M651_PCL6_Mono.pltcfg Model: Default
Plot Scale: 2.0000 '/ in. Project: Untitled Project
Date: 5/25/2018