

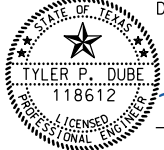
PLOTTED ON: 7/24/2019


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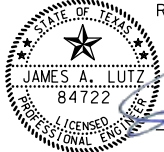
THE STANDARD SHEETS SPECIFICALLY SHOWN WITH PRECEDING (*), HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.


DESIGN




 TYLER P. DUBE, P.E. 7/24/2019
DATE

REVIEW AND APPROVAL




 JAMES A. LUTZ, P.E. 7/24/2019
DATE

REV. NO.	DATE	DESCRIPTION	BY



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



INDEX OF SHEETS

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CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	2

Control: N/A

County: Comal

Highway: San Antonio St

*****GENERAL NOTES*****

===== Basis of Estimate =====

Item	Description	Rate/Area	Quant-Unit
168-6001	Vegetative Watering	1.3 GAL/SY/WEEK (4,276 SY/12 WEEKS)	66.71-MG
310-6009	PRIME COAT (MC-30)	0.3 GAL/SY (21,578 SY)	6473.4-GAL
340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	115 LB/SY-IN (19,686 SY)	3,826.7-TON

- G-6 If there are waste areas or material source areas, follow the Texas Aggregate Quarry and Pit Safety Act requirements.
- G-7 Any materials removed and not reused and determined to be salvageable shall be stored within the project limits at an approved location or delivered undamaged to the storage yard as directed. Properly dispose unsalvageable materials in accordance with local, state, and federal regulations. Deface traffic signs so that they will not reappear in public as signs.
- G-8 Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.
- G-10 Locate and reference all manholes and valves within the construction area with station and offset. Each manhole and valve shall be identified by its owner. No roadwork will begin until this list has been submitted. Gas valves have to be accessible at all times, therefore; temp. CTB, material stock piles, etc. cannot be placed over these valves.
- G-11 Construct all manholes and valves to final pavement elevations prior to the final mat of ACP. If between the final elevation adjustment and the final mat of ACP, the manholes and valves are going to be exposed to traffic, place temporary asphalt around the manhole and valve to provide a +/- 50:1 taper. The cost of elevation adjustment will be part of the manhole and valve work, and asphalt tapers are considered subsidiary to Item 502.

Work days/times are Monday through Friday from 8:00 am to 5:00 pm.

Unless otherwise shown or directed by the Engineer, miscellaneous site grading, embankment, and excavation is not paid for separately and is subsidiary to the various bid items. This includes areas behind proposed retaining walls unless otherwise specified on the plans.

General Notes

Sheet A

Control: N/A

County: Comal

Highway: San Antonio St

It is the Contractor's responsibility to ensure compliance with the PED-18 standard along the accessible route when signs are adjusted.

Irrigation heads and fixture relocations in conflict with the proposed improvements are not paid for separately but are subsidiary to various bid items.

Buildings and Structures must be protected from concrete splash at all times. The Contractor is to install a material approved by the Engineer which will guard the buildings against concrete splash. This work is considered subsidiary to Item 531 and will not be paid separately. If concrete splash litters a building facade the Contractor, at their expense, is responsible for cleaning and remedying the concrete as approved by the Engineer.

Grade street intersections and median openings for surface drainage.

Sweep and remove all litter, construction debris and surplus material on the right-of-way within the project limits to keep the jobsite neat at all times. Keep roadways and sidewalks free of sediment. Consider subsidiary to pertinent items.

Construct all ramps, sidewalks, steps, curb ramps, handrails, pedestrian push buttons, and other pedestrian elements in accordance with Texas Accessibility Standards (TAS) issued by the Texas Department of Licensing and Regulation. Maintain one copy of TAS at the project site at all times.

When working near aerial electrical lines and / or utility poles, provide adequate safety measures, as needed, to comply with the appropriate sections of Federal and State regulations. For electrical lines and poles shown in the plans, if the lines need to be de-energized and / or if poles require bracing, contact the electrical company to coordinate the de-energizing and bracing. Work pertaining to de-energizing lines, bracing poles and any other protective measures required will not be paid at the expense of City of New Braunfels.



Dust control is to be performed a minimum of three times per day and as needed during construction (including weekends). Dust control will be considered subsidiary to the various bid items, and will not be paid for directly.

All structures are to be backfilled with cement stabilized sand as directed by the Engineer.

Personnel will be experienced in items of work in contract. Safety vests and hard hats will be pre-approved and worn at all times when outside vehicles within the work area. Pavement markers will be left in place until such time as they are in conflict with the work in progress.

General Notes

Sheet B

REV. NO.	DATE	DESCRIPTION	BY
 <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPB FIRM REGISTRATION #470 TBPB FIRM REGISTRATION #10028800</p>			
			
GENERAL NOTES			
SHEET 1 OF 7			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
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			3

Control: N/A

County: Comal

Highway: San Antonio St

Referencing of all existing striping and pavement markings prior to beginning paving operations shall be the Contractor's responsibility.

All pavement markings and/or striping that are in conflict with traffic operations will be removed by the Contractor. Such removal will be considered subsidiary to the various bid items, and will not be paid for directly.

Existing storm sewers and utilities are shown from the best available information. Verify the location of all underground facilities prior to starting work.

Provide temporary drain openings at all low points or other drainage structures, as required, at the Contractor's expense.

Remove any obstructions to existing drainage due to the Contractor's operations, as required, at the Contractor's expense.

If construction has not commenced within one-year of City approval for construction inspection, that approval is no longer valid.

The most current editions of the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges shall be followed for all construction except as amended by the City of New Braunfels Standard Details.

All responsibility for the adequacy of these plans remains with the engineer of record. In accepting these plans, the City of New Braunfels must rely upon the adequacy of the work of the engineer of record.

Prior to the start of construction the Contractor shall contact the City of New Braunfels to set a preconstruction meeting. A 48-hour advanced notification is required for all inspection and meeting requests.

- All inspections are to be called in at 830-221-4068 or,
- Faxed in at 830-608-2117 or,
- E-mailed at inspections@nbtexas.org.

It is the Contractor's responsibility to see that all temporary and permanent traffic control devices are properly installed and maintained in accordance with the plans and latest edition of the Texas Manual on Uniform Traffic Control Devices. If, in the opinion of the engineering representative and the construction inspector, the barricades and signs do not conform to established standards or are incorrectly placed or are insufficient in quantity to protect the general public, the construction inspector shall have the option to stop operations until such

General Notes

Sheet C

Control: N/A

County: Comal

Highway: San Antonio St

time as the conditions are corrected. If the need arises, additional temporary traffic control devices may be ordered by the Engineering representative at the Contractor's expense.

Type II B-B blue reflective raised pavement marker shall be installed in the center of the roadway adjacent to all fire hydrants. In locations where hydrants are situated on corners, blue reflective raised pavement markers shall be installed on both approaches which front the hydrant. The raised pavement marker shall meet TxDOT material, epoxy and adhesive specifications.

Trim trees as requested by the Engineer. Tree trimming is paid for separately under item 752, tree and brush removal by the acre. The plans quantity is considered sufficient for the entire project.

Groundwater

It shall be the responsibility of the developer, Contractor, subcontractors, builders, City, and project engineer to immediately notify the Office of the City Engineer and project engineer if the presence of groundwater within the site is evident. Upon notification the project engineer shall respond with plan revisions for the mitigation of the groundwater issue. The City Engineer shall respond within two (2) business days upon receipt of the mitigation plan. All construction activity, impacted by the discovery of groundwater, shall be suspended until the City Engineer grants a written approval of the groundwater mitigation plan.

Record Drawings

As per Platting Ordinance Section 118-38m.: When all of the improvements are found to be constructed and completed in accordance with the approved plans and specifications and with the City's standards, and upon receipt of one set of "Record Drawing" plans, and a digital copy of all plans (PDF) the City Engineer shall accept such improvements for the City of New Braunfels, subject to the guaranty of material and workmanship provisions in this Section.

Construction Note

Contractor is responsible to ensure that erosion control measures and stormwater control sufficient to mitigate off site impacts are in place at all stages of construction.



Soils Testing

Proctors shall be sampled from on site material (on site is defined as limits of construction for this plan set) and a copy of the proctor results shall be delivered to the City of New Braunfels Street Inspector prior to any density tests.

Roadway

General Notes

Sheet D

REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
 <p>City of New Braunfels</p>			
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DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 4

Control: N/A

County: Comal

Highway: San Antonio St

All roadway compaction tests shall be the responsibility of the City. Flexible base or fill material shall be placed in uniform layers not to exceed six-inches (6") compacted. Each layer of material, inclusive of subgrade, shall be compacted as specified and tested for density and moisture in accordance with Test Methods TEX-113-E, TEX-114-E, TEX-115-E. The number and location of required tests shall be determined by the City and approved by the City of New Braunfels Street Inspector. At a minimum, tests shall be taken every 100lf for each lift. Upon completion of testing the City will provide the City of New Braunfels Street Inspector with all testing documentation and a certification stating that the placement of flexible base, and fill material, and subgrade, has been completed in accordance with the plans.

Curb Cut Due To Construction Of New Right-Of-Way Construction

Sawcut existing streets and match to new construction. Sawcut existing curb to tie into existing construction. Saw cutting existing pavement, concrete, and riprap is not paid for separately but is subsidiary to various bid items.

Signing And Pavement Marking Plan Notes

The Contractor shall furnish and install all regulatory and warning signs, streets name signs and sign mounts in accordance with approved engineering plans. The City will inspect all signs at final inspection.

The Contractor shall install all pavement markings in accordance with approved engineering plans. The Contractor shall notify the City at least twenty-four (24) hours prior to the installation of all sealer and final markings. The City will inspect all markings at final application.

If fixed features require, the governing slopes shown may vary between the limits shown and to the extent determined by the Engineer.

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, except for roadway illumination, electrical, and traffic signal items.

The cost for materials, labor, and incidentals to provide a minimum 14'-wide driving surface for traffic across the roadway and for ingress and egress to private property in accordance with Section 7.2.4 of the standard specifications is subsidiary to the various bid items. Restore access roadways to their original condition upon completing construction.

If a foundation is to be placed where a riprap surface or an asphalt concrete surface presently exists, use caution in breaking out the existing surface for placement. Break out no greater area than is required to place the foundation. After placing the foundation, wrap the periphery

General Notes

Sheet E

Control: N/A

County: Comal

Highway: San Antonio St

with 0.5 in. pre-molded mastic expansion joint. Then replace the remaining portion of the broken out surface with Class A or Class C concrete or cold mix asphalt concrete to the exact slope, pattern, and thickness of the existing riprap or asphalt. Payment for breaking out the existing surface, wrapping the foundation, and replacing the surface is subsidiary to the various bid items.

--Item 5--

5-2 Taper ACP placed at curb inlets, traffic inlets and slotted drains.

5-4 The earthwork information was not developed; therefore, a CD can not be provided.

5-7 Provide a non-intrusive back-up alarm system on all heavy equipment used in close proximity to residential areas. This item is subsidiary to various bid items.

--Item 6--

6-1 Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

--Item 7--

7-1 The project's total disturbed area is 6.30 acres. The disturbed area in all project locations and Contractor project specific locations (PSL's), within 1/4 mile of the project limits, will further establish the authorization requirements for storm water discharges. The Contractor will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. Obtain any required authorization from the TCEQ for any PSL's on or off the ROW. When the total area disturbed on the project and PSL's within 1/4 mile of the project exceeds 5 acres, provide a copy of the Contractor NOI for PSL's to the Engineer (to the appropriate MS4 operator when the project is on an off-state system route).

7-3 Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

7-5 No significant traffic generators events identified.

--Item 8--

8-1 Working days will be computed and charged in accordance with Article 8.3.1.5: Calendar Day.

8-1A Create and maintain a bar chart schedule.


--Item 9--

Show proof of certification by the Texas Commission on Law Enforcement Standards.

General Notes


Sheet F

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



City of
New Braunfels

GENERAL NOTES

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DGN: CSF	PROJECT NO.	ROADWAY NAME		
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DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	5

Control: N/A

County: Comal

Highway: San Antonio St

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov

Certificates of completion should be available to all who finish the course. These should be kept by the officers in order to substantiate completion when reporting to the work site.

160-1 **--Item 160--**
Approximately 475 CY of existing topsoil is required. Existing topsoil within the ROW may be windrowed or stockpiled (as approved) for later use under this Item. Place erosion control measures for the stockpile and/or windrow.

162-1 **--Item 162--**
Furnish and place block grass sod of the same species as the surrounding vegetation.

168-1 **--Item 168--**
Apply vegetative watering as needed to supplement natural rainfall during the vegetation establishment period. Plan quantity of irrigation water is based on the application of a total of 1.3 gal of water each week for each sq. yd. of area that is sodded or seeded. Establishment time is estimated to be 12 weeks or minimum 75% establishment for both sod and permanent seed mixes. Temporary seeding will require less time for establishment. Provide a schedule and coordinate watering cycles and rates per cycle with the Engineer. Obtain approval if the quantity of water to be applied is expected to exceed the plan quantity. Adjust the amount of water applied with each cycle and the number of cycles each wk. according to actual site conditions. Drought or other conditions, as determined by the Engineer, may require the application of supplemental irrigation during hours other than normal working hours.

--Item 247--
Provide Flexible Base material as approved by the City.

--Item 310--
Provide Prime Coat as approved by the City.

1. **--Item 340, 341, 342, 344, 346, 347, & 348--**
Table 10, in Item 340, Table 10 in Item 341 and Table 11 in Item 344, Hamburg Wheel Test Requirements tested in accordance with Tex-242-F are changed for PG 64-22 or lower and PG 70-22. Minimum number of passes at 1/2" Rut Depth, Tested at 122 degrees F will be 5,000 and 10,000 respectively.

2. Design all mixture types using a target laboratory-molded density of 96.5%, when the Texas Gyrator Compactor is utilized. Increase the target laboratory-molded density to 97.0% or 97.5% at the Contractor's discretion. When utilizing SGC, design all mixture types at 50 gyrations (N-

General Notes

Sheet G

Control: N/A

County: Comal

Highway: San Antonio St

Design) and a target laboratory-molded density of 96.0%, but may be reduced to no less than 35 gyrations at the Contractor's discretion.

3. The asphalt plant shall have truck scales as defined in Item 520. Give three weight tickets bearing the date, the truck number, the gross, net & tare weights to the truck driver for the State inspector at the spreading and finishing operation. Trucks may be required to weigh on public scales or portable platform scales to verify the weight of the ticket.

4. Submit a copy of the Tex 233-F production charts on a weekly basis. At the end of the ACP work, provide all originals.

5. Crushing of aggregate for hot mix and immediate use for production of the mix is not allowed. Stockpile the aggregate until enough material is available for five days of production unless prior approval is provided. Hold a pre-placement meeting one month prior to the placement of the hot mix.

6. The main purpose of hot mix cores taken by the City are for payment calculations. If (for quality control purposes) the core information is needed sooner, take additional cores.

7. Do not use diesel or solvents as asphalt release agents in production, transportation, or construction.

8. The use of Recycled Asphalt Pavement (RAP) and Recycled Asphalt Shingles (RAS) will not be allowed on the final riding surface.

Materials testing is to be completed by the City.

Minimum Roadway Placement Temperature

--Item 340, 341, & 344--


1. Place mixture when the roadway surface temperature is equal to or higher than listed in Table 1 unless otherwise approved or shown on the plans. Measure the roadway surface temperature with a hand-held thermal camera or infrared thermometer. Placement may be allowed to begin prior to the roadway surface reaching the required temperature if conditions are such that the roadway surface will reach the required temperature within 2 hrs. of beginning placement operations. Place mixtures only when weather and moisture conditions of the roadway surface are suitable in the opinion of the Engineer. The Engineer may restrict the Contractor from paving if the ambient temperature is likely to drop below 32°F within 12 hr. of paving.

Table 1
Minimum Pavement Surface Temperatures

General Notes


Sheet H

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



City of
New Braunfels

GENERAL NOTES

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DGN: CSF	PROJECT NO.	ROADWAY NAME		
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DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	6

Control: N/A

County: Comal

Highway: San Antonio St

Specification Item Number	High Temperature Binder Grade	Minimum Pavement Surface Temperatures in Degrees Fahrenheit *	
		Subsurface Layers or Night Paving Operations	Surface Layers Placed in Daylight Operations
340, 341, & 344	PG 64	45	50
	PG 70	55	60
	PG 76	60	60

* Except for PG 64, may pave at temperatures 10° F lower than the values shown in Table 1 when utilizing a Material Transfer Vehicle that is capable of providing a remixing, and continuous flow of material from the haul truck to the paver, such as a Roadtec SM-2500e/ex, that eliminates thermal segregation. In these cases, use either an infrared bar attached to the paver, or a hand held thermal camera or infrared thermometer, or a hand held infrared thermometer operated in accordance with Text Method 244-F to demonstrate that the uncompacted mat has no more than 10° F of thermal segregation.

--Item 432--

432-1 In all riprap slopes, provide 3 inch diameter weep holes at 10 foot maximum spacing and backed with loose graded gravel or crushed stone and galvanized hardware cloth.

--Item 496--

496-1 The Contractor will submit a demolition plan for all structures to be replaced and/or removed in accordance with Item 496.

Provide for the safety and health of employees and abide by all OSHA Standards and Regulations. All costs incurred for proper management, shall be subsidiary to this Item.

--Item 500--

500-1 "Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--

Prior to beginning construction, the City shall approve the routing of traffic and sequence of work.

Additional signs and barricades as directed by the Engineer shall be considered subsidiary to Item 502.

Construct the project in phases per the Traffic Control Plan in phase order.

General Notes

Sheet I

Control: N/A

County: Comal

Highway: San Antonio St



The Contractor shall not begin construction on a subsequent phase until the active phase is considered complete. A phase is considered complete when water and sanitary sewer facilities have been successfully tested and accepted; substantially useable sidewalk and driveways have been constructed; and vegetation re-establishment has begun.

The Contractor shall limit impacts to individual driveways to a 3-day turnaround time from demolition to poured concrete. The Contractor shall maintain access to each driveway during construction except during this 3-day period. Construct temporary ramps to maintain access to driveways and city streets as directed by the Engineer. Temporary ramp construction is subsidiary to Item 502.

- 502-1 Place standard markings no later than 14 days after surface treatment operations are completed.
- 502-2 When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.
- 502-4 After written notification, the time frame to provide properly maintained signs and barricades before considered in non-compliance is 48 hours from receipt of the notification. Failure to make corrections as noted may result in payment for this item being withheld.
- 502-6 Moving an existing sign to a temporary location is subsidiary to this Item. Installations with permanent supports at permanent locations will be paid for under the applicable bid item (s).
- 502-7 Mount temporary mailboxes on plastic drum in accordance with Compliant Work Zone Traffic Control Devices, Section K. Mounting and moving the mailbox as needed for the various construction phases is subsidiary to this Item.
- 502-8 Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. Unless shown in the TCP, no lane closures are allowed during special events. Lane closures will not be allowed if this reporting requirement is not met.
- 502-9 Avoid placing stockpiles within the roadway's horizontal clear zone. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.
- 502-10 Do not place barricades, signs, or any other traffic control devices where they interfere with sight distance at driveways or side streets.
- 502-11 In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking

General Notes

Sheet J

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 <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
			
<p>GENERAL NOTES</p>			
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Control: N/A

County: Comal

Highway: San Antonio St

corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

502-13 If Nighttime work is required and work is not behind positive barrier then full TY 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.
Wash the channelizing devices and barricades following each rainfall or snowfall event and at times deemed necessary by the Engineer.

Fill any holes left by barricade or sign supports and restore the area to its original condition. "Sidewalk Closed" (R9-9) signs are to be used while work is ongoing. See TxDOT standard WZ(BTS-2)-13 for more details.

--Item 506--

506-1 An Inspector will perform a regularly scheduled SWP3 inspection every 7 calendar days.

506-3 Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

Erosion control logs, sandbags and other BMPs will be placed and relocated as directed by the Engineer in order to comply fully with the SW3P requirements.

Water pumped off the project must have sediment and any other solids in suspension removed before discharging.

--Item 529--

529-1 Class "C" concrete is required for machine extruded curb.

529-2 Curb inlets and extensions are based on an exposed curb height of 7 inches. The roadway curb height and shape will be transitioned to the inlet's curb with a 40:1 taper.

--Item 530--

Use Class A Concrete for all concrete driveways.

Contractor is responsible for notifying residents at least 72 hours in advance prior to excavating driveways. Contractor should not take longer than 3 days to complete the construction of the driveways once excavation begins, weather pending.

--Item 531--

General Notes

Sheet K

Control: N/A

County: Comal

Highway: San Antonio St

531-1 The curb ramp locations shown in the plans have taken into account the geometric features of the intersection, utilities, signage, and pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet TAS requirements.

Truncated dome pavers are prohibited.

All detectable warning surfaces are to be prefabricated panels constructed of cast iron or composite materials of contrasting color to the surrounding material, as approved by the Engineer.

Proposed curb ramps, sidewalks, curbs, and riprap is to be doweled 6-in minimum, unless otherwise shown, into existing concrete using 1/2-in reinforcement placed on 12-in centers.

Curb wall along ramps and landings, unless otherwise shown on the plans, is not paid for separately but is subsidiary to the ramp or landing. If the wall extends above the plane of the ramp, retaining wall, unless otherwise noted on the plans, should be utilized. Retaining wall quantities are shown for Contractor information only, payment is subsidiary to Item 531 Sidewalks. See special details sheets for more information.

Areas labeled with a "T" on the construction drawings allow the Contractor to transition to existing conditions. Slope and grade of all transitions must be approved by the Engineer.

Each planar element along the accessible route indicates the maximum slope and cross slope for that element – in many cases the element can be constructed to achieve the design intent at or below the maximum slope for that element. With the approval of the Engineer, the Contractor may extend the length of ramps or sloped sidewalks to the next planar element (level sidewalk, landing, transition, or driveway) or until the point at which the ramp or sloped sidewalk reaches the height of the adjacent curb, whichever is shorter, in order to achieve the design intent.



Construct compliant curb ramps based upon referenced design criteria, Texas Accessibility Standards and TxDOT Pedestrian Facilities Standards. All corners are unique and it may be necessary to use various combinations of ramp elements to achieve a compliant ramp configuration.

Review the curb ramp location and layout with the inspector prior to demolition so that both parties agree that the curb ramp can be installed properly. Should it become apparent at any time during the ramp layout and construction process that a curb ramp cannot be installed as indicated on the Project Drawings, promptly notify the inspector.

Any approval, inspection, or checking of the Contractor's layout and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations of the various parts of the work.

General Notes

Sheet L

REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #1002800</p>			
 <p>City of New Braunfels</p>			
<p>GENERAL NOTES</p>			
SHEET 6 OF 7			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO.
			8

Control: N/A

County: Comal

Highway: San Antonio St

Contractor is to match existing concrete color and texturing at various locations which, as directed by the Engineer, require matching.

The furnishing and installation of the sand cushion in the proposed sidewalks, sidewalk ramps and driveways will not be paid for directly but shall be considered subsidiary to this bid item.

The furnishing and installation of pipe underdrains, filter material, and other incidentals to ensure proper drainage of special concrete sidewalk with retaining wall per Concrete Sidewalk (Special)(Type B) will not be paid for directly but shall be considered subsidiary to this bid item and in accordance with Item 531.

Removal of existing concrete, surfaces, asphalt, base material, sign posts, miscellaneous materials, and all incidentals is included in this pay item within the footprint of the proposed work. If additional work related to the removal of existing is required beyond the quantity identified for Contractors information only, no additional payment will be made.

In areas where there is no curb fillet or concrete pavement, saw cut the existing curb and gutter and remove the curb.

When lack of right of way width or obstructions creates insufficient space, the ramp may be relocated within the right of way when authorized by the Engineer. All deficient ramps will be removed and replaced at the Contractor's expense.

For curb ramps, form tooled joints on each side of the ramp section where it meets a flare or curb wall, at each break in ramp slope or geometry, and at intervals equivalent to the width of the sidewalk for the purpose of cracking control. Place expansion joint material between proposed ramps and existing concrete; between proposed sidewalk and utility poles, guy wires, vent pipes, stand pipes and as directed.

Construct concrete steps, as shown in the plans or as directed by the Engineer, measured by the cubic yard and paid for as Item 420 Concrete Substructures.

--Item 560--

Move and replace all mailboxes within the project limits such that they may be served by the mail carrier from his car at all times during and after construction. This work will be considered subsidiary to the various bid items of this contract.

If a permanent (concrete or brick) mailbox is called out to be relocated, rebuild and reset the existing mailbox in the proposed location.

--Item 666--

Use TY II material (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.

666-1

General Notes

Sheet M

Control: N/A

County: Comal

Highway: San Antonio St

Median nose pavement marking materials are to be approved by the Engineer.

672-1

--Item 672--

Place all adhesive material directly from the heated dispenser to the pavement. Do not use portable or non-heated containers. Use adhesive of sufficient thickness so that when the marker is pressed into the adhesive, 1/8" or more adhesive will remain under 100% of the marker. The adhesive should extend not less than 1/2" but not more than 1 1/2" beyond the perimeter of the marker.

--Item 6001--


Provide messages as directed by the Engineer.

Provide 2 solar powered changeable message signs for this project.

General Notes


Sheet N

REV. NO.	DATE	DESCRIPTION	BY



**PAPE-DAWSON
ENGINEERS**

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



City of
New Braunfels

GENERAL NOTES



SHEET 7 OF 7

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	9

PLOTTED ON: 7/26/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\General\113801_EO.dgn

ESTIMATE SUMMARY									
NB 15-054 SAN ANTONIO STREET IMPROVEMENTS		A L T	ITEM- CODE		DESCRIPTION	U N I T	TOTAL		
EST.	FINAL		ITEM NO	SP NO			EST.	FINAL	
222			0104	6009	REMOVING CONC (RIPRAP)	SY	222		
728			0104	6017	REMOVING CONC (DRIVEWAYS)	SY	728		
5983			0104	6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	5983		
246			0104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	246		
21279			0105	6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	21279		
4276			0160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4276		
4276			0162	6002	BLOCK SODDING	SY	4276		
66.71			0168	6001	VEGETATIVE WATERING	MG	66.71		
4797.9			0247	6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	4797.9		
6473.40			0310	6009	PRIME COAT (MC-30)	GAL	6473.40		
3826.7			0340	6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	3826.7		
2498			0354	6048	PLANE ASPH CONC PAV (3")	SY	2498		
0.6			0420	6132	CL A CONC (STEPS)	CY	0.6		
24.2			0432	6001	RIPRAP (CONC) (4 IN)	CY	24.2		
56			0450	6047	RAIL (HANDRAIL) (TY A)	LF	56		
1			0465	6023	INLET (COMPL) (PCO) (5FT) (RIGHT)	EA	1		
1			0465	6024	INLET (COMPL) (PCO) (5FT) (BOTH)	EA	1		
2			0479	6001	ADJUSTING MANHOLE	EA	2		
2			0496	6002	REMOV STR (INLET)	EA	2		
1.0			0500	6001	MOBILIZATION	LS	1.0		
18			0502	6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	18		
600			0506	6035	SANDBAGS FOR EROSION CONTROL	EA	600		
4500			0506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	4500		
4500			0506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	4500		
15			0529	6001	CONC CURB (TY I)	LF	15		
7213			0529	6002	CONC CURB (TY II)	LF	7213		
46			0529	6008	CONC CURB & GUTTER (TY II)	LF	46		
743			0529	6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	743		
1962			0530	6004	DRIVEWAYS (CONC)	SY	1962		
261			0530	6005	DRIVEWAYS (ACP)	SY	261		
2449			0531	6001	CONC SIDEWALKS (4")	SY	2449		
3			0531	6004	CURB RAMPS (TY 1)	EA	3		
6			0531	6005	CURB RAMPS (TY 2)	EA	6		
18			0531	6006	CURB RAMPS (TY 3)	EA	18		
6			0531	6009	CURB RAMPS (TY 6)	EA	6		
13			0531	6010	CURB RAMPS (TY 7)	EA	13		
4			0531	6013	CURB RAMPS (TY 10)	EA	4		
1221			0531	6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	1221		
59			0560	6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	59		
12			0644	6060	IN SM RD SN SUP&AM TYTWT(1)WS(P)	EA	12		
24			0644	6071	RELOCATE SM RD SN SUP&AM TY TWT	EA	24		
895			0666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	895		
2			0666	6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	2		
6070			0666	6224	PAVEMENT SEALER 4"	LF	6070		
895			0666	6230	PAVEMENT SEALER 24"	LF	895		
6070			0666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	6070		
12			0672	5009	002 REFL PAV MRKR TY II-B-B	EA	12		
78			0672	6009	REFL PAV MRKR TY II-A-A	EA	78		
6070			0678	6001	PAV SURF PREP FOR MRK (4")	LF	6070		
895			0678	6008	PAV SURF PREP FOR MRK (24")	LF	895		
1			0752	6006	TREE REMOVAL (12" - 18" DIA)	EA	1		
1			0752	6008	TREE REMOVAL (24" - 30" DIA)	EA	1		
1.000			0752	6015	TREE AND BRUSH REMOVAL	AC	1.000		
21718			5001	6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	21718		
2			6001	6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2		



REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
 <p>City of New Braunfels</p>			
<p>ESTIMATE AND QUANTITY</p>			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 10

PLOTTED ON: 7/24/2019

SHT NO	ITEM INTERSECTION	0104-6009	0104-6017	0104-6029	0104-6036	0105-6037	0160-6003	0162-6002	0168-6001
		REMOVING CONC (RIPRAP) SY	REMOVING CONC (DRIVEWAYS) SY	REMOVING CONC (CURB OR CURB & GUTTER) LF	REMOVING CONC (SIDEWALK OR RAMP) SY	REMOVING STAB BASE AND ASPH PAV (0"-16") SY	FURNISHING AND PLACING TOPSOIL (4") SY	BLOCK SODDING SY	VEGETATIVE WATERING MG
48	PLAN AND PROFILE SHEET 1 OF 35			227	2	910	94	94	1.47
49	PLAN AND PROFILE SHEET 2 OF 35			318		1054	178	178	2.78
50	PLAN AND PROFILE SHEET 3 OF 35		10	310		886	164	164	2.56
51	PLAN AND PROFILE SHEET 4 OF 35		39	211		1027	165	165	2.57
52	PLAN AND PROFILE SHEET 5 OF 35		38	258	8	944	200	200	3.12
53	PLAN AND PROFILE SHEET 6 OF 35		129	210	20	973	160	160	2.50
54	PLAN AND PROFILE SHEET 7 OF 35	2	23	351		875	190	190	2.96
55	PLAN AND PROFILE SHEET 8 OF 35			342	13	1128	285	285	4.45
56	PLAN AND PROFILE SHEET 9 OF 35		21	341	26	922	315	315	4.91
57	PLAN AND PROFILE SHEET 10 OF 35	3	40	350	47	921	205	205	3.20
58	PLAN AND PROFILE SHEET 11 OF 35	10	20	291	19	1170	177	177	2.76
59	PLAN AND PROFILE SHEET 12 OF 35	2	108	261		884	145	145	2.26
60	PLAN AND PROFILE SHEET 13 OF 35		35	239		970	245	245	3.82
61	PLAN AND PROFILE SHEET 14 OF 35		26	333		1301	160	160	2.50
62	PLAN AND PROFILE SHEET 15 OF 35		42	304		896	191	191	2.98
63	PLAN AND PROFILE SHEET 16 OF 35		41	288		871	170	170	2.65
64	PLAN AND PROFILE SHEET 17 OF 35		16	265	16	1151	235	235	3.67
65	PLAN AND PROFILE SHEET 18 OF 35		25	300	18	903	230	230	3.59
66	PLAN AND PROFILE SHEET 19 OF 35		40	275	18	991	222	222	3.46
67	PLAN AND PROFILE SHEET 20 OF 35	12	55	265	25	1280	266	266	4.15
68	PLAN AND PROFILE SHEET 21 OF 35	107	16	137	17	782	201	201	3.14
69	PLAN AND PROFILE SHEET 22 OF 35	61	4	56	11	263	65	65	1.01
70	PLAN SHEET 23 OF 35	25		51	6	177	13	13	0.20
	TOTALS	222	728	5983	246	21279	4276	4276	66.71

SHT NO	ITEM INTERSECTION	0247-6041	0310-6009	0340-6120	0354-6048	0420-6132	0432-6001	0450-6047	0465-6023
		FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS) CY	PRIME COAT (MC-30) GAL	D-GR HMA (SQ) TY-D SAC-B PG70-22 TON	PLANE ASPH CONC PAV (3") SY	CL A CONC (STEPS) CY	RIPRAP (CONC) (4 IN) CY	RAIL (HANDRAIL) (TY A) LF	INLET (COMPL) (PCO) (5FT) (RIGHT) EA
48	PLAN AND PROFILE SHEET 1 OF 35	208.2	281.10	257.9	645				
49	PLAN AND PROFILE SHEET 2 OF 35	242.2	327.00	227.5	315				
50	PLAN AND PROFILE SHEET 3 OF 35	194.7	262.80	137.8					
51	PLAN AND PROFILE SHEET 4 OF 35	220.0	297.00	173.5	97				
52	PLAN AND PROFILE SHEET 5 OF 35	198.4	267.90	179.1	220				
53	PLAN AND PROFILE SHEET 6 OF 35	214.9	290.10	167.0	81			56	1
54	PLAN AND PROFILE SHEET 7 OF 35	192.0	259.20	136.3					
55	PLAN AND PROFILE SHEET 8 OF 35	256.0	345.60	201.7	115				
56	PLAN AND PROFILE SHEET 9 OF 35	192.7	260.10	136.8					
57	PLAN AND PROFILE SHEET 10 OF 35	193.6	261.30	137.5			1.0		
58	PLAN AND PROFILE SHEET 11 OF 35	263.6	355.80	221.5	191				
59	PLAN AND PROFILE SHEET 12 OF 35	192.7	260.10	136.8			0.2		
60	PLAN AND PROFILE SHEET 13 OF 35	214.0	288.90	167.3	87				
61	PLAN AND PROFILE SHEET 14 OF 35	286.4	386.70	213.2	56				
62	PLAN AND PROFILE SHEET 15 OF 35	192.7	260.10	136.8					
63	PLAN AND PROFILE SHEET 16 OF 35	192.7	260.10	136.8					
64	PLAN AND PROFILE SHEET 17 OF 35	248.2	335.10	207.9	179	0.3			
65	PLAN AND PROFILE SHEET 18 OF 35	192.7	260.10	136.8		0.3			
66	PLAN AND PROFILE SHEET 19 OF 35	213.1	287.70	158.7	41				
67	PLAN AND PROFILE SHEET 20 OF 35	253.1	341.70	188.9	47		2.0		
68	PLAN AND PROFILE SHEET 21 OF 35	152.9	206.40	105.7			11.8		
69	PLAN AND PROFILE SHEET 22 OF 35	58.2	78.60	111.3	424		6.4		
70	PLAN SHEET 23 OF 35						2.8		
	TOTALS	4572.9	6173.40	3676.7	2498	0.6	24.2	56	1

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REV. NO.	DATE	DESCRIPTION	BY
 <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
			
<h1>SUMMARIES</h1>			
SHEET 1 OF 4			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 11

PLOTTED ON: 7/24/2019

SHT NO	ITEM INTERSECTION	0465-6024	0479-6001	0496-6002	0529-6001	0529-6002	0529-6008	0529-6023	0530-6004
		INLET (COMPL) (PCO) (5FT) (BOTH) EA	ADJUSTING MANHOLES EA	REMOV STR (INLET) EA	CONC CURB (TY I) LF	CONC CURB (TY II) LF	CONC CURB & GUTTER (TY II) LF	CONC CURB & GUTTER (VALLEY GUTTER) (36") LF	DRIVEWAYS (CONC) SY
48	PLAN AND PROFILE SHEET 1 OF 35				15	257		106	41
49	PLAN AND PROFILE SHEET 2 OF 35					352		96	
50	PLAN AND PROFILE SHEET 3 OF 35					365		16	73
51	PLAN AND PROFILE SHEET 4 OF 35					305			140
52	PLAN AND PROFILE SHEET 5 OF 35					341			119
53	PLAN AND PROFILE SHEET 6 OF 35	1	2	2		215	46		142
54	PLAN AND PROFILE SHEET 7 OF 35					387			49
55	PLAN AND PROFILE SHEET 8 OF 35					414		84	24
56	PLAN AND PROFILE SHEET 9 OF 35					402			80
57	PLAN AND PROFILE SHEET 10 OF 35					378			84
58	PLAN AND PROFILE SHEET 11 OF 35					310		91	36
59	PLAN AND PROFILE SHEET 12 OF 35					338			149
60	PLAN AND PROFILE SHEET 13 OF 35					328		104	107
61	PLAN AND PROFILE SHEET 14 OF 35					348			88
62	PLAN AND PROFILE SHEET 15 OF 35					336			108
63	PLAN AND PROFILE SHEET 16 OF 35					325			105
64	PLAN AND PROFILE SHEET 17 OF 35					314			62
65	PLAN AND PROFILE SHEET 18 OF 35					392			115
66	PLAN AND PROFILE SHEET 19 OF 35					360		103	87
67	PLAN AND PROFILE SHEET 20 OF 35					306			173
68	PLAN AND PROFILE SHEET 21 OF 35					283			138
69	PLAN AND PROFILE SHEET 22 OF 35					105			42
70	PLAN SHEET 23 OF 35					52		143	
	TOTALS	1	2	2	15	7213	46	743	1962

SHT NO	ITEM INTERSECTION	0530-6005	0531-6001	0531-6004	0531-6005	0531-6006	0531-6009	0531-6010	0531-6013
		DRIVEWAYS (ACP) SY	CONC SIDEWALKS (4") SY	CURB RAMPS (TY 1) EA	CURB RAMPS (TY 2) EA	CURB RAMPS (TY 3) EA	CURB RAMPS (TY 6) EA	CURB RAMPS (TY 7) EA	CURB RAMPS (TY 10) EA
48	PLAN AND PROFILE SHEET 1 OF 35		75		2	1	3		
49	PLAN AND PROFILE SHEET 2 OF 35		186		1	1		1	
50	PLAN AND PROFILE SHEET 3 OF 35	11	67			1			
51	PLAN AND PROFILE SHEET 4 OF 35	20	51		1	1		3	
52	PLAN AND PROFILE SHEET 5 OF 35	21	72						1
53	PLAN AND PROFILE SHEET 6 OF 35	52	34			1		1	
54	PLAN AND PROFILE SHEET 7 OF 35		86						
55	PLAN AND PROFILE SHEET 8 OF 35		170	1		2		3	
56	PLAN AND PROFILE SHEET 9 OF 35	11	123						
57	PLAN AND PROFILE SHEET 10 OF 35	10	215						
58	PLAN AND PROFILE SHEET 11 OF 35		125		1	1	2		2
59	PLAN AND PROFILE SHEET 12 OF 35		158						
60	PLAN AND PROFILE SHEET 13 OF 35	4	128	1		1			
61	PLAN AND PROFILE SHEET 14 OF 35	32	124		1	3	1	1	
62	PLAN AND PROFILE SHEET 15 OF 35	14	190						
63	PLAN AND PROFILE SHEET 16 OF 35		186						
64	PLAN AND PROFILE SHEET 17 OF 35	50	96			3		2	1
65	PLAN AND PROFILE SHEET 18 OF 35	20	94						
66	PLAN AND PROFILE SHEET 19 OF 35	10	56			2			
67	PLAN AND PROFILE SHEET 20 OF 35		122	1		1		2	
68	PLAN AND PROFILE SHEET 21 OF 35	6	52						
69	PLAN AND PROFILE SHEET 22 OF 35		39						
70	PLAN SHEET 23 OF 35								
	TOTALS	261	2449	3	6	18	6	13	4

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REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
 <p>City of New Braunfels</p>			
<h1>SUMMARIES</h1>			
SHEET 2 OF 4			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 12

PLOTTED ON: 7/24/2019

SHT NO	ITEM INTERSECTION	0531-6033	0560-6004	0644-6060	0644-6071	0666-6048	0666-6217	0666-6224	0666-6230
		CONC SIDEWALKS (SPECIAL) (TYPE B) SY	MAILBOX INSTALL-S (TWG-POST) TY 2 EA	IN SM RD SN SUP&AM TYTWT (1)WS(P) EA	RELOCATE SM RD SN SUP&AM TY TWT EA	REFL PAV MRK TY I (W)24" (SLD) (100MIL) LF	REFL PAV MRK TY II (Y) (MED NOSE) EA	PAVEMENT SEALER 4" LF	PAVEMENT SEALER 24" LF
48	PLAN AND PROFILE SHEET 1 OF 35	58	1	2	2	86		105	86
49	PLAN AND PROFILE SHEET 2 OF 35	5	3		1	28		191	28
50	PLAN AND PROFILE SHEET 3 OF 35	131	5		1			370	
51	PLAN AND PROFILE SHEET 4 OF 35	74	2	2	1	78		209	78
52	PLAN AND PROFILE SHEET 5 OF 35	83	5			12		349	12
53	PLAN AND PROFILE SHEET 6 OF 35	74	2		1	17		291	17
54	PLAN AND PROFILE SHEET 7 OF 35	123	1		1			400	
55	PLAN AND PROFILE SHEET 8 OF 35	48	1	2	2	181		186	181
56	PLAN AND PROFILE SHEET 9 OF 35	22	1					400	
57	PLAN AND PROFILE SHEET 10 OF 35	12	2					400	
58	PLAN AND PROFILE SHEET 11 OF 35	58	1		3	184		220	184
59	PLAN AND PROFILE SHEET 12 OF 35	21	11					400	
60	PLAN AND PROFILE SHEET 13 OF 35	32	4		2	13		277	13
61	PLAN AND PROFILE SHEET 14 OF 35	12	1	2	3	89		156	89
62	PLAN AND PROFILE SHEET 15 OF 35	12	2					392	
63	PLAN AND PROFILE SHEET 16 OF 35	15	4					400	
64	PLAN AND PROFILE SHEET 17 OF 35	49	2	2	1	91		250	91
65	PLAN AND PROFILE SHEET 18 OF 35	121	4					400	
66	PLAN AND PROFILE SHEET 19 OF 35	132	2		1	11		283	11
67	PLAN AND PROFILE SHEET 20 OF 35	34	1	2	2	75	1	299	75
68	PLAN AND PROFILE SHEET 21 OF 35	61	3		2	14	1	30	14
69	PLAN AND PROFILE SHEET 22 OF 35	11	1						
70	PLAN SHEET 23 OF 35	33			1	16		62	16
	TOTALS	1221	59	12	24	895	2	6070	895

SHT NO	ITEM INTERSECTION	0666-6315	0672-5009	0672-6009	0678-6001	0678-6008	0752-6006	0752-6008	5001-6002
		RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL) LF	REFL PAV MRKR TY II-B-B EA	REFL PAV MRKR TY II-A-A EA	PAV SURF PREP FOR MRK (4") LF	PAV SURF PREP FOR MRK (24") LF	TREE REMOVAL (12" - 18" DIA) EA	TREE REMOVAL (24" - 30" DIA) EA	GEOGRID BASE REINF (TENSAR TRIAX TX-5) SY
48	PLAN AND PROFILE SHEET 1 OF 35	105		2	105	86			943
49	PLAN AND PROFILE SHEET 2 OF 35	191		2	191	28			1097
50	PLAN AND PROFILE SHEET 3 OF 35	370	1	5	370				882
51	PLAN AND PROFILE SHEET 4 OF 35	209	1	3	209	78			997
52	PLAN AND PROFILE SHEET 5 OF 35	349		5	349	12			899
53	PLAN AND PROFILE SHEET 6 OF 35	291	1	4	291	17	1		974
54	PLAN AND PROFILE SHEET 7 OF 35	400		5	400				870
55	PLAN AND PROFILE SHEET 8 OF 35	186	1	3	186	181			1160
56	PLAN AND PROFILE SHEET 9 OF 35	400	1	5	400				873
57	PLAN AND PROFILE SHEET 10 OF 35	400		5	400		1		877
58	PLAN AND PROFILE SHEET 11 OF 35	220	1	2	220	184			1194
59	PLAN AND PROFILE SHEET 12 OF 35	400	1	5	400				873
60	PLAN AND PROFILE SHEET 13 OF 35	277		4	277	13			970
61	PLAN AND PROFILE SHEET 14 OF 35	156	1	2	156	89			1298
62	PLAN AND PROFILE SHEET 15 OF 35	392		5	392				873
63	PLAN AND PROFILE SHEET 16 OF 35	400	1	5	400				873
64	PLAN AND PROFILE SHEET 17 OF 35	250	1	3	250	91			1125
65	PLAN AND PROFILE SHEET 18 OF 35	400		5	400				873
66	PLAN AND PROFILE SHEET 19 OF 35	283	1	4	283	11			966
67	PLAN AND PROFILE SHEET 20 OF 35	299	1	3	299	75			1147
68	PLAN AND PROFILE SHEET 21 OF 35	30			30	14			693
69	PLAN AND PROFILE SHEET 22 OF 35								264
70	PLAN SHEET 23 OF 35	62		1	62	16			
	TOTALS	6070	12	78	6070	895	1	1	20718

DESIGN FILENAME: P:\11\38\01\Design\Civil\Summaries\113801_Summaries.dgn

REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #1002800</p>			
 <p>City of New Braunfels</p>			
<h1>SUMMARIES</h1>			
SHEET 3 OF 4			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 13



PLOTTED ON: 7/24/2019

INDEFINITE QUANTITIES*

SHT NO	ROADWAY	ITEM										
		0247-6041	0310-6009	0340-6120	0500-6001	0502-6001	0506-6035	0506-6041	0506-6043	0752-6015	5001-6002	6001-6002
		FL BS (CMP IN PLC) (TYA GR1&2) (FNAL POS)	PRIME COAT (MC-30)	D-GR HMA (SQ) TY-D SAC-B PG70-22	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING	SANDBAGS FOR EROSION CONTROL	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	TREE AND BRUSH REMOVAL	GEOGRID BASE REINFORCEMENT (TENSAR TRILAX TX-5)	PORTABLE CHANGEABLE MESSAGE SIGN
		CY	GAL	TON	LS	MO	EA	LF	LF	AC	SY	EA
x	FORCE ACCOUNT	225.0	300.00	150.0	1.0	18	600	4500	4500	1.000	1000	2
	TOTALS	225.0	300.00	150.0	1.0	18	600	4500	4500	1.000	1000	2

*AS APPROVED BY THE ENGINEER

DESIGN FILENAME: P:\11\38\01\Design\Civi\Summaries\113801_Summaries.dgn

REV. NO.	DATE	DESCRIPTION	BY
 <p>PAPE-DAWSON ENGINEERS</p> <p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
 <p>City of New Braunfels</p>			
SUMMARIES			
SHEET 4 OF 4			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 14

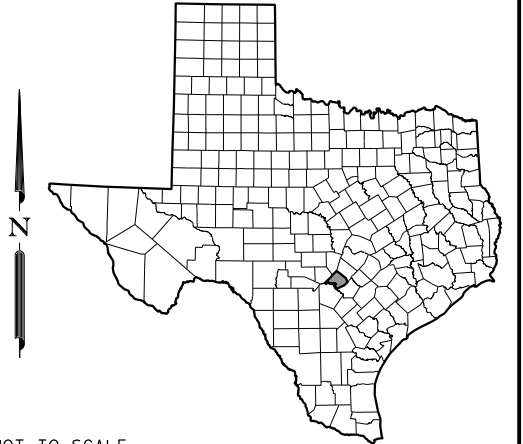
PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38\01\Design\Civil\General\1113801_P\ProjectLayout.dgn



END W SAN ANTONIO ST
AT LIVE OAK AVE
STA 54+52.55

BEGIN W SAN ANTONIO ST
AT KRUEGER AVE
STA 9+68.25



NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

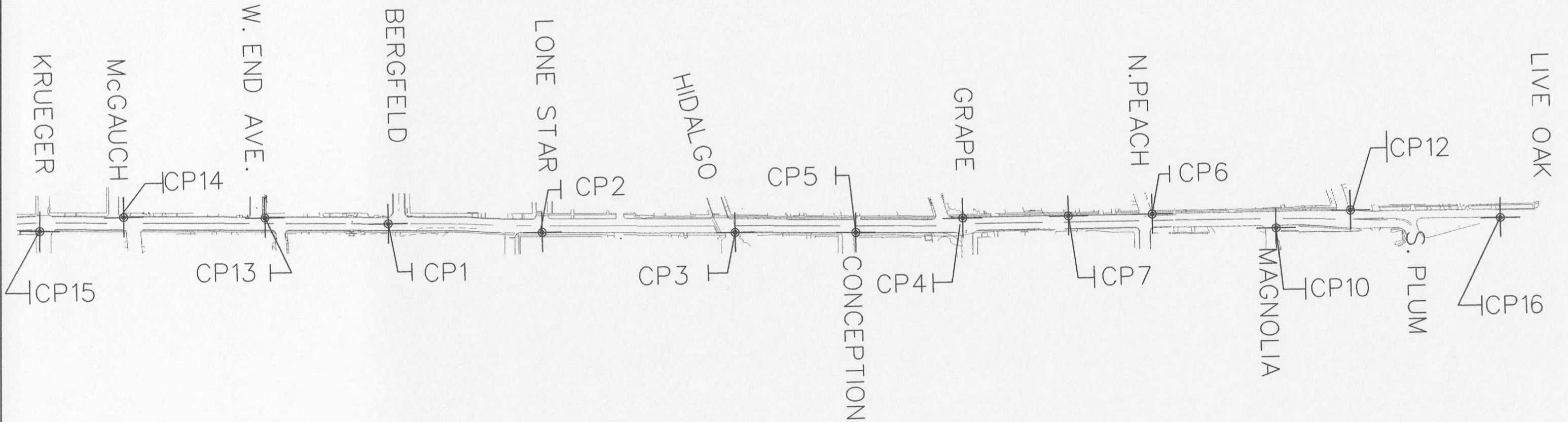
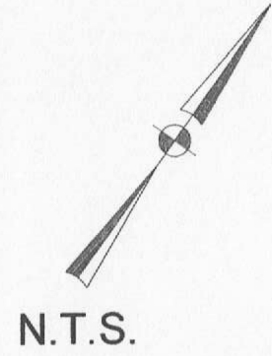


PROJECT LOCATION MAP

SHEET 1 OF 1

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	15

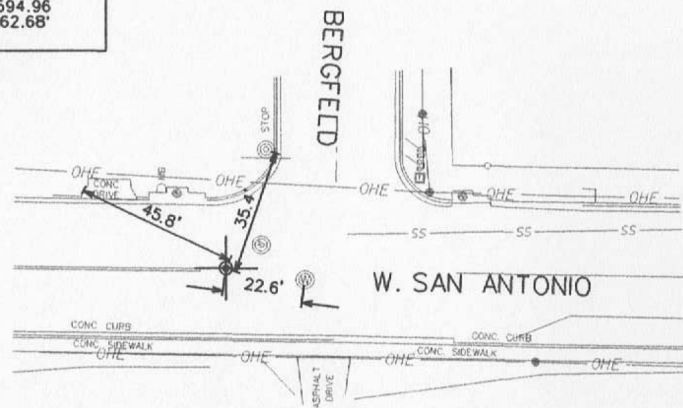
PRIMARY AND SECONDARY CONTROL LOCATION MAP
 FOR SAN ANTONIO STREET IMPROVMENTS
 (FROM KRUEGER TO LIVE OAK)
 CNB008-SAN ANTONIO STREET



HORIZONTAL/VERTICAL CONTROL INDEX
 <small>5151 W SH 46 New Braunfels, Texas 78132 (210) 325-0858</small>

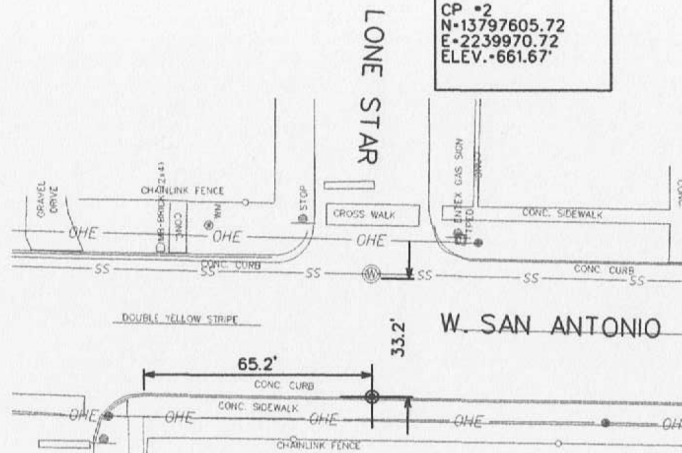
SAN ANTONIO STREET IMPROVEMENT PROJECT

CP #1
N-13797368.63
E-2239594.96
ELEV.-662.68'

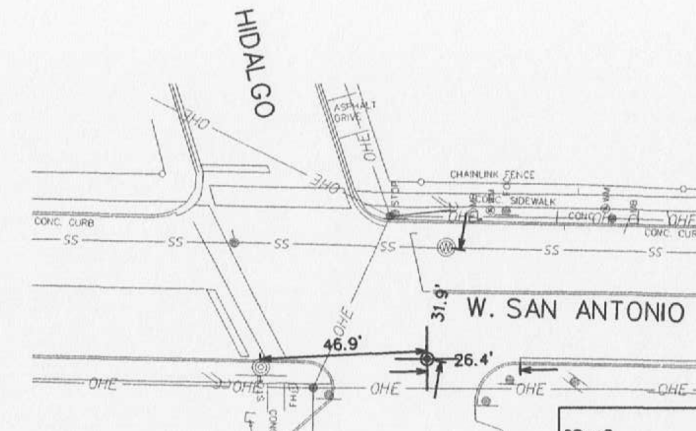


DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT INTERSECTION OF BERGFELD AND W. SAN ANTONIO STREET.

CP #2
N-13797605.72
E-2239970.72
ELEV.-661.67'



DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF W. SAN ANTONIO AND LONE STAR.



DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF HIDALGO AND W. SAN ANTONIO STREET.

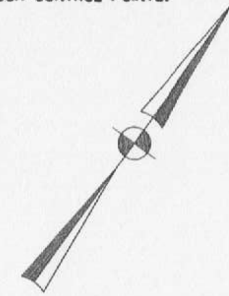
CP #3
N-13797926.58
E-2240423.54
ELEV.-656.67'

NOTES:

COORDINATES AND DISTANCES ARE U.S. SURVEY FEET. DISPLAYED IN GRID VALUES.

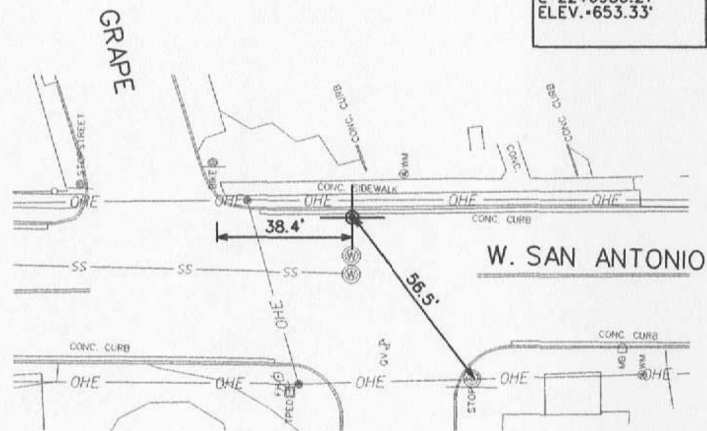
ALL HORIZONTAL VALUES ARE NAD 83 STATE PLANE COORDINATES, TEXAS SOUTH CENTRAL ZONE AND WERE ESTABLISHED BY RTK GPS METHODS.

VERTICAL DATUM IS BASED ON NAVD83 ESTABLISHED FROM A DIGITAL LEVEL LOOP THROUGH CONTROL POINTS.

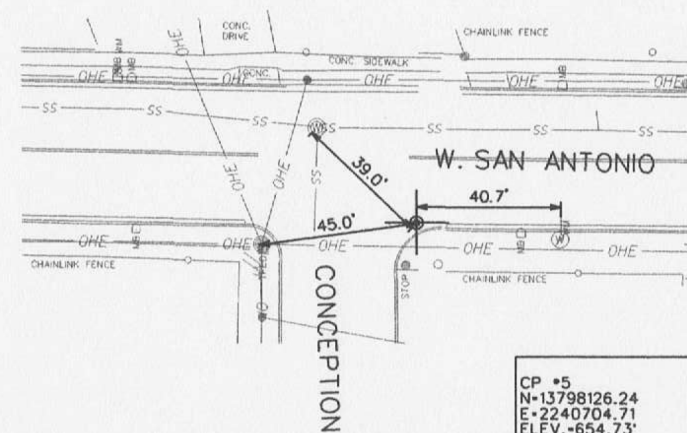


NOT TO SCALE

CP #4
N-13798336.43
E-2240930.21
ELEV.-653.33'

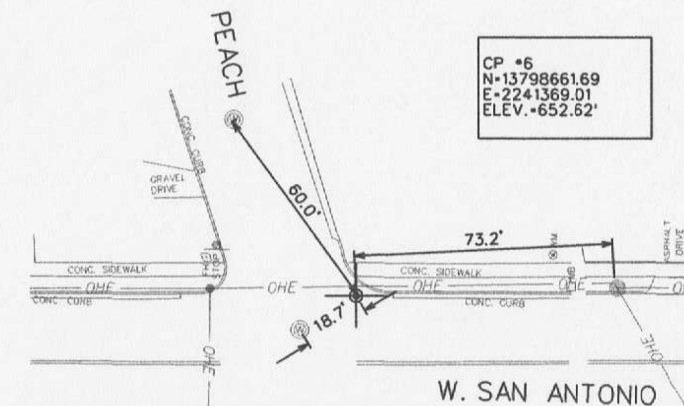


DESCRIPTION: SET MAG NAIL +/- 30' EAST OF THE INTERSECTION OF GRAPE, AND W. SAN ANTONIO STREET.



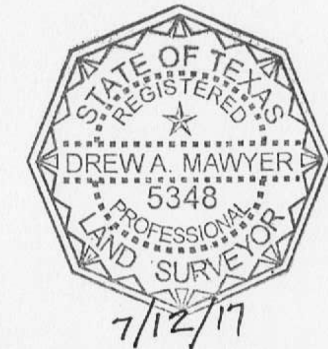
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF CONCEPTION AND W. SAN ANTONIO STREET.

CP #5
N-13798126.24
E-2240704.71
ELEV.-654.73'



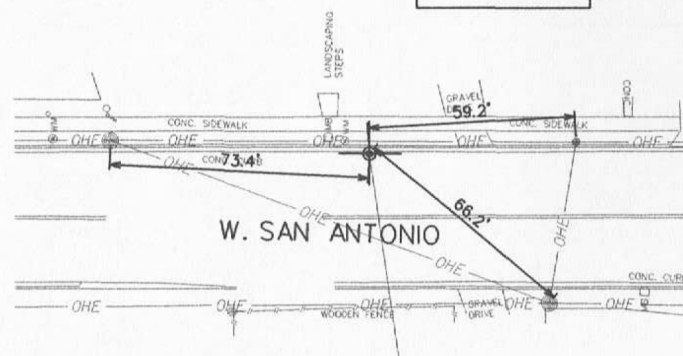
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF PEACH AND W. SAN ANTONIO STREET.

CP #6
N-13798661.69
E-2241369.01
ELEV.-652.62'



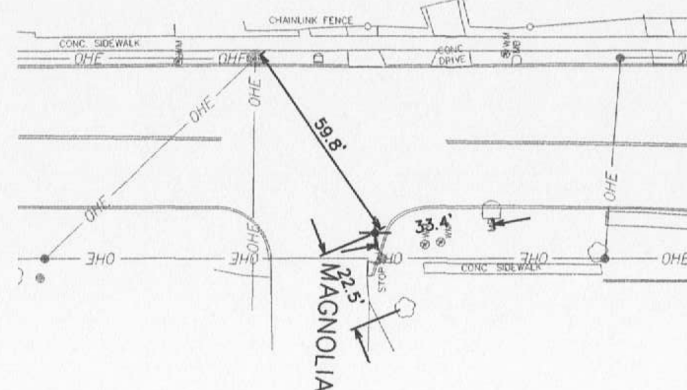
Drew A. Mawyer
DREW A. MAWYER, RPLS #5348

CP #7
N-13798518.33
E-2241175.61
ELEV.-653.61'



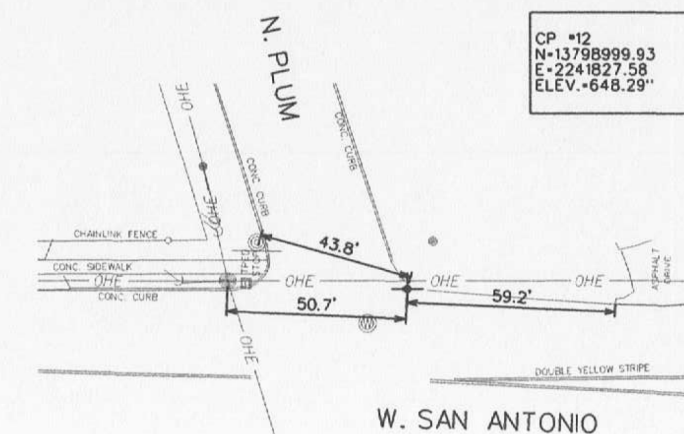
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER, +/- 220' WEST OF THE INTERSECTION OF PEACH AND W. SAN ANTONIO STREET.

CP #10
N-13798833.60
E-2241680.66
ELEV.-650.12'



DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF MAGNOLIA AND W. SAN ANTONIO STREET.

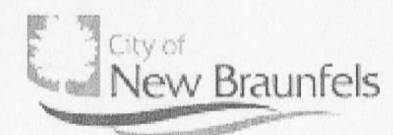
CP #12
N-13798999.93
E-2241827.58
ELEV.-648.29'



DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF N. PLUM AND W. SAN ANTONIO STREET.

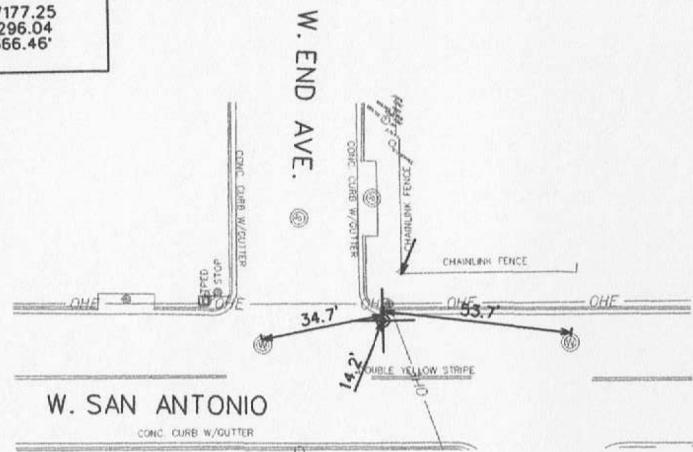


5151 W SH 46
New Braunfels, Texas 78132
(210) 325-0858



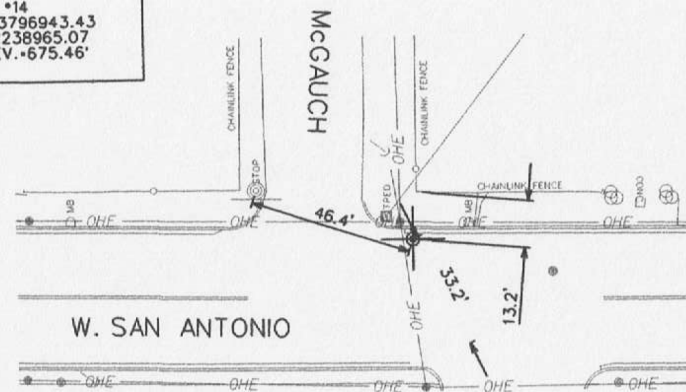
SAN ANTONIO STREET
HORIZONTAL & VERTICAL
CONTROL

CP #13
 N=13797177.25
 E=2239296.04
 ELEV.=666.46'



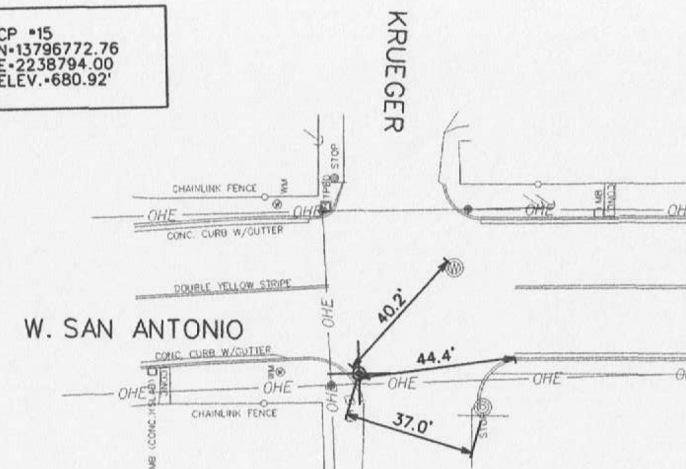
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT INTERSECTION OF W. END AVE. AND W. SAN ANTONIO STREET.

CP #14
 N=13796943.43
 E=2238965.07
 ELEV.=675.46'



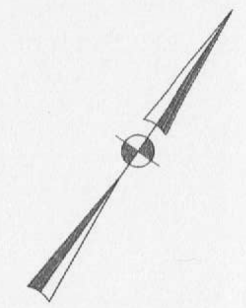
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF W. SAN ANTONIO AND McGAUCH.

CP #15
 N=13796772.76
 E=2238794.00
 ELEV.=680.92'



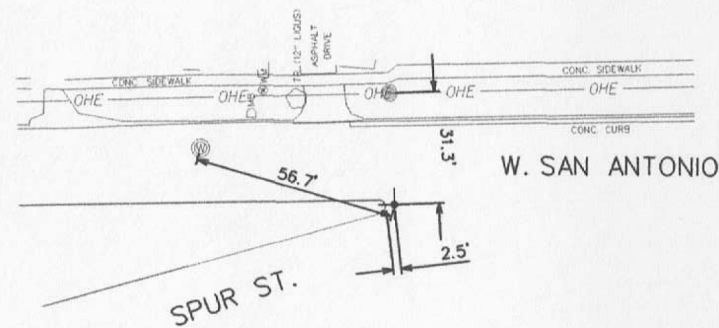
DESCRIPTION: SET MAG NAIL W/ DAM CONTROL SHINER AT THE INTERSECTION OF KRUEGER AND W. SAN ANTONIO STREET.

NOTES:
 COORDINATES AND DISTANCES ARE U.S. SURVEY FEET. DISPLAYED IN GRID VALUES.
 ALL HORIZONTAL VALUES ARE NAD 83 STATE PLANE COORDINATES, TEXAS SOUTH CENTRAL ZONE AND WERE ESTABLISHED BY RTK GPS METHODS.
 VERTICAL DATUM IS BASED ON NAVD88 ESTABLISHED FROM A DIGITAL LEVEL LOOP THROUGH CONTROL POINTS.

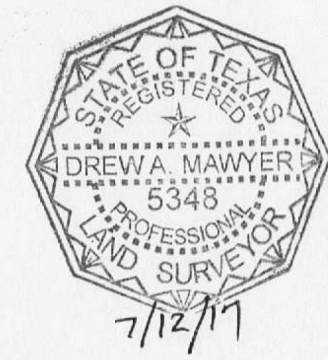


NOT TO SCALE

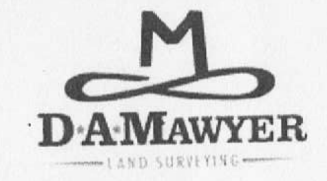
CP #16
 N=13799231.56
 E=2242191.18
 ELEV.=647.36'



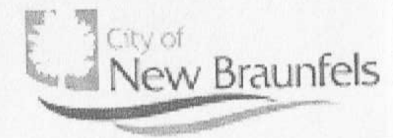
DESCRIPTION: SET MAG NAIL +/- 30' EAST OF THE INTERSECTION OF SPUR ST. AND W. SAN ANTONIO STREET.



Drew A. Mawyer
 DREW A. MAWYER, RPLS #5348



5151 W SH 46
 New Braunfels, Texas 78132
 (210) 325-0858



SAN ANTONIO STREET
 HORIZONTAL & VERTICAL
 CONTROL

PLOTTED ON: 7/24/2019

DESIGN FILENAME: p:\111\38\01\design\civil\General\1113801_HADS.dgn

Chain SA contains:
SA01 CUR CURV01 CUR CURV02 CUR CURV03 CUR CURV04 CUR CURV05 CUR CURV06 CUR CURV07 CUR CURV08 SA10

Beginning chain SA description

Point SA01 N 13,796,724.2693 E 2,238,689.1461 Sta 10+00.00

Course from SA01 to PC CURV01 N 51° 50' 21.16" E Dist 23.5782

Curve CURV01
P.I. Station = 10+60.65 N 13,796,761.7420 E 2,238,736.8341
Delta = 2° 49' 53.26" (RT)
Degree = 3° 49' 10.99"
Tangent = 37.0713
Length = 74.1275
Radius = 1,500.0000
External = 0.4580
Long Chord = 74.1199
Mid. Ord. = 0.4579
P.C. Station = 10+23.58 N 13,796,738.8376 E 2,238,707.6851
P.T. Station = 10+97.71 N 13,796,783.1786 E 2,238,767.0790
C.C. = N 13,795,559.3921 E 2,239,634.4582
Back = N 51° 50' 26.85" E
Ahead = N 54° 40' 20.11" E
Chord Bear = N 53° 15' 23.48" E

Course from PT CURV01 to PC CURV02 N 54° 40' 20.11" E Dist 1,167.9416

Curve CURV02
P.I. Station = 22+97.17 N 13,797,476.7716 E 2,239,745.6704
Delta = 2° 24' 27.81" (RT)
Degree = 3° 49' 10.99"
Tangent = 31.5217
Length = 63.0341
Radius = 1,500.0000
External = 0.3312
Long Chord = 63.0295
Mid. Ord. = 0.3311
P.C. Station = 22+65.65 N 13,797,458.5441 E 2,239,719.9531
P.T. Station = 23+28.68 N 13,797,493.9026 E 2,239,772.1306
C.C. = N 13,796,234.7576 E 2,240,587.3323
Back = N 54° 40' 20.11" E
Ahead = N 57° 04' 47.93" E
Chord Bear = N 55° 52' 34.02" E

Course from PT CURV02 to PC CURV03 N 57° 04' 47.93" E Dist 72.5841

Curve CURV03
P.I. Station = 24+32.78 N 13,797,550.4769 E 2,239,859.5143
Delta = 2° 24' 25.88" (LT)
Degree = 3° 49' 10.99"
Tangent = 31.5147
Length = 63.0201
Radius = 1,500.0000
External = 0.3310
Long Chord = 63.0154
Mid. Ord. = 0.3309
P.C. Station = 24+01.27 N 13,797,533.3497 E 2,239,833.0599
P.T. Station = 24+64.29 N 13,797,568.7001 E 2,239,885.2259
C.C. = N 13,798,792.4948 E 2,239,017.8582
Back = N 57° 04' 47.93" E
Ahead = N 54° 40' 22.05" E
Chord Bear = N 55° 52' 34.99" E

Course from PT CURV03 to PC CURV04 N 54° 40' 22.05" E Dist 1,154.1391

Curve CURV04
P.I. Station = 36+46.26 N 13,798,252.1717 E 2,240,849.5560
Delta = 2° 07' 34.66" (LT)
Degree = 3° 49' 10.99"
Tangent = 27.8363
Length = 55.6662
Radius = 1,500.0000
External = 0.2583
Long Chord = 55.6630
Mid. Ord. = 0.2582
P.C. Station = 36+18.42 N 13,798,236.0755 E 2,240,826.8454
P.T. Station = 36+74.09 N 13,798,269.0994 E 2,240,871.6538
C.C. = N 13,799,459.8701 E 2,239,959.4777
Back = N 54° 40' 22.05" E
Ahead = N 52° 32' 47.39" E
Chord Bear = N 53° 36' 34.72" E

Course from PT CURV04 to PC CURV05 N 52° 32' 47.39" E Dist 123.2094

Curve CURV05
P.I. Station = 38+09.89 N 13,798,351.6801 E 2,240,979.4560
Delta = 0° 57' 41.83" (RT)
Degree = 3° 49' 10.99"
Tangent = 12.5879
Length = 25.1751
Radius = 1,500.0000
External = 0.0528
Long Chord = 25.1748
Mid. Ord. = 0.0528
P.C. Station = 37+97.30 N 13,798,344.0252 E 2,240,969.4632
P.T. Station = 38+22.48 N 13,798,359.1662 E 2,240,989.5759
C.C. = N 13,797,153.2546 E 2,241,881.6393
Back = N 52° 32' 47.39" E
Ahead = N 53° 30' 29.22" E
Chord Bear = N 53° 01' 38.30" E

Course from PT CURV05 to PC CURV06 N 53° 30' 29.22" E Dist 176.5141

Curve CURV06
P.I. Station = 40+14.84 N 13,798,473.5686 E 2,241,144.2276
Delta = 0° 18' 09.96" (RT)
Degree = 0° 57' 17.75"
Tangent = 15.8529
Length = 31.7056
Radius = 6,000.0000
External = 0.0209
Long Chord = 31.7056
Mid. Ord. = 0.0209
P.C. Station = 39+98.99 N 13,798,464.1407 E 2,241,131.4829
P.T. Station = 40+30.70 N 13,798,482.9289 E 2,241,157.0220
C.C. = N 13,793,640.4941 E 2,244,699.7364
Back = N 53° 30' 29.22" E
Ahead = N 53° 48' 39.18" E
Chord Bear = N 53° 39' 34.20" E

Course from PT CURV06 to PC CURV07 N 53° 48' 39.18" E Dist 613.0641

Curve CURV07
P.I. Station = 46+78.63 N 13,798,865.5042 E 2,241,679.9532
Delta = 1° 19' 54.99" (RT)
Degree = 1° 54' 35.49"
Tangent = 34.8717
Length = 69.7403
Radius = 3,000.0000
External = 0.2027
Long Chord = 69.7387
Mid. Ord. = 0.2027
P.C. Station = 46+43.76 N 13,798,844.9141 E 2,241,651.8092
P.T. Station = 47+13.50 N 13,798,885.4345 E 2,241,708.5682
C.C. = N 13,796,423.6967 E 2,243,423.1664
Back = N 53° 48' 39.18" E
Ahead = N 55° 08' 34.17" E
Chord Bear = N 54° 28' 36.67" E

Course from PT CURV07 to PC CURV08 N 55° 08' 34.17" E Dist 153.0413

Curve CURV08
P.I. Station = 48+83.56 N 13,798,982.6301 E 2,241,848.1170
Delta = 1° 18' 00.63" (LT)
Degree = 3° 49' 10.99"
Tangent = 17.0200
Length = 34.0385
Radius = 1,500.0000
External = 0.0966
Long Chord = 34.0378
Mid. Ord. = 0.0966
P.C. Station = 48+66.54 N 13,798,972.9026 E 2,241,834.1508
P.T. Station = 49+00.58 N 13,798,992.6720 E 2,241,861.8589
C.C. = N 13,800,203.7715 E 2,240,976.8517
Back = N 55° 08' 34.17" E
Ahead = N 53° 50' 33.53" E
Chord Bear = N 54° 29' 33.85" E

Course from PT CURV08 to SA10 N 53° 50' 33.53" E Dist 537.3549

Point SA10 N 13,799,309.7139 E 2,242,295.7191 Sta 54+37.93

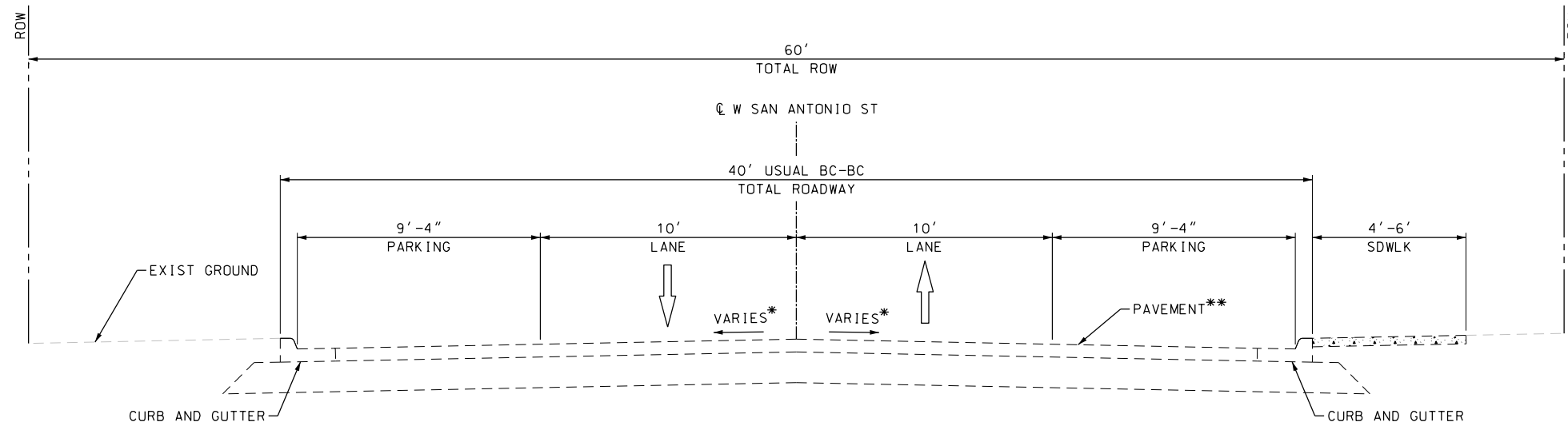
Ending chain SA description

DESIGN
TYLER P. DUBE
118612
7/24/2019
DATE
REVIEW AND APPROVAL
JAMES A. LUTZ
84722
7/24/2019
DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800
City of New Braunfels
HORIZONTAL ALIGNMENT DATA SHEET
SHEET 1 OF 1
DGN: CSF PROJECT NO. ROADWAY NAME
CHK DGN: TPD CSP 19-028 W SAN ANTONIO ST
DWG: STATE COUNTY CITY SHEET NO.
CHK DWG: TEXAS COMAL NEW BRAUNFELS 19

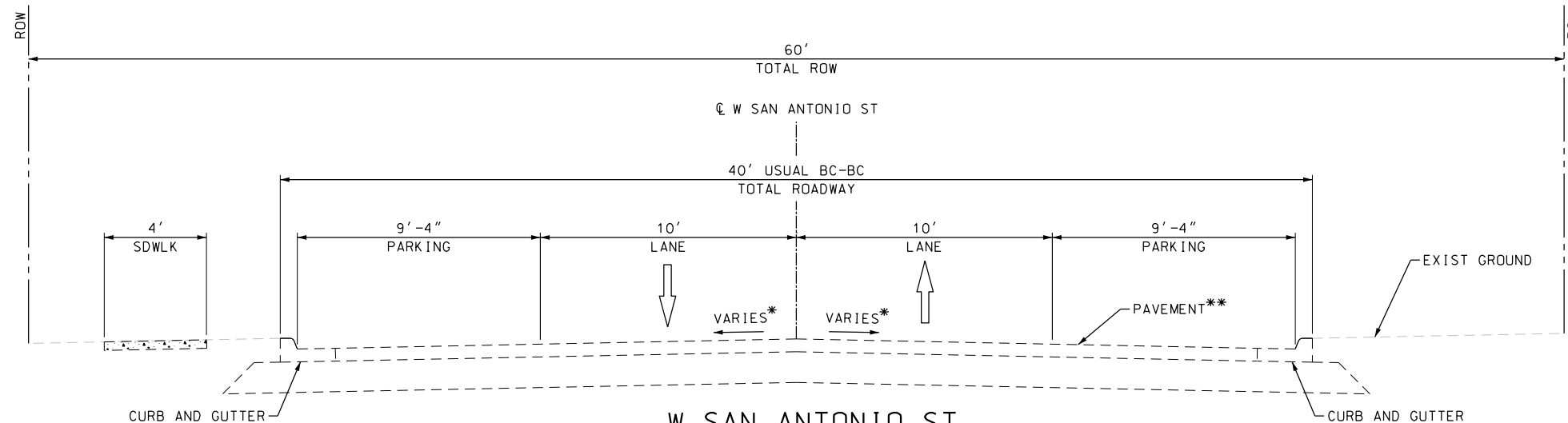
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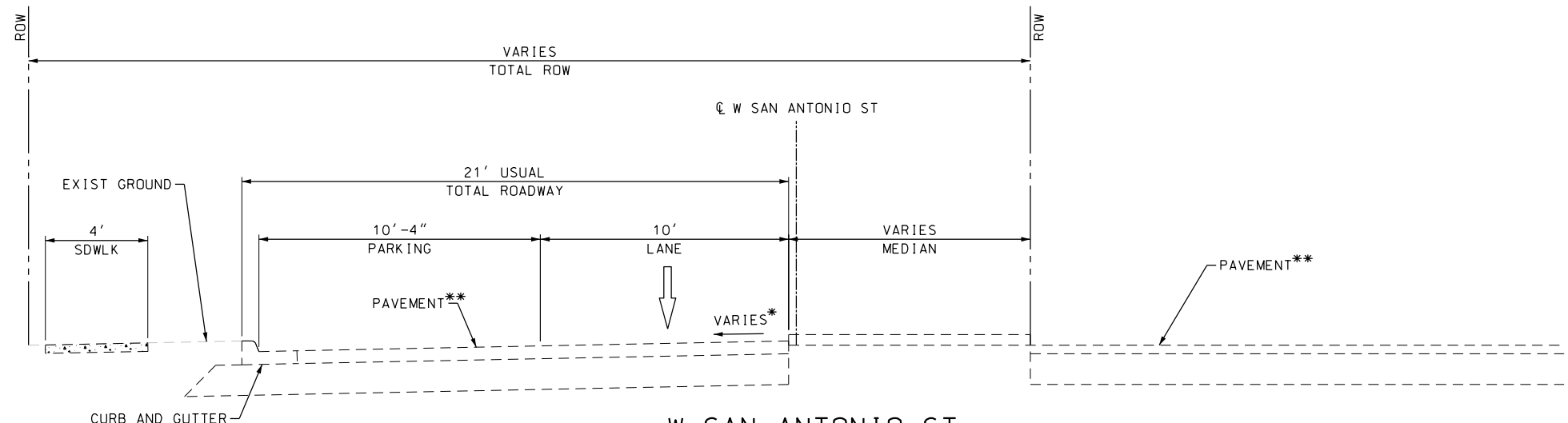
**W SAN ANTONIO ST
EXIST TYPICAL SECTION**
BEGIN PROJECT TO STA 30+83.77

*CROSS SLOPE VARIES BETWEEN 0-9%,
SUPERELEVATED AT SOME LOCATIONS
**EXISTING PAVEMENT SECTION UNKNOWN,
SHOWN AS GRAPHIC REPRESENTATION ONLY



**W SAN ANTONIO ST
EXIST TYPICAL SECTION**
STA 30+83.77 TO STA 50+11.20

*CROSS SLOPE VARIES BETWEEN 0-9%,
SUPERELEVATED AT SOME LOCATIONS
**EXISTING PAVEMENT SECTION UNKNOWN,
SHOWN AS GRAPHIC REPRESENTATION ONLY



**W SAN ANTONIO ST
EXIST TYPICAL SECTION**
STA 50+11.20 TO END PROJECT

*CROSS SLOPE VARIES BETWEEN 0-9%,
SUPERELEVATED AT SOME LOCATIONS
**EXISTING PAVEMENT SECTION UNKNOWN,
SHOWN AS GRAPHIC REPRESENTATION ONLY

DESIGN

TYLER P. DUBE, P.E.
DATE: 7/24/2019

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE: 7/24/2019

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Pape-Dawson Engineers
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

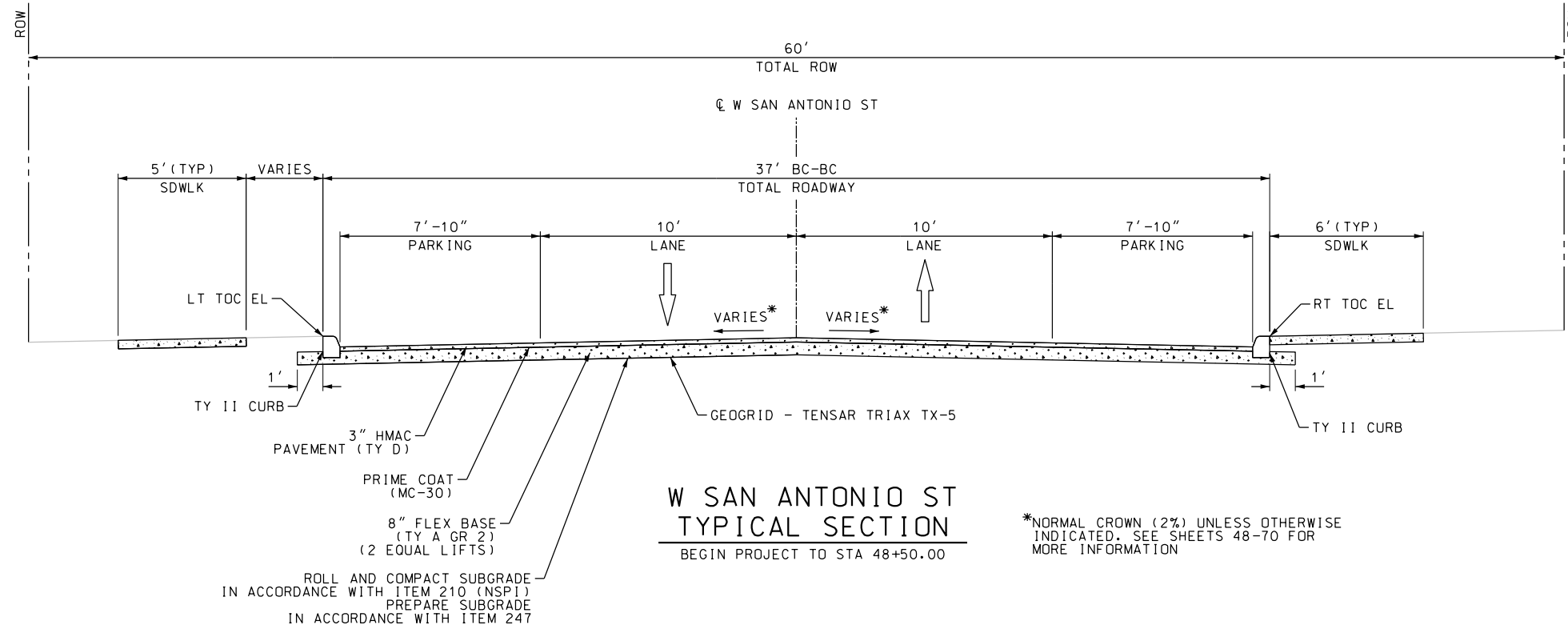
City of New Braunfels

TYPICAL SECTIONS

SHEET 1 OF 3

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	20

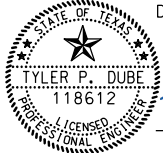
PLOTTED ON: 7/24/2019

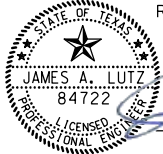


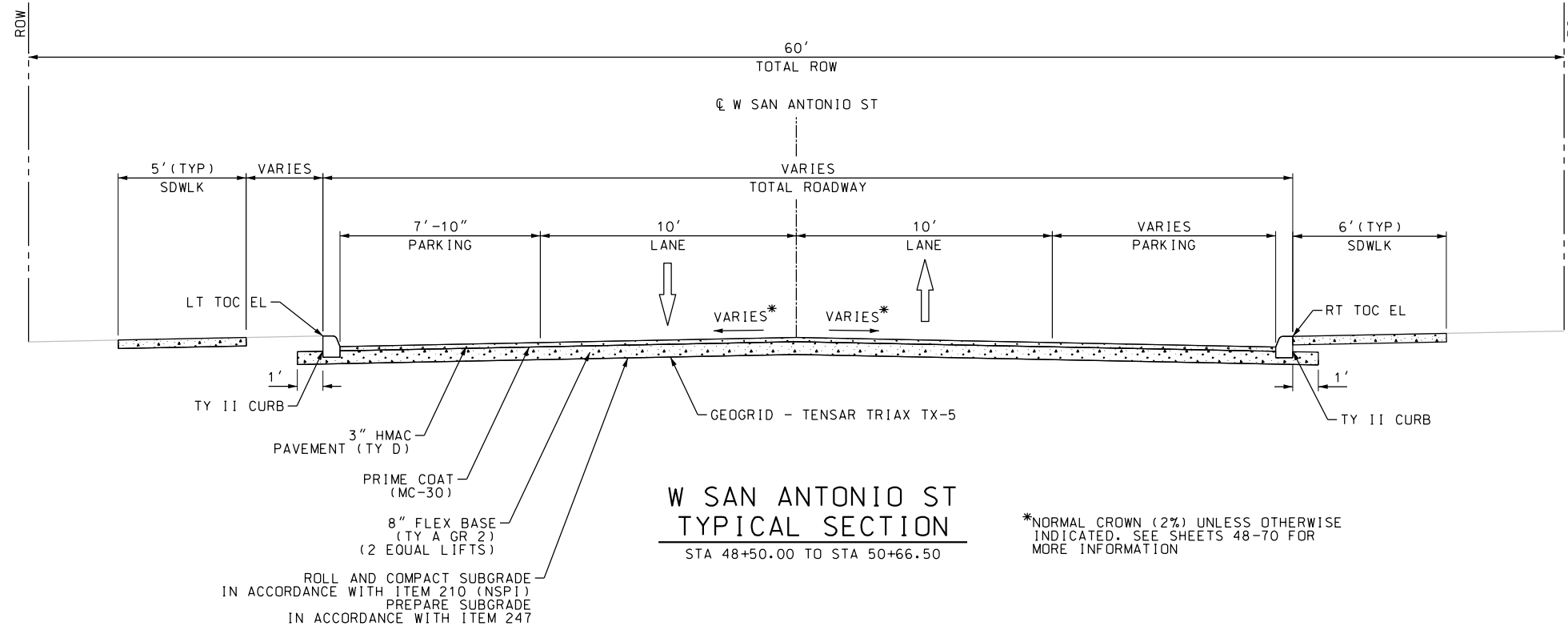
**W SAN ANTONIO ST
TYPICAL SECTION**
BEGIN PROJECT TO STA 48+50.00

*NORMAL CROWN (2%) UNLESS OTHERWISE INDICATED. SEE SHEETS 48-70 FOR MORE INFORMATION

NOTE: SIDEWALK LOCATIONS ARE SHOWN AS TYPICAL. SEE PLANS FOR DETAILED LAYOUT.

DESIGN

 TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

 JAMES A. LUTZ, P.E. 7/24/2019 DATE



**W SAN ANTONIO ST
TYPICAL SECTION**
STA 48+50.00 TO STA 50+66.50

*NORMAL CROWN (2%) UNLESS OTHERWISE INDICATED. SEE SHEETS 48-70 FOR MORE INFORMATION

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REV. NO.	DATE	DESCRIPTION	BY

**Pape-Dawson
ENGINEERS**

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 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



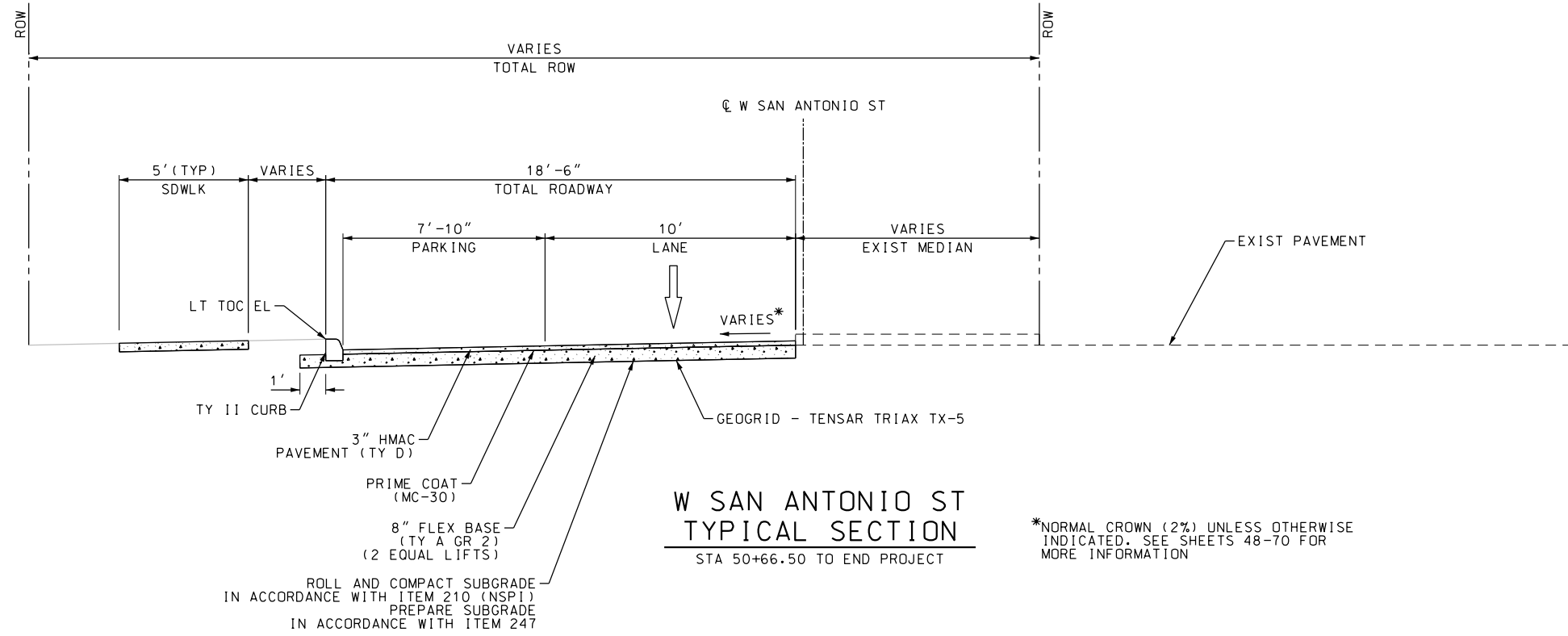
TYPICAL SECTIONS

SHEET 2 OF 3

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	21

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PLOTTED ON: 7/24/2019



W SAN ANTONIO ST
TYPICAL SECTION
 STA 50+66.50 TO END PROJECT

*NORMAL CROWN (2%) UNLESS OTHERWISE INDICATED. SEE SHEETS 48-70 FOR MORE INFORMATION

NOTE: SIDEWALK LOCATIONS ARE SHOWN AS TYPICAL. SEE PLANS FOR DETAILED LAYOUT.

DESIGN

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JAMES A. LUTZ, P.E. 7/24/2019 DATE

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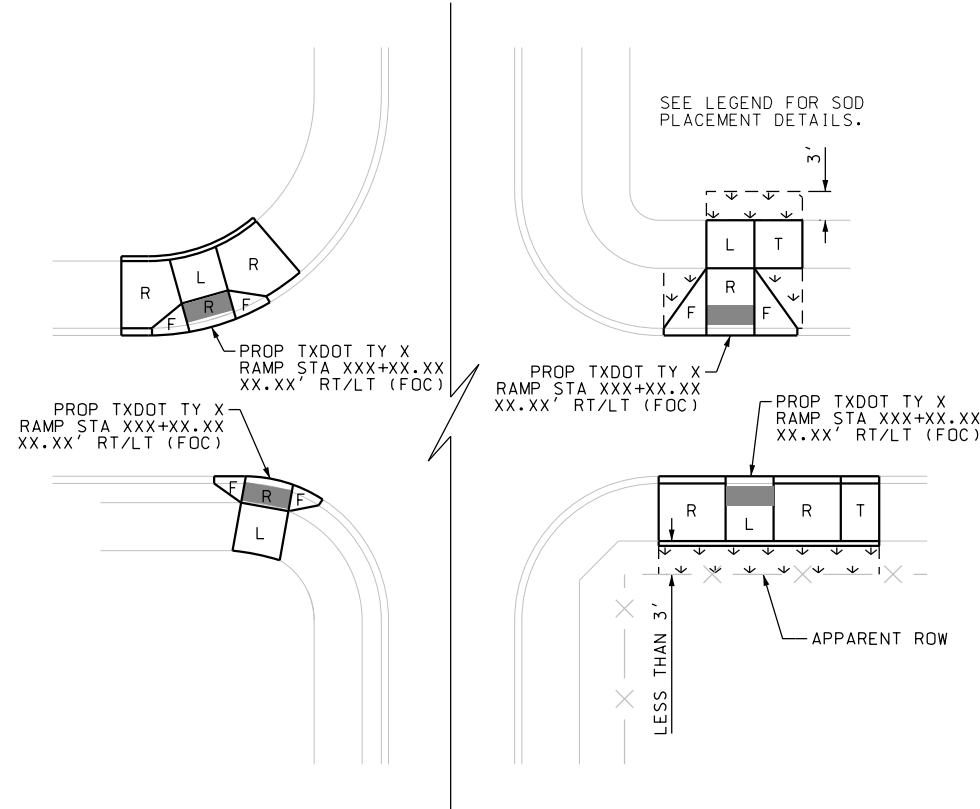
TYPICAL SECTIONS

SHEET 3 OF 3

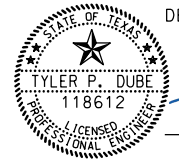
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DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	22

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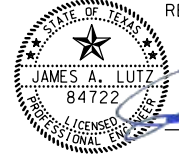
HORIZONTAL RAMP CONTROL



SEE LEGEND FOR SOD PLACEMENT DETAILS.



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 7/24/2019
 DATE



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LEGEND OF EXISTING FEATURES

- FIRE HYDRANT
- GAS METER
- GAS VALVE
- GROUND BOX
- GUY ANCHOR
- IRRIGATION
- JUNCTION BOX
- LIGHT POLE
- LUMINAIRE STANDARD
- MAIL BOX
- MANHOLE
- PEDESTAL SIGNAL POLE
- PI POINT
- POWER/UTILITY POLE
- SEWER VALVE
- SIGN
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- TRAFFIC SIGNAL POLE
- TRANSFORMER
- TREE/BUSHES
- UTILITY PEDESTAL/MARKER
- UTILITY VAULT
- WATER METER
- WATER VALVE

LEGEND OF PROPOSED FEATURES (SEPARATE COVER, VOLUME II)

- SANITARY SEWER MANHOLE
- SANITARY SEWER SERVICE CONNECTION
- WATER SERVICE CONNECTION
- VALVE
- TRANSITION COUPLING
- REDUCER
- FIRE HYDRANT
- RESTRAINED CAP

- F = FLARE (10:1 OR LESS)
- R = RAMP (CROSS SLOPE NOT TO EXCEED 48:1; LONGITUDINAL NOT TO EXCEED 12:1)
- L = LANDING (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)
- L1 = SHARED LANDING (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)
- LS = LEVEL SIDEWALK (SHALL NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)(PAID AS SIDEWALK)
- SL = SLOPED SIDEWALK (LONGITUDINAL SLOPES MAY NOT EXCEED 20:1, CROSS SLOPES MAY NOT EXCEED 48:1)
- T = TRANSITION (PAID FOR UNDER CONC SIDEWALKS)
- TOC = TOP OF CURB
- FOC = FACE OF CURB
- ↘ = BLOCK SOD; PLACED BEHIND CONSTRUCTION LIMITS NEIGHBORING ROW, PLACED FULL LIMITS BETWEEN BACK OF CURB AND CONSTRUCTION IF DIVORCED OR AS SHOWN ON THE PLANS
- X-X- = EXISTING FENCE
- (NSP1) = ITEM IS INCIDENTAL TO CURB RAMP/SIDEWALK CONSTRUCTION. (NO SEPARATE PAY ITEM)

NOTES

- FLARE (F), RAMP (R), AND LANDING (L), DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "CURB RAMPS"
- LEVEL SIDEWALK (LS) AND RAMPS (R) NOT DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "SIDEWALK"

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SPECIAL DETAILS

SHEET 1 OF 8

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	23

PLOTTED ON: 7/24/2019

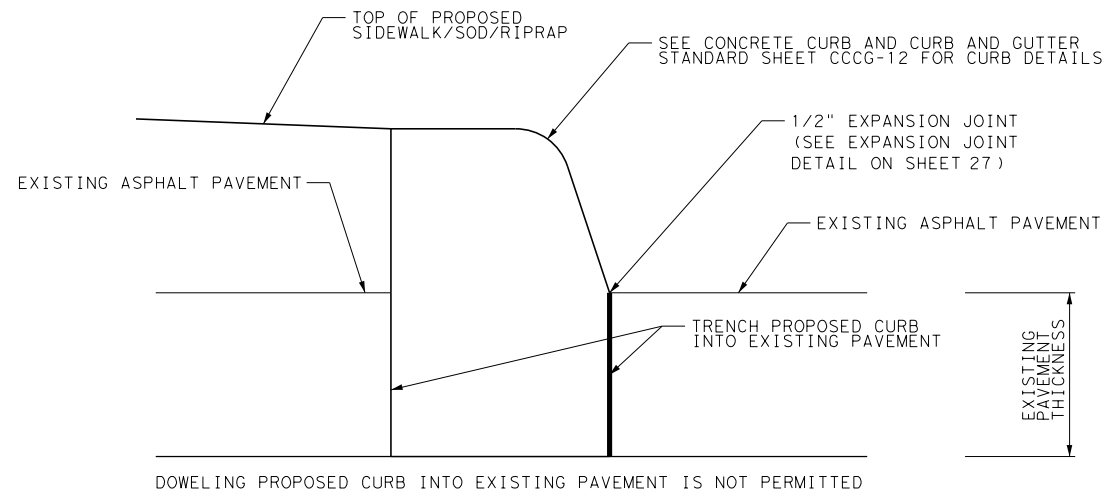
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PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\General\1113801_sample02.dgn

CURB TRENCH DETAIL

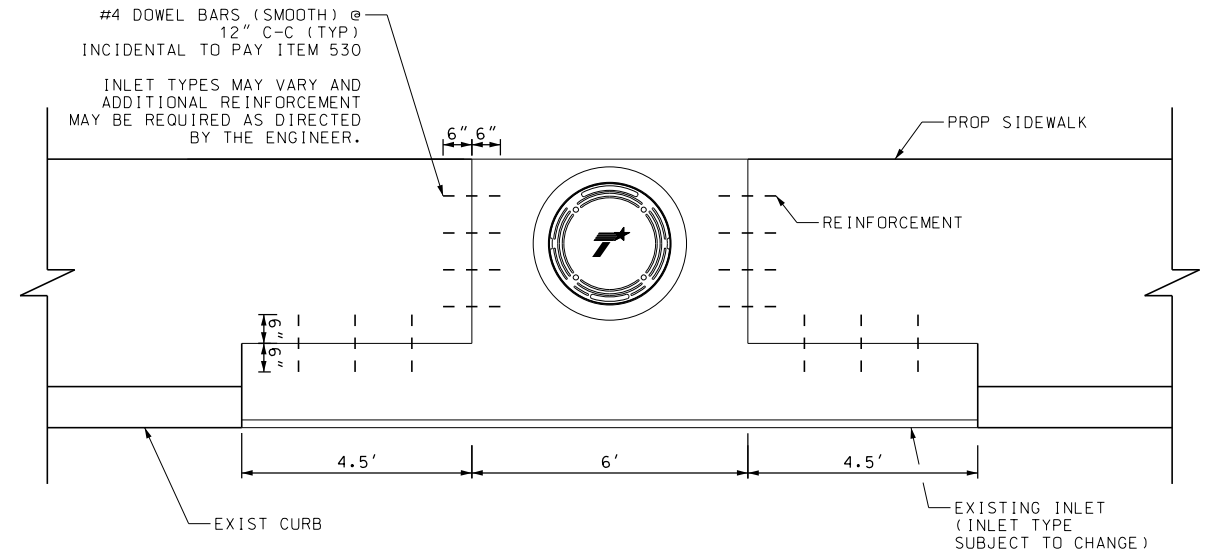
USE WHEN INSTALLING A CURB INTO EXISTING ASPHALT PAVEMENT



DOWELING PROPOSED CURB INTO EXISTING PAVEMENT IS NOT PERMITTED

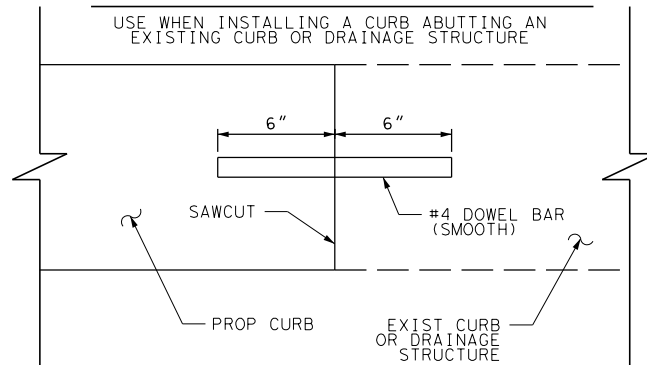
INLET DOWELING DETAIL

NOT TO SCALE

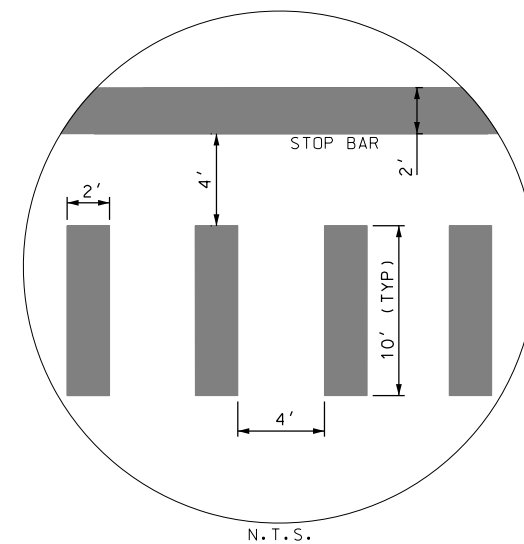


CURB TIE-IN DETAIL

USE WHEN INSTALLING A CURB ABUTTING AN EXISTING CURB OR DRAINAGE STRUCTURE

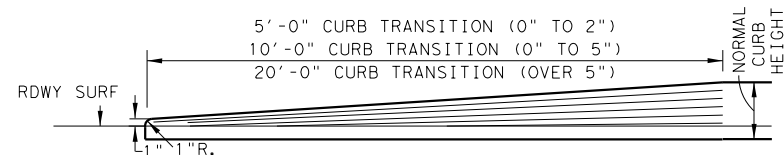


TYPICAL CONTINENTAL CROSSWALK DETAIL

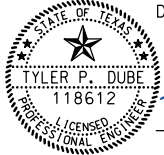


N.T.S.

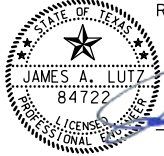
TYPICAL TRANSITION FOR CONCRETE CURB ENDS



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 TYLER P. DUBE, P.E. 7/24/2019
 DATE

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 JAMES A. LUTZ, P.E. 7/24/2019
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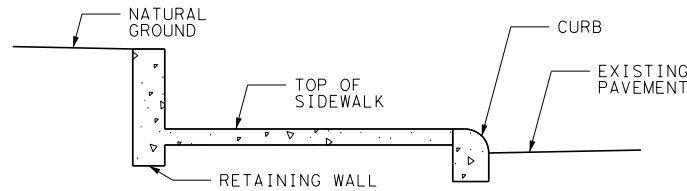
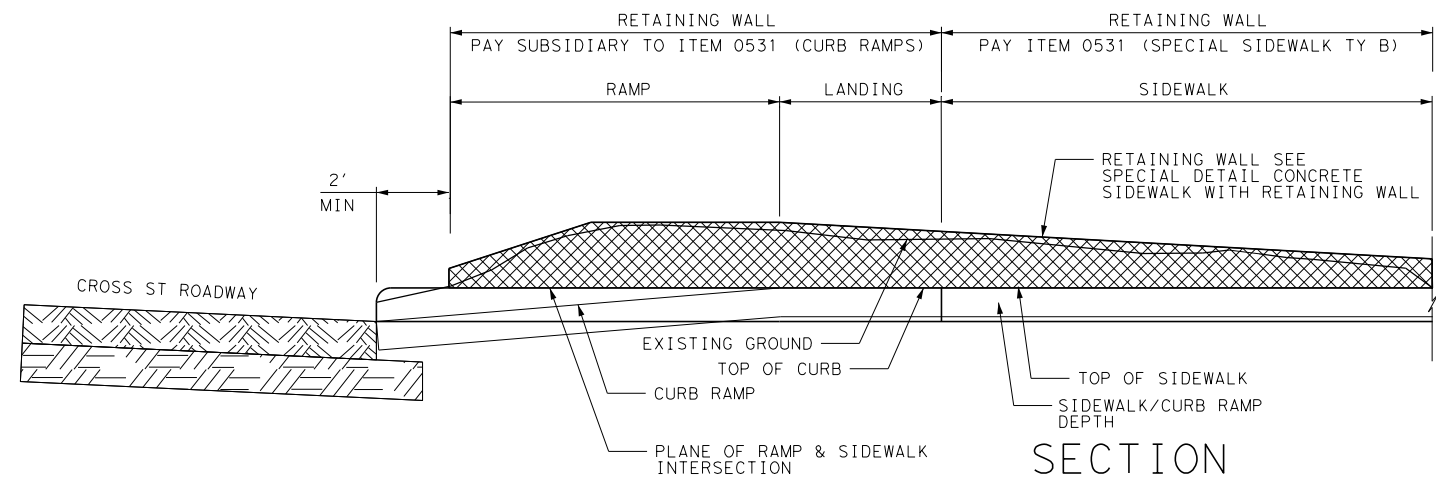
SPECIAL DETAILS

SHEET 2 OF 8

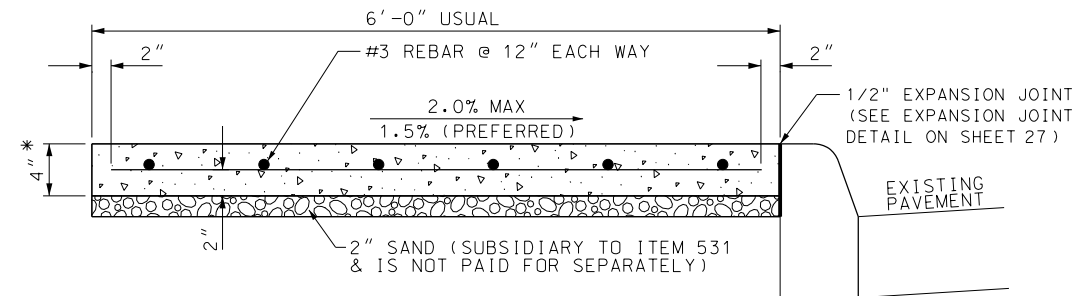
DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	24

PLOTTED ON: 7/24/2019

RETAINING WALL DETAIL



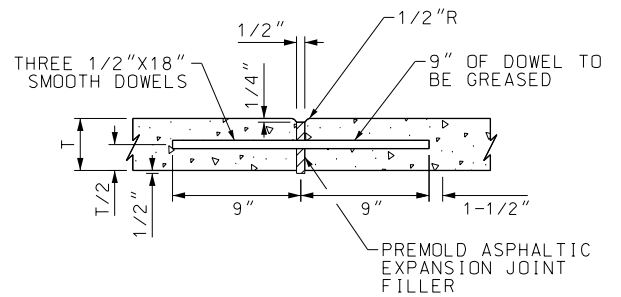
SIDEWALK DETAILS



PLACE GROOVED JOINTS IN THE SIDEWALK AT A MAX SPACING OF 10 FT
PLACE 1/2" EXPANSION JOINTS AT A MAX SPACING OF 40 FT TO COINCIDE WITH THE CURB EXPANSION JOINTS (SEE SIDEWALK EXPANSION JOINT DETAIL).

* UNLESS OTHERWISE SHOWN

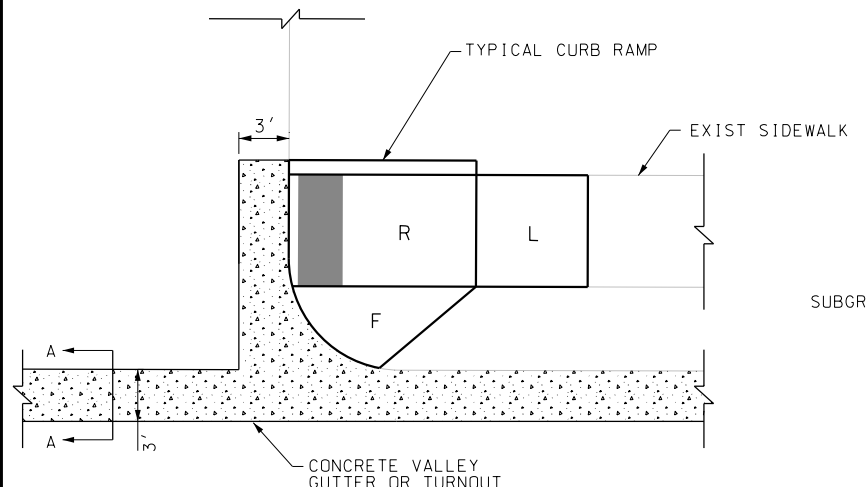
SIDEWALK EXPANSION JOINT DETAIL



NOTES:

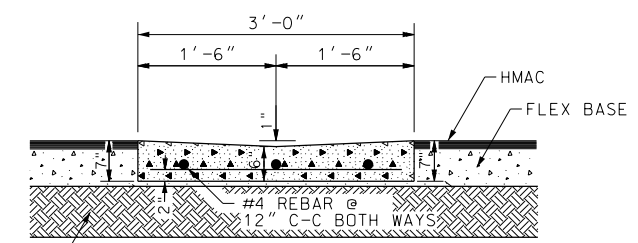
1. SIDEWALK EXPANSION JOINT DOWELS ARE CONSIDERED SUBSIDIARY TO ITEM 531.
2. EXPANSION JOINTS ARE TO BE USED BETWEEN CONCRETE DRIVEWAY AND SIDEWALK.

TYPICAL CONC. VALLEY GUTTER



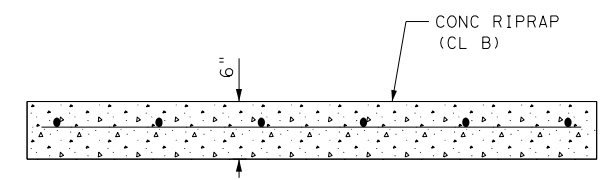
CONC. VALLEY GUTTER

TO BE USED WHERE REQUIRED TO CARRY DRAINAGE ACROSS SIDE STREETS

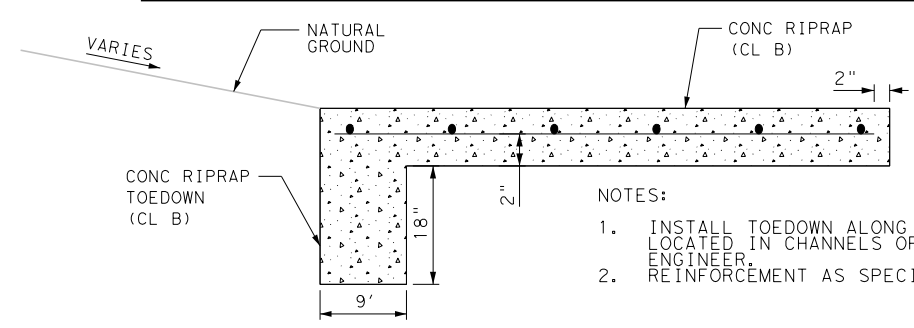


SECTION A-A
N.T.S.

CONCRETE RIPRAP DETAIL



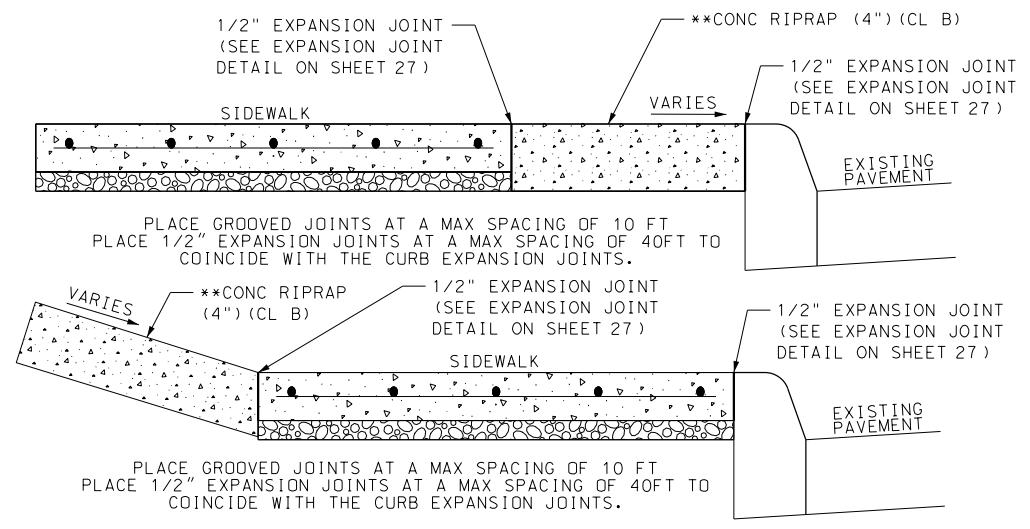
CONCRETE RIPRAP W/ TOEDOWN DETAIL



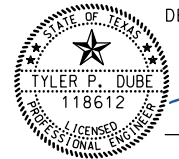
NOTES:

1. INSTALL TOEDOWN ALONG PERIMETER OF RIPRAP LOCATED IN CHANNELS OR AS DIRECTED BY THE ENGINEER.
2. REINFORCEMENT AS SPECIFIED IN ITEM 432.

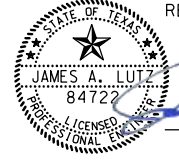
RIPRAP DETAIL



** REINFORCEMENT AS SPECIFIED IN ITEM 432



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TYLER P. DUBE, P.E.
7/24/2019 DATE



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JAMES A. LUTZ, P.E.
7/24/2019 DATE

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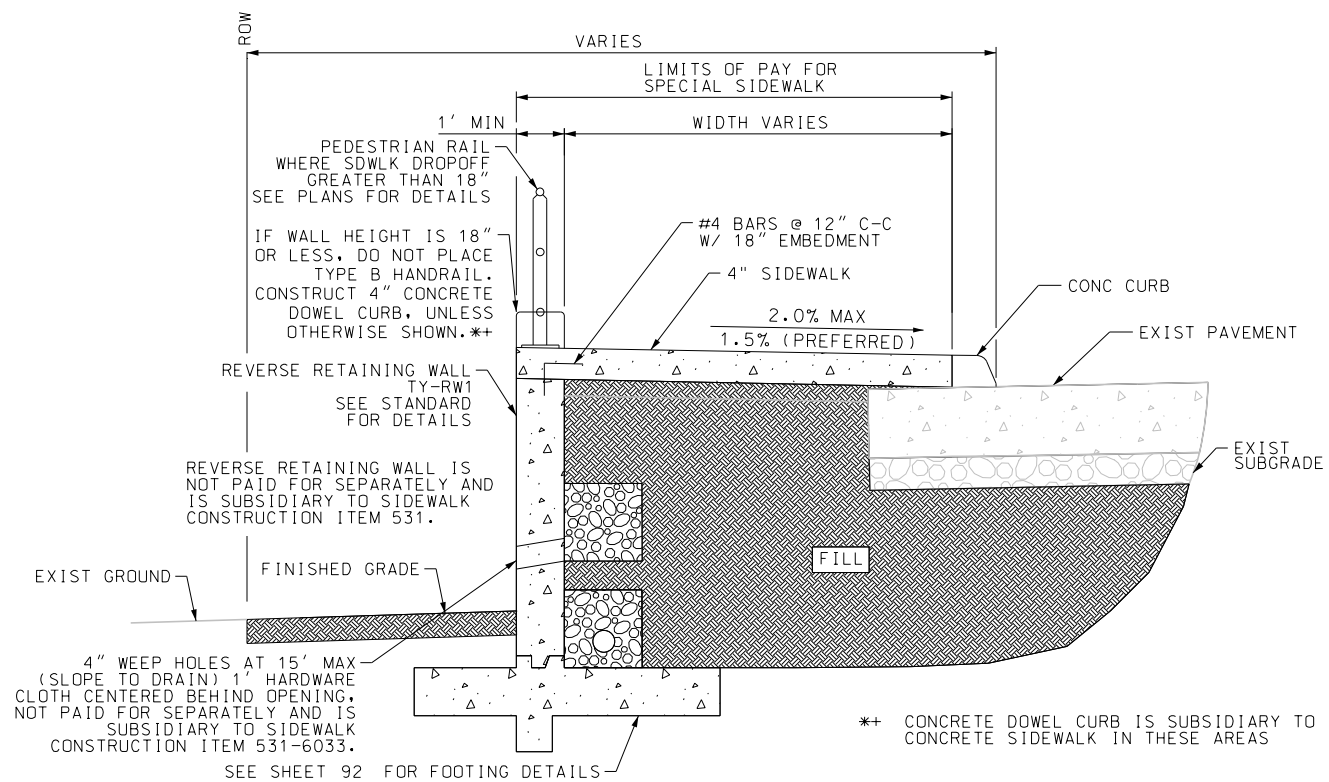
SPECIAL DETAILS

SHEET 3 OF 8

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	25

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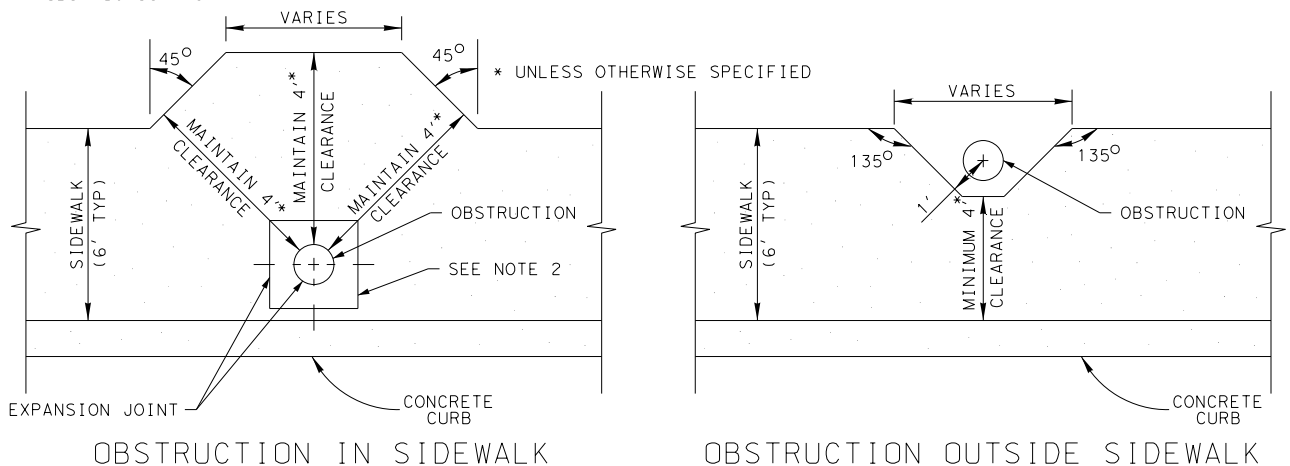
REVERSE RETAINING WALL DETAIL (CONCRETE SIDEWALK (SPECIAL) (TY B))



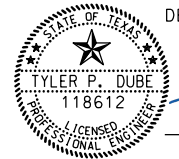
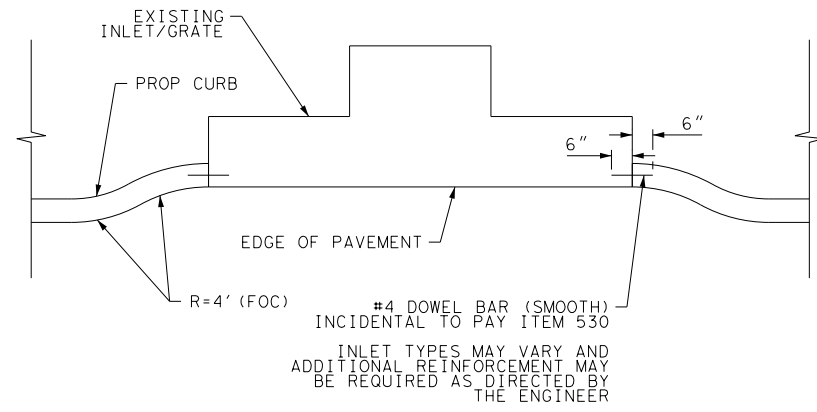
OBSTRUCTION CONFLICT

NOTES:

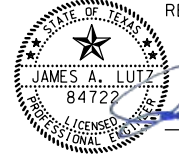
- UTILIZE DETAIL AT OBSTRUCTION ENCROACHMENTS INTO THE PEDESTRIAN ACCESS ROUTE. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4', UNLESS OTHERWISE SPECIFIED, SHOULD BE MAINTAINED AROUND THE OBSTRUCTION MEASURED FROM THE MOST RESTRICTIVE LOCATION OR AS APPROVED BY THE ENGINEER
- IF OBSTRUCTION IS LOCATED WITHIN THE SIDEWALK, CONSTRUCT 2' SQUARE CONSTRUCTION JOINT CENTERED ON OBSTRUCTION TO FACILITATE FUTURE MAINTENANCE WITHOUT FULL SIDEWALK PANEL REMOVAL/REPLACEMENT



CURB INDENT DETAIL



DESIGN
 TYLER P. DUBE, P.E.
 7/24/2019
 DATE



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 JAMES A. LUTZ, P.E.
 7/24/2019
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SPECIAL DETAILS

SHEET 4 OF 8

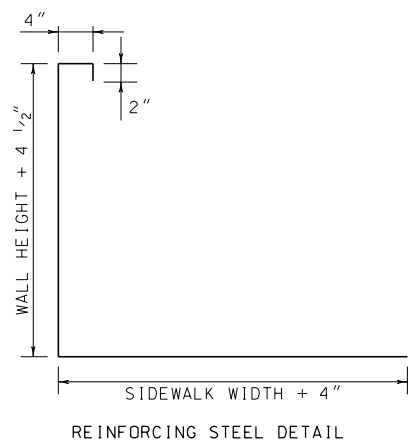
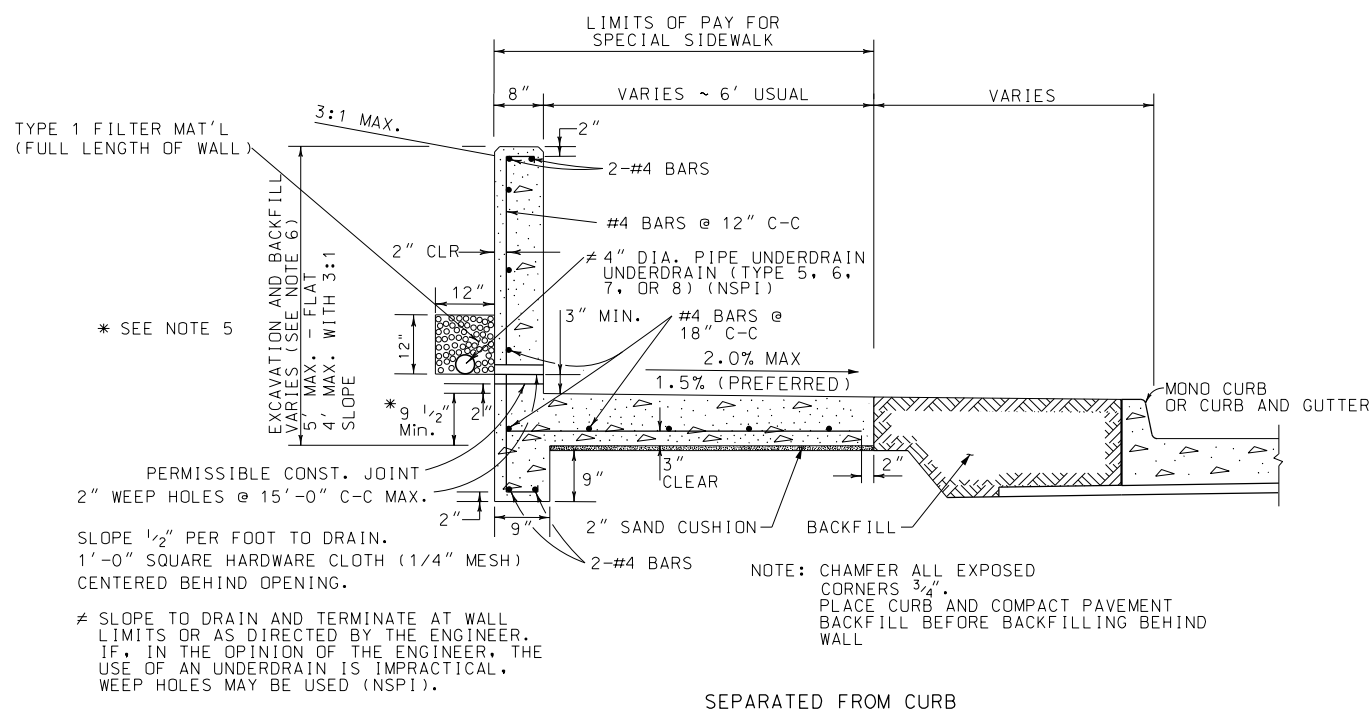
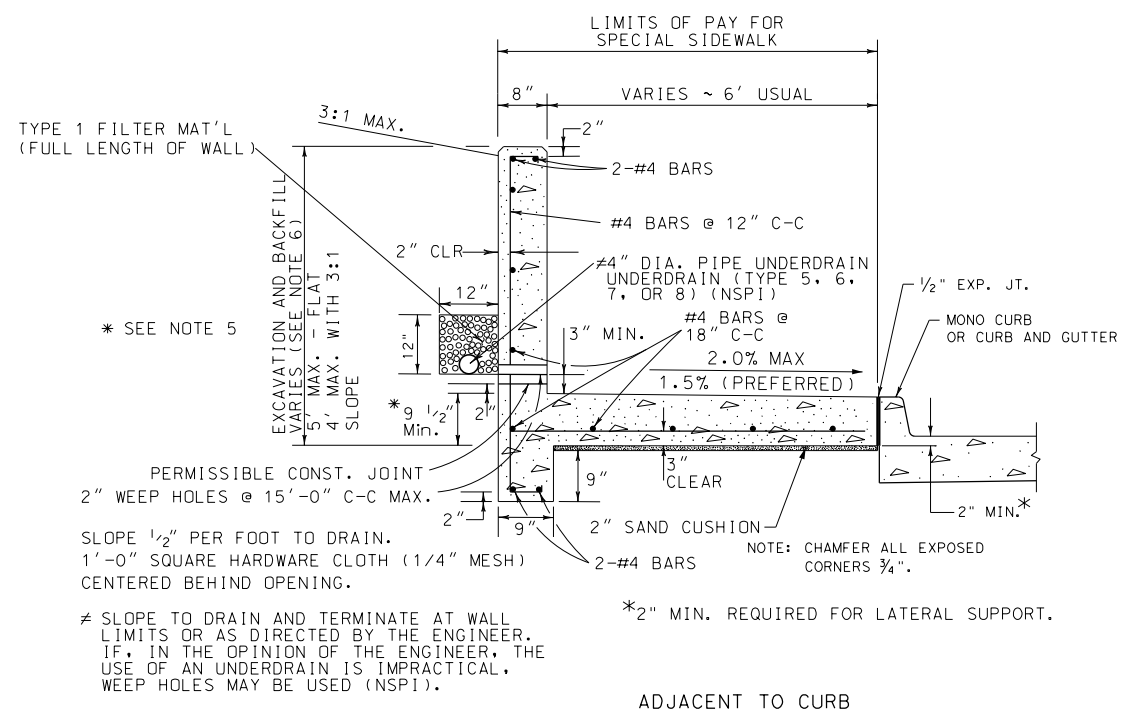
DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	26

PLOTTED ON: 7/24/2019

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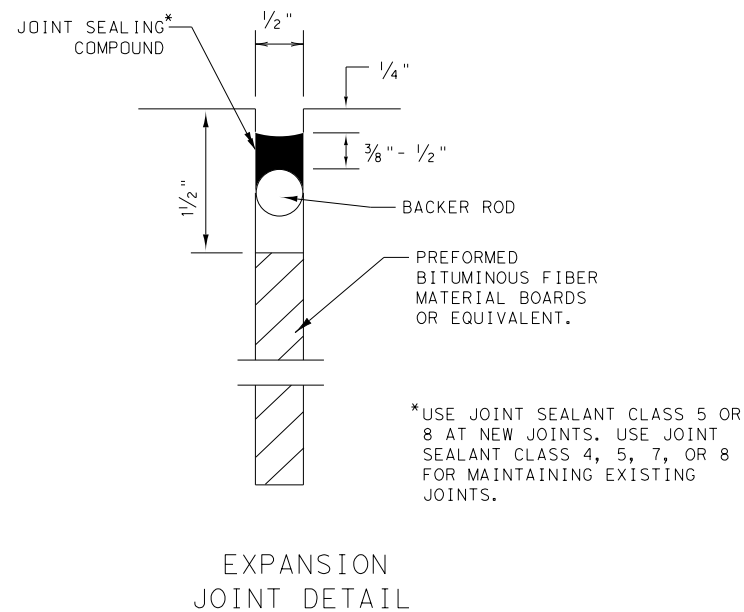
SPECIAL CONCRETE SIDEWALK w/ RETAINING WALL (CONCRETE SIDEWALK (SPECIAL) (TY B))

PLOTTED ON: 7/24/2019



NOTES:

1. SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.
2. LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.
3. IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.
4. WHERE SIDEWALK WITH RETAINING WALL IS SPECIFIED, RETAINING WALL WILL BE SUBSIDIARY TO THE ITEM, "CONCRETE SIDEWALK (SPECIAL) (TYPE B)", ITEM 0531-6033 WITH LIMITS OF PAY AS SHOWN HEREON. ESTIMATED FACE OF RETAINING WALL IS INDICATED ON THE PLANS FOR CONTRACTOR INFORMATION ONLY.
5. CONCRETE SIDEWALK (SPECIAL) (TY B) THICKNESS IS PERMITTED TO BE 6" IN AREAS WHERE WALL HEIGHTS ARE LESS THAN OR EQUAL TO 3' AS MEASURED FROM TOP OF SIDEWALK TO TOP OF WALL. THE SIDEWALK THICKNESS SHALL BE CONSTRUCTED AS INDICATED ON DETAIL FOR WALL HEIGHTS IN EXCESS OF 3' OR WHERE WALLS OF ANY HEIGHT ARE TO BE CONSTRUCTED ADJACENT TO PARKING.
6. EXCAVATION, HAULING, AND DISPOSAL OF EXCAVATED MATERIAL IS NOT PAID FOR SEPARATELY, CONSIDERED SUBSIDIARY TO ITEM 531.



DESIGN

TYLER P. DUBE
118612

Tyler P. Dube

TYLER P. DUBE, P.E.

7/24/2019

DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722

James A. Lutz

JAMES A. LUTZ, P.E.

7/24/2019

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PAPE-DAWSON ENGINEERS

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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #1002800

City of
New Braunfels

SPECIAL DETAILS

SHEET 5 OF 8

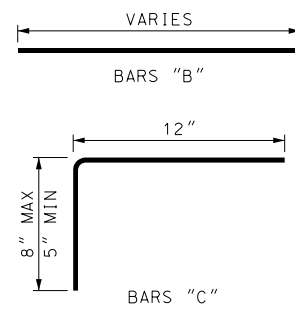
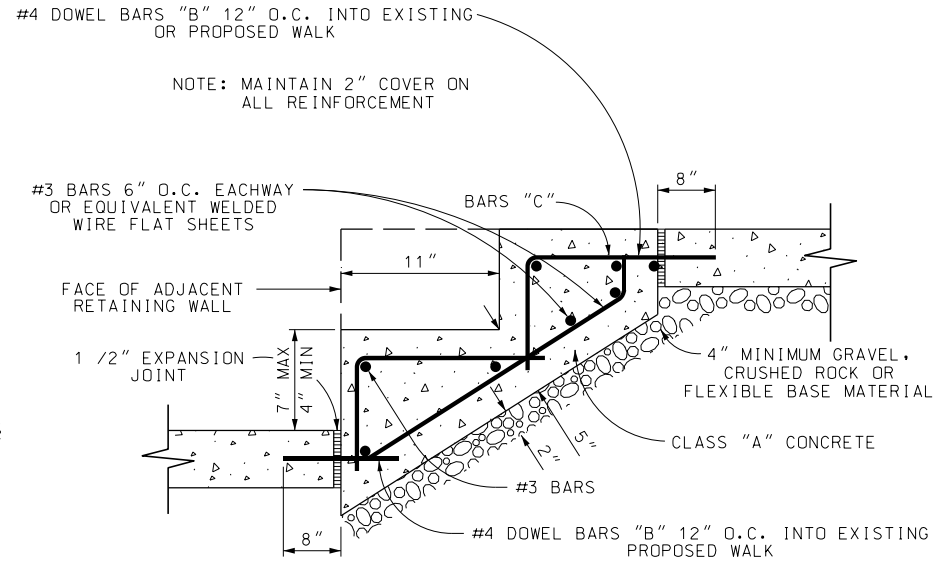
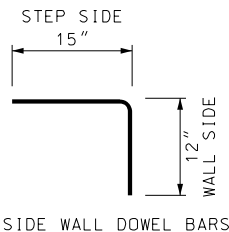
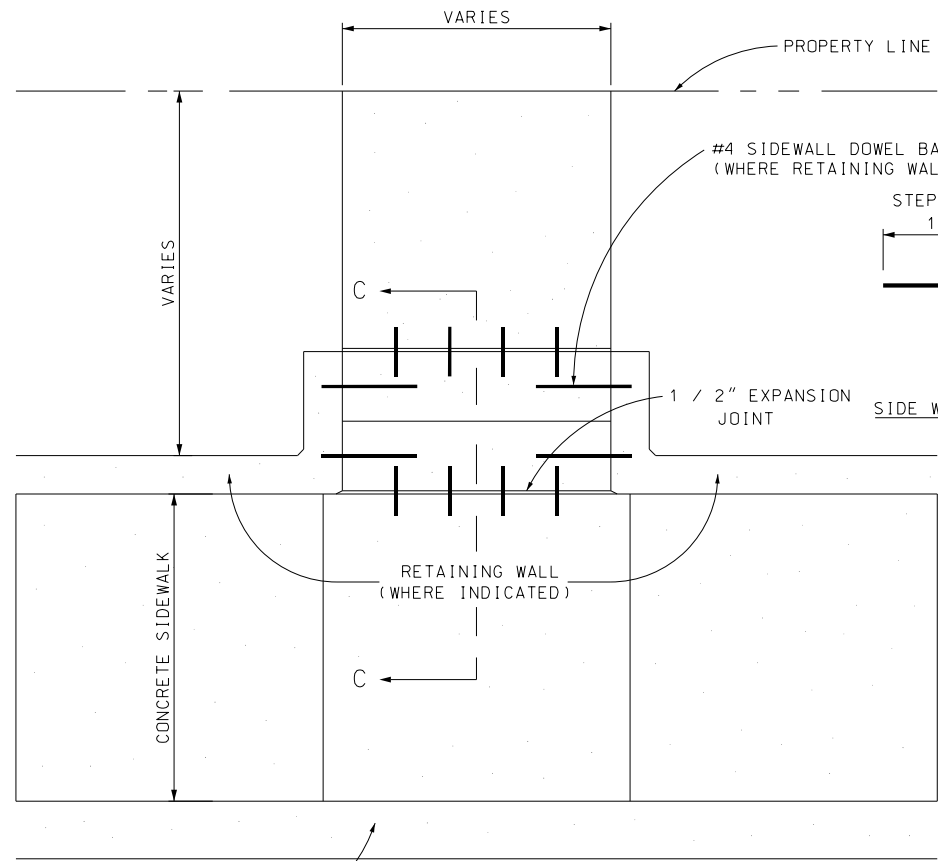
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CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	27

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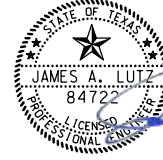
CONCRETE STEPS

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\General\1113801_sample07.dgn



DESIGN
 TYLER P. DUBE, P.E.
 7/24/2019
 DATE



REVIEW AND APPROVAL
 JAMES A. LUTZ, P.E.
 7/24/2019
 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



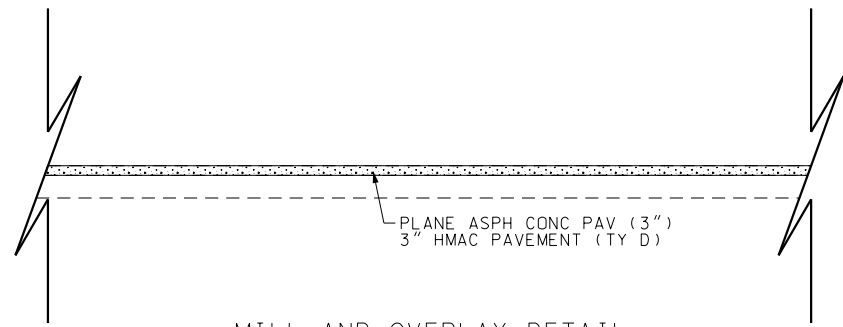
SPECIAL DETAILS

SHEET 6 OF 8

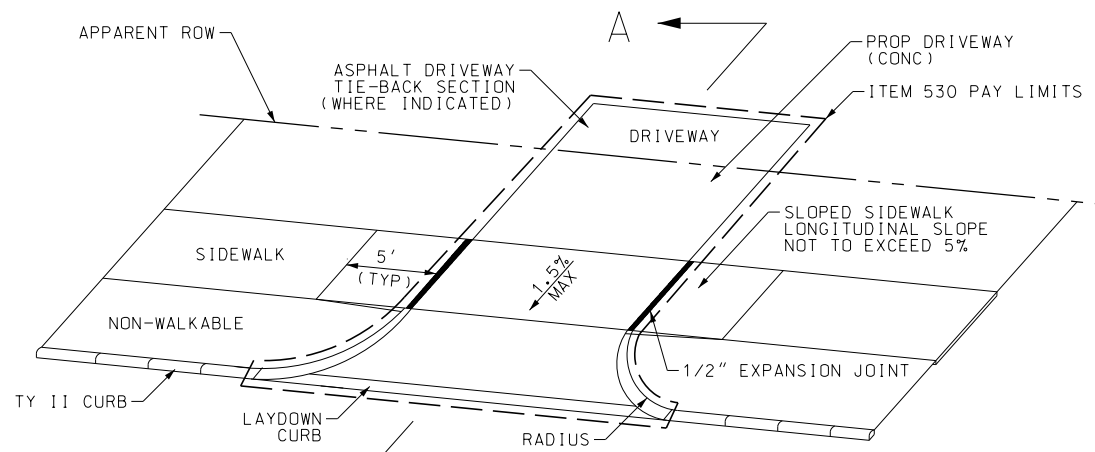
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CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	28

PLOTTED ON: 7/24/2019

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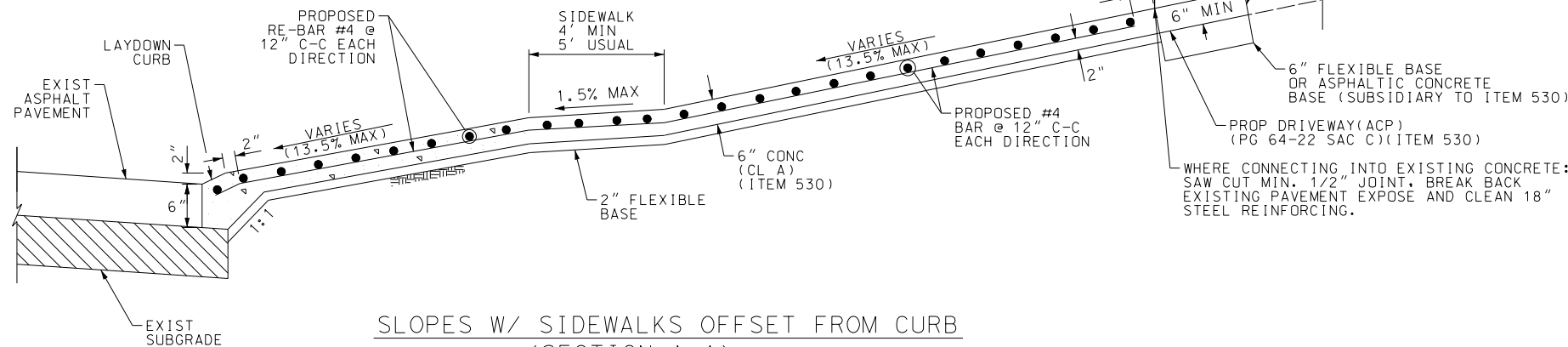
MILL AND OVERLAY DETAIL
N.T.S.



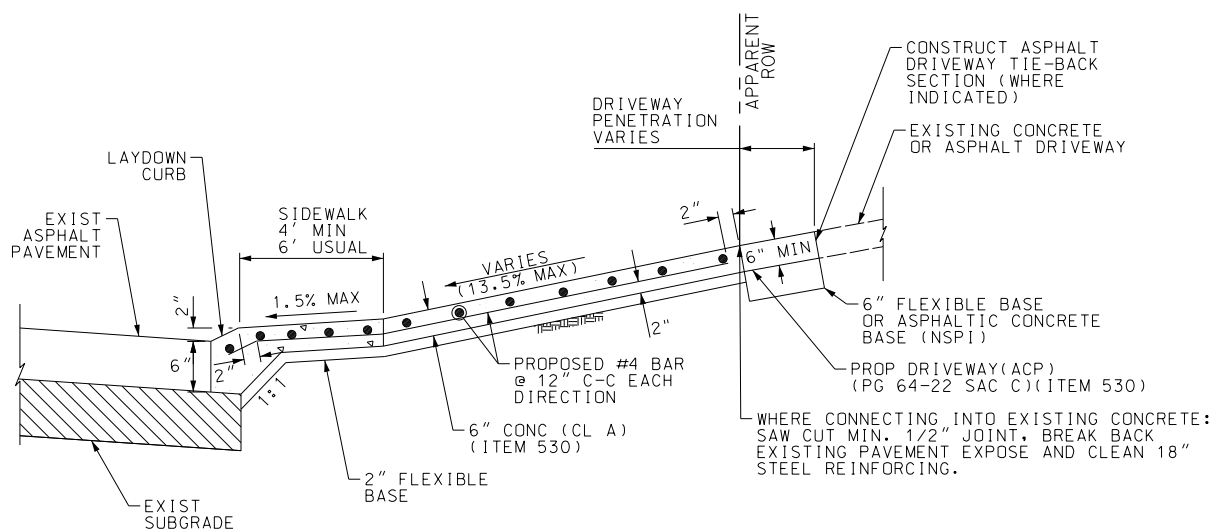
SIDEWALK OFFSET FROM CURB DETAILS

NOTES:

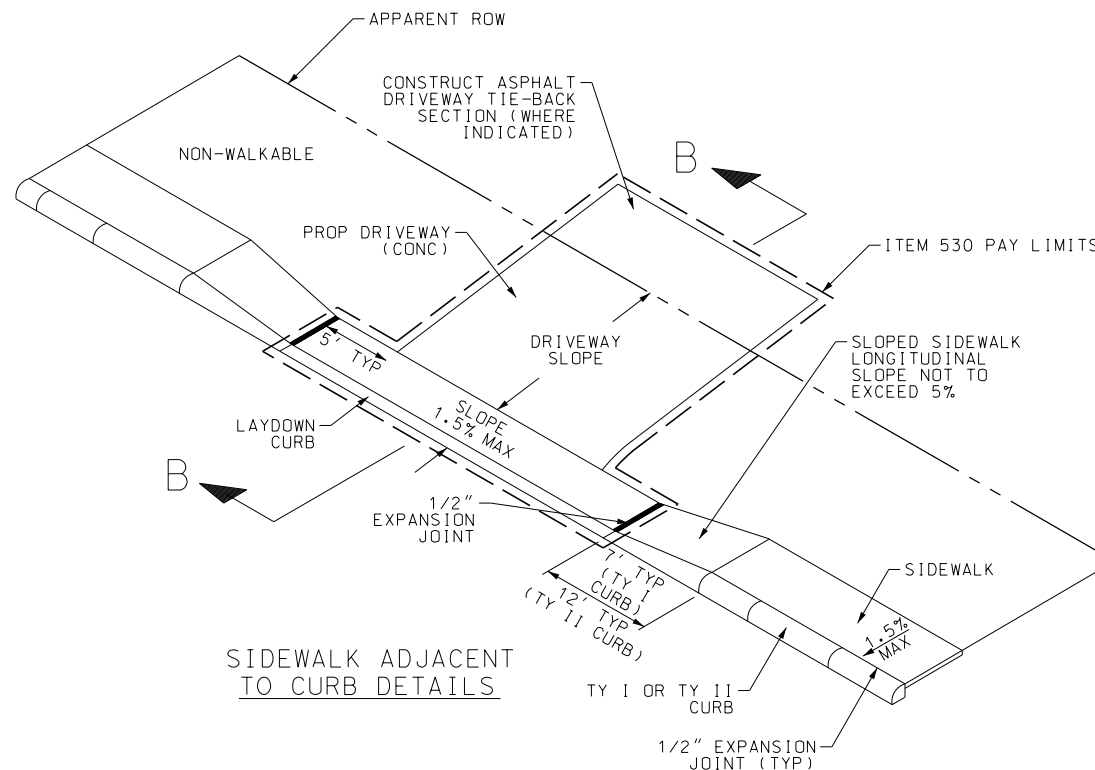
SLOPED SIDEWALK SEGMENT LENGTHS ARE SHOWN TO CONSERVATIVELY ACCOMMODATE STANDARD CURB HEIGHTS ON LEVEL STREETS. SOME SLOPED SIDEWALK SEGMENTS MAY REQUIRE ADDITIONAL LENGTH TO ENSURE LONGITUDINAL SLOPES DO NOT EXCEED 5%. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY EXTEND THE SLOPED SIDEWALK SEGMENT TO THE NEXT PLANAR ELEMENT (L.S., L., S.L., R., T., ETC.) OR UNTIL THE SLOPED SIDEWALK REACHES CURB HEIGHT, WHICHEVER IS SHORTER.



SLOPES W/ SIDEWALKS OFFSET FROM CURB
(SECTION A-A)

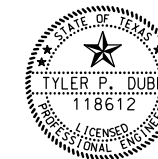


DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB
(SECTION B-B)



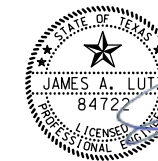
SIDEWALK ADJACENT TO CURB DETAILS

DESIGN



Tyler P. Dube
TYLER P. DUBE, P.E.

7/24/2019
DATE



REVIEW AND APPROVAL
James A. Lutz
JAMES A. LUTZ, P.E.

7/24/2019
DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPB FIRM REGISTRATION #470 | TBPBS FIRM REGISTRATION #10028800



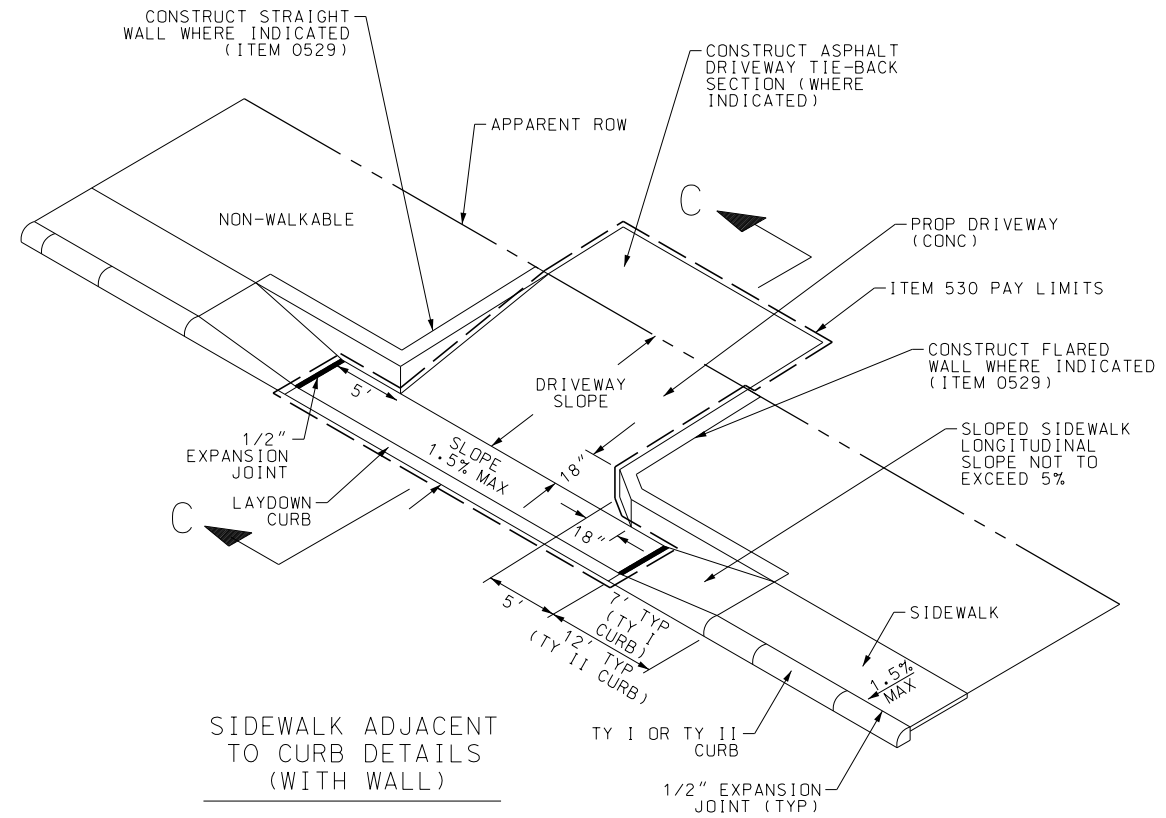
SPECIAL DETAILS

SHEET 7 OF 8

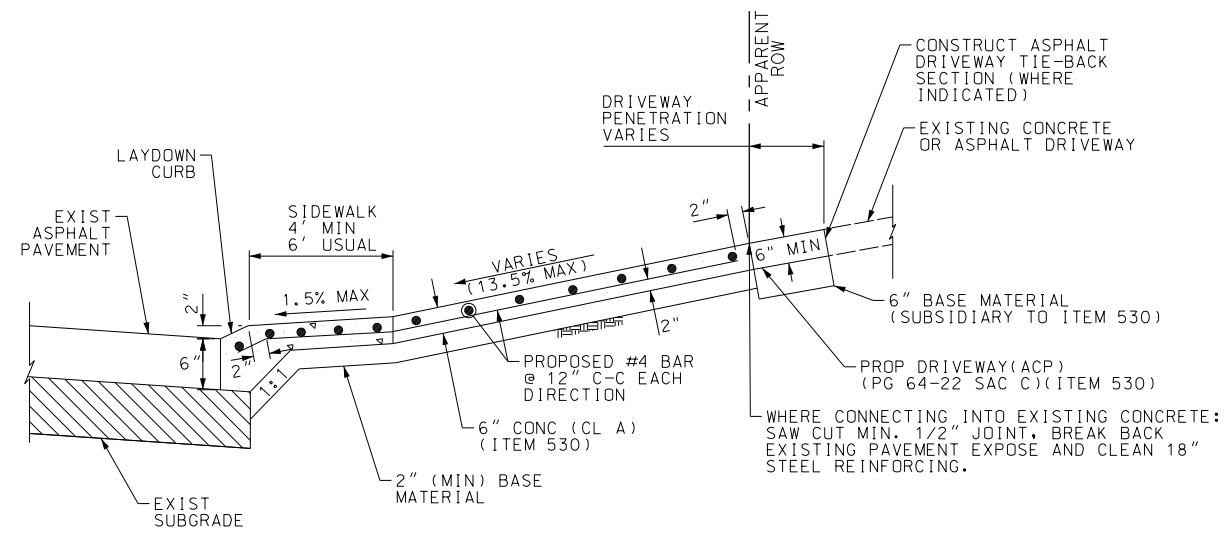
DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	29

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\General\1113801_sample13.dgn



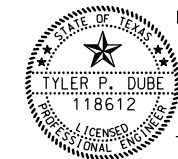
SIDEWALK ADJACENT TO CURB DETAILS (WITH WALL)



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB (SECTION C-C)

NOTES:

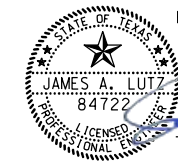
SLOPED SIDEWALK SEGMENT LENGTHS ARE SHOWN TO CONSERVATIVELY ACCOMMODATE STANDARD CURB HEIGHTS ON LEVEL STREETS. SOME SLOPED SIDEWALK SEGMENTS MAY REQUIRE ADDITIONAL LENGTH TO ENSURE LONGITUDINAL SLOPES DO NOT EXCEED 5%. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY EXTEND THE SLOPED SIDEWALK SEGMENT TO THE NEXT PLANAR ELEMENT (LS, L, SL, R, T, ETC.) OR UNTIL THE SLOPED SIDEWALK REACHES THE HEIGHT OF THE ADJACENT CURB, WHICHEVER IS SHORTER.



DESIGN

TYLER P. DUBE, P.E.
DATE

7/24/2019



REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE

7/24/2019

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



SPECIAL DETAILS

SHEET 8 OF 8

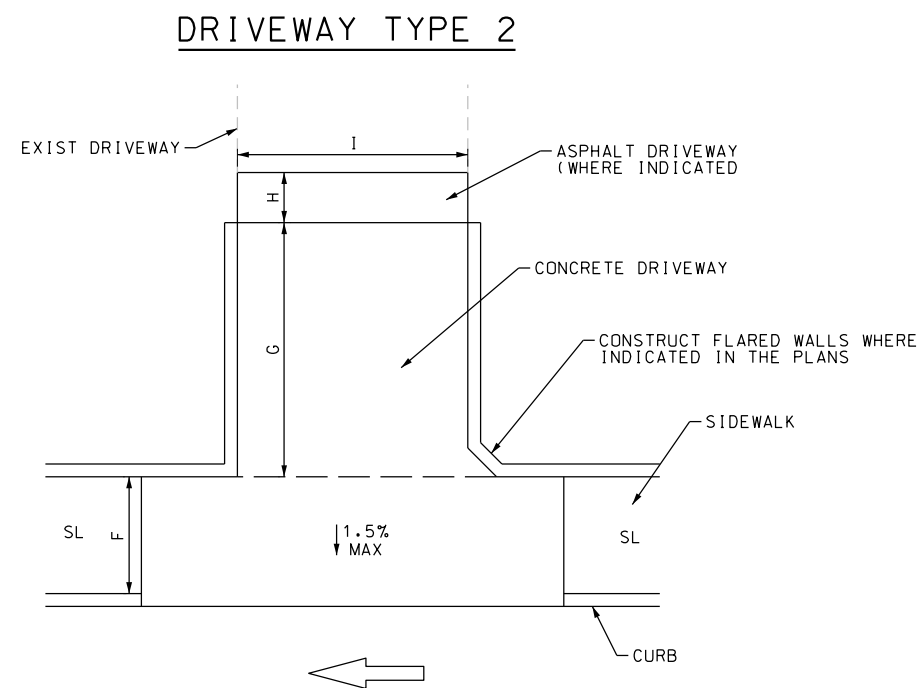
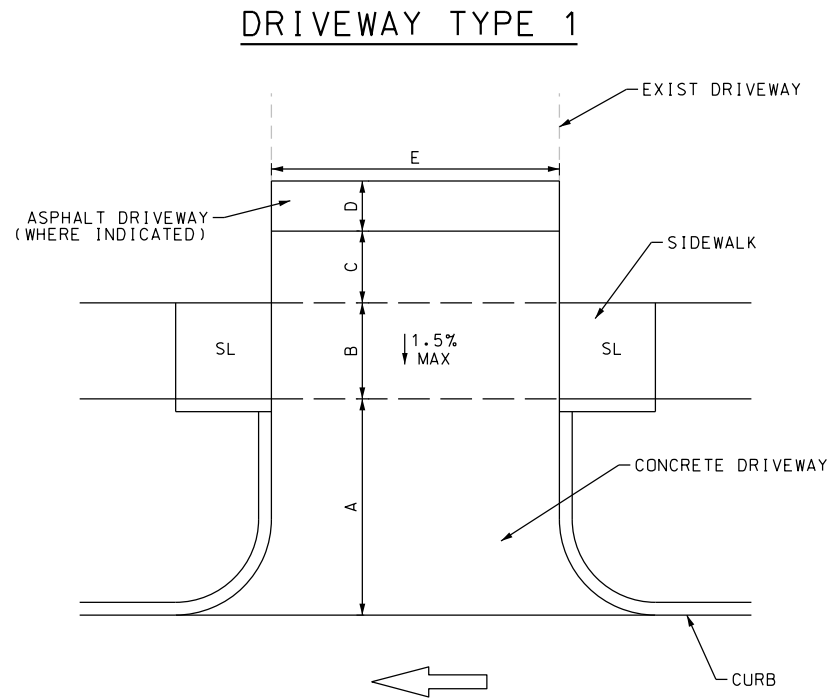
DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	30

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38\01\Design\Civil\Roadway\Driveways\113801_SanAntonioSt_Drwy_01.dgn

DRIVEWAY NO.	DRIVEWAY TYPE	A	B	C**	D**	E*	F	G**	H**	I*	STA	RT/LT
1	2	-	-	-	-	-	6.0'	7.0'	8.0'	12.0'	15+50	RT
2	2	-	-	-	-	-	6.0'	FL	3.8'	ME	16+10	RT
3	2	-	-	-	-	-	6.0'	FL	3.8'	13.0'	16+70	RT
4	2	-	-	-	-	-	6.0'	FL	2.8'	12.0'	17+50	RT
5	2	-	-	-	-	-	6.0'	5.0'	-	ME	18+70	RT
6	2	-	-	-	-	-	6.0'	4.1'	10.0'	11.0'	19+30	RT
7	2	-	-	-	-	-	5.0'	8.0'	-	38.0'	21+50	RT
8	N/A	-	-	-	-	-	-	-	-	-	27+50	RT
9	N/A	-	-	-	-	-	-	-	-	-	29+35	RT
10	2	-	-	-	-	-	6.0'	5.0'	-	ME	30+40	RT
11	1	5.0'	5.0'	FL	-	ME	-	-	-	-	33+20	RT
12	1	7.3'	5.0'	FL	-	12.0'	-	-	-	-	35+25	RT
13	1	7.3'	5.0'	FL	-	12.0'	-	-	-	-	35+75	RT
14	2	-	-	-	-	-	6.0'	5.0'	-	18.0'	36+85	RT
15	2	-	-	-	-	-	6.0'	5.0'	-	12.0'	38+50	RT
16	2	-	-	-	-	-	5.0'	5.0'	-	12.0'	39+95	RT
17	2	-	-	-	-	-	6.0'	5.0'	-	ME	41+00	RT
18	2	-	-	-	-	-	6.0'	FL	-	ME	43+75	RT
19	2	-	-	-	-	-	6.0'	FL	-	12.0'	44+25	RT
20	2	-	-	-	-	-	6.0'	FL	-	12.0'	44+75	RT
21	2	-	-	-	-	-	6.0'	6.2'	-	29.2'	49+15	RT
22	2	-	-	-	-	-	6.0'	6.2'	-	28.0'	49+75	RT
23	1	4.0'	5.0'	5.0'	-	12'	-	-	-	-	14+30	LT
24	1	4.0'	5.0'	5.0'	-	ME	-	-	-	-	14+65	LT
25	1	4.7'	5.0'	5.0'	-	31.5'	-	-	-	-	16+00	LT
26	1	6.2'	5.0'	-	-	ME	-	-	-	-	18+75	LT
27	1	6.2'	5.0'	5.0'	-	12.0'	-	-	-	-	19+20	LT
28	1	4.5'	4.0'	2.3'	-	ME	-	-	-	-	19+85	LT
29	1	4.5'	4.0'	3.2'	6.5'	ME	-	-	-	-	20+35	LT
30	1	4.5'	4.0'	3.2'	6.5'	12.0'	-	-	-	-	20+75	LT
31	1	6.7'	5.0'	FL	-	ME	-	-	-	-	23+60	LT
32	1	6.7'	5.0'	FL	-	12.0'	-	-	-	-	23+85	LT
33	1	10.9'	5.0'	-	-	12.0'	-	-	-	-	24+60	LT
34	1	12.2'	5.0'	-	-	ME	-	-	-	-	27+80	LT
35	1	4.7'	5.0'	7.0'	-	ME	-	-	-	-	28+65	LT
36	1	4.7'	5.0'	-	7.0'	12.0'	-	-	-	-	29+45	LT
37	1	4.6'	5.0'	FL	-	ME	-	-	-	-	31+95	LT
38	1	4.6'	5.0'	2.2'	-	18.5'	-	-	-	-	32+20	LT
39	1	4.6'	5.0'	2.2'	-	18.0'	-	-	-	-	32+50	LT
40	1	4.6'	5.0'	2.2'	-	10.3'	-	-	-	-	32+65	LT
41	1	4.6'	5.0'	1.1'	-	ME	-	-	-	-	33+00	LT
42	1	4.6'	5.0'	2.0'	-	ME	-	-	-	-	34+00	LT
43	1	4.6'	5.0'	-	-	12.0'	-	-	-	-	34+75	LT
44	1	4.6'	5.0'	-	-	12.0'	-	-	-	-	35+45	LT
45	1	5.6'	4.0'	-	2.0'	ME	-	-	-	-	35+85	LT
46	1	5.0'	4.0'	-	5.0'	ME	-	-	-	-	36+55	LT
47	1	5.4'	5.0'	-	2.0'	ME	-	-	-	-	38+55	LT
48	1	5.4'	5.0'	10.0'	-	ME	-	-	-	-	39+45	LT
49	1	5.1'	5.0'	5.0'	-	12.0'	-	-	-	-	40+95	LT
50	1	5.1'	5.0'	7.0'	-	ME	-	-	-	-	41+60	LT
51	1	5.1'	5.0'	5.0'	-	ME	-	-	-	-	42+00	LT
52	1	4.9'	5.0'	FL	5.0'	12.0'	-	-	-	-	44+00	LT
53	1	5.1'	5.0'	FL	5.0'	12.0'	-	-	-	-	44+45	LT
54	1	5.2'	5.0'	-	2.0'	ME	-	-	-	-	45+35	LT
55	1	7.4'	4.0'	FL	-	ME	-	-	-	-	46+55	LT
56	1	7.5'	4.0'	FL	-	ME	-	-	-	-	46+80	LT
57	1	8.8'	4.0'	FL	-	12.0'	-	-	-	-	47+40	LT
58	1	8.6'	5.0'	-	FL	ME	-	-	-	-	47+70	LT
59	1	12.5'	4.0'	FL	-	ME	-	-	-	-	49+50	LT
60	1	12.5'	5.0'	FL	-	12.0'	-	-	-	-	50+30	LT
61	1	12.5'	5.0'	FL	-	12.0'	-	-	-	-	50+55	LT
62	1	11.5'	5.0'	FL	-	12.0'	-	-	-	-	51+00	LT
63	1	11.5'	5.0'	-	2.0'	12.0'	-	-	-	-	51+40	LT
64	1	11.5'	5.0'	-	2.0'	12.0'	-	-	-	-	51+90	LT
65	1	9.9'	5.0'	-	-	12.0'	-	-	-	-	52+10	LT
66	1	9.8'	4.0'	-	-	ME	-	-	-	-	52+90	LT
67	2	-	-	-	-	-	4.7'	5.0'	-	35.8'	11+37	LT
68	1	3.7'	5.0'	FL	-	ME	-	-	-	-	30+80	LT
69	N/A	-	-	-	-	-	-	-	-	-	37+15	LT
70	N/A	-	-	-	-	-	-	-	-	-	37+55	RT
71	N/A	-	-	-	-	-	-	-	-	-	43+00	LT
72	2	-	-	-	-	-	6.0'	FL	2.8'	12.0'	17+20	RT
73	2	-	-	-	-	-	6.0'	FL	-	12.0'	41+97	RT

* ME = MATCH EXISTING DRIVEWAY WIDTH
** FL = EXTEND DRIVEWAY TO EXISTING FENCE LINE



NOTE: SEE SPECIAL DETAILS FOR ADDITIONAL DRIVEWAY DETAILS

DESIGN

TYLER P. DUBE
118612
PROFESSIONAL ENGINEER
DATE: 7/24/2019

REVIEW AND APPROVAL

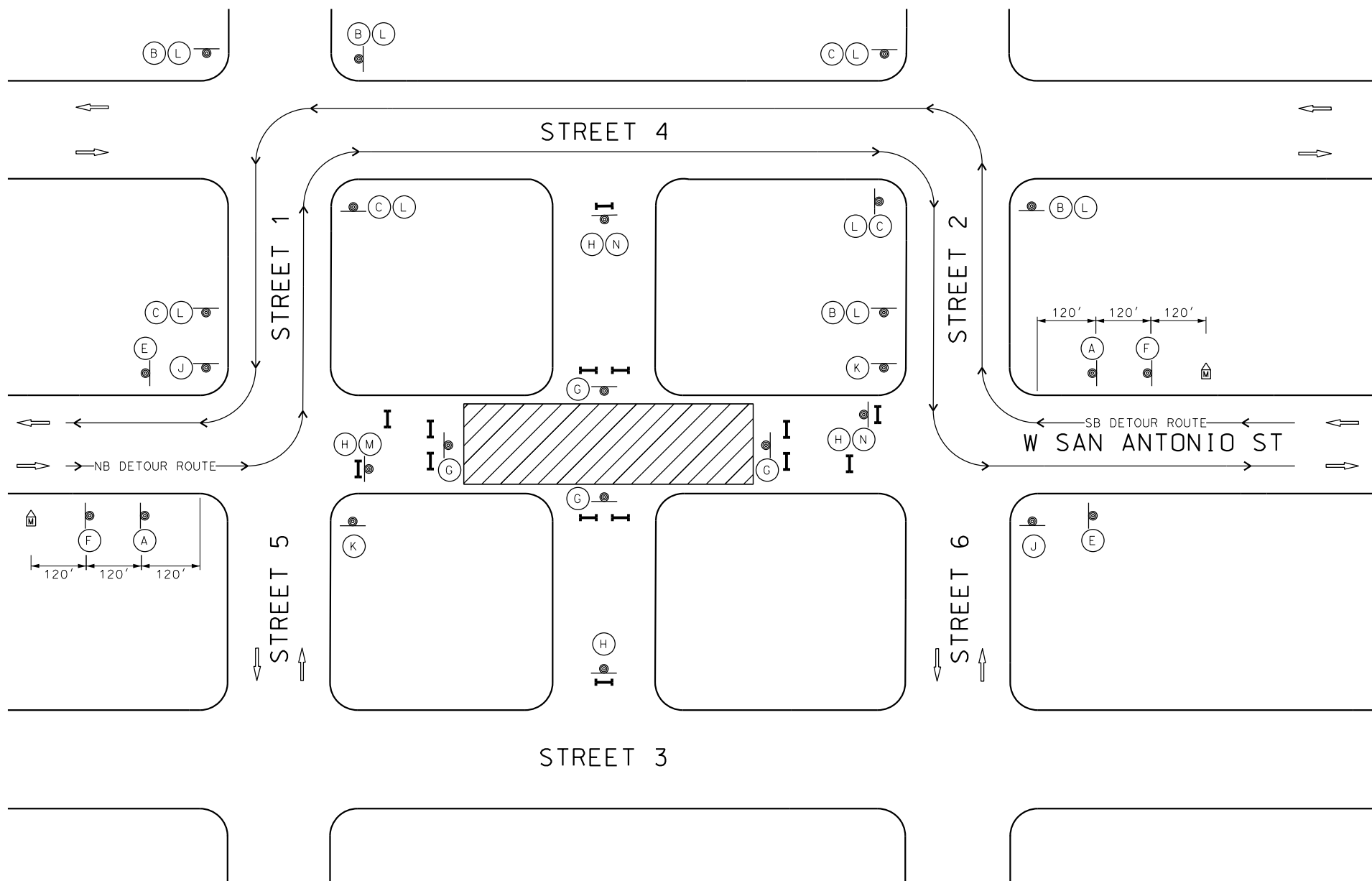
JAMES A. LUTZ
84722
PROFESSIONAL ENGINEER
DATE: 7/24/2019

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY
PAPE-DAWSON ENGINEERS			
SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBP ENGINEERING #470 TBP ENGINEERING #10028800			
City of New Braunfels			
ROADWAY			
W SAN ANTONIO ST DRIVEWAY DETAILS			
SHEET 1 OF 1			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS 31

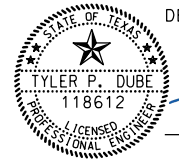
PLOTTED ON: 7/24/2019

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LEGEND

(A) W20-2D 48"X48"	(F) CW20-3 48"X48"	(ROAD CLOSED AHEAD) ROAD CLOSED AHEAD
(B) M4-9L 30"X24"	(G) R11-2 48"X30"	(ROAD CLOSED) ROAD CLOSED
(C) M4-9R 30"X24"	(H) R11-4 60"X30"	(ROAD CLOSED TO THRU TRAFFIC) ROAD CLOSED TO THRU TRAFFIC
(D) M4-9AR 30"X30"	(J) R3-2 36"X36"	(NO LEFT TURN) NO LEFT TURN
(E) M4-8A 24"X18"	(K) R3-1 36"X36"	(NO RIGHT TURN) NO RIGHT TURN
(I) TY 3 BARRICADE	(L) M14-12T VARIABLE X 8"	(SAN ANTONIO ST) SAN ANTONIO ST
(M) M4-10L 48"X18"	(N) M4-10R 48"X18"	(DETOUR) DETOUR
(Direction of Traffic Arrow)	(Construction Phase I-III)	(Detour Route Arrow)
(Hatched Area)	(Sign)	(Portable Changeable Message Sign)



DESIGN
 TYLER P. DUBE, P.E.
 7/24/2019 DATE



REVIEW AND APPROVAL
 JAMES A. LUTZ, P.E.
 7/24/2019 DATE

SEQUENCE OF WORK BY PHASE:

- INSTALL TEMPORARY EROSION CONTROL MEASURES.
- INSTALL TEMPORARY TRAFFIC CONTROL DEVICES FOR DETOUR ROUTE AS SHOWN ON THE TRAFFIC CONTROL PLAN, REFER TO TXDOT STANDARDS BC(1-12)-14, WZ(RCD)-13, AND WZ(BTS 1-2)-13 FOR ADDITIONAL DETAILS.
- MAINTAIN TEMPORARY ACCESS TO PROPERTIES AT ALL TIMES, COORDINATE WITH PROPERTY OWNERS AT LEAST 72 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITIES. RELOCATE MAILBOXES TO TEMPORARY SUPPORTS AS NEEDED TO MAINTAIN POSTAL SERVICE ACCESS AND MAIL DELIVERY BY VEHICLE AT ALL TIMES. STORAGE OF MATERIALS OR EQUIPMENT SHALL NOT IMPEDE SOLID WASTE SERVICES. COORDINATE DISRUPTIONS TO SITE ACCESS WITH OWNER.
- CONSTRUCT SANITARY SEWER AND WATER IMPROVEMENTS. BACKFILL OR PLATE ALL OPEN TRENCHES AT THE CONCLUSION OF EACH WORK DAY (NO SEPARATE PAY ITEM, CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS).
- COMPLETE SANITARY SEWER AND WATER SYSTEM TESTING FOR ACCEPTANCE PRIOR TO CONSTRUCTION OF ROADWAY ELEMENTS (SEPARATE COVER, SEE VOLUME II FOR TESTING AND OPERATIONAL REQUIREMENTS).
- DEMOLISH EXISTING ROADWAY, SHAPE AND COMPACT SUBGRADE, AND CONSTRUCT NEW PAVEMENT SECTION ACCORDING TO THE LINE AND GRADE ON THE PLANS. MILL CROSS STREETS, PAVE FINAL HMAC ON SAN ANTONIO ST AND CROSS STREETS SIMULTANEOUSLY.
- CONSTRUCT SIGNS, MAILBOXES, AND OTHER APPURTENANCES. APPLY PERMANENT PAVEMENT MARKINGS.
- REMOVE EROSION CONTROL MEASURES AND TRAFFIC CONTROL DEVICES.

NOTES:

- CONSTRUCT IN PHASE ORDER AS LISTED IN THE PHASE DESCRIPTION TABLE.
- ADVANCE WARNING SIGNS NOT SHOWN ON THIS LAYOUT, REFER TO TXDOT STANDARDS FOR ADVANCE WARNING SIGN PLACEMENT DETAILS.
- BYPASS PUMPING OF EXISTING SANITARY SEWER EFFLUENT IS ANTICIPATED AT IMPROVEMENTS LOCATED ALONG:
 - S WEST END AVE
 - SAN ANTONIO ST FROM BERGFELD AVE TO N LONE STAR AVE
 - S HIDALGO AVE
 - S GRAPE AVE
- BYPASS PUMPING EQUIPMENT SHALL NOT IMPEDE THE FLOW OF TRAFFIC, DRIVEWAY ACCESS OR DRAINAGE.
- SEE SEPARATE COVER (VOLUME II) FOR ADDITIONAL SANITARY SEWER INFORMATION.

PHASE DESCRIPTION TABLE

PHASE	CONSTRUCTION LIMITS		SAN ANTONIO ST DETOUR ROUTE					
	FROM	TO	STREET 1	STREET 2	STREET 3	STREET 4	STREET 5	STREET 6
I	S KRUEGER AVE	S WEST END AVE	N WATER LN	BERGFELD AVE	IH 35 SBFR	KATY ST	S WATER LN	S WEST END AVE
II	S WEST END AVE	CONCEPCION AVE	N WEST END AVE	N GRAPE AVE	SPUR ST / IH 35 SBFR	KATY ST	S WEST END AVE	CONCEPCION AVE
III	CONCEPCION AVE	N LIVE OAK AVE	N HIDALGO AVE	N LIVE OAK AVE	SPUR ST	W MILL ST	CONCEPCION AVE	S LIVE OAK AVE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels
 ROADWAY
TRAFFIC CONTROL PLAN

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	32

DATE: 7/24/2019 3:37:24 PM
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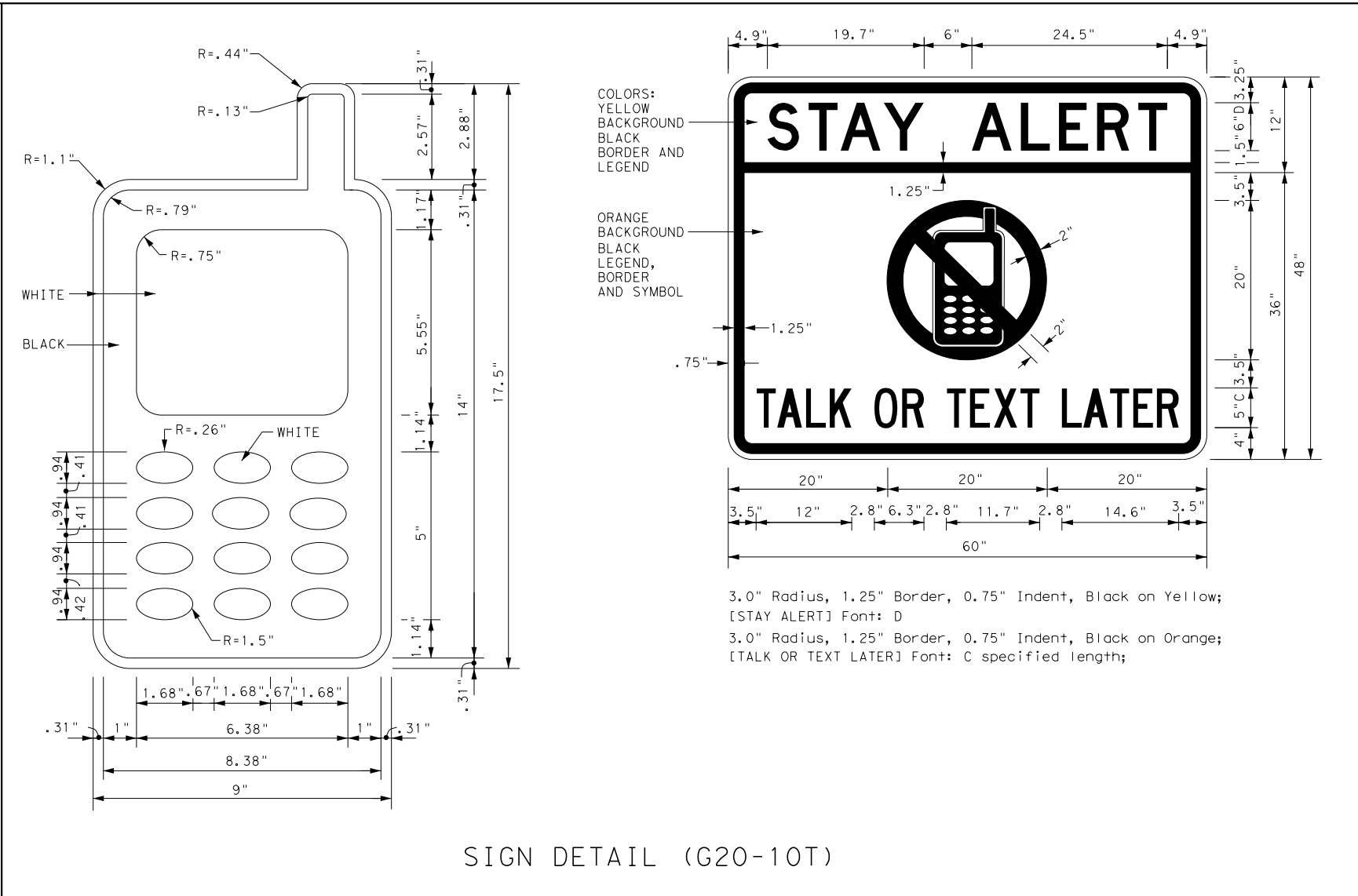
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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- 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).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- The Engineer has the final decision on the location of all traffic control devices.
- 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:

- 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.



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

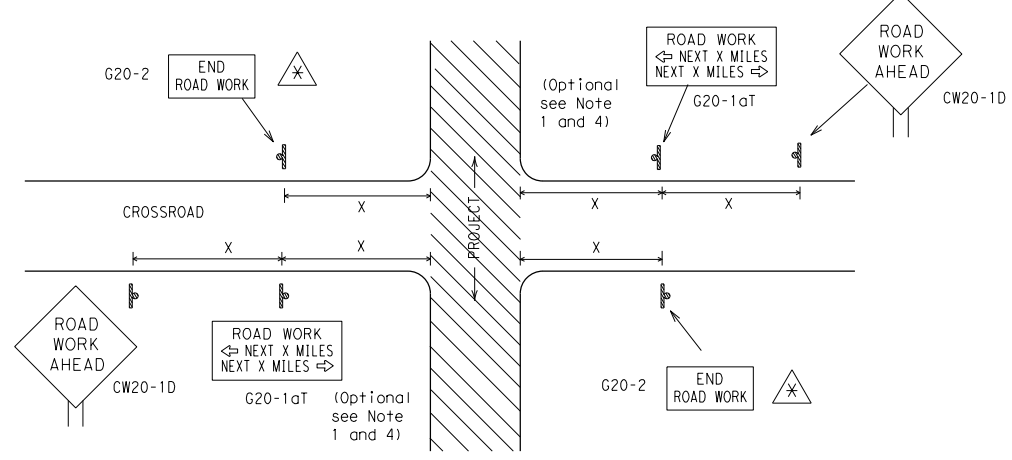
SHEET 1 OF 12

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
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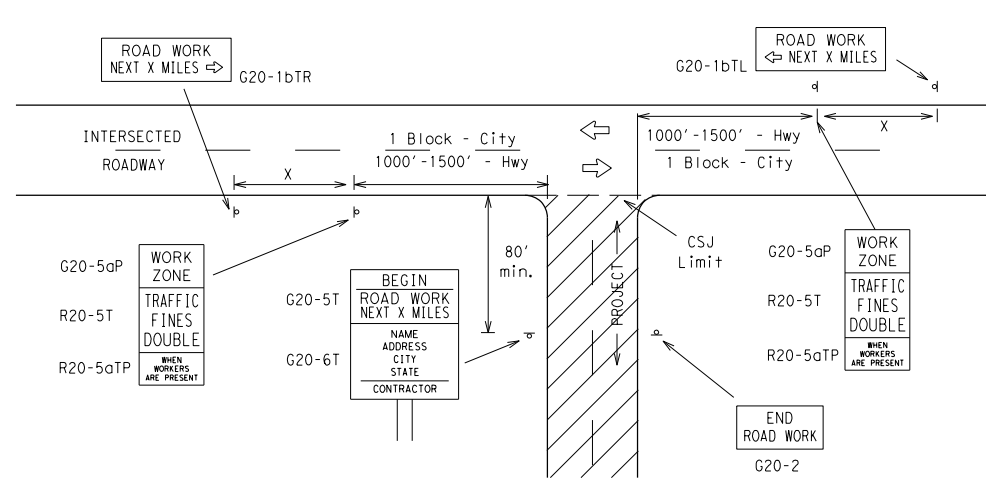
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ⚠ May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- 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.
 - 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.
 - 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.
 - 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.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - 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

- 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.
- 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}

Sign Number or Series	SIZE		SPACING	
	Conventional Road	Expressway/Freeway	Posted Speed MPH	Sign Spacing "X" Feet (Apprx.)
CW20 ⁴	48" x 48"	48" x 48"	30	120
CW21			35	160
CW22			40	240
CW23			45	320
CW25			50	400
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"	55	500 ²
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"	60	600 ²
			65	700 ²
			70	800 ²
			75	900 ²
			80	1000 ²
			*	* ³

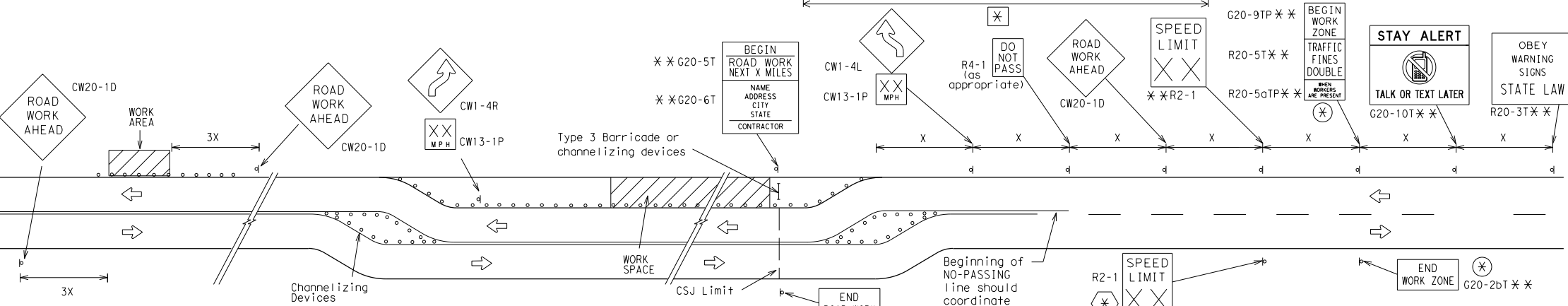
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

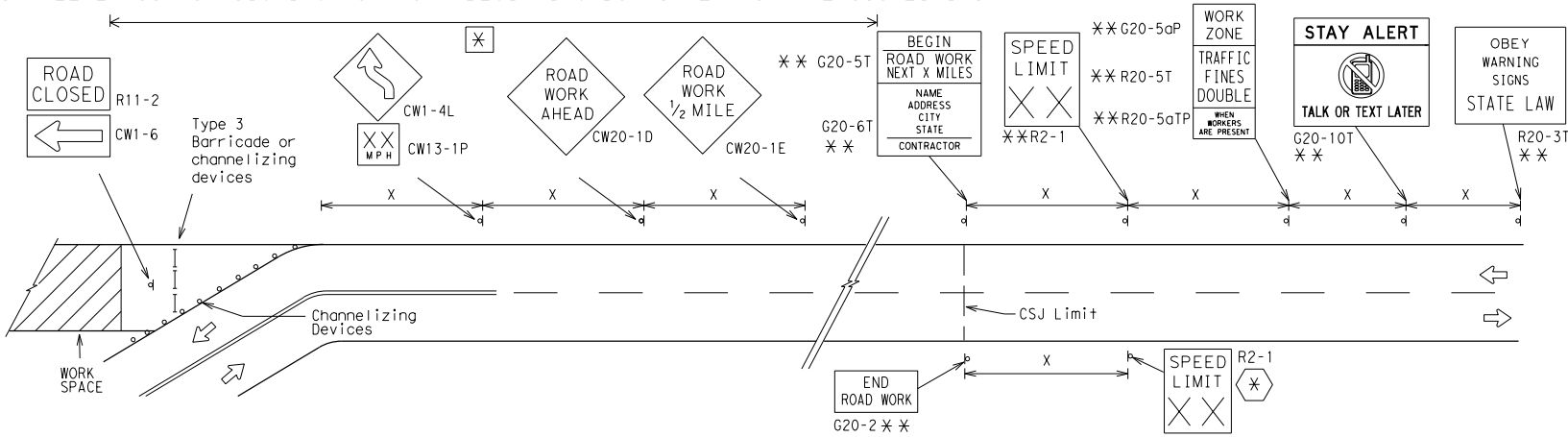
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer. See Note 2 under "Typical Location of Crossroad Signs".
- Only diamond shaped warning sign sizes are indicated.
- 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

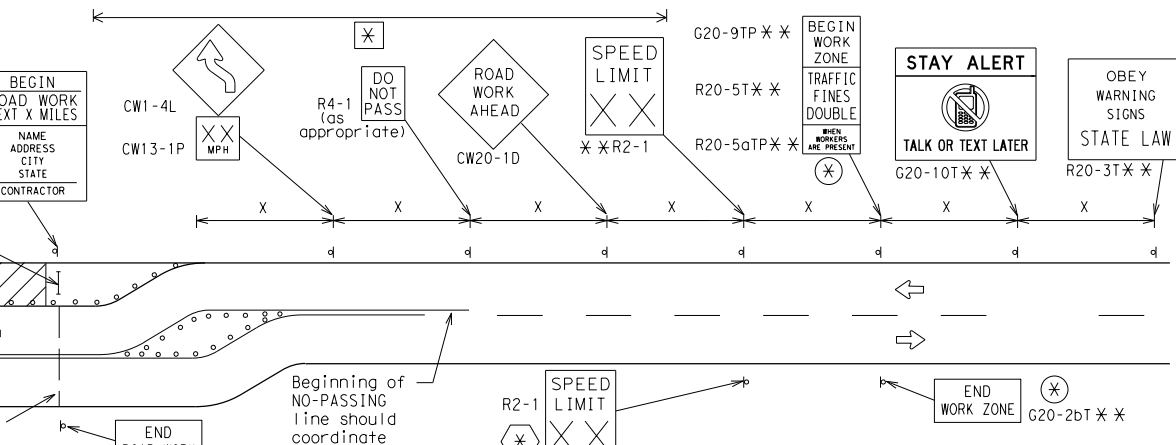


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT 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.

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Texas Department of Transportation
 Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

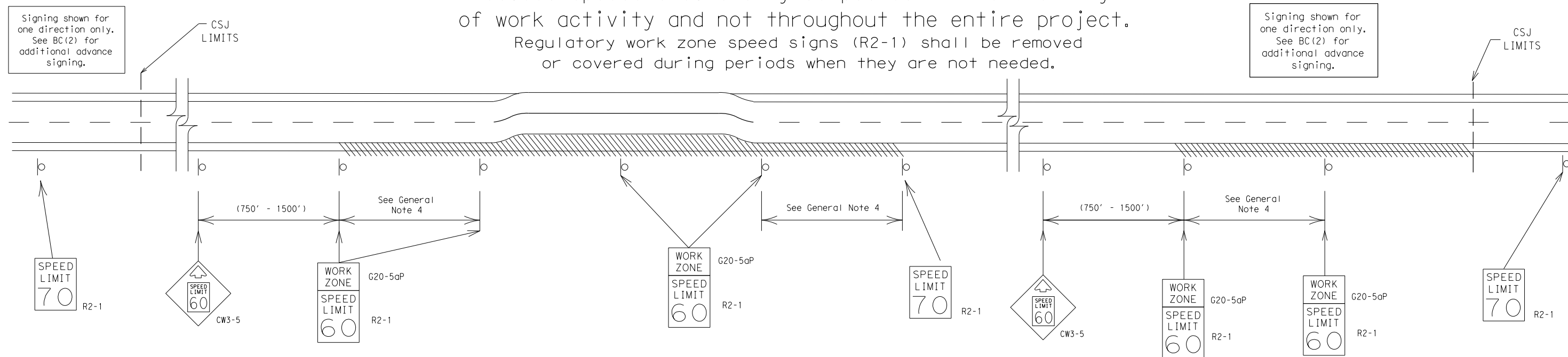
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- 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

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- 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
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- 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.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
 - Law enforcement.
 - Flagger stationed next to sign.
 - Portable changeable message sign (PCMS).
 - Low-power (drone) radar transmitter.
 - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- 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.

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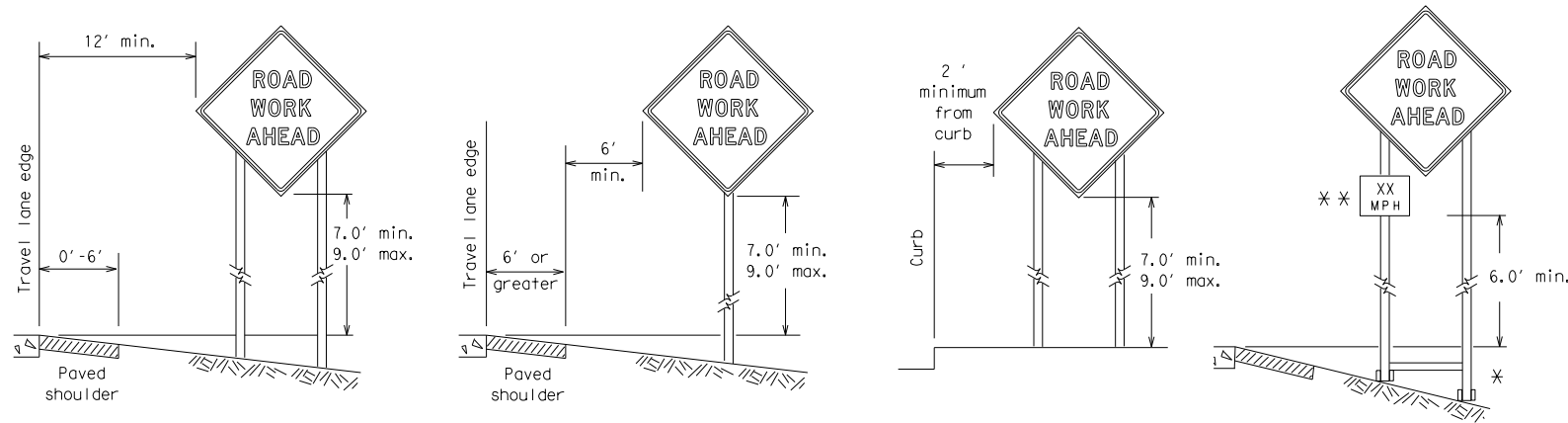


BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

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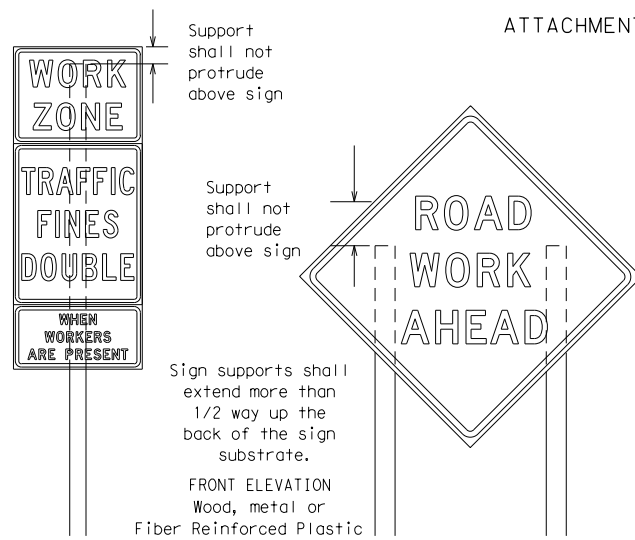
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* 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.

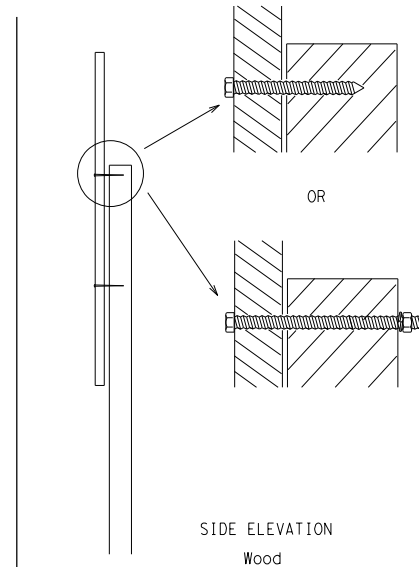
** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

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 splice 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.

GENERAL NOTES FOR WORK ZONE SIGNS

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
 - Wooden sign posts shall be painted white.
 - Barricades shall NOT be used as sign supports.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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)**
- 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.
 - Long-term stationary - work that occupies a location more than 3 days.
 - 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.
 - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - Short, duration - work that occupies a location up to 1 hour.
 - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

- 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.
- 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.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- 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.
- 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

- 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

- 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.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- 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

- 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).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

- 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

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- 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.
- 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.
- 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.
- Burlap shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

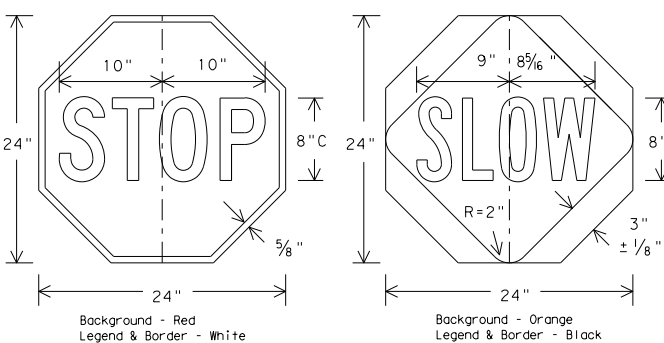
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
- 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.
- 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.
- 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.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

- 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.

STOP/SLOW PADDLES

- 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.
- When used at night, the STOP/SLOW paddle shall be retroreflectORIZED.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- 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

- 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.
- 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.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- 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.
- 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.
- 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.



BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

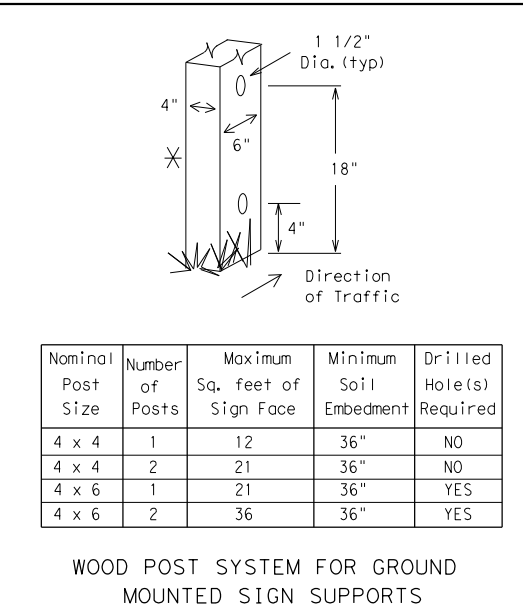
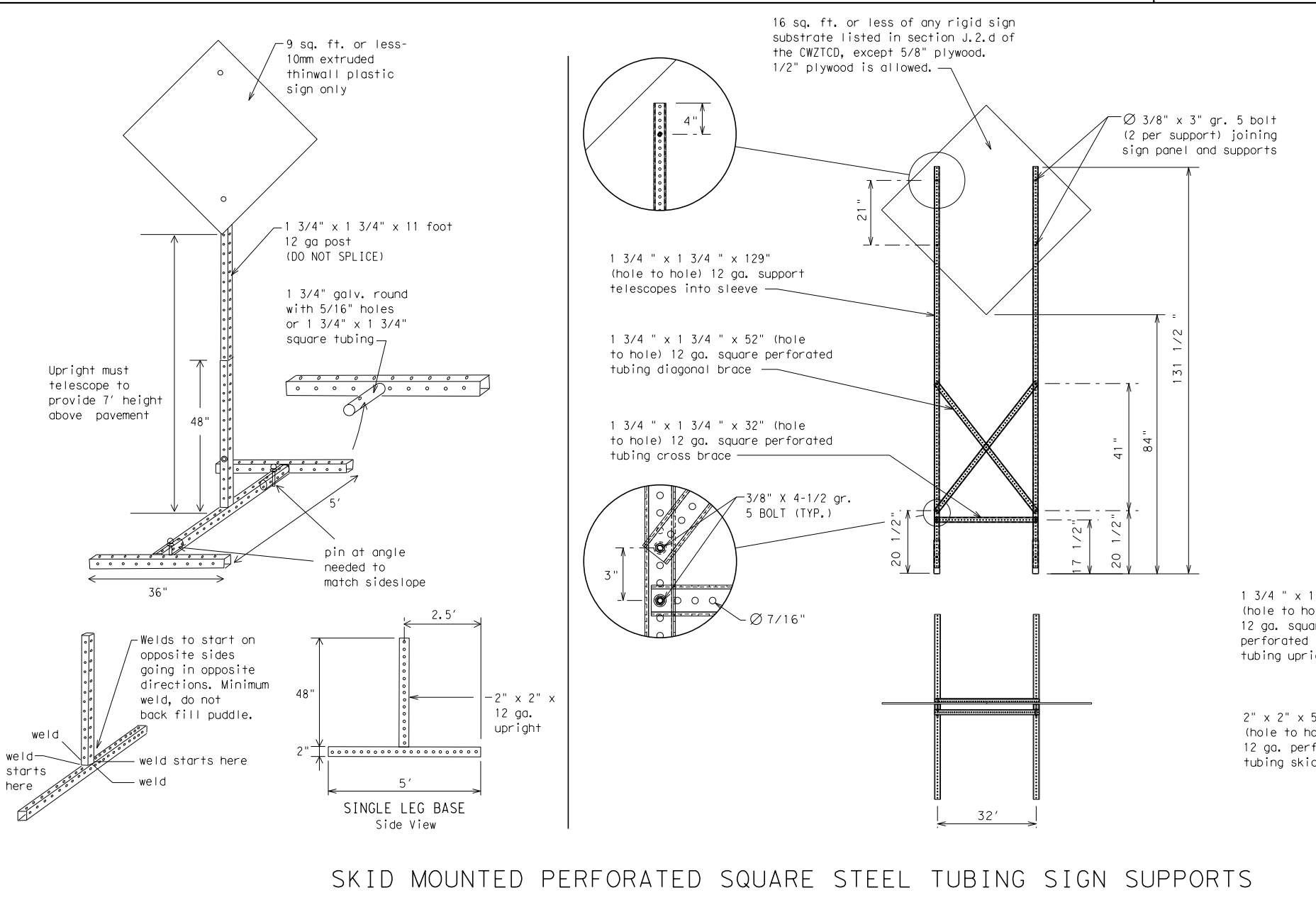
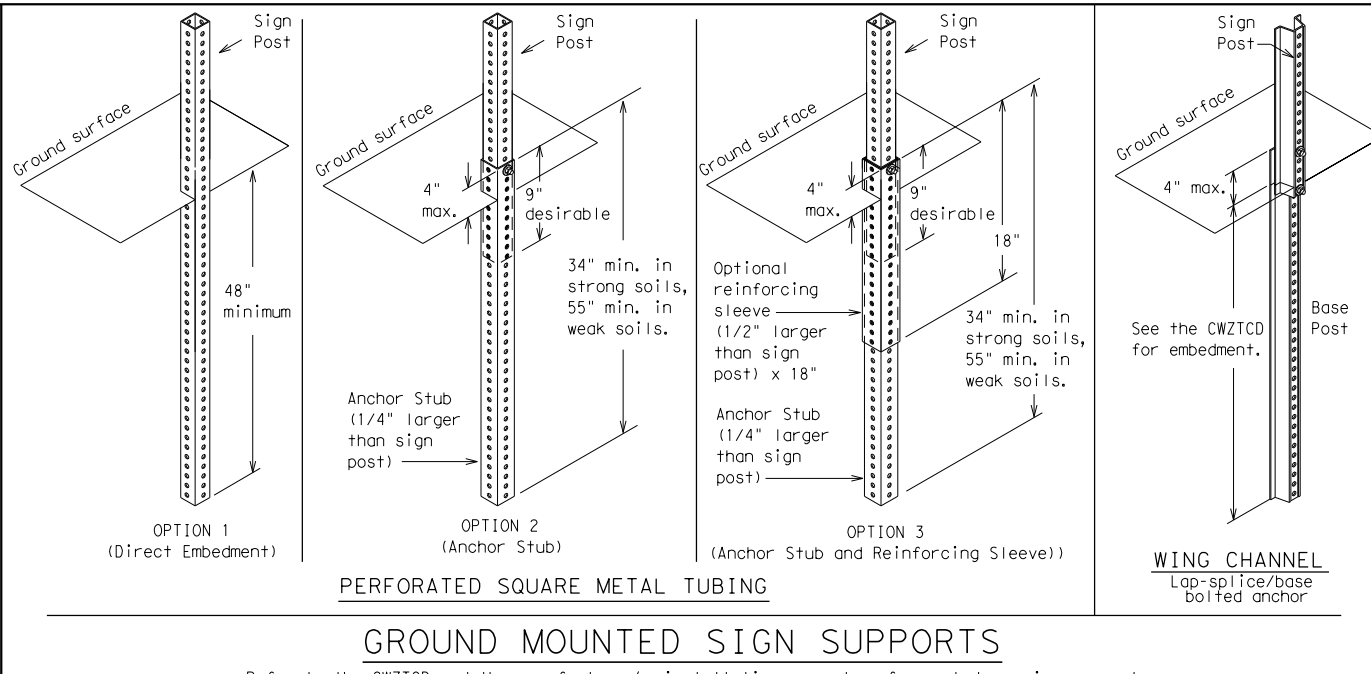
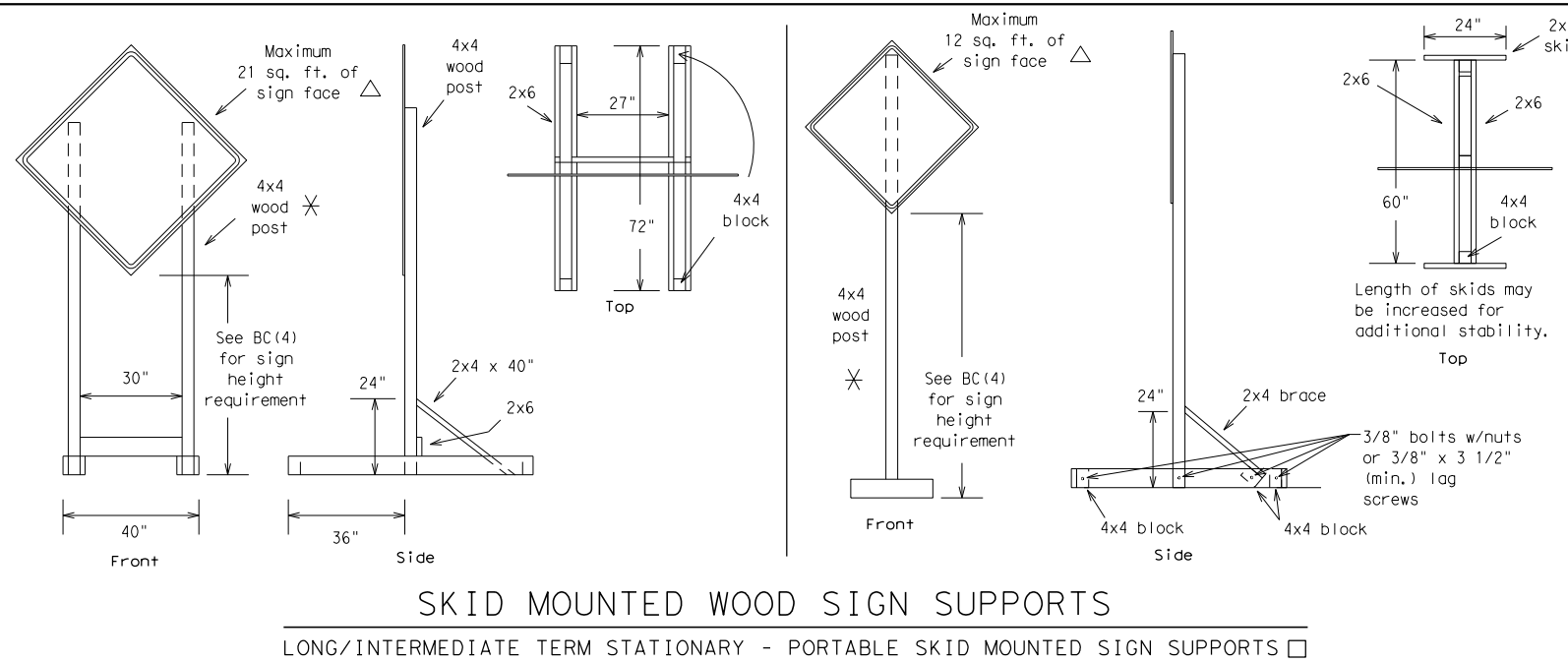
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9-07	8-14	SAT		COMAL	36				
7-13									

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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**
- 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.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - 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.

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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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- 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.
- 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.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- 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.
- 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.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- 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.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- 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.
- 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.
- Each line of text should be centered on the message board rather than left or right justified.
- 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.

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WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MI
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Minor	MNR
Boulevard	BLVD	Monday	MON
Bridge	BRDG	Normal	NORM
Canot	CANT	North	N
Center	CTR	Northbound	(route) N
Construction Ahead	CONST AHD	Parking	PKING
CROSSING	XING	Road	RD
Detour Route	DETOUR RTE	Right Lane	RT LN
Do Not	DONT	Saturday	SAT
East	E	Service Road	SERV RD
Eastbound	(route) E	Shoulder	SHLDR
Emergency	EMER	Slippery	SLIP
Emergency Vehicle	EMER VEH	South	S
Entrance, Enter	ENT	Southbound	(route) S
Express Lane	EXP LN	Speed	SPD
Expressway	EXPWY	Street	ST
XXXX Feet	XXXX FT	Sunday	SUN
Fog Ahead	FOG AHD	Telephone	PHONE
Freeway	FRWY, FWY	Temporary	TEMP
Freeway Blocked	FWY BLKD	Thursday	THURS
Friday	FRI	To Downtown	TO DWNTN
Hazardous Driving	HAZ DRIVING	Traffic	TRAF
Hazardous Material	HAZMAT	Travelers	TRVLR
High-Occupancy Vehicle	HOV	Tuesday	TUES
Highway	HWY	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Upper Level	UPR LEVEL
Information	INFO	Vehicles (s)	VEH, VEHS
It Is	ITS	Warning	WARN
Junction	JCT	Wednesday	WED
Left	LFT	Weight Limit	WT LIMIT
Left Lane	LFT LN	West	W
Lane Closed	LN CLOSED	Westbound	(route) W
Lower Level	LWR LEVEL	Wet Pavement	WET PVMT
Maintenance	MAINT	Will Not	WONT

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List		Other Condition List	
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT *
XXXXXXXX BLVD CLOSED			

* 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	Location List	Warning List	** Advance Notice List
MERGE RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM-X PM
DETOUR NEXT X EXITS	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	XXXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES			TONIGHT XX PM-XX AM
STAY IN LANE *			

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- 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.
- 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

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- 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

- 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.
- 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.
- 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.
- 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.

SHEET 6 OF 12

		Traffic Operations Division Standard	
<h2>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</h2>			
<h3>BC (6) - 14</h3>			
FILE:	bc-14.dgn	DN:	TxDOT
© TxDOT	November 2002	CK:	TxDOT
REVISIONS		DW:	TxDOT
9-07	8-14	CK:	TxDOT
7-13		DW:	TxDOT
		JOB:	HIGHWAY
		SAN ANTONIO	
		DIST:	COUNTY
		SAT:	COMAL
		SHEET NO. 38	

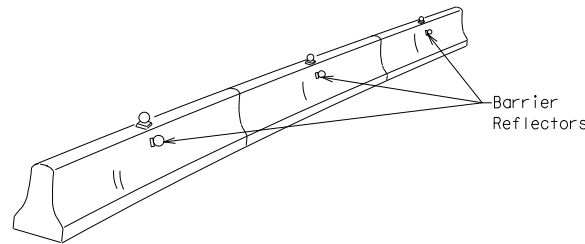
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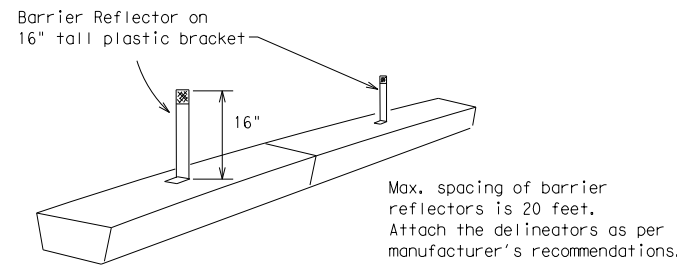
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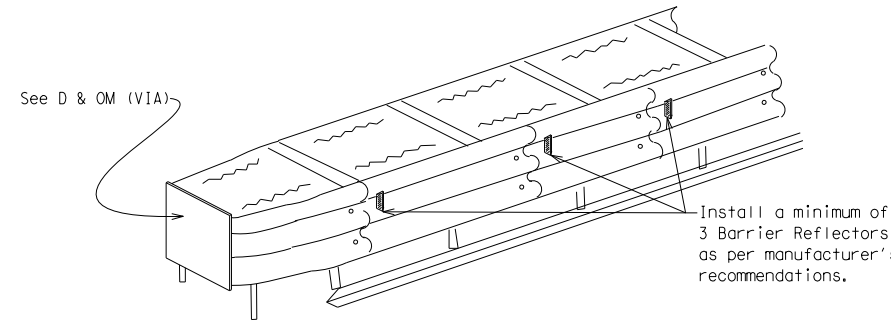
- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)



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.

- 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.
- 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.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

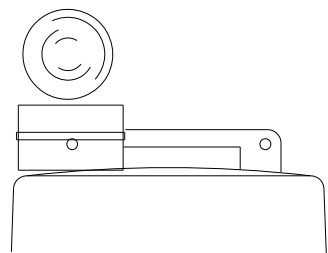
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet 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_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- 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".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- 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.
- 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.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

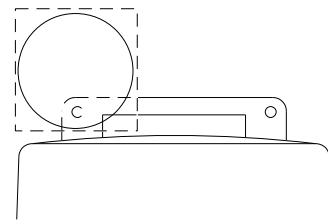
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing 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.
- 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.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- 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

- 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.
- 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.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- 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.
- 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.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



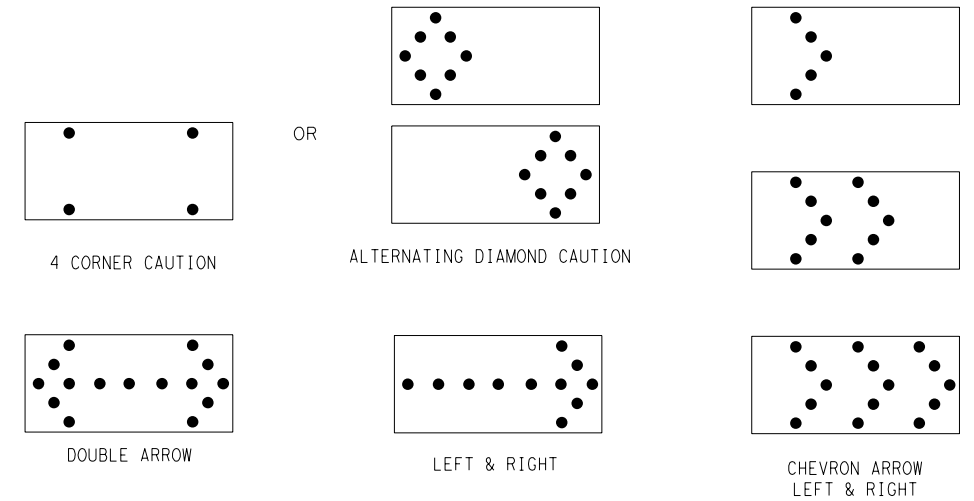
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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.

- 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.
- 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.
- 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.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- 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.
- 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.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential Chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- 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.
- 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

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- 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).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- 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.
- 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.



BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) - 14

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REVISIONS				SAN ANTONIO					
9-07	8-14	DIST	COUNTY	SHEET NO.					
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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- 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.
- 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.
- 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).
- 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.
- 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:

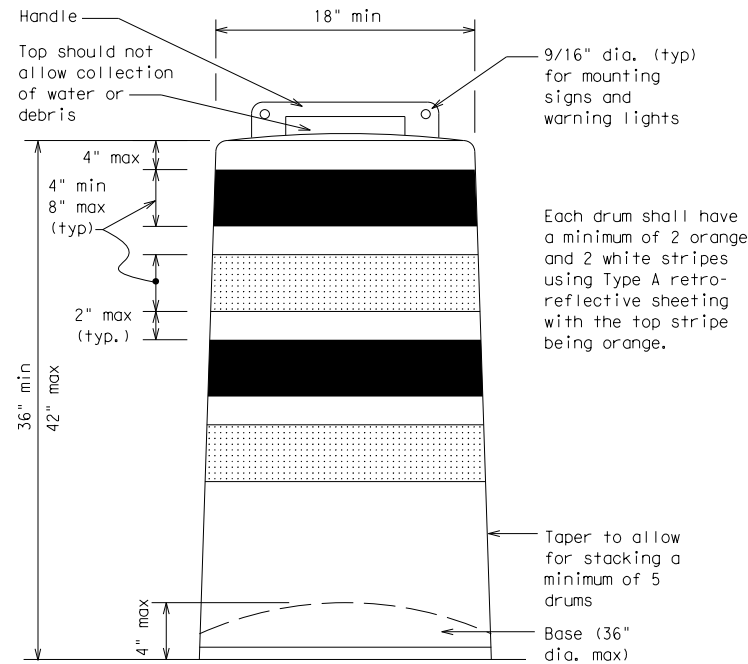
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- 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.
- 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.
- 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.
- 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.
- 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.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

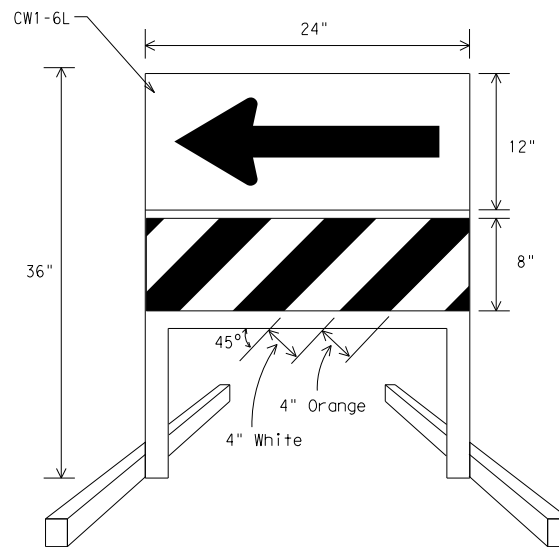
- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable 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

- 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.
- 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.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- 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.
- 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.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

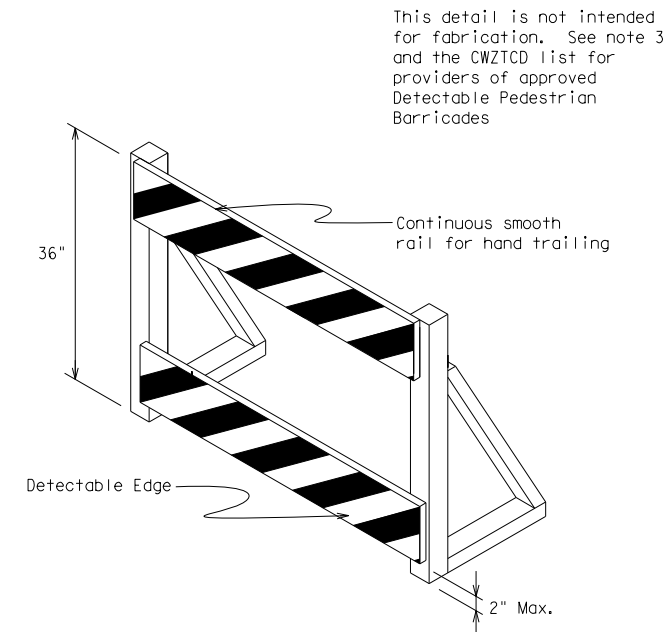


Each drum shall have a minimum of 2 orange and 2 white stripes using Type A retro-reflective sheeting with the top stripe being orange.



DIRECTION INDICATOR BARRICADE

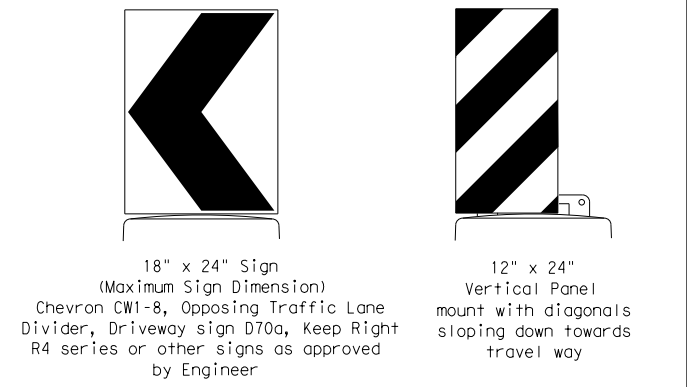
- The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
- If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
- The 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_{FL} or Type C_{FL} 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.
- Double arrows on the Direction Indicator Barricade will not be allowed.
- Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.



DETECTABLE PEDESTRIAN BARRICADES

- 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.
- 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.
- 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.
- 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.
- Warning lights shall not be attached to detectable pedestrian barricades.
- 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.

This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades



Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- 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.
- 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.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- 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.
- 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.

SHEET 8 OF 12

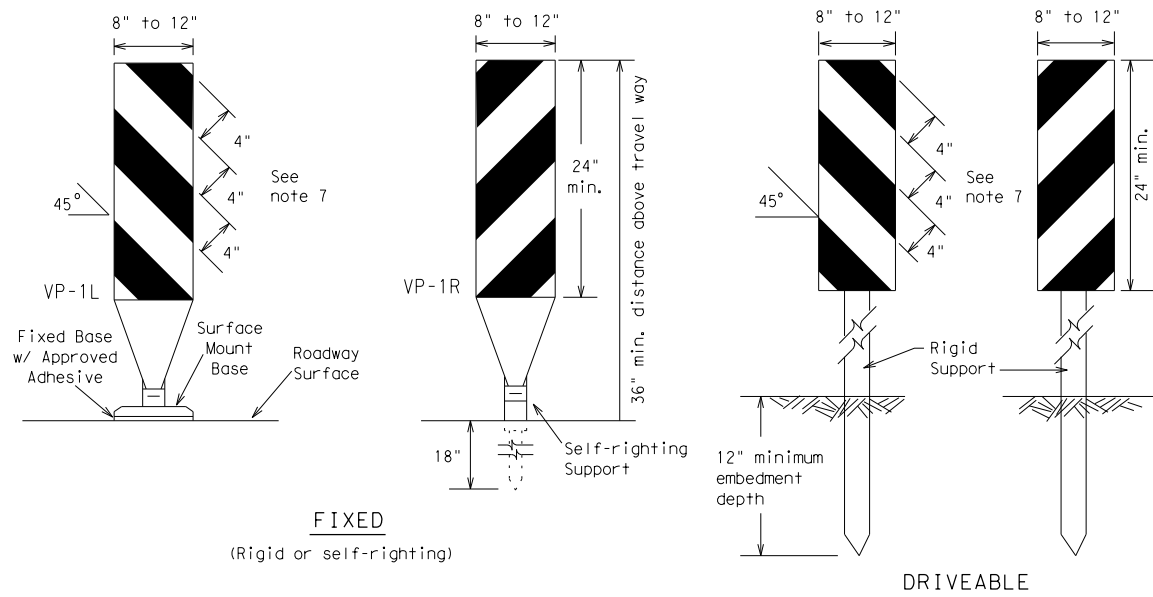


BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 14

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REVISIONS				
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9-07 8-14	SAT	COMAL	SHEET NO. 40	

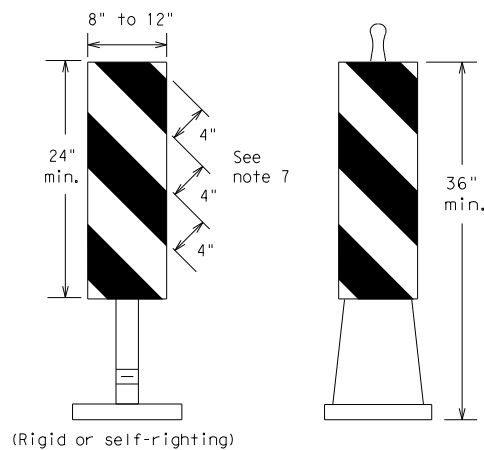
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FIXED
(Rigid or self-righting)

DRIVEABLE

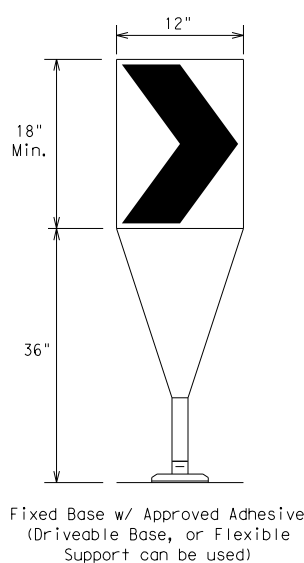
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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.
- 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.
- VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
- Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Sheeting for the VP's shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
- Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



(Rigid or self-righting)

PORTABLE

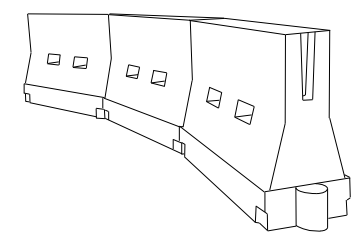
VERTICAL PANELS (VPs)



Fixed Base w/ Approved Adhesive
(Driveable Base, or Flexible Support can be used)

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- 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.
- 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.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- 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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

- 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.
- LCDs may be used instead of a line of cones or drums.
- LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
- LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
- 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

- 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.
- 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.
- 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.
- 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.
- 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

GENERAL NOTES

- 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).
- 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.
- 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).
- 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.
- Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
- 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.
- 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.

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	L = 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

SHEET 9 OF 12

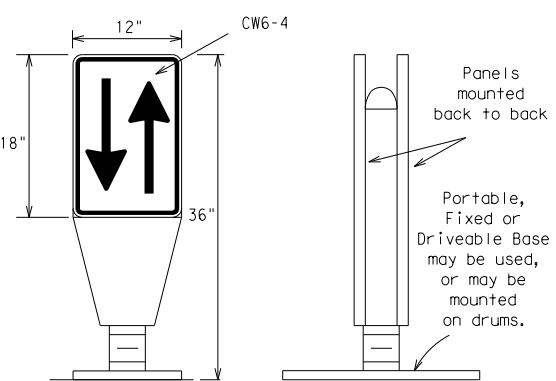


BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 14

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OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

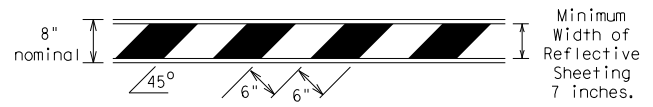
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

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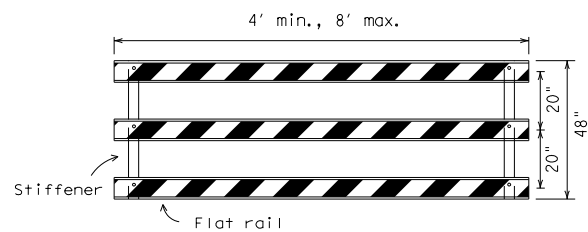
TYPE 3 BARRICADES

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.



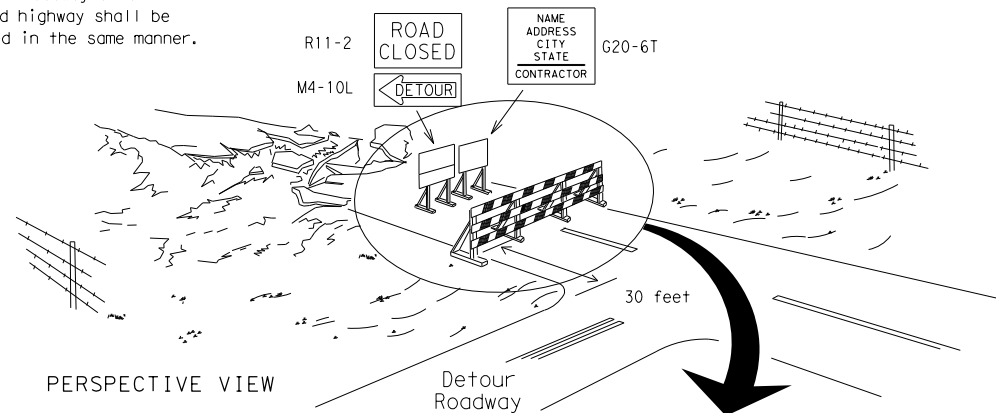
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

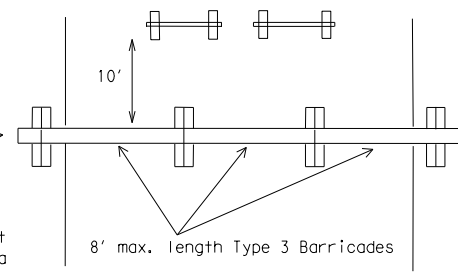
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

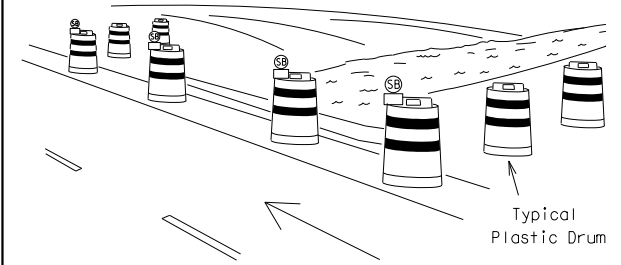
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



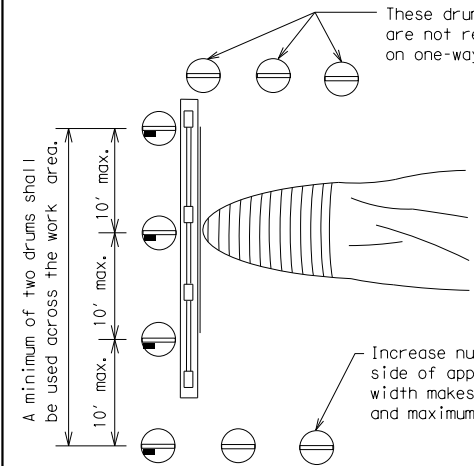
PLAN VIEW

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

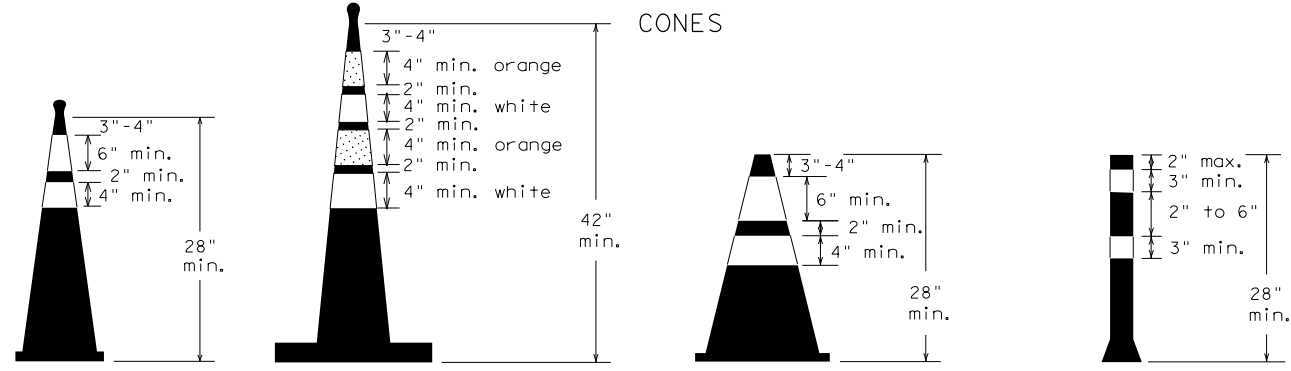


PLAN VIEW

1. Where positive redirection 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.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



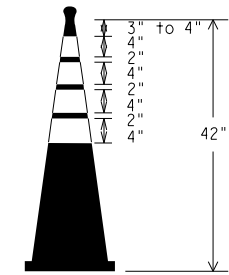
Two-Piece cones

One-Piece cones

Tubular Marker

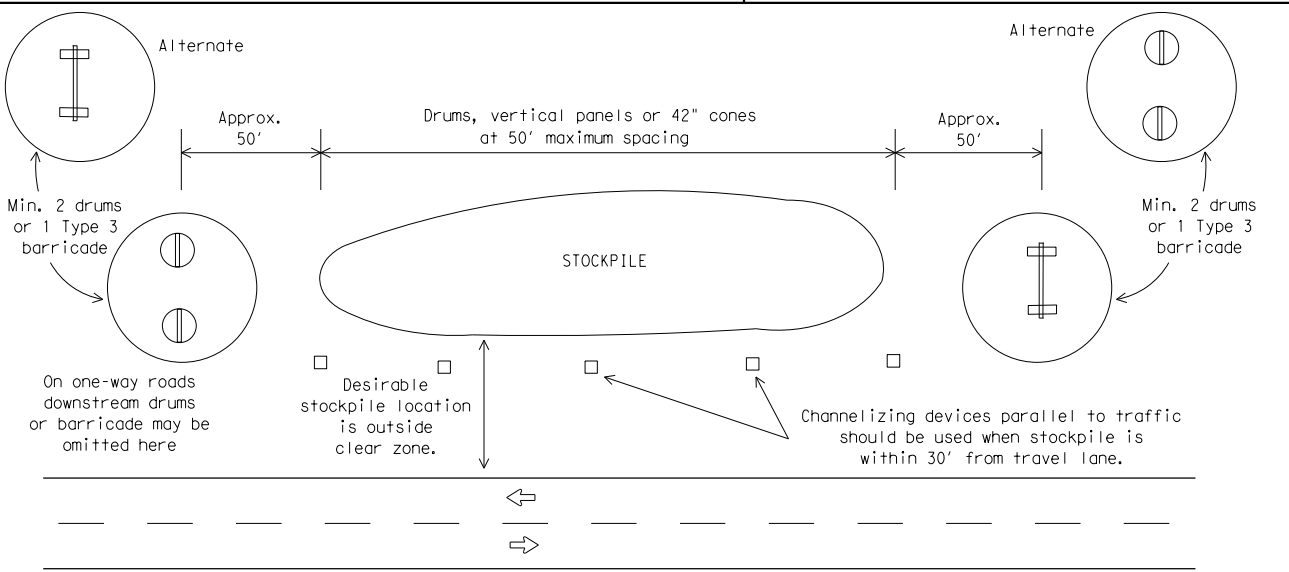
28" Cones shall have a minimum weight of 9 1/2 lbs.
 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGE LINE CHANNELIZER

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.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

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.



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 14

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- 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.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- 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).
- 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.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- 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

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

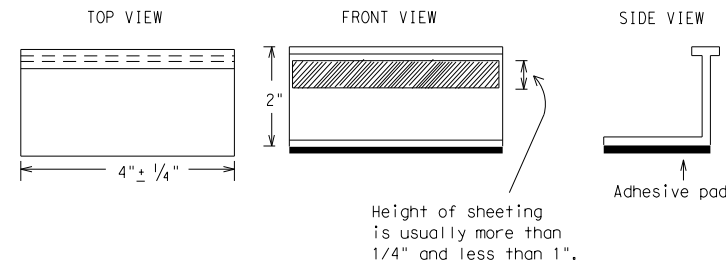
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- 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.
- 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.
- 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

- 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.
- 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.
- 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".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- 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.
- 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

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- 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.
 - 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.
 - 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.
- Small design variances may be noted between tab manufacturers.
- 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

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- 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).

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

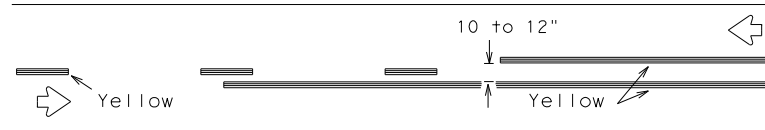
BC(11) - 14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS			SAN ANTONIO	
2-98 9-07	DIST	COUNTY		SHEET NO.
1-02 7-13	SAT	COMAL		43
11-02 8-14				

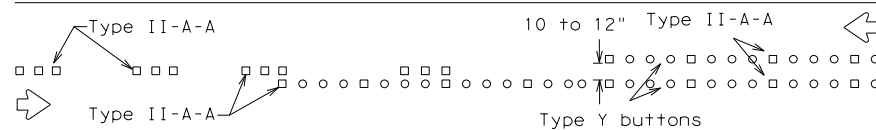
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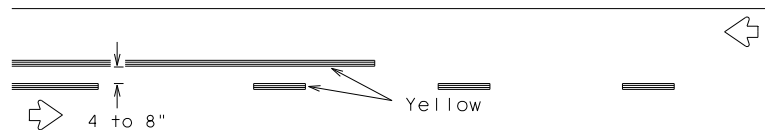
PAVEMENT MARKING PATTERNS



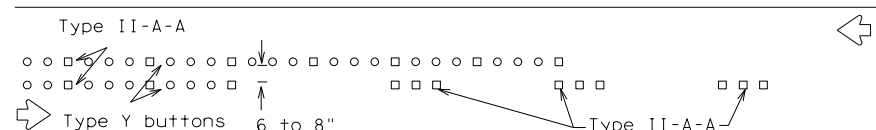
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



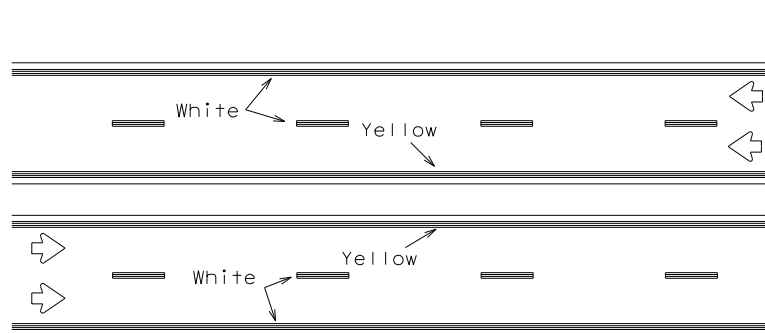
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



RAISED PAVEMENT MARKERS - PATTERN B

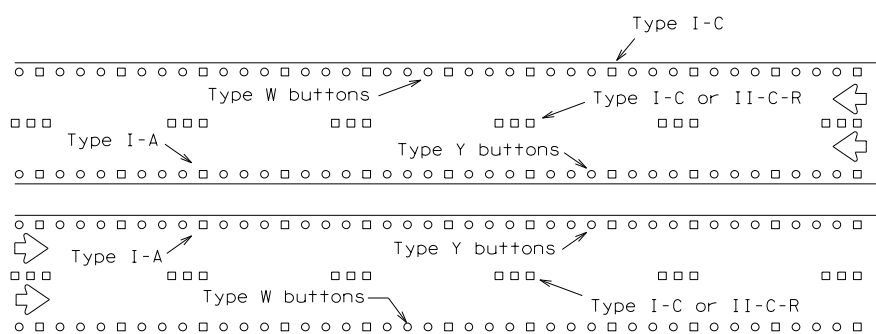
Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



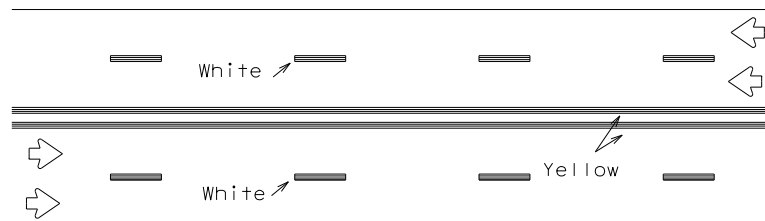
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



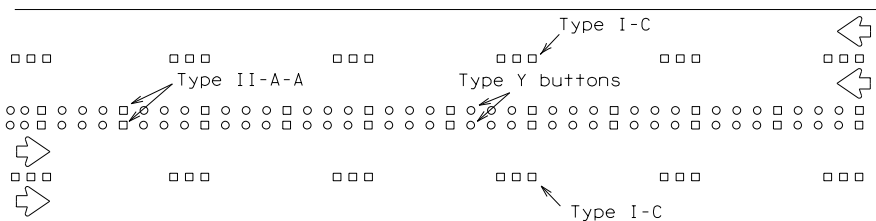
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



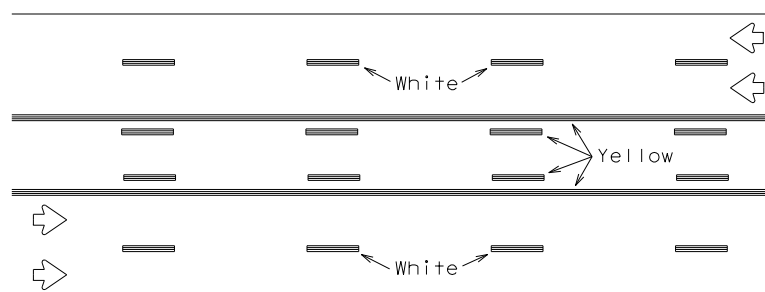
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.



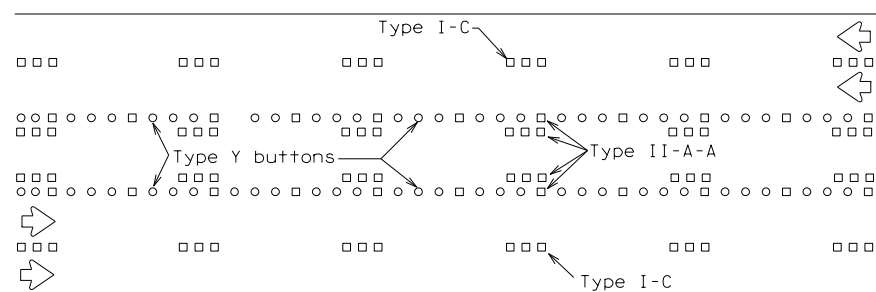
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

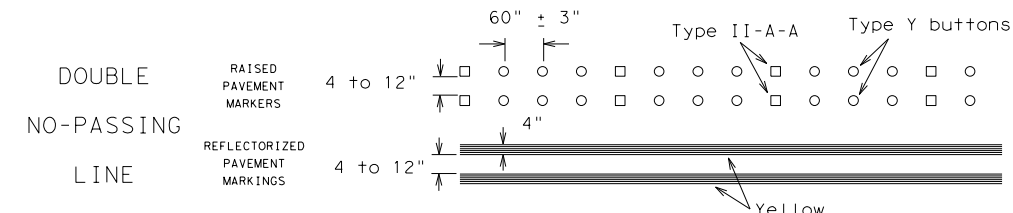
Prefabricated markings may be substituted for reflectorized pavement markings.



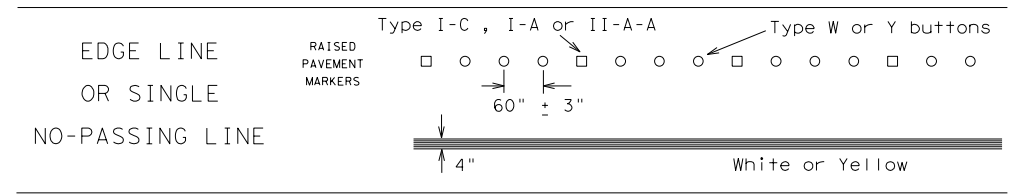
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



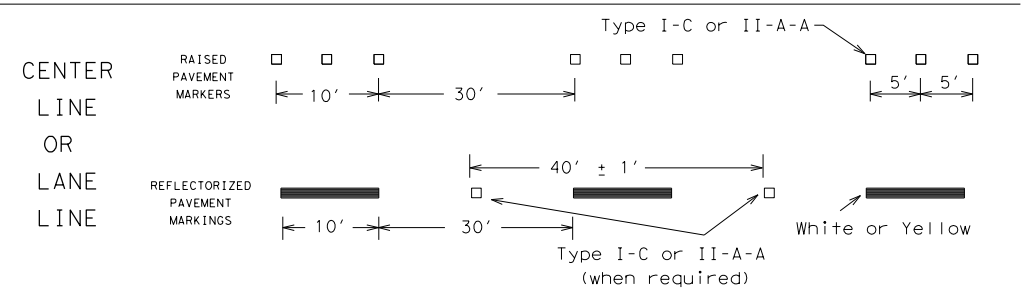
SOLID LINES



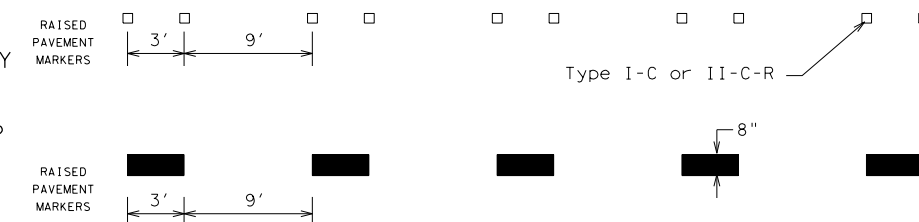
WIDE LINE



BROKEN LINES

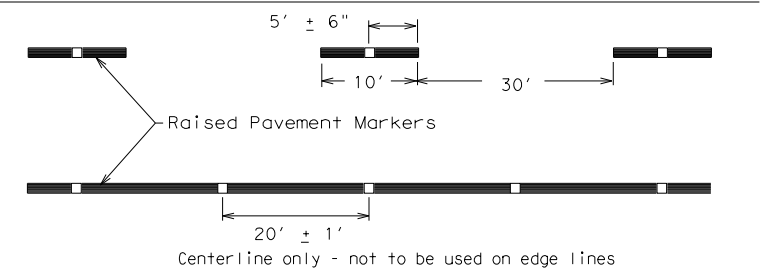


AUXILIARY OR LANEDROP LINE



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.



SHEET 12 OF 12

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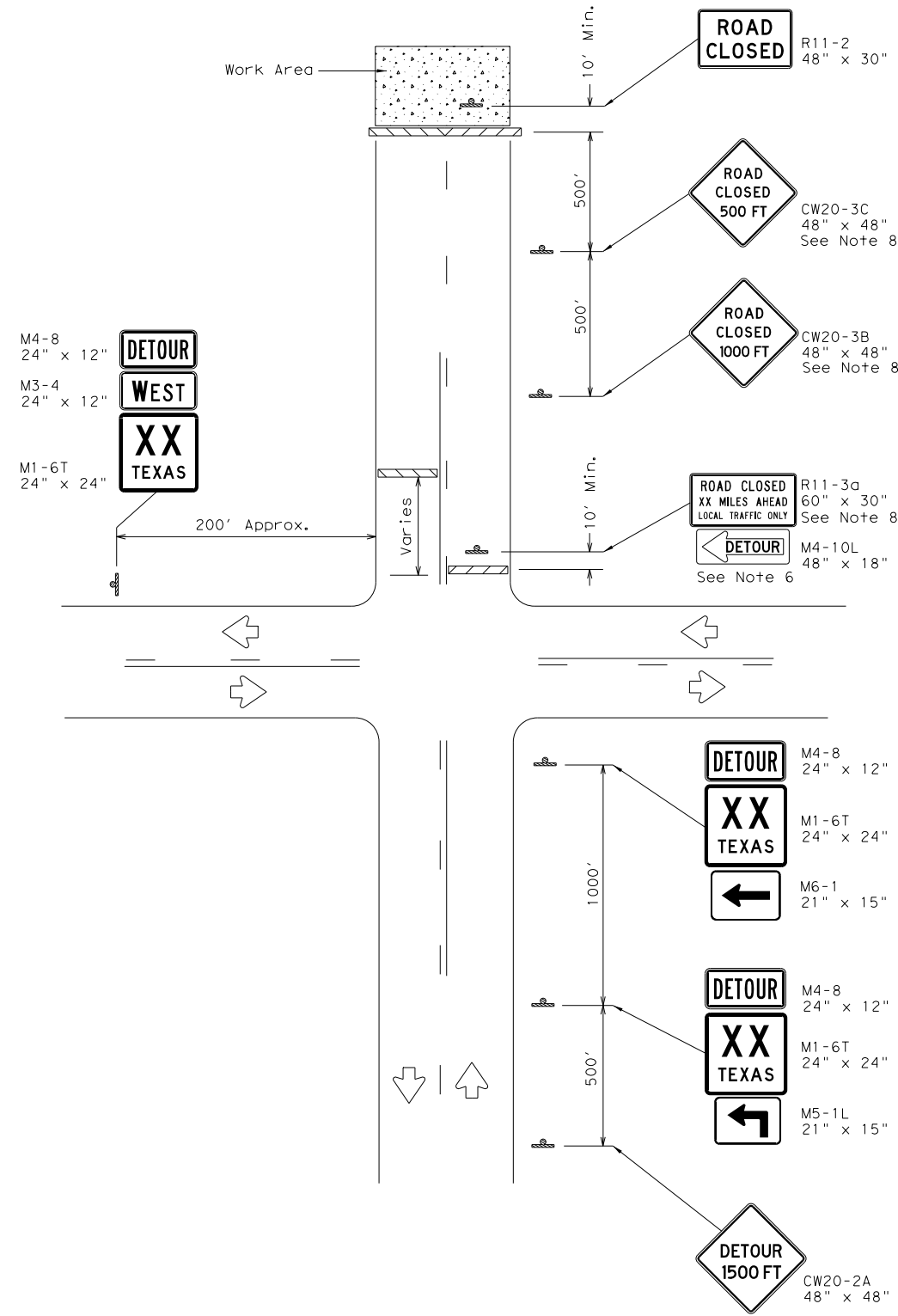
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-14

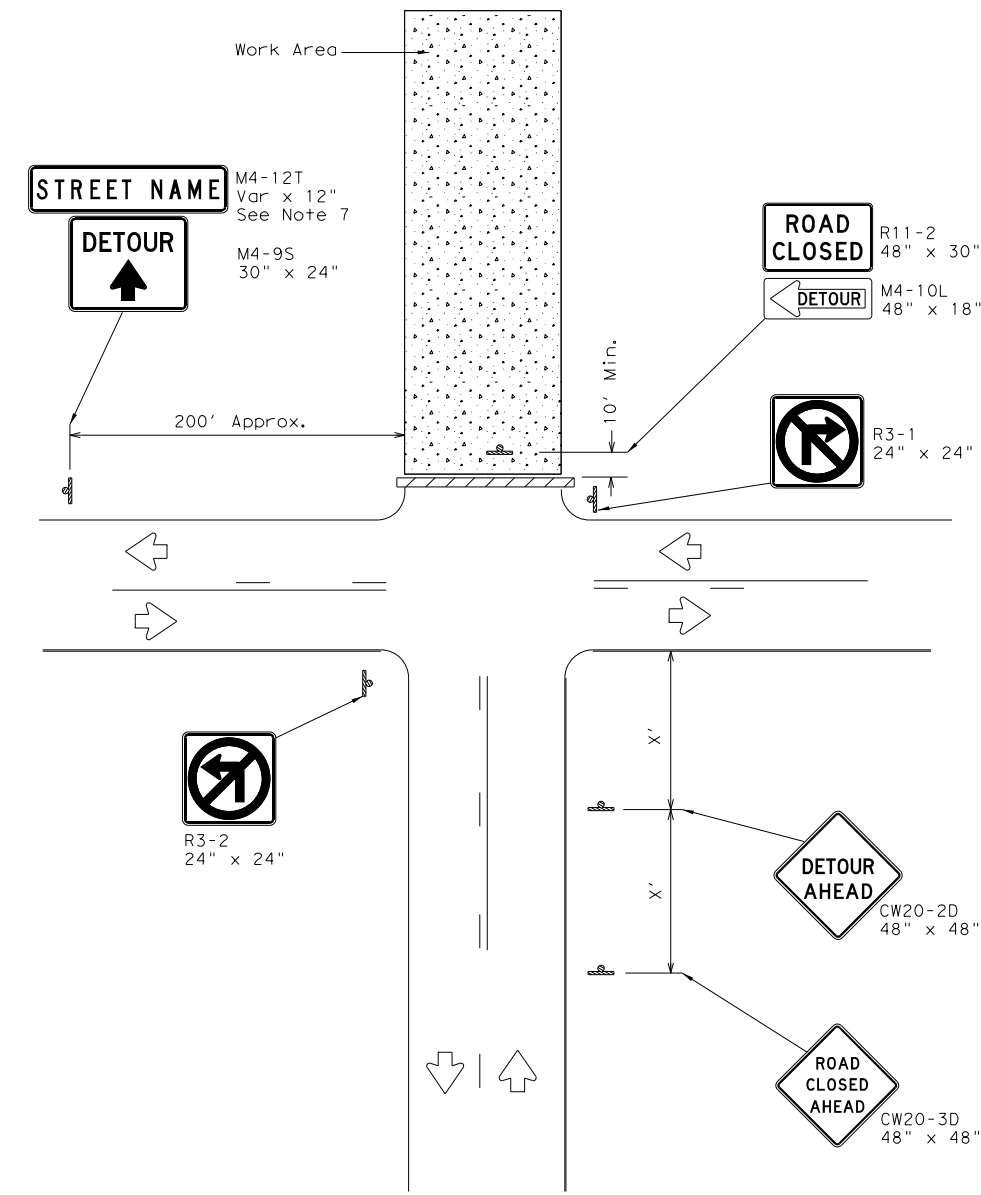
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 9-07	SAN ANTONIO			
2-98 7-13	DIST	COUNTY	SHEET NO.	
11-02 8-14	SAT	COMAL	44	

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DATE: 7/24/2019 3:37:36 PM
 FILE: P:\111\38\01\Design\C.v1\Standards\TCP\wzrcd-13.dgn



ROAD CLOSURE BEYOND THE INTERSECTION
 Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION
 Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

GENERAL NOTES

- This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
- Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices List (CWZTCD).
- Stockpiled materials shall not be placed on the traffic side of barricades.
- Barricades at the road closure should extend from pavement edge to pavement edge.
- Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
- If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
- The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
- For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
- Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

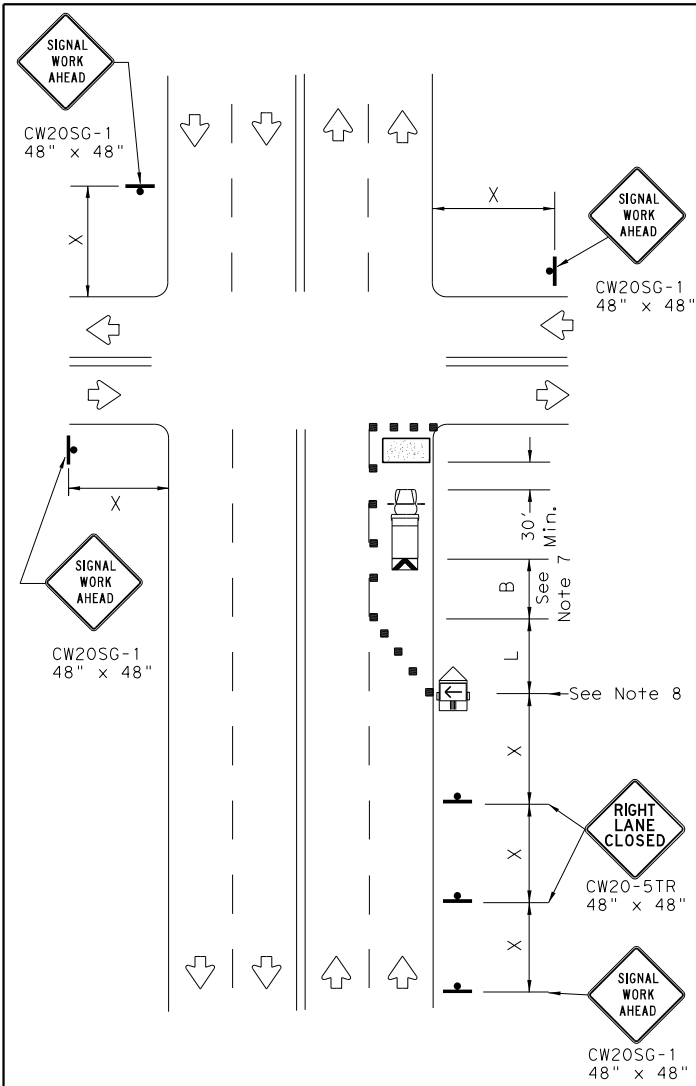


WORK ZONE ROAD CLOSURE DETAILS

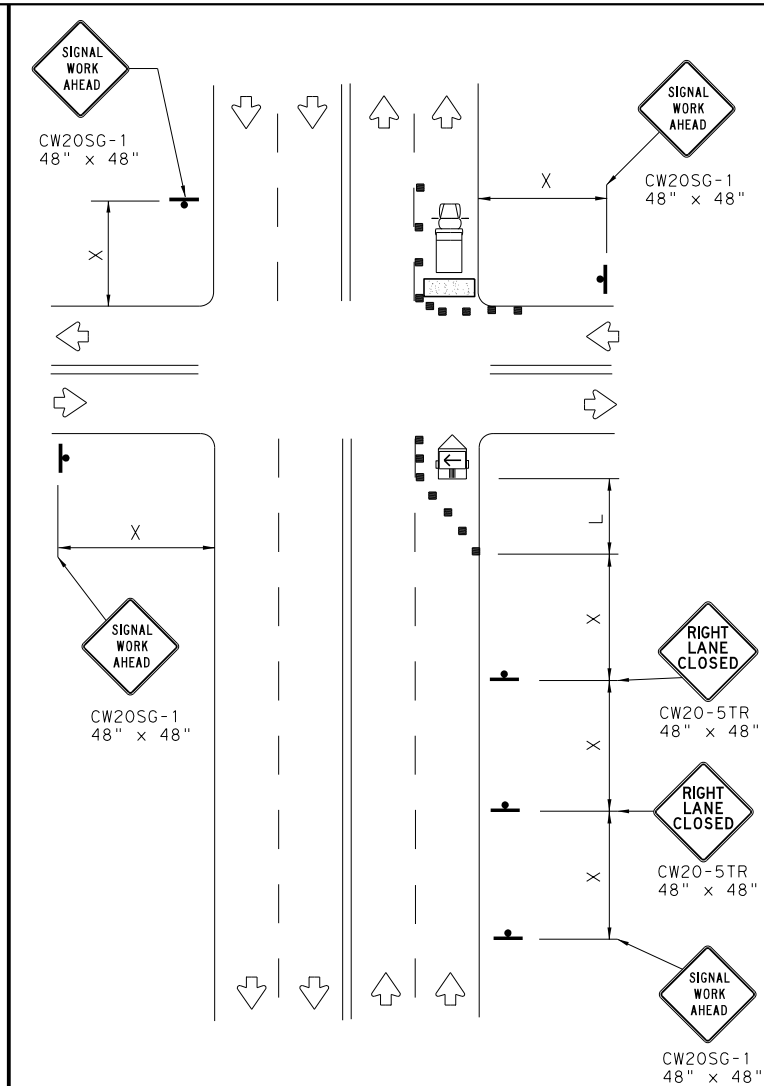
WZ (RCD) - 13

FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS				
1-97 4-98 7-13	DIST		COUNTY	SHEET NO.
2-98 3-03	SAT	COMAL		45

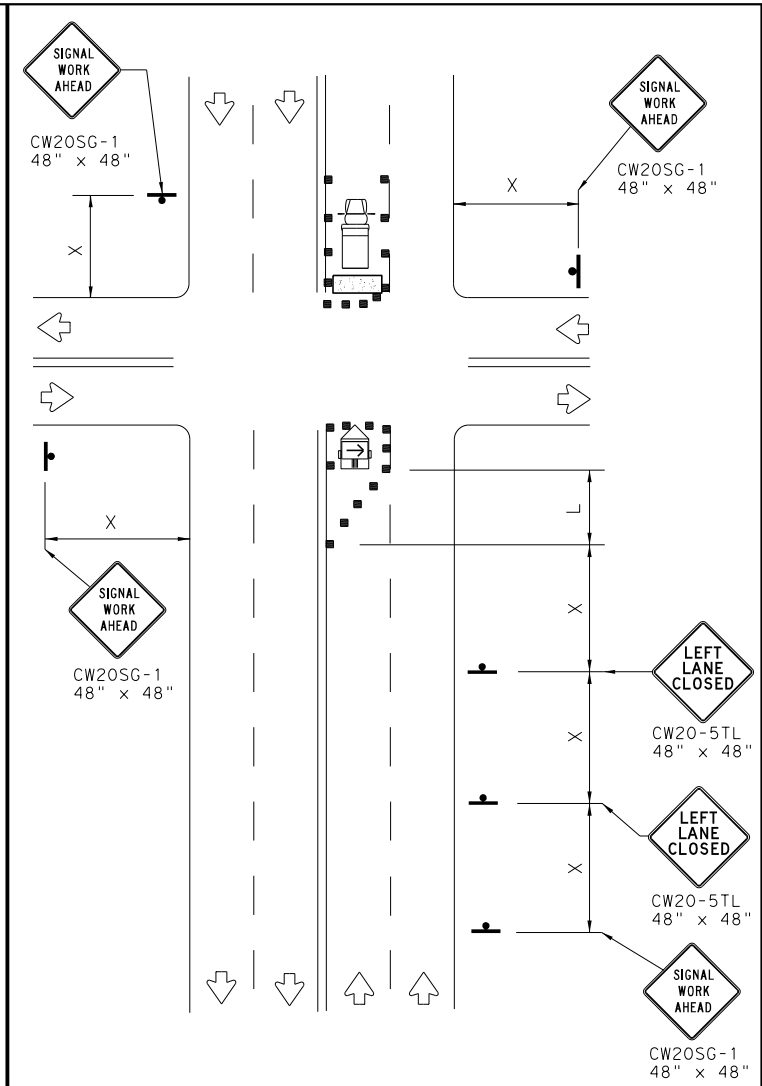
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NEAR SIDE LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



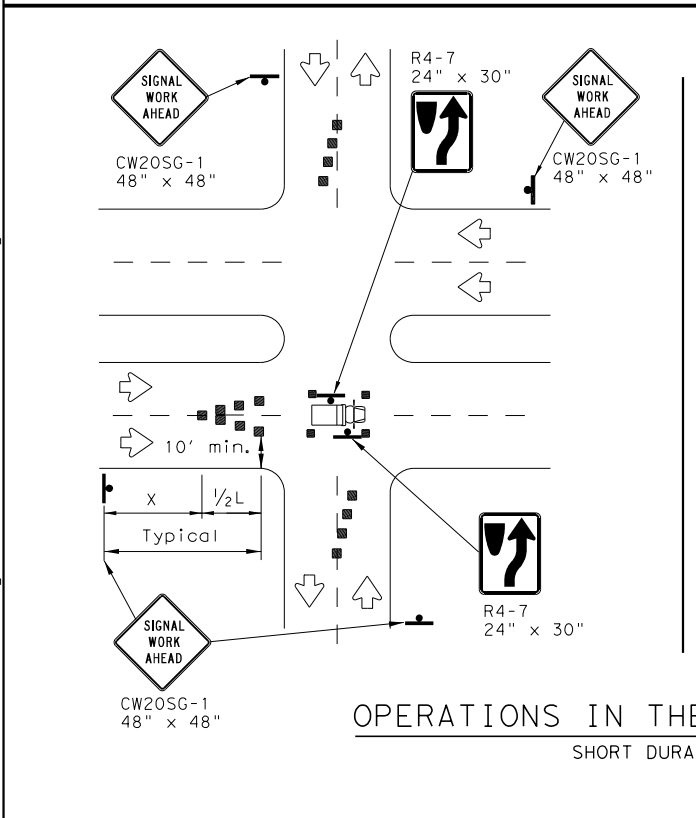
FAR SIDE LEFT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

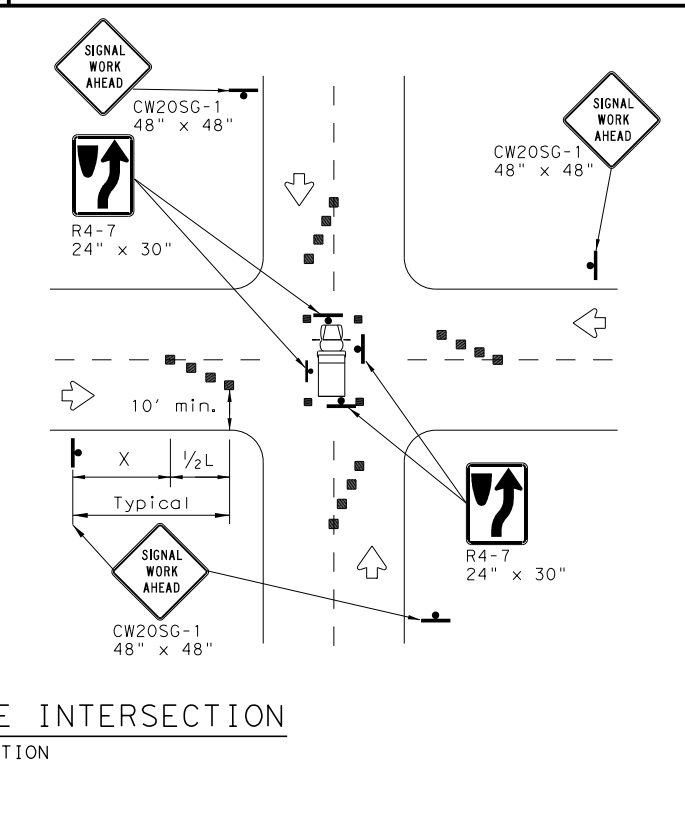
Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.



OPERATIONS IN THE INTERSECTION
SHORT DURATION



GENERAL NOTES

- The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
- Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
- High level warning devices (flag trees) may be used at corners of the vehicle.
- When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
- For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
- The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
- Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

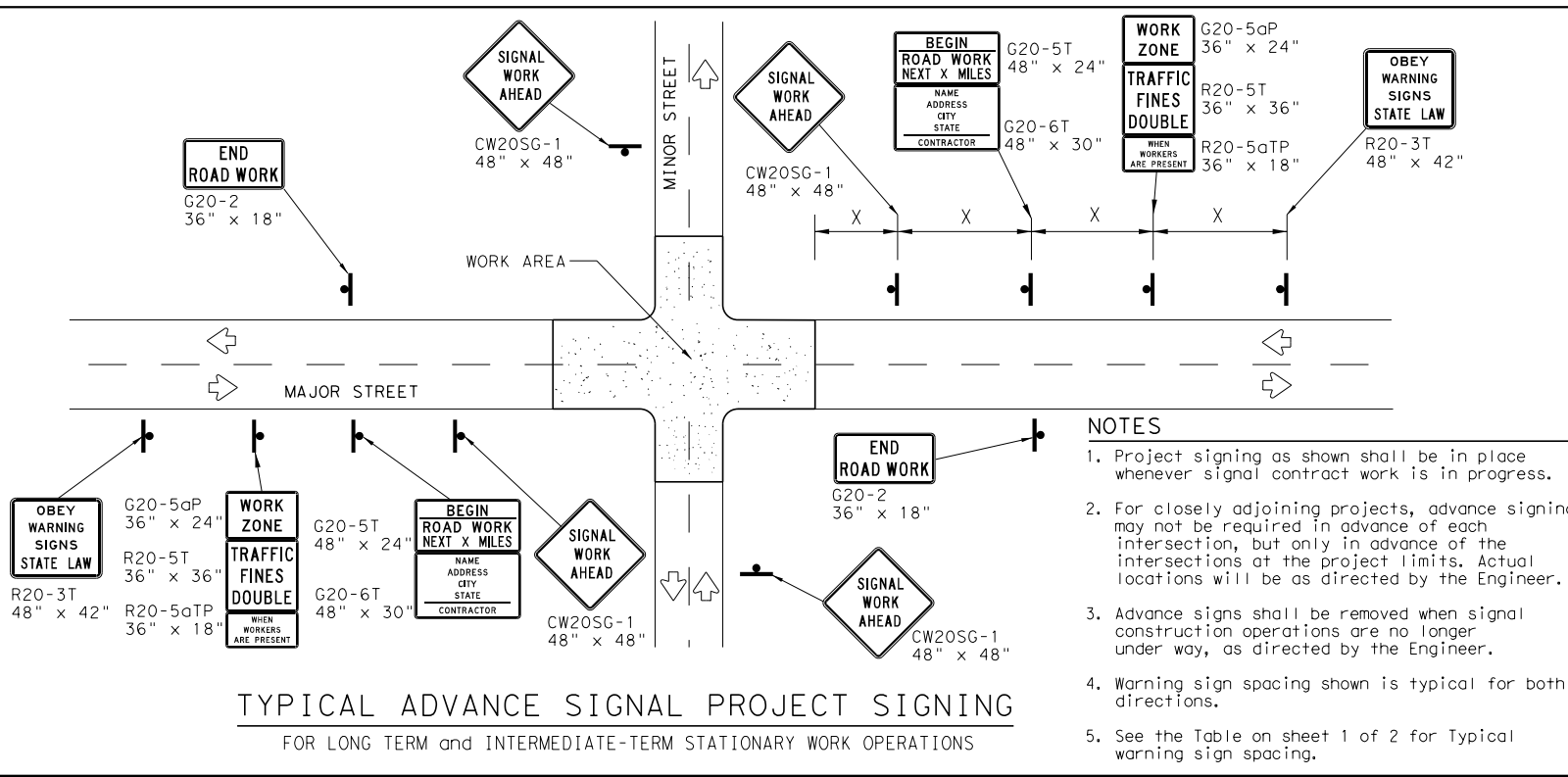
SHEET 1 OF 2

		Traffic Operations Division Standard	
TRAFFIC SIGNAL WORK TYPICAL DETAILS			
WZ (BTS-1) - 13			
FILE: wzbtts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT
© TxDOT April 1992	CONT	SECT	JOB
REVISIONS			SAN ANTONIO
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.
4-98 3-03	SAT	COMAL	46

DATE: 7/24/2019 3:37:37 PM
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DATE: 7/24/2019 3:37:38 PM
 FILE: P:\111138\01\Design\Civil\Standards\TCP\wzbt-13.dgn



- NOTES**
1. Project signing as shown shall be in place whenever signal contract work is in progress.
 2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
 3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
 4. Warning sign spacing shown is typical for both directions.
 5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. 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".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. 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. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

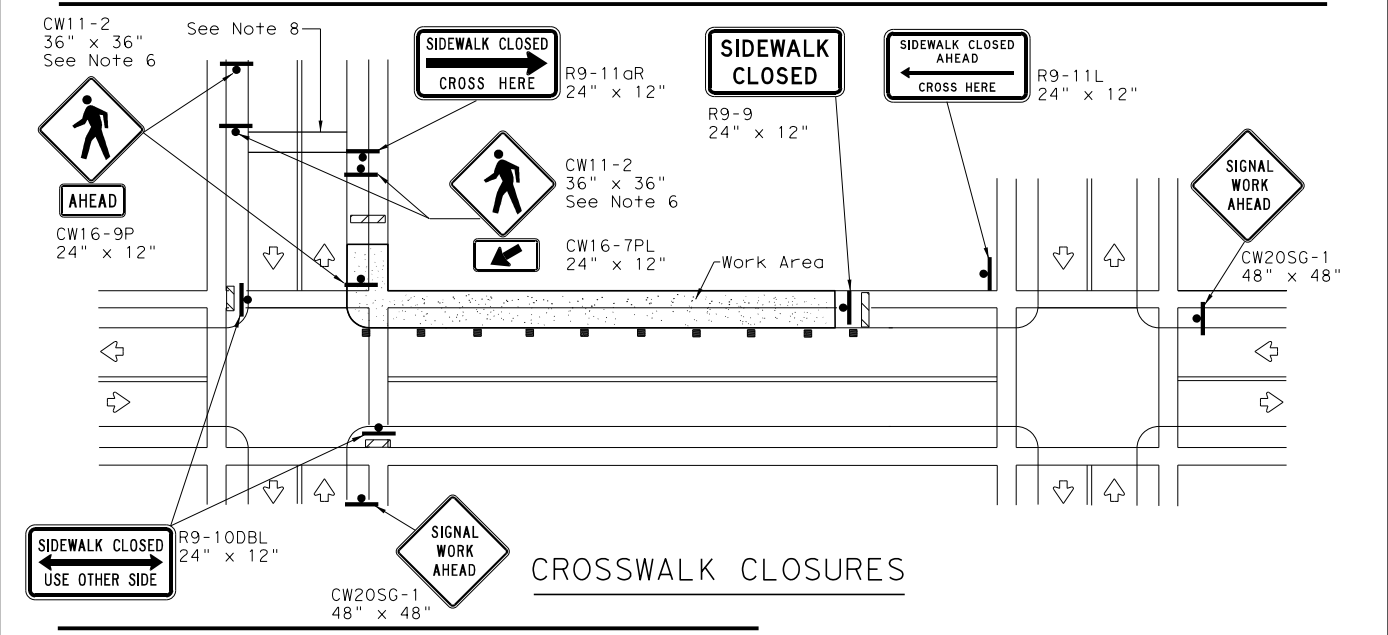
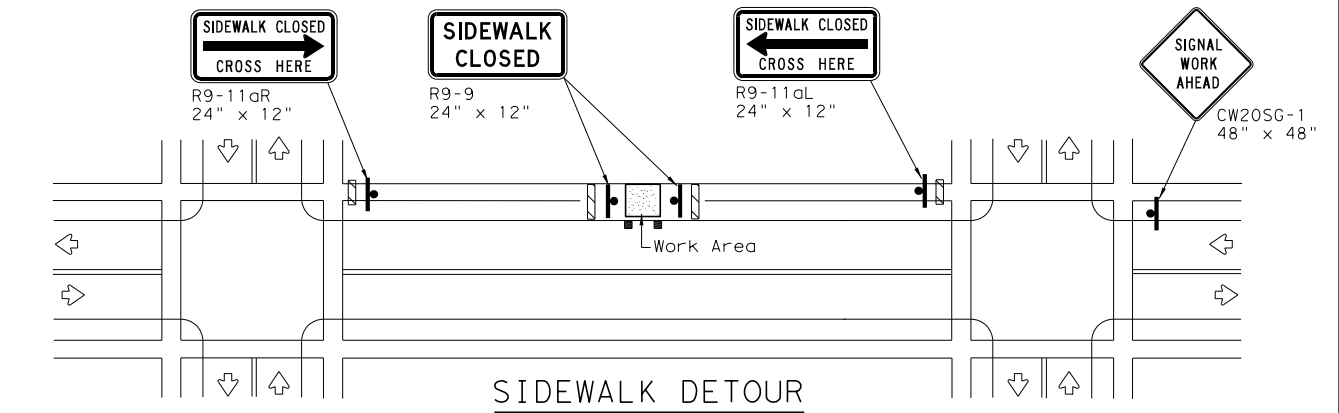
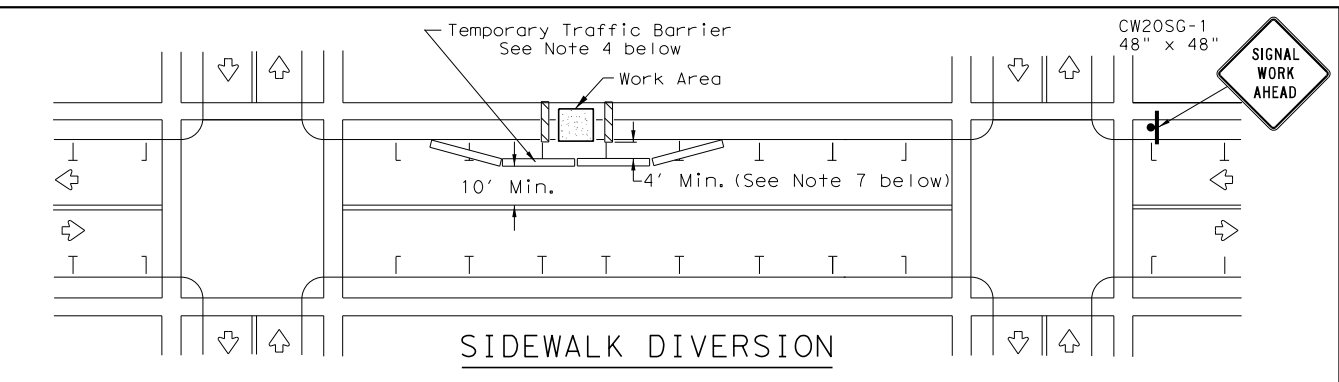
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B _{FL} OR TYPE C _{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

SHEET 2 OF 2

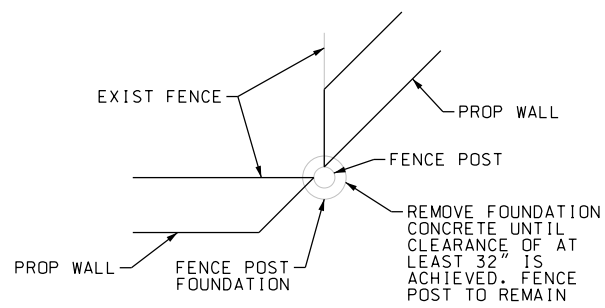


TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE: wzbt-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
2-98 10-99 7-13	DIST	COUNTY	SHEET NO.	
4-98 3-03	SAT	COMAL	47	

WALL CORNER DETAIL



CORNER ID: 1-20069

CORNER ID: 1-20068

W SAN ANTONIO ST

N KRUEGER AVE

S KRUEGER AVE

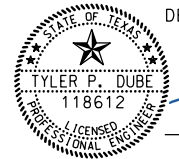
CORNER ID: 1-20034

CORNER ID: 1-20035

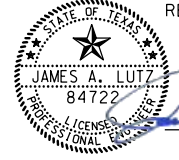
- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

ITEM	DESCRIPTION	UNIT	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	227
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	2
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	910
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	94
0162-6002	BLOCK SODDING	SY	94
0168-6001	VEGETATIVE WATERING	MG	1.47
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	208.2
0310-6009	PRIME COAT (MC-30)	GAL	281.10
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	257.9
0354-6048	PLANE ASPH CONC PAV (3")	SY	645
0529-6001	CONC CURB (TY I)	LF	15
0529-6002	CONC CURB (TY II)	LF	257
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	106
0530-6004	DRIVEWAYS (CONC)	SY	41
0531-6001	CONC SIDEWALKS (4")	SY	75
0531-6005	CURB RAMPS (TY 2)	EA	2
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6009	CURB RAMPS (TY 6)	EA	3
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	58
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6060	IN SM RD SN SUP&M TYTWT (1)WS(P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	2
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	86
0666-6224	PAVEMENT SEALER 4"	LF	105
0666-6230	PAVEMENT SEALER 24"	LF	86
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	105
0672-6009	REFL PAV MRK TY II-A-A	EA	2
0678-6001	PAV SURF PREP FOR MRK (4")	LF	105
0678-6008	PAV SURF PREP FOR MRK (24")	LF	86
5001-6002	GEGRID BASE REINF (TENSAR TRIAX TX-5)	SY	943

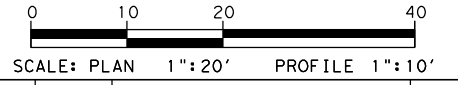
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊙ DRIVEWAY ID



DESIGN
 TYLER P. DUBE, P.E.
 7/25/2019 DATE



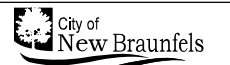
REVIEW AND APPROVAL
 JAMES A. LUTZ, P.E.
 7/25/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

BEGIN PROJECT TO STA 12+00

SHEET 1 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 48

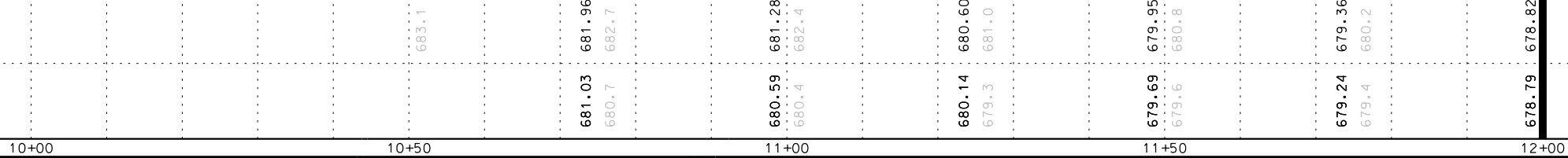
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MATCH LINE STA 12+00

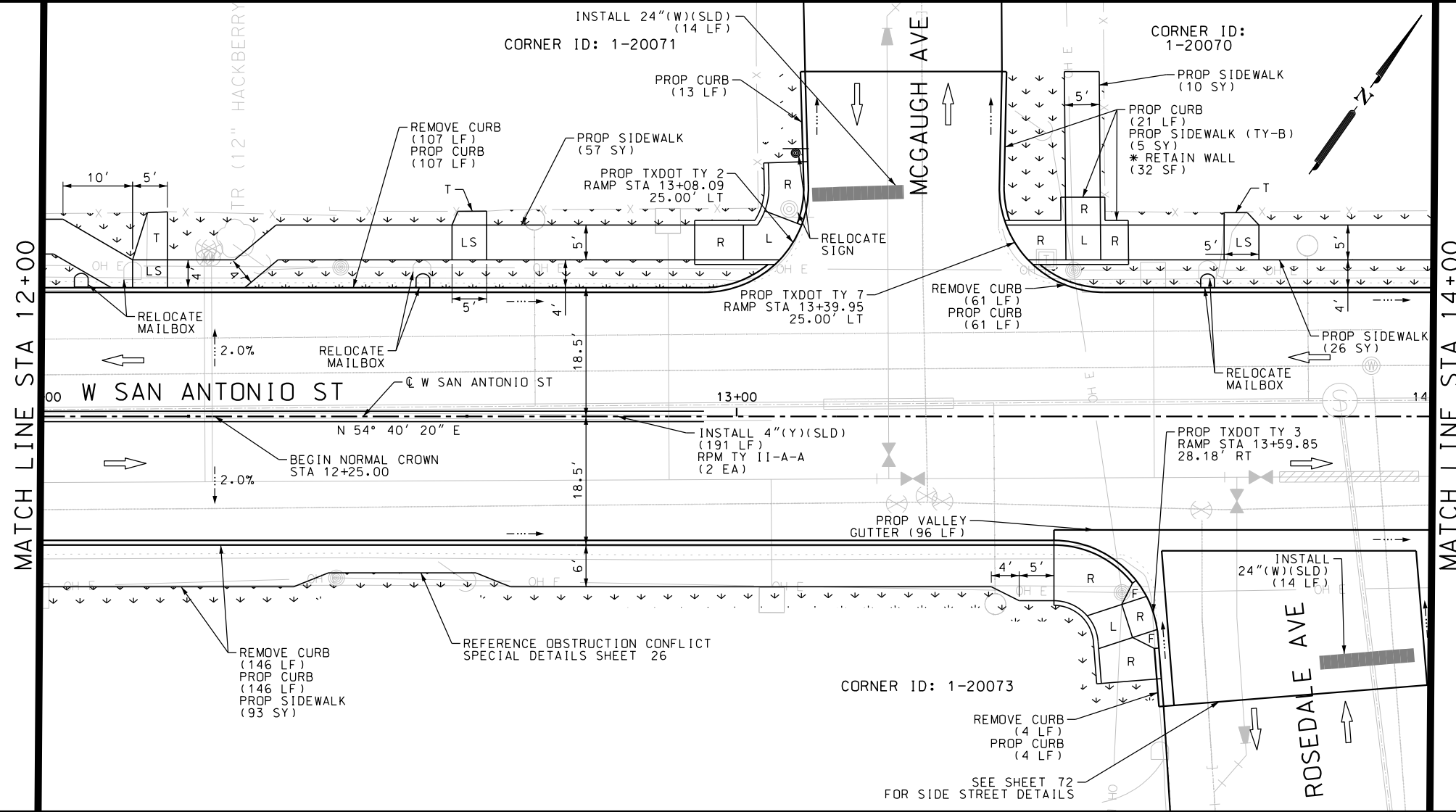
MATCH LINE STA 12+00

PROP LT TOC	683.1
EXIST LT TOC	683.1
PROP RT TOC	683.1
EXIST RT TOC	683.1



PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_02.dgn



ITEM	DESCRIPTION	UNIT	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	318
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1054
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	178
0162-6002	BLOCK SODDING	SY	178
0168-6001	VEGETATIVE WATERING	MG	2.78
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	242.2
0310-6009	PRIME COAT (MC-30)	GAL	327.00
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	227.5
0354-6048	PLANE ASPH CONC PAV (3")	SY	315
0529-6002	CONC CURB (TY II)	LF	352
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	96
0531-6001	CONC SIDEWALKS (4")	SY	186
0531-6005	CURB RAMPS (TY 2)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6010	CURB RAMPS (TY 7)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	5
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	3
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	28
0666-6224	PAVEMENT SEALER 4"	LF	191
0666-6230	PAVEMENT SEALER 24"	LF	28
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	191
0672-6009	REFL PAV MRK TY II-A-A	EA	2
0678-6001	PAV SURF PREP FOR MRK (4")	LF	191
0678-6008	PAV SURF PREP FOR MRK (24")	LF	28
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1097

- NOTES:
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 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

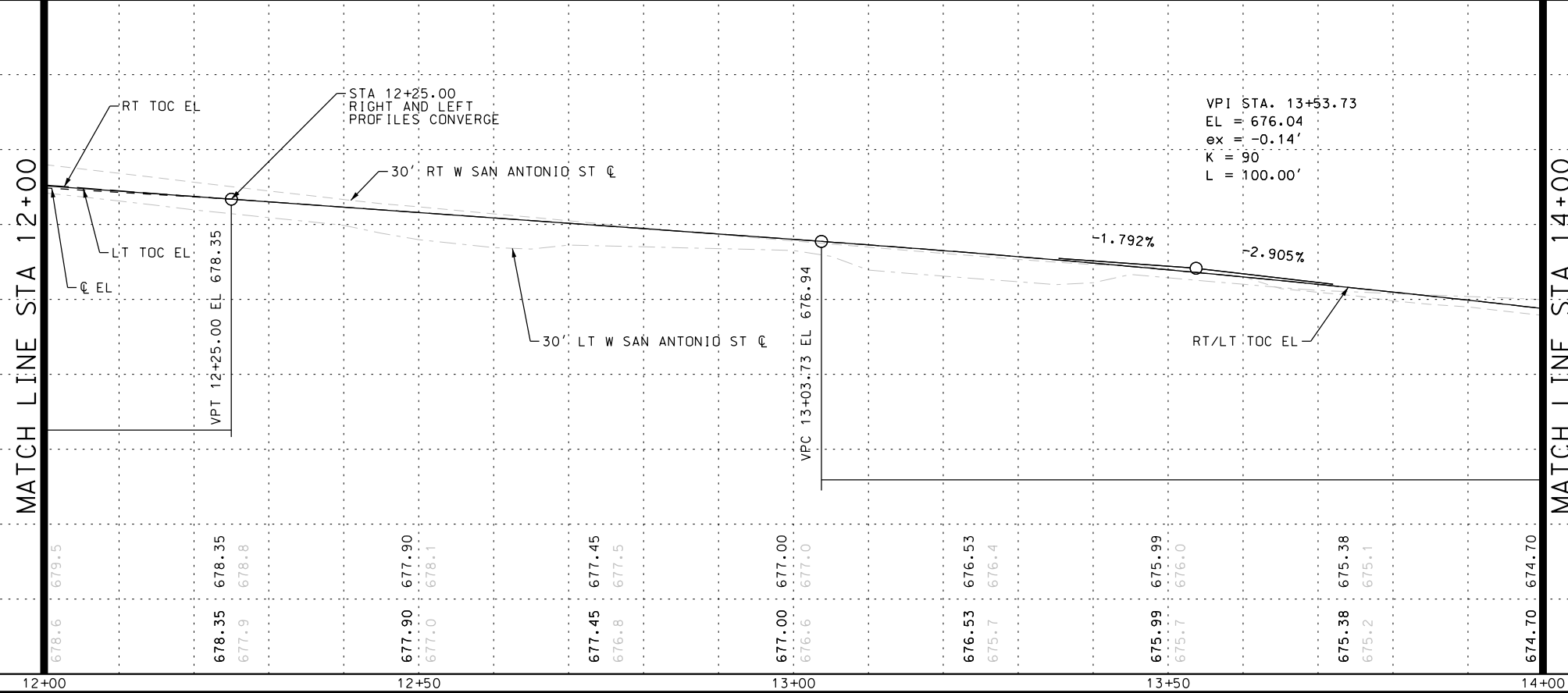
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊕ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.
7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
7/24/2019 DATE



SCALE: PLAN 1"=20' PROFILE 1"=10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

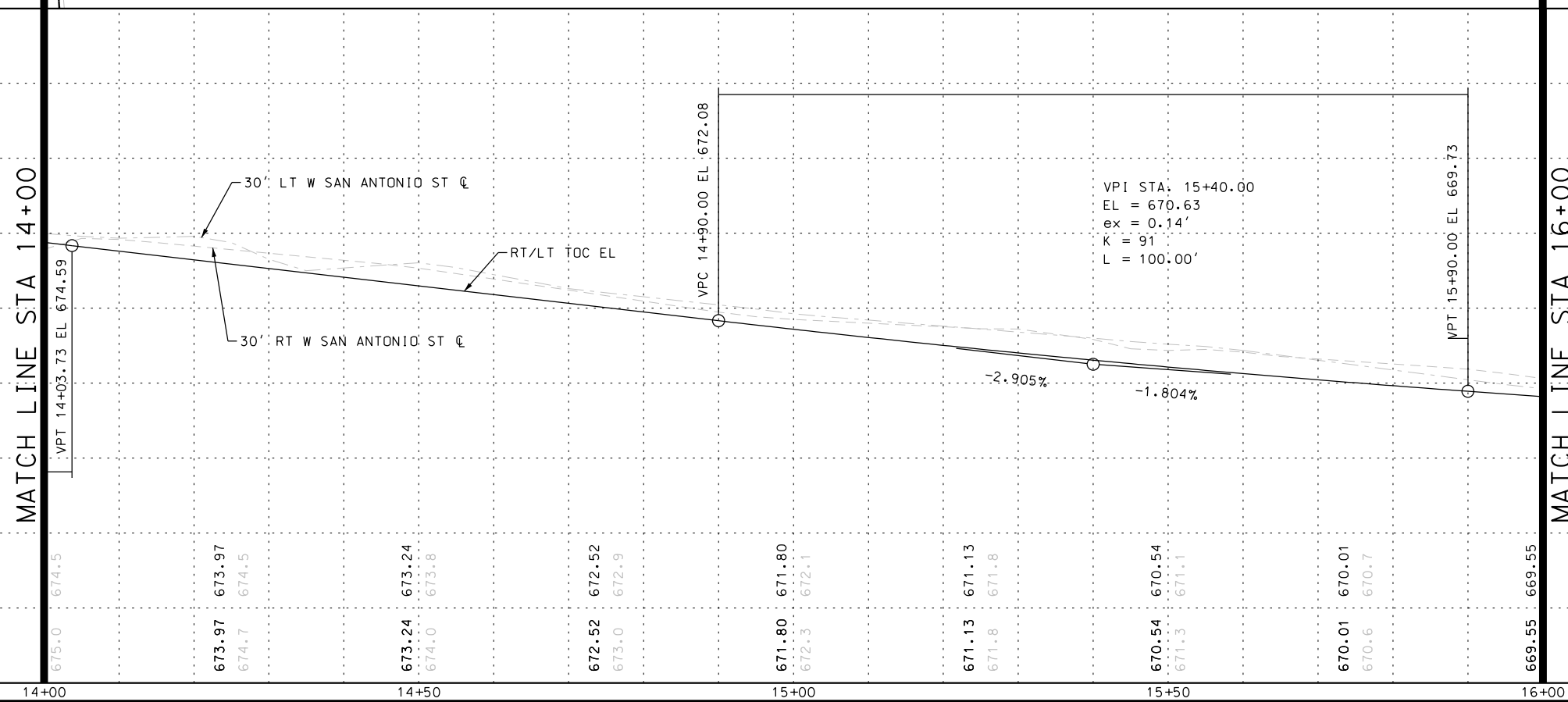
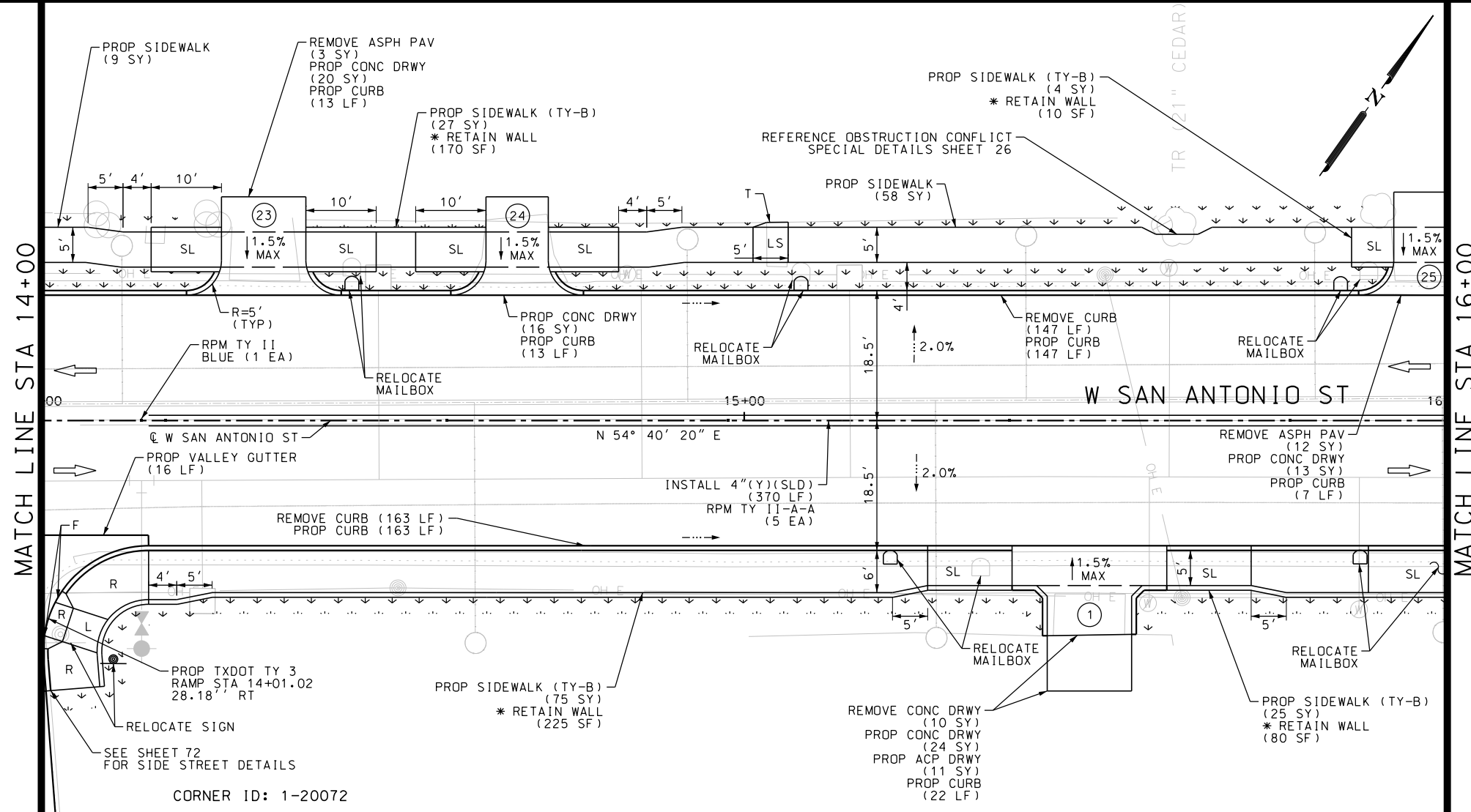
City of New Braunfels
ROADWAY
W SAN ANTONIO ST
PLAN & PROFILE
STA 12+00 TO STA 14+00

SHEET 2 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 49

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_03.dgn



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	10
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	310
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	886
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	164
0162-6002	BLOCK SODDING	SY	164
0168-6001	VEGETATIVE WATERING	MG	2.56
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	194.7
0310-6009	PRIME COAT (MC-30)	GAL	262.80
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	137.8
0529-6002	CONC CURB (TY II)	LF	365
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	16
0530-6004	DRIVEWAYS (CONC)	SY	73
0530-6005	DRIVEWAYS (ACP)	SY	11
0531-6001	CONC SIDEWALKS (4")	SY	67
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	131
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	5
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	370
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	370
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	370
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	882

- NOTES:
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND

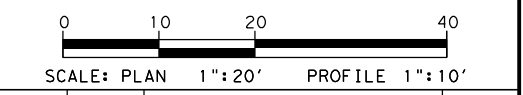
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.
118612
7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
84722
7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP FIRM REGISTRATION #470 | TBP FIRM REGISTRATION #10028800

City of **New Braunfels**

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 14+00 TO STA 16+00

SHEET 3 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 50

PLOTTED ON: 7/24/2019

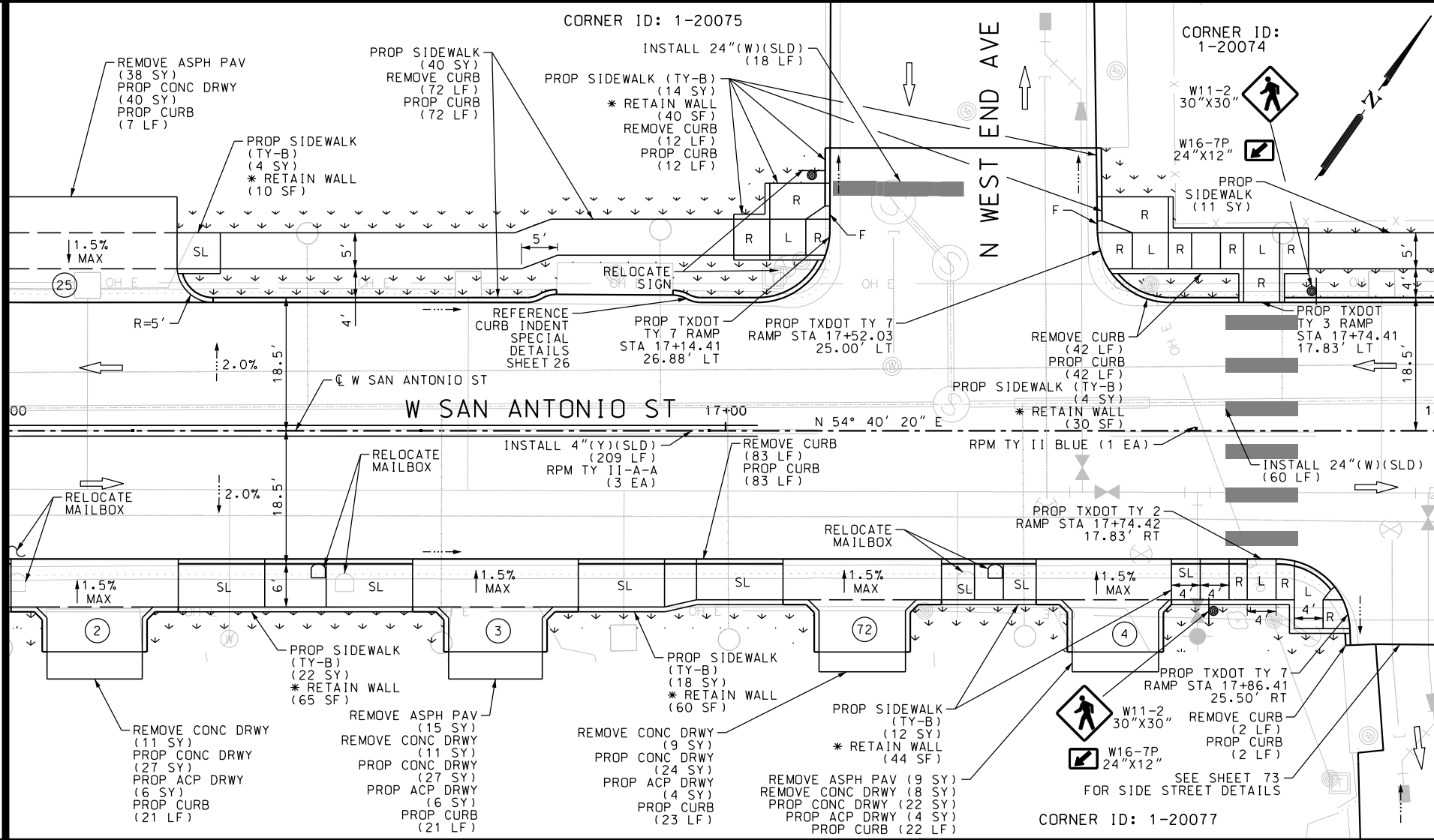
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MATCH LINE STA 16+00

MATCH LINE STA 16+00

MATCH LINE STA 18+00

MATCH LINE STA 18+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	39
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	211
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1027
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	165
0162-6002	BLOCK SODDING	SY	165
0168-6001	VEGETATIVE WATERING	MG	2.57
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	220.0
0310-6009	PRIME COAT (MC-30)	GAL	297.00
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	173.5
0354-6048	PLANE ASPH CONC PAV (3")	SY	97
0529-6002	CONC CURB (TY II)	LF	305
0530-6004	DRIVEWAYS (CONC)	SY	140
0530-6005	DRIVEWAYS (ACP)	SY	20
0531-6001	CONC SIDEWALKS (4")	SY	51
0531-6005	CURB RAMPS (TY 2)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6010	CURB RAMPS (TY 7)	EA	3
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	74
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0644-6060	IN SM RD SN SUP&M TYTWT(1)WS(P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	78
0666-6224	PAVEMENT SEALER 4"	LF	209
0666-6230	PAVEMENT SEALER 24"	LF	78
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	209
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	3
0678-6001	PAV SURF PREP FOR MRK (4")	LF	209
0678-6008	PAV SURF PREP FOR MRK (24")	LF	78
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	997

LEGEND

--- DRAINAGE FLOW

--- TRAFFIC FLOW

○ MAILBOX

② DRIVEWAY ID

DESIGN

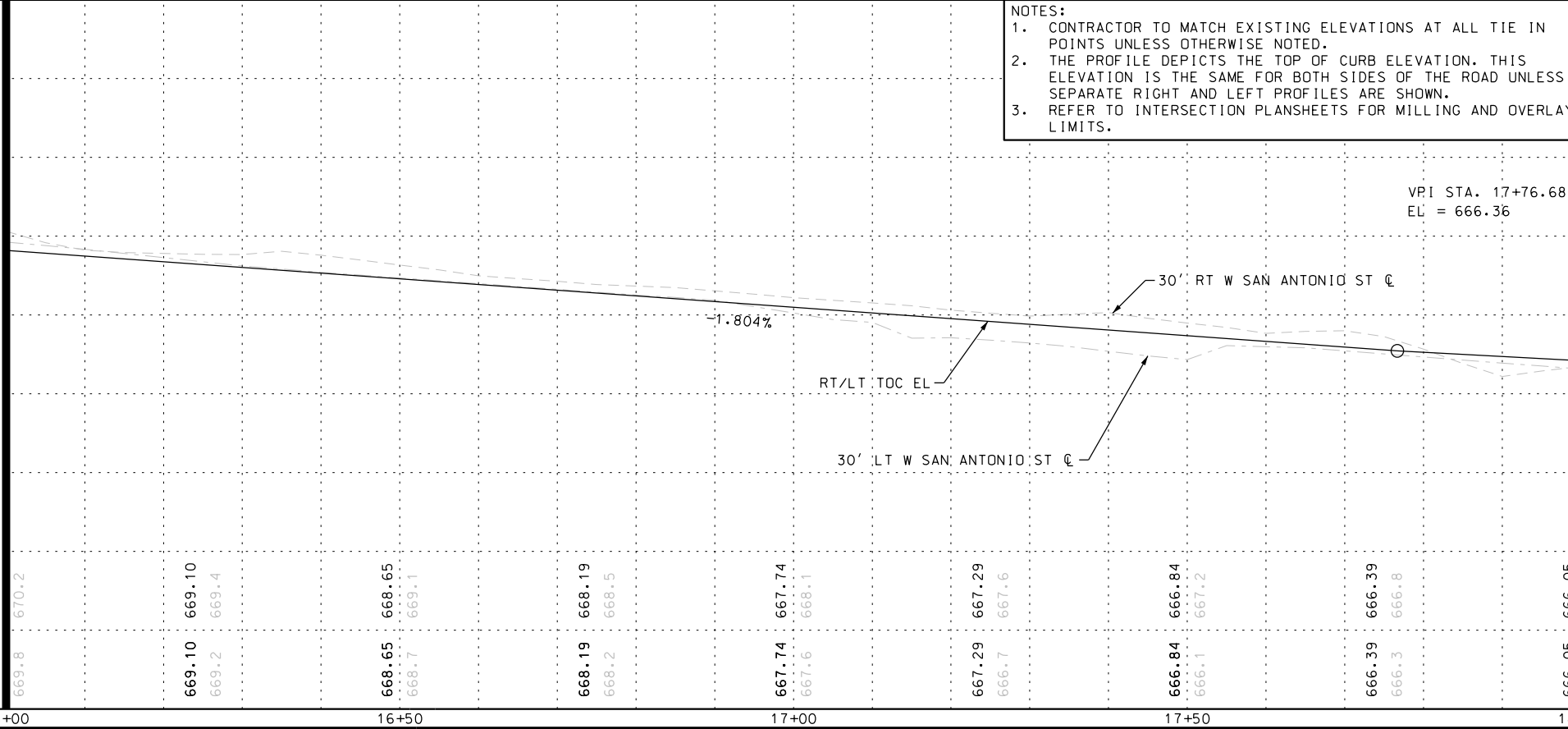
TYLER P. DUBE, P.E.
118612
7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
84722
7/24/2019 DATE

NOTES:

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- REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.



SCALE: PLAN 1"=20' PROFILE 1"=10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP FIRM REGISTRATION #470 | TBP FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 16+00 TO STA 18+00

SHEET 4 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 51

PLOTTED ON: 7/24/2019

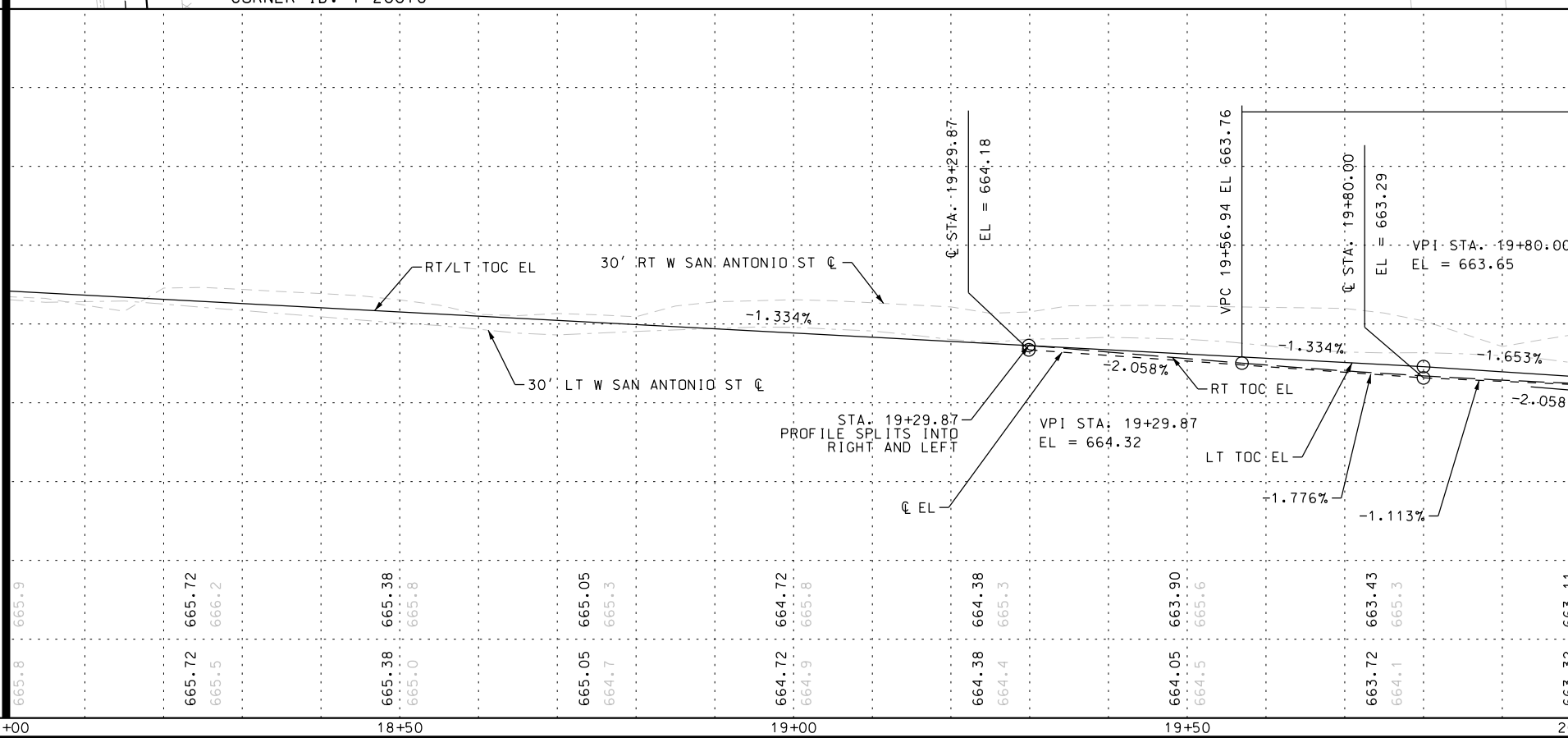
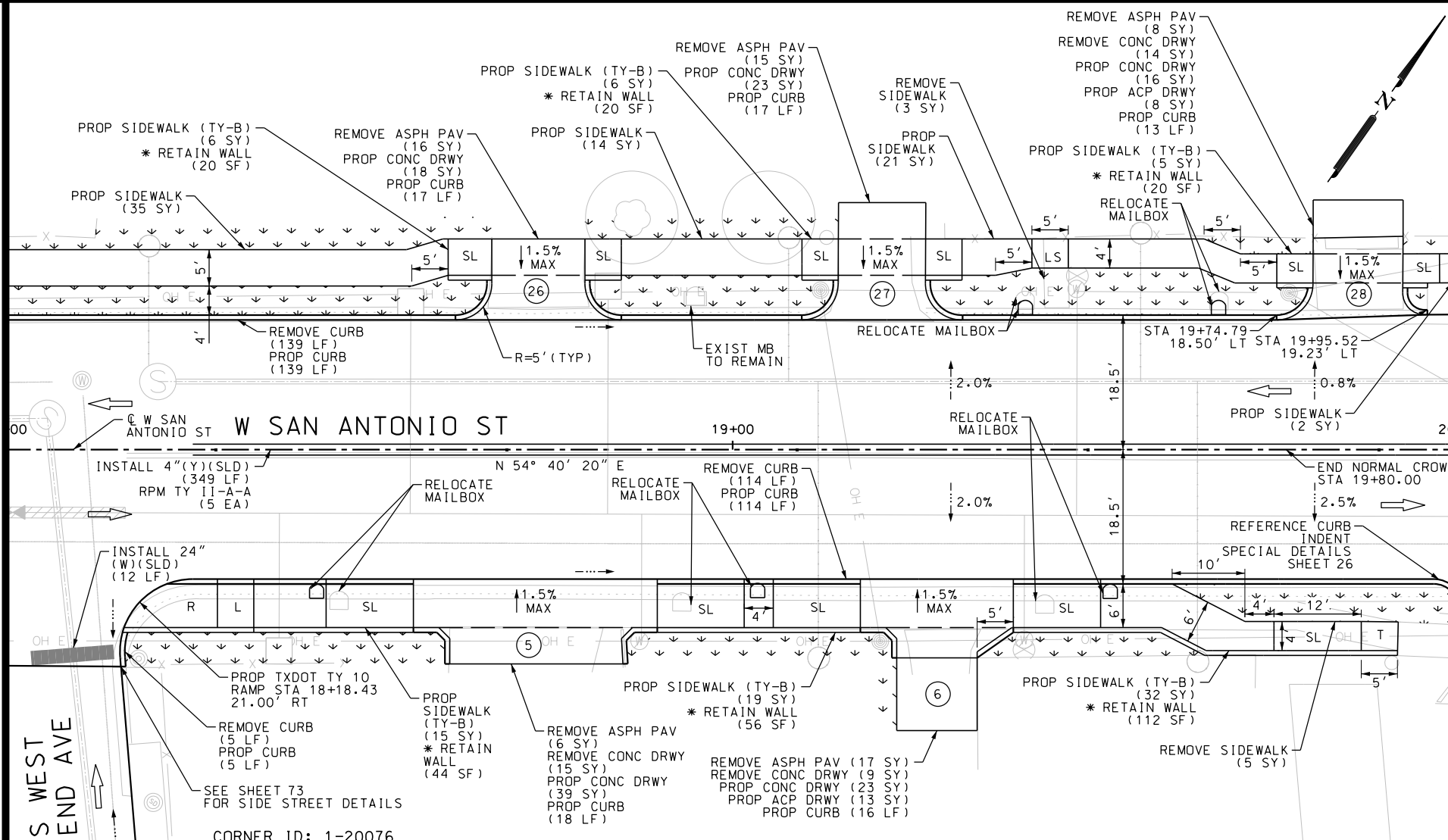
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MATCH LINE STA 18+00

MATCH LINE STA 18+00

MATCH LINE STA 20+00

MATCH LINE STA 20+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	38
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	258
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	8
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	944
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	200
0162-6002	BLOCK SODDING	SY	200
0168-6001	VEGETATIVE WATERING	MG	3.12
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	198.4
0310-6009	PRIME COAT (MC-30)	GAL	267.90
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	179.1
0354-6048	PLANE ASPH CONC PAV (3")	SY	220
0529-6002	CONC CURB (TY II)	LF	341
0530-6004	DRIVEWAYS (CONC)	SY	119
0530-6005	DRIVEWAYS (ACP)	SY	21
0531-6001	CONC SIDEWALKS (4")	SY	72
0531-6013	CURB RAMPS (TY 10)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	83
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	5
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	12
0666-6224	PAVEMENT SEALER 4"	LF	349
0666-6230	PAVEMENT SEALER 24"	LF	12
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	349
0672-6009	REFL PAV MRK TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	349
0678-6008	PAV SURF PREP FOR MRK (24")	LF	12
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	899

- NOTES:
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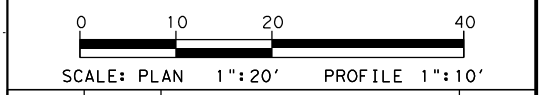
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

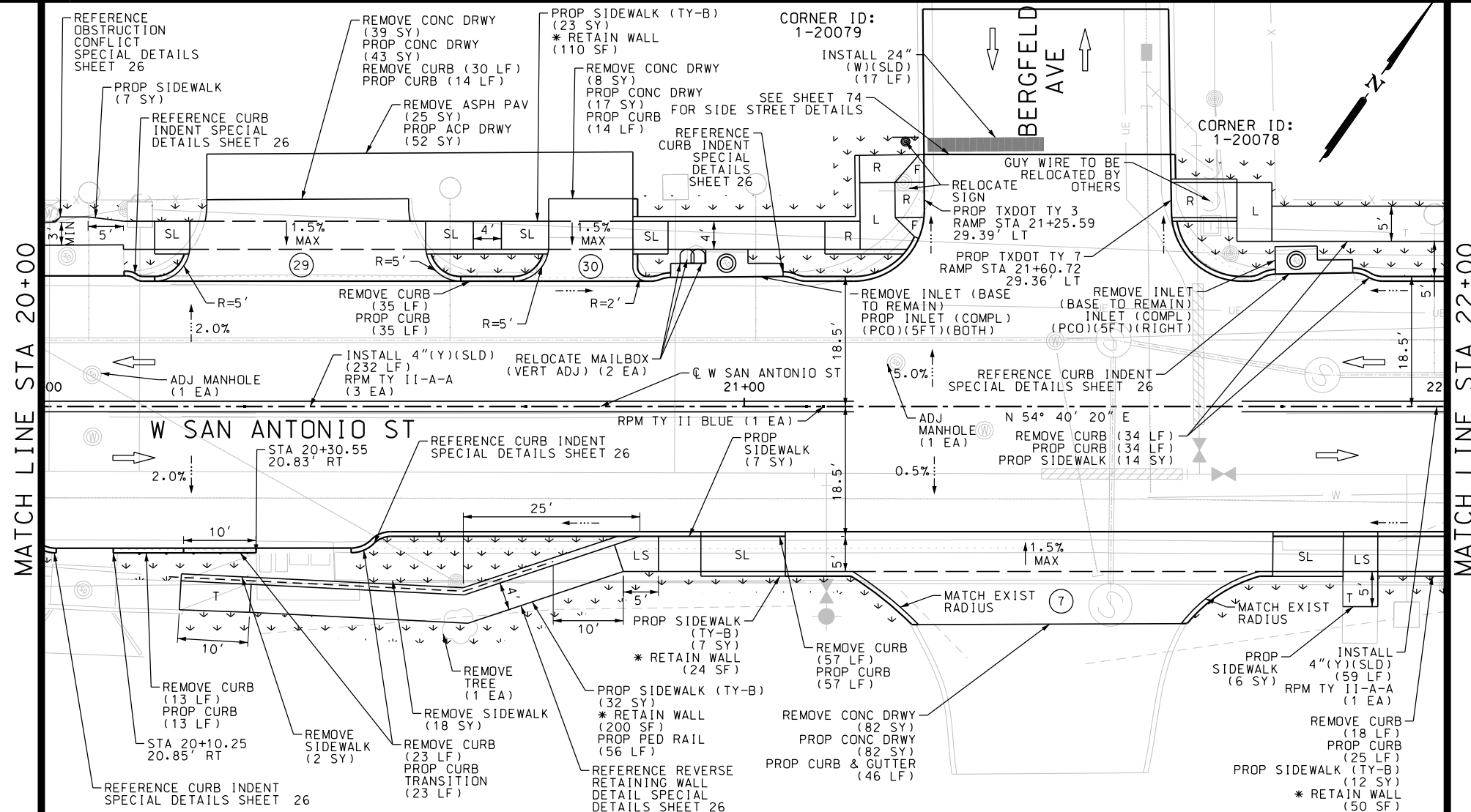
STA 18+00 TO STA 20+00

SHEET 5 OF 35

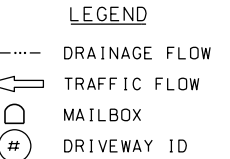
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CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 52

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38*01*Design\Civil*Roadway*1113801_SanAntonioSt_06.dgn

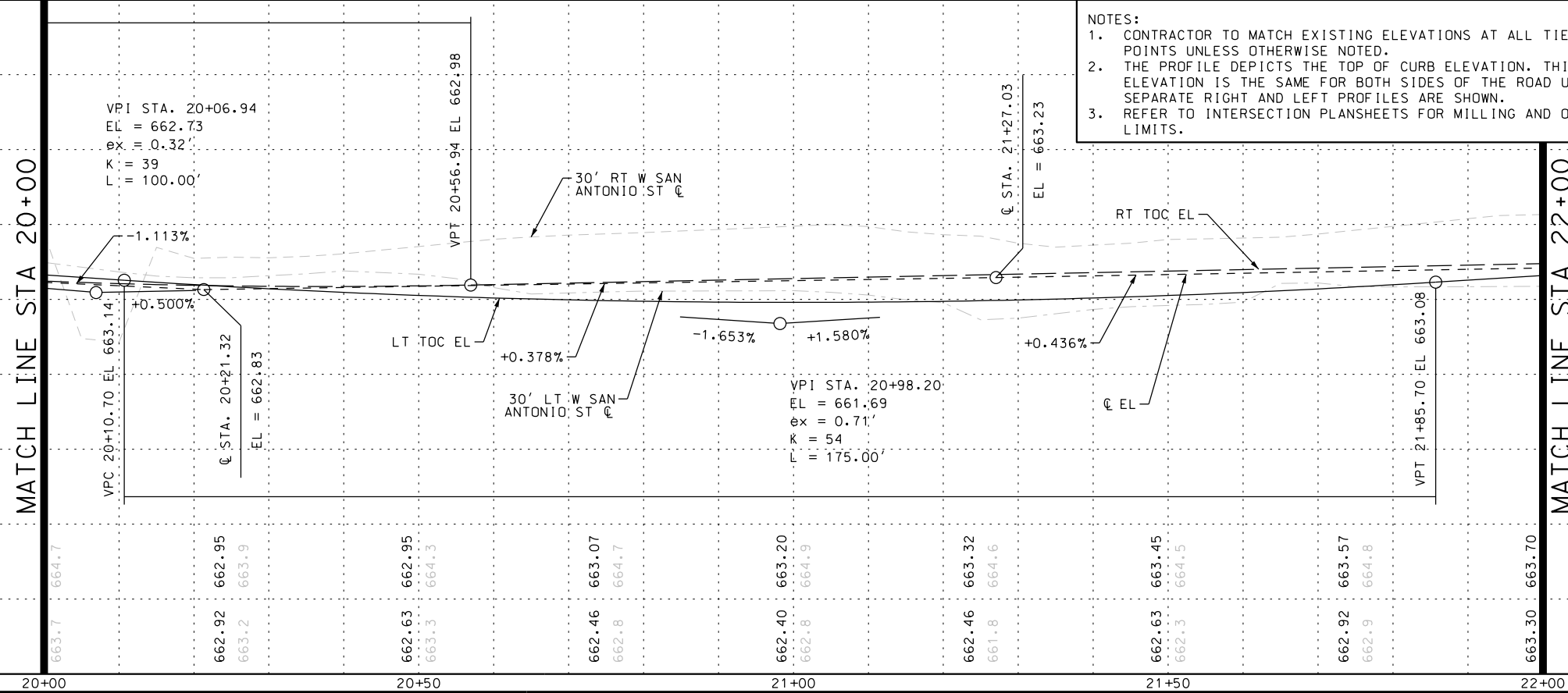


ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	129
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	210
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	20
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	973
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	160
0162-6002	BLOCK SODDING	SY	160
0168-6001	VEGETATIVE WATERING	MG	2.50
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	214.9
0310-6009	PRIME COAT (MC-30)	GAL	290.10
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	167.0
0354-6048	PLANE ASPH CONC PAV (3")	SY	81
0450-6047	RAIL (HANDRAIL) (TY A)	LF	56
0465-6023	INLET (COMPL) (PCO) (5FT) (RIGHT)	EA	1
0465-6024	INLET (COMPL) (PCO) (5FT) (BOTH)	EA	1
0479-6001	ADJUSTING MANHOLES	EA	2
0496-6002	REMOV STR (INLET)	EA	2
0529-6002	CONC CURB (TY II)	LF	215
0529-6008	CONC CURB & GUTTER (TY II)	LF	46
0530-6004	DRIVEWAYS (CONC)	SY	142
0530-6005	DRIVEWAYS (ACP)	SY	52
0531-6001	CONC SIDEWALKS (4")	SY	34
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6010	CURB RAMPS (TY 7)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	74
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0644-6071	RELOCATE SM RD SN SUP&AM TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	17
0666-6224	PAVEMENT SEALER 4"	LF	291
0666-6230	PAVEMENT SEALER 24"	LF	17
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	291
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	4
0678-6001	PAV SURF PREP FOR MRK (4")	LF	291
0678-6008	PAV SURF PREP FOR MRK (24")	LF	17
0752-6006	TREE REMOVAL (12" - 18" DIA)	EA	1
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	974



DESIGN

TYLER P. DUBE, P.E.
DATE: 7/24/2019

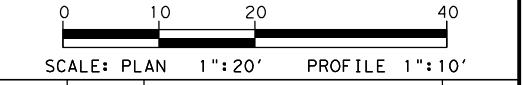


NOTES:

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- REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE: 7/24/2019



REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP FIRM REGISTRATION #470 | TBP FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 20+00 TO STA 22+00

SHEET 6 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST
DWG:	STATE	COUNTY
CHK DWG:	TEXAS	COMAL
	CITY	SHEET NO.
	NEW BRAUNFELS	53

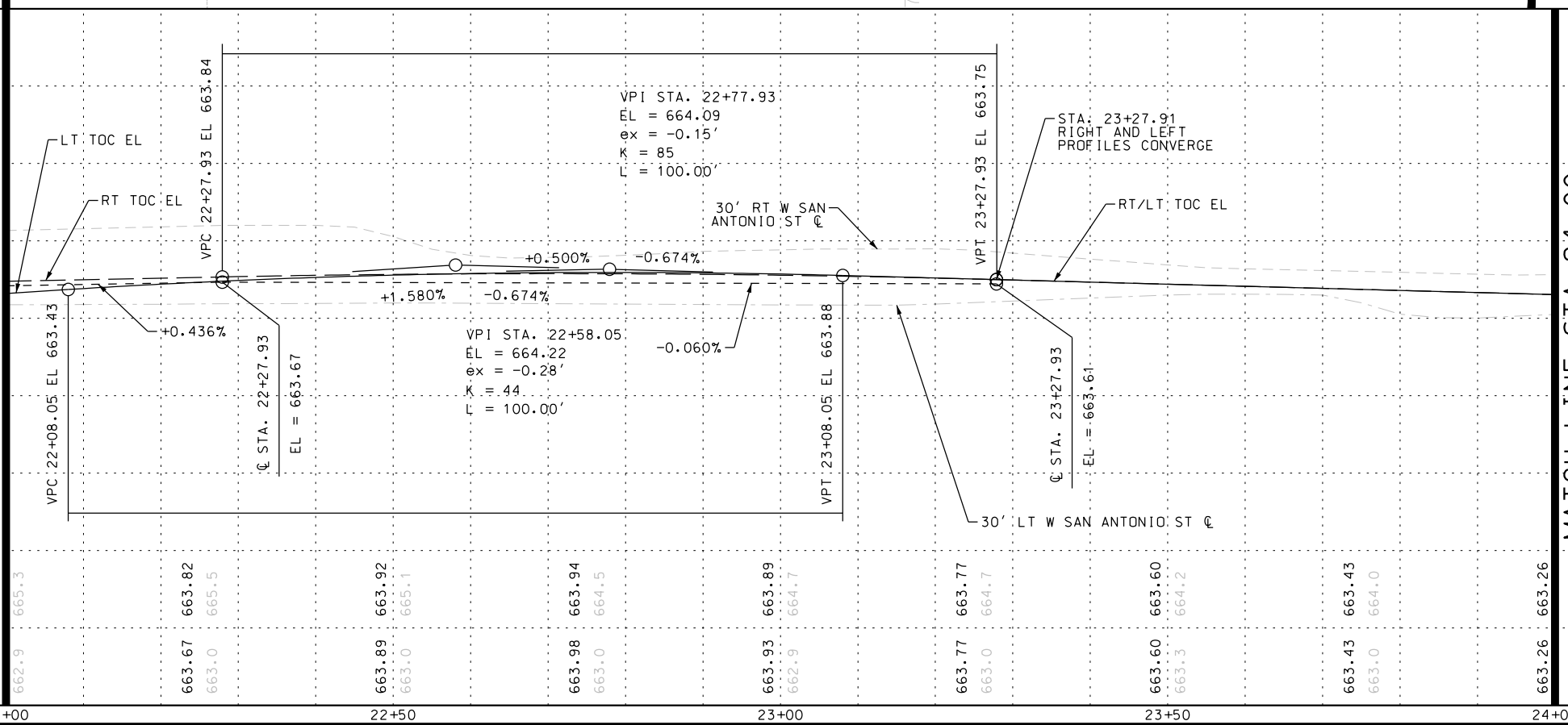
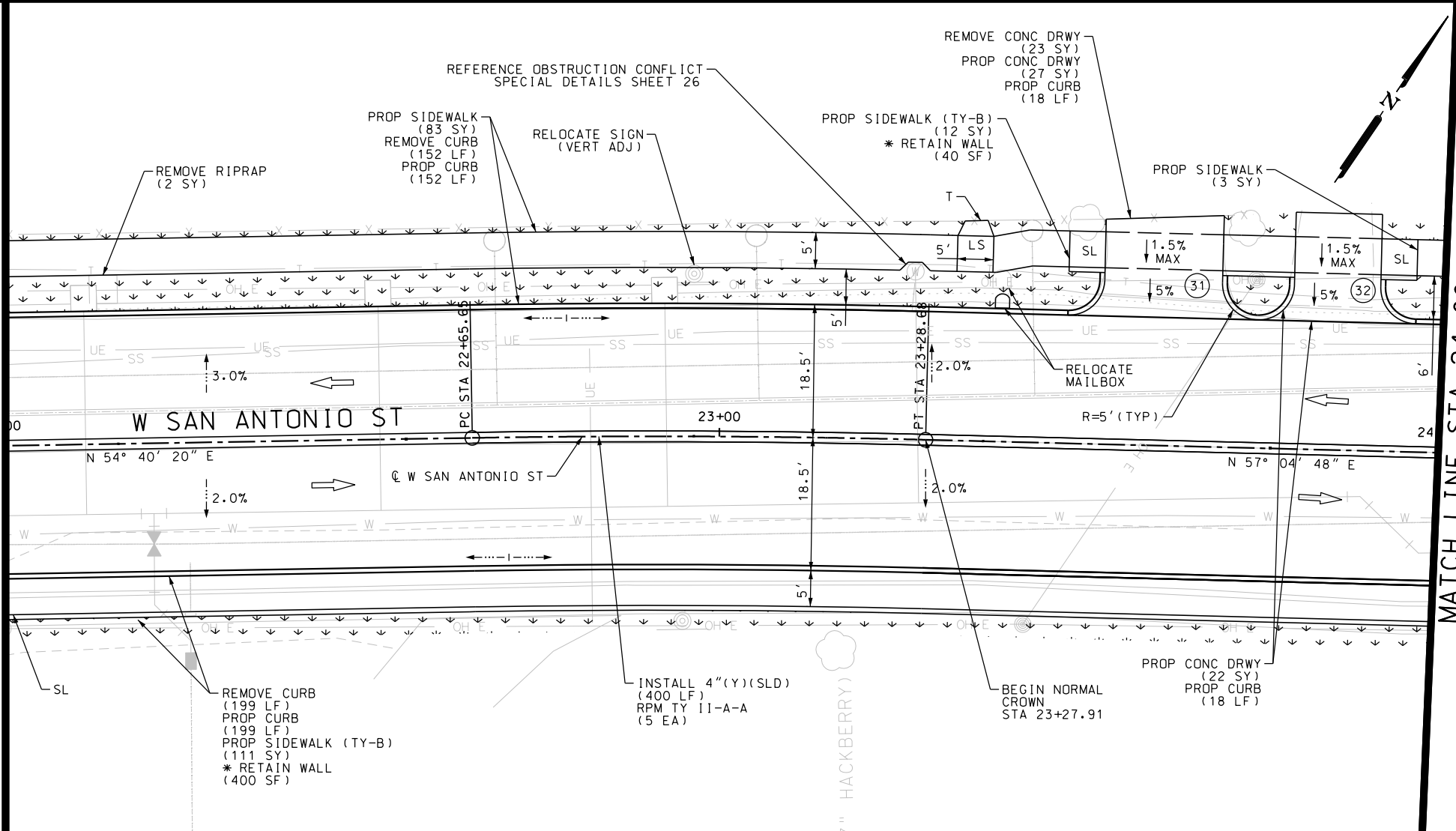
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MATCH LINE STA 22+00

MATCH LINE STA 22+00

MATCH LINE STA 24+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	2
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	23
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	351
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	875
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	190
0162-6002	BLOCK SODDING	SY	190
0168-6001	VEGETATIVE WATERING	MG	2.96
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	192.0
0310-6009	PRIME COAT (MC-30)	GAL	259.20
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	136.3
0529-6002	CONC CURB (TY II)	LF	387
0530-6004	DRIVEWAYS (CONC)	SY	49
0531-6001	CONC SIDEWALKS (4")	SY	86
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	123
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)	LF	400
0672-6009	REFL PAV MRK TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	870

- NOTES:
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 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND

- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

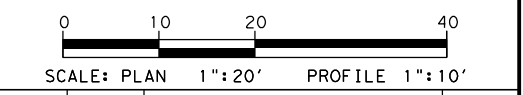
TYLER P. DUBE
118612
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP E FIRM REGISTRATION #470 | TBP L S FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 22+00 TO STA 24+00

SHEET 7 OF 35

DGN:	PROJECT NO.	ROADWAY NAME		
CSF	CSP 19-028	W SAN ANTONIO ST		
CHK DGN:	STATE	COUNTY	CITY	SHEET NO.
TPD	TEXAS	COMAL	NEW BRAUNFELS	54

PLOTTED ON: 7/24/2019

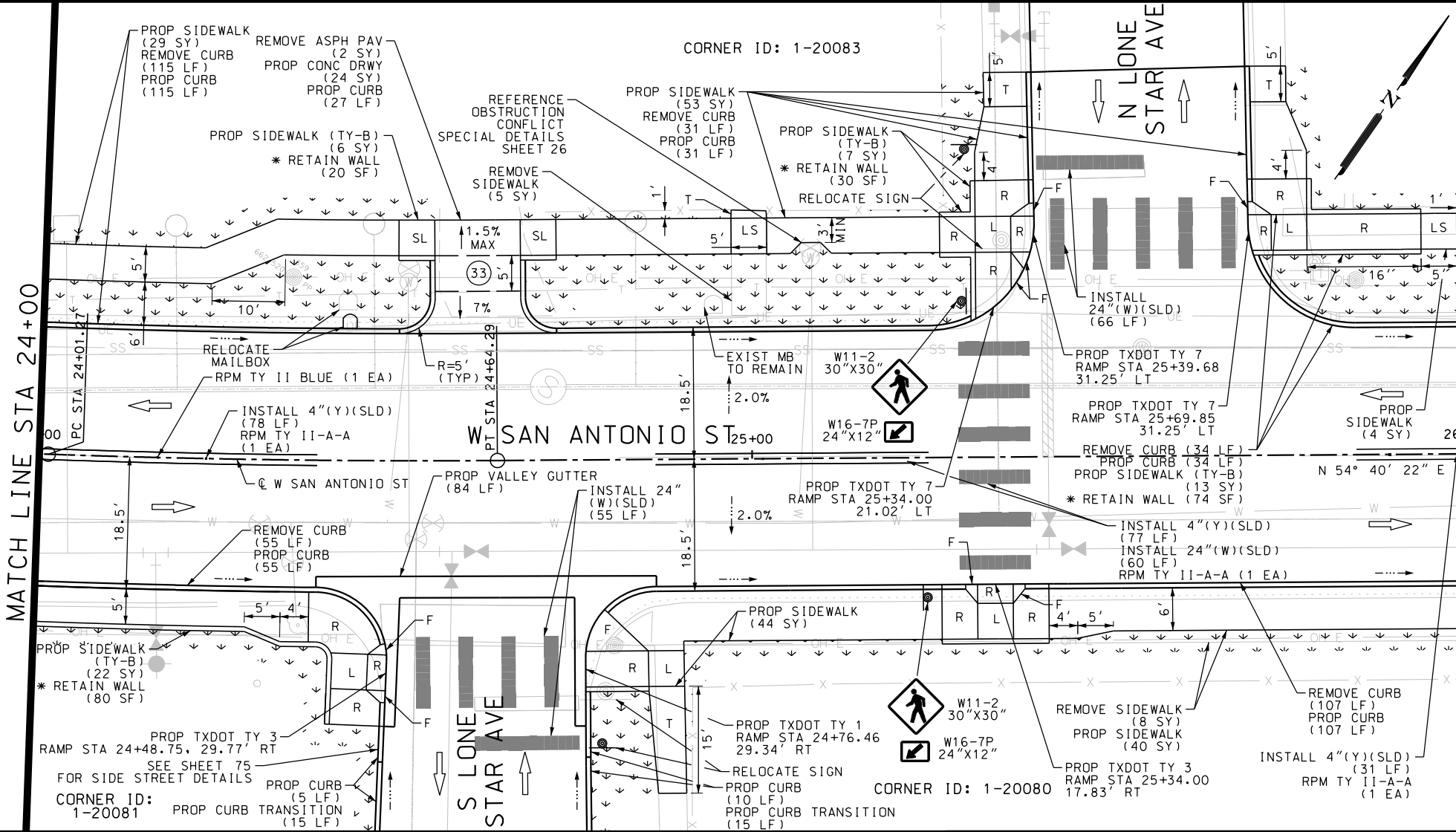
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MATCH LINE STA 24+00

MATCH LINE STA 24+00

MATCH LINE STA 26+00

MATCH LINE STA 26+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	342
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	13
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1128
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	285
0162-6002	BLOCK SODDING	SY	285
0168-6001	VEGETATIVE WATERING	MG	4.45
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	256.0
0310-6009	PRIME COAT (MC-30)	GAL	345.60
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	201.7
0354-6048	PLANE ASPH CONC PAV (3")	SY	115
0529-6002	CONC CURB (TY II)	LF	414
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	84
0530-6004	DRIVEWAYS (CONC)	SY	24
0531-6001	CONC SIDEWALKS (4")	SY	170
0531-6004	CURB RAMPS (TY 1)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	2
0531-6010	CURB RAMPS (TY 7)	EA	3
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	48
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6060	IN SM RD SN SUP&M TYTWT(1)WS(P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	2
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	181
0666-6224	PAVEMENT SEALER 4"	LF	186
0666-6230	PAVEMENT SEALER 24"	LF	181
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	186
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	3
0678-6001	PAV SURF PREP FOR MRK (4")	LF	186
0678-6008	PAV SURF PREP FOR MRK (24")	LF	181
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1160

LEGEND

- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

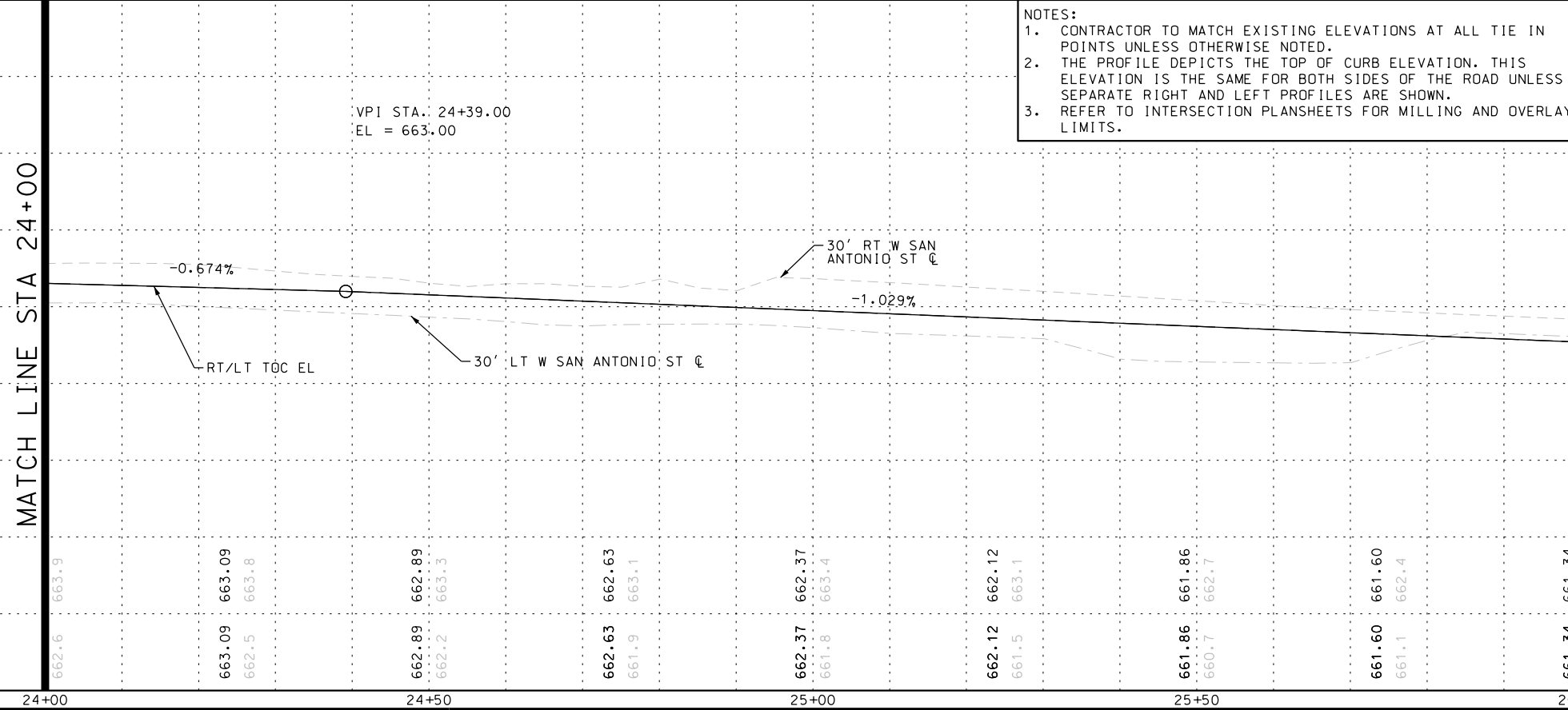
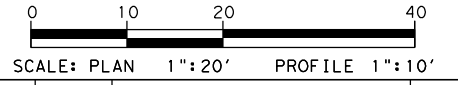
TYLER P. DUBE, P.E.
DATE: 7/24/2019

NOTES:

- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
- THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
- REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE: 7/24/2019



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP E FIRM REGISTRATION #470 | TBP L S FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 24+00 TO STA 26+00

SHEET 8 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 55

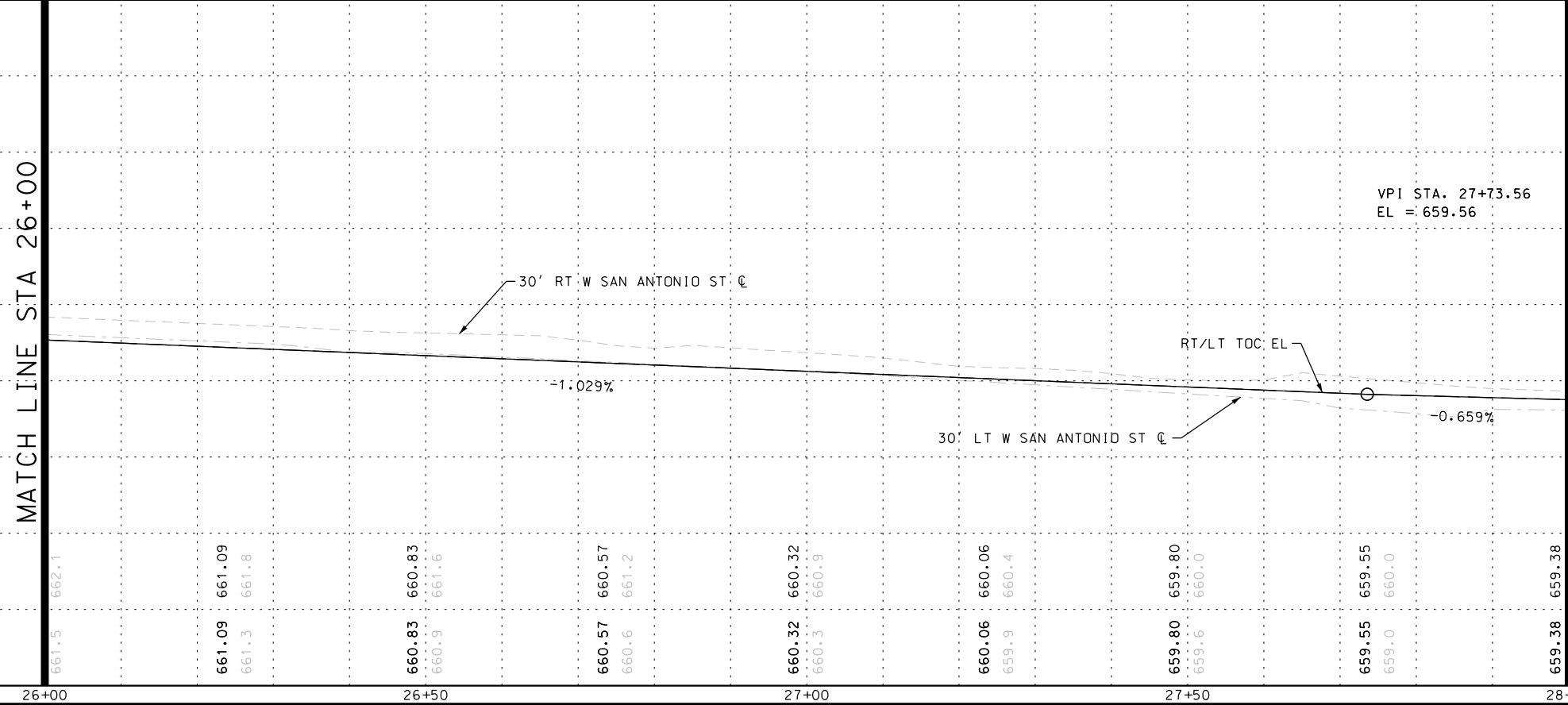
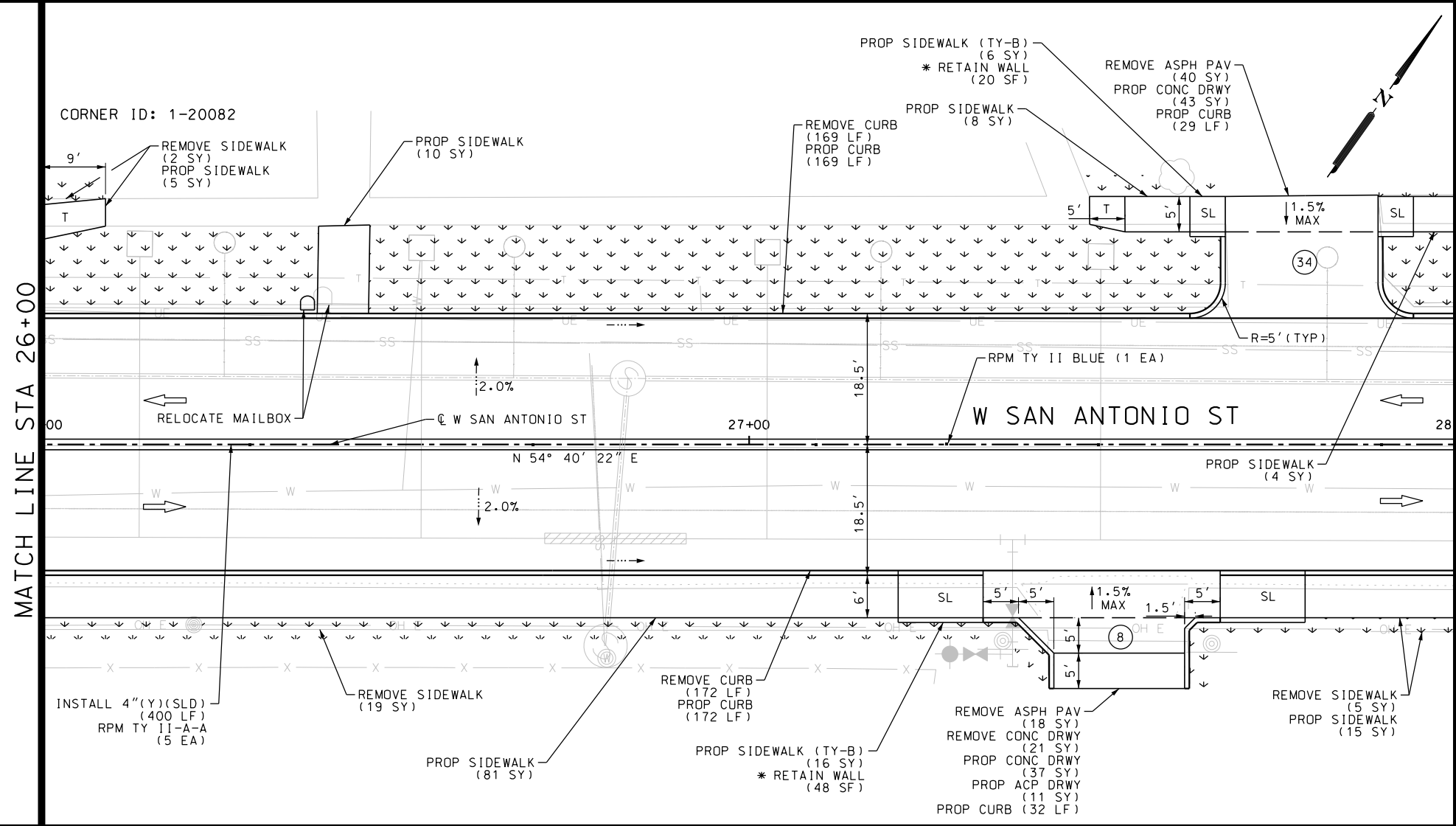
PLOTTED ON: 7/24/2019

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MATCH LINE STA 26+00

MATCH LINE STA 26+00

MATCH LINE STA 28+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	21
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	341
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	26
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	922
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	315
0162-6002	BLOCK SODDING	SY	315
0168-6001	VEGETATIVE WATERING	MG	4.91
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	192.7
0310-6009	PRIME COAT (MC-30)	GAL	260.10
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	136.8
0529-6002	CONC CURB (TY II)	LF	402
0530-6004	DRIVEWAYS (CONC)	SY	80
0530-6005	DRIVEWAYS (ACP)	SY	11
0531-6001	CONC SIDEWALKS (4")	SY	123
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	22
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)	LF	400
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	873

NOTES:
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 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND
 - - - DRAINAGE FLOW
 - - - TRAFFIC FLOW
 □ MAILBOX
 # DRIVEWAY ID

DESIGN
 TYLER P. DUBE, P.E.
 7/24/2019
 REVIEW AND APPROVAL
 JAMES A. LUTZ, P.E.
 7/24/2019

SCALE: PLAN 1"=20' PROFILE 1"=10'

REV. NO.	DATE	DESCRIPTION	BY



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY
 W SAN ANTONIO ST
 PLAN & PROFILE
 STA 26+00 TO STA 28+00

SHEET 9 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 56

PLOTTED ON: 7/24/2019

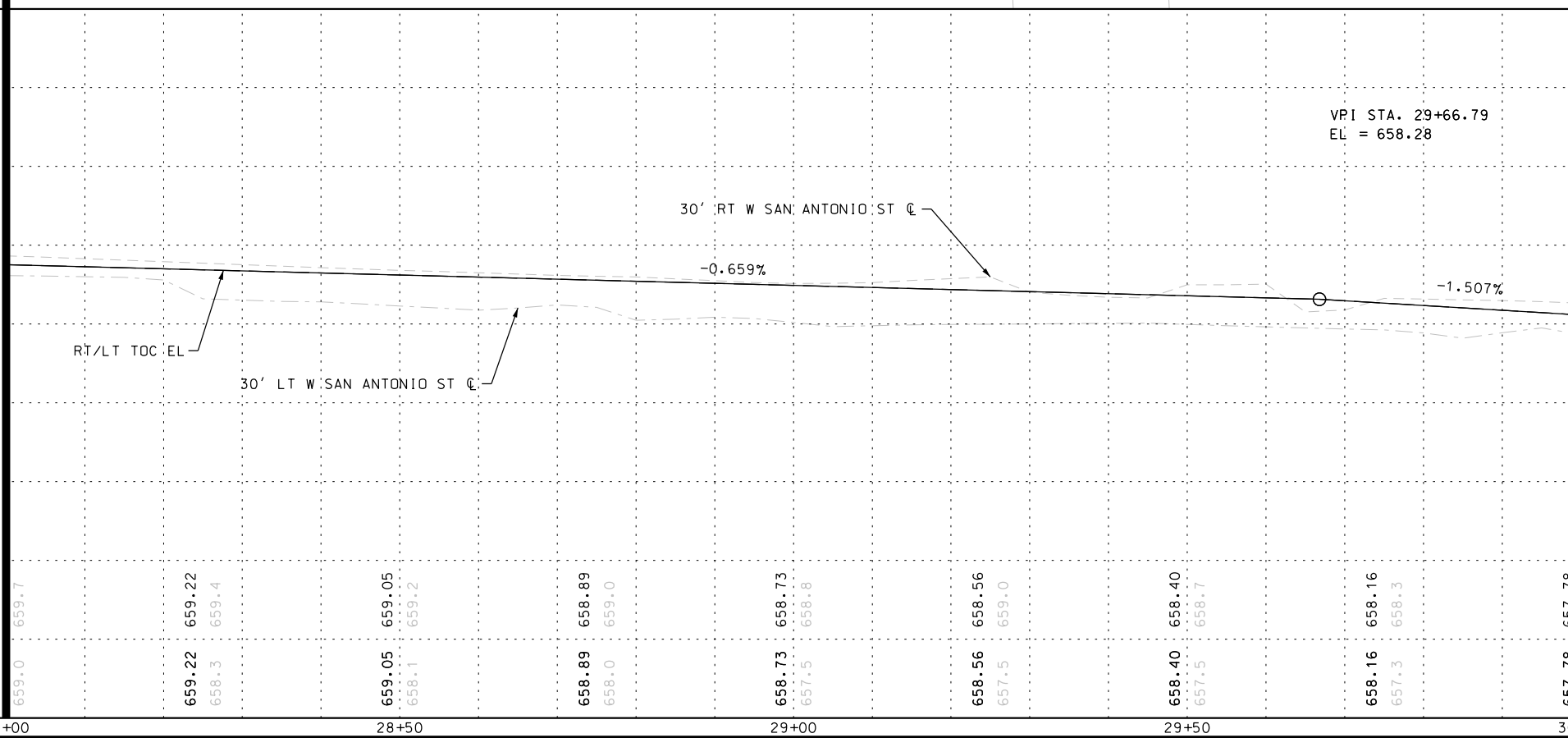
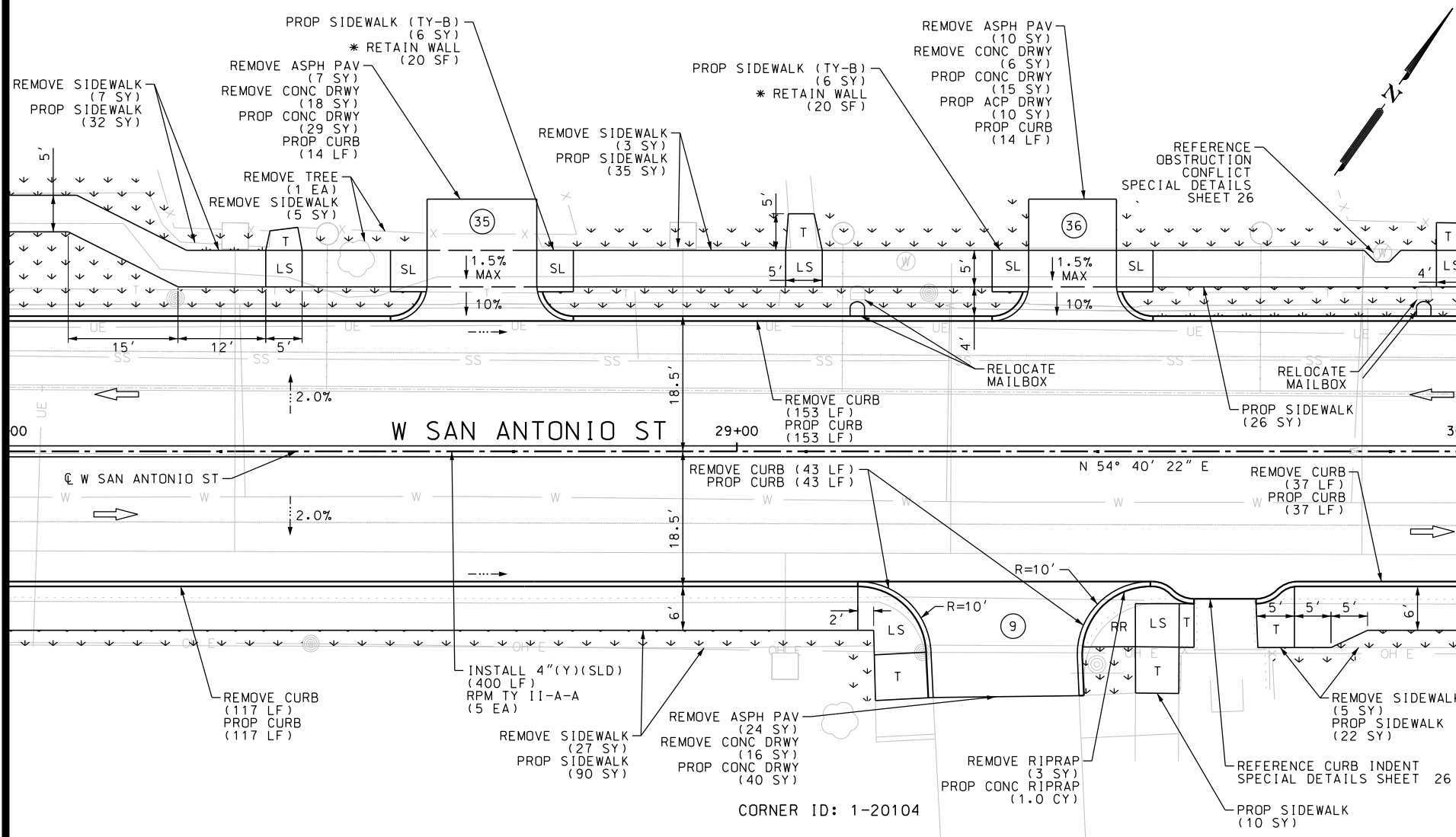
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MATCH LINE STA 28+00

MATCH LINE STA 28+00

MATCH LINE STA 30+00

MATCH LINE STA 30+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	3
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	40
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	350
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	47
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	921
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	205
0162-6002	BLOCK SODDING	SY	205
0168-6001	VEGETATIVE WATERING	MG	3.20
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	193.6
0310-6009	PRIME COAT (MC-30)	GAL	261.30
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	137.5
0432-6001	RIPRAP (CONC) (4 IN)	CY	1.0
0529-6002	CONC CURB (TY II)	LF	378
0530-6004	DRIVEWAYS (CONC)	SY	84
0530-6005	DRIVEWAYS (ACP)	SY	10
0531-6001	CONC SIDEWALKS (4")	SY	215
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	12
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)	LF	400
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
0752-6008	TREE REMOVAL (24" - 30" DIA)	EA	1
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	877

- NOTES:
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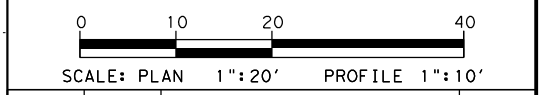
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE
118612
7/24/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
7/24/2019
DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 28+00 TO STA 30+00

SHEET 10 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 57

PLOTTED ON: 7/24/2019

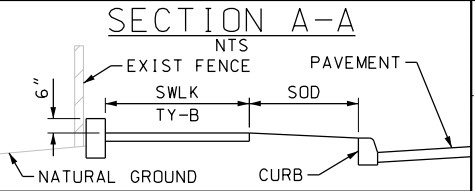
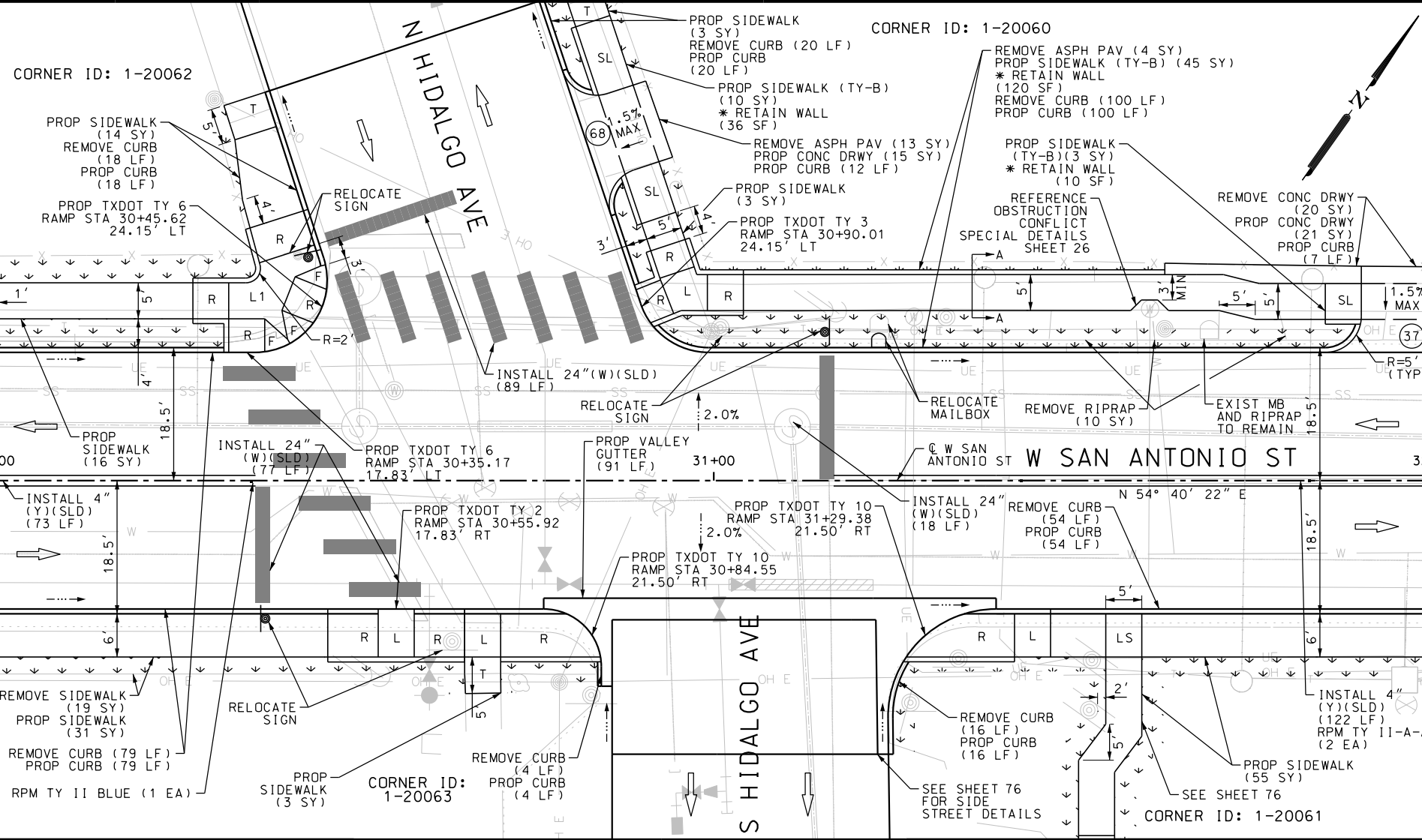
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MATCH LINE STA 30+00

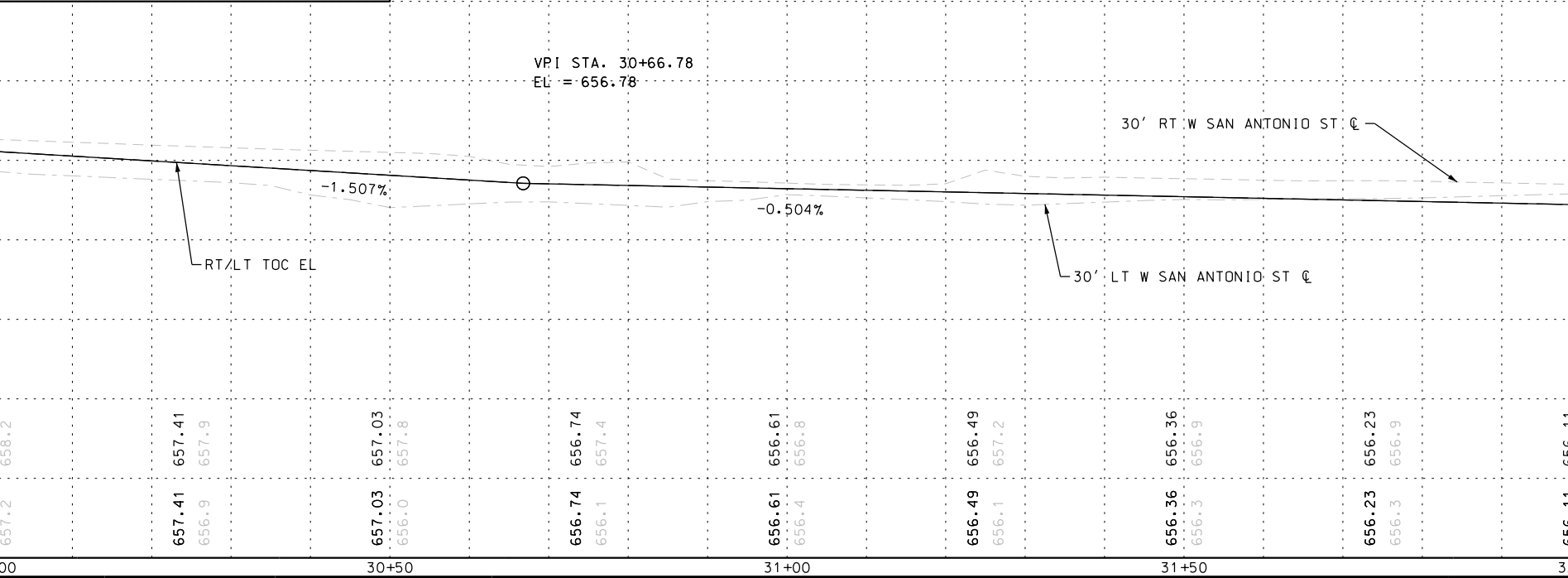
MATCH LINE STA 30+00

MATCH LINE STA 32+00

MATCH LINE STA 32+00



NOTES:
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ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	10
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	20
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	291
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	19
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1170
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	177
0162-6002	BLOCK SODDING	SY	177
0168-6001	VEGETATIVE WATERING	MG	2.76
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	263.6
0310-6009	PRIME COAT (MC-30)	GAL	355.80
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	221.5
0354-6048	PLANE ASPH CONC PAV (3")	SY	191
0529-6002	CONC CURB (TY II)	LF	310
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	91
0530-6004	DRIVEWAYS (CONC)	SY	36
0531-6001	CONC SIDEWALKS (4")	SY	125
0531-6005	CURB RAMPS (TY 2)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6009	CURB RAMPS (TY 6)	EA	2
0531-6013	CURB RAMPS (TY 10)	EA	2
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	58
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	3
0666-6048	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	LF	184
0666-6224	PAVEMENT SEALER 4"	LF	220
0666-6230	PAVEMENT SEALER 24"	LF	184
0666-6315	RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)	LF	220
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	2
0678-6001	PAV SURF PREP FOR MRK (4")	LF	220
0678-6008	PAV SURF PREP FOR MRK (24")	LF	184
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1194

LEGEND

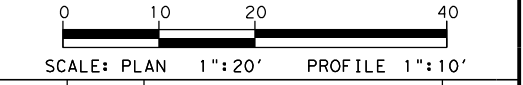
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

STA 30+00 TO STA 32+00

SHEET 11 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 58

PLOTTED ON: 7/24/2019

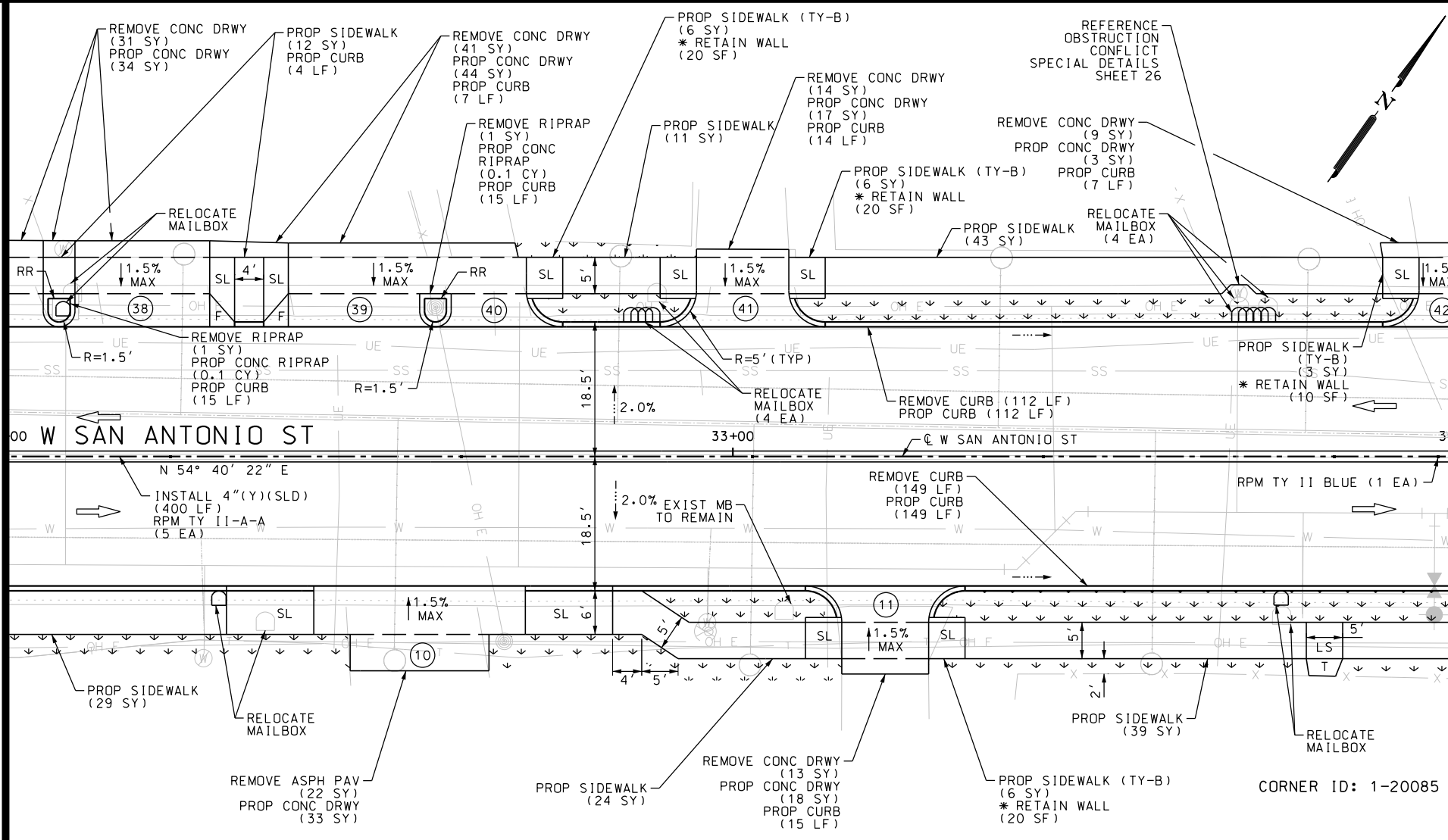
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MATCH LINE STA 32+00

MATCH LINE STA 32+00

MATCH LINE STA 34+00

MATCH LINE STA 34+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	2
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	108
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	261
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	884
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	145
0162-6002	BLOCK SODDING	SY	145
0168-6001	VEGETATIVE WATERING	MG	2.26
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	192.7
0310-6009	PRIME COAT (MC-30)	GAL	260.10
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	136.8
0432-6001	RIPRAP (CONC) (4 IN)	CY	0.2
0529-6002	CONC CURB (TY II)	LF	338
0530-6004	DRIVEWAYS (CONC)	SY	149
0531-6001	CONC SIDEWALKS (4")	SY	158
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	21
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	11
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)	LF	400
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	873

- NOTES:
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊙ DRIVEWAY ID

DESIGN

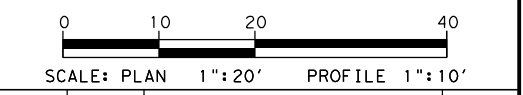
TYLER P. DUBE
118612
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



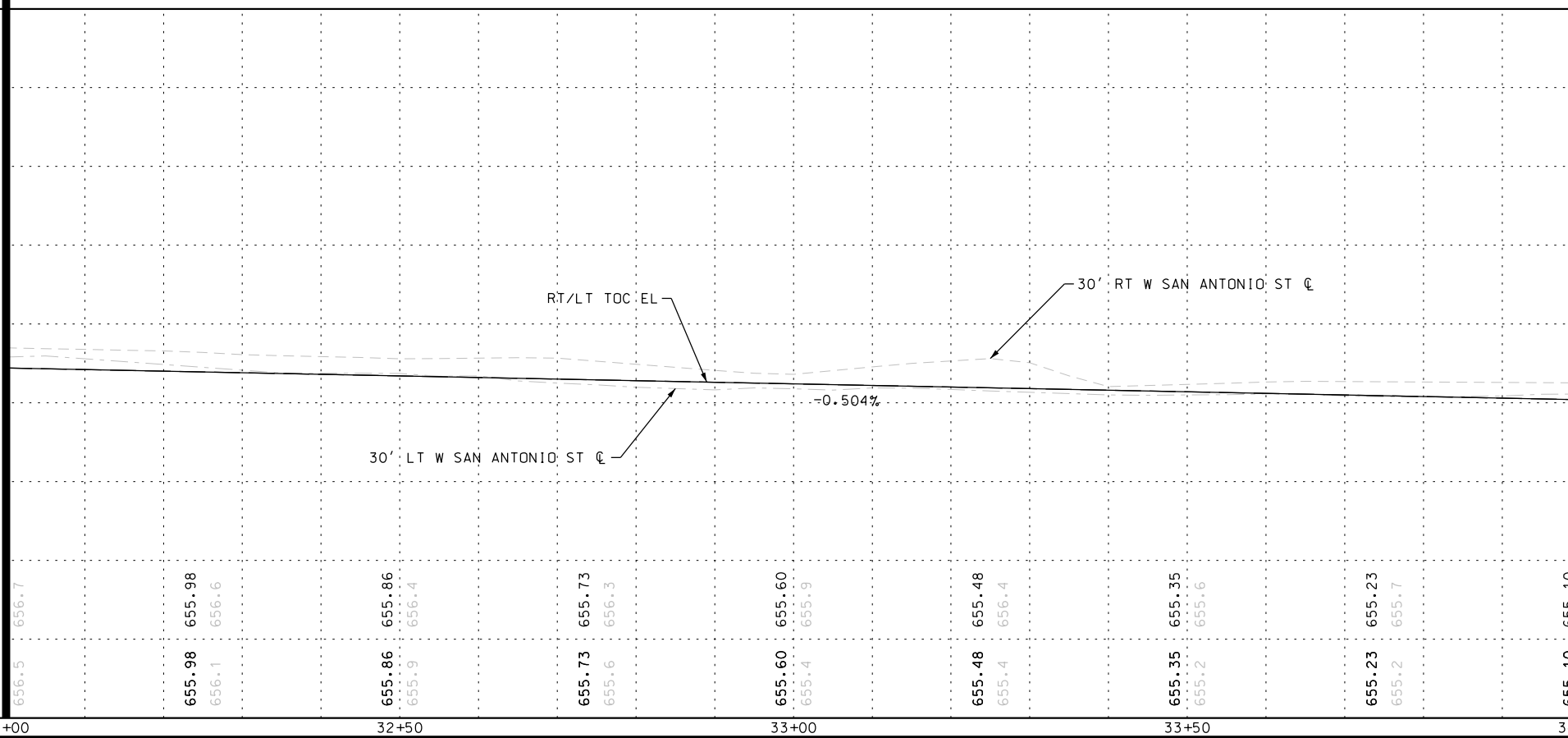
ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 32+00 TO STA 34+00

SHEET 12 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 59



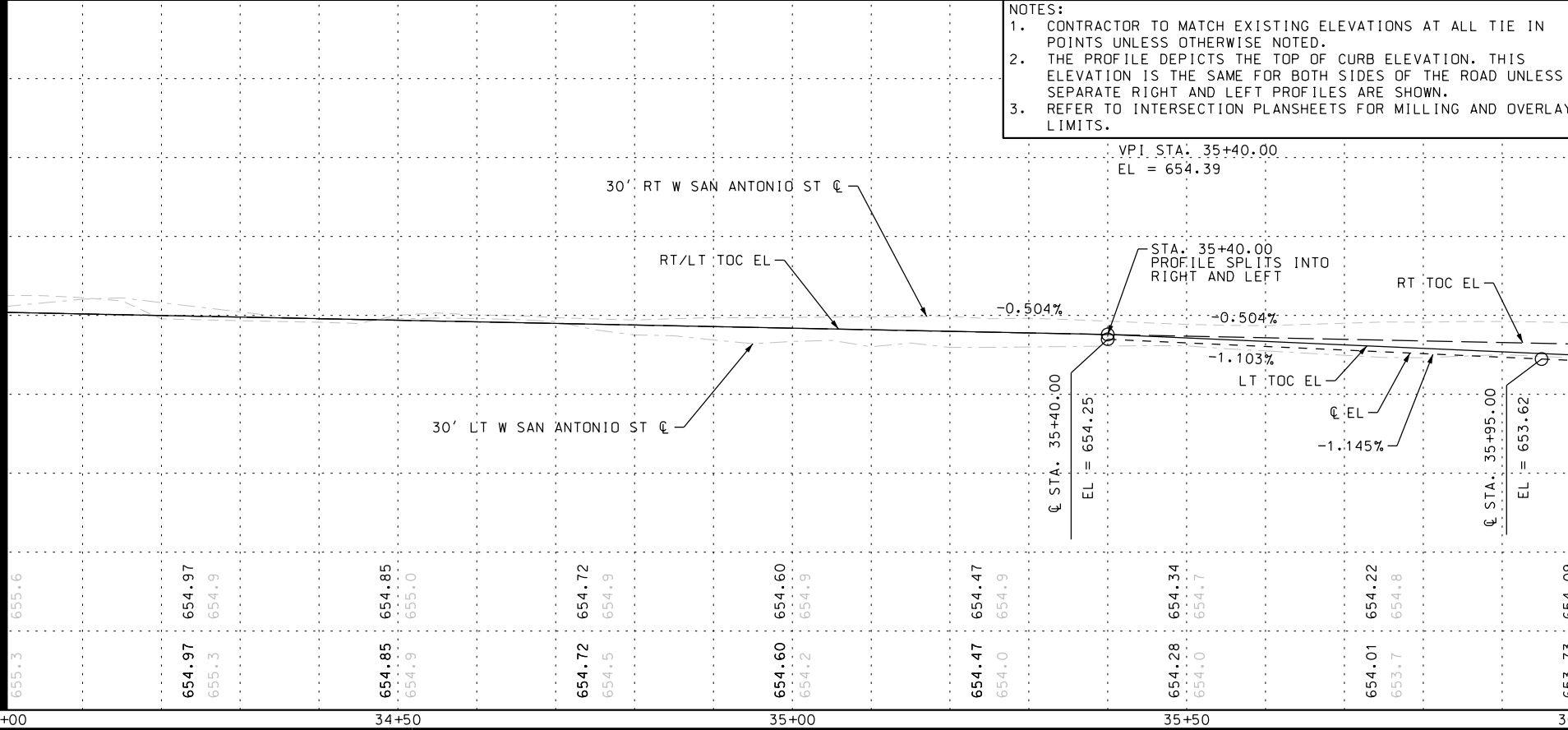
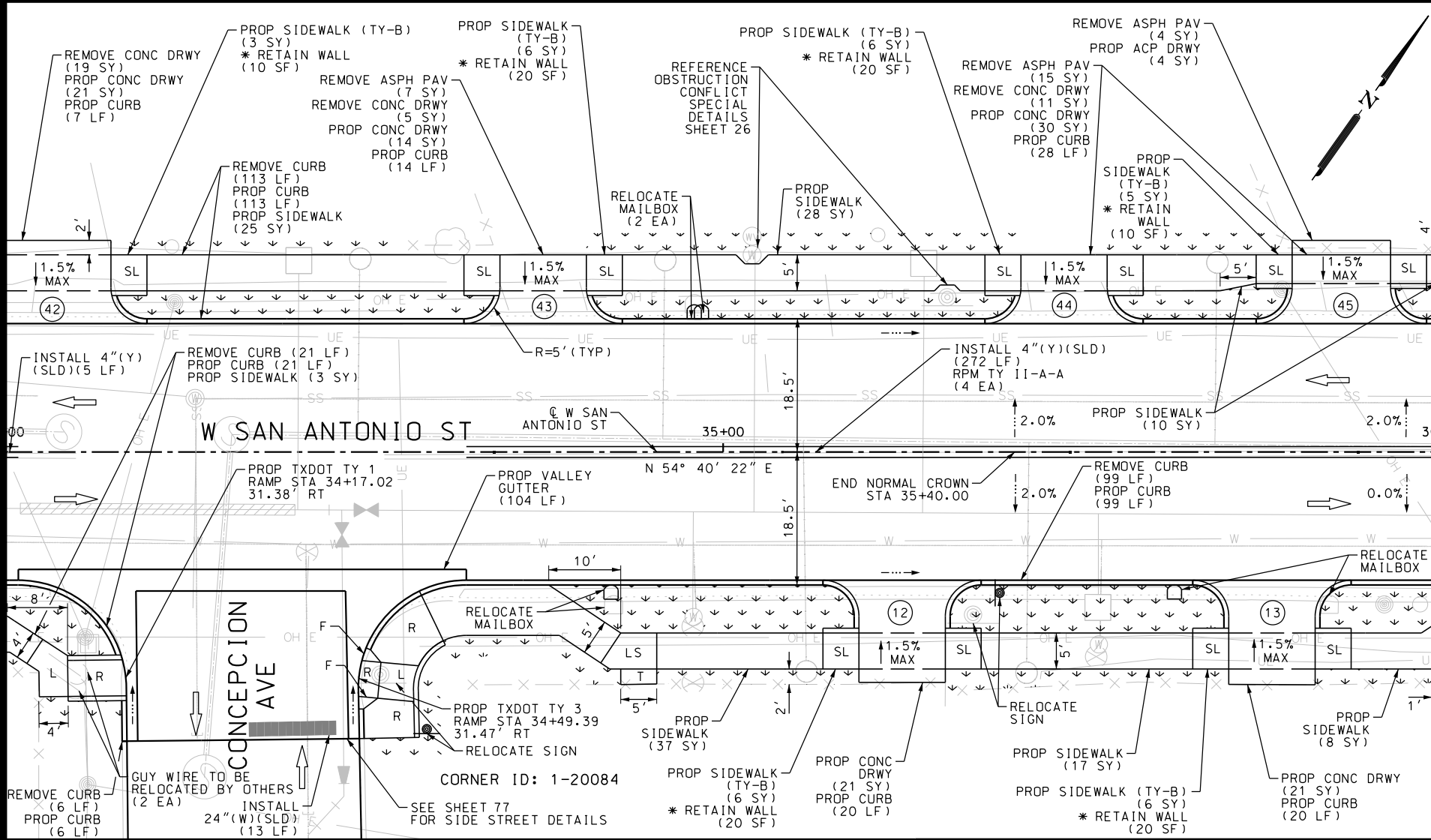
PLOTTED ON: 7/25/2019

DESIGN FILENAME: P:\1113801\Design\Civil\Roadway\1113801_SanAntonioSt_13.dgn

MATCH LINE STA 34+00

MATCH LINE STA 34+00

MATCH LINE STA 36+00



- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	35
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	239
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	970
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	245
0162-6002	BLOCK SODDING	SY	245
0168-6001	VEGETATIVE WATERING	MG	3.82
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	214.0
0310-6009	PRIME COAT (MC-30)	GAL	288.90
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	167.3
0354-6048	PLANE ASPH CONC PAV (3")	SY	87
0529-6002	CONC CURB (TY II)	LF	328
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	104
0530-6004	DRIVEWAYS (CONC)	SY	107
0530-6005	DRIVEWAYS (ACP)	SY	4
0531-6001	CONC SIDEWALKS (4")	SY	128
0531-6004	CURB RAMPS (TY 1)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	32
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	4
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	2
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	13
0666-6224	PAVEMENT SEALER 4"	LF	277
0666-6230	PAVEMENT SEALER 24"	LF	13
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	277
0672-6009	REFL PAV MRKR TY II-A-A	EA	4
0678-6001	PAV SURF PREP FOR MRK (4")	LF	277
0678-6008	PAV SURF PREP FOR MRK (24")	LF	13
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	970

LEGEND

- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

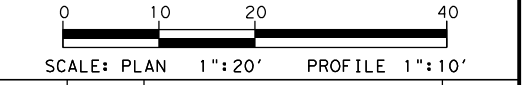
TYLER P. DUBE
118612
LICENSED PROFESSIONAL ENGINEER

7/25/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
LICENSED PROFESSIONAL ENGINEER

7/25/2019
DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP FIRM REGISTRATION #470 | TBP FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 34+00 TO STA 36+00

SHEET 13 OF 35

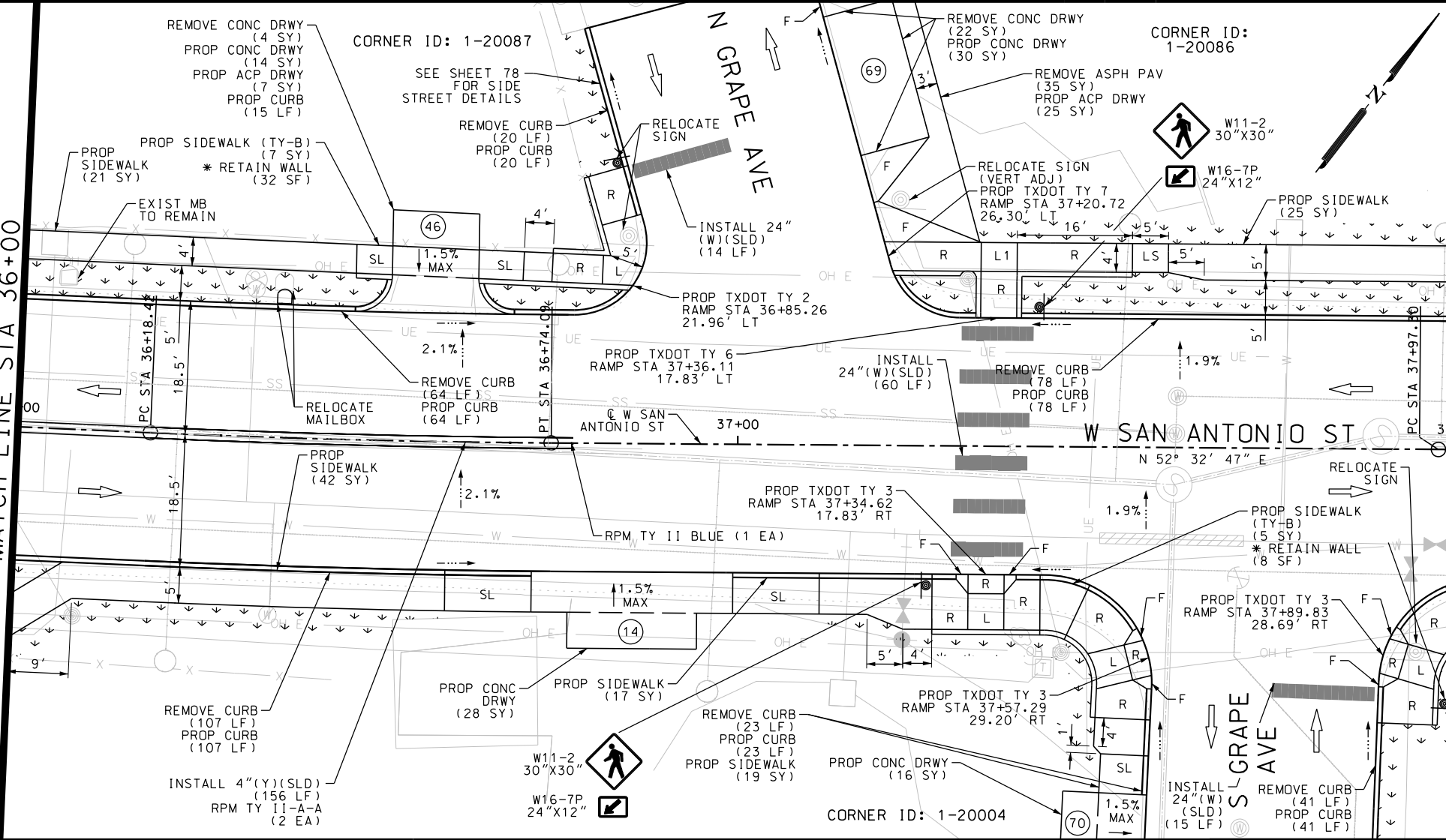
DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 60

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38\01\Design\Civil\Roadway\1113801_SanAntonioSt_14.dgn

MATCH LINE STA 36+00

MATCH LINE STA 38+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	26
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	333
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1301
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	160
0162-6002	BLOCK SODDING	SY	160
0168-6001	VEGETATIVE WATERING	MG	2.50
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	286.4
0310-6009	PRIME COAT (MC-30)	GAL	386.70
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	213.2
0354-6048	PLANE ASPH CONC PAV (3")	SY	56
0529-6002	CONC CURB (TY II)	LF	348
0530-6004	DRIVEWAYS (CONC)	SY	88
0530-6005	DRIVEWAYS (ACP)	SY	32
0531-6001	CONC SIDEWALKS (4")	SY	124
0531-6005	CURB RAMPS (TY 2)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	3
0531-6009	CURB RAMPS (TY 6)	EA	1
0531-6010	CURB RAMPS (TY 7)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	12
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6060	IN SM RD SN SUP&M TYTWT(1)WS(P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	3
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	89
0666-6224	PAVEMENT SEALER 4"	LF	156
0666-6230	PAVEMENT SEALER 24"	LF	89
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	156
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	2
0678-6001	PAV SURF PREP FOR MRK (4")	LF	156
0678-6008	PAV SURF PREP FOR MRK (24")	LF	89
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1298

NOTES:
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS OF PAVEMENT.

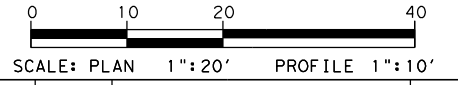
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - ⊞ MAILBOX
 - ⊙ DRIVEWAY ID

DESIGN

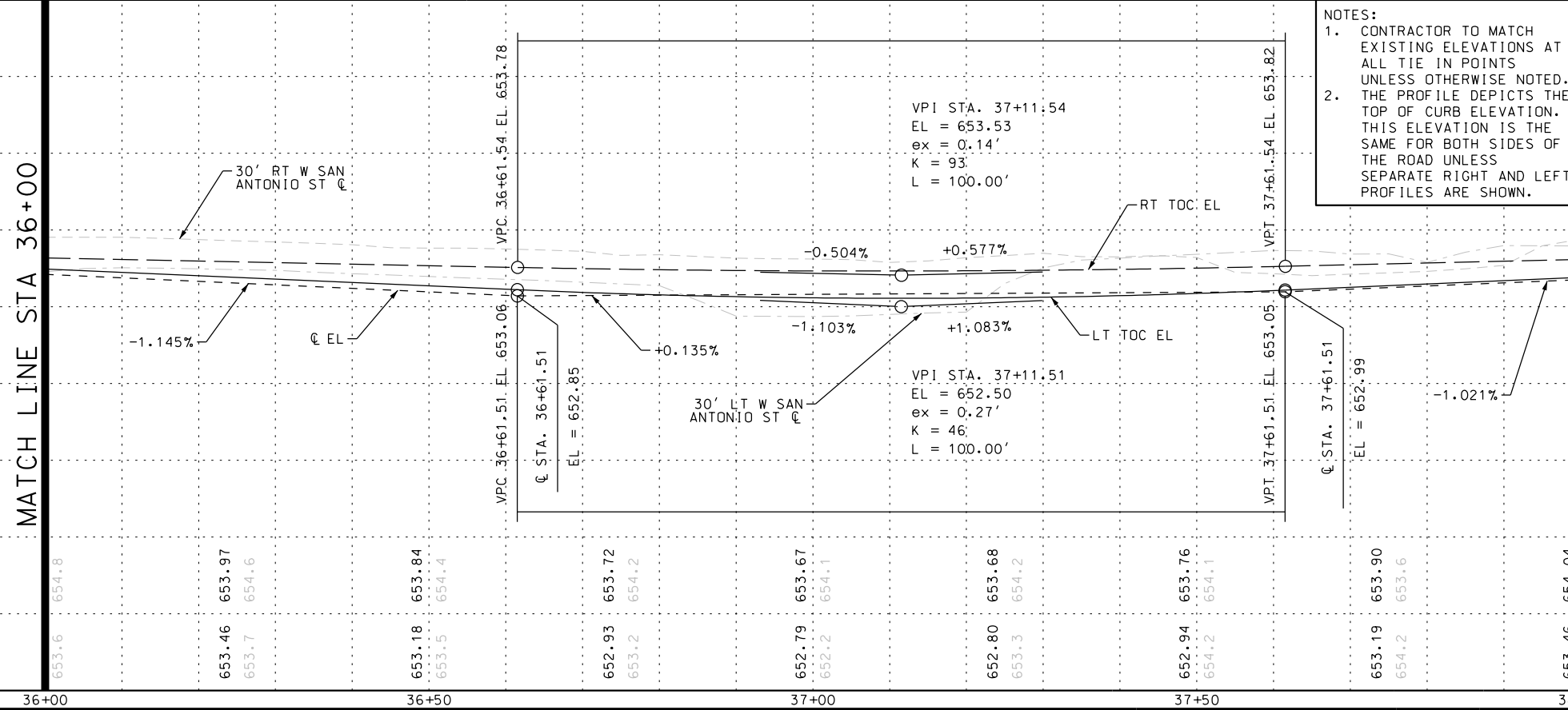
TYLER P. DUBE, P.E.
 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
 7/24/2019 DATE



NOTES:
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REV. NO. DATE DESCRIPTION BY

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

STA 36+00 TO STA 38+00

SHEET 14 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 61

PLOTTED ON: 7/24/2019

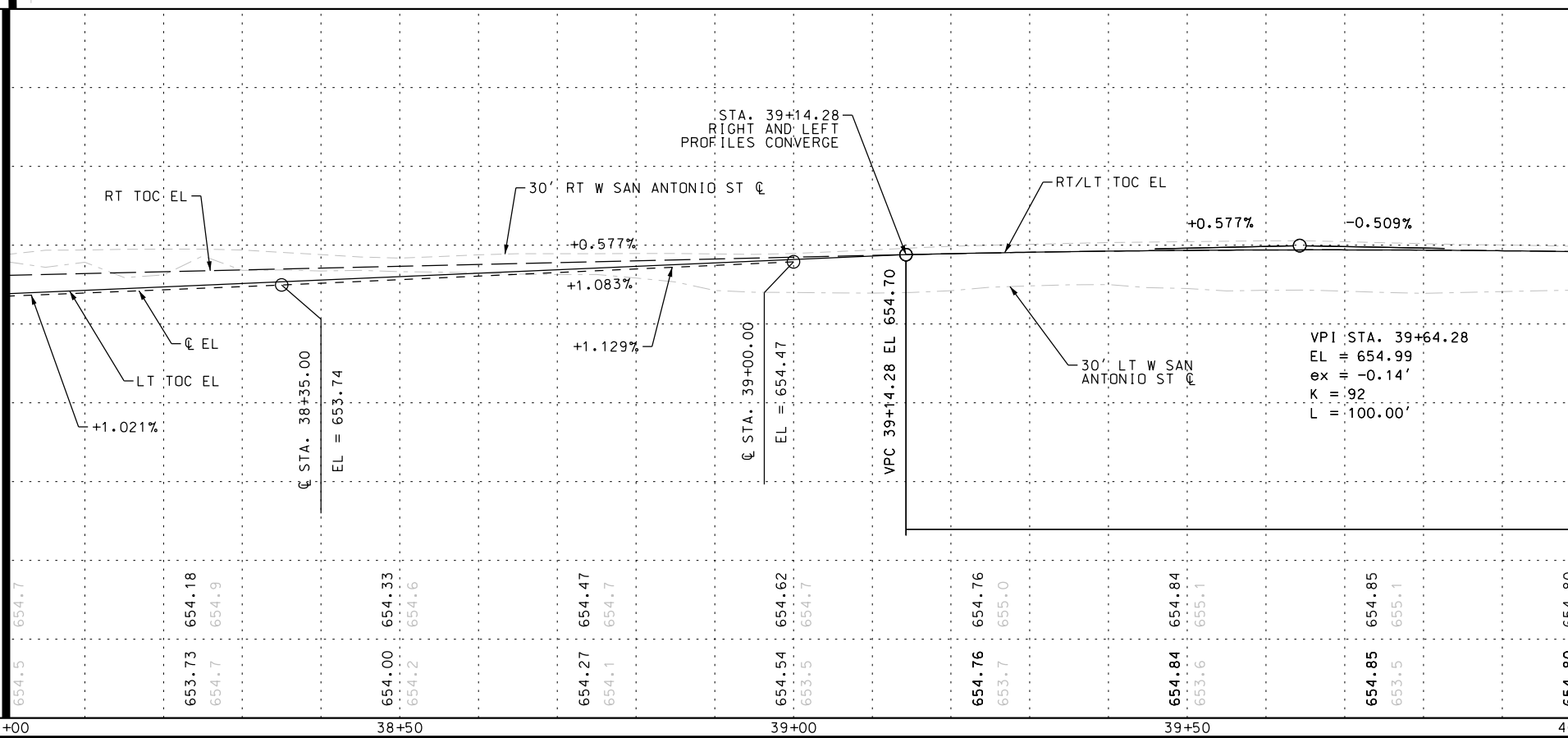
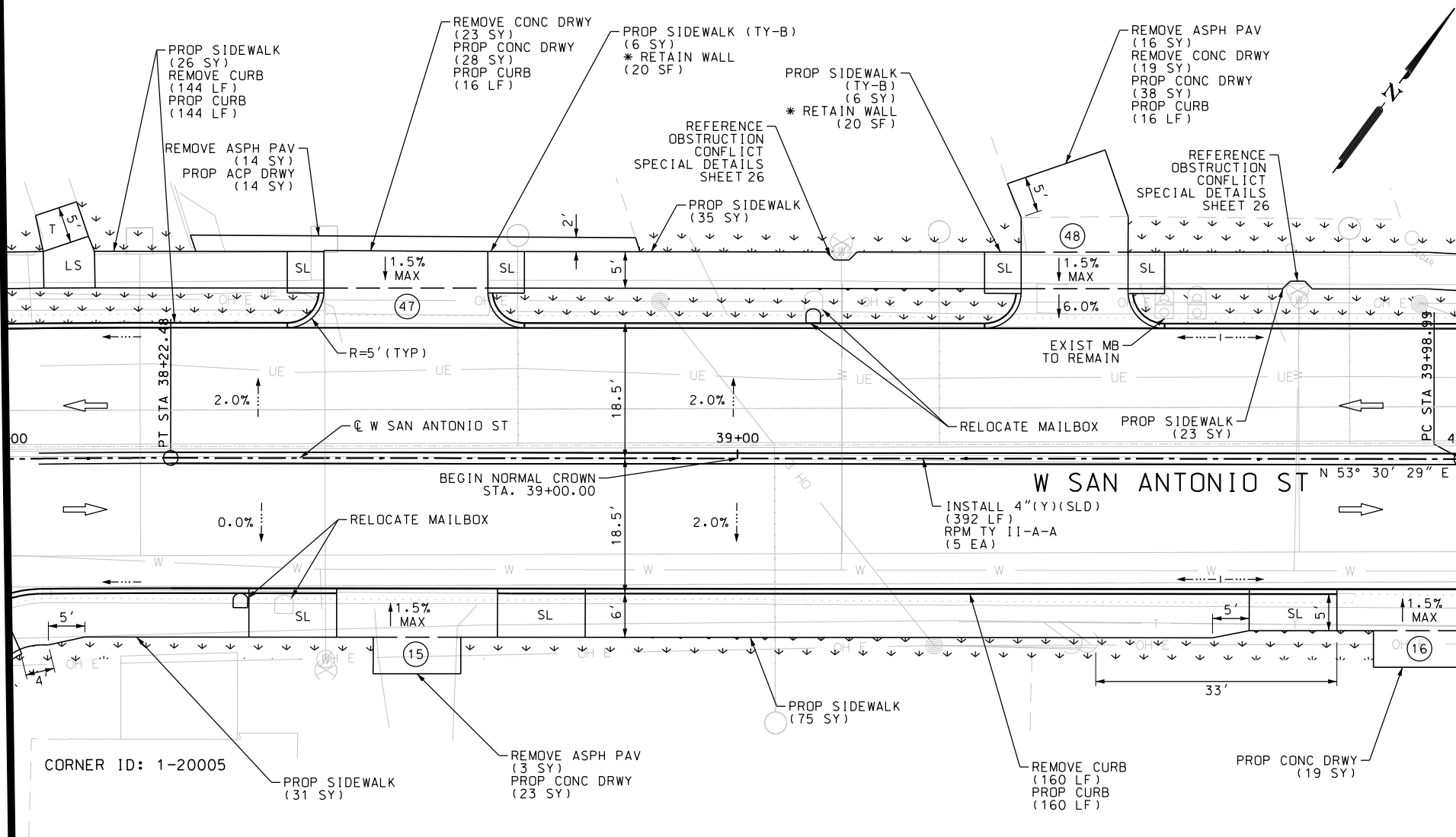
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MATCH LINE STA 38+00

MATCH LINE STA 38+00

MATCH LINE STA 40+00

MATCH LINE STA 40+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	42
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	304
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	896
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	191
0162-6002	BLOCK SODDING	SY	191
0168-6001	VEGETATIVE WATERING	MG	2.98
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	192.7
0310-6009	PRIME COAT (MC-30)	GAL	260.10
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	136.8
0529-6002	CONC CURB (TY II)	LF	336
0530-6004	DRIVEWAYS (CONC)	SY	108
0530-6005	DRIVEWAYS (ACP)	SY	14
0531-6001	CONC SIDEWALKS (4")	SY	190
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	12
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0666-6224	PAVEMENT SEALER 4"	LF	392
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	392
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	392
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	873

- NOTES:
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LEGEND

- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

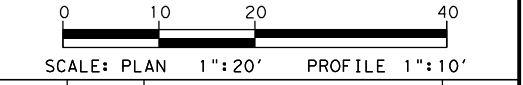
TYLER P. DUBE
118612
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPB FIRM REGISTRATION #470 | TBPBS FIRM REGISTRATION #10028800

City of **New Braunfels**

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 38+00 TO STA 40+00

SHEET 15 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 62

PLOTTED ON: 7/24/2019

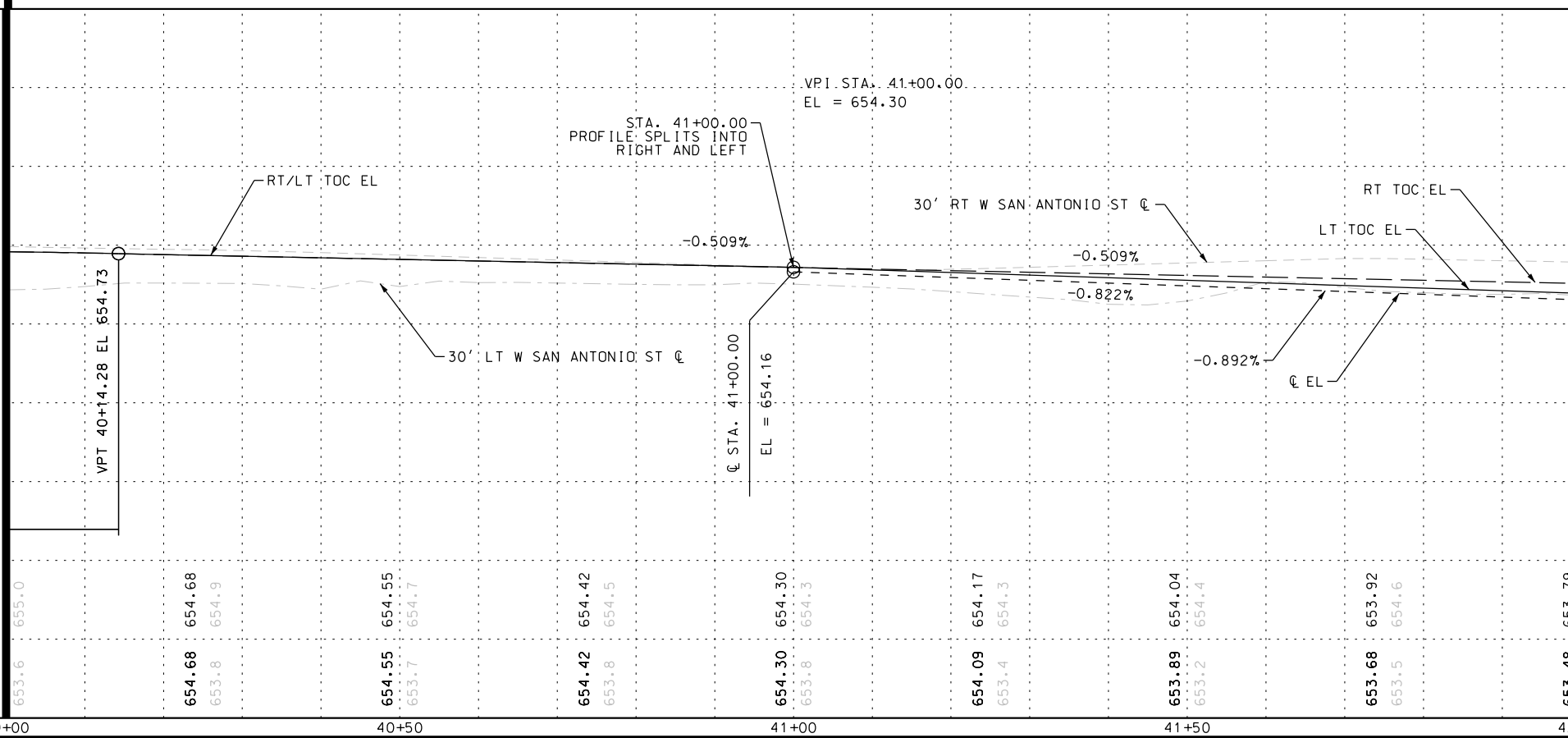
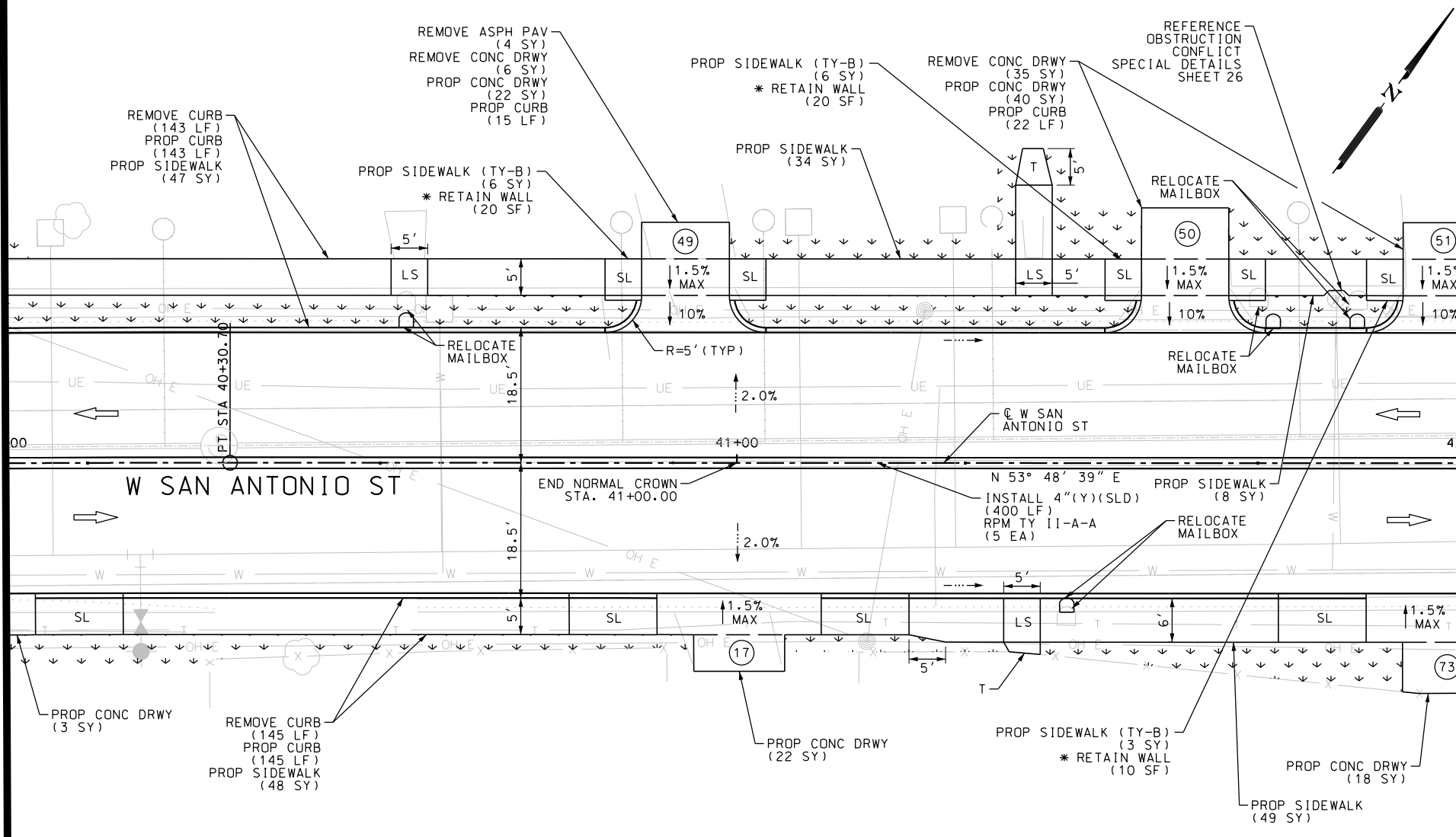
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MATCH LINE STA 40+00

MATCH LINE STA 40+00

MATCH LINE STA 42+00

MATCH LINE STA 42+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	41
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	288
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	871
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	170
0162-6002	BLOCK SODDING	SY	170
0168-6001	VEGETATIVE WATERING	MG	2.65
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	192.7
0310-6009	PRIME COAT (MC-30)	GAL	260.10
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	136.8
0529-6002	CONC CURB (TY II)	LF	325
0530-6004	DRIVEWAYS (CONC)	SY	105
0531-6001	CONC SIDEWALKS (4")	SY	186
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	15
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	4
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD) (100MIL)	LF	400
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	873

- NOTES:
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LEGEND

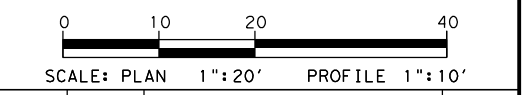
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.
118612
7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
84722
7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP E FIRM REGISTRATION #470 | TBP L S FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 40+00 TO STA 42+00

SHEET 16 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 63

PLOTTED ON: 7/24/2019

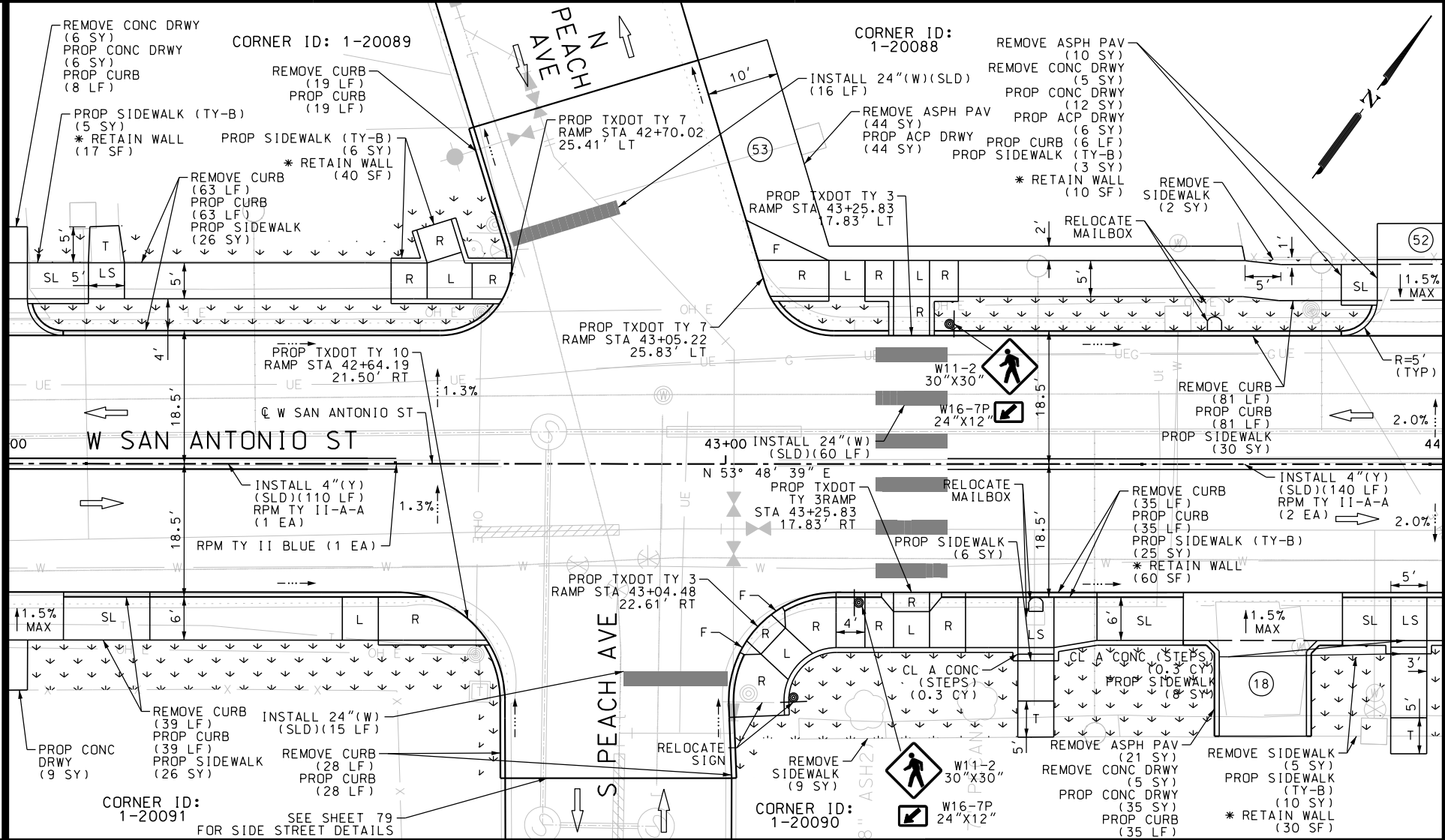
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MATCH LINE STA 42+00

MATCH LINE STA 42+00

MATCH LINE STA 44+00

MATCH LINE STA 44+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	16
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	265
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	16
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1151
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	235
0162-6002	BLOCK SODDING	SY	235
0168-6001	VEGETATIVE WATERING	MG	3.67
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	248.2
0310-6009	PRIME COAT (MC-30)	GAL	335.10
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	207.9
0354-6048	PLANE ASPH CONC PAV (3")	SY	179
0420-6132	CL A CONC (STEPS)	CY	0.3
0529-6002	CONC CURB (TY II)	LF	314
0530-6004	DRIVEWAYS (CONC)	SY	62
0530-6005	DRIVEWAYS (ACP)	SY	50
0531-6001	CONC SIDEWALKS (4")	SY	96
0531-6006	CURB RAMPS (TY 3)	EA	3
0531-6010	CURB RAMPS (TY 7)	EA	2
0531-6013	CURB RAMPS (TY 10)	EA	1
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	49
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0644-6060	IN SM RD SN SUP&M TYTWT (1)WS (P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	91
0666-6224	PAVEMENT SEALER 4"	LF	250
0666-6230	PAVEMENT SEALER 24"	LF	91
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	250
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	3
0678-6001	PAV SURF PREP FOR MRK (4")	LF	250
0678-6008	PAV SURF PREP FOR MRK (24")	LF	91
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1125

LEGEND

- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

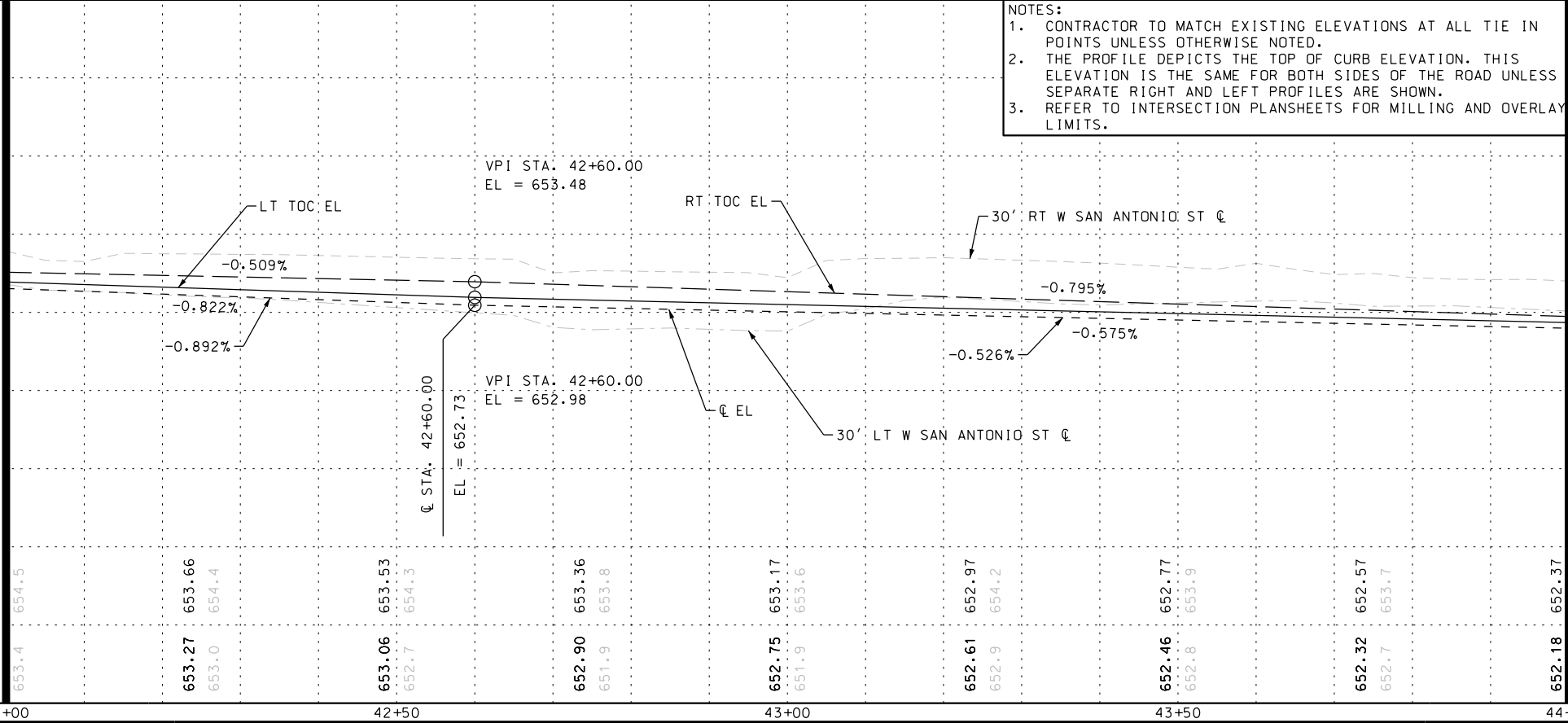
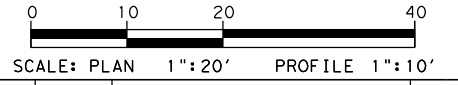
DESIGN

TYLER P. DUBE, P.E.
DATE: 7/24/2019

- NOTES:**
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE: 7/24/2019



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPB FIRM REGISTRATION #470 | TBPBS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 42+00 TO STA 44+00

SHEET 17 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 64

PLOTTED ON: 7/24/2019

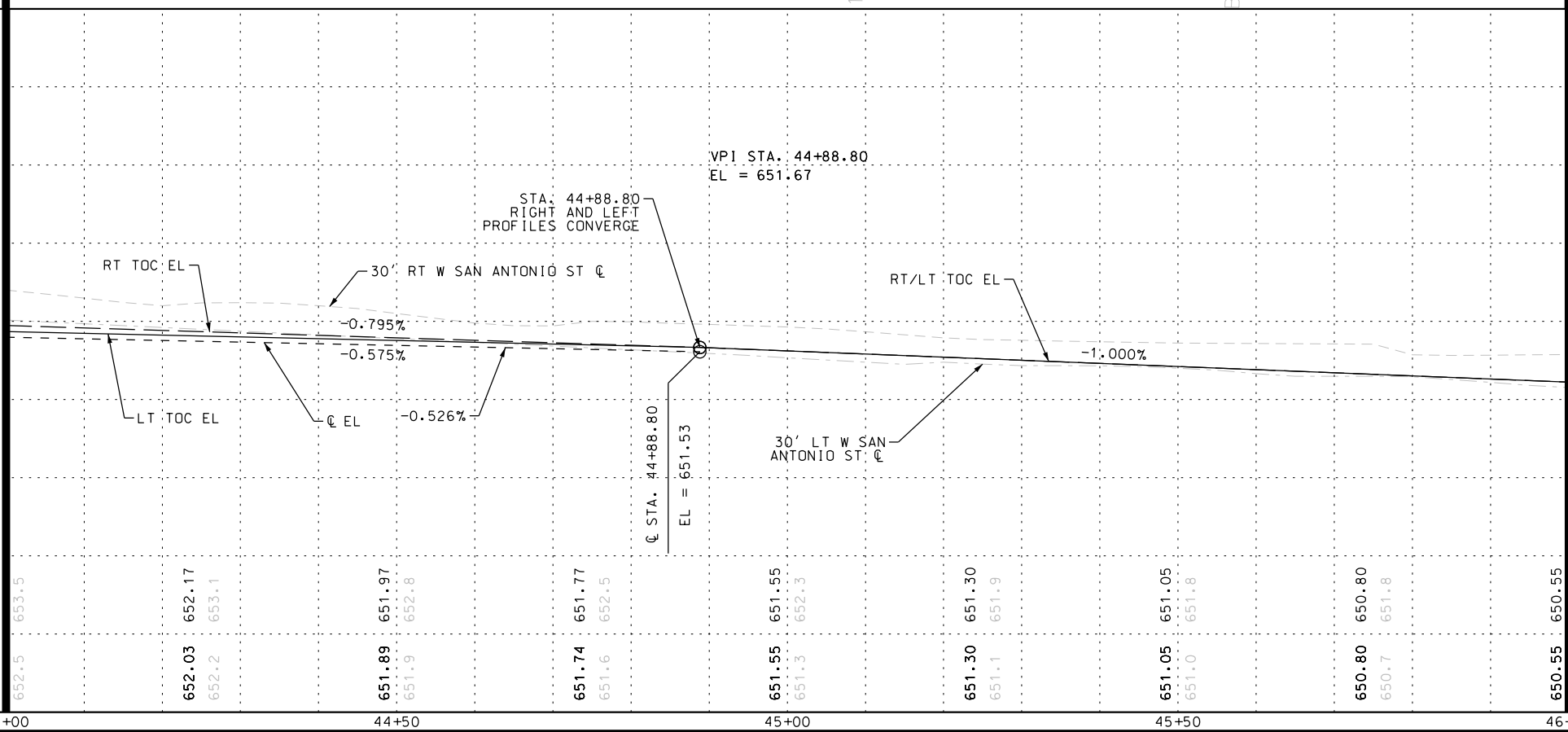
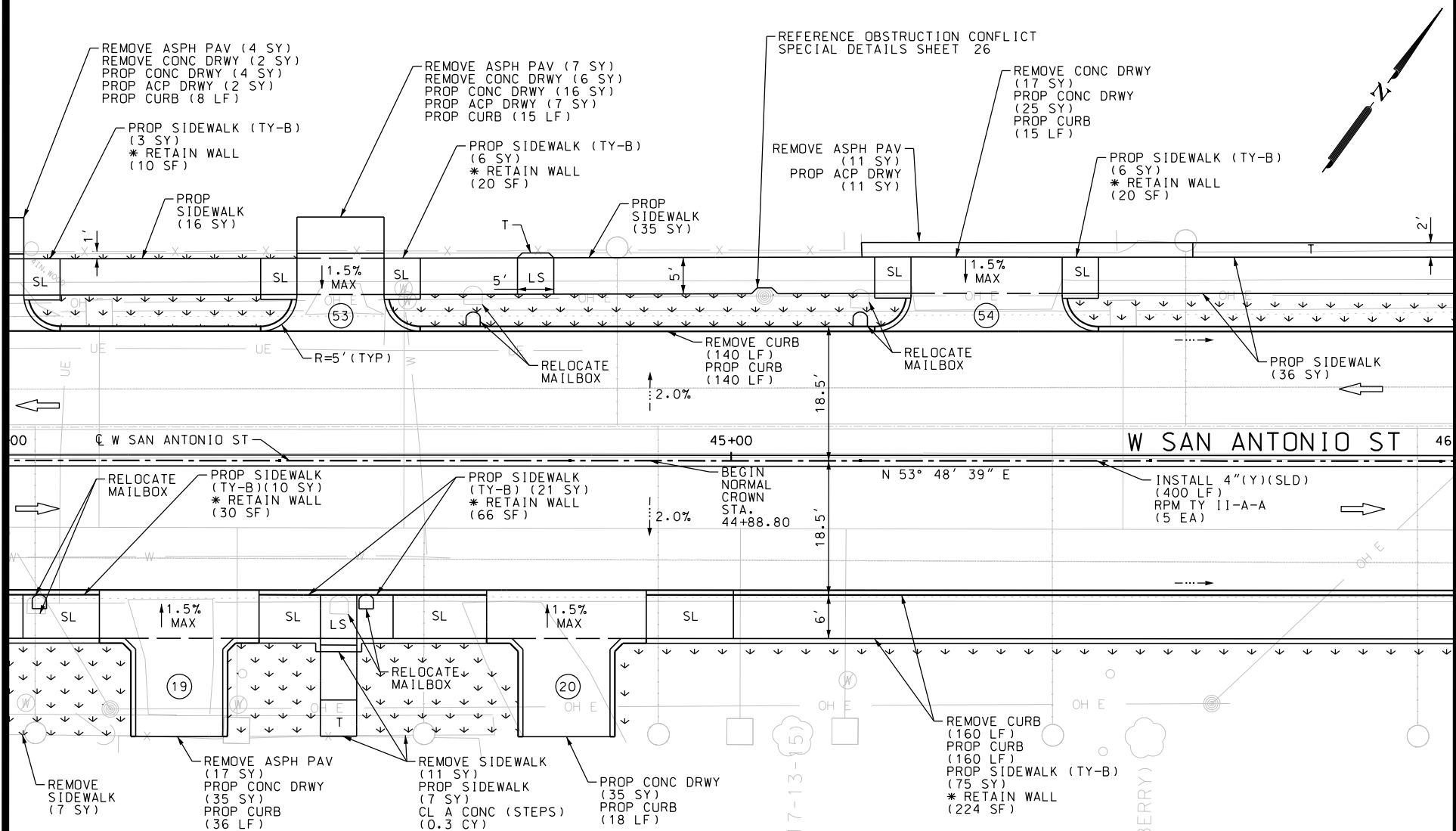
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MATCH LINE STA 44+00

MATCH LINE STA 44+00

MATCH LINE STA 46+00

MATCH LINE STA 46+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	25
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	300
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	18
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	903
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	230
0162-6002	BLOCK SODDING	SY	230
0168-6001	VEGETATIVE WATERING	MG	3.59
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	192.7
0310-6009	PRIME COAT (MC-30)	GAL	260.10
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	136.8
0420-6132	CL A CONC (STEPS)	CY	0.3
0529-6002	CONC CURB (TY II)	LF	392
0530-6004	DRIVEWAYS (CONC)	SY	115
0530-6005	DRIVEWAYS (ACP)	SY	20
0531-6001	CONC SIDEWALKS (4")	SY	94
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	121
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	4
0666-6224	PAVEMENT SEALER 4"	LF	400
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	400
0672-6009	REFL PAV MRKR TY II-A-A	EA	5
0678-6001	PAV SURF PREP FOR MRK (4")	LF	400
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	873

- NOTES:
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND

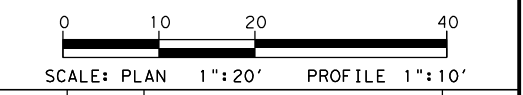
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

STA 44+00 TO STA 46+00

SHEET 18 OF 35

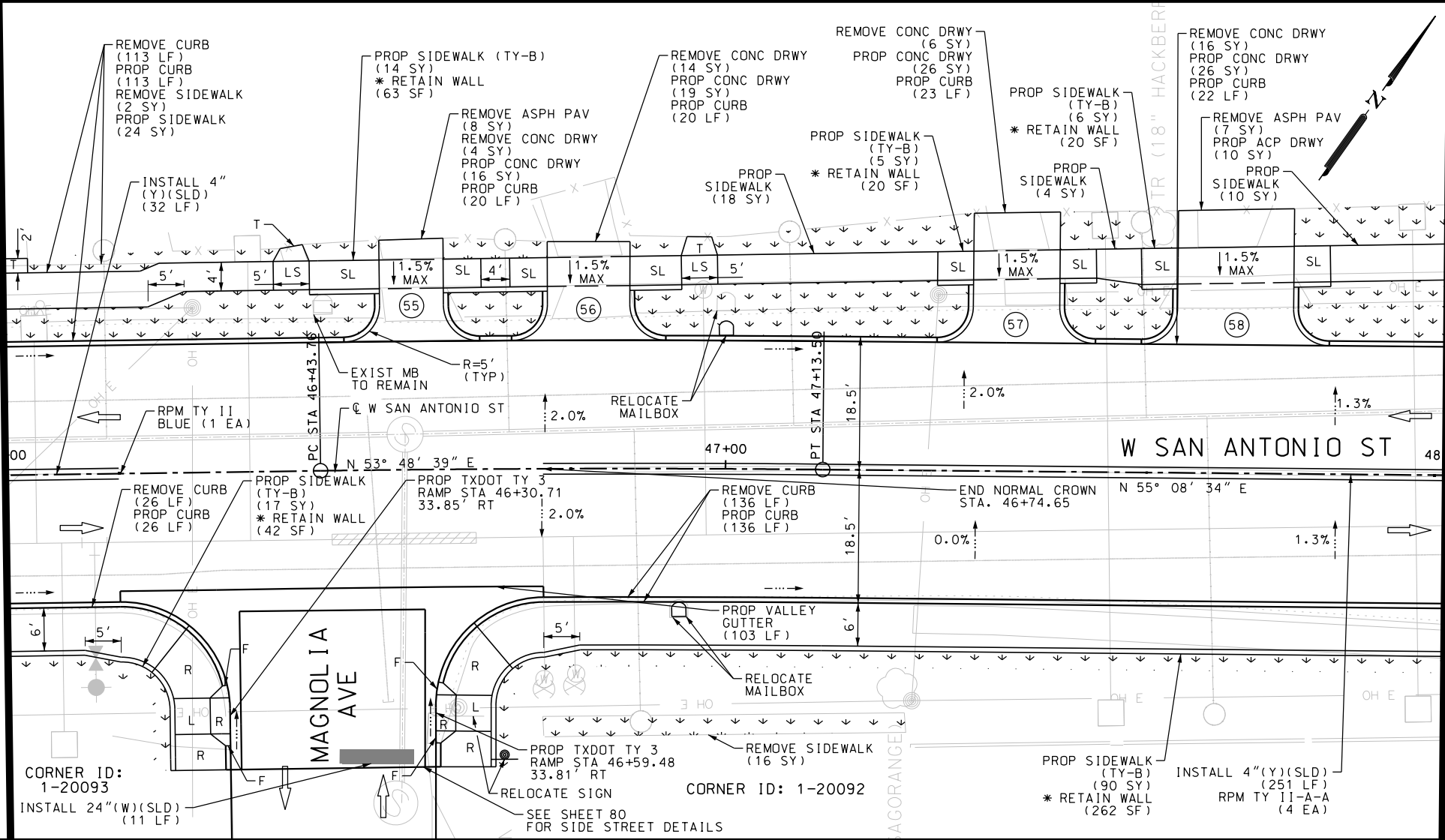
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CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 65

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38\01\Design\Civil\Roadway\1113801_SanAntonioSt_19.dgn

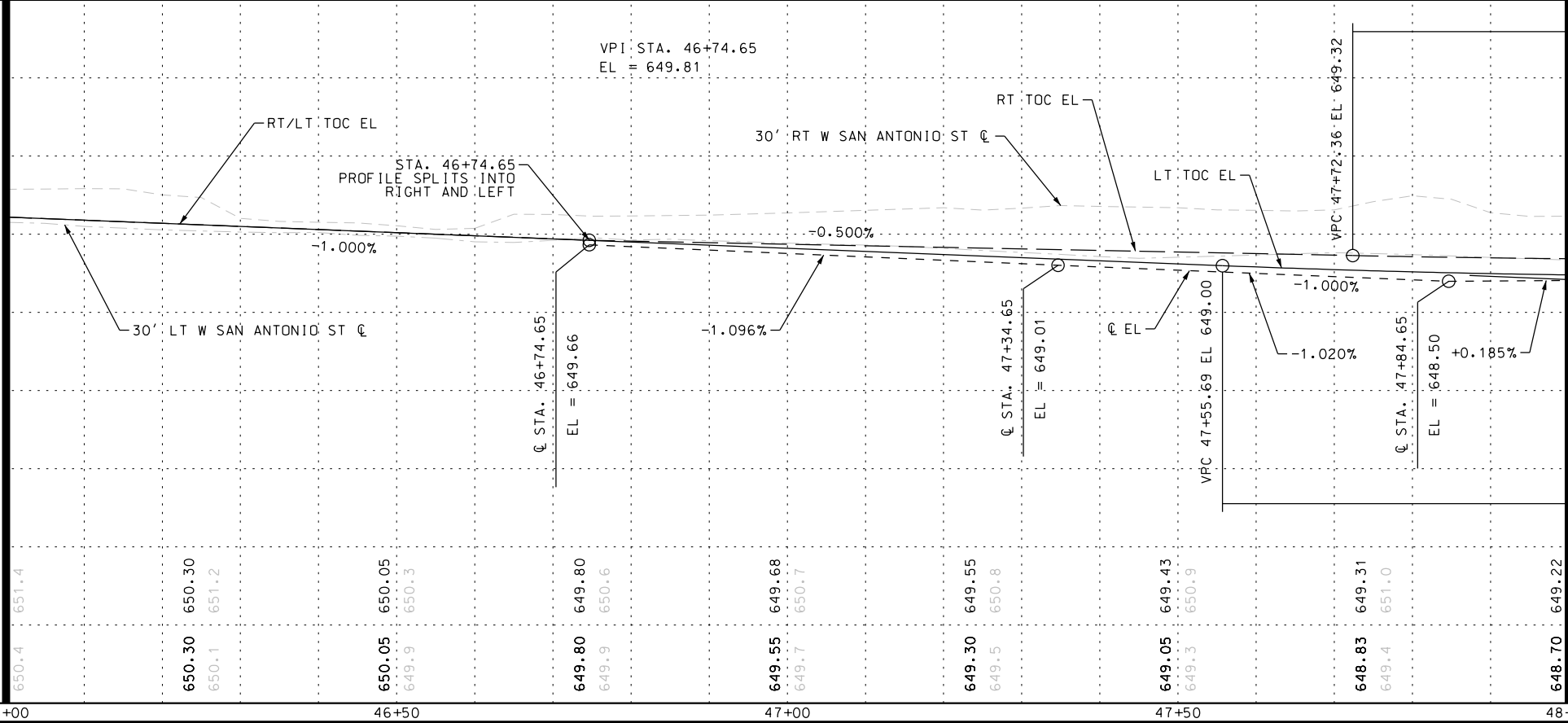
MATCH LINE STA 46+00

MATCH LINE STA 48+00



MATCH LINE STA 46+00

MATCH LINE STA 48+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	40
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	275
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	18
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	991
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	222
0162-6002	BLOCK SODDING	SY	222
0168-6001	VEGETATIVE WATERING	MG	3.46
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	213.1
0310-6009	PRIME COAT (MC-30)	GAL	287.70
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	158.7
0354-6048	PLANE ASPH CONC PAV (3")	SY	41
0529-6002	CONC CURB (TY II)	LF	360
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	103
0530-6004	DRIVEWAYS (CONC)	SY	87
0530-6005	DRIVEWAYS (ACP)	SY	10
0531-6001	CONC SIDEWALKS (4")	SY	56
0531-6006	CURB RAMPS (TY 3)	EA	2
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	132
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	11
0666-6224	PAVEMENT SEALER 4"	LF	283
0666-6230	PAVEMENT SEALER 24"	LF	11
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	283
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	4
0678-6001	PAV SURF PREP FOR MRK (4")	LF	283
0678-6008	PAV SURF PREP FOR MRK (24")	LF	11
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	966

- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

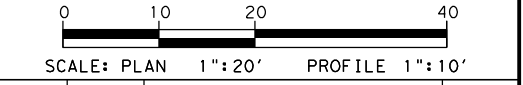
- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊙ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.
118612
7/24/2019

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
84722
7/24/2019



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPB FIRM REGISTRATION #470 | TBPBS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 46+00 TO STA 48+00

SHEET 19 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 66

PLOTTED ON: 7/24/2019

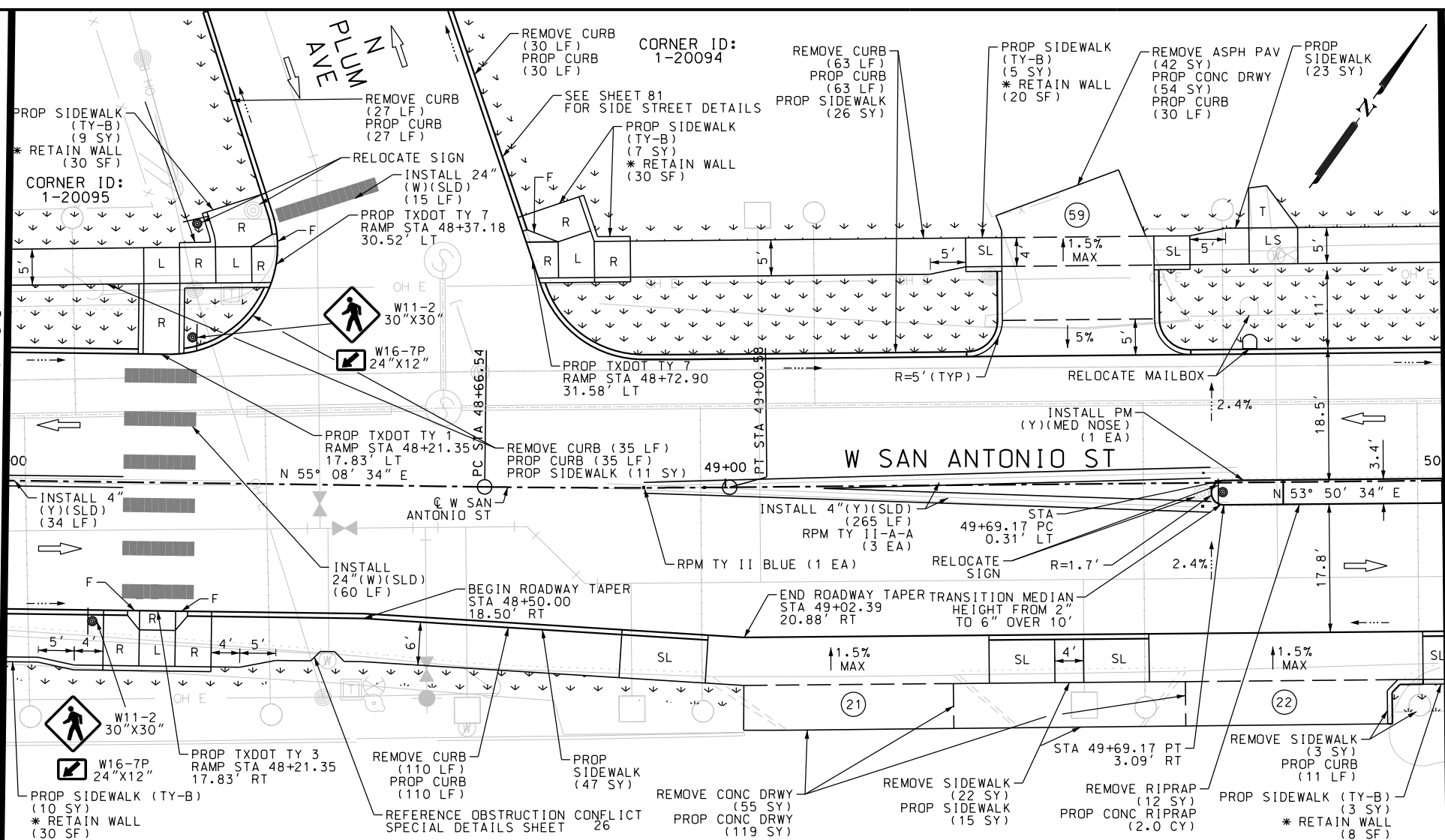
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MATCH LINE STA 48+00

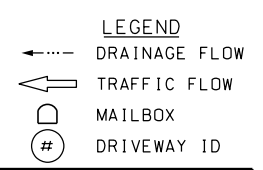
MATCH LINE STA 48+00

MATCH LINE STA 50+00

MATCH LINE STA 50+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	12
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	55
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	265
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	25
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	1280
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	266
0162-6002	BLOCK SODDING	SY	266
0168-6001	VEGETATIVE WATERING	MG	4.15
0247-6041	FL BS (CMP IN PLC) (TYA GR1-2) (FNAL POS)	CY	253.1
0310-6009	PRIME COAT (MC-30)	GAL	341.70
0340-6120	D-GR HMA(SQ) TY-D SAC-B PG70-22	TON	188.9
0354-6048	PLANE ASPH CONC PAV (3")	SY	47
0432-6001	RIPRAP (CONC) (4 IN)	CY	2.0
0529-6002	CONC CURB (TY II)	LF	306
0530-6004	DRIVEWAYS (CONC)	SY	173
0531-6001	CONC SIDEWALKS (4")	SY	122
0531-6004	CURB RAMPS (TY 1)	EA	1
0531-6006	CURB RAMPS (TY 3)	EA	1
0531-6010	CURB RAMPS (TY 7)	EA	2
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	34
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
0644-6060	IN SM RD SN SUP&M TYTWT(1)WS(P)	EA	2
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	2
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	75
0666-6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	299
0666-6230	PAVEMENT SEALER 24"	LF	75
0666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	299
0672-5009	REFL PAV MRKR TY II-B-B	EA	1
0672-6009	REFL PAV MRKR TY II-A-A	EA	3
0678-6001	PAV SURF PREP FOR MRK (4")	LF	299
0678-6008	PAV SURF PREP FOR MRK (24")	LF	75
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	1147



DESIGN

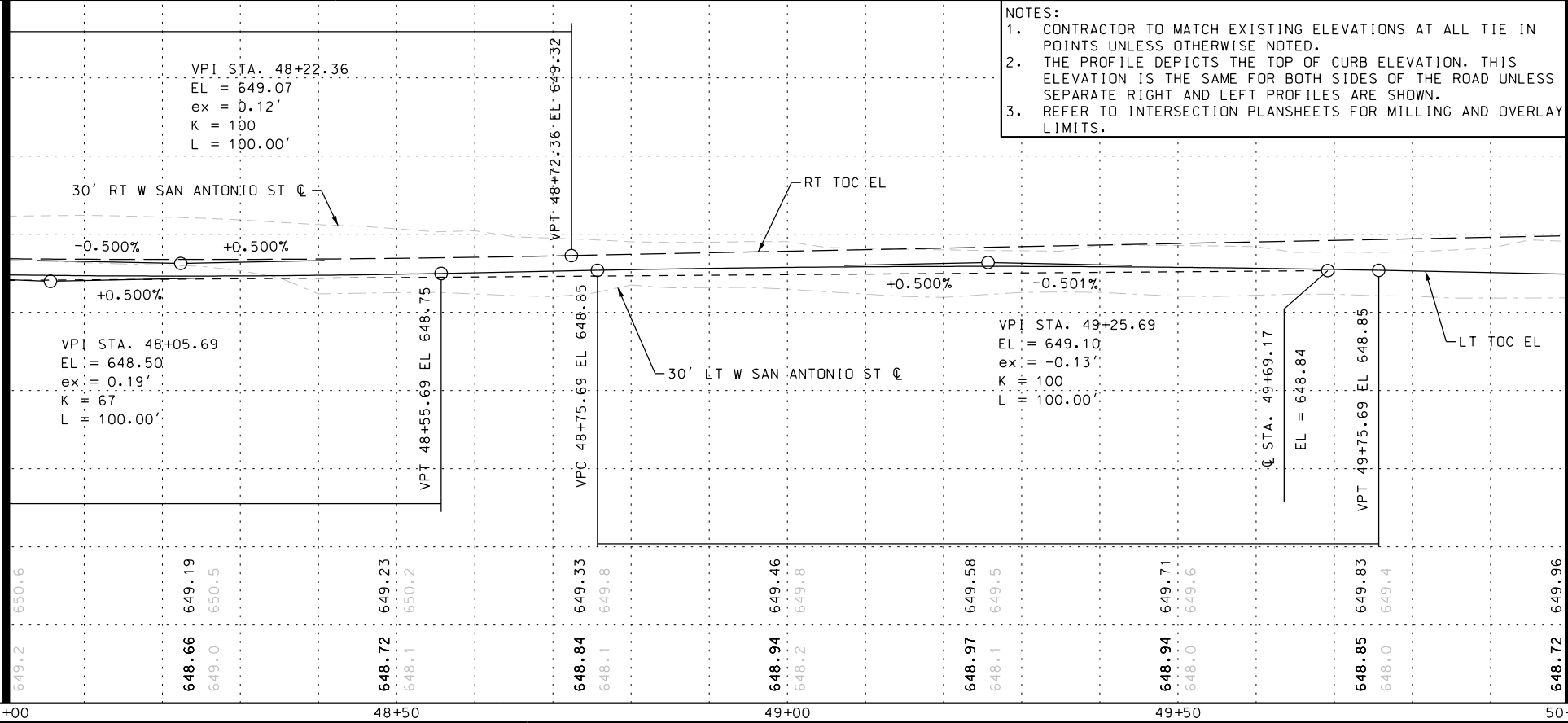
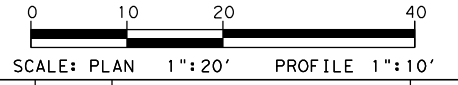
TYLER P. DUBE, P.E.
DATE: 7/24/2019

NOTES:

- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
- THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
- REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
DATE: 7/24/2019



REV. NO. DATE DESCRIPTION BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBP FIRM REGISTRATION #470 | TBP FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

STA 48+00 TO STA 50+00

SHEET 20 OF 35

DGN: CSF	PROJECT NO. CSP 19-028	ROADWAY NAME W SAN ANTONIO ST
CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 67

PLOTTED ON: 7/24/2019

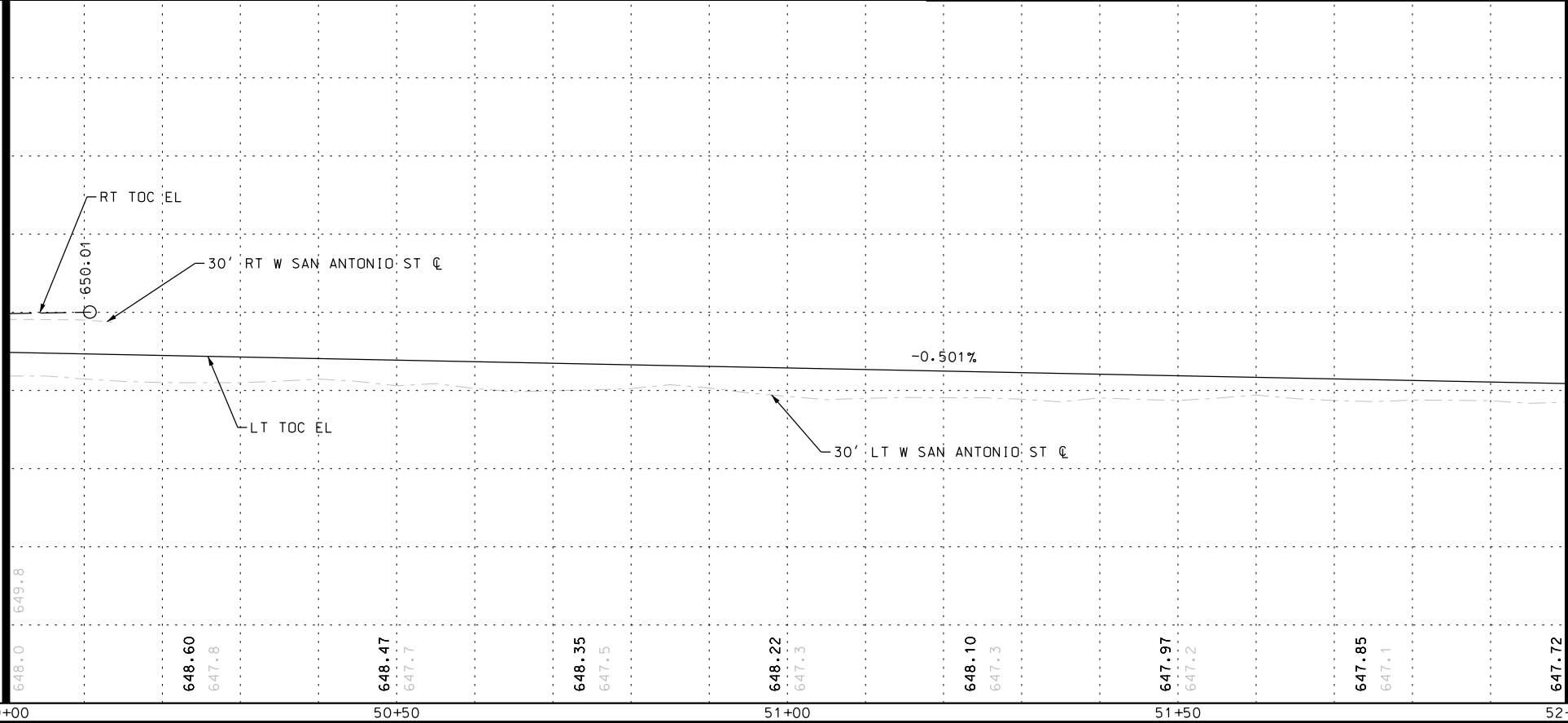
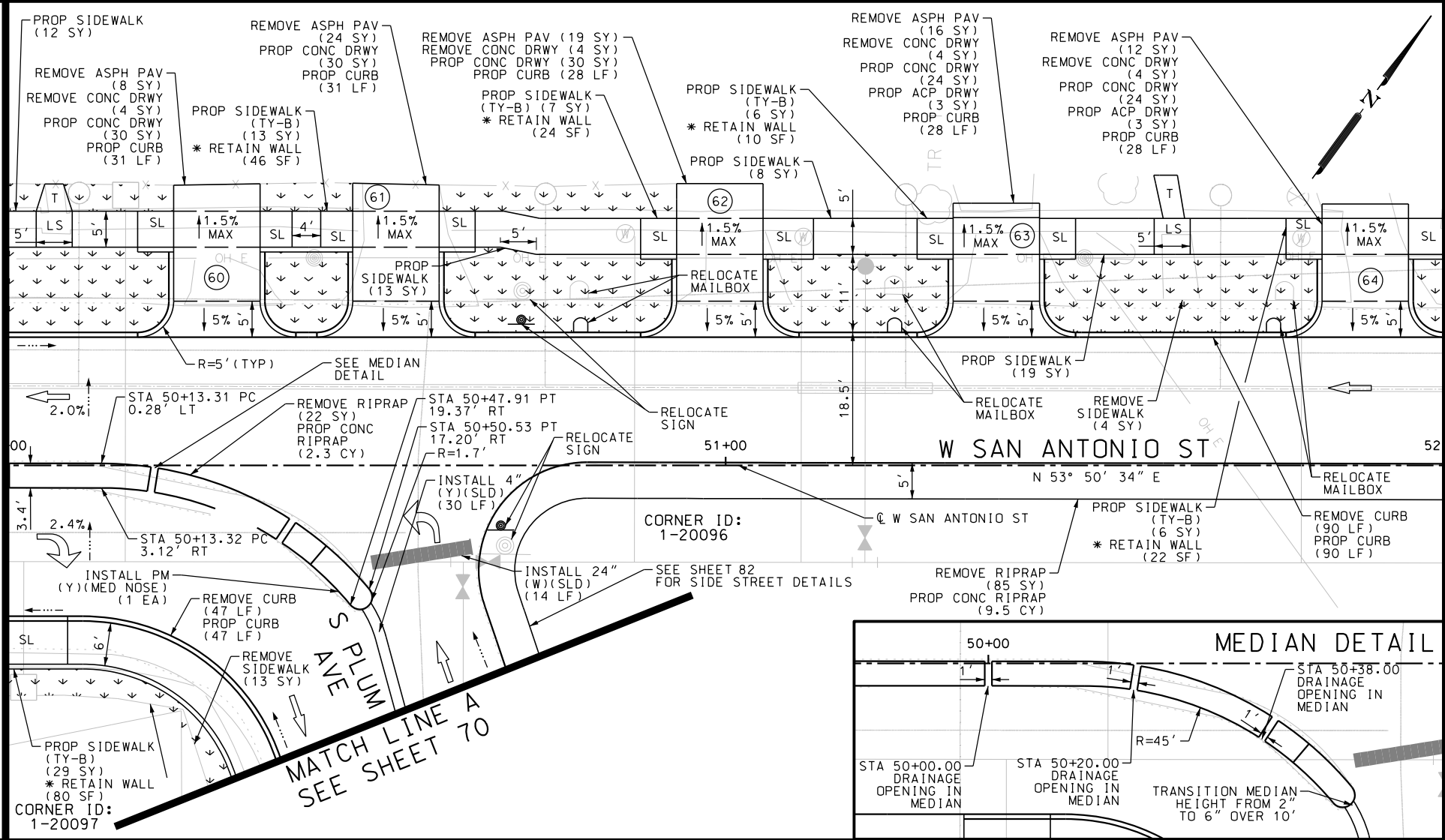
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MATCH LINE STA 50+00

MATCH LINE STA 50+00

MATCH LINE STA 52+00

MATCH LINE STA 52+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	107
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	16
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	137
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	17
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	782
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	201
0162-6002	BLOCK SODDING	SY	201
0168-6001	VEGETATIVE WATERING	MG	3.14
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	152.9
0310-6009	PRIME COAT (MC-30)	GAL	206.40
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	105.7
0432-6001	RIPRAP (CONC) (4 IN)	CY	11.8
0529-6002	CONC CURB (TY II)	LF	283
0530-6004	DRIVEWAYS (CONC)	SY	138
0530-6005	DRIVEWAYS (ACP)	SY	6
0531-6001	CONC SIDEWALKS (4")	SY	52
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	61
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	3
0644-6071	RELOCATE SM RD SN SUP&M TY TWT	EA	2
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	14
0666-6217	REFL PAV MRK TY II (Y) (MED NOSE)	EA	1
0666-6224	PAVEMENT SEALER 4"	LF	30
0666-6230	PAVEMENT SEALER 24"	LF	14
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	30
0678-6001	PAV SURF PREP FOR MRK (4")	LF	30
0678-6008	PAV SURF PREP FOR MRK (24")	LF	14
5001-6002	GEOGRID BASE REINF (TENSAR TRIAX TX-5)	SY	693

- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND

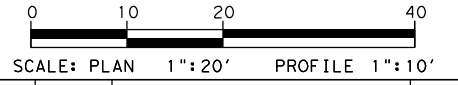
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019 DATE



REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
 PLAN & PROFILE

STA 50+00 TO STA 52+00

SHEET 21 OF 35

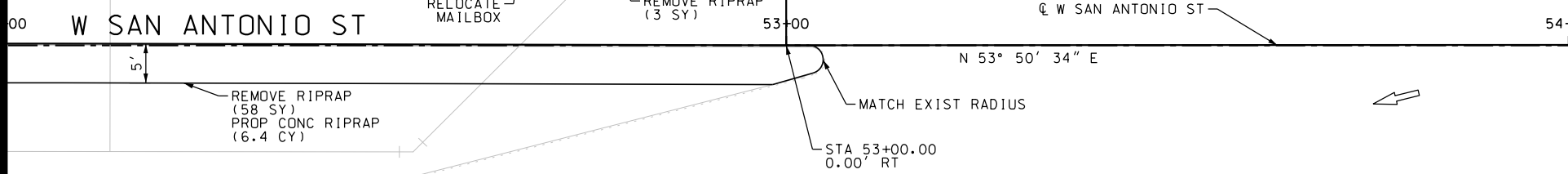
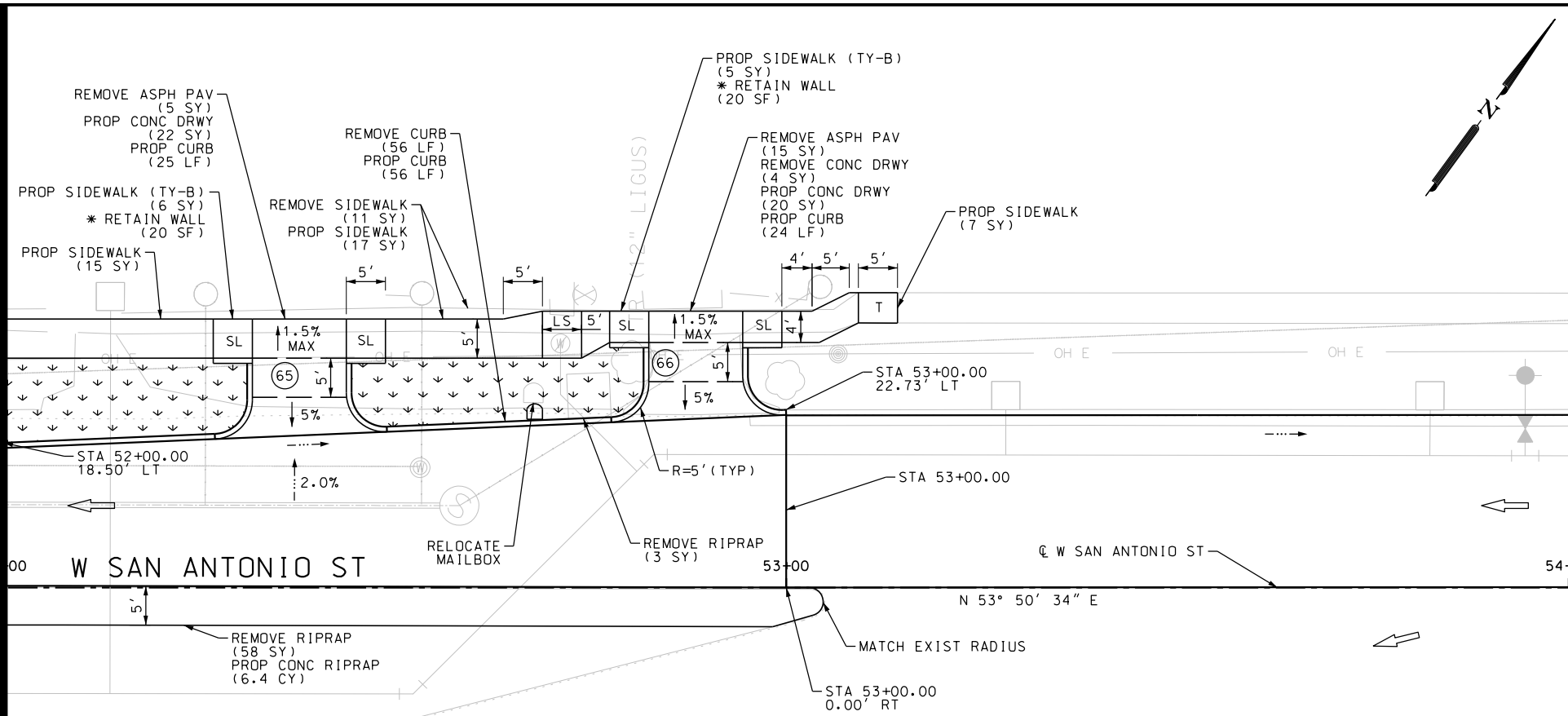
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CHK DGN: TPD	STATE TEXAS	COUNTY COMAL
DWG:	CITY NEW BRAUNFELS	SHEET NO. 68

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_22.dgn

MATCH LINE STA 52+00

MATCH LINE STA 52+00



ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	61
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	4
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	56
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	11
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	263
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	65
0162-6002	BLOCK SODDING	SY	65
0168-6001	VEGETATIVE WATERING	MG	1.01
0247-6041	FL BS (CMP IN PLC) (TYA GRI-2) (FNAL POS)	CY	58.2
0310-6009	PRIME COAT (MC-30)	GAL	78.60
0340-6120	D-GR HMA (SQ) TY-D SAC-B PG70-22	TON	111.3
0354-6048	PLANE ASPH CONC PAV (3")	SY	424
0432-6001	RIPRAP (CONC) (4 IN)	CY	6.4
0529-6002	CONC CURB (TY II)	LF	105
0530-6004	DRIVEWAYS (CONC)	SY	42
0531-6001	CONC SIDEWALKS (4")	SY	39
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	11
0560-6004	MAILBOX INSTALL-S (TWG-POST) TY 2	EA	1
5001-6002	GEGRID BASE REINF (TENSAR TRIAX TX-5)	SY	264

- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - ← TRAFFIC FLOW
 - MAILBOX
 - # DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.
118612
7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.
84722
7/24/2019 DATE

SCALE: PLAN 1"=20' PROFILE 1"=10'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN & PROFILE

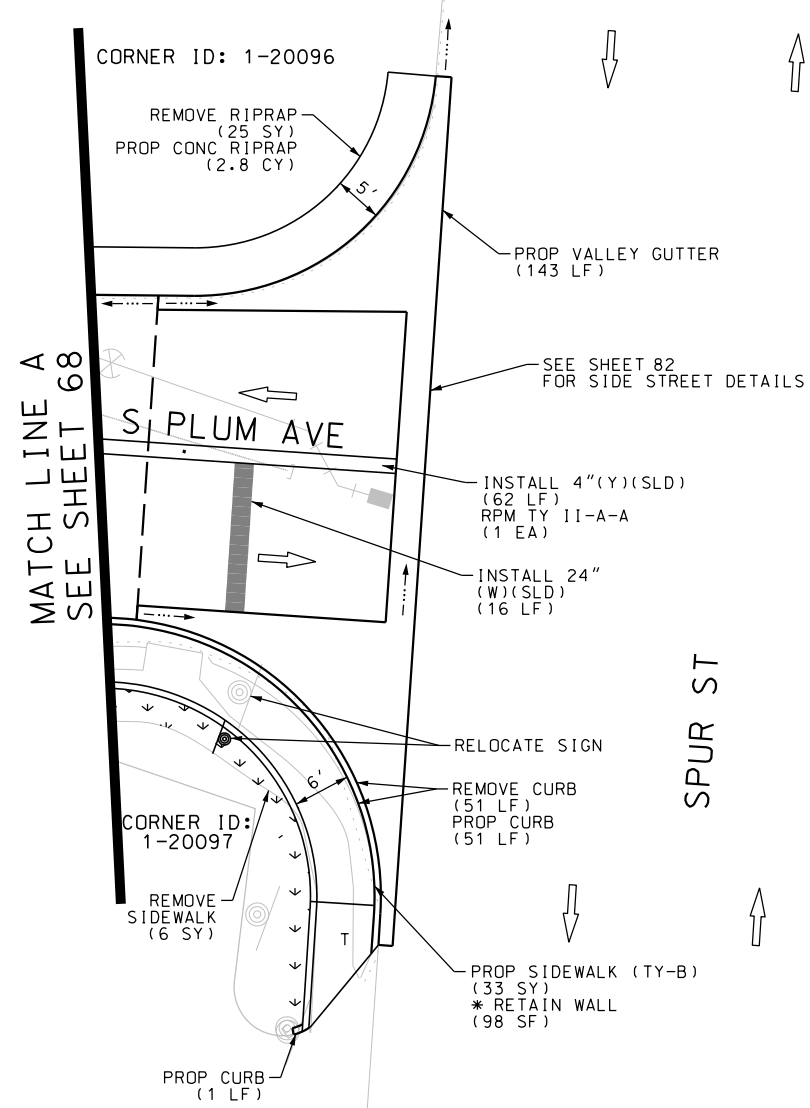
STA 52+00 TO STA 54+00

SHEET 22 OF 35

DGN:	PROJECT NO.	ROADWAY NAME		
CSF	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
TPD	TEXAS	COMAL	NEW BRAUNFELS	69

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_23.dgn



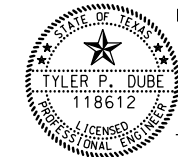
ITEM	DESCRIPTION	UNIT	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	25
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	51
0104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	6
0105-6037	REMOVING STAB BASE AND ASPH PAV (0"-16")	SY	177
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	13
0162-6002	BLOCK SODDING	SY	13
0168-6001	VEGETATIVE WATERING	MG	0.20
0432-6001	RIPRAP (CONC) (4 IN)	CY	2.8
0529-6002	CONC CURB (TY II)	LF	52
0529-6023	CONC CURB & GUTTER (VALLEY GUTTER) (36")	LF	143
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	33
0644-6071	RELOCATE SM RD SN SUP&AM TY TWT	EA	1
0666-6048	REFL PAV MRK TY I (W)24" (SLD) (100MIL)	LF	16
0666-6224	PAVEMENT SEALER 4"	LF	62
0666-6230	PAVEMENT SEALER 24"	LF	16
0666-6315	RE PM W/RET REQ TY I (Y)4" (SLD) (100MIL)	LF	62
0672-6009	REFL PAV MRKR TY II-A-A	EA	1
0678-6001	PAV SURF PREP FOR MRK (4")	LF	62
0678-6008	PAV SURF PREP FOR MRK (24")	LF	16

NOTES:

- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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LEGEND

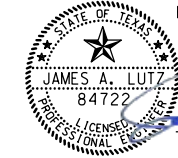
- DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- DRIVEWAY ID



DESIGN

Tyler P. Dube
TYLER P. DUBE, P.E.

7/24/2019
DATE



REVIEW AND APPROVAL

James A. Lutz
JAMES A. LUTZ, P.E.

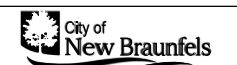
7/24/2019
DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY



SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN

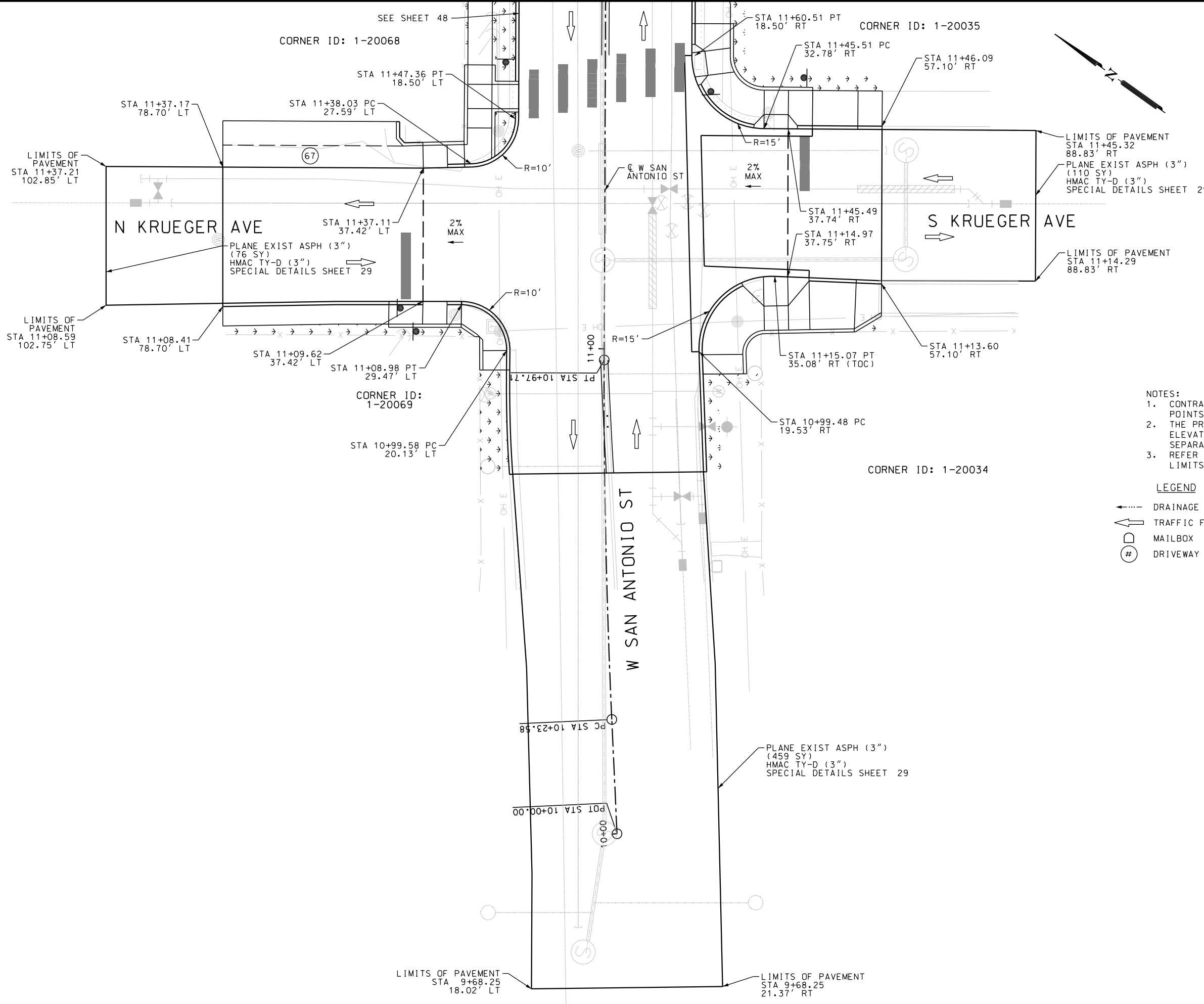
S PLUM AVE

SHEET 23 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	70

PLOTTED ON: 7/24/2019

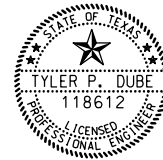
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- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊕ DRIVEWAY ID



DESIGN


 TYLER P. DUBE, P.E.
 7/24/2019 DATE

REVIEW AND APPROVAL

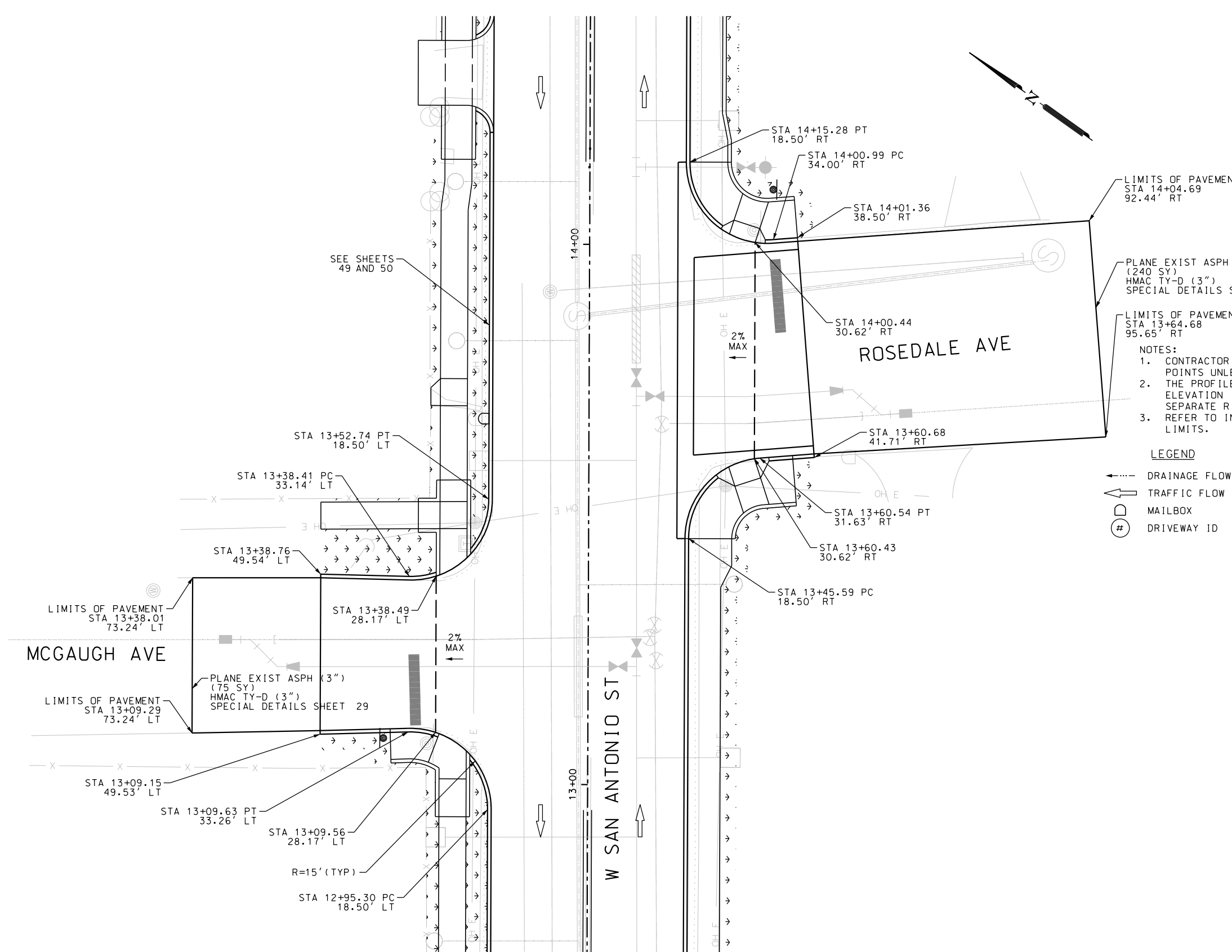

 JAMES A. LUTZ, P.E.
 7/24/2019 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY
 SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800			
 ROADWAY W SAN ANTONIO ST PLAN KRUEGER AVE SHEET 24 OF 35			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK: DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 71

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\111\38\01\Design\Civil\Roadway\113801_SanAntonioSt_25.dgn



LIMITS OF PAVEMENT
STA 14+04.69
92.44' RT

PLANE EXIST ASPH (3")
(240 SY)
HMAC TY-D (3")
SPECIAL DETAILS SHEET 29

LIMITS OF PAVEMENT
STA 13+64.68
95.65' RT

- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - # DRIVEWAY ID

DESIGN

TYLER P. DUBE
118612
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
84722
LICENSED PROFESSIONAL ENGINEER

7/24/2019
DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN

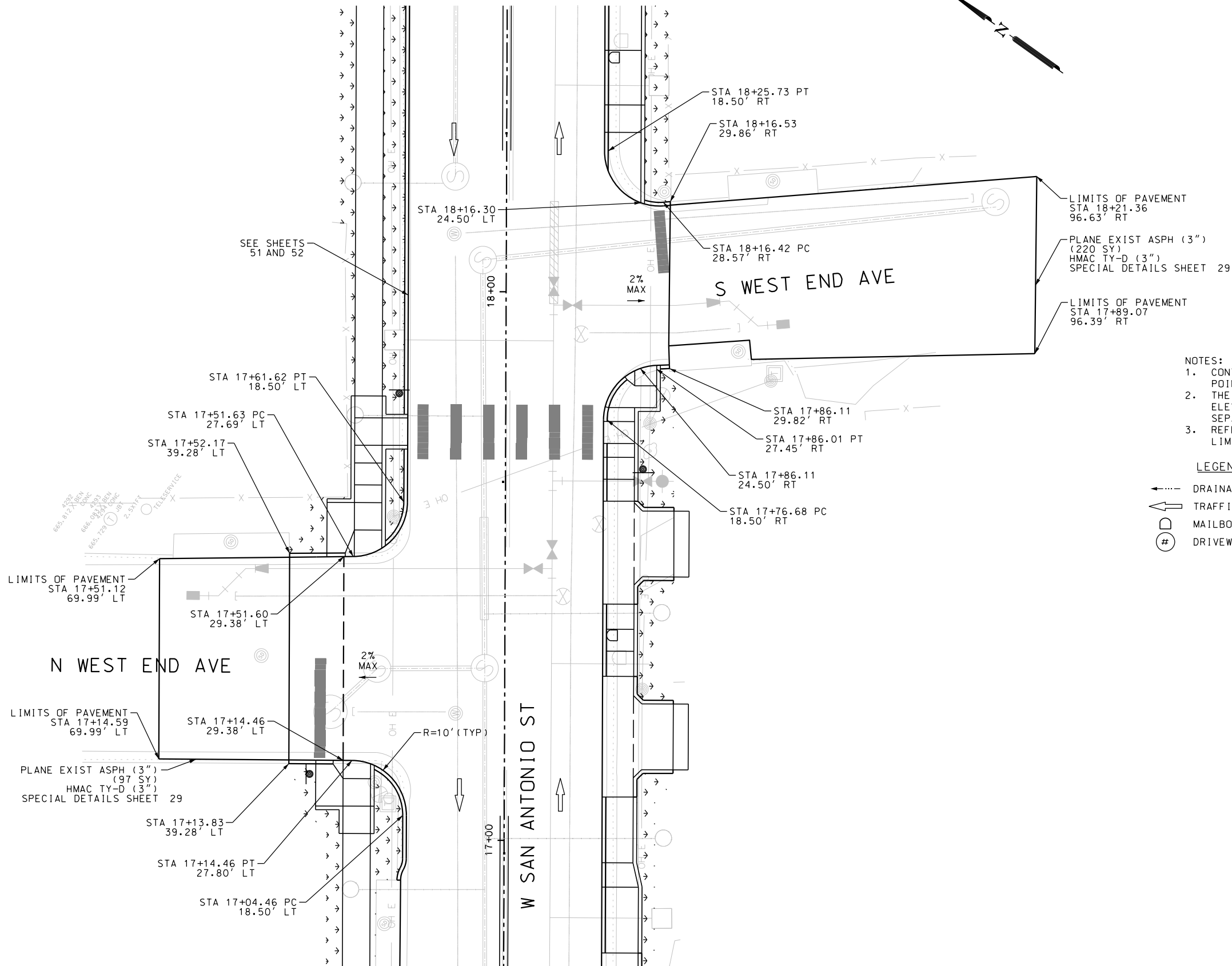
MCGAUGH AVE & ROSEDALE AVE

SHEET 25 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	72

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_26.dgn



- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - # DRIVEWAY ID

DESIGN

TYLER P. DUBE
 118612
 LICENSED PROFESSIONAL ENGINEER

TYLER P. DUBE, P.E.
 7/24/2019
 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ
 84722
 LICENSED PROFESSIONAL ENGINEER

JAMES A. LUTZ, P.E.
 7/24/2019
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of
New Braunfels

ROADWAY

W SAN ANTONIO ST
PLAN

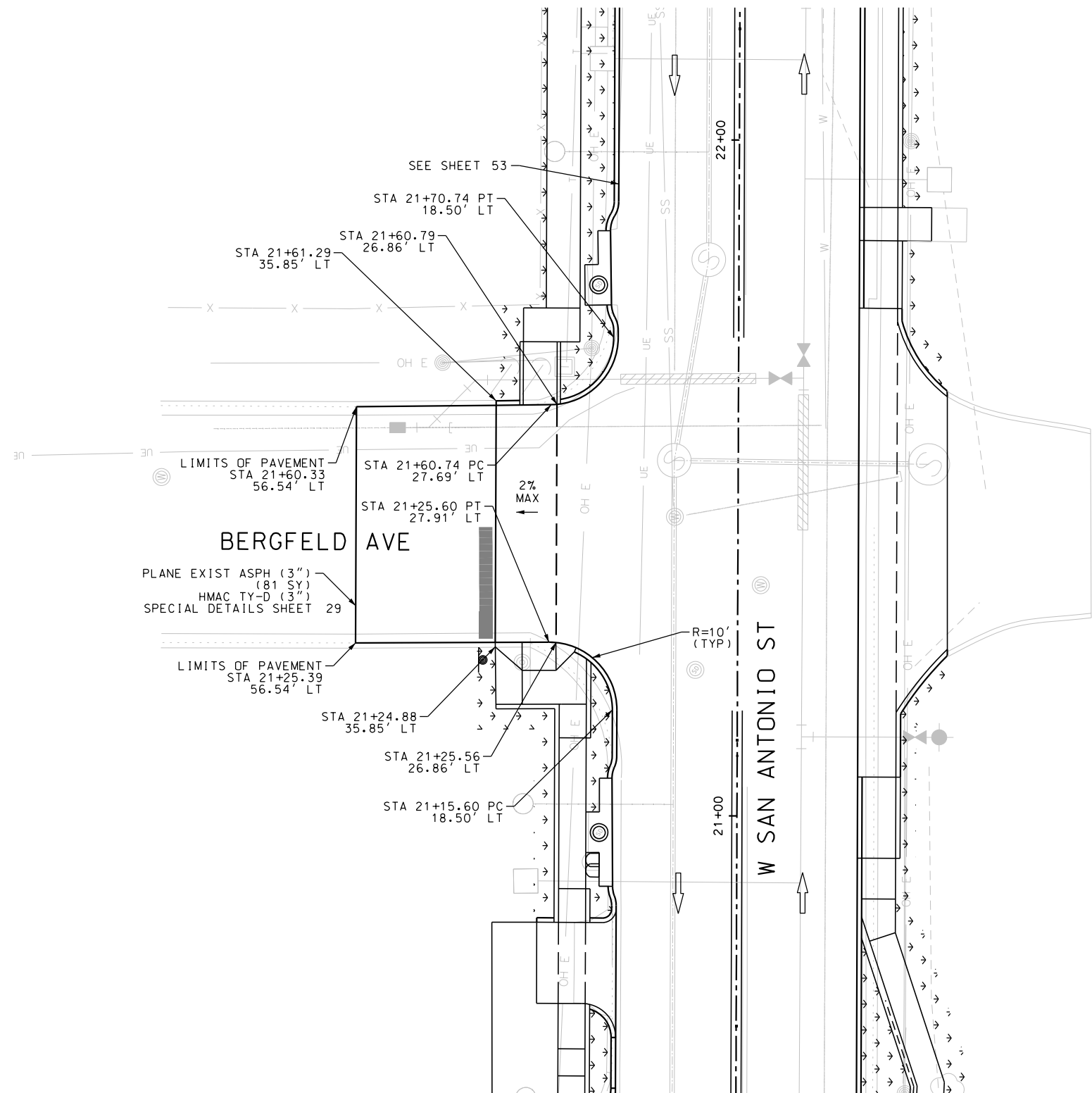
WEST END AVE

SHEET 26 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	73

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_27.dgn

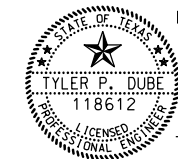


NOTES:

1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

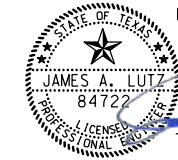
LEGEND

- ← DRAINAGE FLOW
- TRAFFIC FLOW
- MAILBOX
- # DRIVEWAY ID



DESIGN

Tyler P. Dube
 TYLER P. DUBE, P.E.
 7/24/2019
 DATE



REVIEW AND APPROVAL

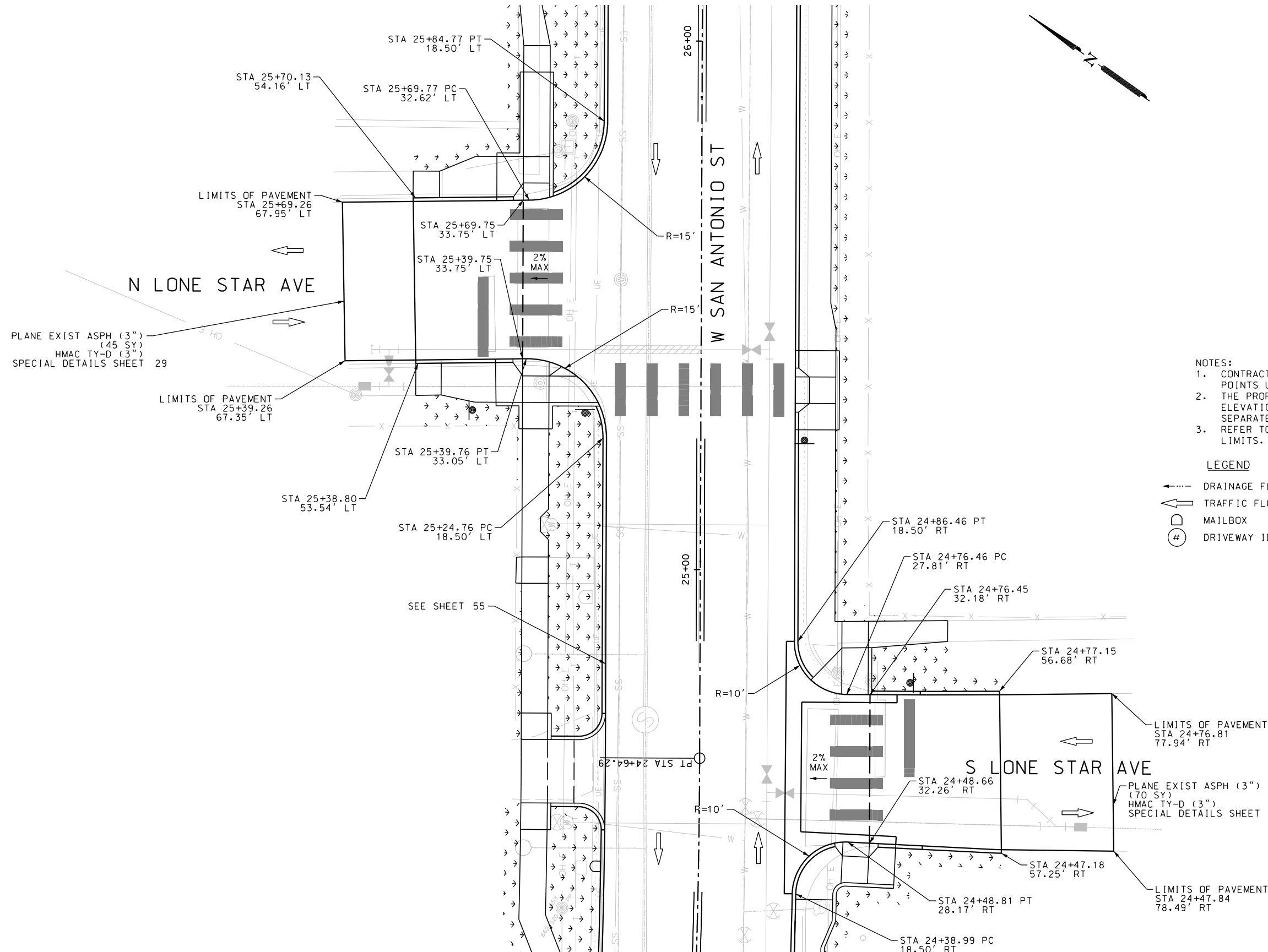
James A. Lutz
 JAMES A. LUTZ, P.E.
 7/24/2019
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY
<p>PAPE-DAWSON ENGINEERS SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</p>			
<p>City of New Braunfels</p>			
ROADWAY W SAN ANTONIO ST PLAN BERGFELD AVE SHEET 27 OF 35			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 74

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_28.dgn



- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - DRIVEWAY ID

DESIGN

STATE OF TEXAS
 TYLER P. DUBE
 118612
 LICENSED PROFESSIONAL ENGINEER

7/24/2019
 DATE

REVIEW AND APPROVAL

STATE OF TEXAS
 JAMES A. LUTZ
 84722
 LICENSED PROFESSIONAL ENGINEER

7/24/2019
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



ROADWAY

W SAN ANTONIO ST
PLAN

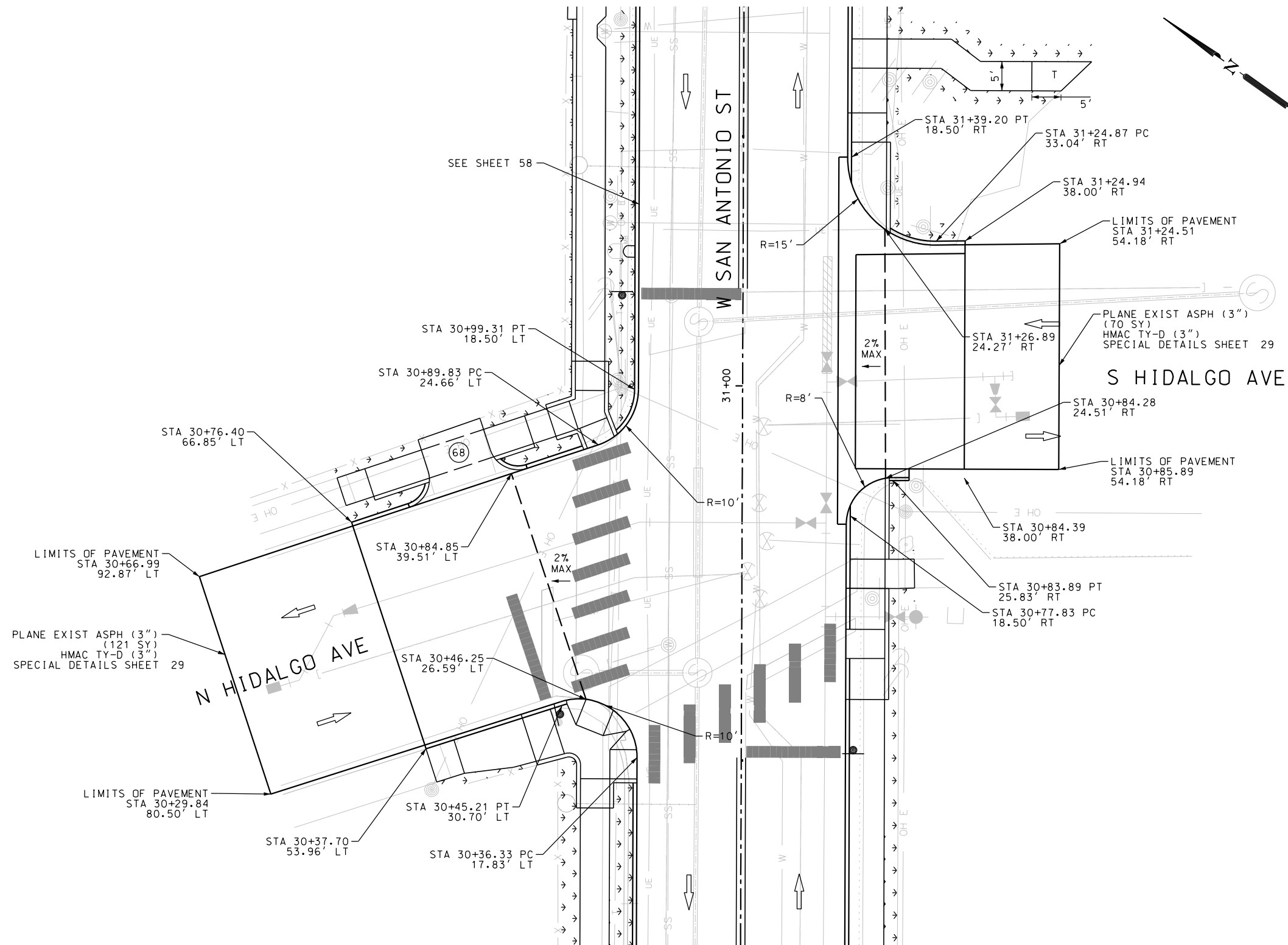
LONE STAR AVE

SHEET 28 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	75

PLOTTED ON: 7/24/2019


DESIGN FILENAME: P:\111\38\01\Design\Civil\Roadway\113801_SanAntonioSt_29.dgn




- NOTES:**
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

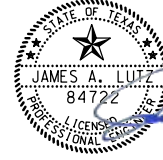
- LEGEND**
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊕ DRIVEWAY ID


DESIGN


 TYLER P. DUBE
 118612
 LICENSED PROFESSIONAL ENGINEER


 TYLER P. DUBE, P.E.
 7/24/2019
 DATE


REVIEW AND APPROVAL



 JAMES A. LUTZ
 84722
 LICENSED PROFESSIONAL ENGINEER


 JAMES A. LUTZ, P.E.
 7/24/2019
 DATE

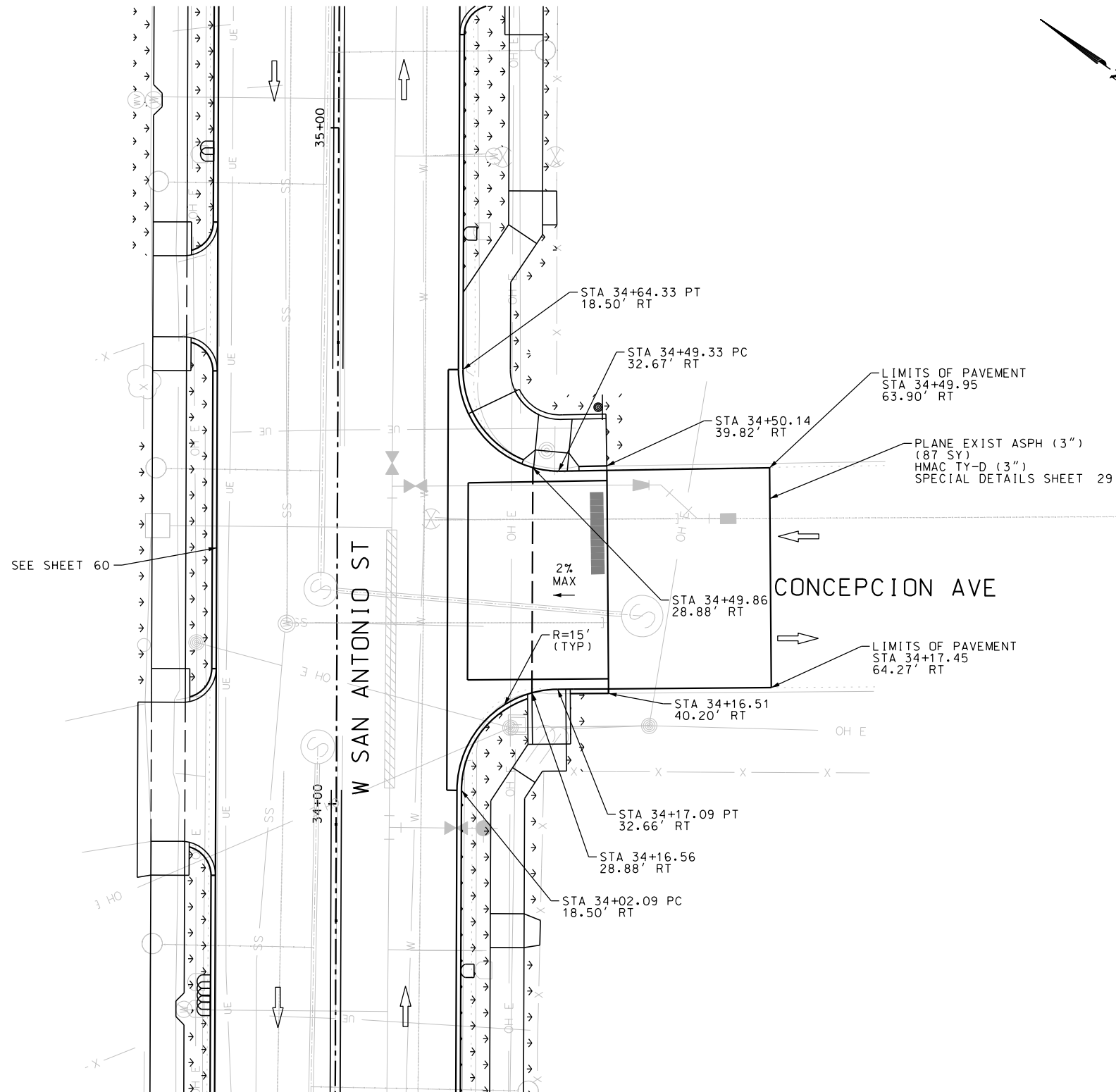
SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY


PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800


 City of New Braunfels
 ROADWAY
W SAN ANTONIO ST
 PLAN
 HIDALGO AVE
 SHEET 29 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	76



- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 2. THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- ← DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊕ DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E.

 7/24/2019

 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E.

 7/24/2019

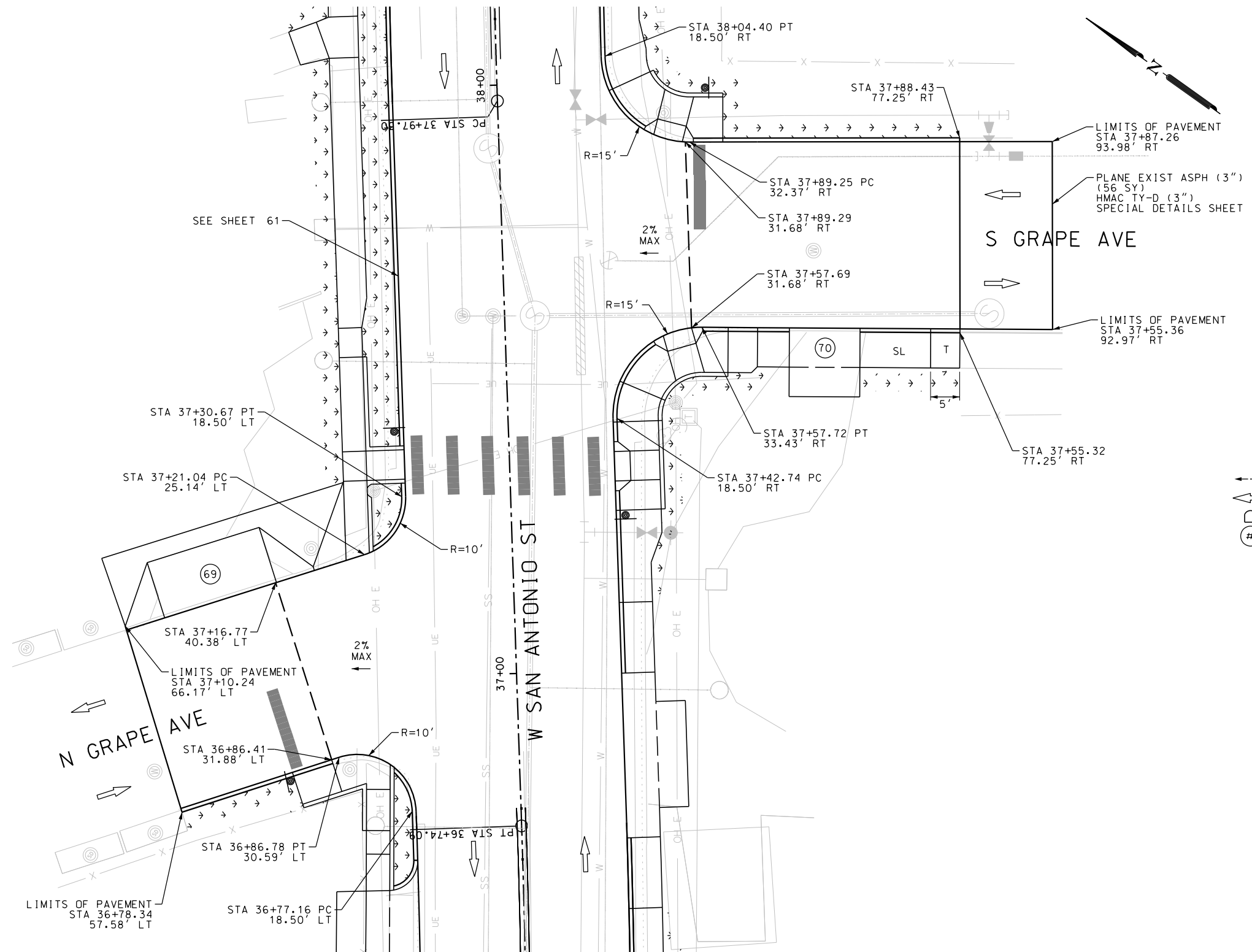
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY
 PAPE-DAWSON ENGINEERS <small>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS</small> <small>2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000</small> <small>TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800</small>			
 ROADWAY W SAN ANTONIO ST PLAN CONCEPCION AVE SHEET 30 OF 35			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 77

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_31.dgn



- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
 - THE PROFILE DEPICTS THE TOP OF CURB ELEVATION. THIS ELEVATION IS THE SAME FOR BOTH SIDES OF THE ROAD UNLESS SEPARATE RIGHT AND LEFT PROFILES ARE SHOWN.
 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - ⊕ DRIVEWAY ID

DESIGN

STATE OF TEXAS
 TYLER P. DUBE
 118612
 LICENSED PROFESSIONAL ENGINEER

7/24/2019
 DATE

REVIEW AND APPROVAL

STATE OF TEXAS
 JAMES A. LUTZ
 84722
 LICENSED PROFESSIONAL ENGINEER

7/24/2019
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of
New Braunfels

ROADWAY

W SAN ANTONIO ST
 PLAN

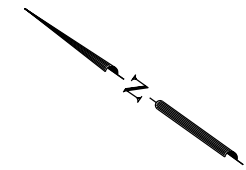
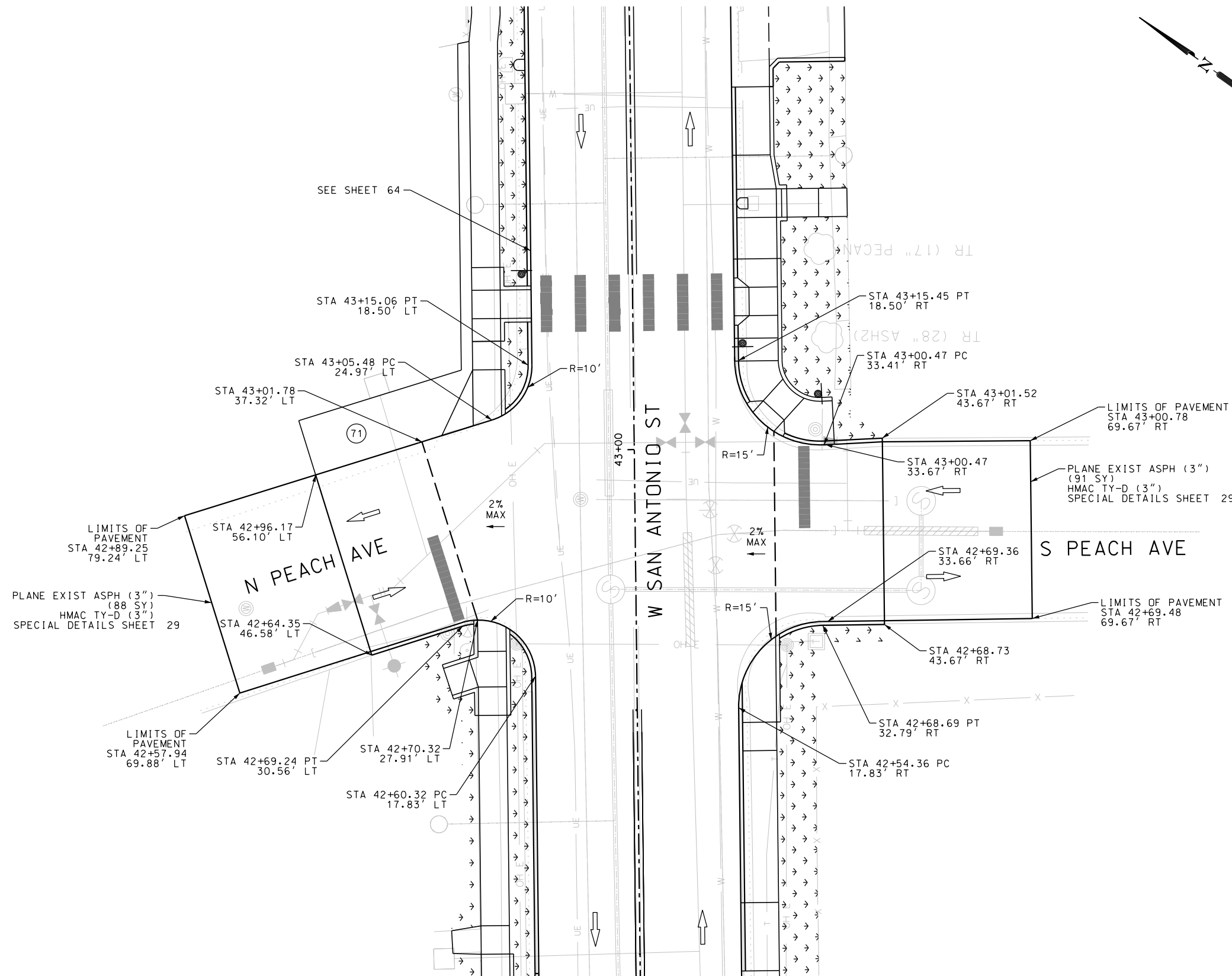
GRAPE AVE

SHEET 31 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	78

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_32.dgn



- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - DRIVEWAY ID

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

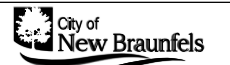
JAMES A. LUTZ, P.E. 7/24/2019 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

Pape-Dawson Engineers

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800



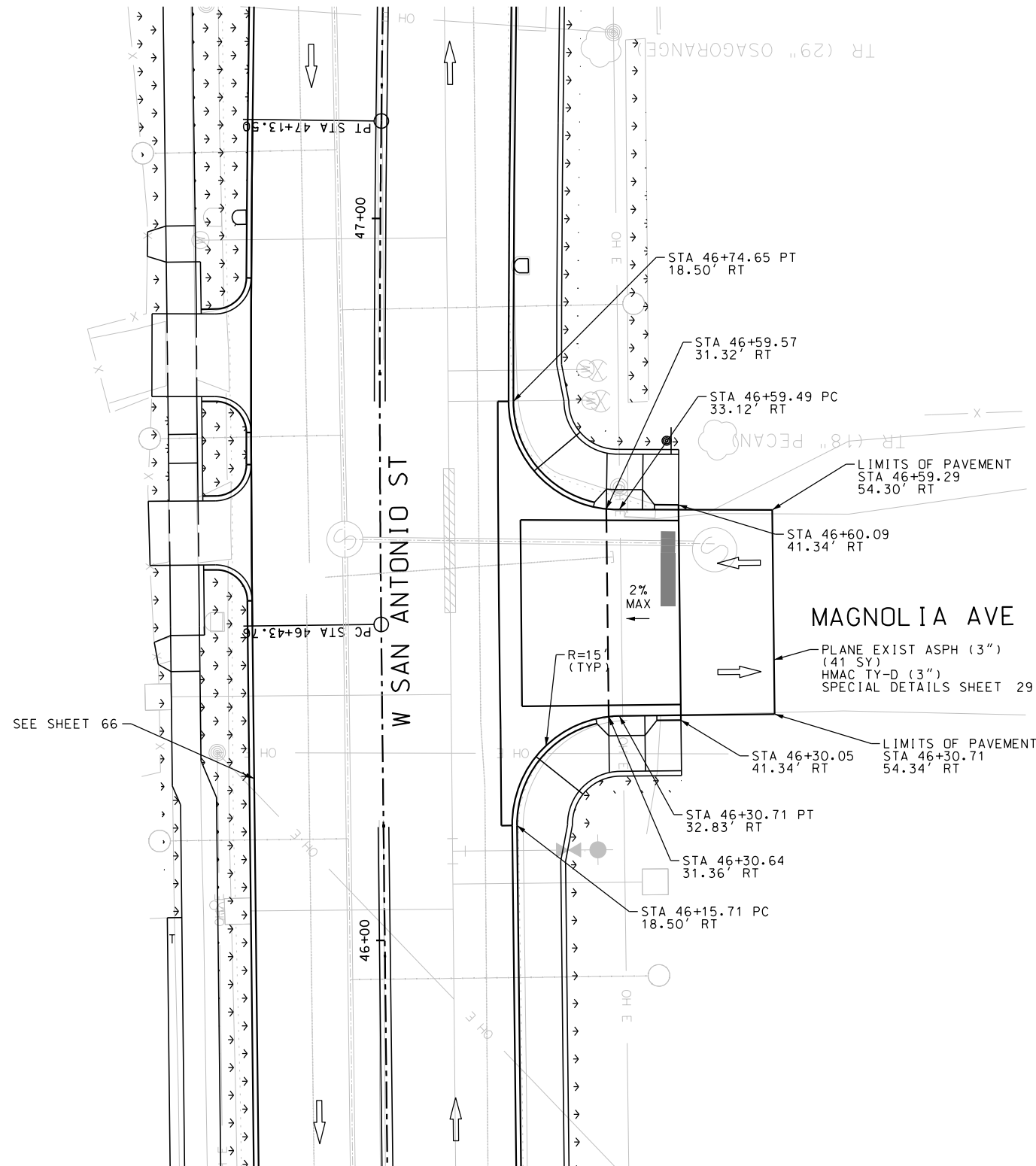
ROADWAY

W SAN ANTONIO ST
 PLAN

PEACH AVE

SHEET 32 OF 35

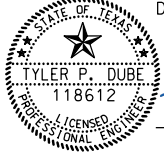
DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	79



- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

- LEGEND
- ← DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - # DRIVEWAY ID

DESIGN

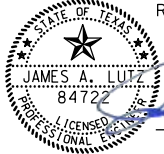


 TYLER P. DUBE, P.E.

 7/24/2019

 DATE

REVIEW AND APPROVAL





 JAMES A. LUTZ, P.E.

 7/24/2019

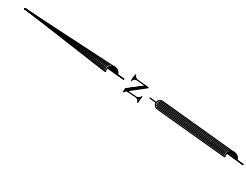
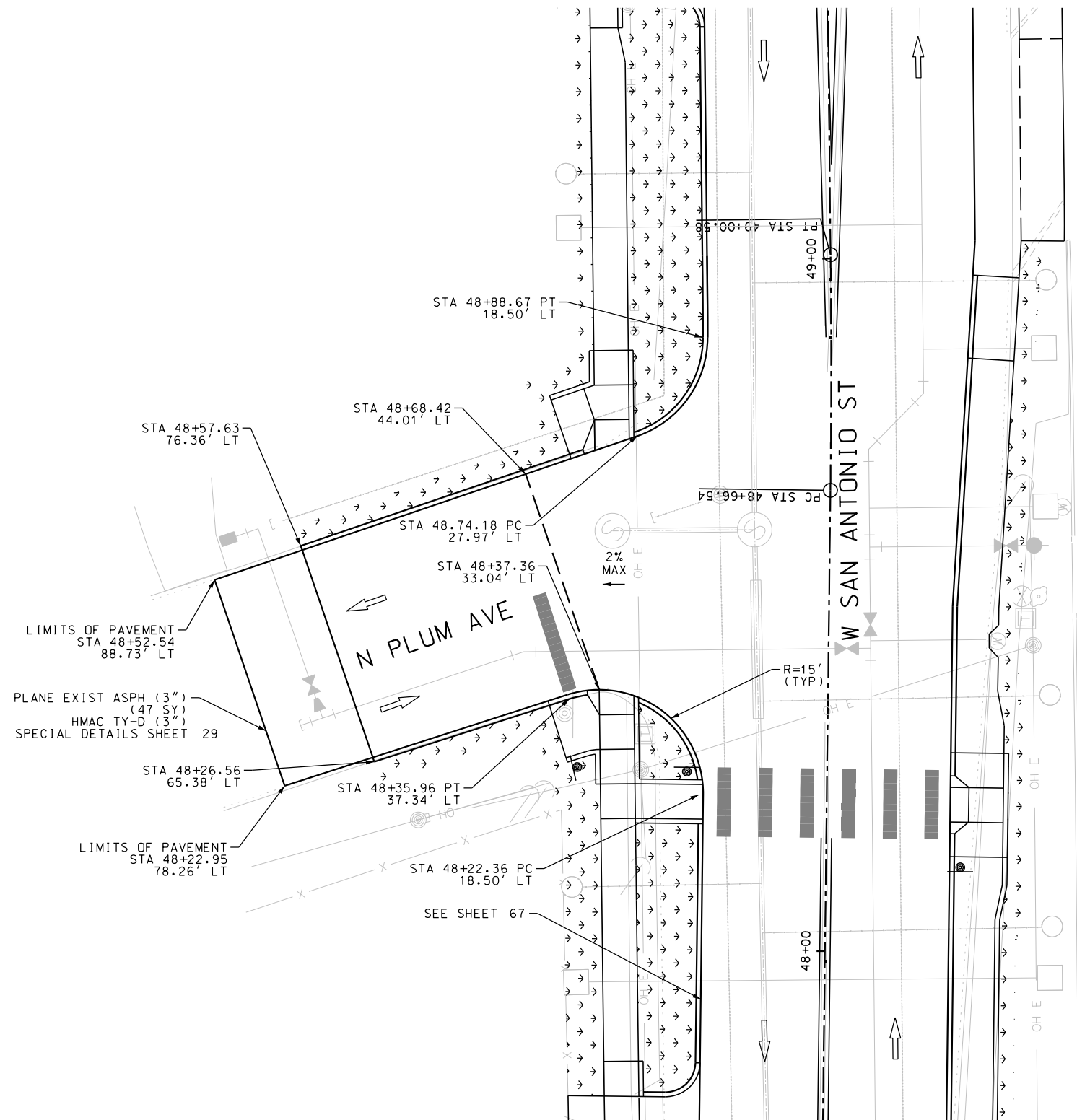
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY
 SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 TBPLS FIRM REGISTRATION #10028800			
 ROADWAY W SAN ANTONIO ST PLAN MAGNOLIA AVE			
SHEET 33 OF 35			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 80

PLOTTED ON: 7/24/2019


DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_34.dgn




- NOTES:
1. CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 3. REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.


- LEGEND
- DRAINAGE FLOW
 - TRAFFIC FLOW
 - MAILBOX
 - # DRIVEWAY ID


DESIGN


 TYLER P. DUBE
 118612
 LICENSED PROFESSIONAL ENGINEER


 TYLER P. DUBE, P.E.
 7/24/2019
 DATE

REVIEW AND APPROVAL



 JAMES A. LUTZ
 84722
 LICENSED PROFESSIONAL ENGINEER


 JAMES A. LUTZ, P.E.
 7/24/2019
 DATE

SCALE: PLAN 1" = 20'

REV. NO.	DATE	DESCRIPTION	BY

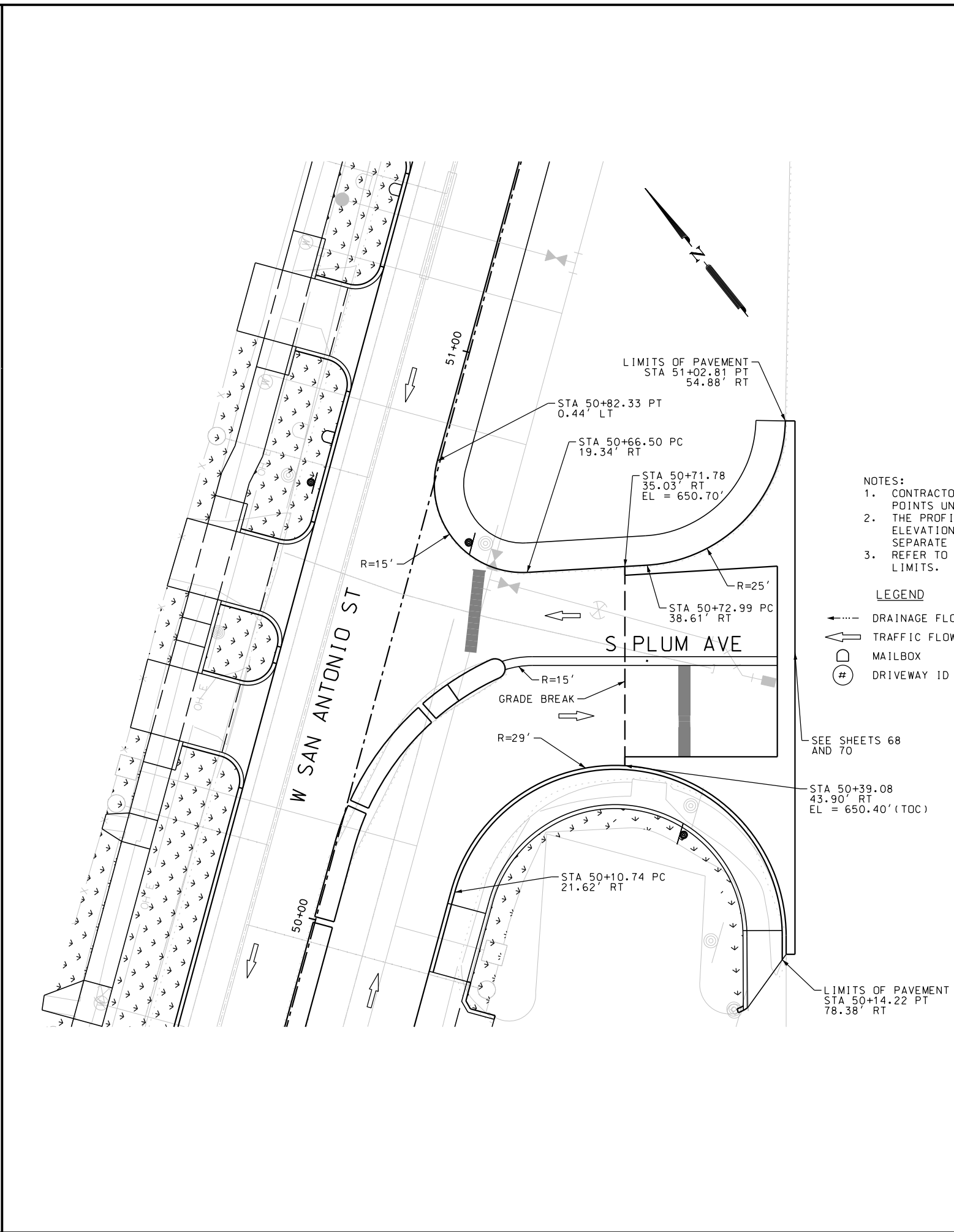
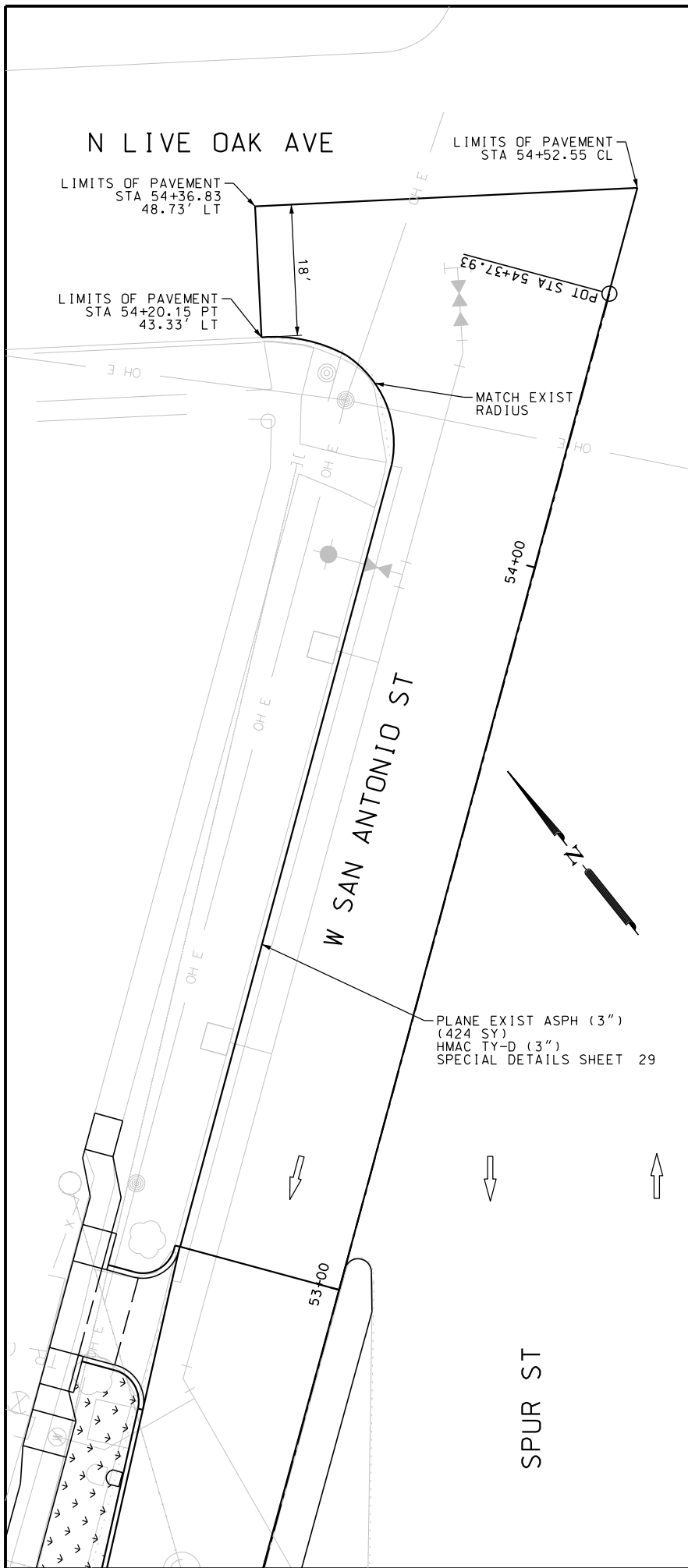

PAPE-DAWSON ENGINEERS
 SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800


 City of
New Braunfels
 ROADWAY
W SAN ANTONIO ST
 PLAN
 N PLUM AVE
 SHEET 34 OF 35

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	81

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\Roadway\113801_SanAntonioSt_35.dgn



- NOTES:
- CONTRACTOR TO MATCH EXISTING ELEVATIONS AT ALL TIE IN POINTS UNLESS OTHERWISE NOTED.
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 - REFER TO INTERSECTION PLANSHEETS FOR MILLING AND OVERLAY LIMITS.

LEGEND

--- DRAINAGE FLOW

← TRAFFIC FLOW

○ MAILBOX

⊕ DRIVEWAY ID

SEE SHEETS 68 AND 70

STA 50+39.08 43.90' RT EL = 650.40' (TOC)

SCALE: PLAN 1" = 20'

DESIGN

TYLER P. DUBE, P.E. 7/24/2019

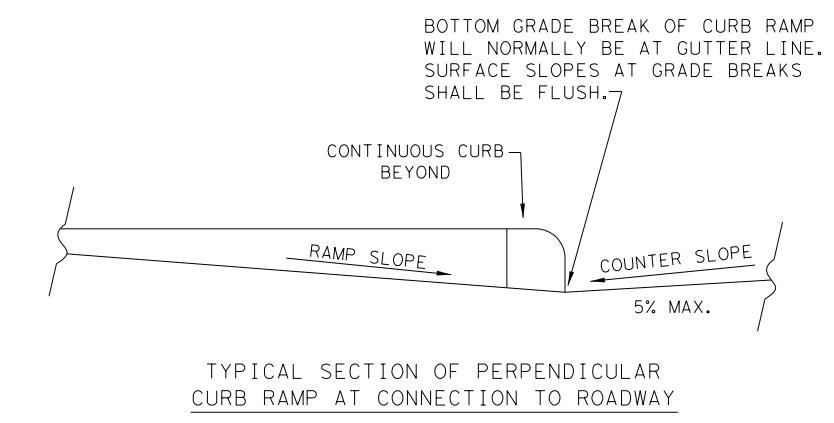
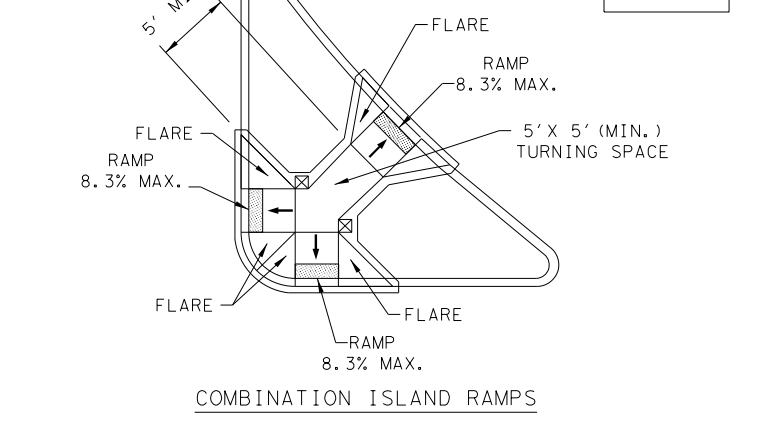
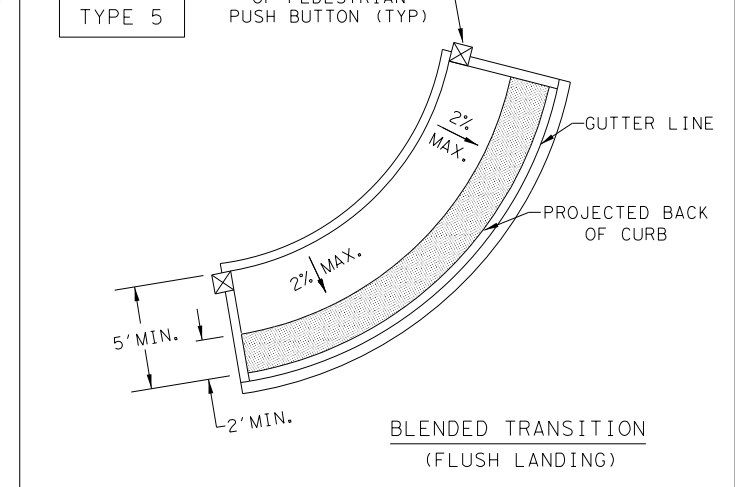
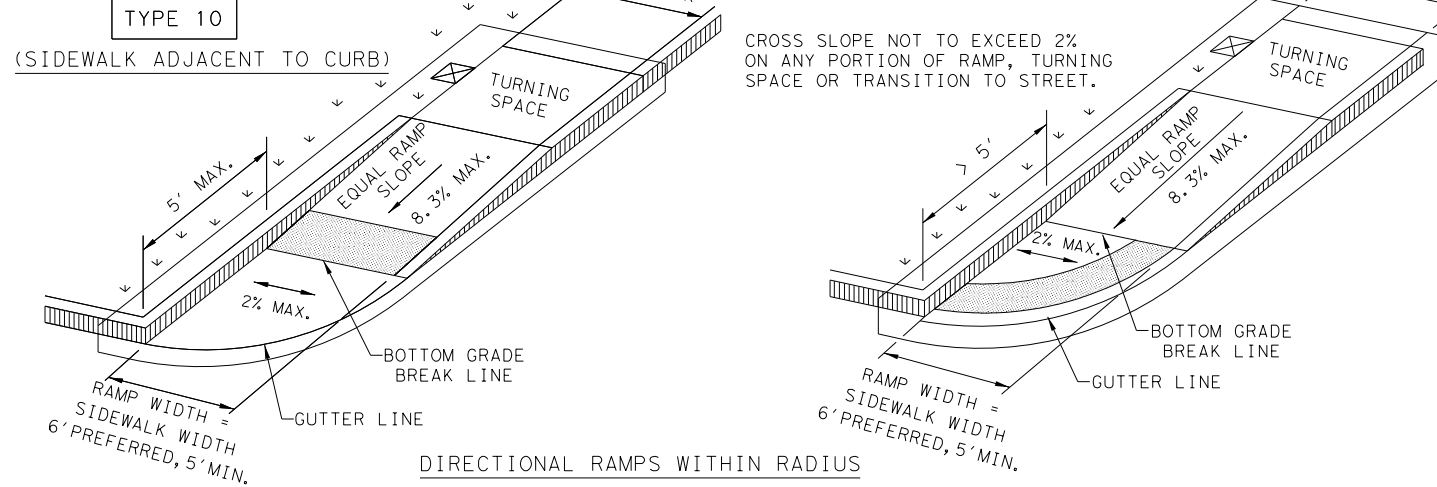
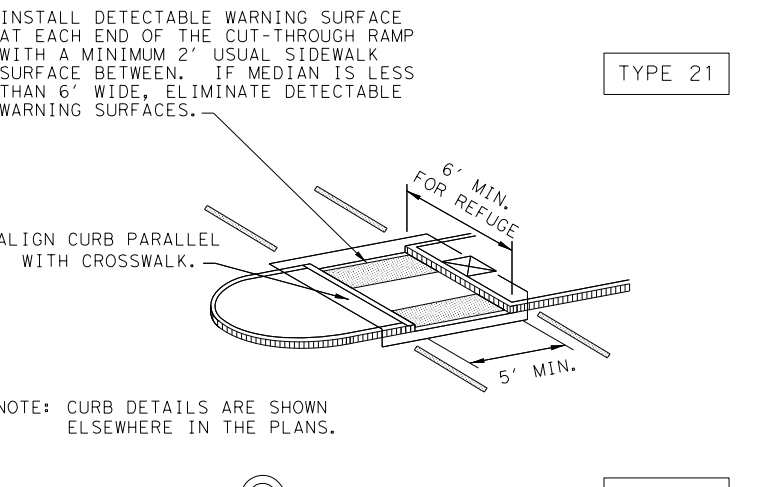
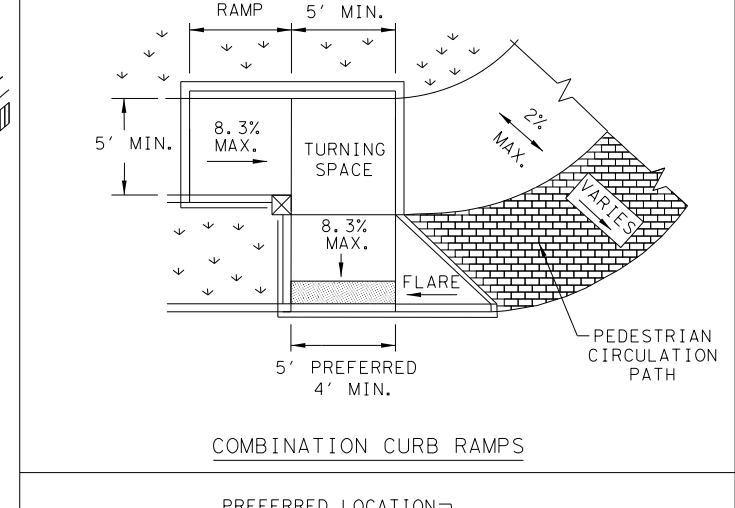
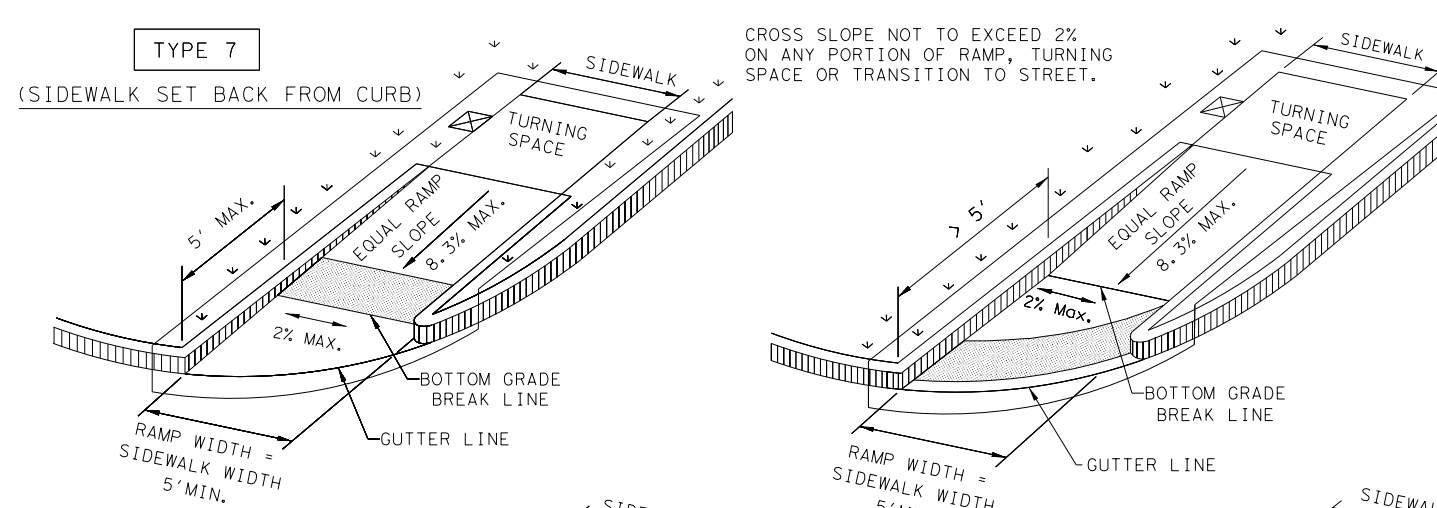
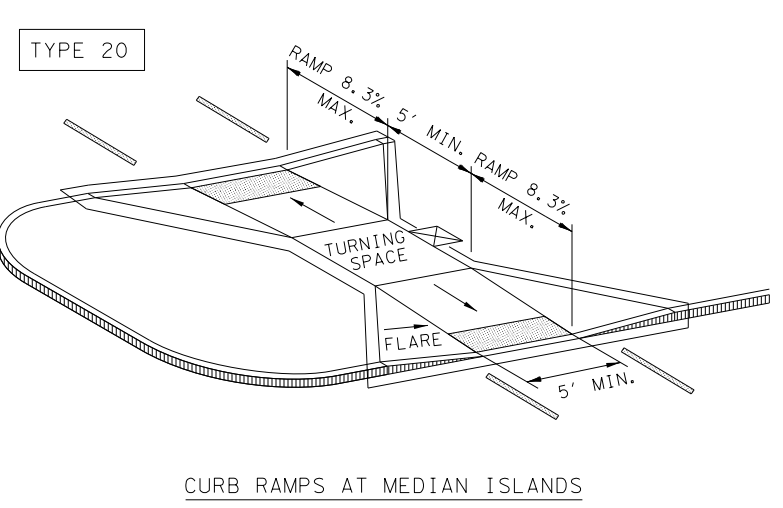
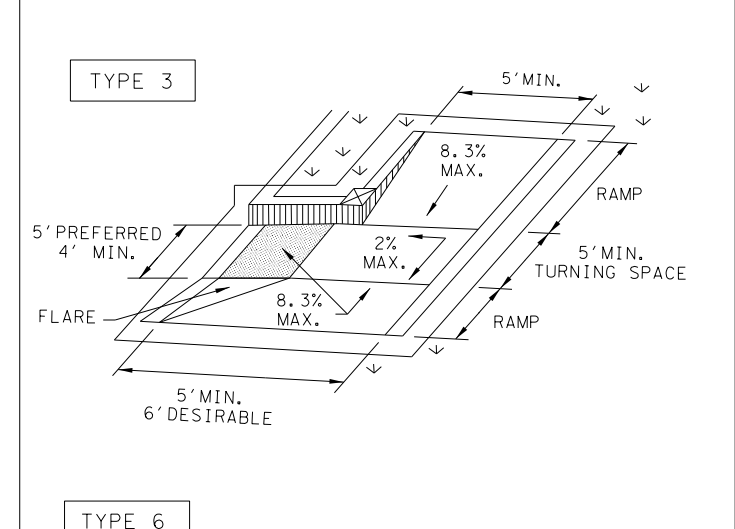
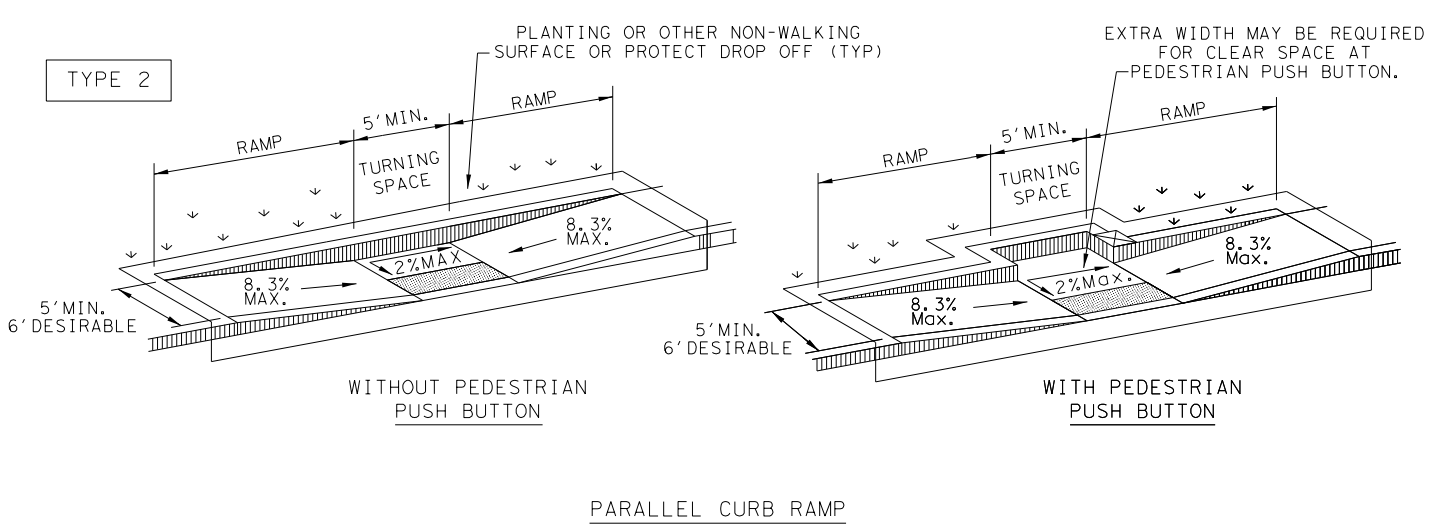
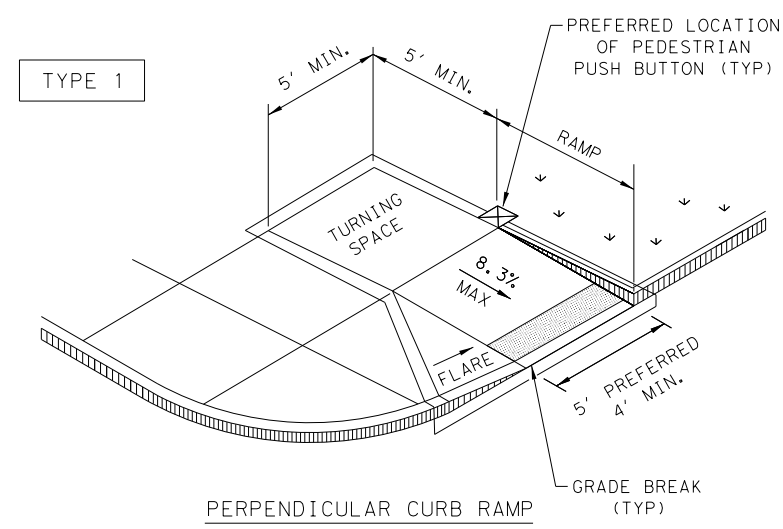
REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019

REV. NO.	DATE	DESCRIPTION	BY
<p>SAN ANTONIO AUSTIN HOUSTON FORT WORTH DALLAS 2000 NW LOOP 410 SAN ANTONIO, TX 78213 210.375.9000 TBPB FIRM REGISTRATION #470 TBPB FIRM REGISTRATION #10028800</p>			
<p>ROADWAY</p> <p>W SAN ANTONIO ST</p> <p>PLAN</p> <p>S PLUM AVE</p> <p>SHEET 35 OF 35</p>			
DGN: CSF	PROJECT NO.	ROADWAY NAME	
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST	
DWG:	STATE	COUNTY	CITY
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS
			SHEET NO. 82

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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.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

Detectable Warning Surface

Gutter Line

Grade Break

Ramp Limits of Payment

SHEET 1 OF 4

Design Division Standard

**PEDESTRIAN FACILITIES
 CURB RAMPS
 PED-18**

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	SAT	COMAL	83	
REVISED 01, 2018				

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 FILE: P:\111\38\01\Design\Civil\Standards\Roadway\ped18.dgn

GENERAL NOTES

CURB RAMP

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. 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.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear 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.
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 latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
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. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
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. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. 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.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

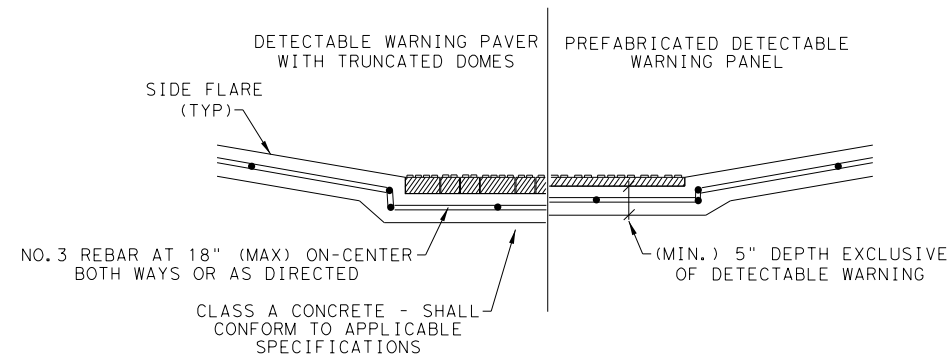
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. 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.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches 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.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. 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.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

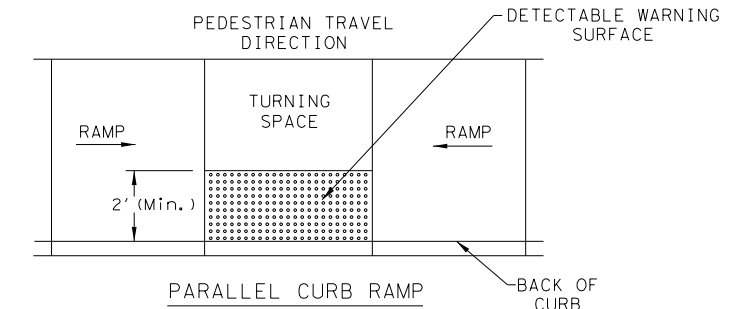
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. 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.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. 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 five percent (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 PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. 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".
34. Sidewalk details are shown elsewhere in the plans.

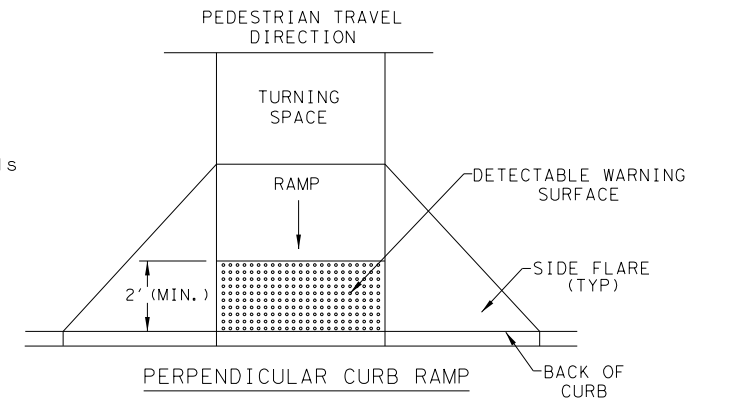


SECTION VIEW DETAIL
 CURB RAMP AT DETECTIBLE WARNINGS

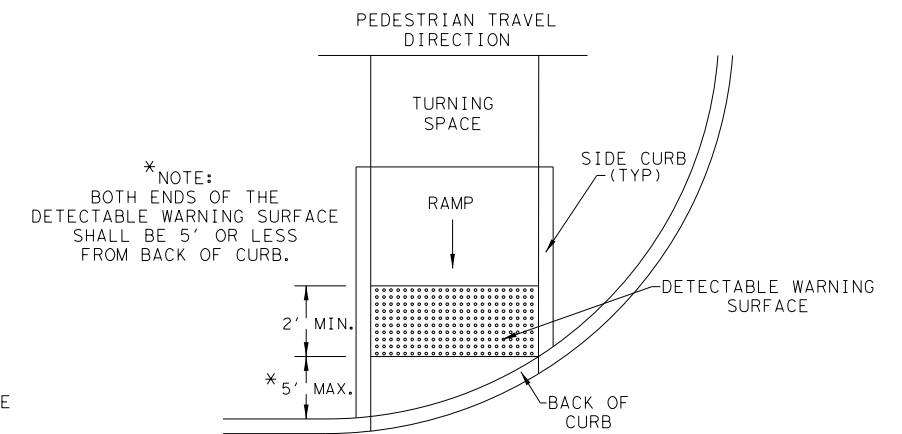
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
 TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
 TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



* NOTE:
 BOTH ENDS OF THE
 DETECTABLE WARNING SURFACE
 SHALL BE 5' OR LESS
 FROM BACK OF CURB.

DIRECTIONAL CURB RAMP
 TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

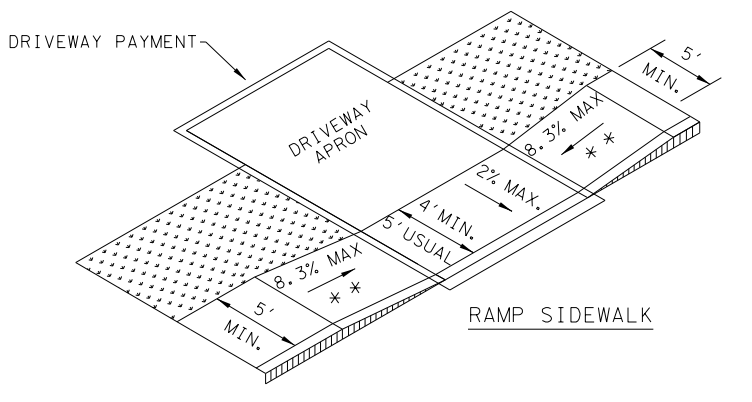
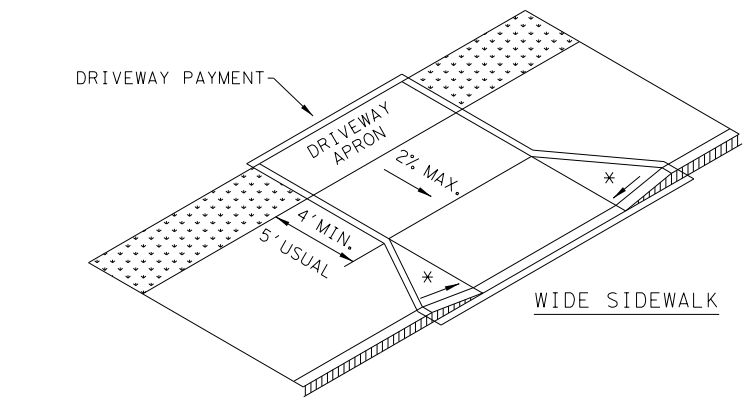
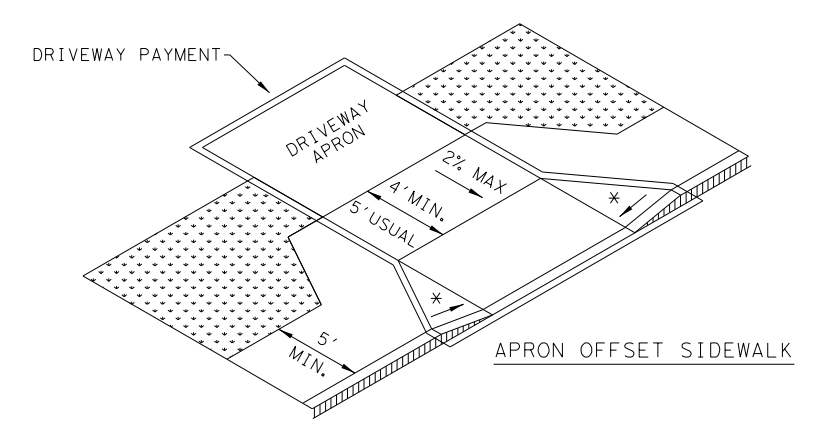
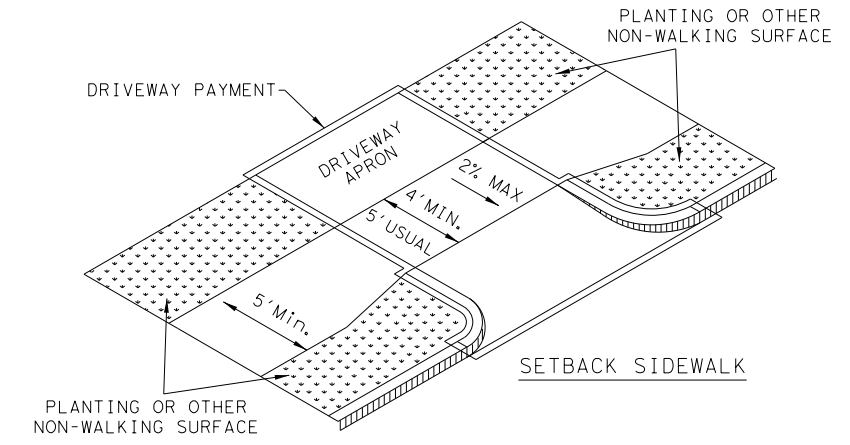
SHEET 2 OF 4

		Design Division Standard	
<h1>PEDESTRIAN FACILITIES</h1> <h2>CURB RAMPS</h2> <h3>PED-18</h3>			
FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018		SAN ANTONIO COUNTY COMAL	
SAT		COUNTY	SHEET NO.
SAT		COMAL	84

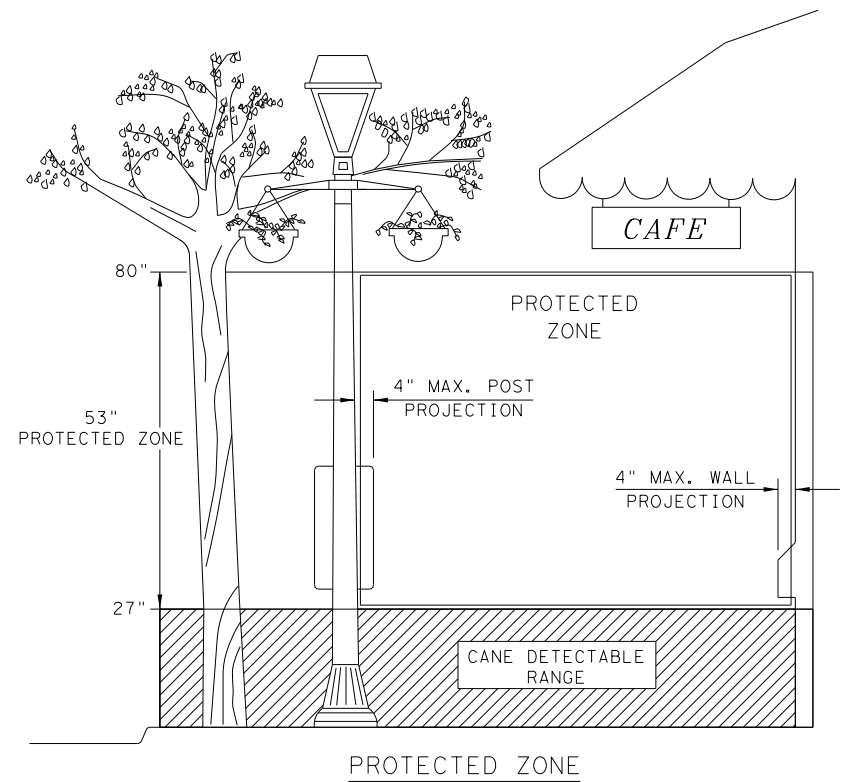
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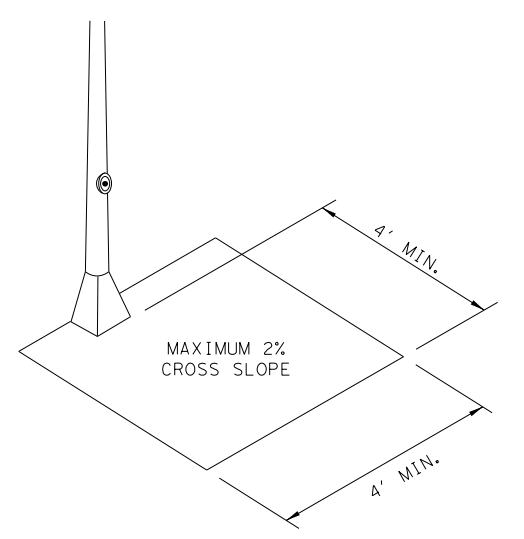
SIDEWALK TREATMENT AT DRIVEWAYS



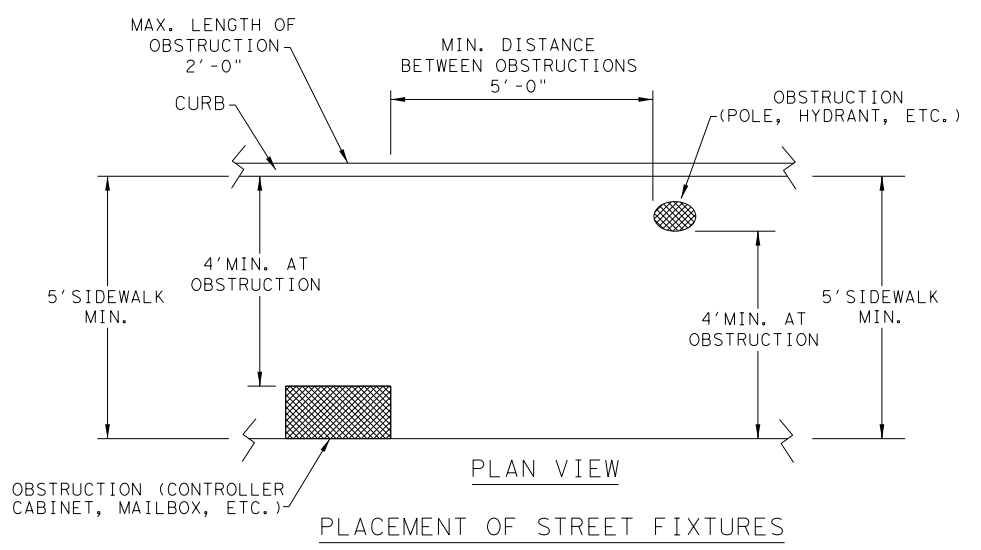
NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 * * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



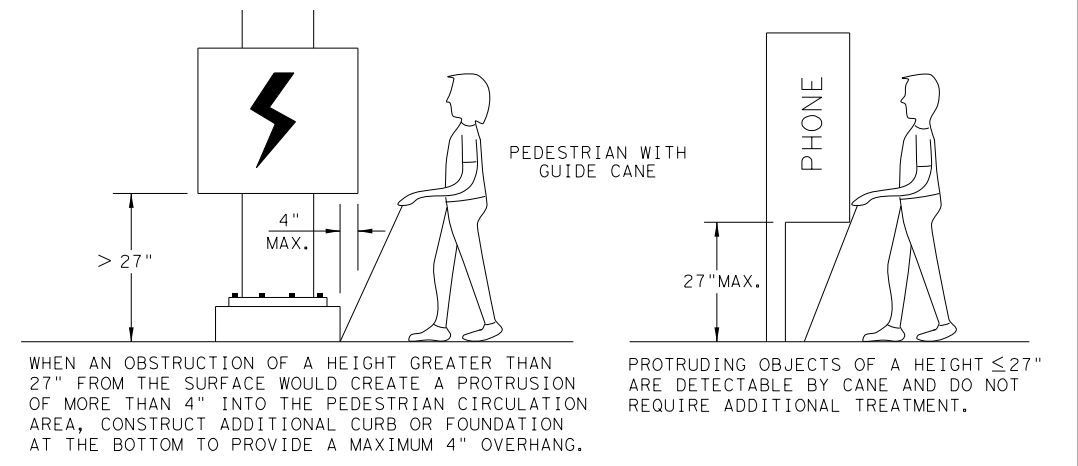
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

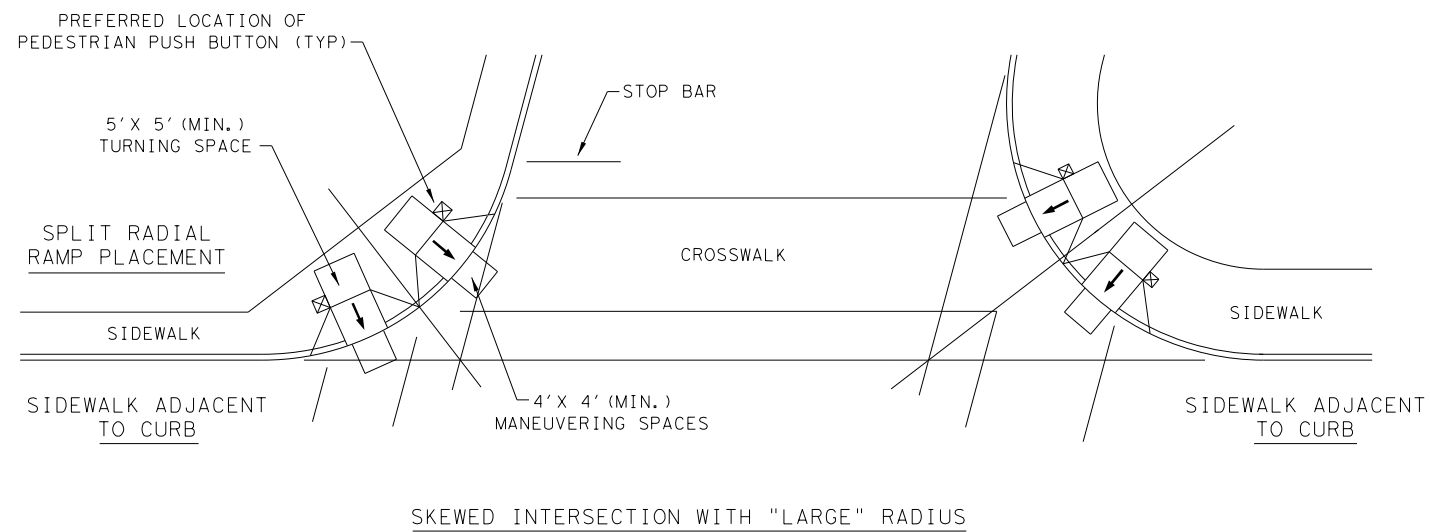
SHEET 3 OF 4

		Design Division Standard	
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FILE: ped18	DN: TxDOT	DW: VP	CK: KM
© TxDOT: MARCH, 2002	CONT	SECT	JOB
REVISIONS REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018		COUNTY SAT	
DIST SAT		SHEET NO. 85	

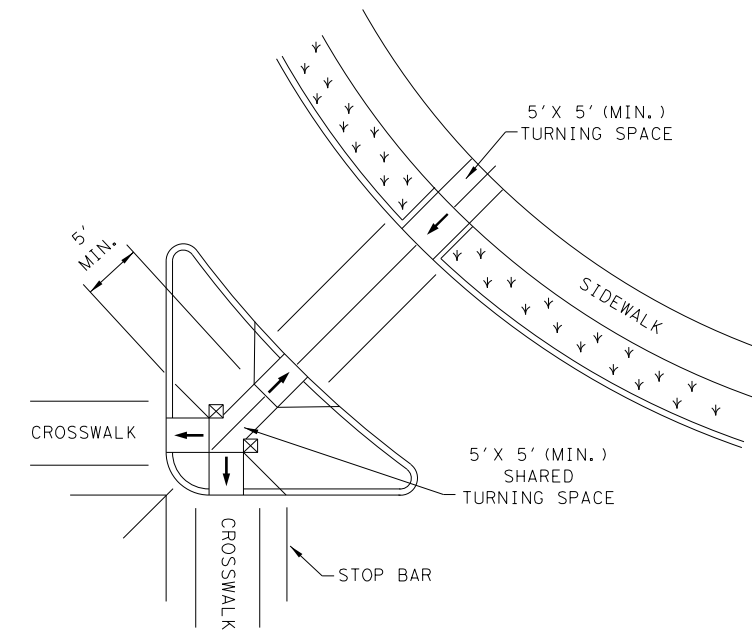
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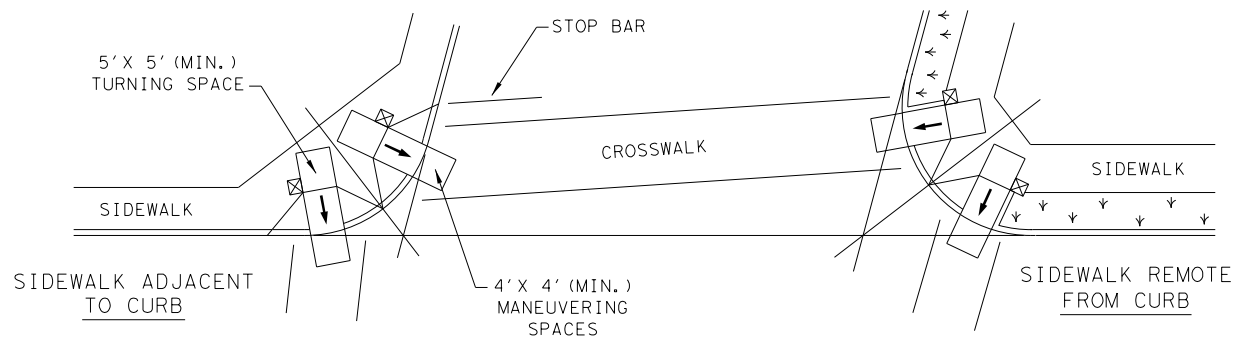
TYPICAL CROSSING LAYOUTS
 SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



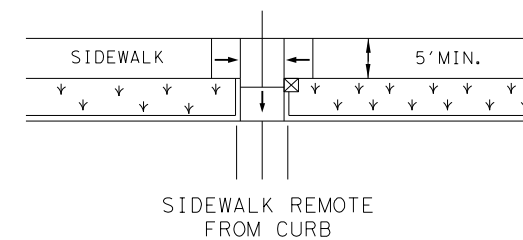
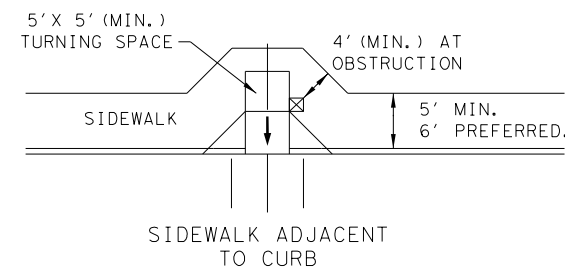
SKewed INTERSECTION WITH "LARGE" RADIUS



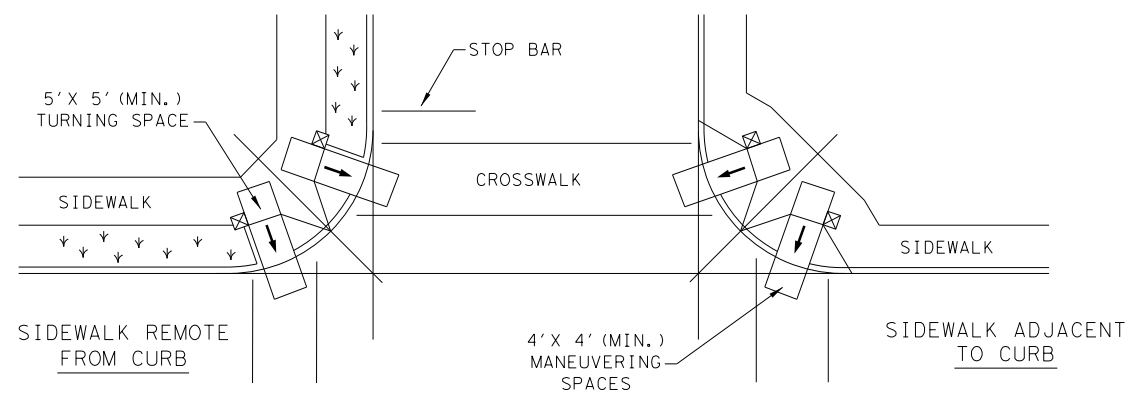
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↙ ↘ ↙ ↘

SHEET 4 OF 4



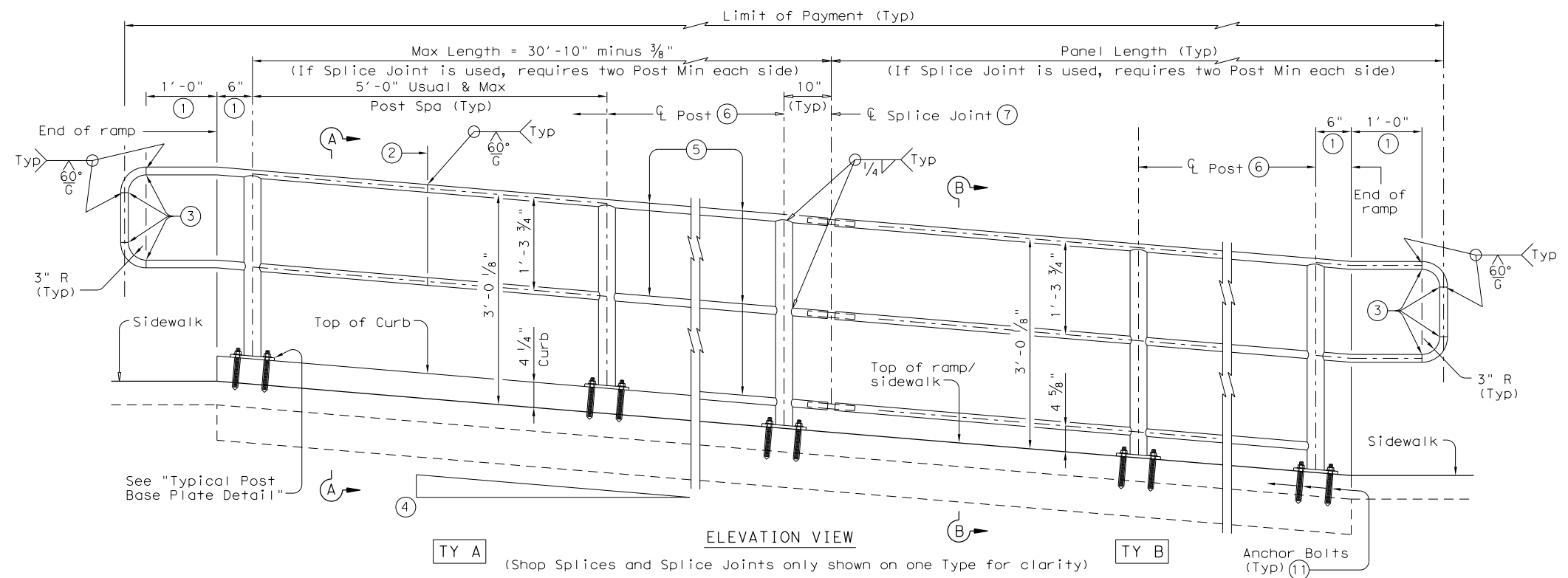
PEDESTRIAN FACILITIES
 CURB RAMPS

PED-18

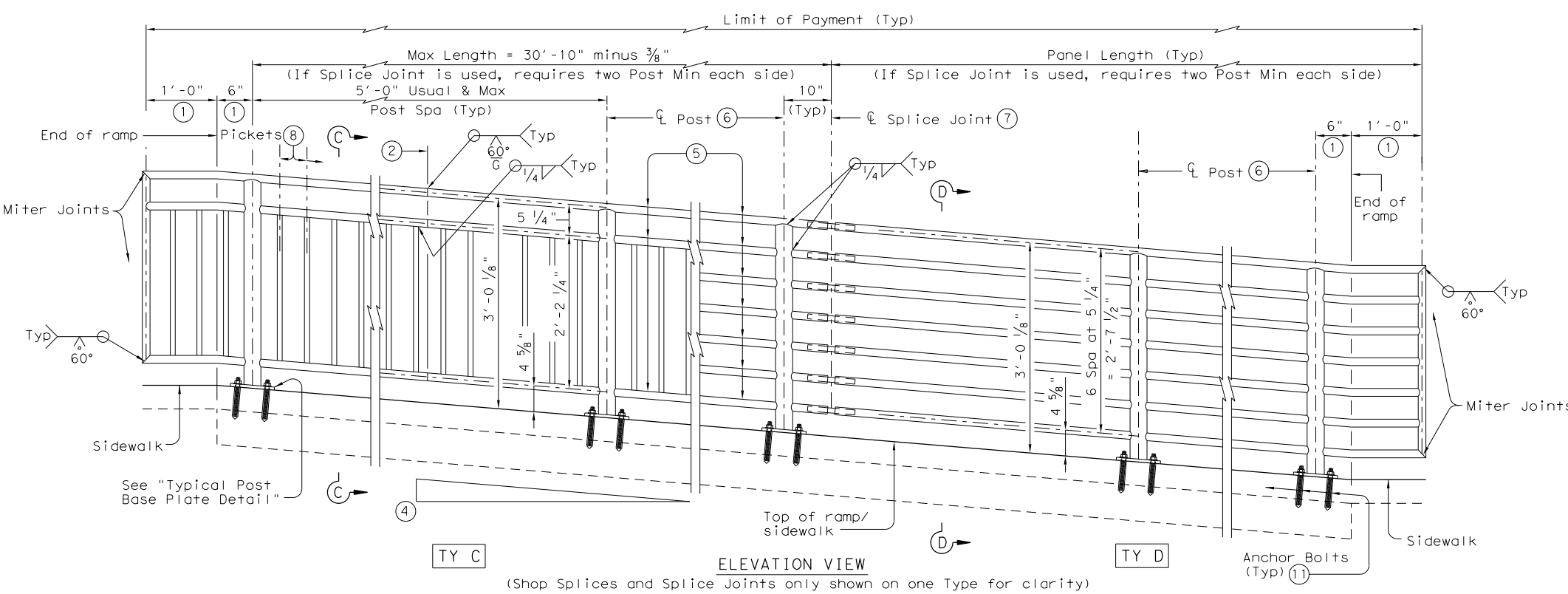
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© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				SAN ANTONIO
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012	SAT	COMAL	86	
REVISED 01, 2018				

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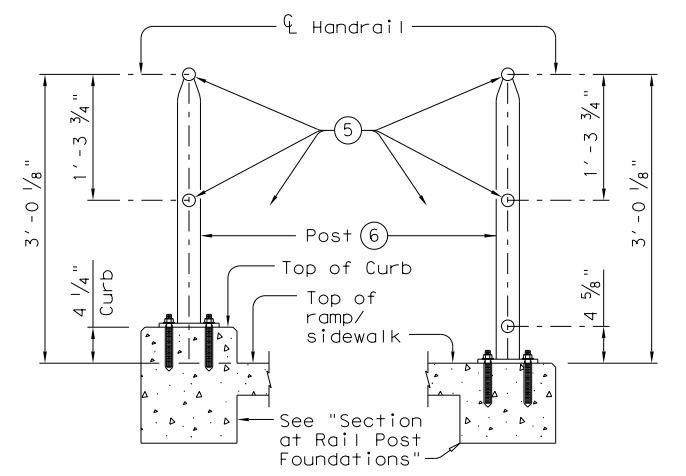


TY A (Shop Splices and Splice Joints only shown on one Type for clarity)

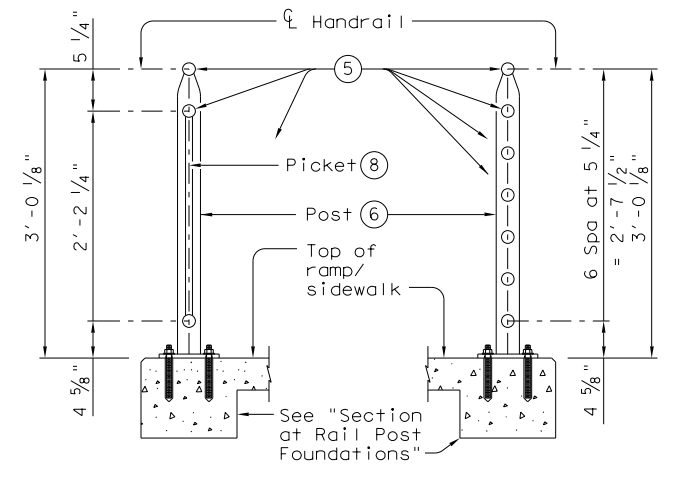


TY C (Shop Splices and Splice Joints only shown on one Type for clarity)

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)

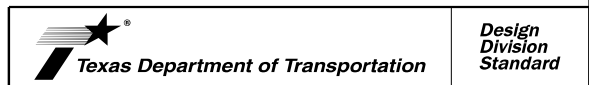


SECTION C-C (Showing Handrail TY C) SECTION D-D (Showing Handrail TY D)

SHEET 1 OF 3

- 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.
- 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.



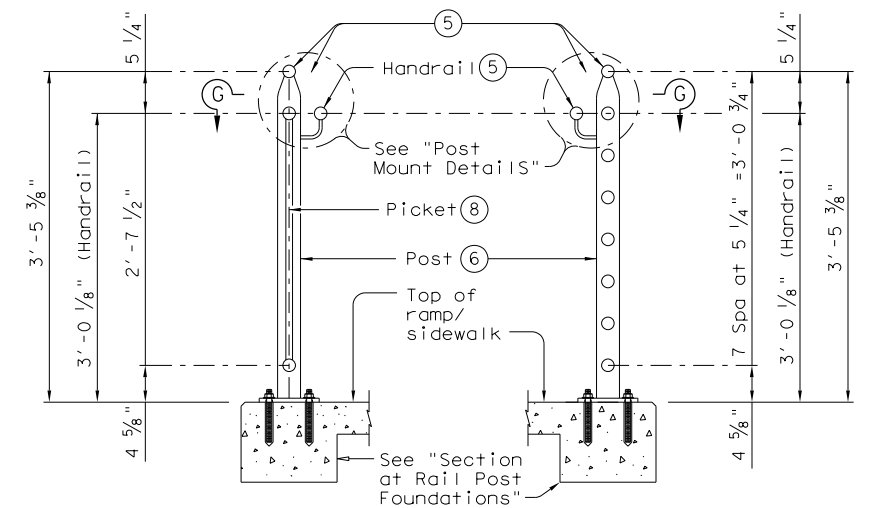
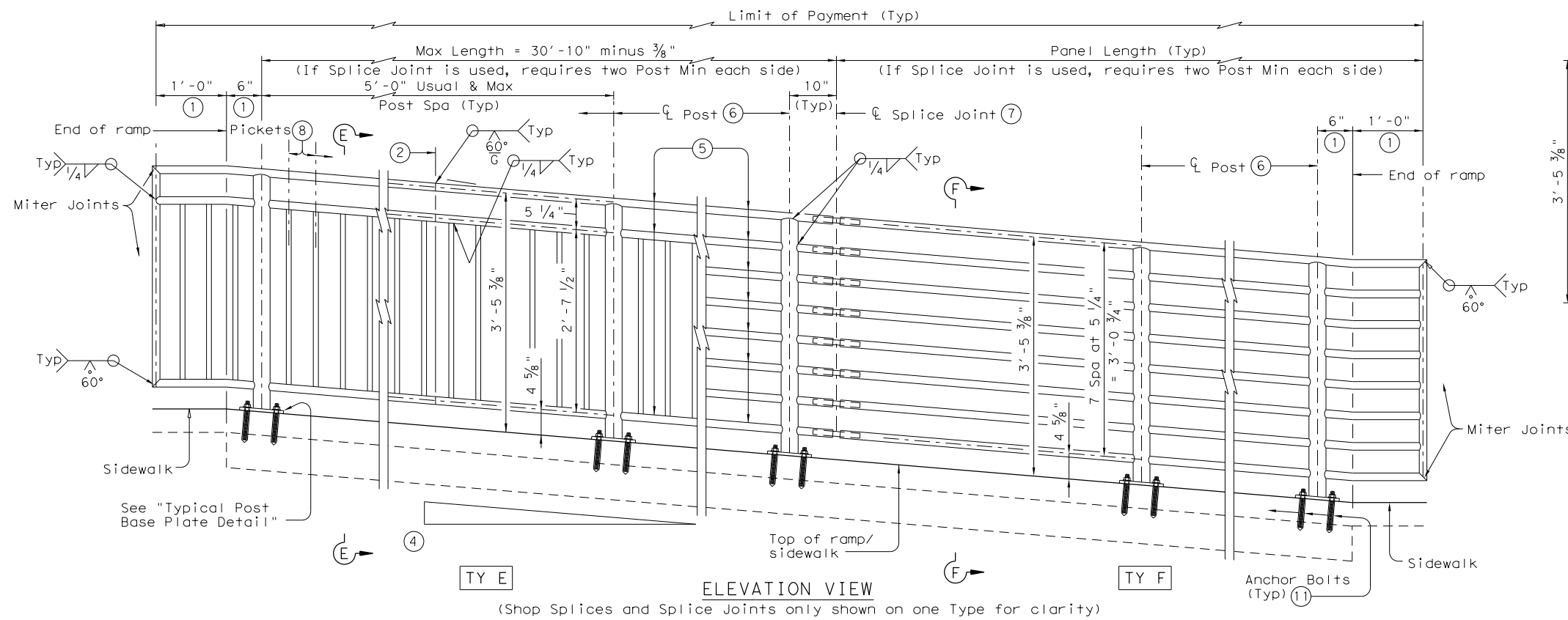
PEDESTRIAN HANDRAIL DETAILS

PRD-13

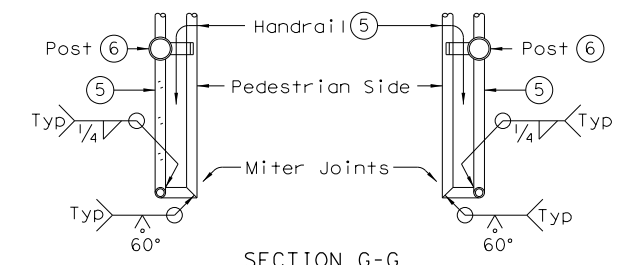
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© TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	87	

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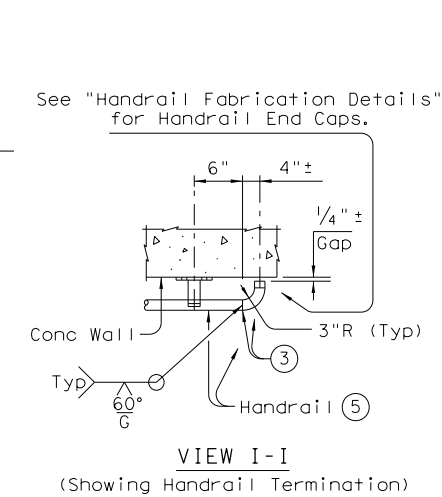
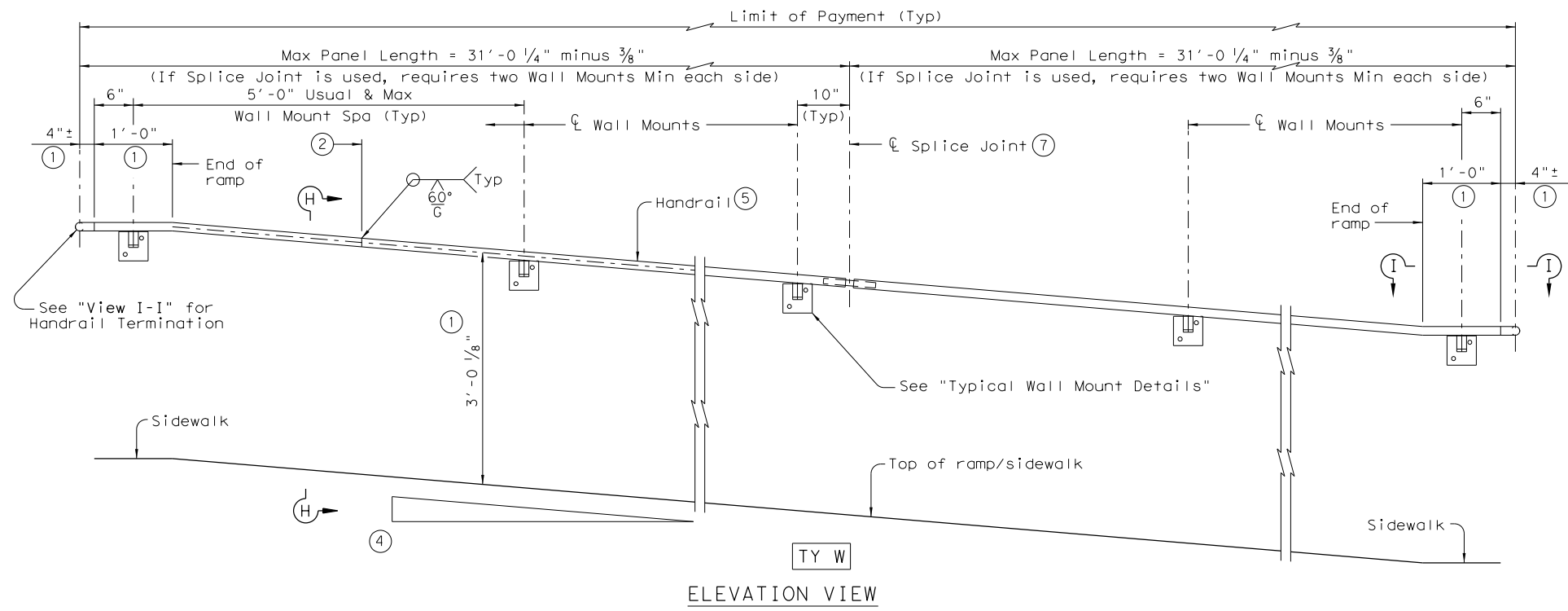
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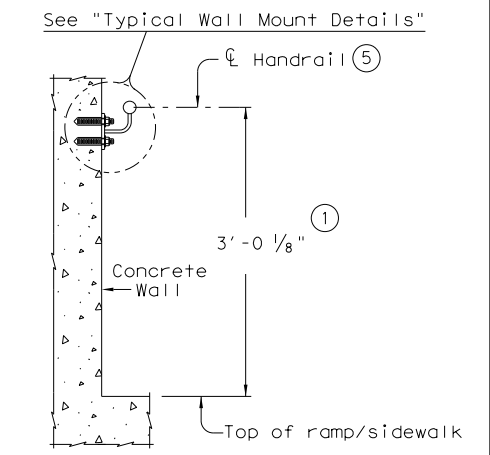
SECTION E-E (Showing Handrail TY E)
 SECTION F-F (Showing Handrail TY F)



SECTION G-G (Showing Handrail Termination)



VIEW I-I (Showing Handrail Termination)



SECTION H-H (Showing Handrail TY W)

SHEET 2 OF 3

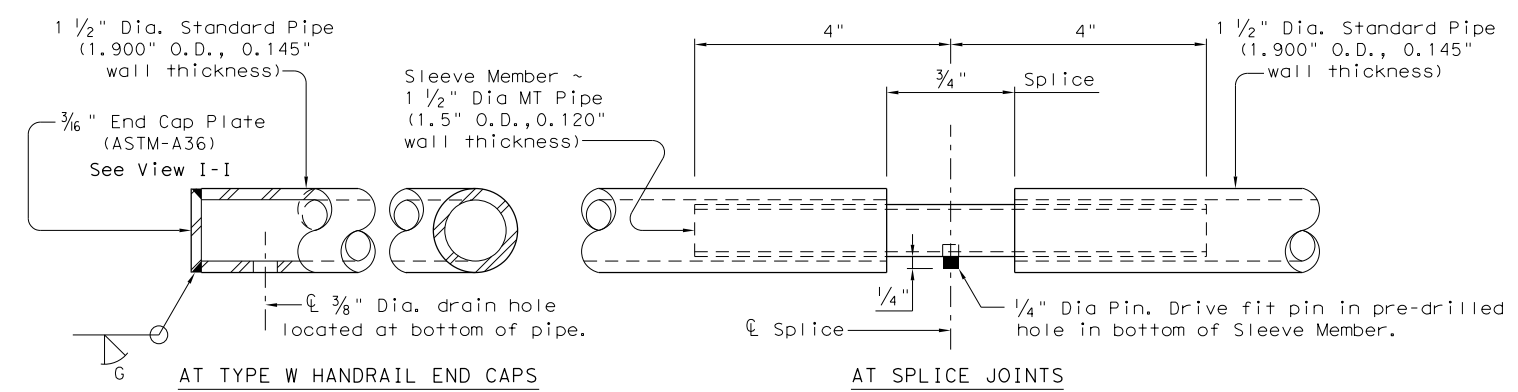
- ① Parallel to ground.
- ② One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ③ Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- 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.

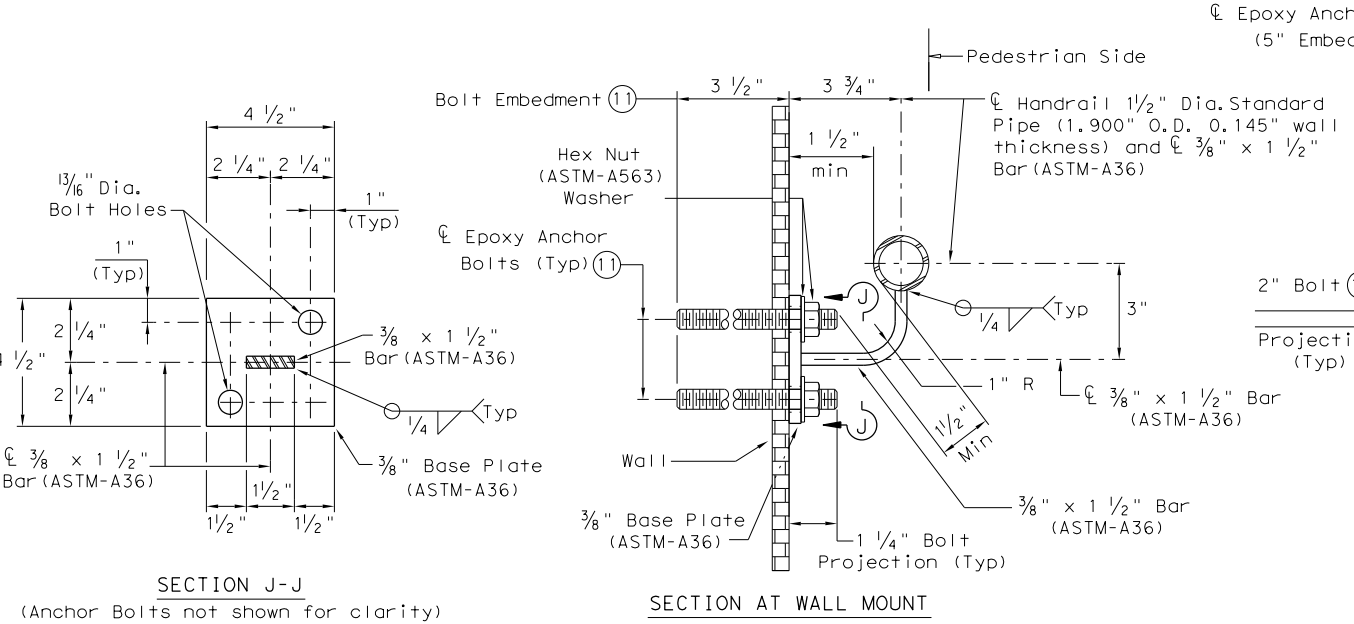
		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prdl3.dgn	DN: TxDOT	CK: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	SAN ANTONIO		HIGHWAY
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	SAT	COMAL	88

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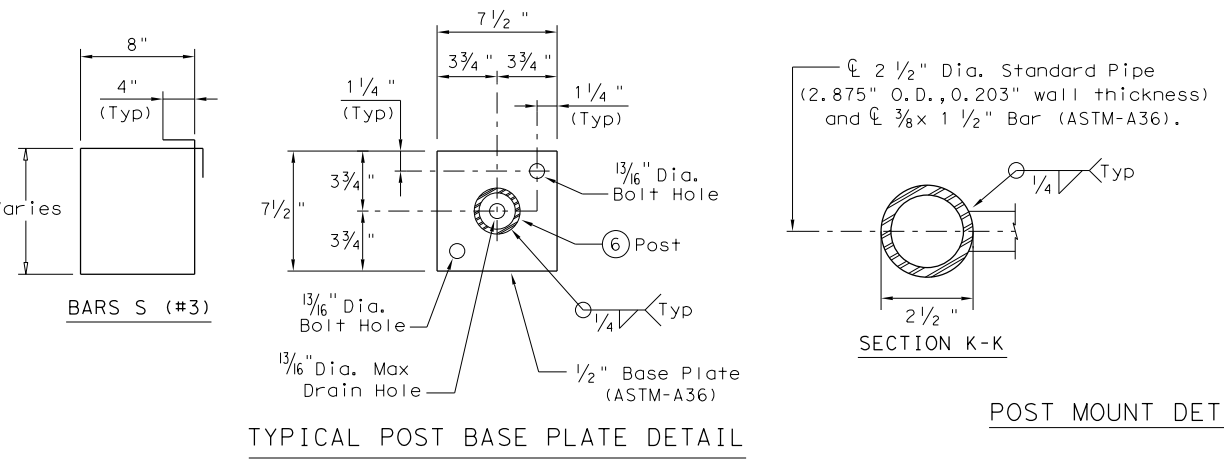


HANDRAIL FABRICATION DETAILS



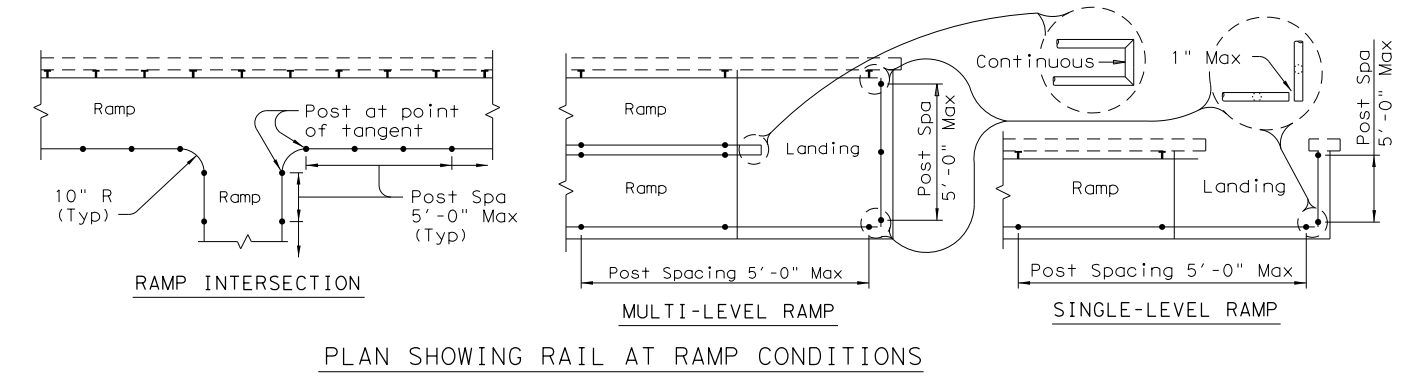
TYPICAL WALL MOUNT DETAILS

- (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 diameter 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



PLAN SHOWING RAIL AT RAMP CONDITIONS

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, "Epoxyes 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.

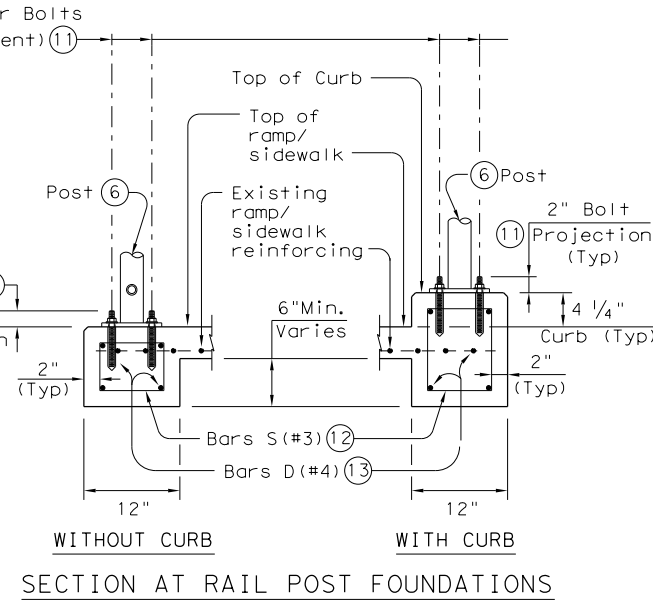
For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

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.

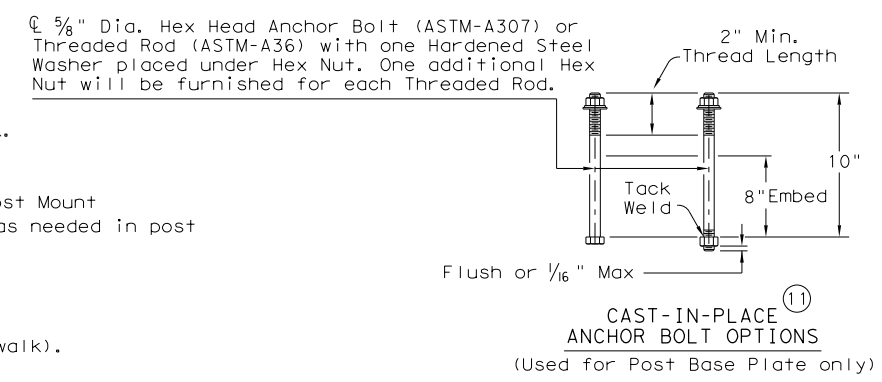
Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

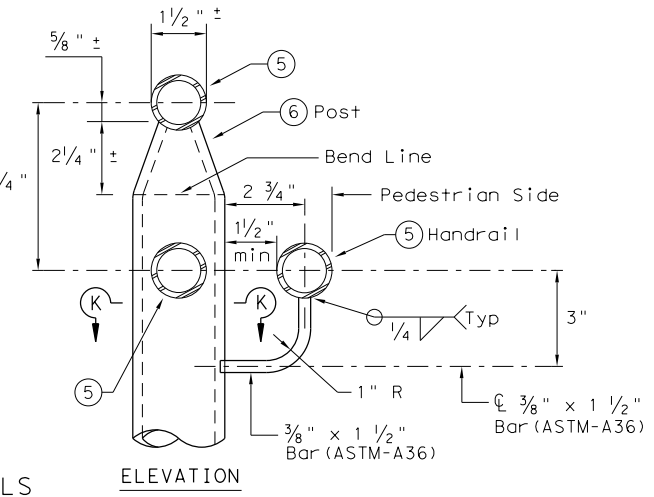
All exposed edges will be rounded or chamfered to approximately 1/8" by grinding.



SECTION AT RAIL POST FOUNDATIONS



CAST-IN-PLACE ANCHOR BOLT OPTIONS (Used for Post Base Plate only)

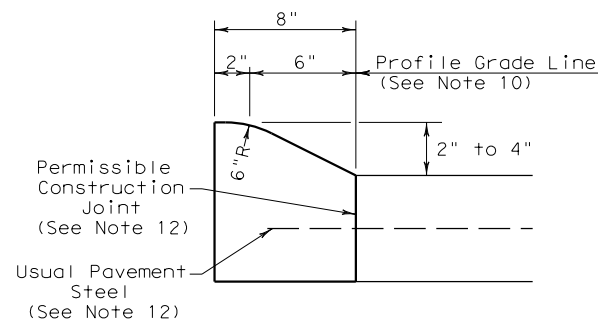


ELEVATION

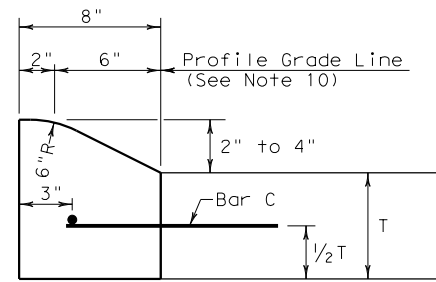
		Design Division Standard	
<h2>PEDESTRIAN HANDRAIL DETAILS</h2> <h3>PRD-13</h3>			
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR
© TxDOT December 2006	CONT	SECT	JOB
REVISIONS	SAN ANTONIO		HIGHWAY
REVISED MAY, 2013 (VP)	DIST	COUNTY	SHEET NO.
	SAT	COMAL	89

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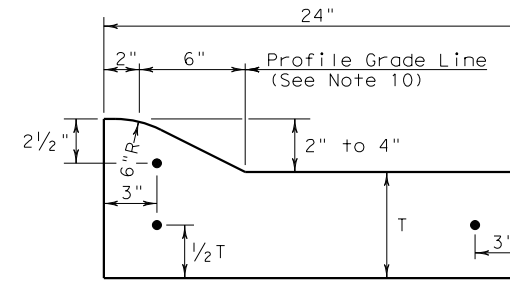
DATE: 7/24/2019 2:29:25 PM
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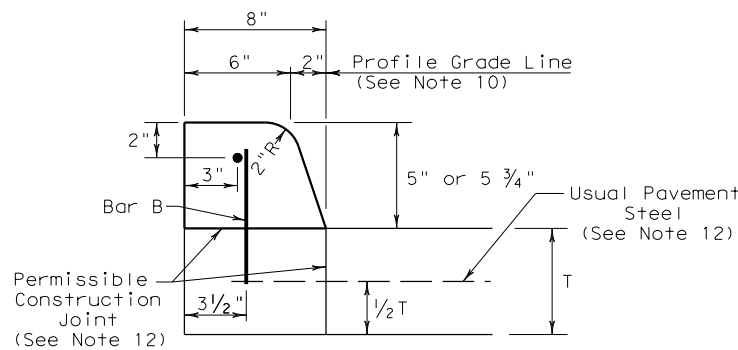
TYPE I CURB (MONOLITHIC)
 2" - 4" HEIGHT



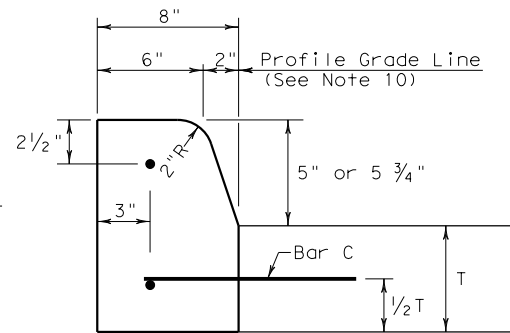
TYPE I CURB AND GUTTER
 2" - 4" HEIGHT



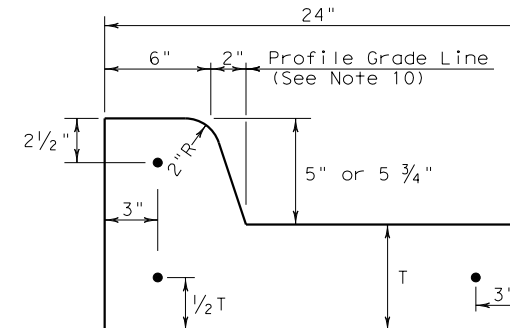
TYPE I CURB AND GUTTER
 2" - 4" HEIGHT



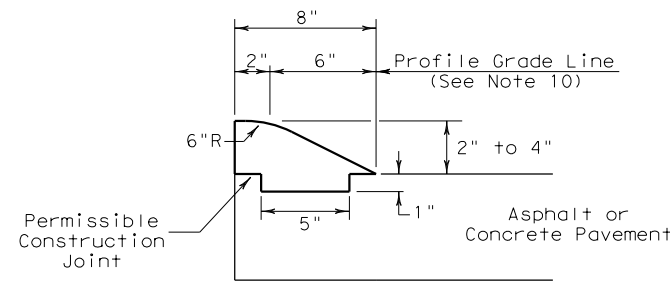
TYPE II CURB (MONOLITHIC)
 5" - 5 3/4" HEIGHT



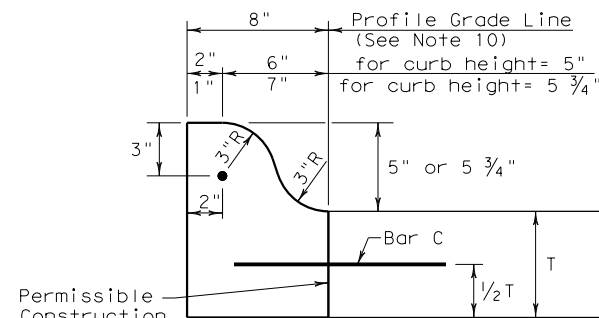
TYPE II CURB AND GUTTER
 5" - 5 3/4" HEIGHT



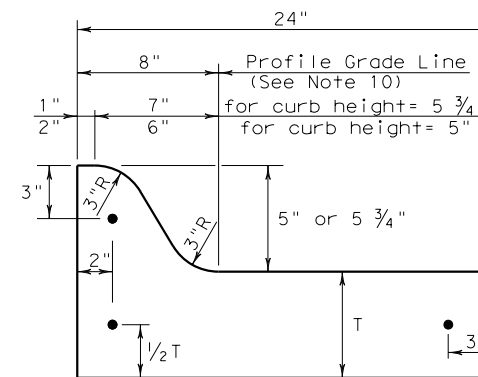
TYPE II CURB AND GUTTER
 5" - 5 3/4" HEIGHT



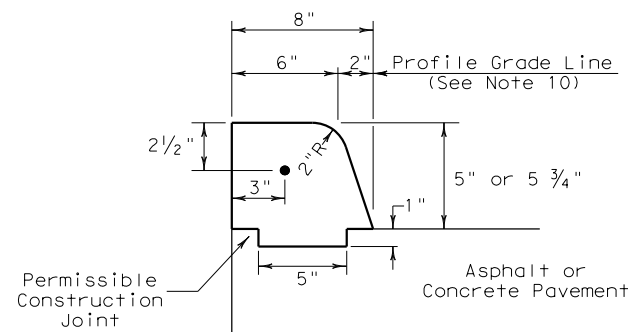
TYPE III CURB (KEYED)
 2" - 4" HEIGHT



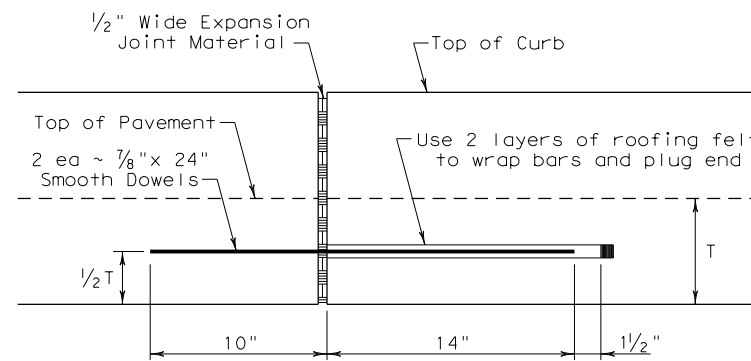
TYPE IIa CURB
 5" - 5 3/4" HEIGHT



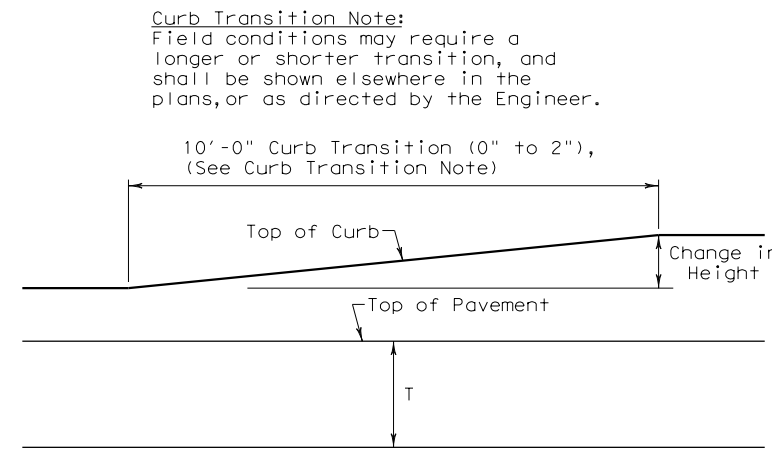
TYPE IIa CURB AND GUTTER
 5" - 5 3/4" HEIGHT



TYPE IV CURB (KEYED)
 5" - 5 3/4" HEIGHT



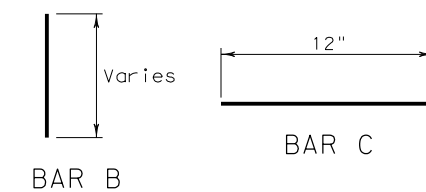
EXPANSION JOINT DETAIL



CURB TRANSITION
 Note: To be paid for as Highest Curb

General Notes

- All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
- Concrete shall be Class A.
- When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Producer List (MPL), maintained by TxDOT, Construction Division.
- Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
- All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
- Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.
- 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.
- Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
- Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
- Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
- One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
- 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.

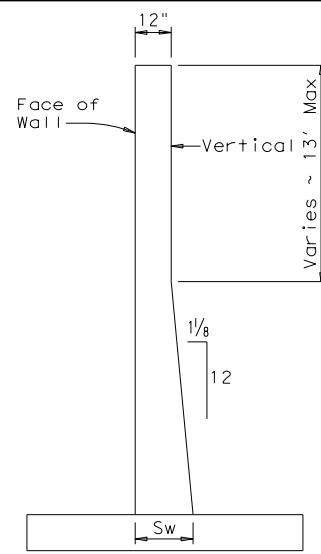


Curb Transition Note:
 Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.

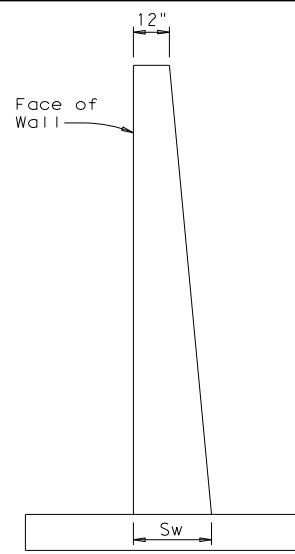
		Design Division Standard	
<h2>CONCRETE CURB AND GUTTER</h2> <h3>CCCG-12</h3>			
FILE: cccg12.dgn	DN: TxDOT	CK: AM	DW: VP
© TxDOT: 1995	CONT	SECT	JOB
UPDATED 2012 - VP	REVISIONS SAT		HIGHWAY SAN ANTONIO
DIST	COUNTY	SHEET NO.	
SAT	COMAL	90	

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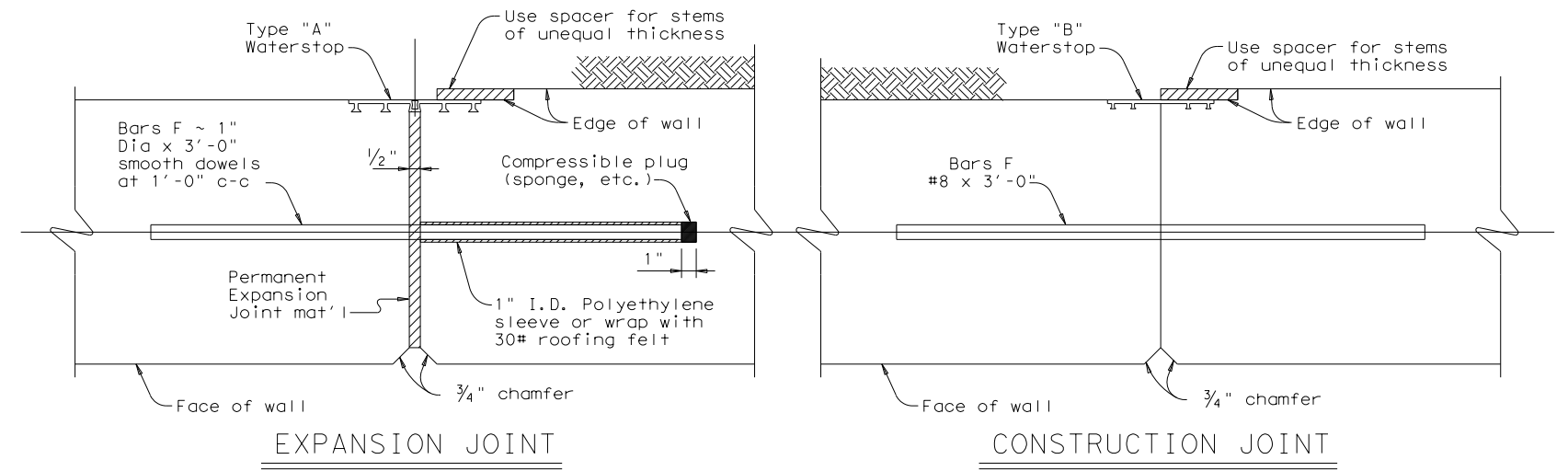
AS DETAILED
 ALL HEIGHTS
 (Basis for payment)



FRONT FACE VERTICAL
 BACK FACE SLOPED

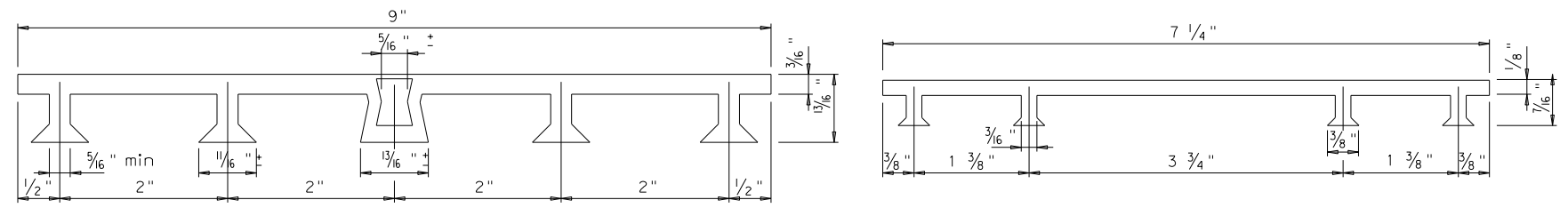
ALTERNATE STEM SLOPE DETAILS

Walls with slopes other than those shown may be used after approval by the Engineer. Sw shall not be less than shown in Table on Sheet 1. No payment will be made for excess concrete due to changing of slope of wall stem.



EXPANSION JOINT

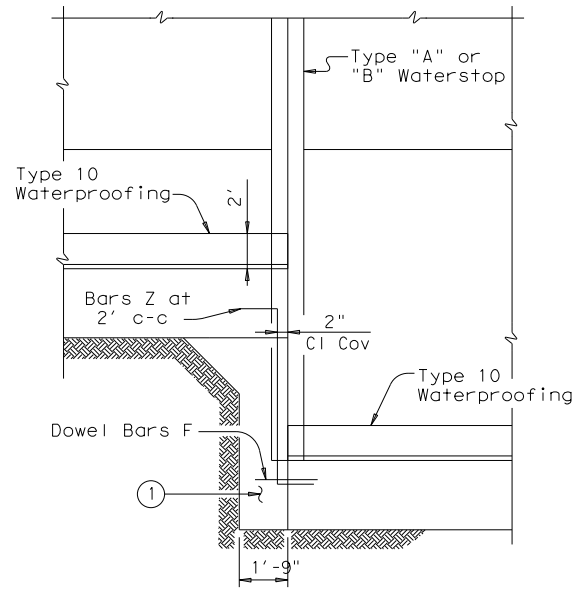
CONSTRUCTION JOINT



PVC WATERSTOP TYPE "A"

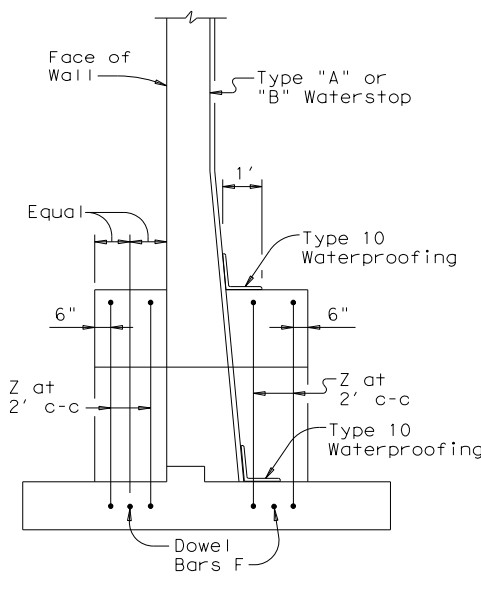
PVC WATERSTOP TYPE "B"

Note: Dimensions and shapes may vary slightly depending on manufacturer.

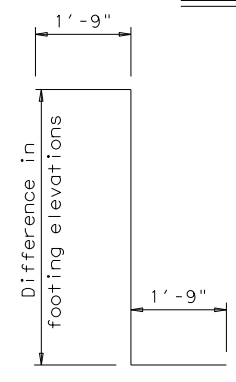


**PARTIAL ELEVATION
 SHOWING WATERSTOP AT FOOTING JOINT**

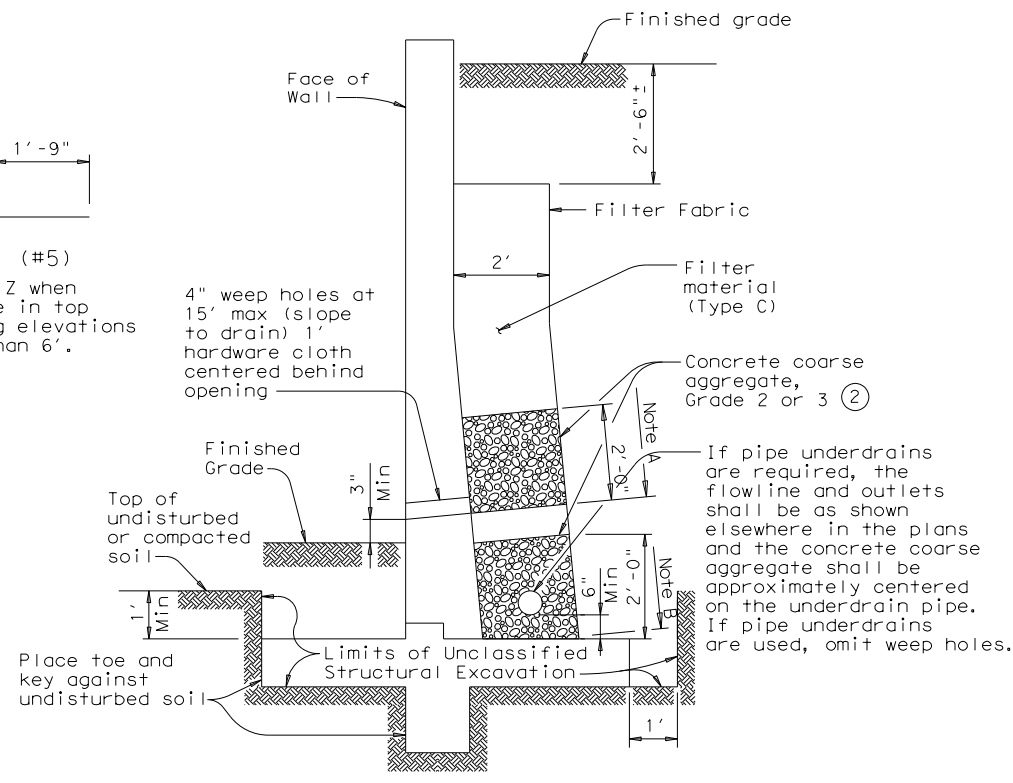
① Unreinforced Class "C" Concrete when difference in top of footing elevations is less than 6'. Omit when Dowel Bars F can be placed between adjacent footings with 4" cover top and bottom.



PARTIAL SECTION



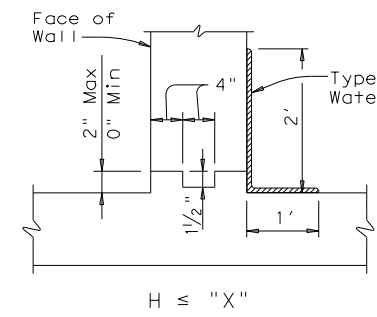
BARS Z (#5)
 Omit Bars Z when difference in top of footing elevations is less than 6'.



DRAINAGE DETAILS AND EXCAVATION DIAGRAM

Note A: Stop coarse aggregate at this level when weep holes are used.
 Note B: Use coarse aggregate to here with filter material above when underdrains are used.

GENERAL NOTES:
 Walls are designed assuming unit weight of soil = 120 pcf, and coefficient of horizontal earth pressure = 0.33.
 Walls are designed to provide a minimum factor of safety against sliding of 1.5. The undisturbed or compacted soil depth in front of walls, from bottom of Key up, shall not be less than $K_w + Ft + 1'$.
 Retaining walls are detailed to be placed on grades up thru 10% with footing level, with no changes in reinforcing steel. Steeper grades can be accommodated by shortening Bars A1 and B and increasing length of legs of Bars U by the same amount. No change in Quantities will be involved.
 Retaining walls may be placed on Horizontal Curves by adjusting lengths of footing Bars T and H. Minor revisions of Concrete Quantities may be required.
 Designed in accordance with current AASHTO Standard and Interim Specifications.
 All concrete to be Class "C".
 All reinforcing steel to be Grade 60.



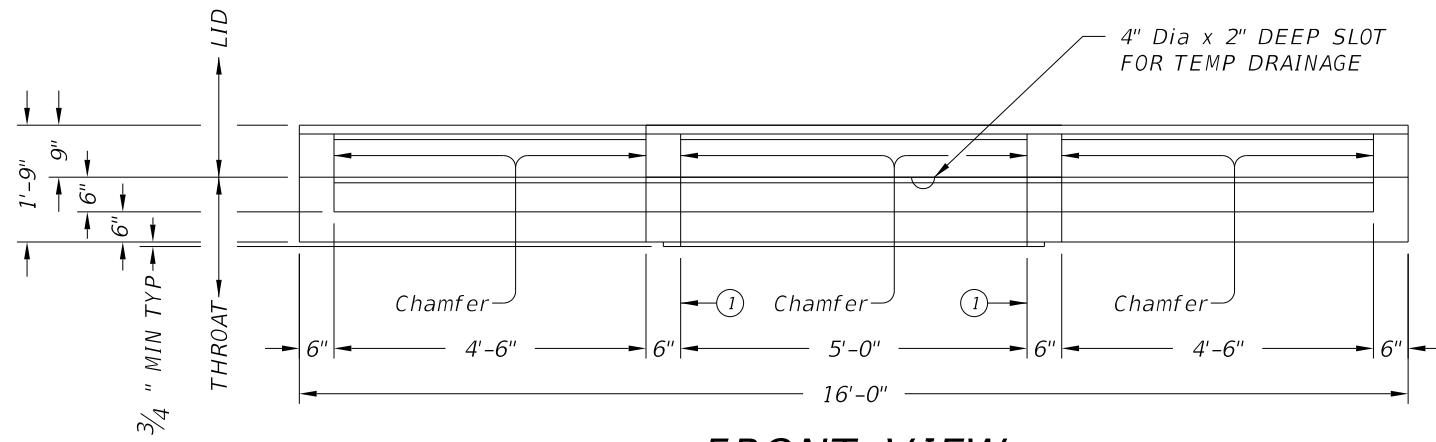
JOINT AND WATERSTOP DETAILS

DESIGN	"X"
A	14'
B	12'
C	11'

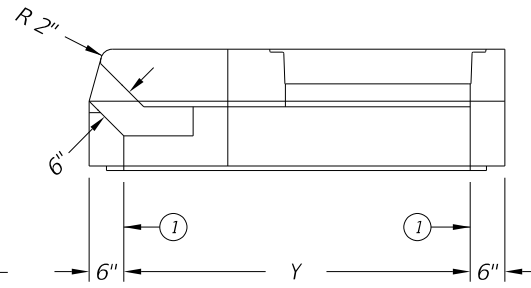
		Bridge Division Standard	
RETAINING WALL MISCELLANEOUS DETAILS			
RW 2			
FILE: rwstde11.dgn	DN: TxDOT	CK: TxDOT	DW: JGD
©TxDOT March 2010	CON: SAT	SECT: COMAL	JOB: HIGHWAY
REVISIONS	04-11: Added Note 2.		SAN ANTONIO SHEET NO. 92

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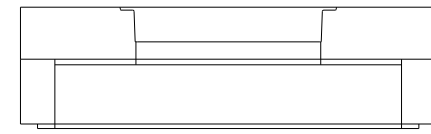
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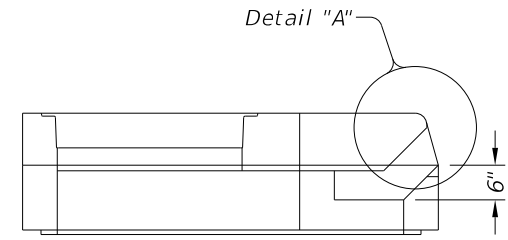
FRONT VIEW
 (SHOWING LEFT AND RIGHT EXTENSIONS)



RIGHT VIEW

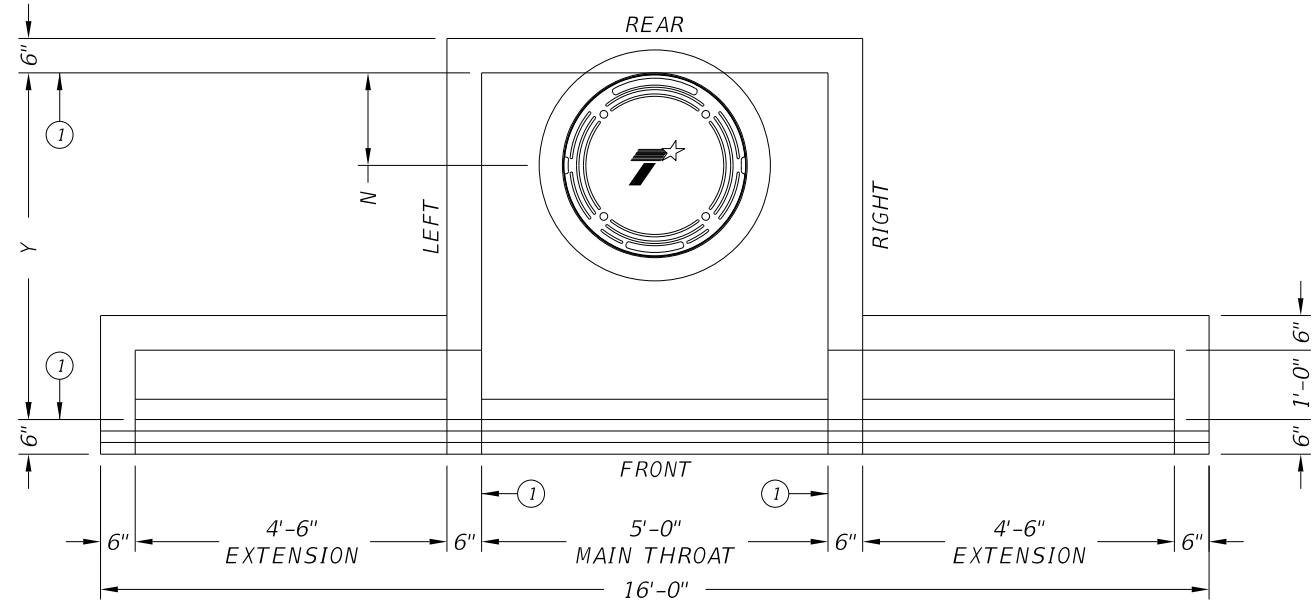


REAR VIEW
 (EXTENSIONS NOT SHOWN)

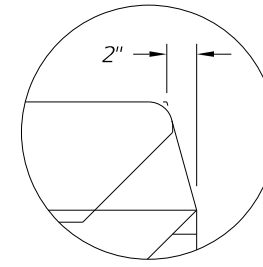


LEFT VIEW

① Matches inside face of wall of precast base or riser below inlet.



PLAN VIEW
 (SHOWING LEFT AND RIGHT EXTENSIONS)



DETAIL "A"

HS20 LOADING SHEET 1 OF 2



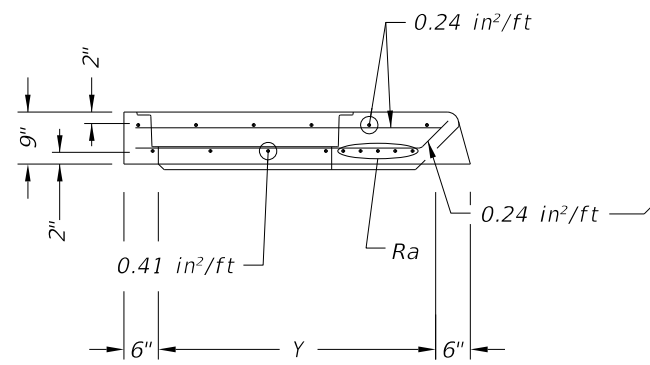
**PRECAST CURB INLET
 OUTSIDE ROADWAY**

PCO

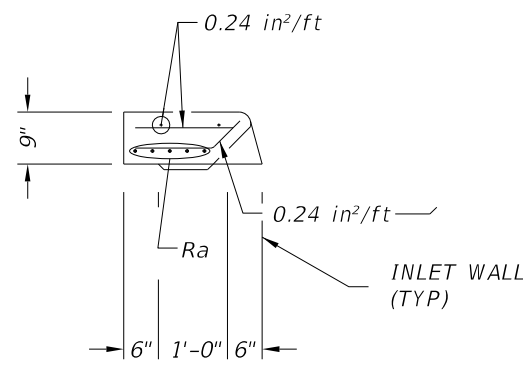
FILE: prest03.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS			SAN ANTONIO	
	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	93	

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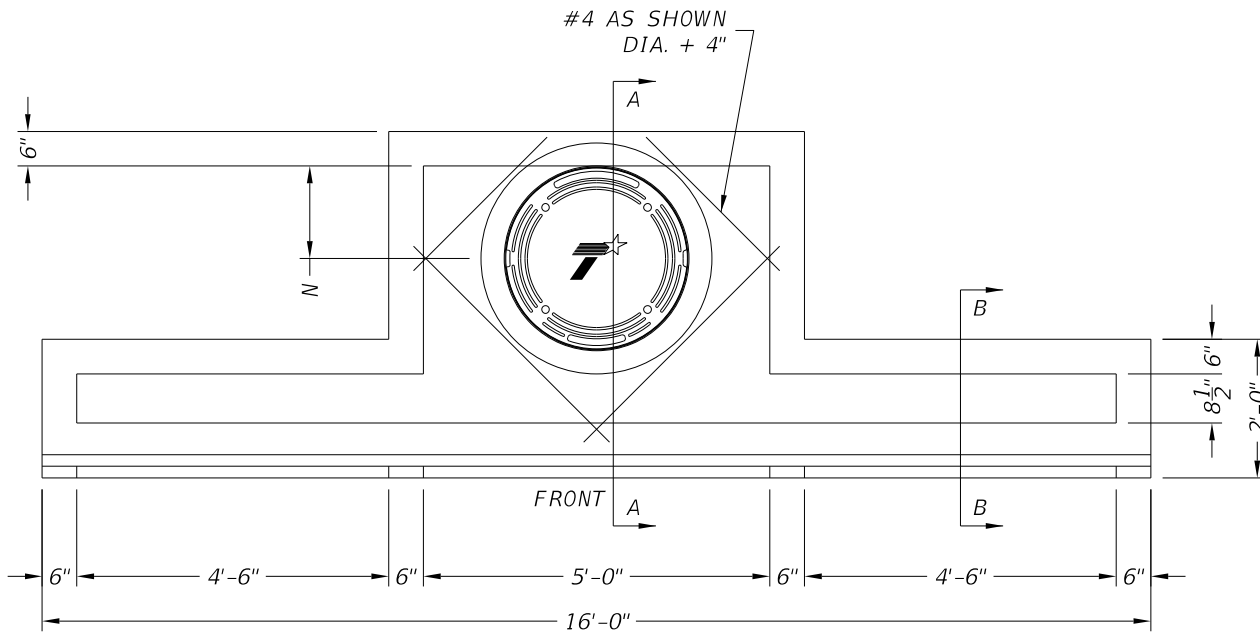
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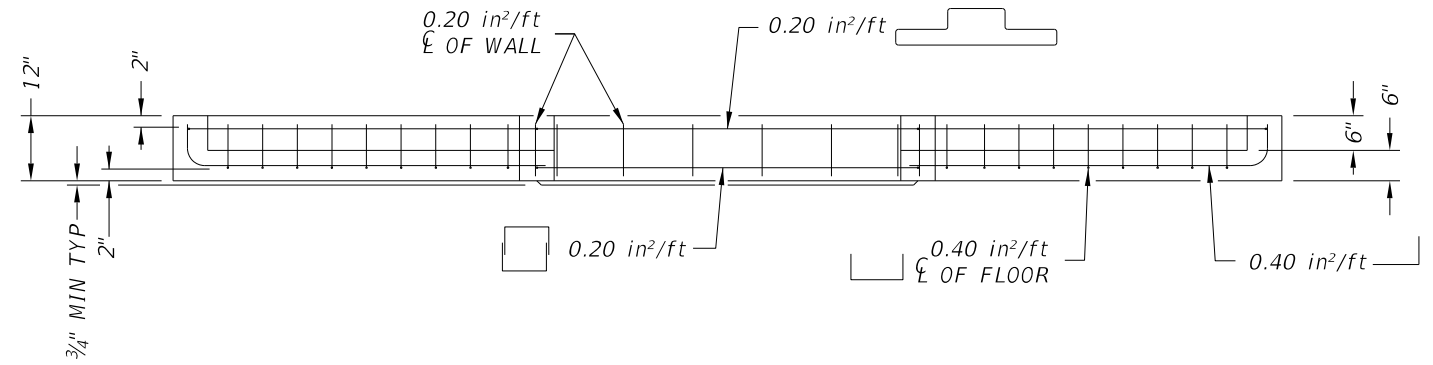
LID SECTION A-A



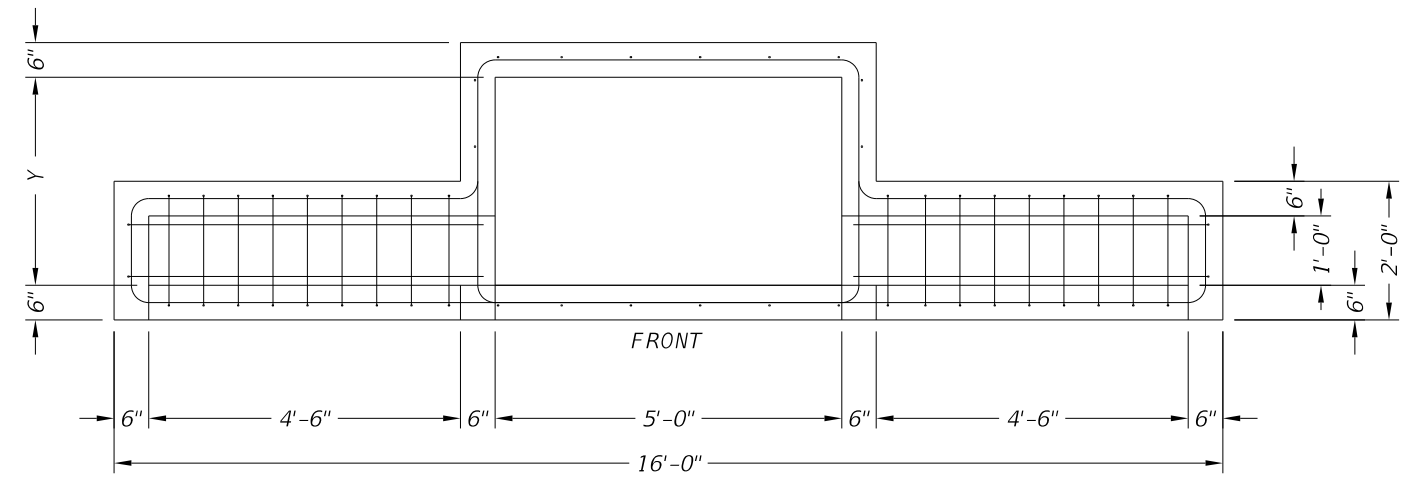
LID SECTION B-B



LID PLAN VIEW
 (SHOWING LEFT AND RIGHT EXTENSIONS)



THROAT ELEVATION VIEW
 (SHOWING LEFT AND RIGHT EXTENSIONS)



THROAT PLAN VIEW
 (SHOWING LEFT AND RIGHT EXTENSIONS)

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. Extensions may be right, left, both or none. Provide extensions as specified elsewhere in the plans.
4. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is 3/4". Lid may employ a butt joint with dowels at the Contractor's option.
5. Provide lifting devices in conformance with Manufacturer's recommendations.
6. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.
7. Chamfer vertical edges of inlet lid 3/4" as shown in Front View, sheet 1.

INSTALLATION NOTES:

1. Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
2. Seal tongue and groove joints and butt 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 1/2 the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Open area of main throat = 360 sq in. Open area of one extension throat = 324 sq in.
3. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, size, and extension placement. Extensions are subsidiary to inlet.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (Y)	N	MH DIA*	Ra
3'	9"	18"	(4) #5 Additional
4'	16"	32"	(4) #5 Additional
5'	16"	32"	(4) #5 Additional
6'	16"	32"	(4) #5 Additional

*Nominal ring and cover size.

HS20 LOADING SHEET 2 OF 2



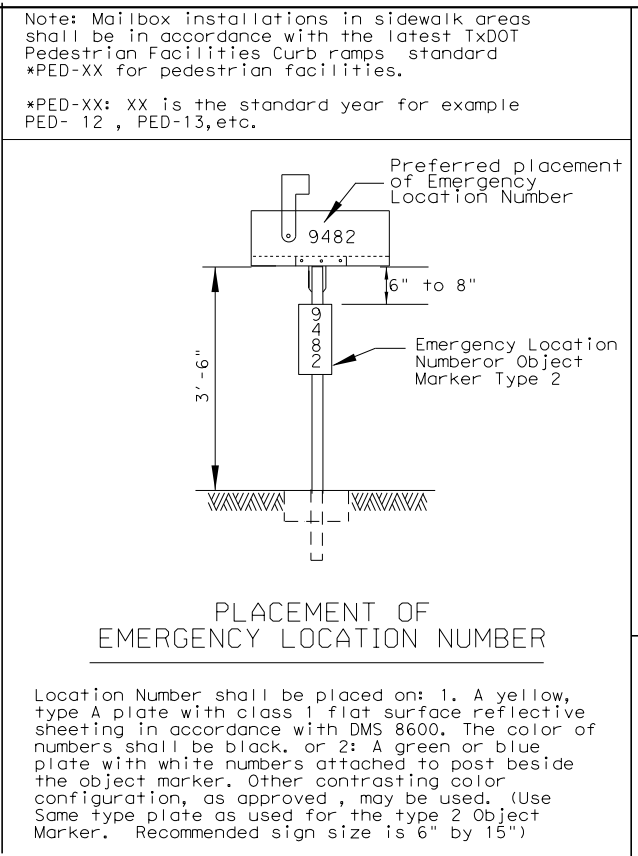
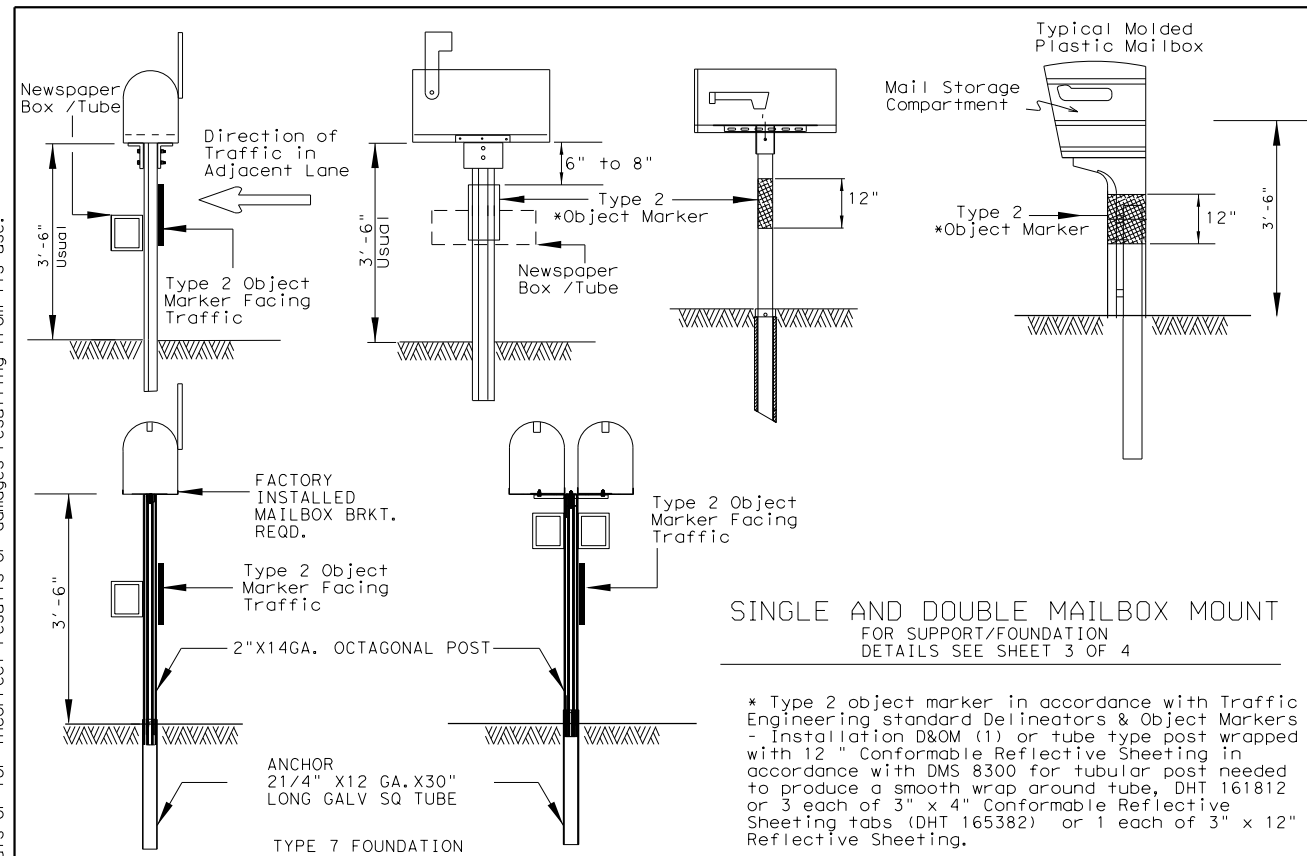
**PRECAST CURB INLET
 OUTSIDE ROADWAY**

PCO

FILE: prest03.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
DIST	COUNTY	SHEET NO.		
SAT	COMAL	94		

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MAILBOX SIZES

SIZE	TYPICAL MAILBOX SIZE			LIGHT WEIGHT MATERIAL	
	LENGTH	WIDTH	HEIGHT	SHEET METAL	**PLASTIC
	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

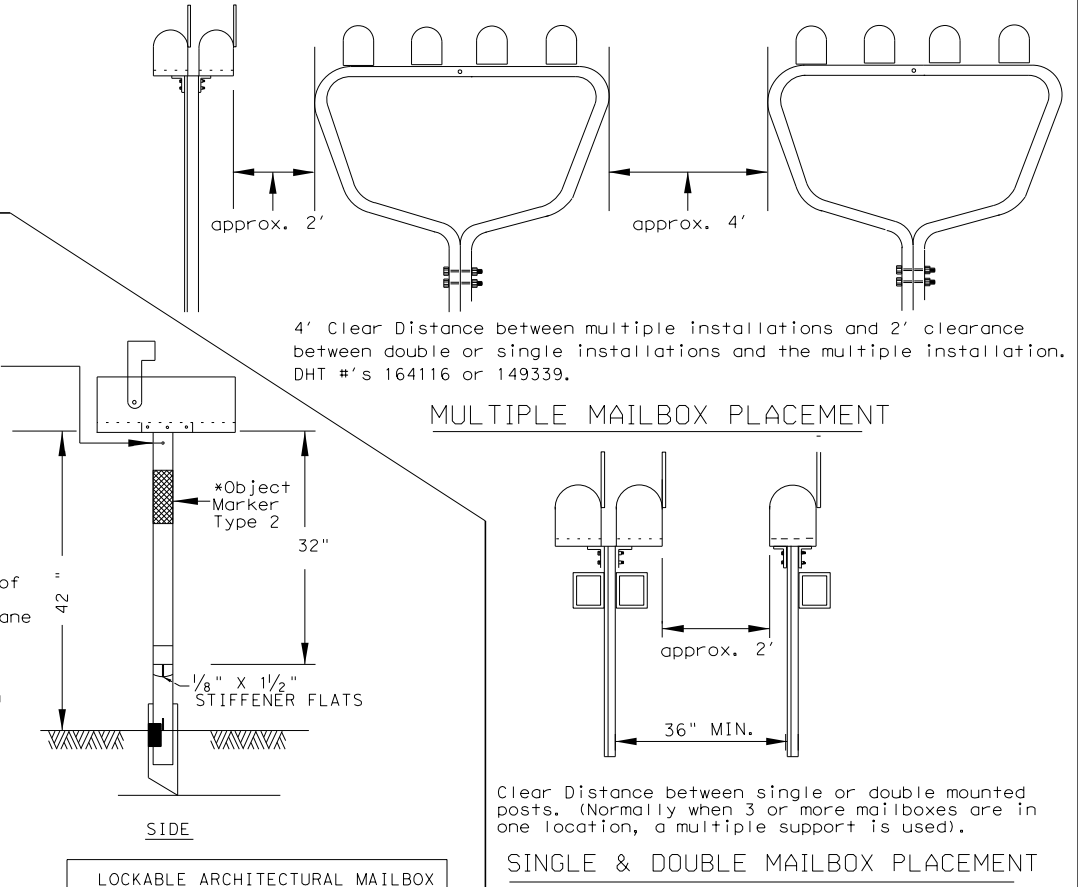
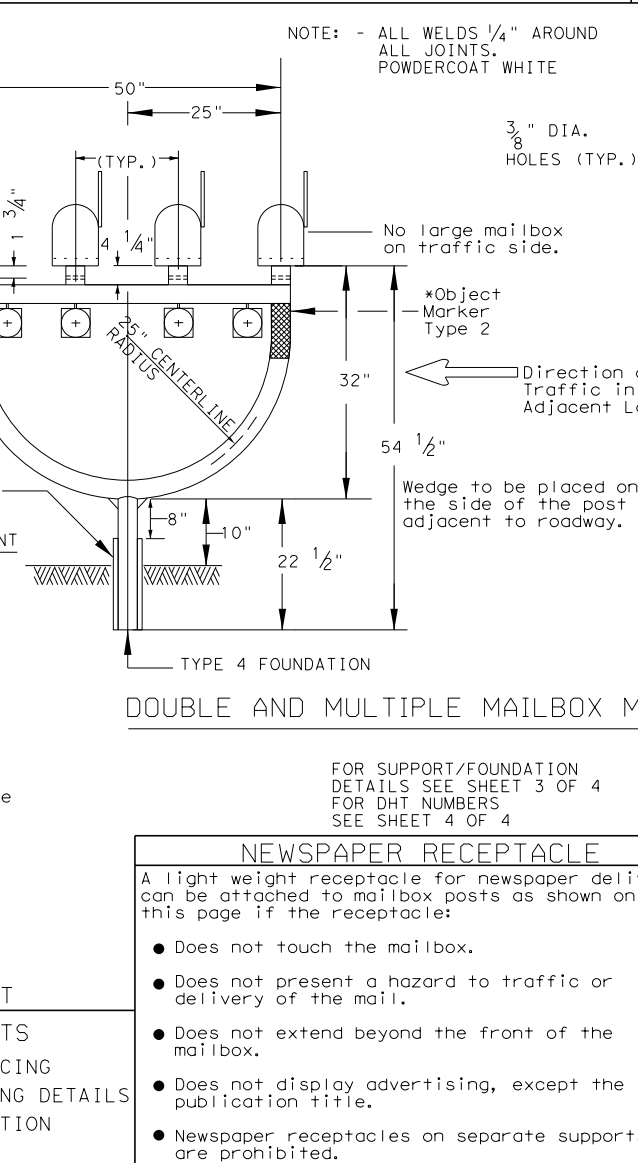
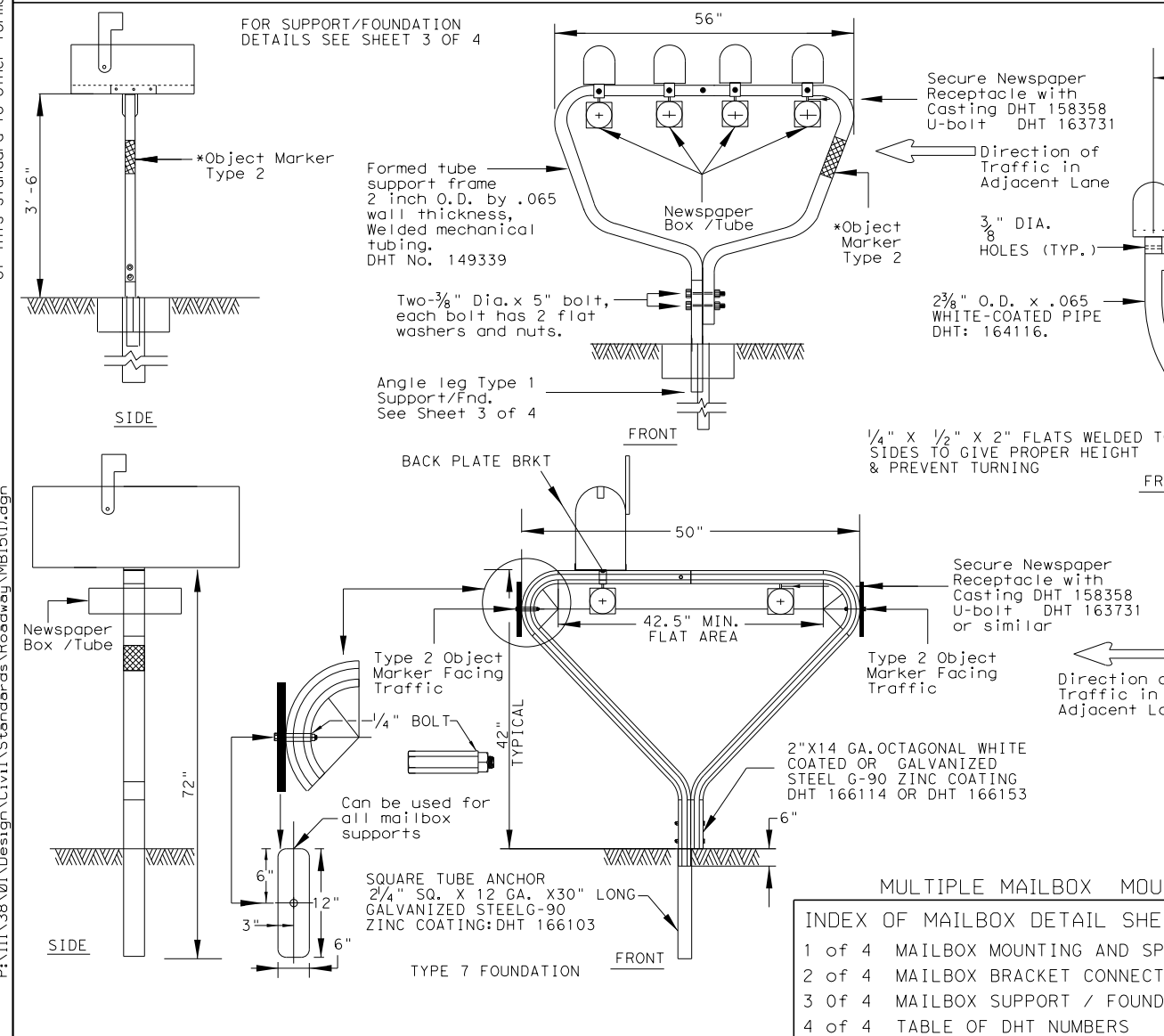
* Maximum allowed dimensions for mailbox
** Excluding Molded Plastic on 4 X 4 Post

LOCKABLE ARCHITECTURAL MAILBOX SIZE (INCHES)					
VIEW	TOP	BOTTOM	FRONT SIDE	BACK SIDE	WEIGHT (POUNDS)
SIDE	18	15	18.3	15	
BACK	11 1/2	11 1/2		15	22.4

Mailboxes shall be made of light weight sheet metal or light weight plastic. Lockable architectural mailboxes shall meet the requirements of the above table.

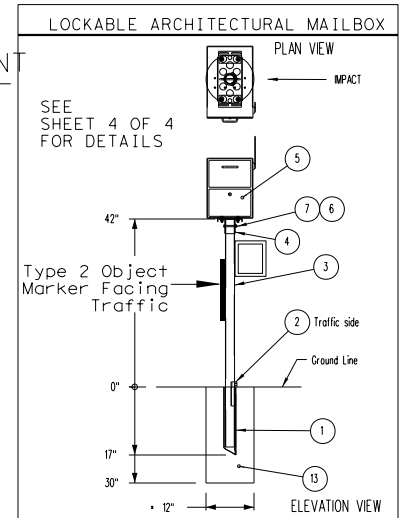
Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

SEE TOP RIGHT CORNER OF SHEET 2 OF 4



INDEX OF MAILBOX DETAIL SHEETS

1 of 4	MAILBOX MOUNTING AND SPACING
2 of 4	MAILBOX BRACKET CONNECTING DETAILS
3 of 4	MAILBOX SUPPORT / FOUNDATION
4 of 4	TABLE OF DHT NUMBERS



FILE: MB15(1).DGN DNE: JEO CK: JEO DW: CK:

© TxDOT APRIL 2015 CONT SECT JOB HIGHWAY

REVISIONS: Added additional newspaper receptacle for double mailbox support

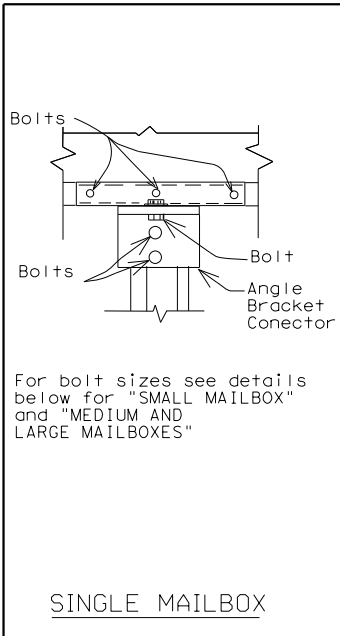
SAN ANTONIO DIST COUNTY SHEET NO. SAT COMAL 95

Maintenance Division Standard

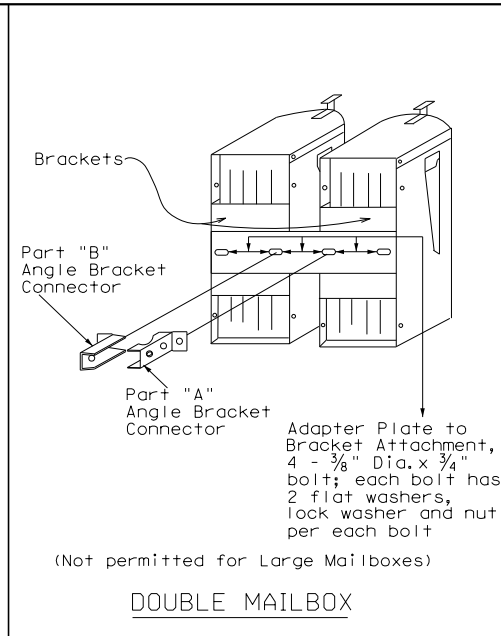
MAILBOX MOUNTING AND SPACING MB-15(1)

SHEET 1 OF 4

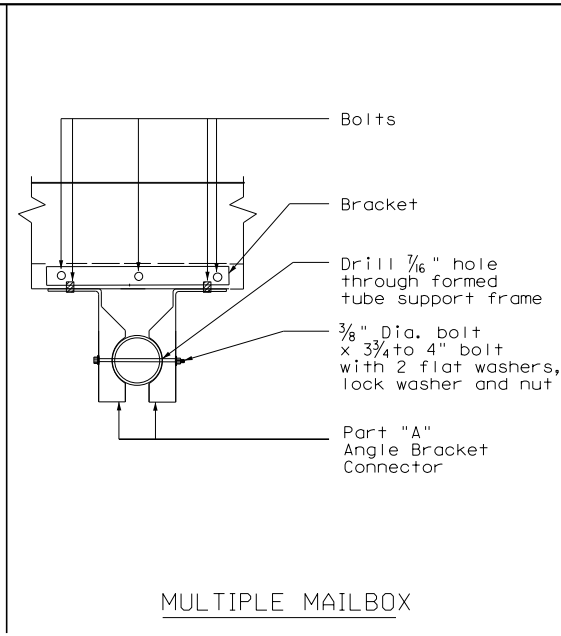
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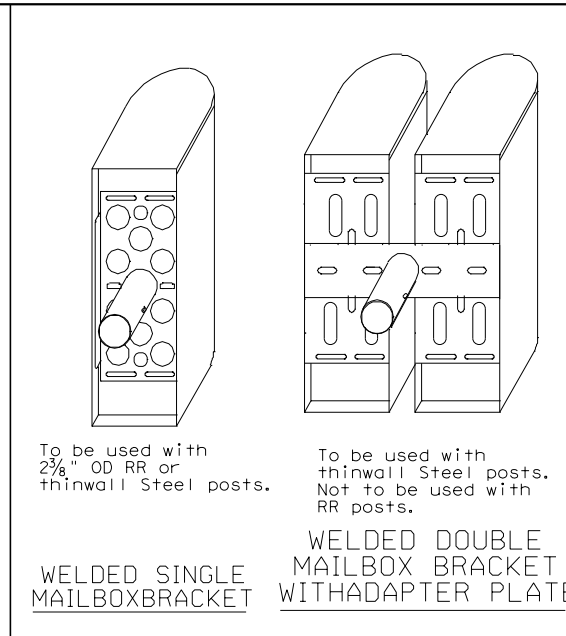
SINGLE MAILBOX



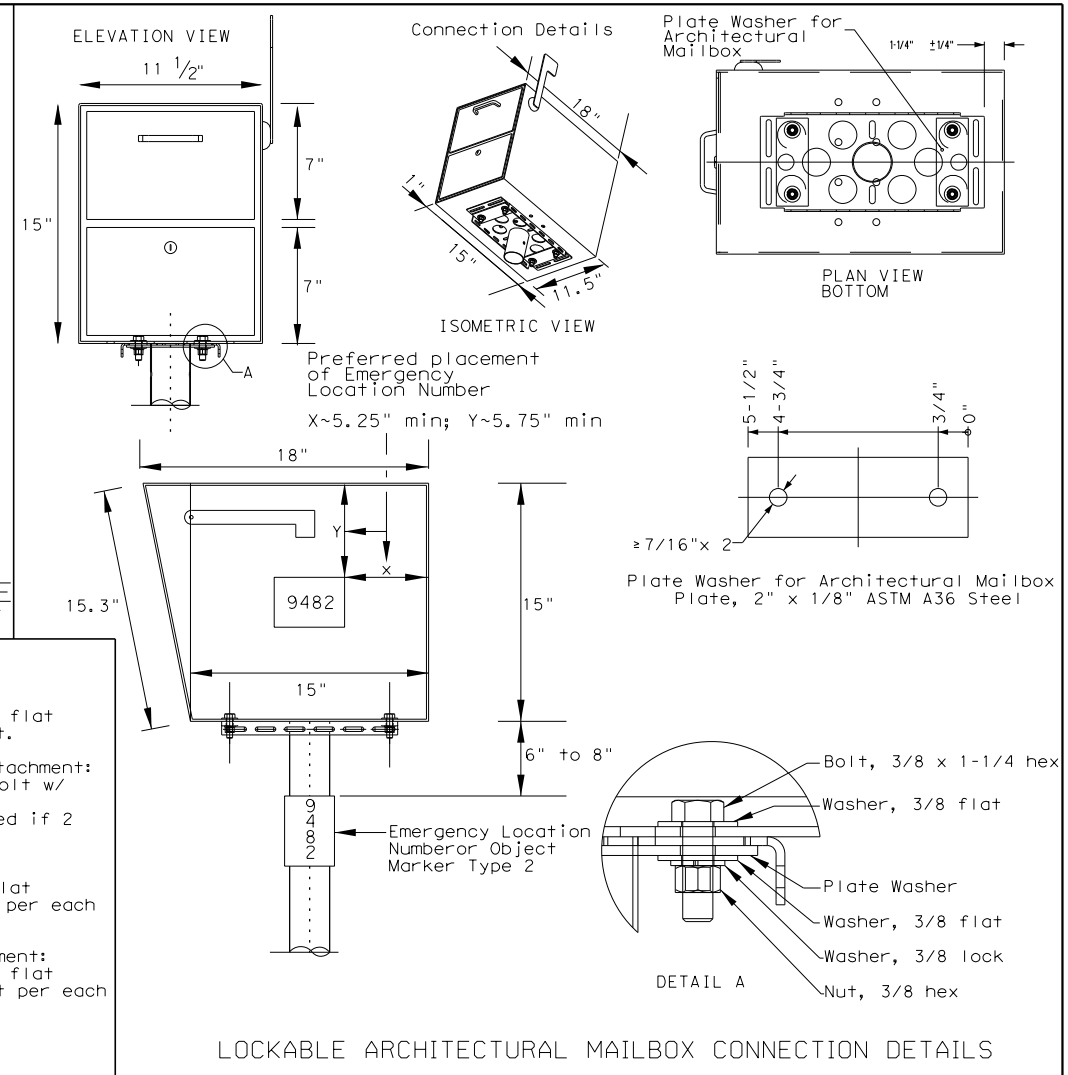
DOUBLE MAILBOX



MULTIPLE MAILBOX



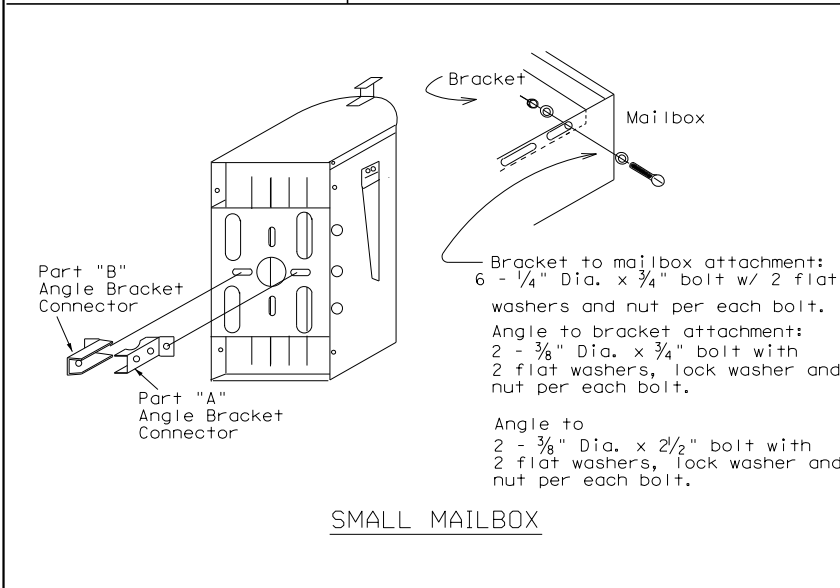
WELDED SINGLE MAILBOX BRACKET W/ ADAPTER PLATE WELDED DOUBLE MAILBOX BRACKET



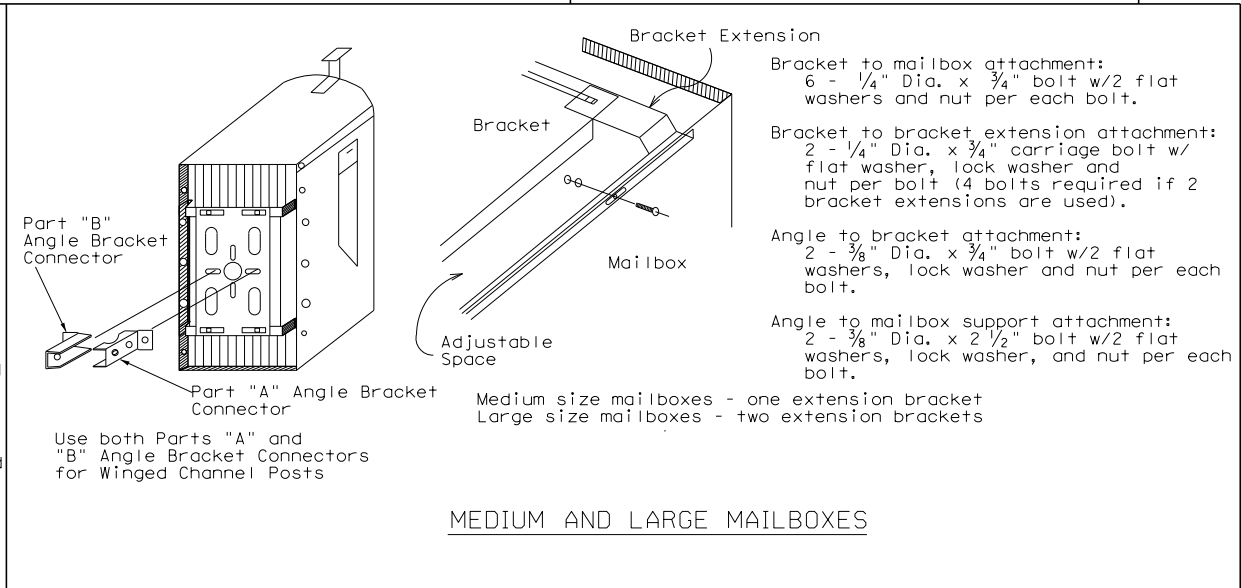
GENERAL NOTES

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.

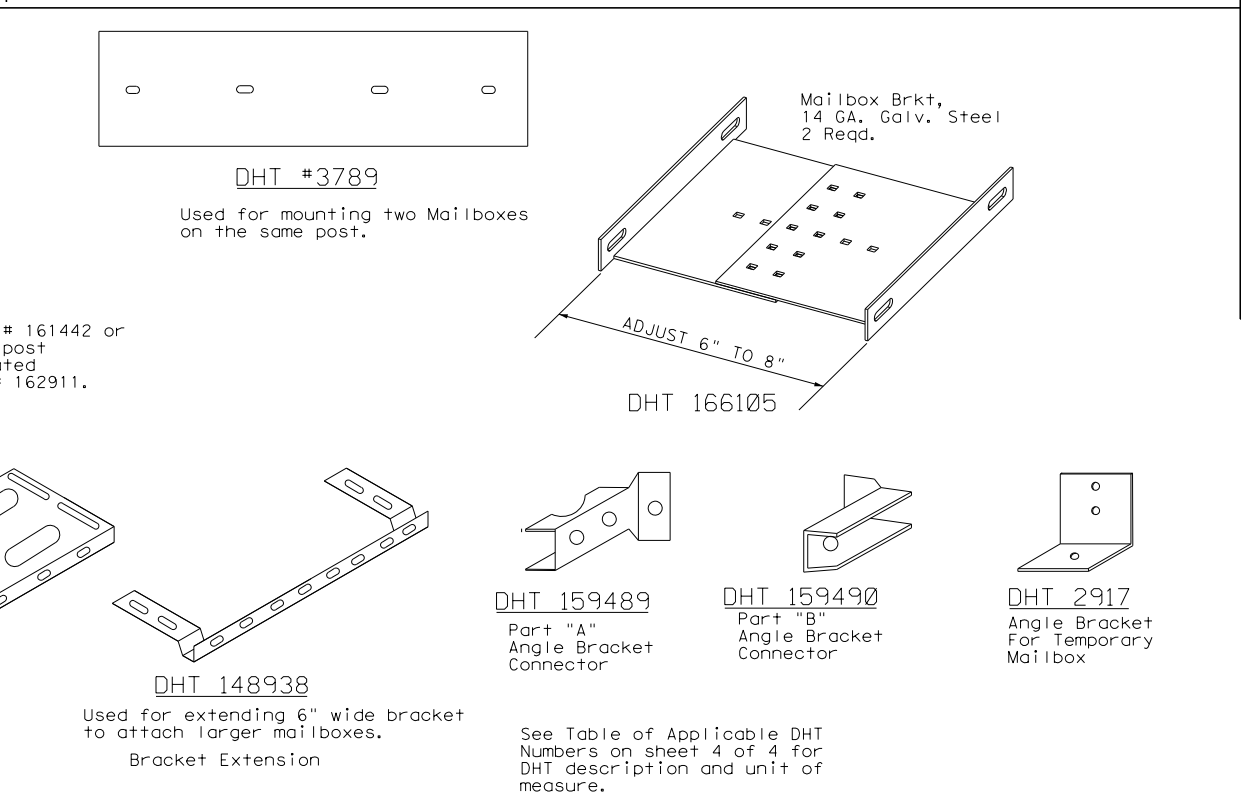
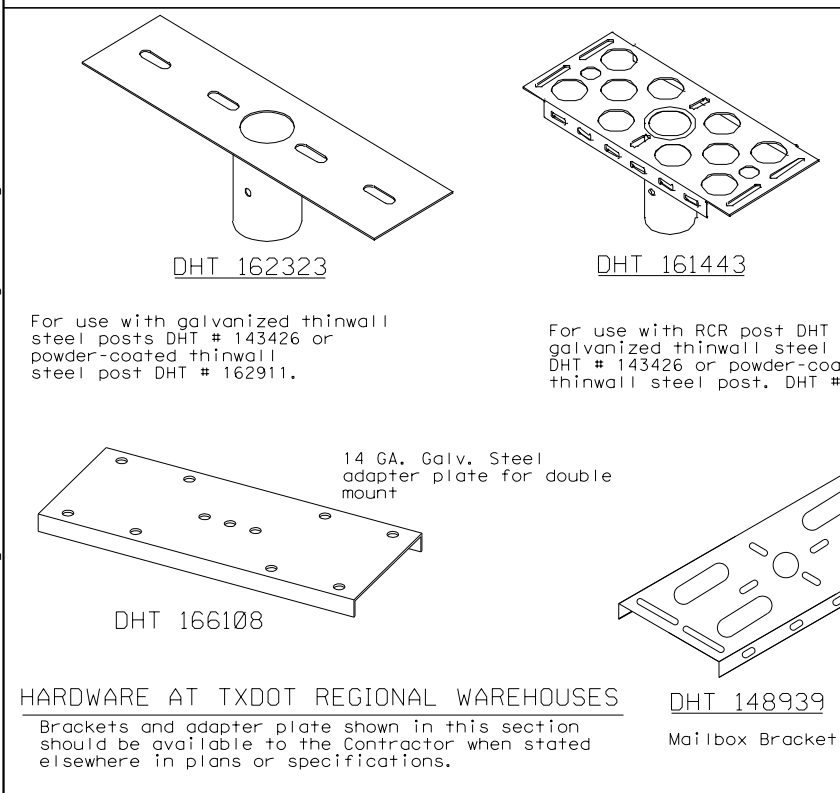
SHEET 2 OF 4



SMALL MAILBOX



MEDIUM AND LARGE MAILBOXES



Texas Department of Transportation Maintenance Division Standard

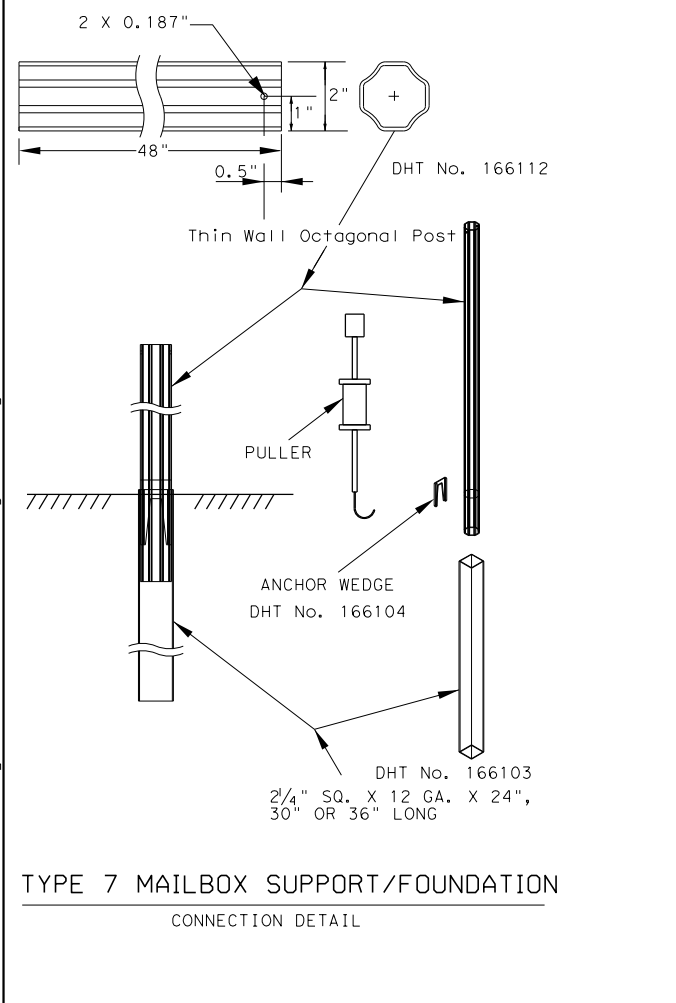
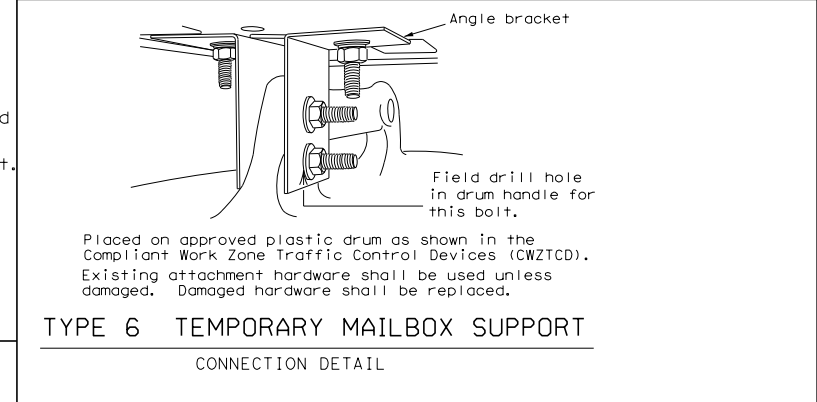
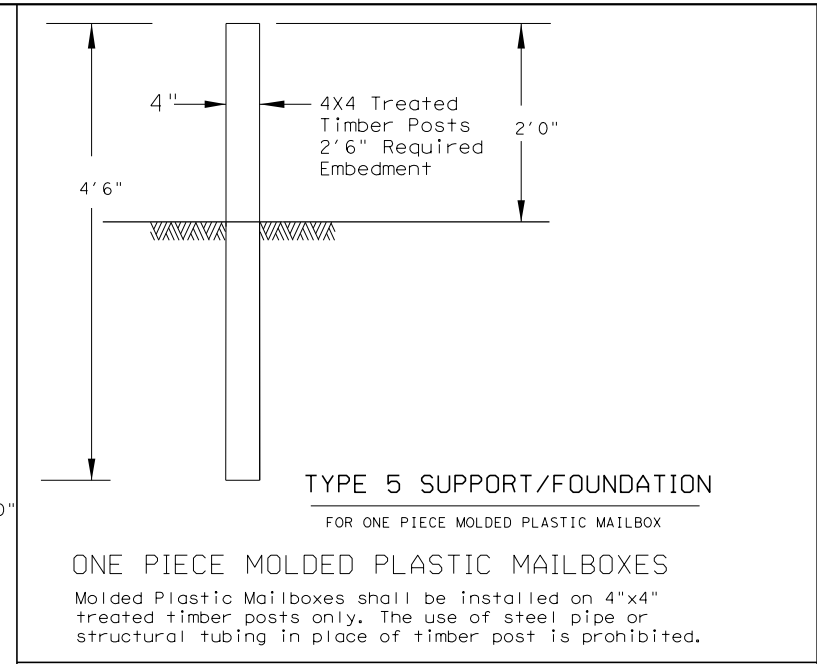
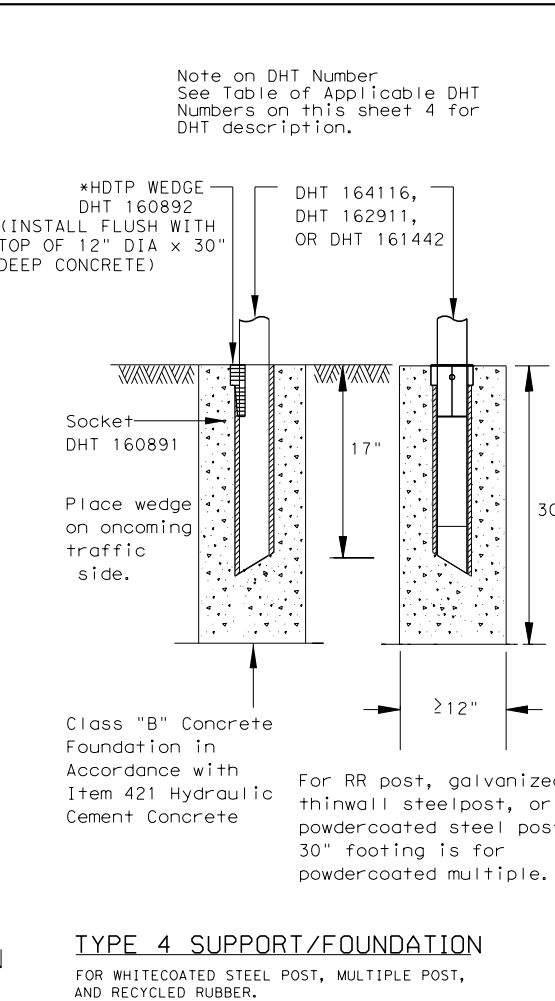
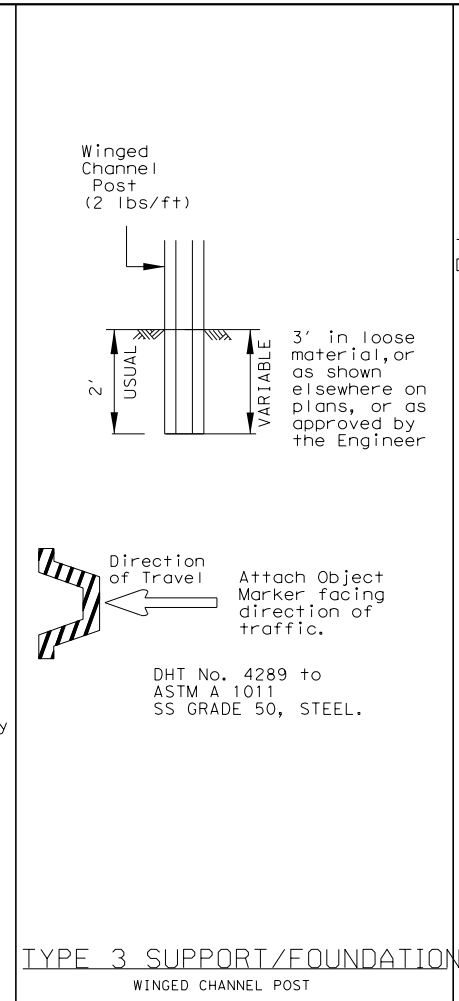
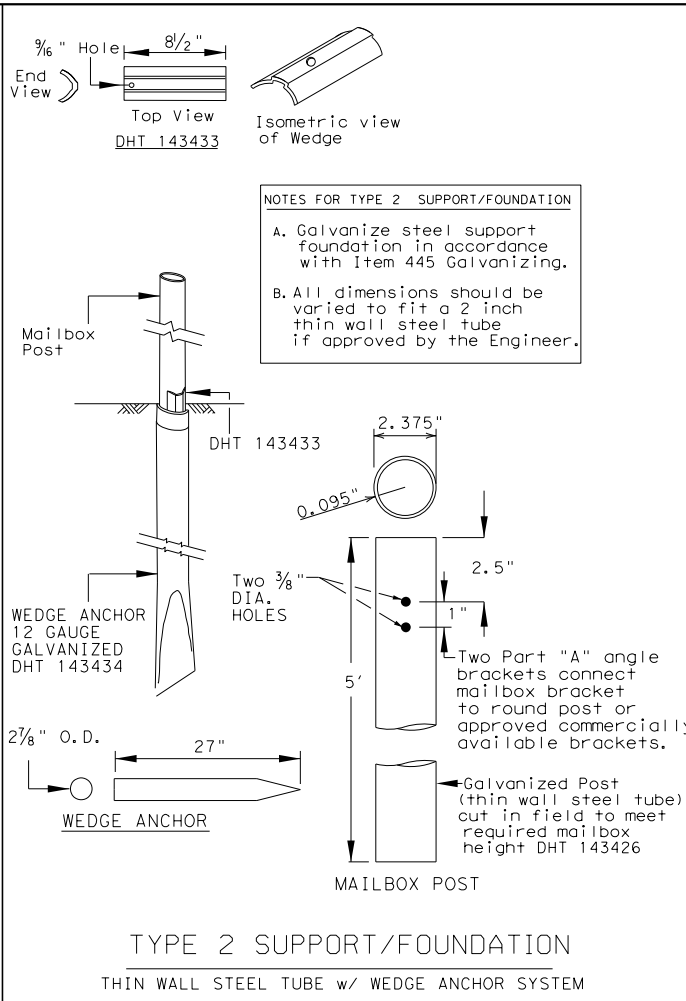
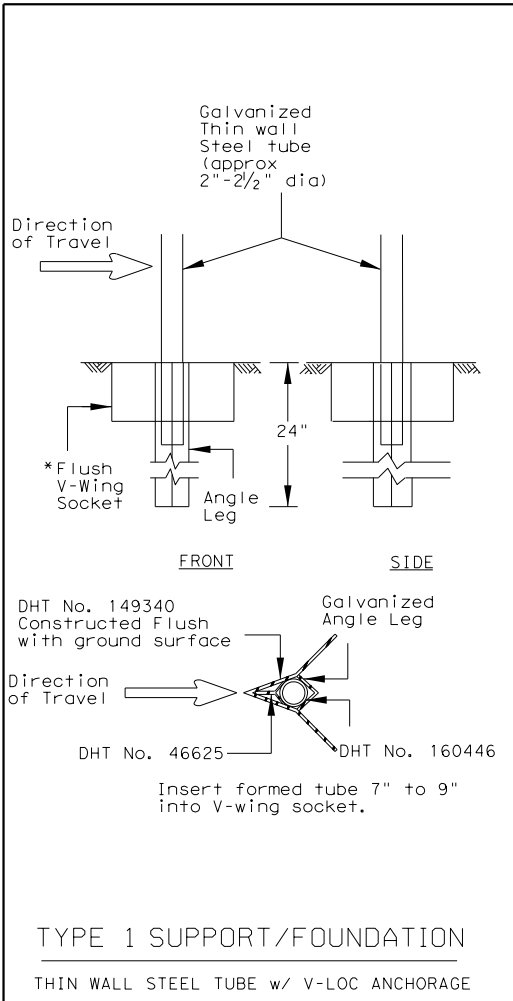
MAILBOX BRACKET CONNECTING DETAILS MB-15(1)

FILE: MB14(1).DGN	DN: JEO	CK:	DW: JEO	CK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
ADDED DHT 163730	REVISIONS			SAN ANTONIO
SAT	COUNTY	SHEET NO.		96
	COMAL			

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GENERAL NOTES

- Erect post plumb or vertical.
- When galvanized part is required galvanize in accordance with Item 445.
- 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.
- The Type 1 or type 7 support/foundation can be used for a multiple mailbox mount.
- The Type 4 support should be used with thin wall steel pipe for the medium, large and double mailbox installations.
- 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.

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

DOUBLE AND LARGE MAILBOXES MUST BE ON STEEL POST. *HDTTP: High density thermoplastic polyesters

Placed on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTC). Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

SHEET 3 OF 4

Texas Department of Transportation Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION
 MB-15(1)

FILE: MB14(1).DGN	DWG: JEO	CHK:	DWG: JEO	CHK:
© TxDOT APRIL 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	97	

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

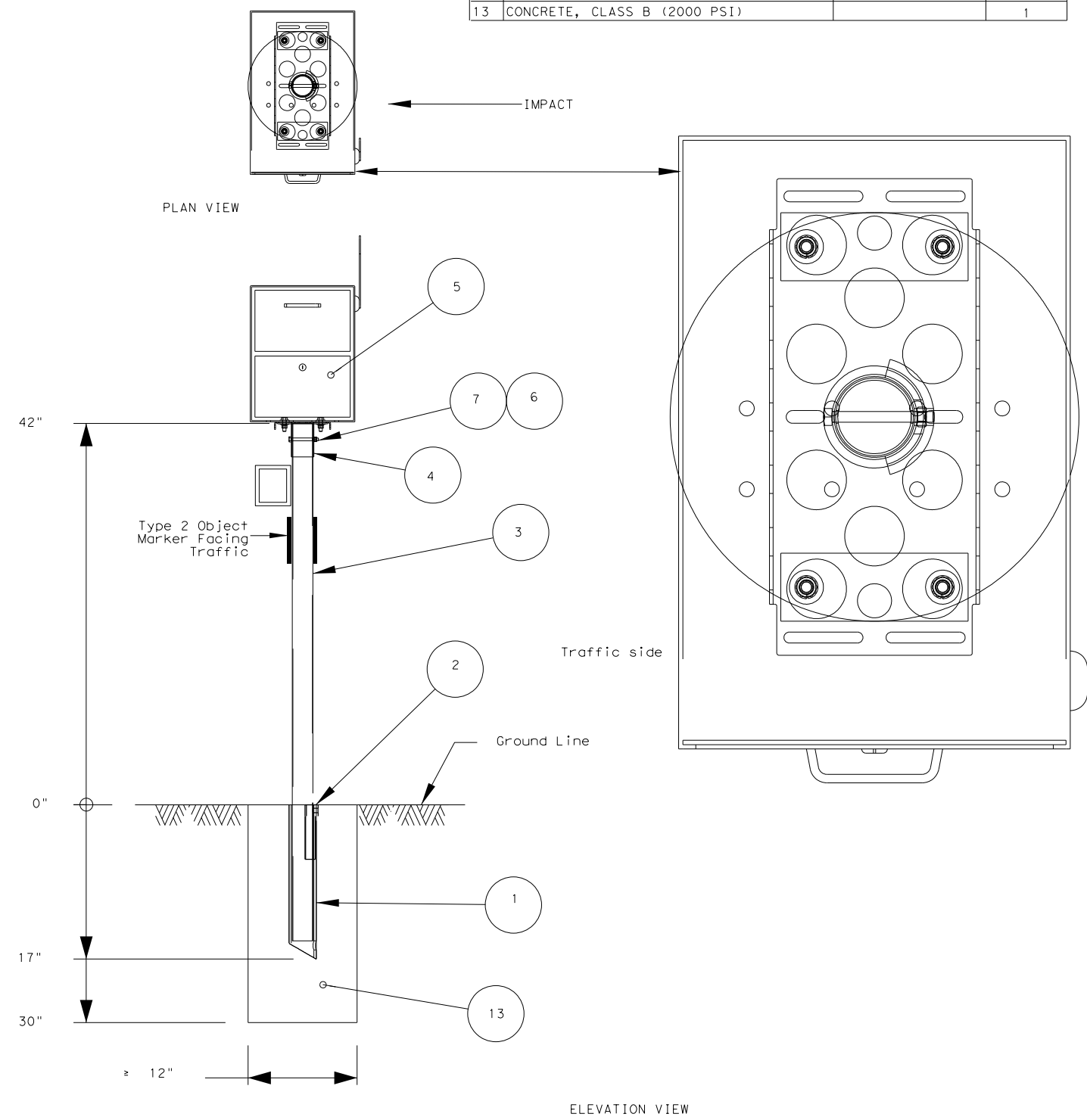


TABLE OF APPLICABLE DHT NUMBERS	
DHT NUMBER	DESCRIPTION
FOUNDATIONS	
46625	WEDGE FOR V-WING SOCKET FOR TYPE 1 FOUNDATION
149340	V-WING SOCKET FOR TYPE 1 FOUNDATION
143433	WEDGE FOR TYPE 2 FOUNDATION
143434	ANCHOR FOR TYPE 2 FOUNDATION
166103	ANCHOR FOR TYPE 7 FOUNDATION
160891	SOCKET FOR TYPE 4 FOUNDATION
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
	SINGLE OR DOUBLE THIN-WALL MAILBOX POST GALVANIZED
166152	2" OCTAGONAL
	SINGLE OR DOUBLE THIN-WALL MAILBOX POST WHITECOATED
166112	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
	BRACKET FOR DOUBLE MOUNTING OF MAILBOXES ON THINWALL
162323	STEEL POST, GALVANIZED OR POWDERCOATED.
	BRACKET FOR ATTACHING MAILBOX TO RECYCLED RUBBER POST
161443	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

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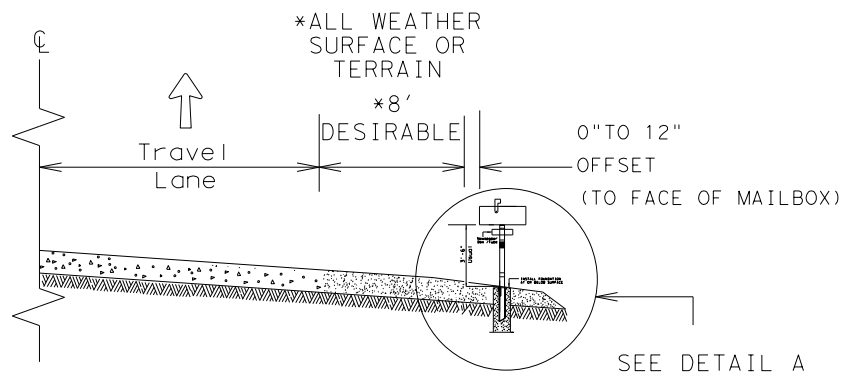


DHT NUMBERS TABLE
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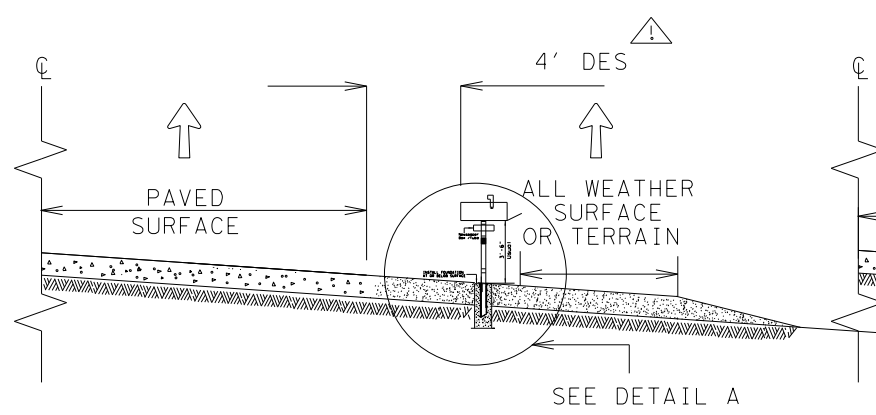
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REVISIONS	SAN ANTONIO			
	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	98	

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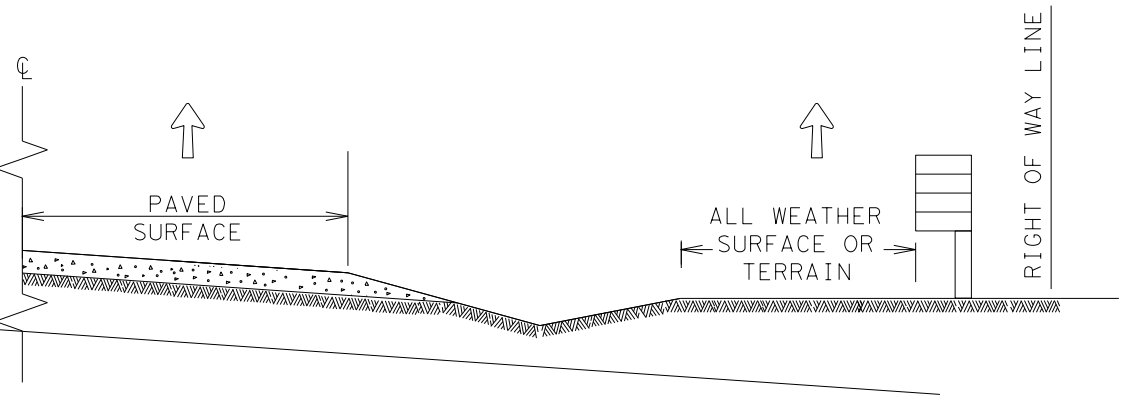
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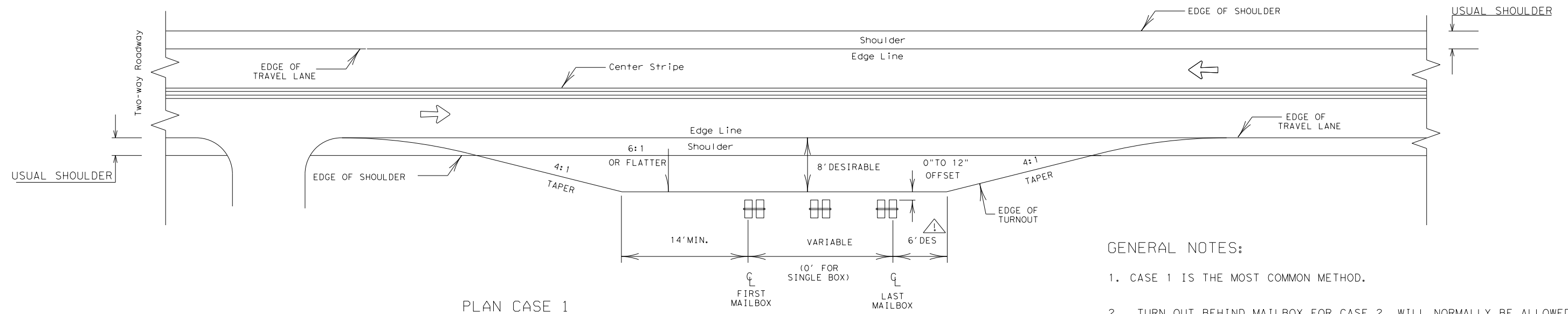
CASE 1. OFF TRAVEL WAY DELIVERY



CASE 2. BACK SIDE DELIVERY



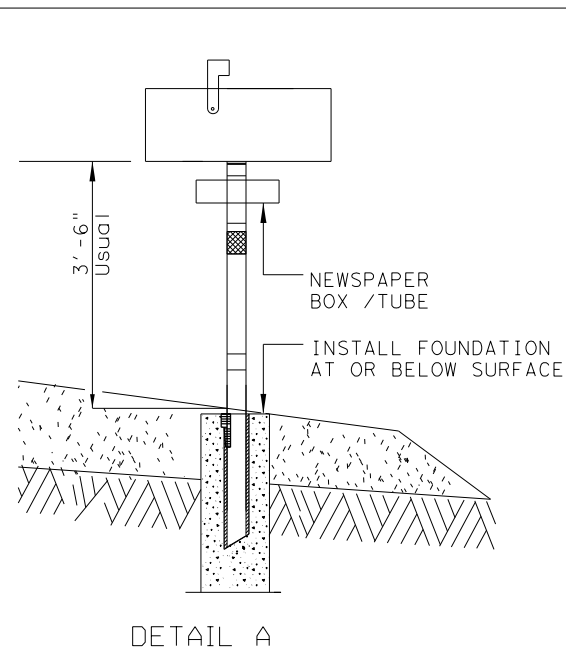
CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



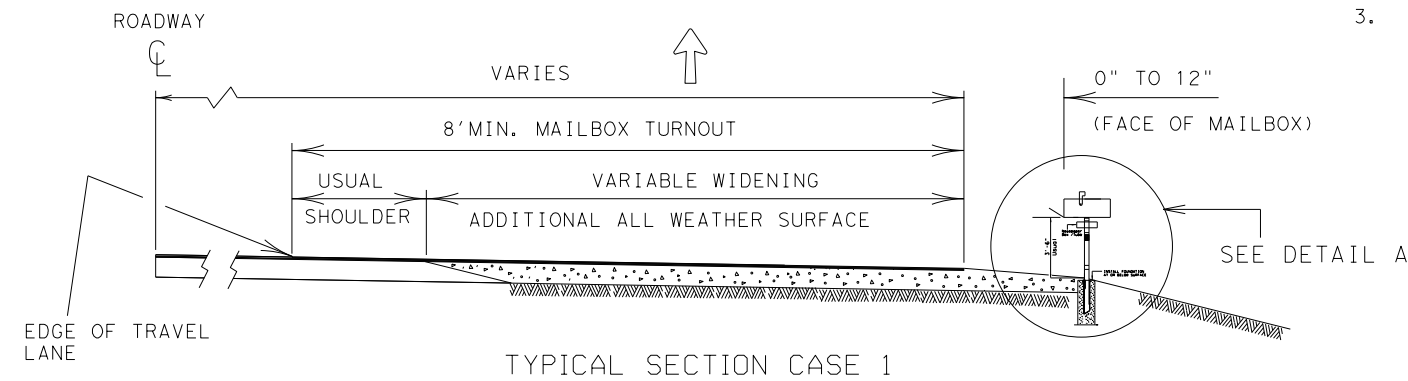
PLAN CASE 1

GENERAL NOTES:

1. CASE 1 IS THE MOST COMMON METHOD.
2. TURN OUT BEHIND MAILBOX FOR CASE 2 WILL NORMALLY BE ALLOWED FOR NATURAL TERRAIN THAT WILL SERVE AS AN ALL WEATHER SURFACE.
3. ALL WEATHER DRIVEWAYS FOR CASE 3 MAILBOXES LOCATED AT THE RIGHT OF WAY LINE SHOULD NORMALLY BE PLACED IN CONJUNCTION WITH COUNTY ROADS OR OTHER CONNECTING COMMUNITY ROADS OR STREETS. IF THE NUMBER OF MAILBOXES EXCEEDS FOUR, A COMMUNITY MAIL BOX SHOULD BE ENCOURAGED AT THESE LOCATIONS.



DETAIL A



TYPICAL SECTION CASE 1

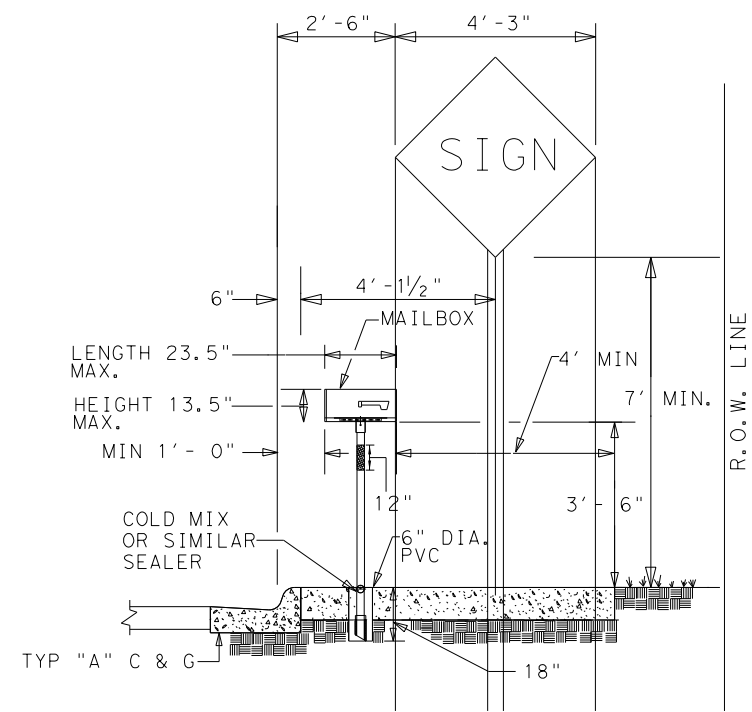
↑ MAIL DELIVERY VEHICLE TRAVEL DIRECTION

SHEET 1 OF 3

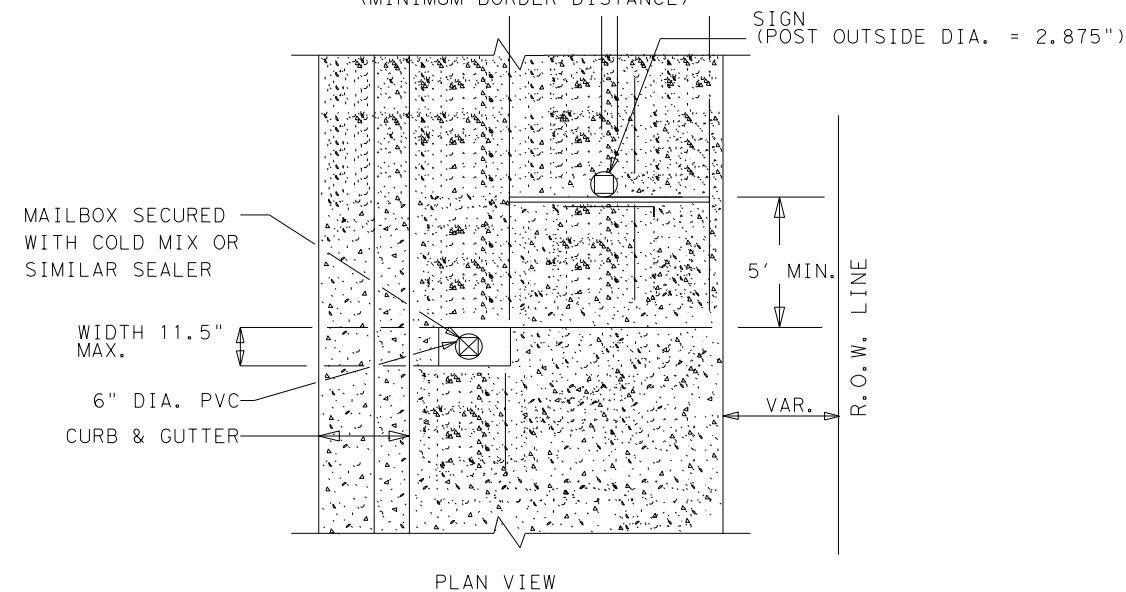
		Maintenance Division Standard	
<i>Guideline</i> MAILBOX SIDE ROAD PLACEMENT AND TURNOUTS MB-14(2)			
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© TxDOT MAY 2014	CONT	SECT	JOB
REVISIONS			SAN ANTONIO
DECEMBER 2012-NEW TxDOT TITLE BLOCK	DIST	COUNTY	SHEET NO.
	SAT	COMAL	99

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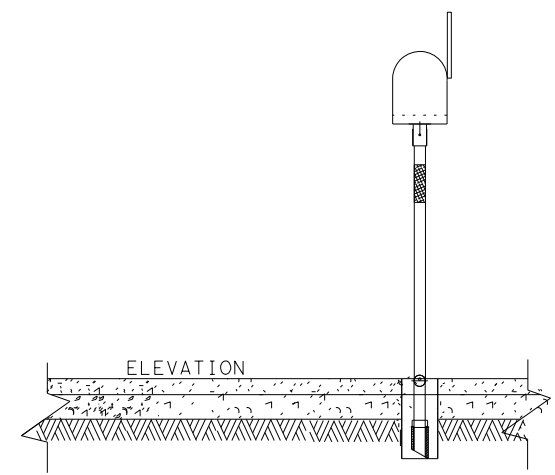
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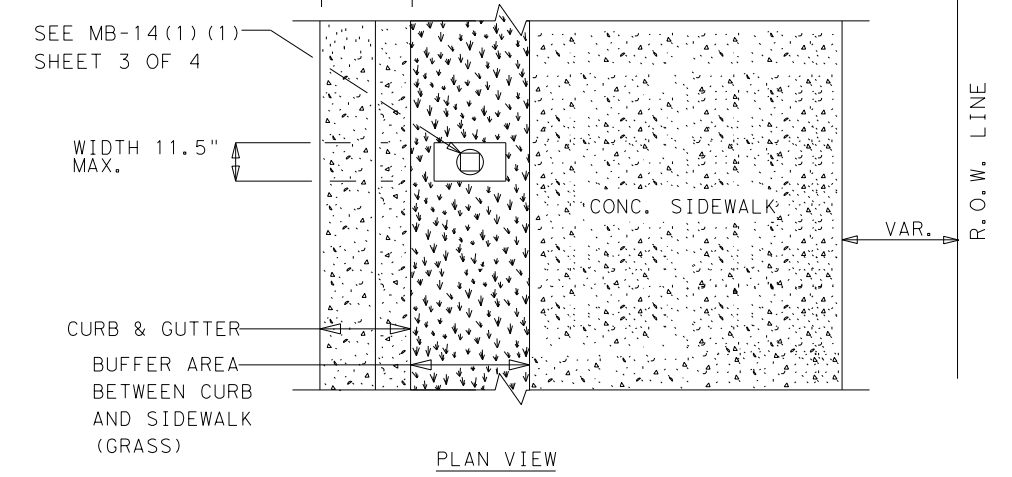
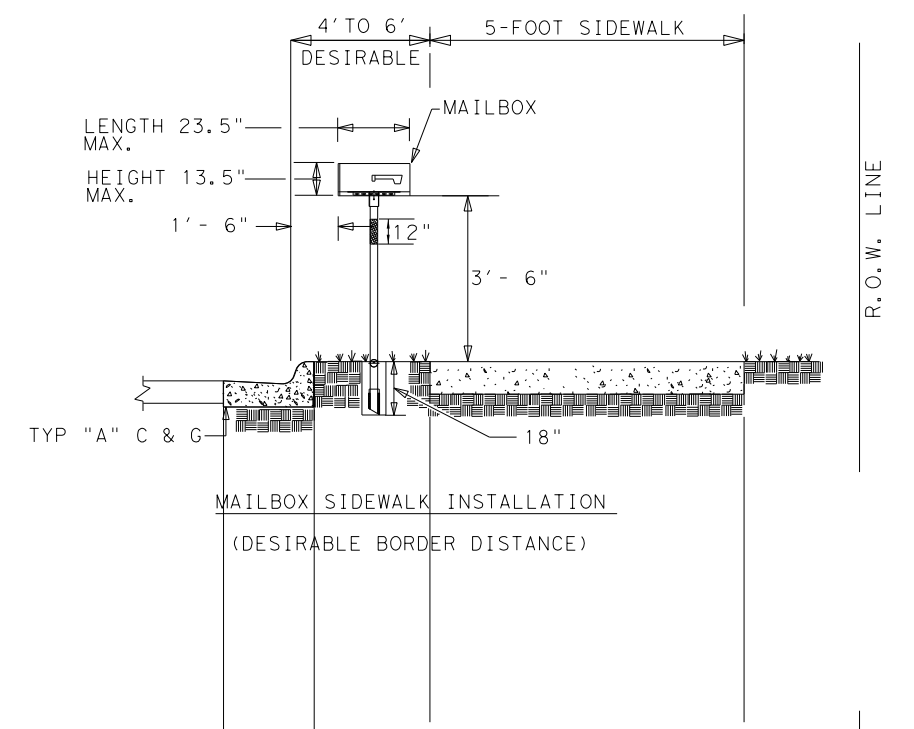
MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN (MINIMUM BORDER DISTANCE)



PLAN VIEW



ELEVATION



PLAN VIEW

SHEET 2 OF 3

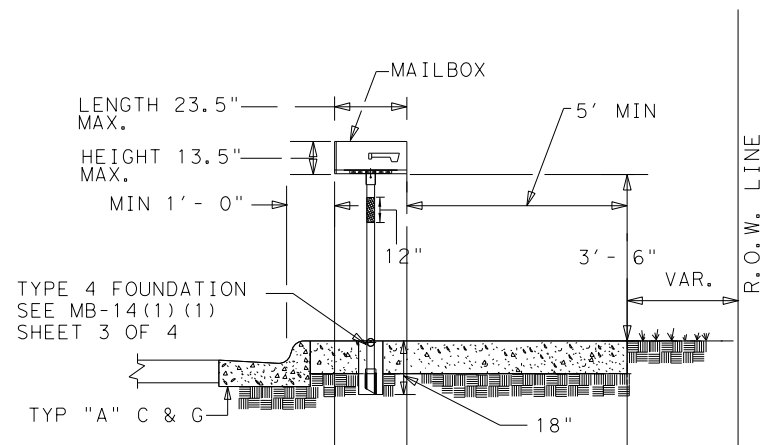


SINGLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS
 MB-14(2A)

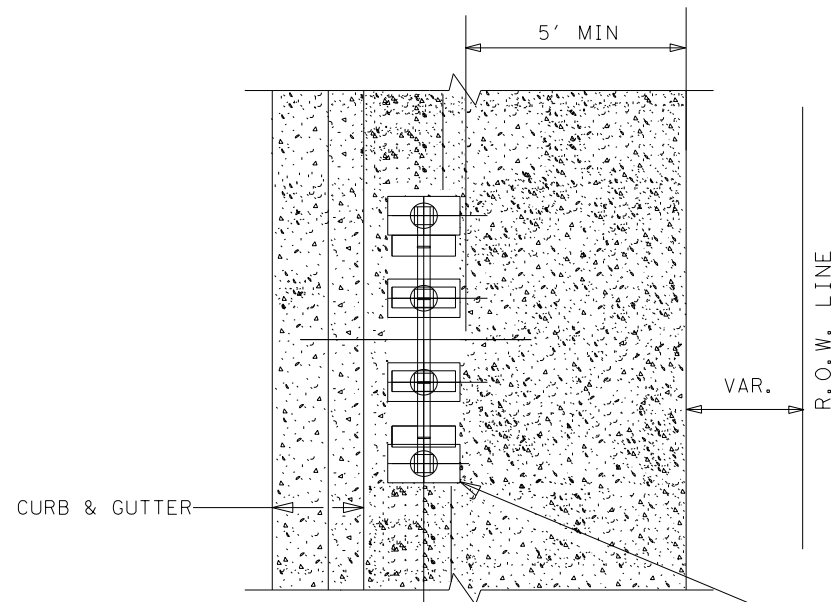
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© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	SAN ANTONIO			
DIST	COUNTY	SHEET NO.		
SAT	COMAL	100		

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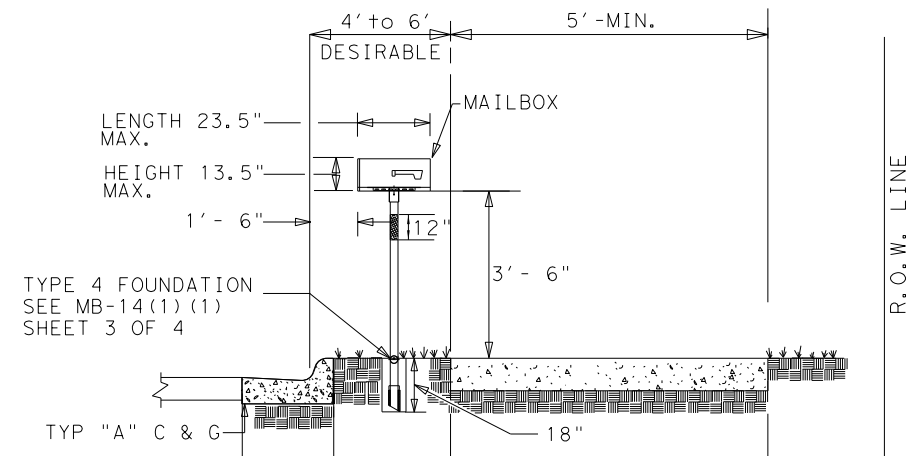
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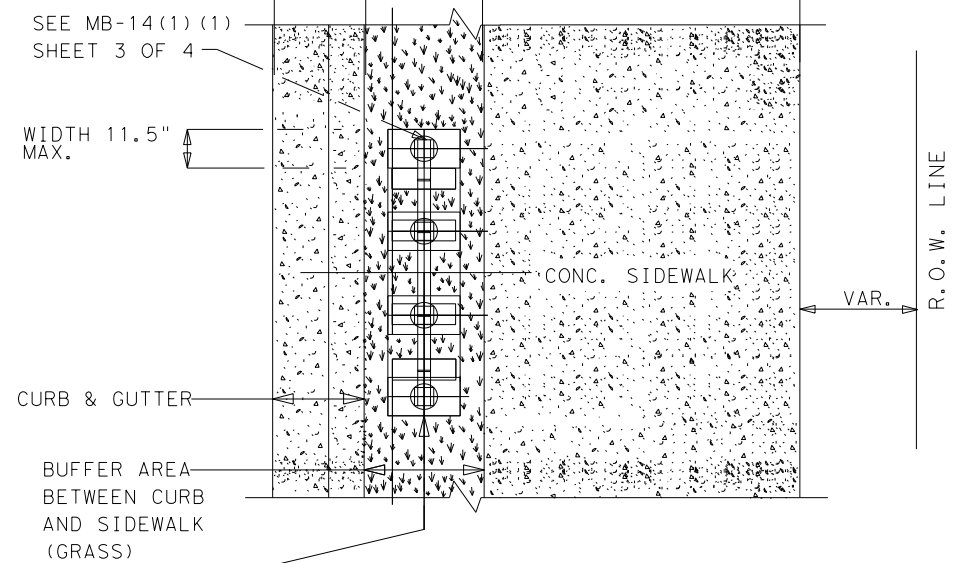
MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN (MINIMUM BORDER DISTANCE)



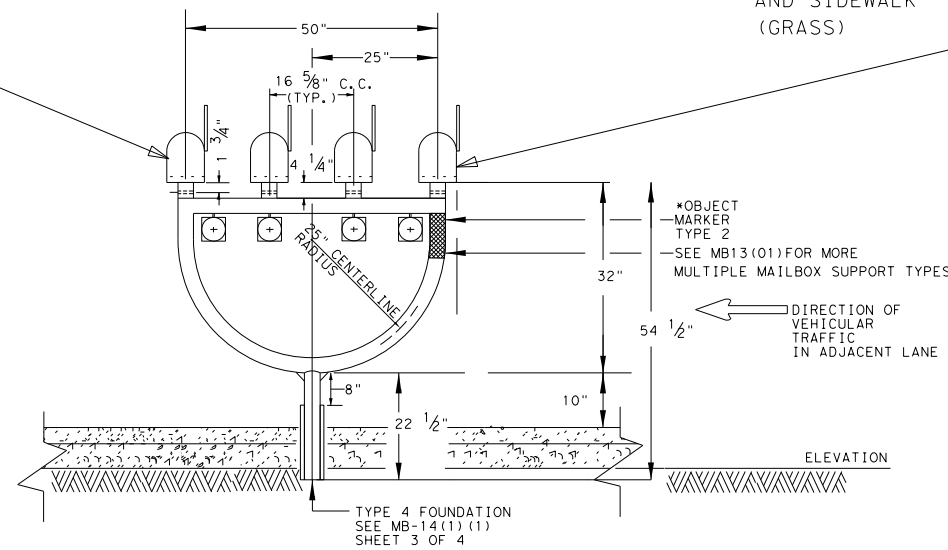
PLAN VIEW



MAILBOX SIDEWALK INSTALLATION (DESIRABLE BORDER DISTANCE)



PLAN VIEW



TYPE 4 FOUNDATION SEE MB-14(1) (1) SHEET 3 OF 4

SHEET 3 OF 3

Texas Department of Transportation Maintenance Division Standard

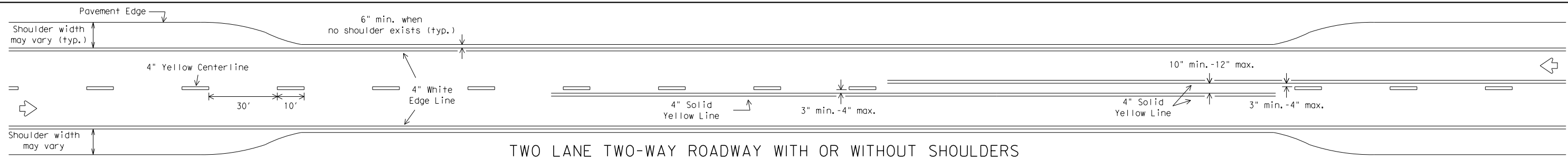
MULTIPLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2B)

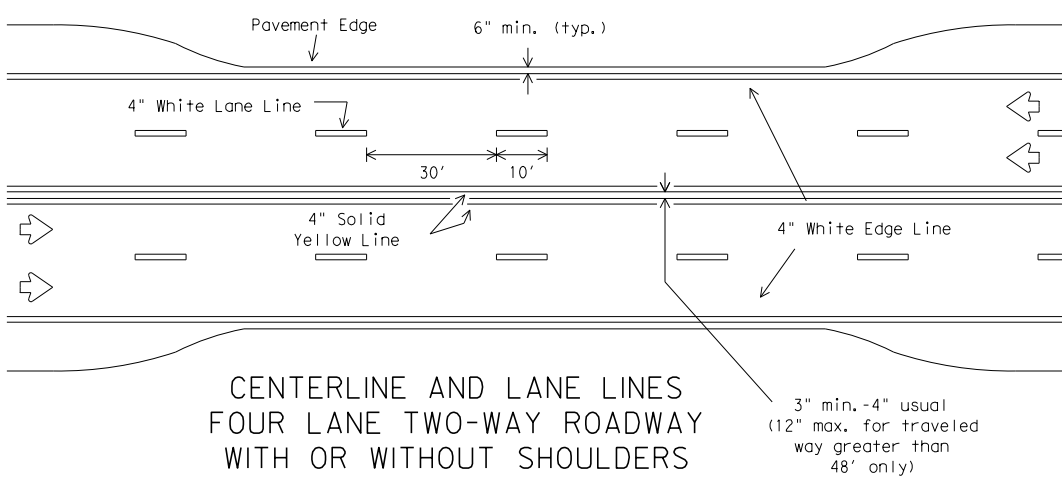
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© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY			SHEET NO.
SAT	COMAL			101

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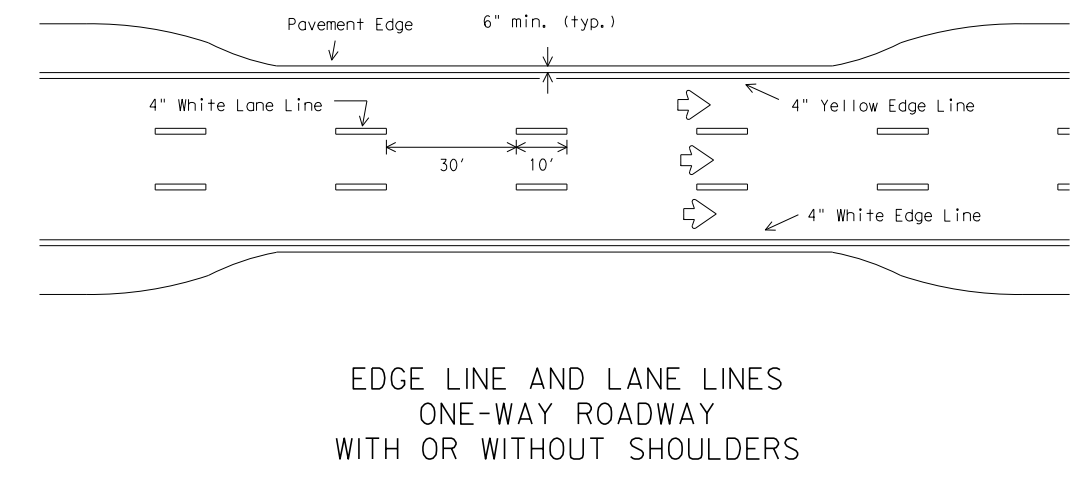
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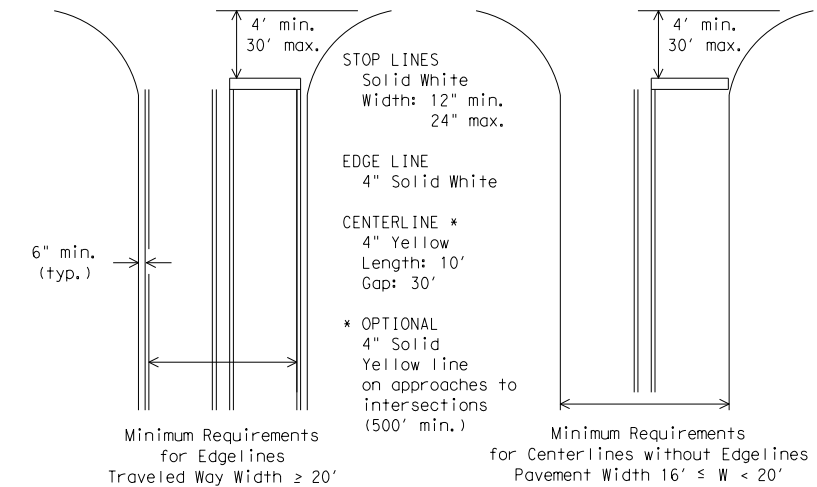
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



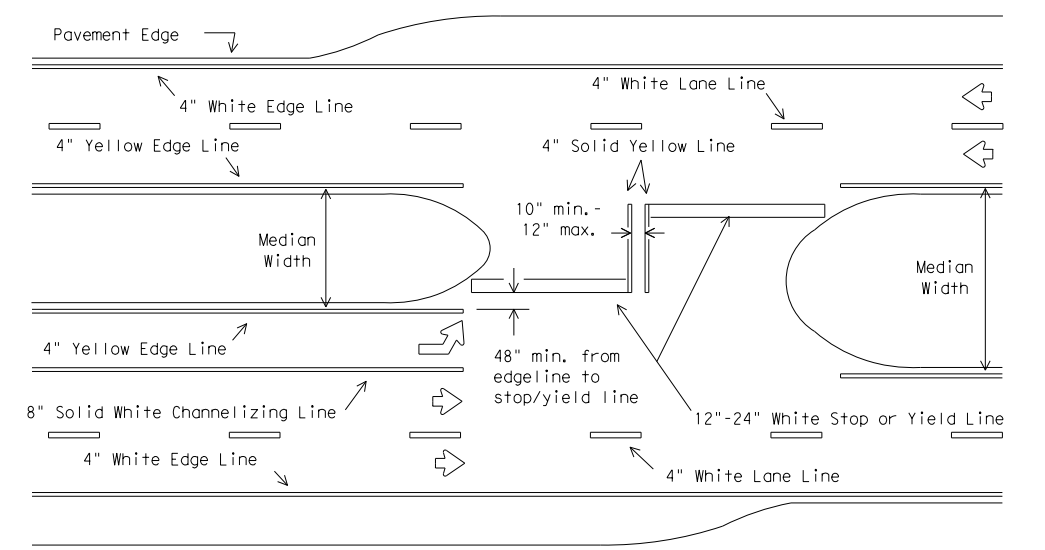
CENTERLINE AND LANE LINES
 FOUR LANE TWO-WAY ROADWAY
 WITH OR WITHOUT SHOULDERS



EDGE LINE AND LANE LINES
 ONE-WAY ROADWAY
 WITH OR WITHOUT SHOULDERS

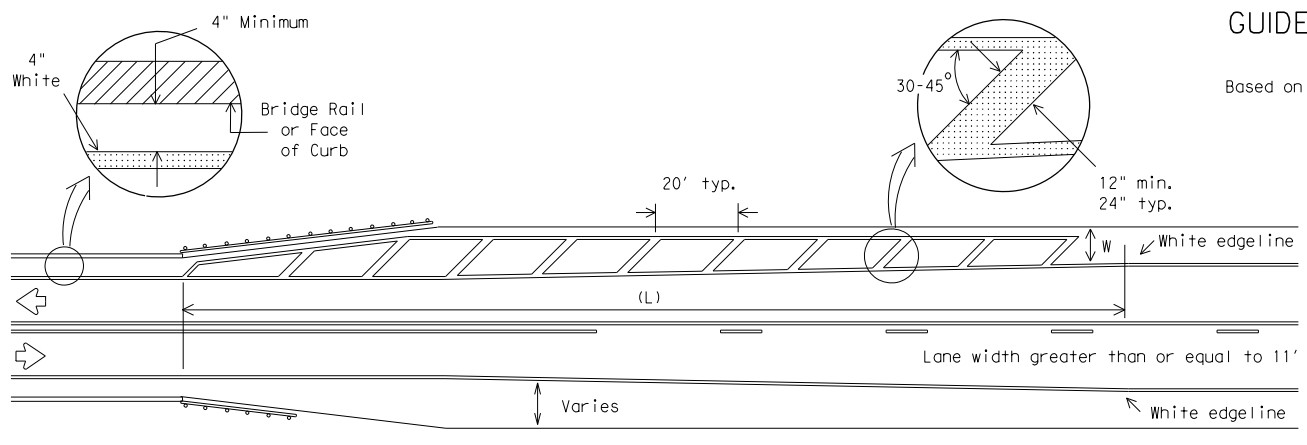


GUIDE FOR PLACEMENT OF STOP LINES,
 EDGE LINE & CENTERLINE
 Based on Traveled Way and Pavement Widths for Undivided Highways



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:
- No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
 - For crosshatching length (L) see Table 1.
 - The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
 - The crosshatching is not required if delineators or barrier reflectors are used along the structure.
 - 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)

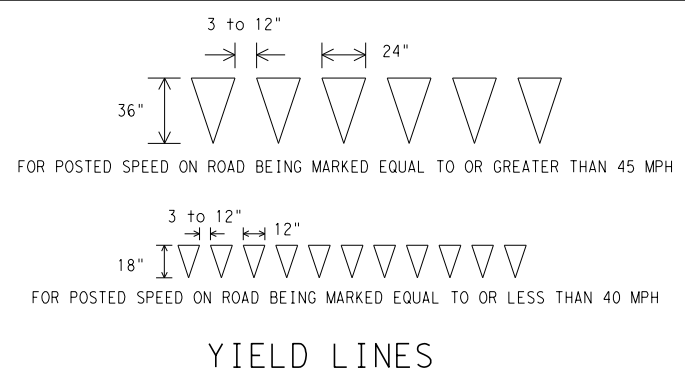
EXAMPLES:
 An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the crosshatching should be:
 $L = 8 \times 70 = 560$ ft.
 A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the crosshatching should be:
 $L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.

GENERAL NOTES

- 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.
- 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



TYPICAL STANDARD
 PAVEMENT MARKINGS

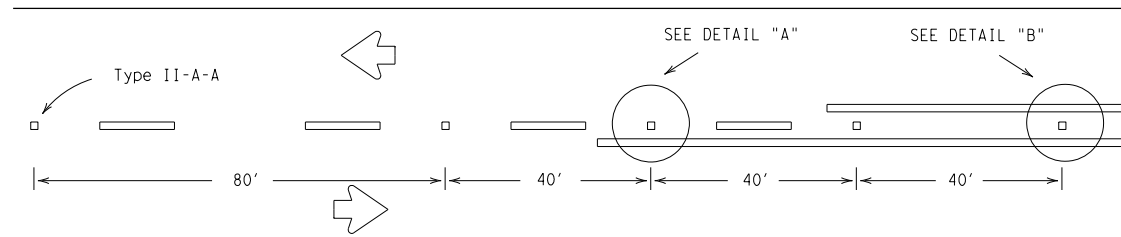
PM(1) - 12

© TxDOT November 1978	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				SAN ANTONIO
5-00				
8-00	DIST		COUNTY	SHEET NO.
3-03	SAT		COMAL	102
22A				

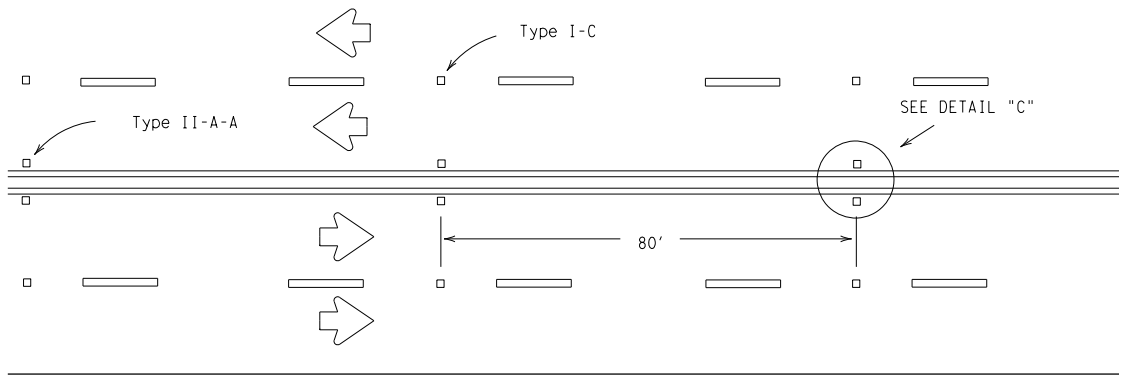
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REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

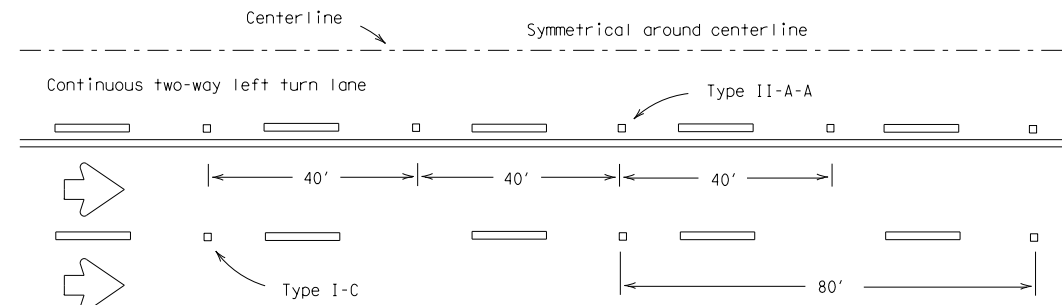


CENTERLINE FOR ALL TWO LANE ROADWAYS

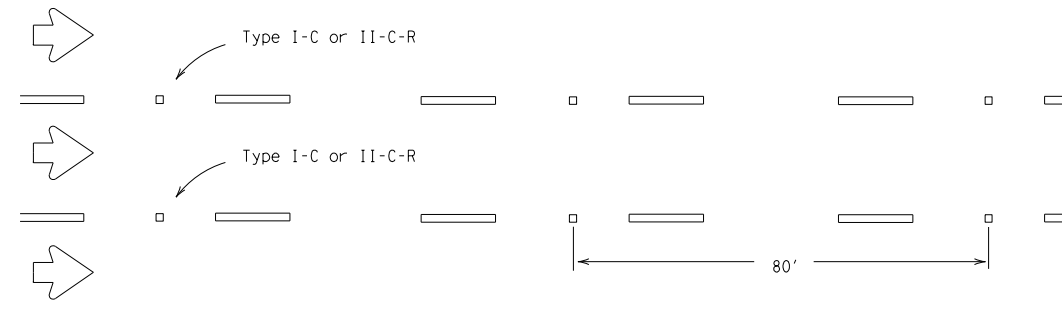


CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

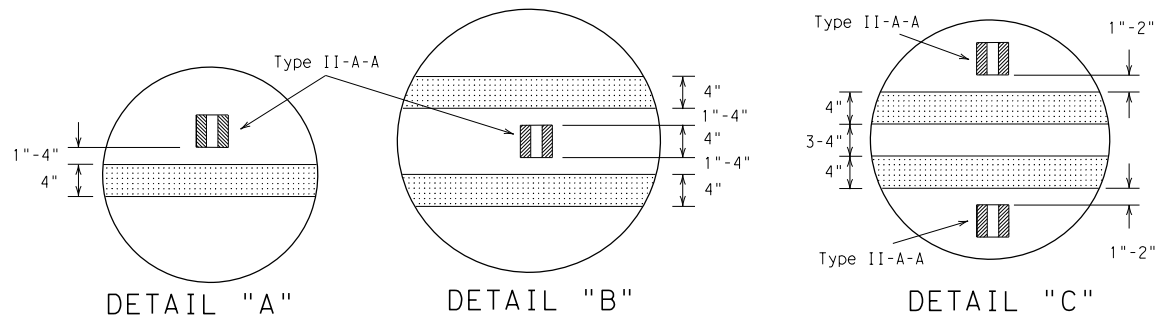


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

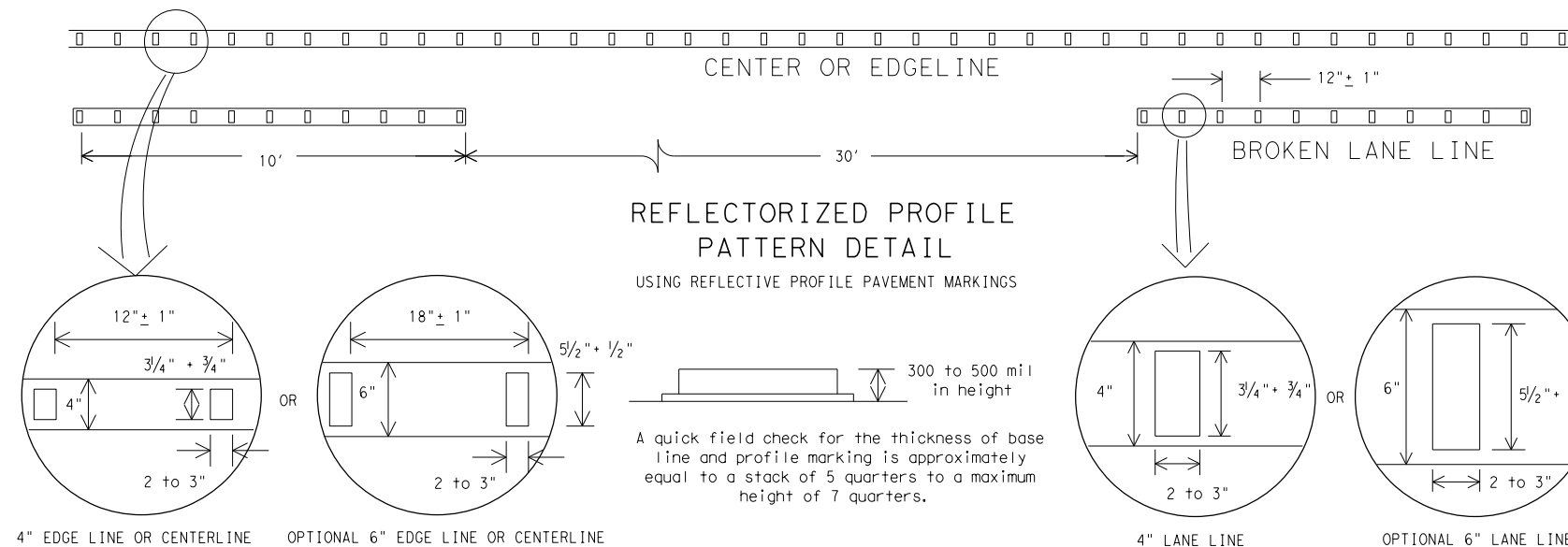
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.



DETAIL "A"

DETAIL "B"

DETAIL "C"



REFLECTORIZED PROFILE
PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTE:

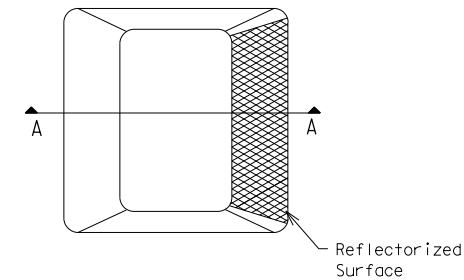
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

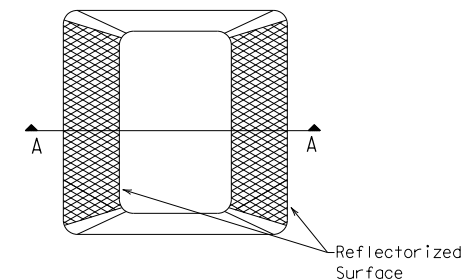
- All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
- On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

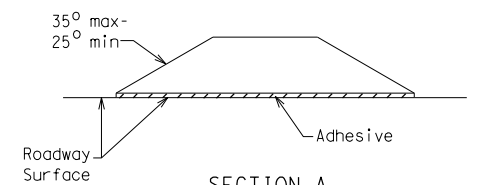
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



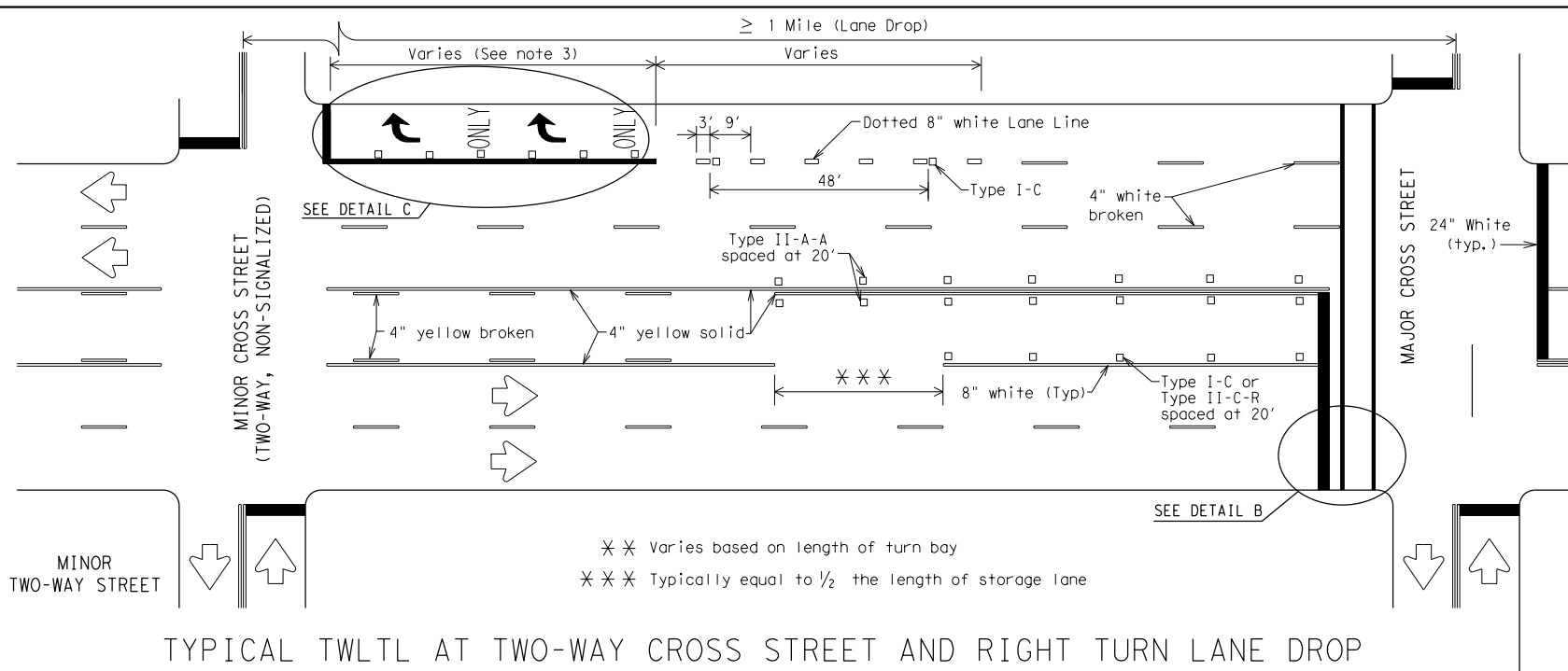
POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2) - 12

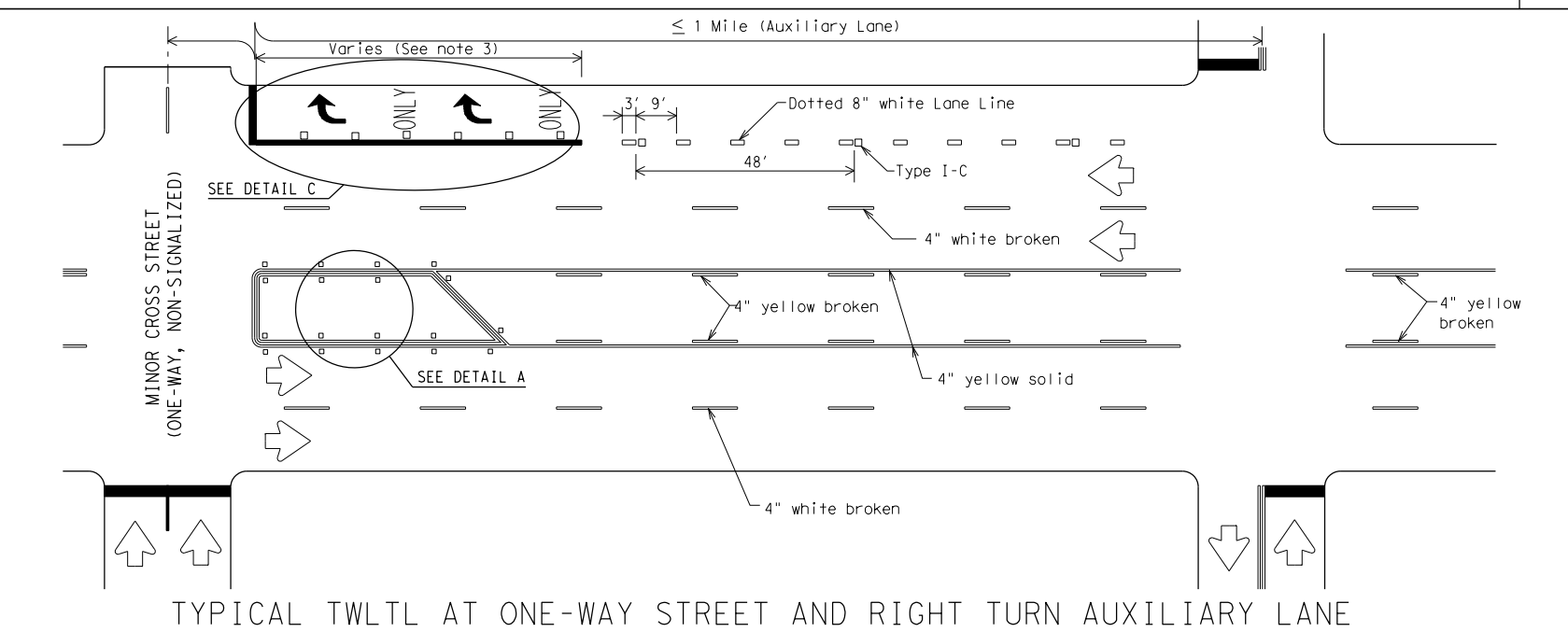
© TxDOT April 1977		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISONS		CONT	SECT	JOB	HIGHWAY
4-92	2-10				SAN ANTONIO
5-00	2-12				
8-00		DIST	COUNTY		SHEET NO.
2-08		SAT	COMAL		103

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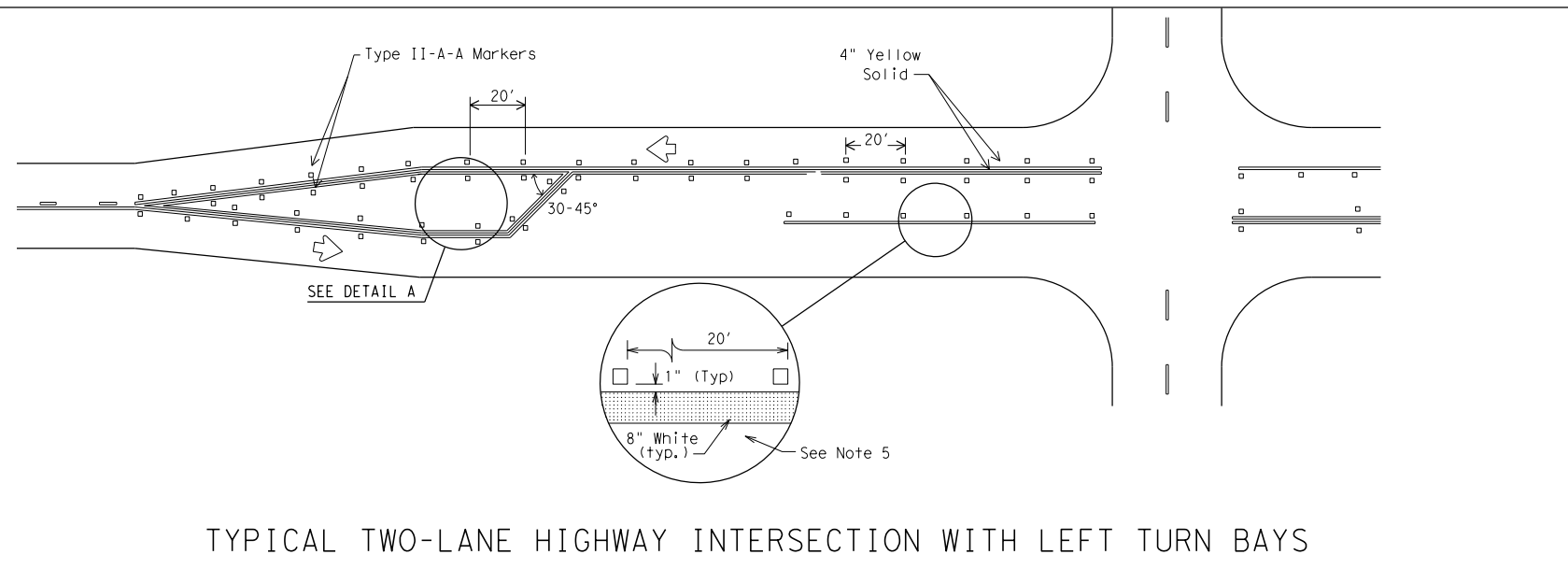
DATE: 7/24/2019 2:30:20 PM
 FILE: P:\111\38\01\Design\Civi\Standards\PavementMarkers\PM3-12.DGN



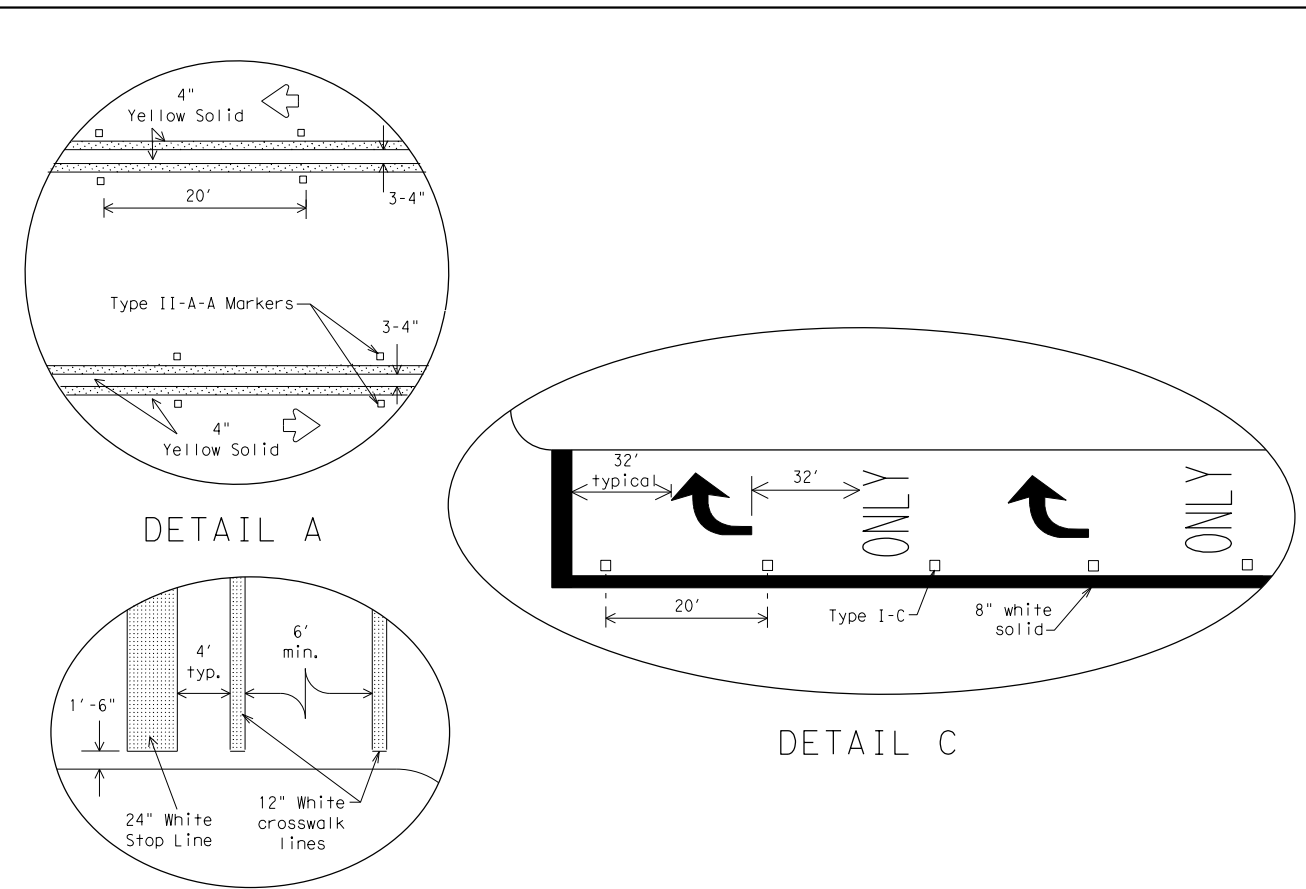
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



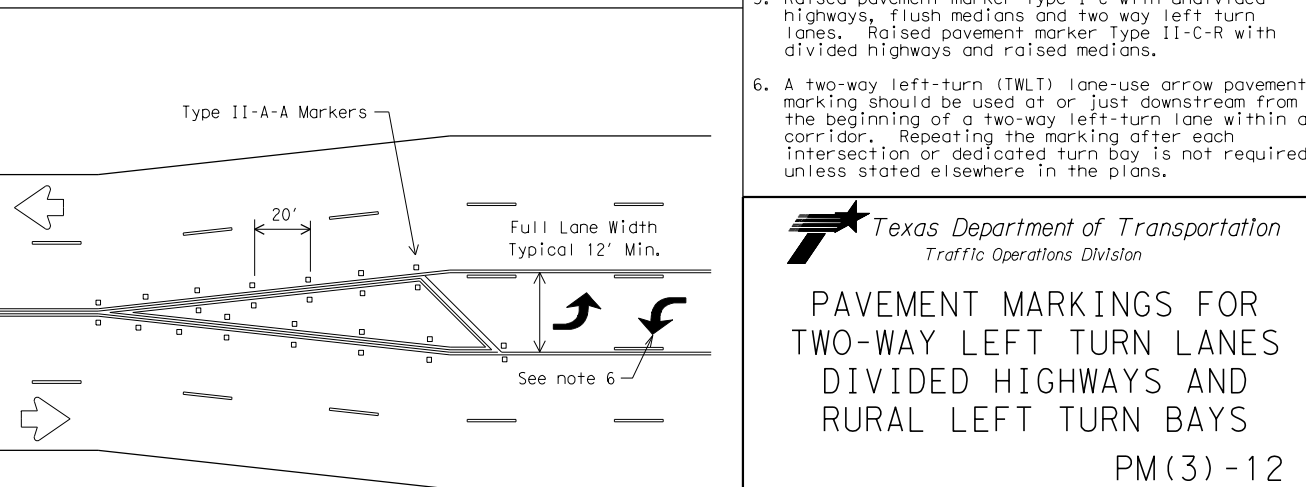
TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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**
- Refer elsewhere in plans for additional RPM placement and details.
 - 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.
 - 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.
 - Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used.
 - 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.
 - A two-way left-turn (TWLTL) 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

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REVISIONS		CONT	SECT	JOB	HIGHWAY
5-00	2-12				SAN ANTONIO
8-00					
3-03		DIST	COUNTY		SHEET NO.
2-10		SAT	COMAL		104

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

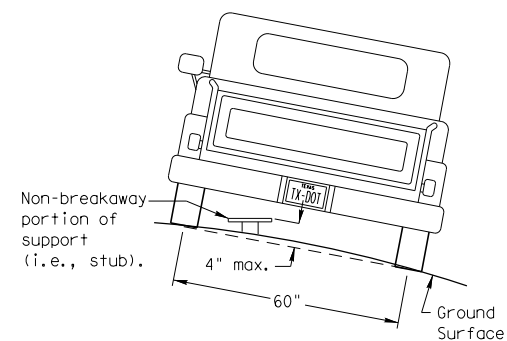
Post Type _____
 FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
 TWT = Thin-Walled Tubing (see SMD(TWT))
 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
 S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

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))

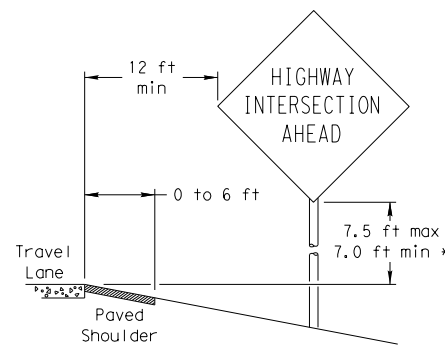
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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).

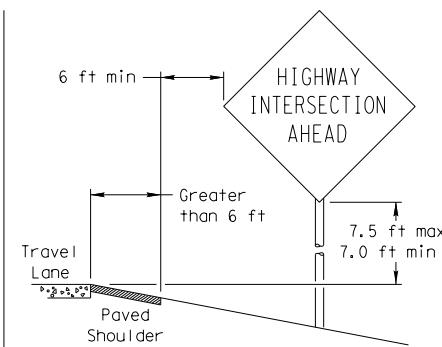
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

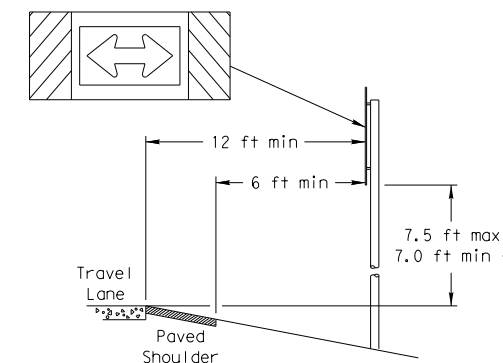
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



GREATER THAN 6 FT. WIDE

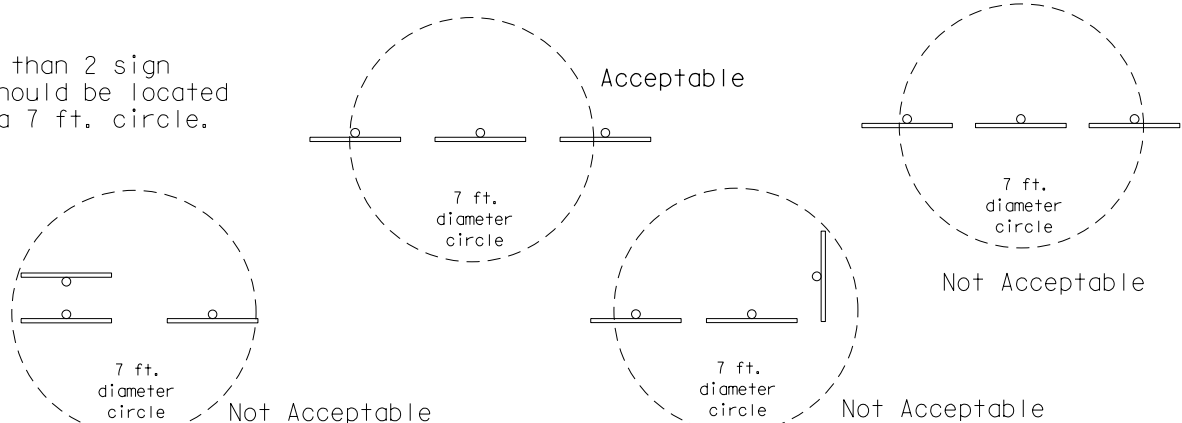
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

T-INTERSECTION

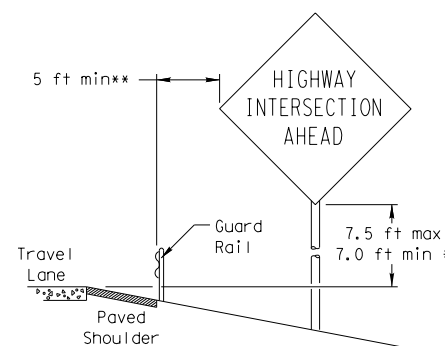


When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.

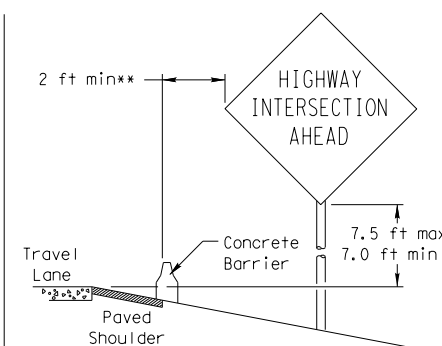
No more than 2 sign posts should be located within a 7 ft. circle.



BEHIND BARRIER



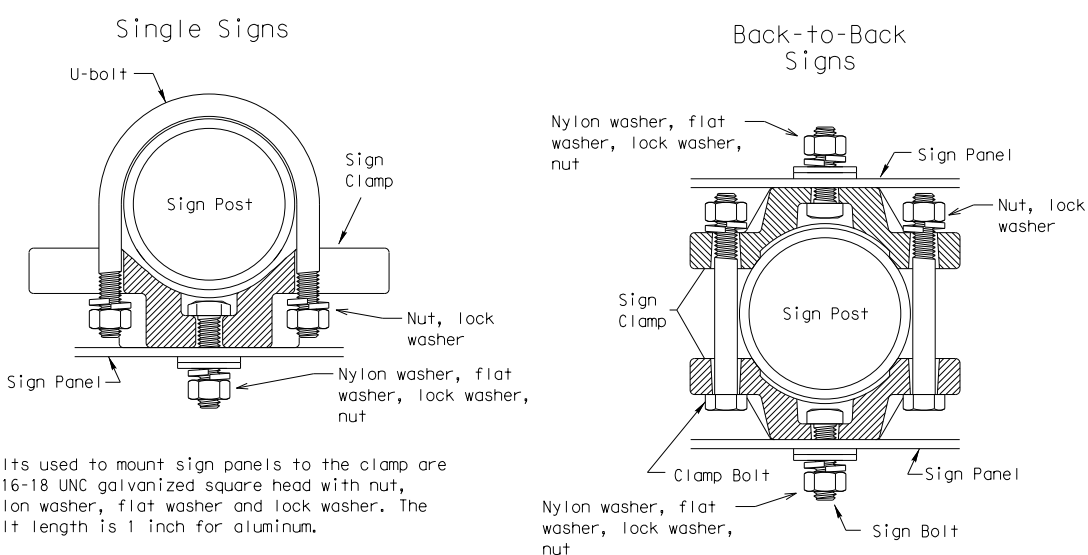
BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

TYPICAL SIGN ATTACHMENT DETAIL



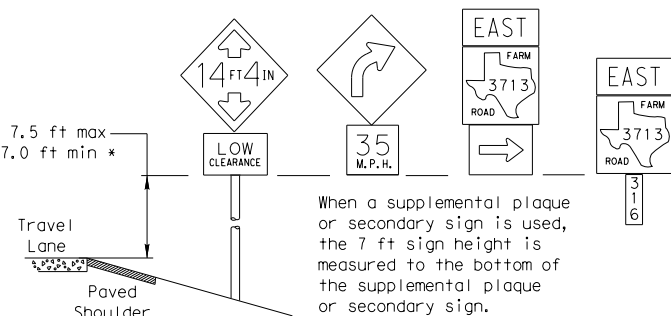
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

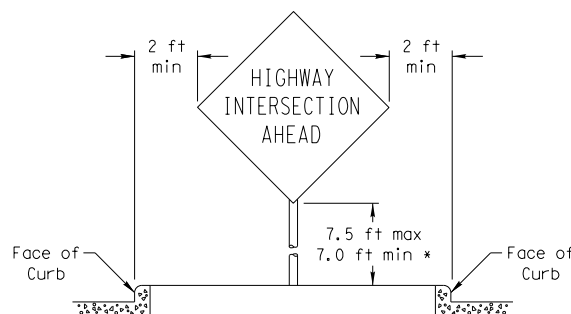
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

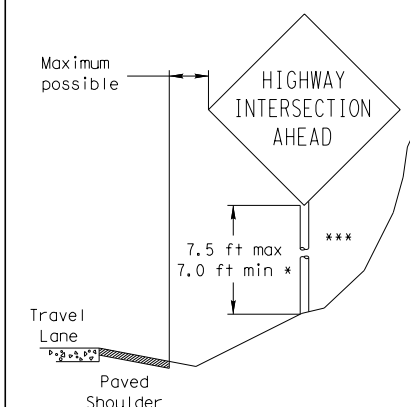


When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



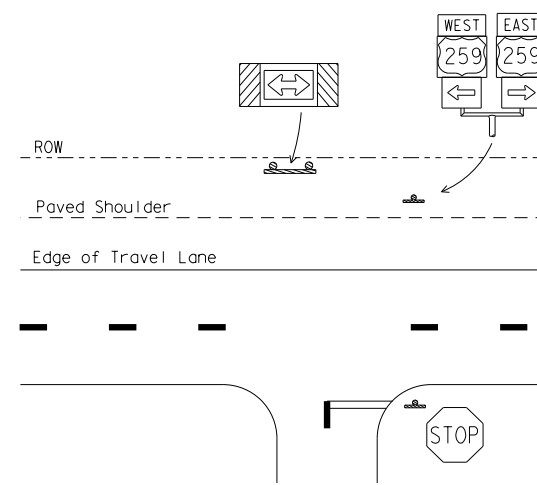
RESTRICTED RIGHT-OF-WAY (When 6 ft min. is not possible.)



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.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.



* 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>



SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD (GEN) -08

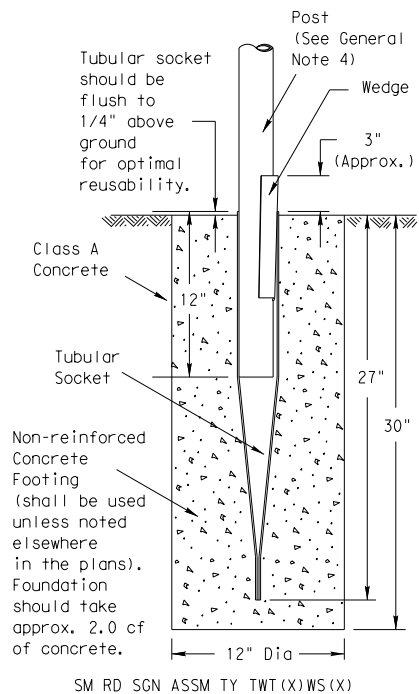
© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08	REVISIONS	CONT	SECT	JOB
				HIGHWAY
				SAN ANTONIO
		DIST	COUNTY	SHEET NO.
		SAT	COMAL	105

DATE: 7/24/2019 2:30:26 PM
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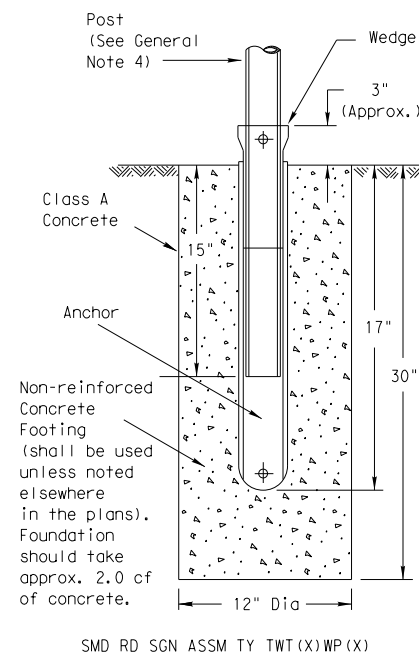
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DATE: 7/24/2019 2:30:28 PM
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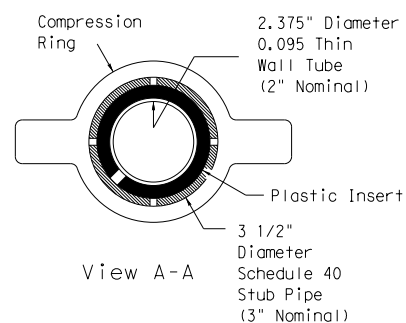
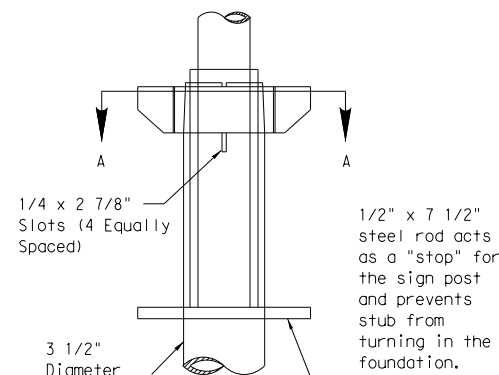
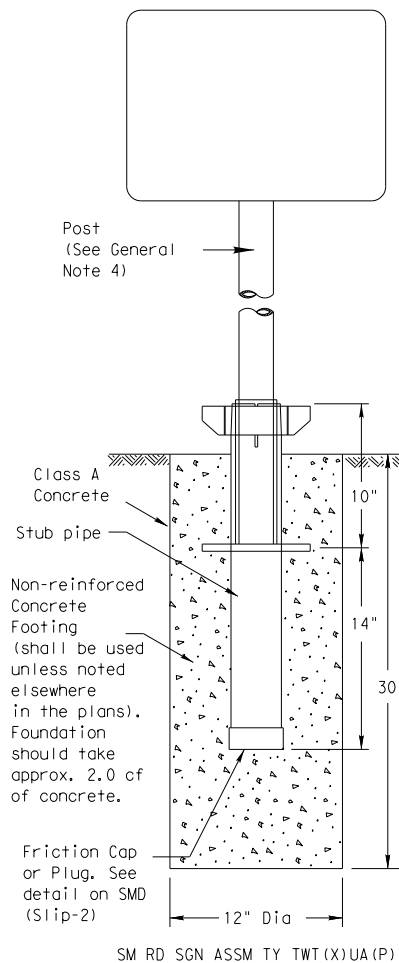
Wedge Anchor Steel System



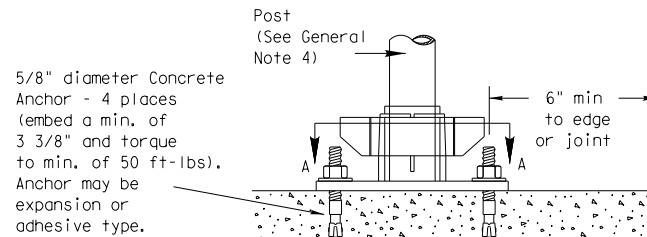
Wedge Anchor High Density Polyethylene (HDPE) System



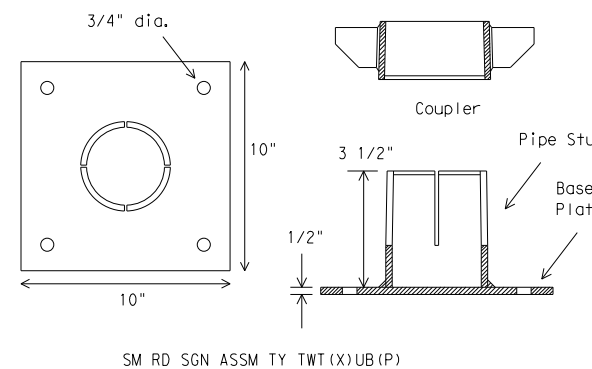
Universal Anchor System with Thin-Walled Tubing Post



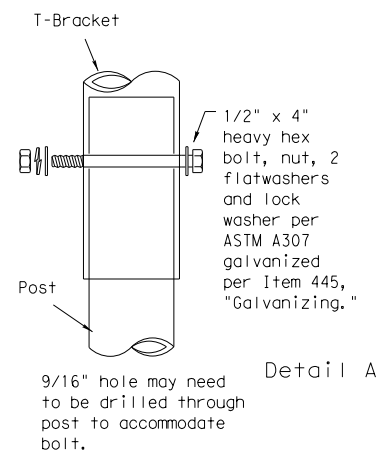
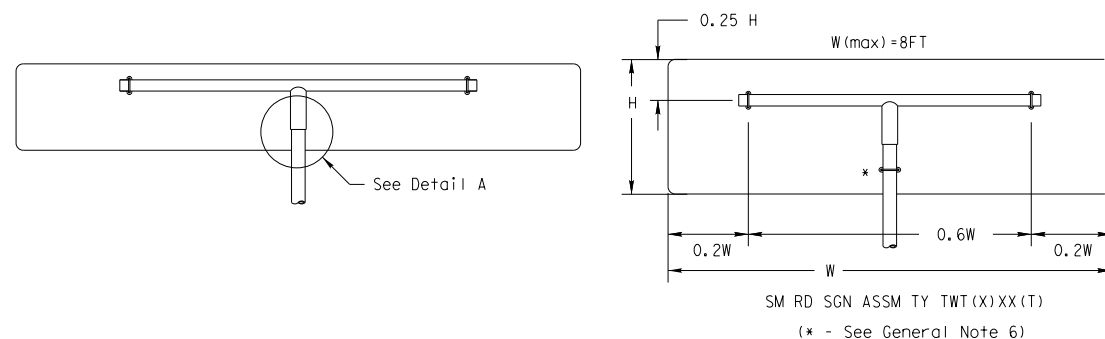
Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The 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, "Epoxyes and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



NOTE
 The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

- 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.
- 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.
- 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
- 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.
- Sign blanks shall be the sizes and shapes shown on the plans.
- Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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

- 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.
- 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.
- Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
- Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
- Attach the sign to the sign post.
- Insert the sign post into socket and align sign face with roadway.
- Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

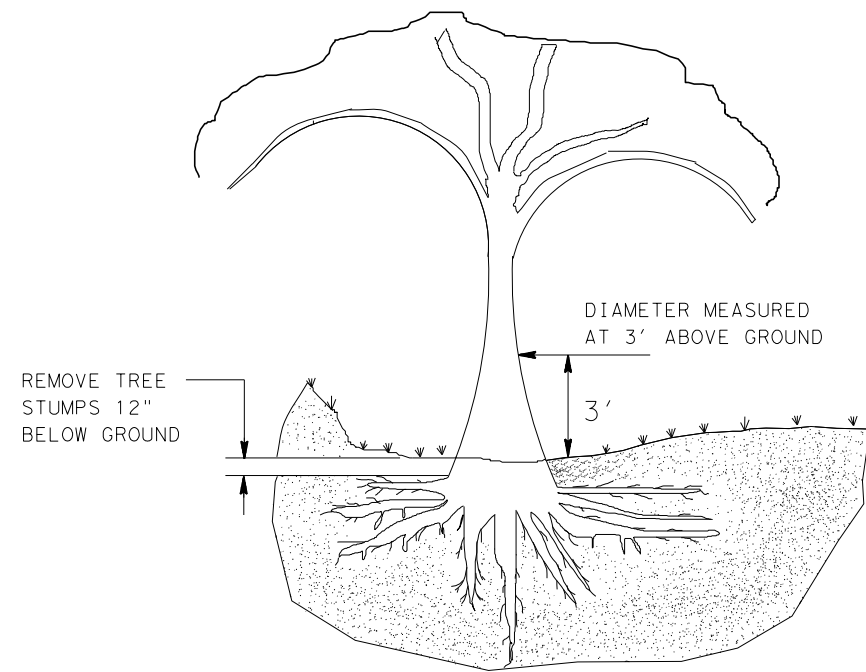
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is 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.
- Insert base post in hole to depths shown and backfill hole with concrete.
- 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.
- Attach the sign to the sign post.
- Install plastic insert around bottom of post.
- Insert sign post into base post. Lower until the post comes to rest on steel rod.
- Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
- Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.



SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT) - 08

© TxDOT July 2002	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
9-08	REVISIONS		CONTRACT	SECTION
			JOB	HIGHWAY
			SAN ANTONIO	
	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	106	

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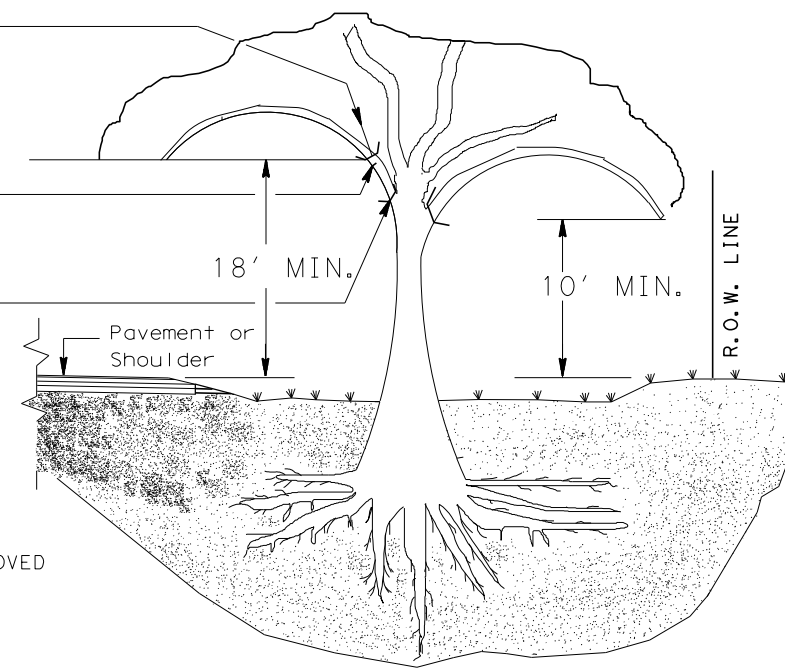
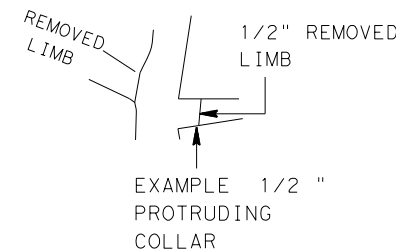


TREE REMOVAL

STEP 1:
CUT 1/3 WAY THROUGH BOTTOM OF LIMB 8" TO 12" ABOVE MAIN STEM (OR TRUNK).

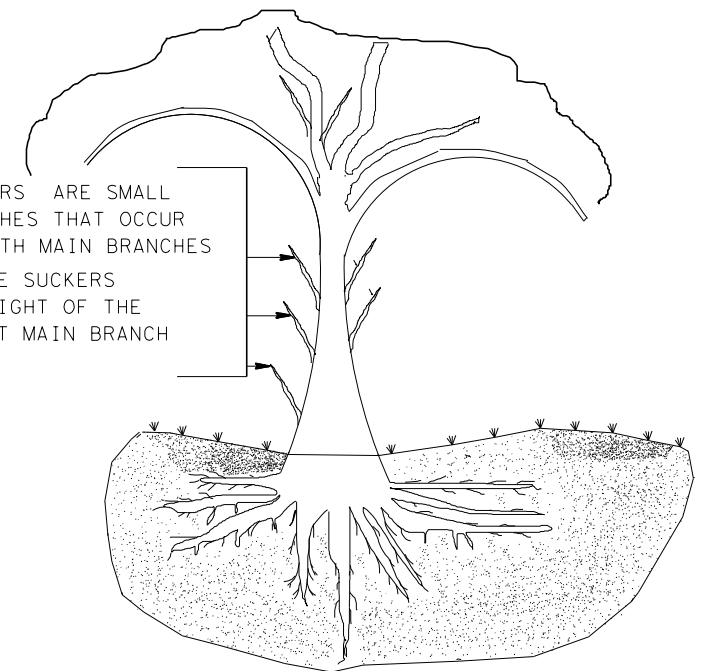
STEP 2:
REMOVE LIMB 4" TO 6" BEYOND THE FIRST CUT

STEP 3:
REMOVE STUB WITH A SMOOTH CUT SO THAT TRACE COLLAR OF THE REMOVED LIMB PROTRUDES APPROXIMATELY 1/2" FROM THE MAIN STEM

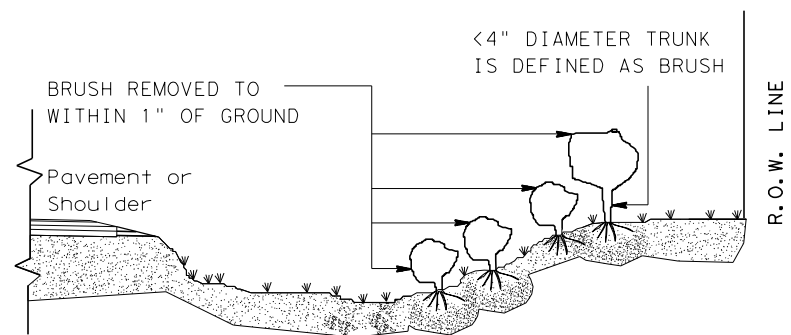


TREE TRIMMING

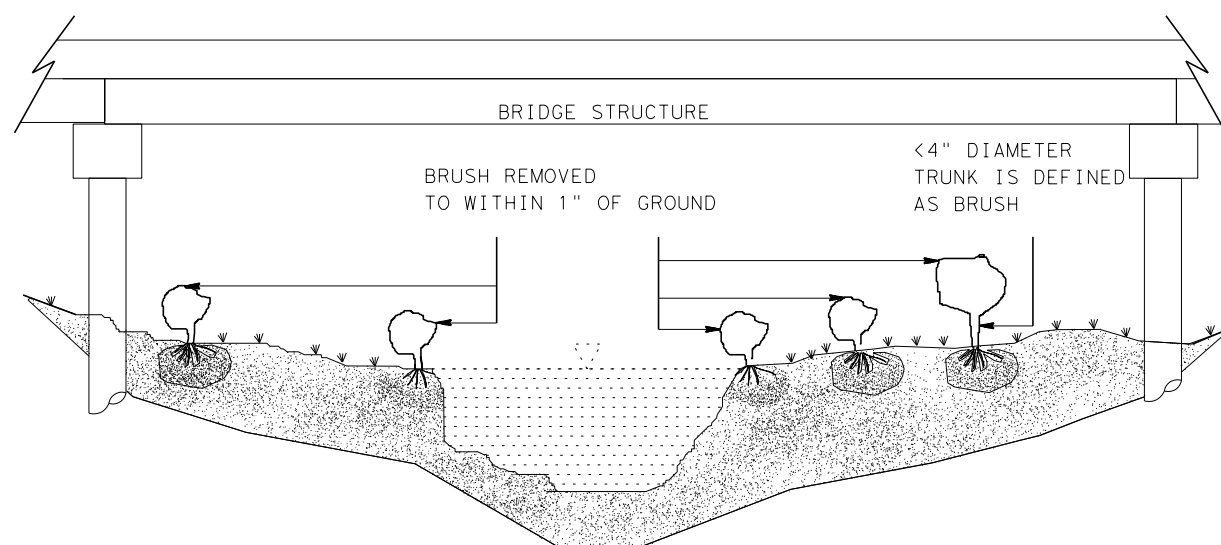
SUCKERS ARE SMALL BRANCHES THAT OCCUR BENEATH MAIN BRANCHES. REMOVE SUCKERS TO HEIGHT OF THE LOWEST MAIN BRANCH



STEPS 1, 2 AND 3 APPLY WHEN REMOVING LIMBS 2" IN DIAMETER OR LARGER.



BRUSH REMOVAL



BRUSH REMOVAL UNDER BRIDGE AND IN CHANNEL

GENERAL NOTES:

TREE TRIMMING

1. TRIM AND REMOVE ALL TREE LIMBS ON THE PAVEMENT SIDE OF THE TRUNK 18' ABOVE THE PAVEMENT OR BRIDGE DECK ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.
2. TRIM AND REMOVE ALL TREE LIMBS BETWEEN THE TRUNK AND R.O.W. LINE 10' ABOVE NATURAL GROUND, TERRAIN OR OTHER STRUCTURE ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

TREE REMOVAL

3. FOR TREES MARKED FOR REMOVAL, THE DIAMETER OF TREES ARE DETERMINED BY MEASUREMENT OF THE TRUNK CIRCUMFERENCE 3' ABOVE THE GROUND. TREES WITH TRUNKS OF LESS THAN 4" DIAMETER ARE CONSIDERED TO BE BRUSH. TREES WITH MULTIPLE TRUNKS AT THE POINT OF MEASUREMENT ARE MEASURED AND PAID FOR SEPARATELY.
4. MEASUREMENTS FOR PAYMENT OF TREE DIAMETERS ARE DIVIDED INTO THE RANGES SHOWN IN TABLE 1.

PAY ITEM	RANGE FOR PAY ITEMS			
	TRUNK DIAMETER *		TRUNK CIRCUMFERENCE	
	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO
752 6005	4	12	12 1/2	37 1/2
752 6006	12	18	37 1/2	56 1/2
752 6007	18	24	56 1/2	75 1/2
752 6008	24	30	75 1/2	94
752 6009	30	36	94	113
752 6010	36	42	113	132
752 6011	42	48	132	151
752 6012	48	60	151	188 1/2
752 6013	60	72	188 1/2	226
752 6019	72	84	226	264
	84	GREATER THAN 84	264	NOT APPLICABLE

*SEE GENERAL NOTE #3.



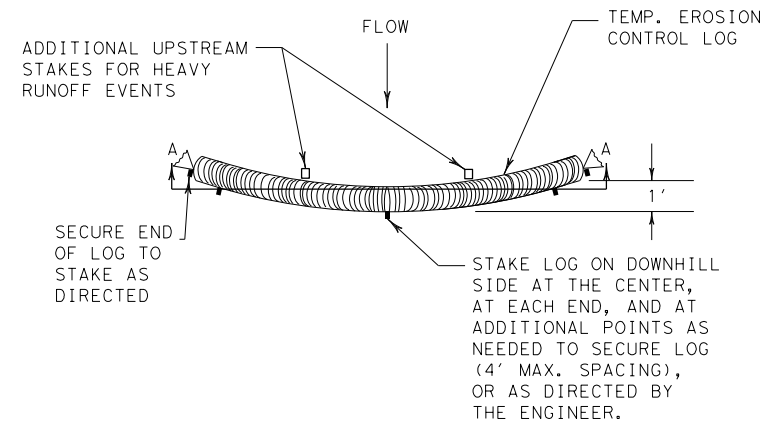
TREE AND BRUSH REMOVAL

TRB-15(1)

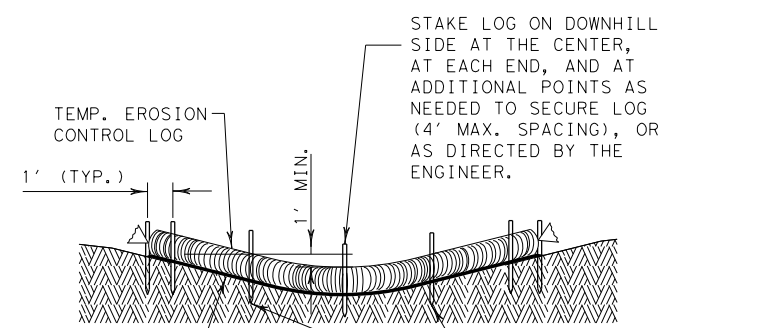
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© TxDOT MARCH 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS				SAN ANTONIO
Revised table 1 to 2014 Specification	DIST	COUNTY	SHEET NO.	
	SAT	COMAL	107	

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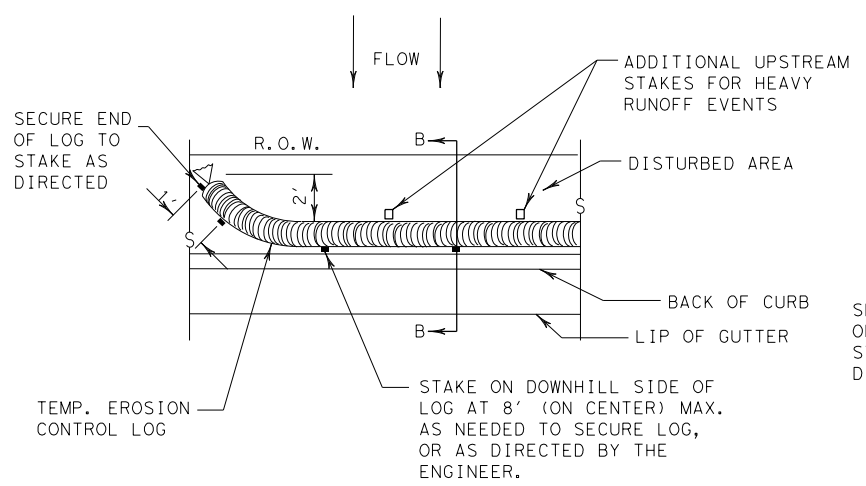
PLAN VIEW



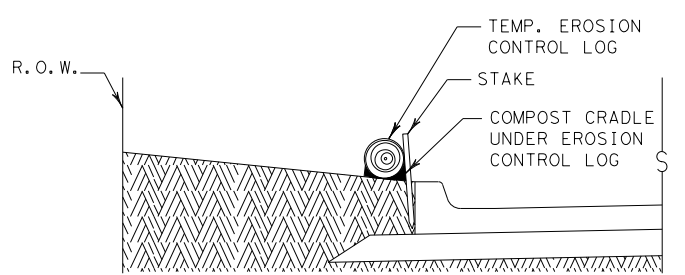
SECTION A-A
EROSION CONTROL LOG DAM

LEGEND

- CL-D EROSION CONTROL LOG DAM
- CL-BOC EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI EROSION CONTROL LOG AT DROP INLET
- CL-CI EROSION CONTROL LOG AT CURB INLET
- CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET

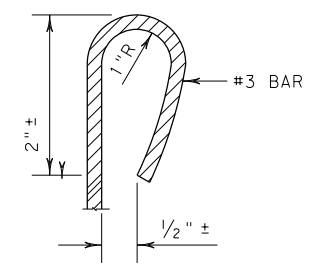


PLAN VIEW

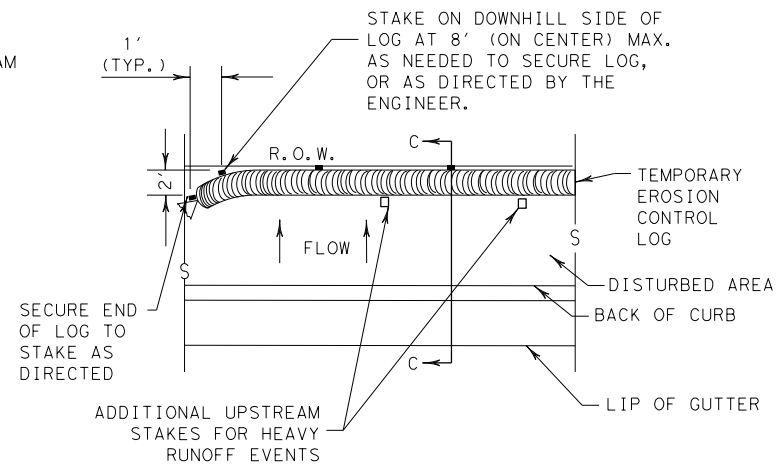


SECTION B-B
EROSION CONTROL LOG AT BACK OF CURB

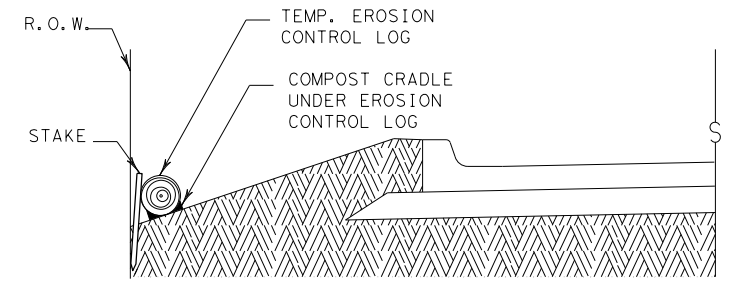
CL-BOC



REBAR STAKE DETAIL



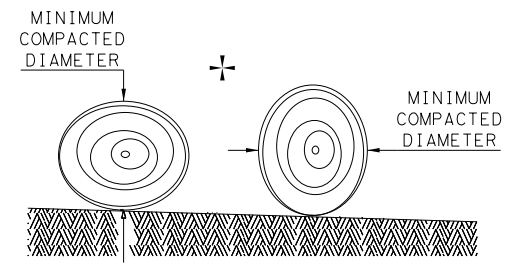
PLAN VIEW



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

SHEET 1 OF 3

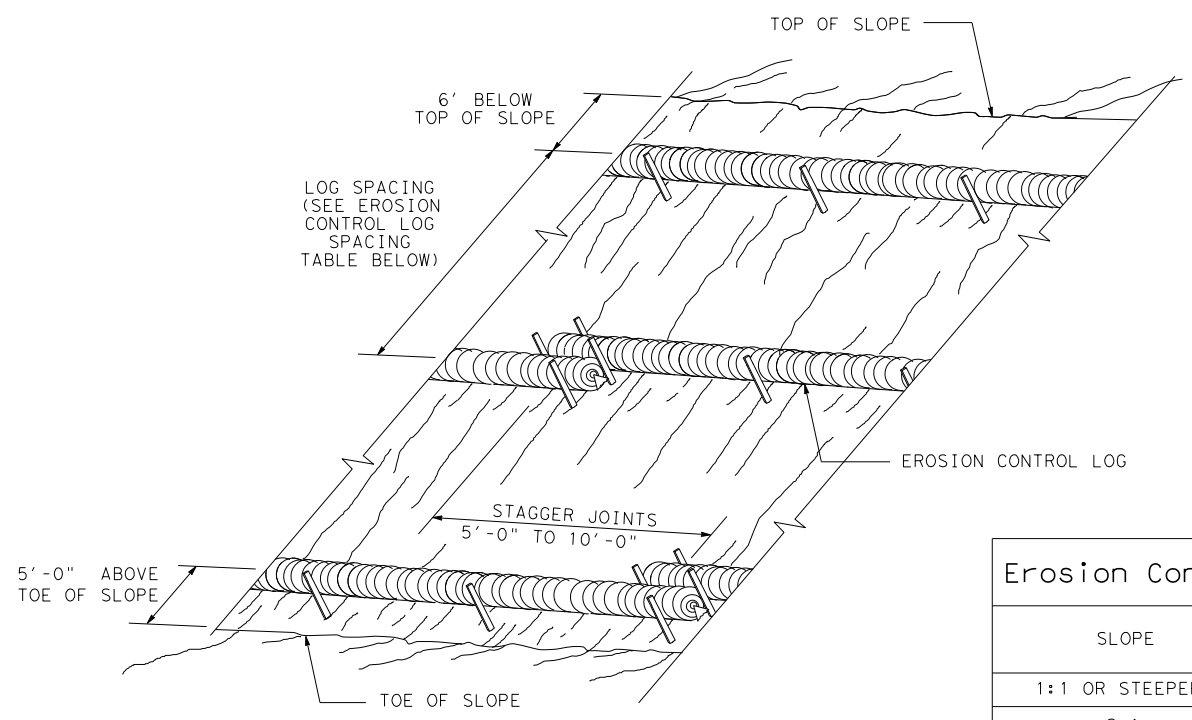
Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC (9) - 16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS		SAT		SAN ANTONIO
		DIST		SHEET NO.
		SAT		COMAL
				108

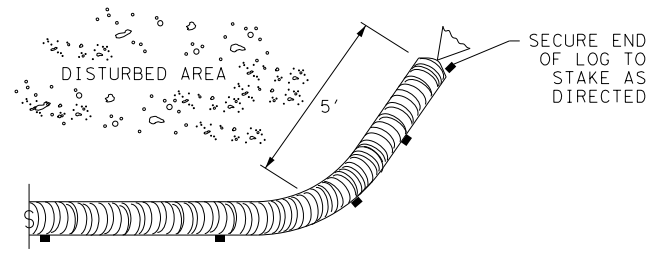
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EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

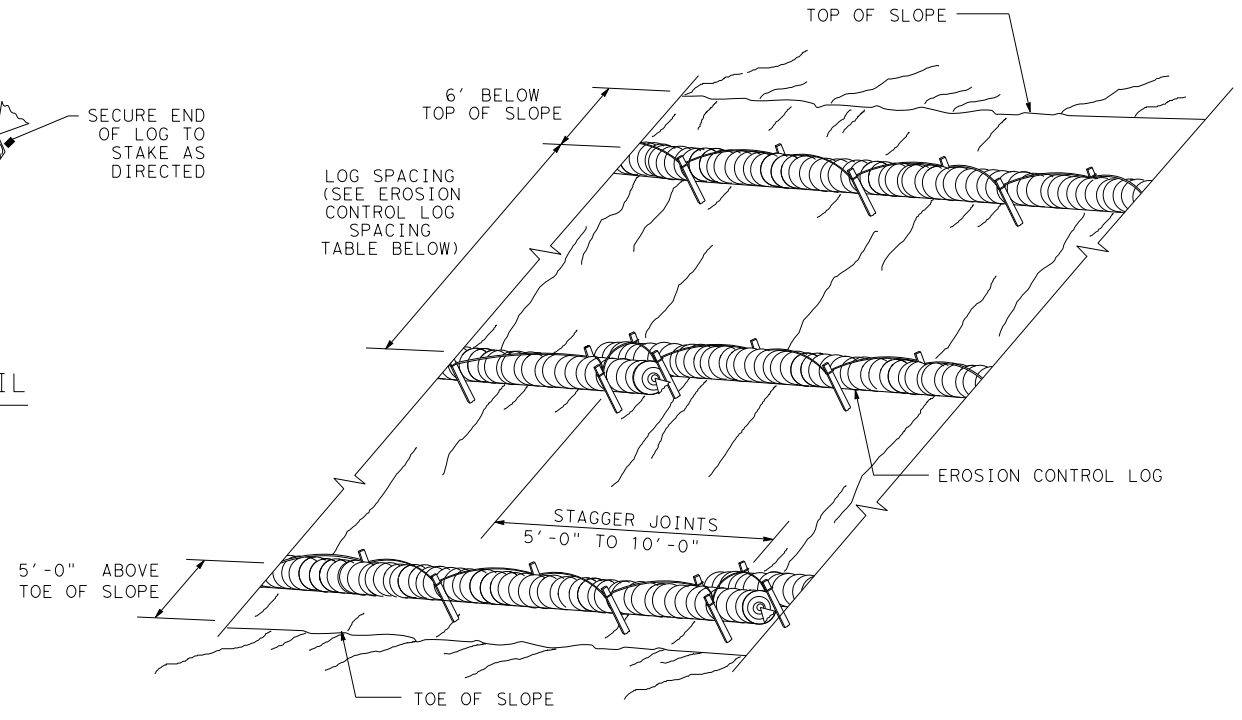
CL-SST



END SECTION RAP DETAIL

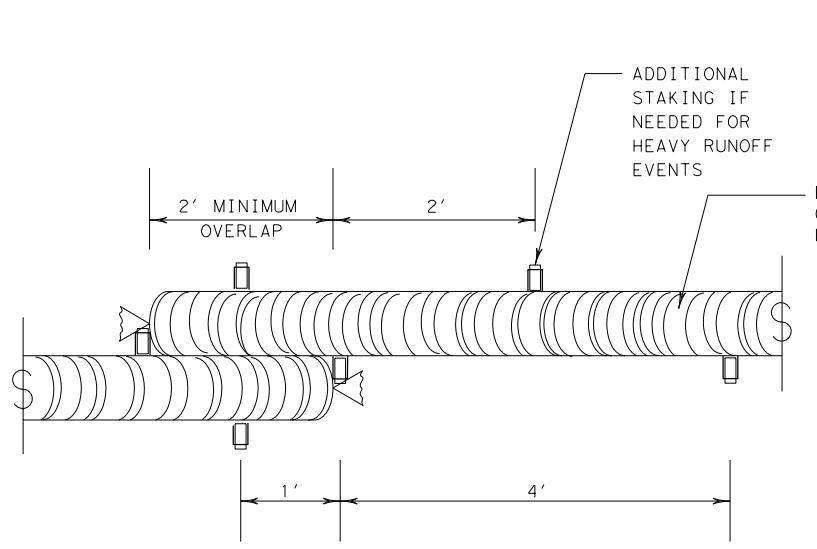
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



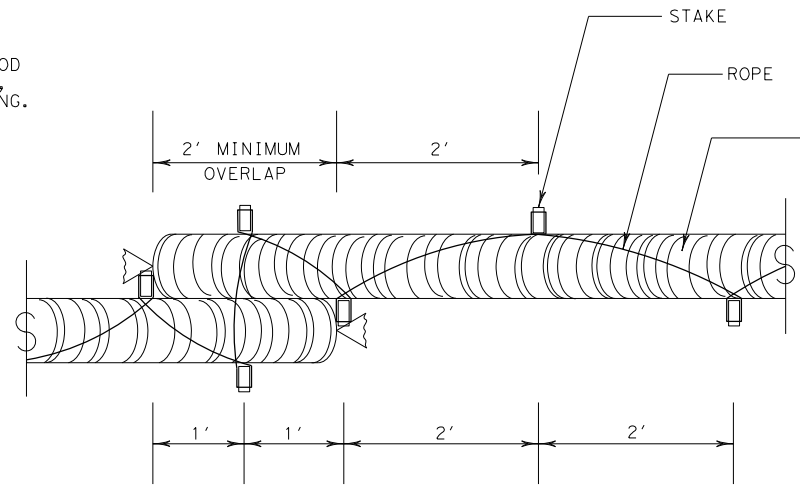
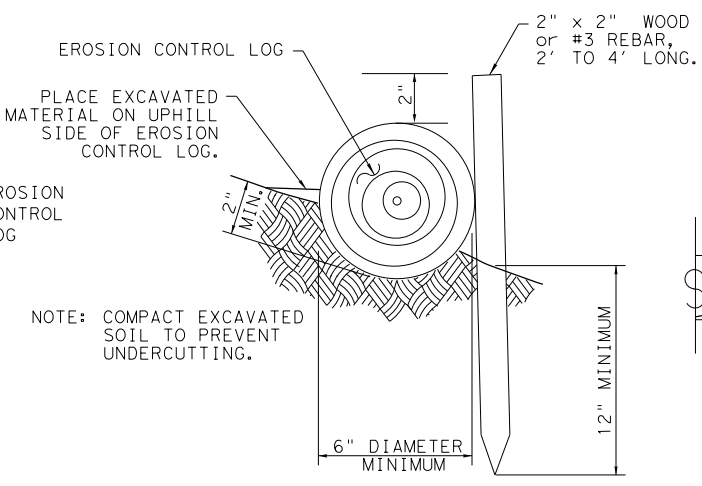
EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL



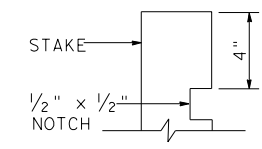
STAKE AND TRENCHING ANCHORING DETAIL

CL-SST



STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

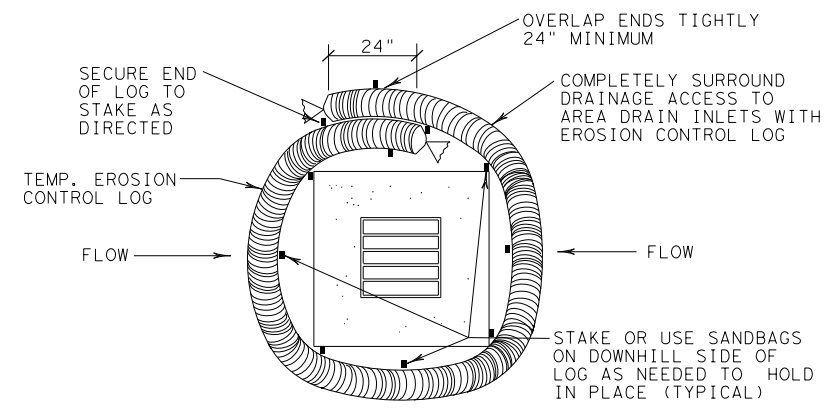
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"

SHEET 2 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC(9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS		SAN ANTONIO	
DIST	COUNTY	SHEET NO.	
SAT	COMAL	109	

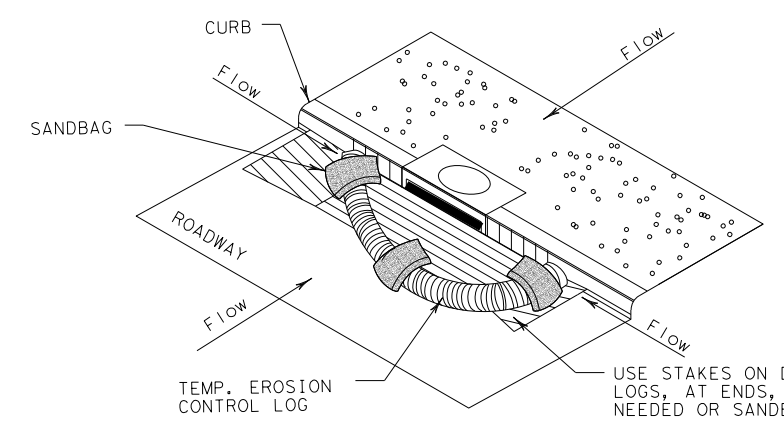
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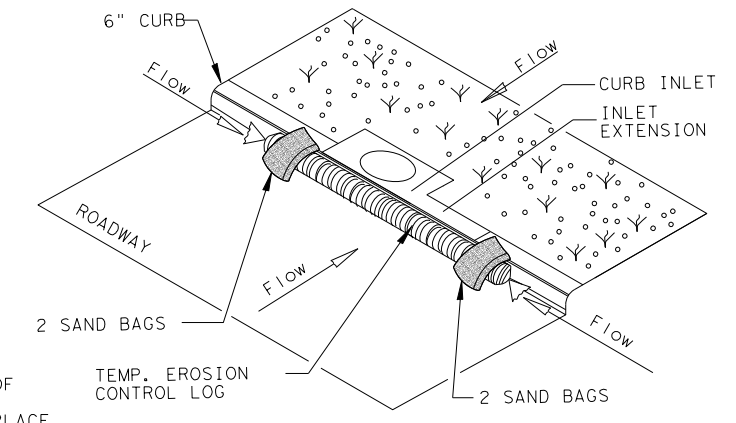
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

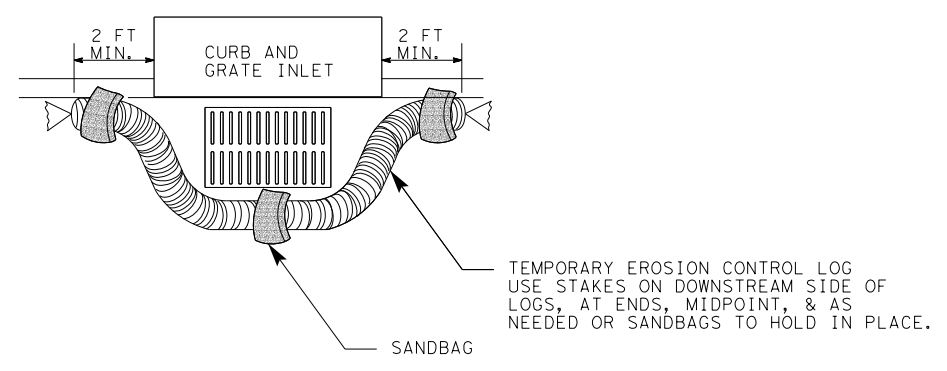
CL-CI



EROSION CONTROL LOG AT CURB INLET

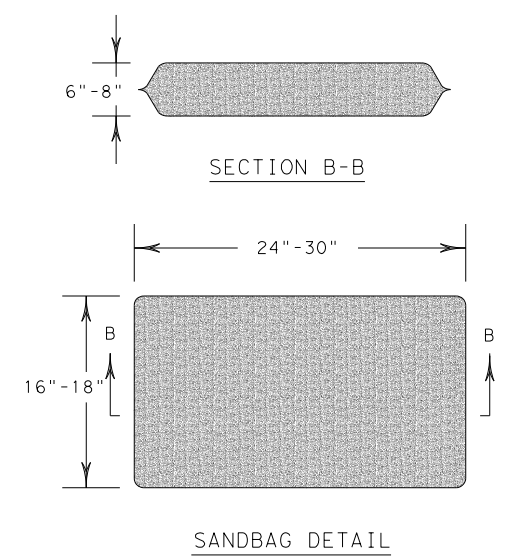
CL-CI

NOTE:
 EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

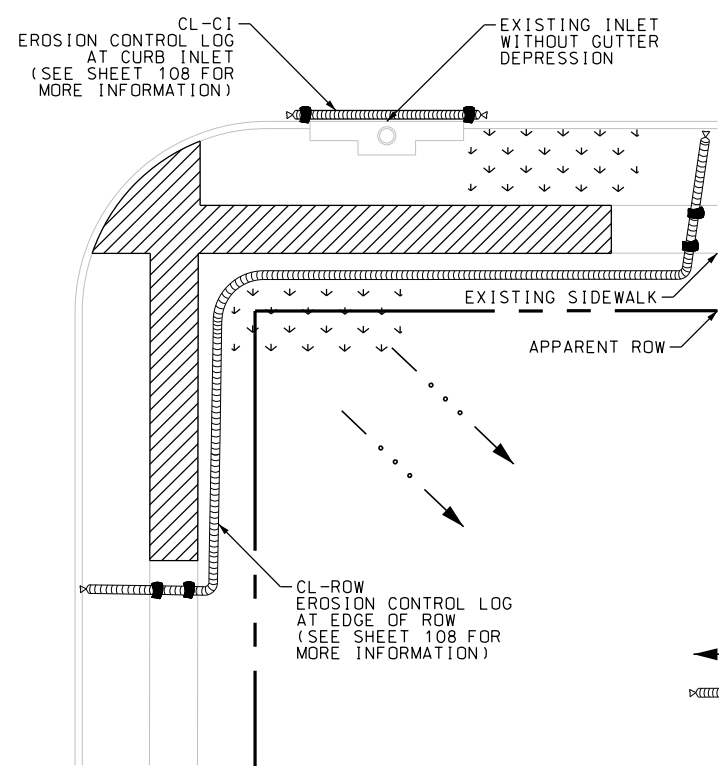
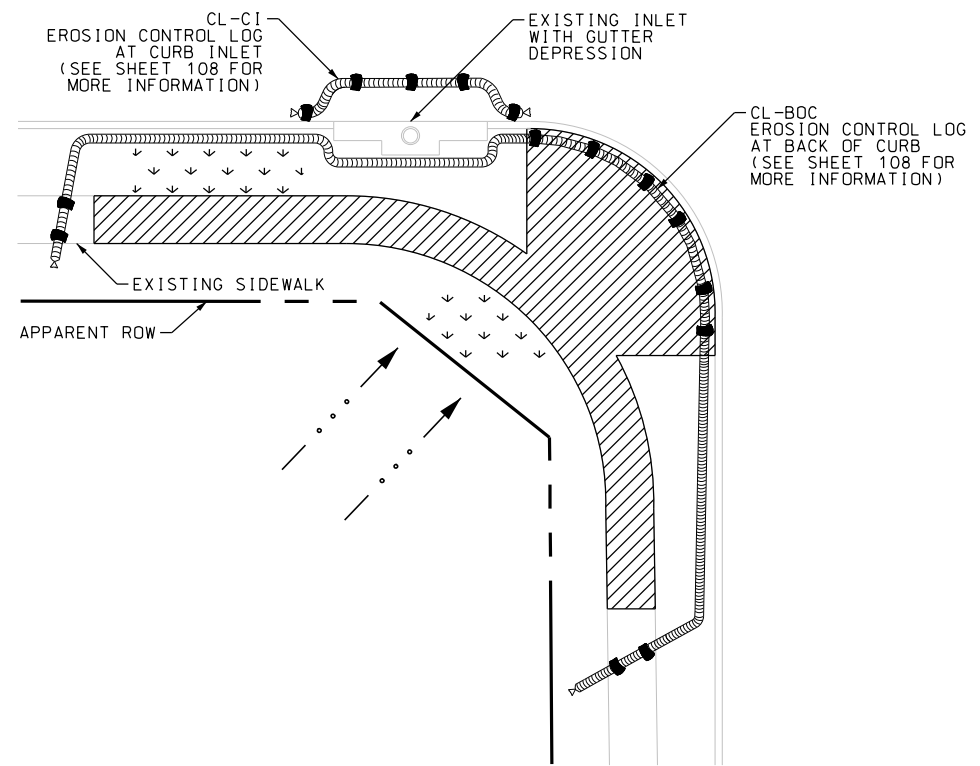
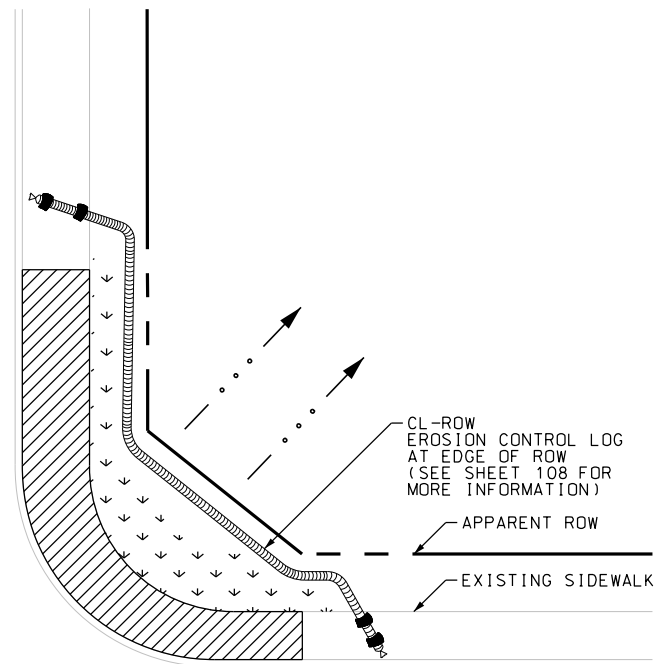
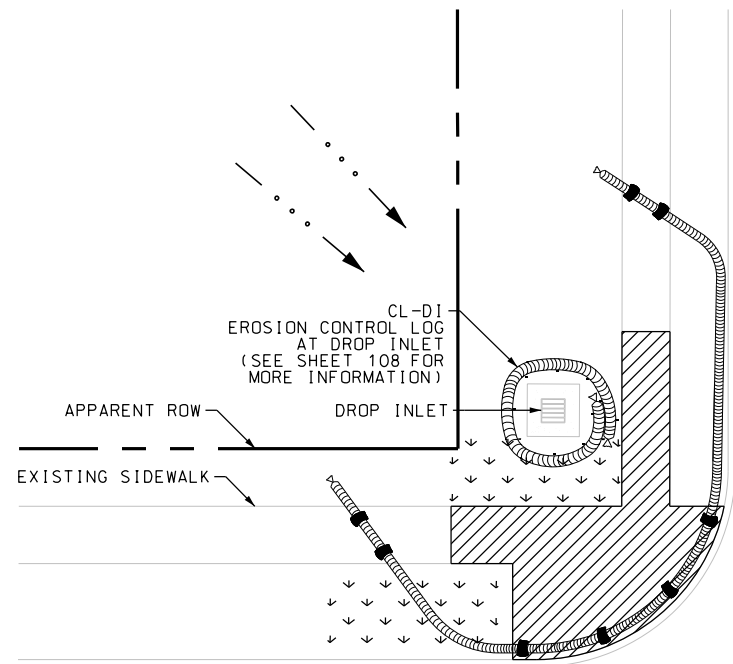
Texas Department of Transportation Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
 EROSION CONTROL LOG
 EC (9) - 16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS		SAN ANTONIO		
DIST	COUNTY	SHEET NO.		
SAT	COMAL	110		

PLOTTED ON: 7/24/2019

DESIGN FILENAME: P:\11\38\01\Design\Civil\General\1113801_sw3pex01.dgn



LEGEND

- SODDING
- FLOW DIRECTION
- EROSION CONTROL LOG
- SANDBAGS
- EXISTING FEATURES
- PROPOSED WORK AREA

NOTES:

SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTERMEASURES AS DIRECTED BY THE ENGINEER.

USE ADDITIONAL STAKES OR SAND BAGS AS NEEDED TO HOLD IN PLACE (NSPI).

INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

DESIGN

TYLER P. DUBE, P.E. 7/24/2019 DATE

REVIEW AND APPROVAL

JAMES A. LUTZ, P.E. 7/24/2019 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
 2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
 TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028800

City of New Braunfels

SWPPP EXAMPLE INTERSECTION

SHEET 1 OF 1

DGN: CSF	PROJECT NO.	ROADWAY NAME		
CHK DGN: TPD	CSP 19-028	W SAN ANTONIO ST		
DWG:	STATE	COUNTY	CITY	SHEET NO.
CHK DWG:	TEXAS	COMAL	NEW BRAUNFELS	111