City Council Regular Called Meeting Agenda

COUNCIL CHAMBERS - 1209 FIORELLA STREET

Tuesday, May 26, 2026

6:00 PM

The City Council of the City of Castroville will meet in the Regular Called Meeting beginning at 6:00 p.m. in the Council Chambers at City Hall on the following items listed on the agenda.

I. Call to Order

II. Roll Call

III. Pledge of Allegiance

IV. Invocation

V. Citizen Comments

The City Council will hear comments from any citizen or visitor. Speakers must address their comments to the presiding officer rather than individual council members or staff; stand at the podium, speak clearly into the microphone and state your name residential address before speaking. Speakers will be allowed a maximum of 3 minutes for testimony. In accordance with the State Open Meetings Act, the City Council is restricted from discussing or taking action on items not listed on the agenda. Action can only be taken at a future meeting.

VI. Consent Agenda:

a. Minutes for May 12, 2026 Regular Called Meeting

b. Minutes for May 18, 2026 Special Called Meeting

c. Authorize a surety bond for the City Administrator in accordance with Resolution No. 139

d. Authorize a change order for the construction of restroom and shower facilities at the Regional Park pool.

e. Adopt updates to the City of Castroville Purchasing Policy & Procedures in accordance with changes to State law

VII. City Administrator Report

a. The following report topics may be discussed and acted upon:

a. Drainage Projects: Geneva Channel, Garza Creek, Athens Area Drainage, Steinbach Hus

b. BMA Trail Access

c. Streets, Maintenance, and Paving Plan

d. WWTP Ponds

e. Multimodal Planning Effort

f. Community Center Construction

g. Lion's Park Splash Pad

h. Hwy 90 TxDOT Construction Project

i. County Streets Plan

j. City Hall Maintenance and Repairs

k. Library Expansion Project

l. Parking Lot Construction at Regional Park

m. Swimming Pool ADA Access

n. Elevated Water Storage Project

o. Joint Airport Zoning Board

p. Departmental Staff Report

VIII. Mayor's Report:

a. FY27 Budget

b. Capital Improvements

c. New Development Updates

d. Citizen Involvement

IX. City Council Liaison Report:

Airport Board Meeting - No May meeting - Martinez

Historic Landmark Commission - No May meeting - Marchman

Parks Board Meeting - May 6th

Library Board Meeting - May 14th

Planning and Zoning Commission - May 13th - Solis

X. Discussion and Action Items

a. Discussion and possible action to award the design-build contract for the Grza Creek Drainage Project.

b. Discussion and possible action on the Active Transportation Plan.

c. Discuss and take appropriate action to award a contract for the construction and pavement of a parking area at the Castroville Regional Park.

d. Discussion and possible action regarding traffic congestion, construction impacts, roadway concerns, and TxDoT coordination efforts associated with east-side growth near Walmart/FM471/Alsatian Oaks.

e. Discussion and possible action regarding code compliance priorities, enforcement consistency, staffing capacity, and coordination with permitting and development oversight.

f. Consider and take appropriate action to adopt a resolution recognizing City of Castroville Public Works employees as First Responders during National Public Works Week.

XI. Discussion on Future Agenda Items

XII. Adjourn

Accessibility Statement

The City Hall is wheelchair accessible. The exit and parking ramps are located at the rear of the building.

Non-Discrimination Statement

The City of Castroville does not discriminate on the basis of race, color, national origin, sex, religion, or disability in the employment or the provision of services.

The City Council of the City of Castroville reserves the right to adjourn into closed session at any time during the course of this meeting to discuss any of the matters listed above, as authorized by the Texas Open Meetings Act.

I hereby certify that the above notice of meeting was posted on the bulletin board of City Hall, Castroville, Texas on May 19,2026 before 5:00 p.m.

/s/ Debra Howe

City Secretary

CITY OF CASTROVILLE CITY COUNCIL
REGULAR CALLED COUNCIL MEETING
1209 Fiorella
City Council Chambers
May 12, 2026
Tuesday
6:00 P.M.
MINUTES

I. CALL TO ORDER

Mayor Alexander called the meeting to order at 6:00 p.m.

II. ROLL CALL

Present:

Mayor Bruce Alexander	Scott Dixon, City Administrator
Mayor Pro Tem Sheena Martinez	Debra Howe, City Secretary
Councilmember Houston Marchman	John Gomez, Public Works Director
Councilmember David Merz	Ricky Carrasco, Assistant Public Works Director
Councilmember Robert Lee	Mike Haley, Airport Manager

Absent:
Councilmember Phil King

Others in attendance:
Daniel Jones, Denton, Navarro, Rodrigues, Santee, Benal & Zach

III. PLEDGE OF ALLEIGENCE

IV. INVOCATION

Pastor Alan Deardorff of the Discovery Church gave the invocation.

V. Canvas votes of the May 2, 2026 City Council Election

Mayor Alexander read the final tabulation of votes for District 4 and District 5 Council seats. For District 4 Tobin Shipp - 57 to David Ortega - 10 – Tobin Shipp was declared the winner. For District 5 Brittany Fowler - 4 to Valarie Solis - 30 – Valarie Solis was declared the winner.
A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to accept the results as read. A vote was taken (4:0 all ayes) the motion carried by all present.

VI. Oath of Office for new City Council Members

a. District 3 Nicol Shriner (not present)
District 4 Tobin Shipp
District 5 Valarie Solis

Mayor Alexander announced Nicol Schriner was unable to attend and would be sworn in at a later date.
Mayor Alexander proceeded to administer the oath of office to District 4 Councilmember elect Tobin Shipp and District 5 Councilmember elect Valarie Solis.

Mayor Alexander announced District 3 Councilmember King was out of the Country and would be recognized for his service at a later date.

VII. Recognition of outgoing City Council Members

a. District 3 Phil King (not present)
District 4 David Merz Jr.
District 5 Robert Lee

Mayor Alexander recognized Councilmember David Merz with a plaque for his 3 years serving as District 3 representative, thanking him for representing his district and the community. Mr. Merz gave a brief farewell speech on his thoughts, what he had tried to accomplish, and what he hoped the new City Council would continue to work for - the whole community.
Mayor Alexander recognized Councilmember Robert Lee with a plaque for his 1 year fill-in term serving as District 5 representative, thanking him for him stepping in to fill the seat helping the City to keep moving forward.

Mayor Alexander called a brief recess for a reception at 6:11 p.m.
Mayor Alexander reconvened in open session at 6:24 p.m.

VIII. CITZENS COMMENTS

The City Council will hear comments from any citizen or visitor. Speakers must address their comments to the presiding officer rather than individual council members or staff; stand at the podium, speak clearly into the microphone, and state your name and residential address before speaking. Speakers will be allowed a maximum of 3 minutes for testimony. Speakers making personal, impertinent, profane, or slanderous remarks will be given one warning before losing the privilege to speak or may be removed from the room. In accordance with the State Open Meetings Act, the City Council is restricted from discussing or taking action on items not listed on the agenda. Action can only be taken at a future meeting.

No one requested to speak.

Mayor Alexander recessed the meeting to go into Executive Session at 6:26 p.m.

IX. EXECUTIVE SESSION

The City Council will convene in closed session pursuant to the Texas Open Meetings Act, Chapter 551 of the Texas Government Code for one or more of the following authorized reasons: a. The City council will meet in closed session pursuant to the Texas Open Meetings Act, Chapter 551. Section 551.071.
(1)Consultation with Attorney, a governmental body may not conduct a private consultation with its attorney except: (A) when the governmental body seeks the advice of its attorney about: (B) pending or contemplated litigation; or (C) a settlement offer; or
(2) Consultation with attorney on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with this chapter,

pertaining to NP Homes, Flat Creek, and Alsatian Oaks development agreements, and any other matters which may arise.

Opened: 6:28 p.m.

Closed: 7:06 p.m.

X. RECONVENE IN OPEN SESSION

Mayor Alexander reconvened in open session at 7:08 p.m.

XI. Consider possible action(s) resulting from items posted and legally discussed in Executive Session

Mayor Alexander stated there was no action was taken during executive session.

a. Discussion and appropriate action to adopt a resolution approving the Second Amendment to the Development Agreement between the City of Castroville, Texas and KF Flat Creek, LP, and authorizing the Mayor to execute same

Mayor Alexander said this was discussed in executive session and there was one change recommended by the City Council and that was the revision to the development payment schedule.

A motion was made by Councilmember Marchman and duly seconded by Councilmember Martinez to adopt a resolution approving the Second Amendment to the Development Agreement between the City of Castroville, Texas and KF Flat Creek, LP, subject to the revision of development payment schedule and authorizing the Mayor to execute same. A vote was taken (4:0 all ayes) the motion carried by all present.

Mayor Alexander moved Item c. up on the agenda.

c. Discussion and appropriate action regarding a request to amend the development agreement between the City of Castroville and Alsatian Oaks

No action was taken.

b. Discussion and possible action to accept the commitment to construct and dedicate an elevated water storage tower at no cost to the City of Castroville to meet the required service demands of current and identified future developments

Mayor Alexander briefed the City Council on previous discussions on the City funding an elevated water storage tower to serve the east side of town. Mayor Alexander said the City was approached by five developers (Wild Ridge/DR Horton, Alsatian Oaks/Merit Commercial Real Estate, Flat Creek, LP, DeCock Tract/Mark Benavides, and Victory Lane Partners Ltd./Endura) with a proposal of the five parties funding a 750,000 gallon elevated water storage tank on the 3.6 acre City owned property. Mayor Alexander said this would be of no cost to the City and the City would own the infrastructure once completed and accepted.

The proposed project provided in the packets included in addition to the elevated tank: a chlorination system, associated building, SCADA monitoring and control systems, CPS Energy electrical service infrastructure, standby generator(s), associated connecting water lines through Flat Creek and/or Alsatian Oaks, and additional equipment identified during the final engineering and design. The proposed improvements would create approximately 3750 LUE's of the system's capacity. Approximately 2801 would be allotted to the participating developers and the City would have control of 949 LUE's for future growth. Mayor Alexander said with the build of the elevated tank this would address the TCEQ system capacity thresholds and provide operational redundancy. Mayor Alexander stressed again this proposed project would be no cost to the City and this was a huge win for the City financially. The City Council was in agreement this was very good for the City in preparing for future growth without costing the City.

A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to authorize acceptance of the Developer Participation Group's commitment to design, fund, construct, and dedicate Phase 2 Water System Improvements, including an elevated water storage tower and associated infrastructure, at no cost to the City and subject to final legal documentation and City Attorney review. A vote was taken (4:0 all ayes) the motion carried by all present.

X. CONSENT AGENDA

a. Minutes for April 20, 2026 Special Called Meeting
b. Minutes for April 28, 2026 Regular Called Meeting
c. Approve Second Quarter Financial Report ending March 31, 2026.
d. Approve Second Quarter Investment Report ending March 31, 2026.
e. Approve and authorize the Mayor to sign an amended contract for Tourism and Economic Development activities with the Castroville Area Chamber of Commerce.
f. Authorize roof repairs to City Hall in an amount not to exceed $40,000.

Mayor Alexander requested 10e. Chamber contract to be pulled for further review between the City and the Chamber of Commerce.

A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to approve the consent agenda a-d. and f. excluding item e. A vote was taken (4:0 all ayes) the motion carried by all present.

XI. CITY ADMINISTRATOR'S REPORT

The following report topics may be discussed and acted upon:

a. Drainage Projects: Geneva Channel, Garza Creek, Athens Area Drainage, Steinbach Haus
b. BMA Trail Access
c. Streets, Maintenance, and Paving Plan
d. WWTP Ponds
e. Multimodal Planning Effort
f. Community Center Construction
g. Lion's Park Splash Pad
h. Hwy 90 TxDOT Construction Project
i. County Streets Plan

j. Staff Reports: Police, Public Works, Airport, Library, Community Development, Parks, Finance, Municipal Court, City Secretary

City Administrator Dixon provided his report for the City Council to review and asked for any questions. Mayor Alexander asked about the Geneva Channel and wanted to get the final report from the Engineer. Mr. Dixon said staff was almost complete with the Gentilz drainage project and would then be working to finish up the Geneva Channel. Mr. Dixon said they still needed to lower the street and put in a concrete culvert. Staff would be starting downstream and moving up and it would take a lot of work. Councilmember Shipp asked if the City had gotten the grade shot on the channel. Mr. Dixon said they had and had staked to grade when they started. Mr. Dixon was unsure if they would shoot the grade again but it would be look at and he would evaluate if the channel was performing properly. Mayor Alexander asked for update on the Garza Channel Project. Mr. Dixon said the project had been re-advertised, with a pre-bid meeting attended by potential bidders and the bids were due to be received on May 18th. Mr. Dixon said the BMA was doing a five year contract with the City instead of a year to year. Mr. Dixon said the City Engineer Michael Persyn relayed to him that he had met with staff and had a good discussion on the WWTX Ponds. Mayor Alexander questioned the finish date of the Community Center as he had visited the job site and there were still electrical and other inside projects not completed. Mr. Dixon said they were currently working on the outside restrooms. Mayor Alexander said he was confused on the pool bathrooms and was it a new design. Mr. Dixon said he had to go back to the contractor and reduce the scope to stay within the City's budget. Councilmember Shipp asked if the restrooms had been removed from the original project. Mr. Dixon said it had originally been bid as an alternate at $250,000 and the City Council chose to wait and approved only the building. Mr. Dixon said the parking improvements were above the State limit of $100,000 and would require sealed bids. Mayor Alexander felt the parking improvement project should have been bid out in April and with the cost the City Council might look at doing the parking area around the new building and wait until later and do the other parking area through parks maintenance. If the City Council agreed this would bring the project under the $100,000 threshold and would not require sealed bids,

A motion was made by Councilmember Shipp and duly seconded by Councilmember Marchman to change the scope of the parking improvement project and only improve the parking area around the new Community Center at this time. A vote was taken (4:0 all ayes) the motion carried by all present.

Mr. Dixon said the ADA handrail at the pool was to have been installed on May 8th but due to material issues it would not be installed until end of May. Mr. Dixon said the City Council had received a two page document on the TxDot Highway 90 construction project. Mr. Dixon said there was information on what was happening and drawings of the project. Mr. Dixon said the County Street Plan was still on hold and Mr. Dixon was still trying to get a cost from the County. Mayor Alexander said he thought the County had paved the road that ran behind Sammy's Restaurant and he thought the street was in the city. Mr. Dixon said he would check on how the street was listed and see what he could find out. Mr. Dixon said staff were waiting on another proposal on the repairs to the window frame/sills and staining the doors for the Steinbach Haus. Mr. Dixon said the City Council had voted at the last meeting to include the exterior repairs in the design build project with the City Hall remodeling. Mr. Dixon said with the recent rains the roof repairs were needed

now and the roof costs were on this meeting for approval. Mayor Alexander suggested speaking to FPC for their recommendations on repairs vs. replacement of the windows.

XIV. DISCUSSION AND ACTION ITEMS

a. Discussion and appropriate action to establish and authorize a multi-year street paving plan

Assistant Public Works Director Ricky Carrasco briefed the City Council on a multi-year street paving plan and handed out a list of streets for consideration. City Administrator Dixon said the streets shown would be funded with the $400,000 the City Council had allocated for additional maintenance. The list provided included streets north of Hwy 90 – Algiers, Angelo, Fiorella, Houston, Madrid, Mexico, Naples, Vienna, Athens, Petersburg, Amelia, Old Hwy 90, Alsace and south of Hwy 90 – Algiers, Athens, Constantinople, Geneva, Lafayette, and Lisbon. Mr. Dixon explained to the new council members that the City had entered into an interlocal agreement with the City of Boerne and would be taking advantage of them having already bid out services and had chosen the company that had the best pricing. Mayor Alexander said new Councilmember Shipp had extensive knowledge on streets and would be an asset to the City. Councilmember Shipp asked for more in depth information to make a better determination. Mr. Carrasco said he could get him access to the program for his review. Mr. Shipp asked if there were any conflicts with utilities. Mr. Dixon said they knew where most where and were trying to separate off. Mr. Dixon said some may show conflicts with drainage and they were in the process of working on identifying gas and sewer. Councilmember Solis said she would like to see more information on drainage first and look at the higher traffic areas. Mayor Alexander asked who would prepare the streets. Mr. Carrasco said preparation was included in the pricing from the company. Mayor Alexander felt the County could do cheaper if they were just shooting an overlay. Councilmember Martinez said at a previous meeting a citizen had come to the City Council on her street being dirt and being traveled by Lions Park users. Ms. Martinez wanted to make sure that street was on the list. Mr. Carrasco said he had made note of the street and they did have on the list. Mr. Dixon said this street would be a complete rebuild and would be a good project for the County to do. Ms. Martinez wanted the citizens to be well informed on the schedules for the various streets and have an advance notification timeline. Mr. Carrasco said the company would be notifying the citizens if the City Council approved the paving plan and Public Works could also provide notifications. Mr. Dixon said staff could do more research and the City Council could choose which streets to do. Councilmember Shipp asked what the total was of all the streets shown on the list. Mr. Dixon said approximately $1 million. Mayor Alexander wanted staff to tell the City Council which streets should be done within the $400,000 allocated for this phase. Councilmember Shipp said to weigh the PCI report on what streets to do. Councilmember Solis agreed with Councilmember Shipp and said go with the $400,000, look at the high traffic areas, and continue to reach out to the County. Councilmember Marchman asked how much saving would the City receive with the company being in the area (Hondo) already doing work. Mr. Dixon said around $30,000. Mr. Dixon said they were also pursuing an interlocal agreement with Hondo. Councilmember Marchman asked what streets would Mr. Carrasco suggest. Mr. Carrasco said he would concentrate on the high traffic areas.

A motion was made by Councilmember Shipp and duly seconded by Councilmember Solis to proceed with development and implementation of a multi-year street paving and pavement preservation plan utilizing available funds up to $400,000 for the 2026 projects. A vote was taken (4:0 all ayes) the motion carried by all present.

b. Discussion and appropriate action to nominate and appoint a Mayor Pro Tem

Mayor Alexander briefed the City Council on the requirement of a Mayor Pro Tem being nominated and elected each year after the May elections. Mayor Alexander suggested Councilmember Martinez be reelected as Mayor Pro Tem.

A motion was made by Councilmember Marchman and duly seconded by Councilmember Tobin to appoint District 1 Councilmember Sheena Martinez as the Mayor Pro Tem for 2026/2027. A vote was taken (4:0 all ayes) the motion carried by all present.

c. Discussion and appropriate action to appoint City Council Board Liaisons

Mayor Alexander provided a list of the current boards and commissions and appointed the following Councilmembers to serve as board liaisons to: Airport Advisory – Councilmember Martinez; Historic Landmark Commission – Councilmember Marchman; Library Advisory – Councilmember Schriner; Parks and Recreation – Councilmember Shipp; Planning and Zoning Commission – Councilmember Solis; and Zoning Board of Adjustments – Mayor Alexander.

d. Discussion and appropriate action on the schedule for City Council budget workshops for the FY 2027/28 City budgets

City Administrator Dixon briefed the City Council on the schedule for the upcoming City Council budget workshops. Mayor Alexander also provided dates he felt would be better suited for the workshops. Staff in looking at the dates saw conflicts with the municipal court dates and Mayor Alexander said they would revise the dates and send out to the council members to make sure there were no conflicts with their schedules.

XV. DISCUSSION ON FUTURE AGENDA ITEMS

There was no discussion.

XVI. ADJOURN

Mayor Alexander adjourned the meeting at 8:37 p.m.

_____
Mayor

ATTEST:

_____
City Secretary

CITY OF CASTROVILLE CITY COUNCIL
SPECIAL CALLED COUNCIL MEETING
1209 Fiorella
City Council Chamber
May 18, 2026
Monday
3:30 p.m.
MINUTES

I. CALL TO ORDER

Mayor Bruce Alexander called the meeting to order at 3:32 p.m.

II. ROLL CALL

Present:

Mayor Bruce Alexander	Scott Dixon, City Administrator
Mayor Pro Tem Sheena Martinez	Debra Howe, City Secretary
Councilmember Houston Marchman	
Councilmember Nicol Schriner	
Councilmember Tobin Shipp	
Councilmember Valarie Solis	

Others in attendance:
Daniel Jones, Denton, Navarro, Rodrigues, Santee, Benal & Zach

III. CITZENS COMMENTS

The City Council will hear comments from any citizen or visitor. Speakers must address their comments to the presiding officer rather than individual council members or staff; stand at the podium, speak clearly into the microphone, and state your name and residential address before speaking. Speakers will be allowed a maximum of 3 minutes for testimony. Speakers making personal, impertinent, profane, or slanderous remarks will be given one warning before losing the privilege to speak or may be removed from the room. In accordance with the State Open Meetings Act, the City Council is restricted from discussing or taking action on items not listed on the agenda. Action can only be taken at a future meeting.

No one requested to speak.

Mayor Alexander recessed the meeting to go into Executive Session at 3:33 p.m.

IV. EXECUTIVE SESSION

The City Council will convene in closed session pursuant to the Texas Open Meetings Act, Chapter 551 of the Texas Government Code for one or more of the following authorized reasons:
a. The City council will meet in closed session pursuant to the Texas Open Meetings Act, Chapter 551.074, Personnel Matters, to deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of the following public officers or employees:
a. City Administrator R. Scott Dixon

Opened: 3:35 p.m.

Closed: 5:01 p.m.

V. RECONVENE IN OPEN SESSION

Mayor Alexander reconvened in open session at 5:03 p.m.

VI. Consider possible action(s) resulting from items posted and legally discussed in Executive Session

Mayor Alexander said there was no action taken in executive session.

VII. ADJOURN

Mayor Alexander adjourned the meeting at 5:03 p.m.

_____
Mayor

ATTEST:

_____
City Secretary

Agenda Report

Agenda of: May 26, 2026

Department: Administration

Subject: Authorize a surety bond for the City Administrator in accordance with Resolution No. 139

Recommended Motion:

As this item is included on the Consent Agenda, no separate motion is required unless the item is pulled for individual consideration. If pulled, the recommended motion would be:

"I move to approve the ratification of the City Administrator Surety Bond for Randall Scott Dixon in the amount of $250,000 through Hartford Casualty Insurance Company, in accordance with Resolution No. 139."

Background:

Resolution No. 139 requires the City Administrator to furnish a surety bond approved by the City Council. The City Administrator was directed to obtain the required bond and has since secured the bond through Hartford Casualty Insurance Company in the amount of $250,000.

Although the bond became effective April 27, 2026, the bond was not formally presented to or approved by the City Council prior to issuance. Therefore, staff is requesting City Council ratification and approval of the surety bond to ensure compliance with Resolution No. 139 and to formally acknowledge the coverage currently in place.

The City currently maintains similar surety bonds for positions handling financial responsibilities, including the Finance Director. The proposed bond amount of $250,000 was selected based on comparable municipal practices, operational responsibilities associated with the position, and consistency with existing City bonding coverage levels.

This item is being presented on the consent agenda and does not require a separate motion unless pulled for individual consideration by a Council Member.

STAFF RECOMMENDATION

Staff recommends approval of the ratification of the City Administrator surety bond in accordance with Resolution No. 139.

Fiscal Impact: The annual premium for the surerty bond is $1,800.

☒ **Budgeted** ☐ **Requires Budget Amendment**

Source of Funding: City Administration Budget (Dues)

Urgency (0-5 = Low Urgency to High Urgency): 3

Impact (0-5 = Low Impact to High Impact): 2

Submitted by: Leroy Vidales

AIA® Document G709™ – 2018

Proposal Request

PROJECT: *(name and address)*
Castroville Community Bldg.
816 Alsace Ave
Castroville, TX 78009

CONTRACT INFORMATION:
Contract For: General Construction
Date:

Architect's Project Number: 3069301
Proposal Request Number: 03
Proposal Request Date: 05/12/2024

OWNER: *(name and address)*
City of Castroville
1209 Fiorella St
Castroville, TX 78009

ARCHITECT: *(name and address)*
LPA, Inc.
1811 South Alamo Street
San Antonio, TX 78204

CONTRACTOR: *(name and address)*
Frontera Construction
710 E Gibbs St
Del Rio, TX 78840

The Owner requests an itemized proposal for changes to the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. The Contractor shall submit this proposal within ten (10) days or notify the Architect in writing of the anticipated date of submission.
(Insert a detailed description of the proposed modifications to the Contract Documents and, if applicable, attach or reference specific exhibits.)

DESCRIPTION:
Per the owner's request LPA has redesigned the shower building which was removed from scope of work upon City Council approval and acceptance of project. Utility feeds to building were to remain in original scope of work.

Please provide pricing for the proposed revised shower building. REF to Architectural, Structural, and MEP revised drawings. REF to original bid Civil Drawings for grades and trench drain at front facade of shower building. GC to confirm layout of new building on site. Extend Trench drain full length of building front.

Architectural Sheets Included:
A2.01S Showing Building Plans, Exterior Elevations, & Interior Elevations.
A2.02S Roof Plan, Building Section, Framing Details, Misc. Construction Details.

ATTACHMENTS:
Structural Narrative, MEP Narrative, Architectural, Structural, MEP Drawings.

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

REQUESTED BY THE ARCHITECT:

Laurence Garcia, Project Architect
PRINTED NAME AND TITLE

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User Notes: (3B9ADA56)

IRVINE • SACRAMENTO • SAN DIEGO •SAN JOSE • DALLAS • SAN ANTONIO

May 08, 2026

PR-3

Castroville Community Building
LPA Project No.: 3069301

Structural Drawings

S2.01S– FOUNDATION AND FRAMING PLANS
1. Added plans for wood construction

S6.02 – TYPICAL FOUNDATION AND SOG DETAILS
1. Added detail 16 and note for detail 01 for sim condition on this sheet.

S6.83 – TYPICAL WOOD FRAMING DETAILS
1. Added detail 20 on this sheet.

End of PR 3

8000 IH-10 West, Suite 1002
San Antonio, Texas 78230
Phone: 210-525-0220

H2MG Consulting Mechanical • Electrical • Plumbing Engineers

Texas Firm Registration #F-12003

PR. 03

DATE: May 11, 2026

PROJECT NO.: 990206

PROJECT NAME: CASTROVILLE COMMUNITY BUILDING

PROJECT ENGINEER:	H2MG, LLC 8000 IH-10 West, Suite 1002 San Antonio, TX 78230 Phone: 210-298-3390
TO:	ALL CONTRACT BIDDERS TO WHOM DRAWINGS AND SPECIFICATIONS HAVE BEEN ISSUED

The following revisions for the renovation of the Castroville Community Building are with the intent of clarification to scope listed on sheets mentioned below.

REFER TO SHEETS:

MECHANICAL

Item M1 **SHEET M0.2 – MECHANICAL SCHEDULES**

A. Revised Fan Schedule.

B. Addition of Gravity Vent Schedule.

Item M2 **SHEET M1.1 – FLOOR PLAN - HVAC**

A. Addition of view 2/M1.1 – Floor Plan Restrooms/Showers – HVAC with revised mechanical layout.

B. Revised mechanical keyed notes.

PLUMBING

Item P1 **SHEET P0.1 – PLUMBING SYMBOLS LEGEND**

A. Revise instantaneous electric water heater schedule.
B. On detail 6, revise shower building floor plan
C. Add detail 7, section at ada bathroom 23.

Item P2 **SHEET P1.1 – FLOOR PLAN – PLUMBING**

A. On detail 2, revise plumbing layout to match revised floor plan.
B. Revise keyed notes 8 and 22.

Item P3 **SHEET P2.1 – PLUMBING RISERS**

A. Revise details 11 and 12, P/6 waste & vent riser and P/6 hot & cold water riser, respectively.

ELECTRICAL

Item E1. SHEET E0.2 – SITE PLAN – ELECTRICAL

A. Revised keyed notes 4, 9, and 10.

B. Added keyed notes 13, 14, and 15.

C. Revised existing pavilion panel.

D. Revised power and lighting plans at shower building.

Item E2. SHEET E2.1 – ONE LINE DIAGRAM

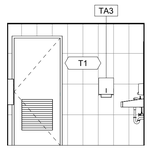
A. Revised panelboard schedule S.

B. Revised Load Summary.

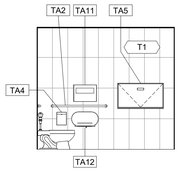
C. Revised Copper Feeder Schedule.

D. Revised One Line Diagram.

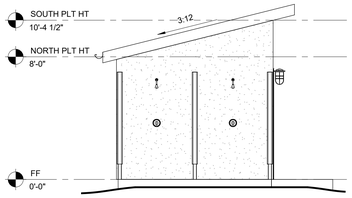
E. Revised circuit A-55,57,59.



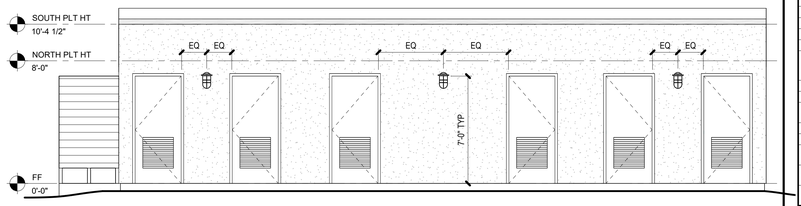
TYPICAL ADA BATHROOM - SOUTH | 1/4" = 1'-0" | 28



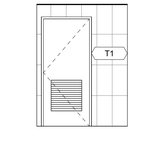
TYPICAL ADA BATHROOM - EAST | 1/4" = 1'-0" | 22



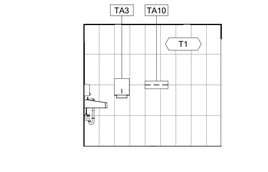
WEST ELEVATION | 1/4" = 1'-0" | 16



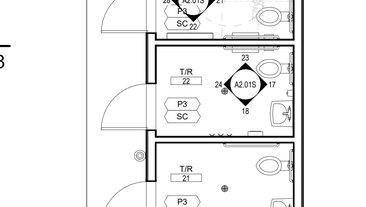
SOUTH ELEVATION | 1/4" = 1'-0" | 08



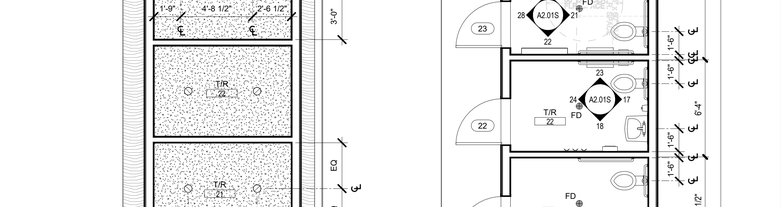
TYPICAL ADA BATHROOM - WEST | 1/4" = 1'-0" | 27



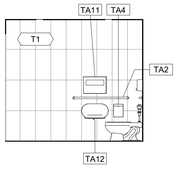
TYPICAL ADA BATHROOM - NORTH | 1/4" = 1'-0" | 21



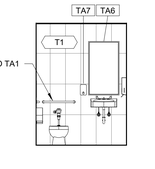
EAST ELEVATION | 1/4" = 1'-0" | 15



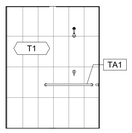
NORTH ELEVATION | 1/4" = 1'-0" | 07



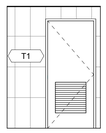
TYP SHOWER ELEVATION - EAST | 1/4" = 1'-0" | 26



TYP SHOWER ELEVATION - WEST | 1/4" = 1'-0" | 20



TYP SHOWER ELEVATION - NORTH | 1/4" = 1'-0" | 25



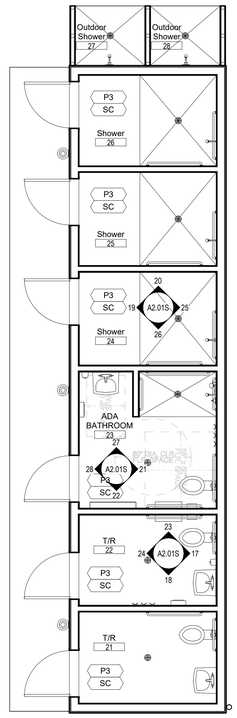
TYP SHOWER ELEVATION - SOUTH | 1/4" = 1'-0" | 19

TYPICAL T/R ELEVATION - SOUTH | 1/4" = 1'-0" | 24

TYPICAL T/R ELEVATION - EAST | 1/4" = 1'-0" | 18

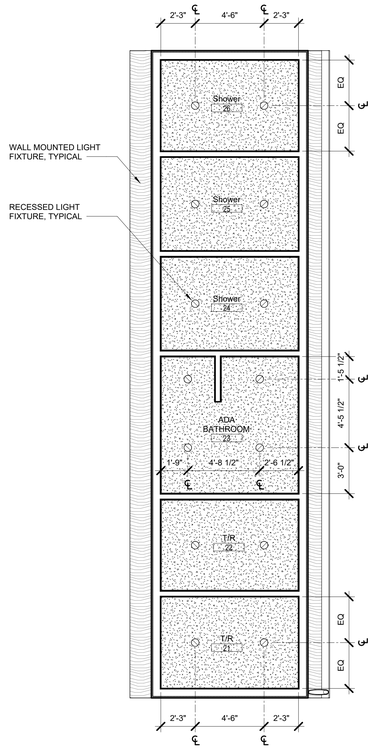
TYPICAL T/R ELEVATION - WEST | 1/4" = 1'-0" | 23

TYPICAL T/R ELEVATION - NORTH | 1/4" = 1'-0" | 17



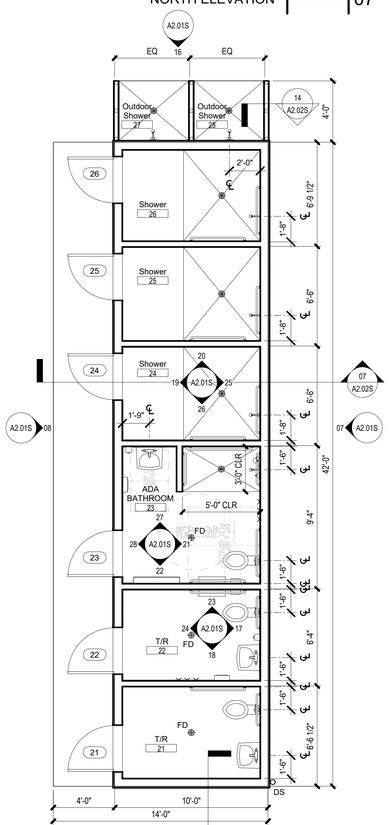
SHOWER BUILDING FINISH PLAN | 1/4" = 1'-0" | 13

NOTE: SEE SHEET A4.01 FOR RESTROOM ACCESSORY MOUNTING HEIGHTS



SHOWER BUILDING RCP | 1/4" = 1'-0" | 09

NOTE: ALL SHOWER BUILDING CEILINGS ARE 8' AFF



SHOWER BUILDING PLAN | 1/4" = 1'-0" | 05

KEYNOTES

NUMBER	TEXT

TOILET ACCESSORIES SCHEDULE

TAG #	DESCRIPTION	MANUFACTURER	MODEL #	RESPONSIBILITY
TA1	36" GRAB BAR	BOBRICK	B-6806X36	C.F.C.I.
TA2	42" GRAB BAR	BOBRICK	B-6806X42	C.F.C.I.
TA3	PAPER TOWEL DISPENSER	OWNER PROVIDED		O.F.C.I
TA4	SANITARY NAPKIN DISPOSAL - HINGED LID - SURFACE MOUNTED	BOBRICK	B-270	C.F.C.I
TA5	BABY CHANGING STATION	KOALA KARE	KB310-SSRE	C.F.C.I.
TA6	MIRROR	BOBRICK	B-290 2442	C.F.C.I.
TA7	SOAP DISPENSER - WALL MOUNT	OWNER PROVIDED		O.F.C.I
TA8	Commercial Robe Hook	BOBRICK	B76717	C.F.C.I
TA10	THREE HOOK STRIP	BOBRICK	B232 X 24	C.F.C.I
TA11	TOILET SEAT COVER DISPENSER	<varies>		<varies>
TA12	TWIN JUMBO-ROLL TOILET TISSUE DISP.	OWNER PROVIDED		O.F.C.I
TA13	SHELF WITH BROOM HOLDER & HOOKS	BOBRICK	B-239 X 34	C.F.C.I

NOTE:
SEE FINISH GENERAL NOTES FOR TOILET ACCESSORY FINISH INFORMATION
SEE SHEET A4.01 FOR ALL TOILET ACCESSORY MOUNTING HEIGHTS

RCP LEGEND

MOISTURE RESISTANT GYP BD

9'-0" — TYPICAL CEILING HEIGHT, U.N.O.

XXX-1 — TYPICAL CEILING TYPE, U.N.O.

3" RECESSED CAN LIGHT (SEE ELECTRICAL)

FINISH FLOOR PLAN LEGEND

NOTE: SEE SHEET A7.00 FOR FULL FINISH SCHEDULE

Room 101

WF-00 — WALL FINISH, U.N.O.

BF-00 — BASE FINISH, U.N.O.

BF-00 — FLOOR FINISH, U.N.O.

ALIGN

FLOOR TRANSITION, SEE SHEET A9.40 FOR VARIOUS CONDITIONS AND SPECIFICATIONS

FLOOR PATTERN DIRECTION

CG — CORNER GUARD, SEE SHEET A7.00 FINISH SCHEDULE & A9.40 INTERIOR DETAILS.

LEGEND

WALL TYPE. LETTER INDICATES WALL TYPE. SEE A9.0X SERIES.

SA2U — **STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE A9.0X SERIES. REFER TO S0.91 FOR INTERIOR STUD WALL SCHEDULE

WOOD STUD WALL CONSTRUCTION

DOOR PER SCHEDULE

MILLWORK

FINISH PLAN GENERAL NOTES

1. GENERAL FINISHES: ALL WALLS TO BE PAINTED (P-1), U.N.O. ALL FLOORING TO BE BROOM FINISHED CONCRETE, U.N.O. ALL BASE TO BE (B-1), U.N.O.
2. ALL GYPSUM BOARD EXPOSED TO VIEW SHALL HAVE LEVEL #4 FINISH, U.N.O.
3. ALL GYPSUM BOARD AT SHOWER BUILDING TO BE MOISTURE RESISTANT.
4. ALL CEILING AND WALL ACCESS PANELS TO MATCH ADJACENT SURFACES.
5. TYPICAL FLOOR TRANSITION IS AT THE CENTERLINE OF THE DOORS OR CENTERLINE OF THE OPENING WHERE NO DOOR IS PRESENT, U.N.O.
6. CONTRACTOR TO PERFORM MOISTURE TESTING PRIOR TO THE INSTALLATION OF MATERIALS FOR VERIFICATION OF COMPLIANCE WITH MANUFACTURER'S WARRANTIES.
7. "LOW SHEEN" PAINT FINISH TYPICAL THROUGHOUT; "SEMI-GLOSS" FINISH AT ALL RESTROOMS AND OTHER WET LOCATIONS; "FLAT" FINISH AT ALL CEILINGS.
8. PROVIDE 8'-0" HIGH CORNER GUARDS AT ALL PAINTED GYPSUM BOARD OUTSIDE CORNERS, WHERE INDICATED ON PLAN.
9. ON EXTERIOR DOORS OR WINDOWS WHERE WALL TILE OCCURS, TILE TO RETURN TO DOOR/WINDOW JAMB.
10. ALL DOOR AND CAEWORK HARWARE TO BE MATTE BLACK
11. ALL TOILET ACCESSORIES IN BATHROOMS THAT LEAD TO AN EXTERIOR WILL HAVE STAINLESS/BRUSHED NICKLE FINISH.
12. ALL TOILET ACCESSORIES IN BATHROOMS THAT LEAD TO AN INTERIOR WILL HAVE MATTE BLACK FINISH.

SHOWER BLDG FLOOR PLAN GENERAL NOTES

1. EXISTING CONDITIONS DAMAGED OR REMOVED AS A RESULT OF ALL WORK REQUIRED TO BE DONE UNDER THIS CONTRACT SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION AND FINISHED TO MATCH ADJACENT SURFACES.
2. ALL NEW INTERIOR WALLS TO RECEIVE TILE. REFER TO FINISH SPECIFICATIONS AND INTERIOR ELEVATIONS.
3. EXTERIOR WALL DIMENSIONS ARE TO THE FACE OF STUD OR EDGE OF SLAB U.N.O. INTERIOR DIMENSIONS ARE TO THE FACE OF STUD U.N.O. VERIFY ANY DISCREPANCIES IN THE FIELD WITH THE ARCHITECT PRIOR TO BUILDING.
4. ALL NEW INTERIOR WALLS ARE TYPE WA4, TERMINATING AT CEILING, U.N.O.
5. ALL EXTERIOR WALLS TO BE TYPE W1A U.N.O.
6. ALL DOORS TO BE 4" FROM FACE OF ADJACENT MASONRY PERPENDICULAR WALL TO EDGE OF DOOR, U.N.O.
7. PROVIDE CONTROL JOINTS (C.J.) AT TOP CORNERS OF DOORS UP TO ROOF OR CEILING. ALIGN CONTROL JOINT WITH EDGE OF WINDOW OR DOOR WHEREVER POSSIBLE.
8. CONTRACTOR SHALL VERIFY ALL DIMENSIONS TO ENSURE PROPER FIT PRIOR TO MANUFACTURING ANY MILLWORK OR ORDERING ANY SPECIALTY ITEMS OR EQUIPMENT.
9. REFER TO TEXAS ACCESSIBILITY STANDARDS (T.A.S.) FOR ALL MOUNTING HEIGHTS, DOOR CLEARANCES, ETC.
10. ALL FURNITURE IS TO BE FURNISHED AND INSTALLED BY OWNER, U.N.O.
11. ALL EQUIPMENT IS TO BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED, U.N.O.
12. REFER TO ROOF DETAIL FOR TYPICAL PENETRATIONS THROUGH ROOF.
13. PROVIDE OCCUPANCY LOCK AT ALL SHOWER BUILDING DOORS. VERIFY DOOR HARDWARE WITH ARCHITECT.
13. COORDINATE POSITIONING OF SHOWER BUILDING IN FIELD WITH ARCHITECT.

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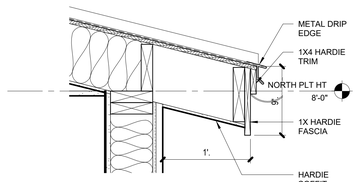
Revision	Date
7 PR-3	4/29/26

Submittal	Date
PERMIT SET	04/19/2024

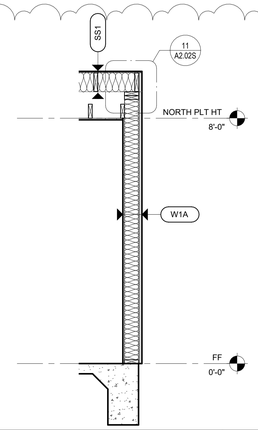
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Date Published	04/19/2024
Checked By	Checker
Scale	As indicated

SHOWER PLANS & ELEVATIONS

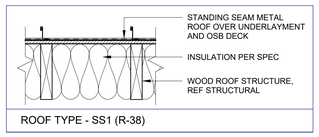
A2.01S



LOW EAVE DETAIL | 1 1/2" = 1'-0" | 12

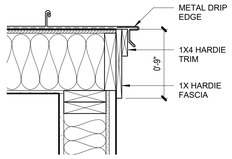


WALL SECTION | 1/2" = 1'-0" | 08

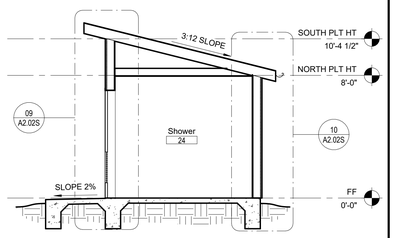


ROOF TYPE - SS1 (R-38)

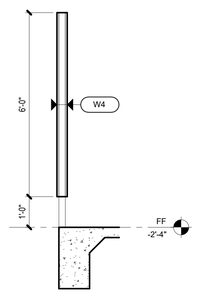
ROOF TYPES | 1 1/2" = 1'-0" | 15



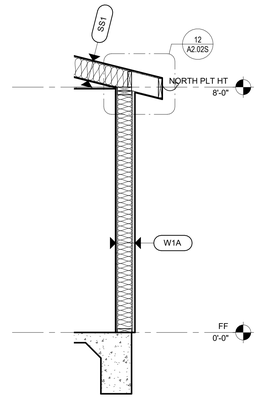
RAKE DETAIL | 1 1/2" = 1'-0" | 11



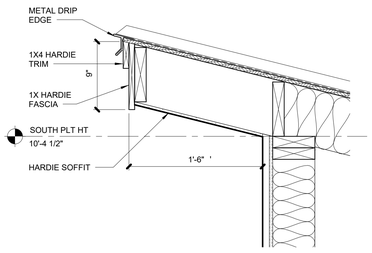
BUILDING SECTION | 1/4" = 1'-0" | 07



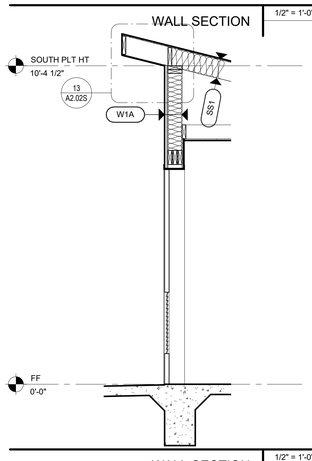
WALL SECTION - WOOD SLAT WALL | 1/2" = 1'-0" | 14



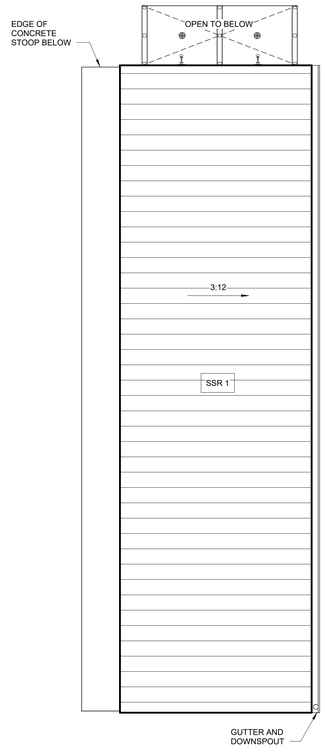
WALL SECTION | 1/2" = 1'-0" | 10



HIGH EAVE DETAIL | 1 1/2" = 1'-0" | 13



WALL SECTION | 1/2" = 1'-0" | 09



SHOWER BUILDING ROOF PLAN | 1/4" = 1'-0" | 05

WALL SECTION GENERAL NOTES

1. REFER TO A 8.10 FOR EXTERIOR WALL ASSEMBLY TYPES.
2. REFER TO A8.10 FOR INTERIOR PARTITION TYPES.
3. PROVIDE BACKING AS REQUIRED TO ENSURE PROPER INSTALLATION OF ALL WALL MOUNTED EQUIPMENT, FINISHES, CASEWORK, ETC.

BUILDING SECTION GENERAL NOTES

1. FOR ALL BUILDING SECTIONS REF. STRUCTURAL FOR LOCATIONS, SIZES, SLOPES, AND SPACING OF ALL STRUCTURAL MEMBERS. STRUCTURAL MEMBERS SHOWN IN ARCHITECTURAL DRAWINGS ARE FOR REFERENCE ONLY. FOR CLARITY, SOME STRUCTURAL MEMBERS MAY NOT BE SHOWN OR MAY ONLY BE PARTIALLY PRESENT.
2. REF SHEET A2.01 FOR FINISH CEILING HEIGHTS AND TYPES.
3. REF. MEP FOR ALL EXTERIOR LIGHTING TYPES.
4. REF. ROOM DRAWINGS AND WALL SECTIONS FOR ROOF ASSEMBLIES, PENETRATIONS, AND DETAILS.
5. CONTRACTOR TO VERIFY AND COORDINATE ALL EXTERIOR CONTROL JOINTS AND REVEAL JOINTS PRIOR TO FABRICATION AND INSTALLATION AND NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES.

ROOF LEGEND

	STANDING SEAM METAL ROOF
DS	DOWNSPOUT
SLOPE	ROOF SLOPE (DOWN)
	GUTTER

ROOF PLAN GENERAL NOTES

1. MANUFACTURER'S REP TO INSPECT ALL ROOFING APPLICATIONS TO ENSURE ADHERENCE TO MFG. GUIDELIENS AND CERTIFY TO THE GENERAL CONTRACTOR THAT ROOF IS INSTALLED PER MFG. GUIDELINES.
2. ROOF PENETRATIONS SHOWN ARE SCHEMATIC IN NATURE AND FOR THE CONVENIENCE OF THE CONTRACTOR. GENERAL CONTRACTOR RESPONSIBLE FOR MAKING FINAL COORDINATION OF SIZE, TYPE AND LOCATION OF ROOF PENETRATIONS THAT MAY BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
3. SEE MEP DRAWINGS FOR ROOF MOUNTED EQUIPMENT AND PENETRATIONS. MAINTAIN 10'-0" MINIMUM FROM VENT THROUGH ROOF TO AIR INTAKES.
4. ALL ROOFING DETAILS SHALL CONFORM WITH "SMACNA" AND "NRCA" REQUIREMENTS.
5. VERIFY DOWNSPOUT SIZE AND LOCATIONS WITH FINAL ROOF RAINWATER CALCULATION AND ARCHITECT. CONNECT ALL DOWNSPOUTS TO STORM WATER DRAIN SYSTEM PER CIVIL DRAWINGS, UNLESS OTHERWISE NOTED.
6. DOWNSPOUT TERMINATION NOT CONNECTED TO STORM WATER DRAIN SYSTEM TO BE STRAIGHT SHAFT TYPE WITH 45 DEGREE KICK-OUT AND SPLASH BLOCK AS SHOWN ON PLANS.
7. PROVIDE GUTTER AND DOWNSPOUTS MATCHING MAIN BUILDING.
8. VERIFY GUTTER SIZE WITH FINAL ROOF RAINWATER CALCULATION AND ARCHITECT.

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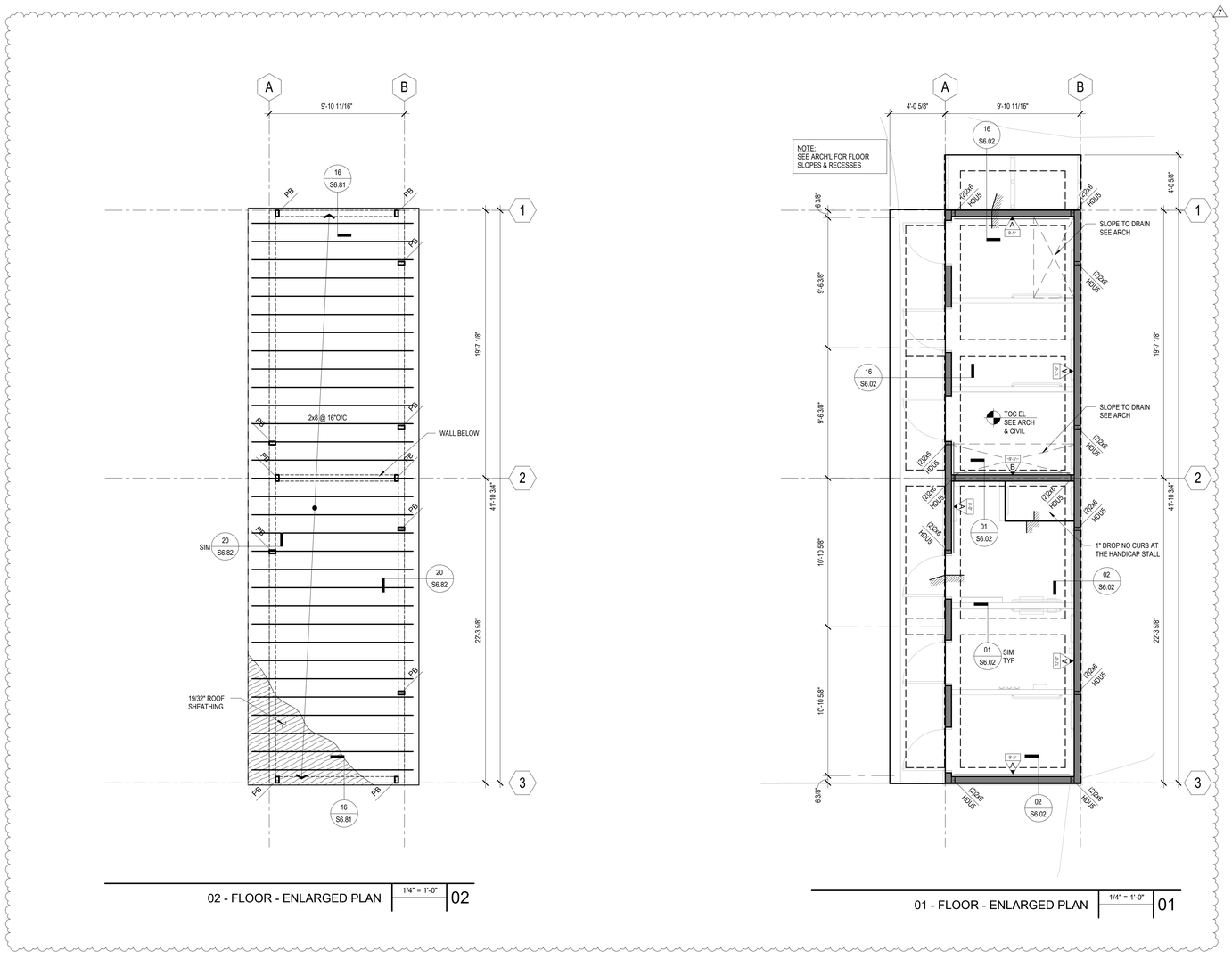
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Checked By	Checker
Scale	As indicated

SHOWER BLDG ROOF PLAN, SECTIONS AND WALL SECTIONS

A2.02S

PLAN NOTES

1. FOR GENERAL NOTES SEE S0 SERIES SHEETS. FOR TYPICAL DETAILS SEE S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF STRUCTURAL CONCRETE SLAB OR SHEATHING ELEVATIONS, DEPRESSIONS, SLOPES, CURBS, DRAINS, PADS, DECK EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS IN WALLS and SLABS NOT INDICATED ON STRUCTURAL DRAWINGS. 3
3. ROOF SHEATHING CONSTRUCTION SHALL BE BLOCKED AND AS INDICATED BELOW UNLESS INDICATED OTHERWISE:
   A: TRUSSES OR RAFTERS SPACED AT 2'-0" O/C: 3
      15/32" APA RATED STRUCTURAL I PLYWOOD W/ 32/16 SPAN RATING
      BN - 10d @ 4" O/C
      EN - 10d @ 4" O/C
      FN - 10d @ 6" O/C
   B: TRUSSES SPACED AT 4'-0" O/C: 3
      19/32" APA RATED STRUCTURAL I PLYWOOD W/ 48/24 SPAN RATING
      BN - 10d @ 4" O/C
      EN - 10d @ 4" O/C
      FN - 10d @ 6" O/C
4. PROVIDE OPENINGS IN ROOF UP TO 4'-0" SQUARE PER TYPICAL DETAIL.
5. SOLID SAWN HANGERS SHALL BE SIMPSON U HANGERS, UNLESS NOTED OTHERWISE.
6. PROVIDE MODIFICATIONS TO HANGERS (I.E. SKEWED, SLOPED SEAT, OFFSET TOP- FLANGE, ETC.) AS REQUIRED TO PROPERLY FRAME SKEWED AND/OR SLOPED FRAMING MEMBERS.



02 - FLOOR - ENLARGED PLAN 1/4" = 1'-0" 02

01 - FLOOR - ENLARGED PLAN 1/4" = 1'-0" 01

FOUNDATION PLAN NOTES

1. FOR GENERAL NOTES SEE S0 SHEETS. FOR TYPICAL DETAILS SEE S6 SERIES SHEETS.
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, and PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS; SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, and CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; and LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. BUILDING SLAB-ON-GRADE: 5" THICK W/ #3 @ 12" O/C EACH WAY at CENTER OF SLAB OVER 10 MIL VAPOR RETARDER (LAP 6" AT JOINTS and TAPE SEAL - VAPOR RETARDER MAY BE OMITTED AT EXTERIOR AREAS OVER PROPERLY COMPACTED FILL AS DESCRIBED IN GEOTECHNICAL REPORT. DO NOT PROVIDE CONTROL JOINTS UNLESS NOTED OTHERWISE.
4. CENTER COLUMNS ON NUMBERED GRID LINES UNLESS NOTED OTHERWISE. CENTER SPREAD FOOTINGS and CONTINUOUS FOOTINGS ON COLUMNS UNLESS NOTED OTHERWISE.
5. IN NO CASE SHALL PIPES, CONDUITS, OR SLEEVES BE EMBEDDED IN SPREAD OR CONTINUOUS FOOTINGS OR WITHIN TOP OR BOTTOM THIRD OF GRADE BEAMS UNLESS SPECIFICALLY DETAILED ON STRUCTURAL DRAWINGS. PIPES, CONDUITS OR SLEEVES MAY ONLY BE EMBEDDED WITHIN THE MIDDLE THIRD OF GRADE BEAMS WHERE NOTED ON STRUCTURAL PLANS AND DETAILED IN THE STRUCTURAL DRAWINGS.
6. GEOTECHNICAL OBSERVATION / COMPACTION REPORT SHALL BE SUBMITTED TO THE BUILDING INSPECTOR PRIOR TO FOUNDATION INSPECTION.
7. SEE CIVIL DRAWINGS FOR APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES. PROTECT OR RELOCATE EXISTING UTILITIES AS REQUIRED DURING FOUNDATION EXCAVATION OR CONSTRUCTION. DO NOT SURCHARGE EXISTING UTILITIES, SEE 01\S6.01 FOR ADDITIONAL CLARIFICATION.

FOUNDATION LEGEND

- +X'-X" — INDICATES TOP OF STRUCTURAL CONCRETE SLAB ON GRADE ELEVATION (TOC) - SEE ARCHITECTURAL FOR TOC IF NO ELEVATION INDICATED
- INDICATES CHANGE IN ELEVATION OF TOP OF STRUCTURAL CONCRETE SLAB ON GRADE - CONSTRUCT PER 01/S6.02
- OR — INDICATES CONCRETE CURB OR HOUSEKEEPING PAD - CONSTRUCT PER 06D/S6.01 U.N.O.
- FX — INDICATES SPREAD FOOTING MARK - SEE SCHEDULE THIS SHEET
- XX.XX' — INDICATES ELEVATION OF TOP OF SPREAD FOOTING RELATIVE TO TOP OF CONCRETE SLAB ELEVATION - IF NO ELEVATION INDICATED, LOCATE TOP OF SPREAD FOOTING PER PLAN NOTE 4
- CFXX — INDICATES CONTINUOUS FOOTING MARK - SEE SCHEDULE THIS SHEET
- S - - - - S — INDICATES STEP IN CONTINUOUS FOOTING OR GRADE BEAM - SEE 09/S6.01
- TOF — INDICATES TOP OF FOOTING ELEVATION
- X-X" @ XX" O/C — INDICATES POST ABOVE RUNNING FULL HEIGHT TO TOP PLATES AT ROOF OR TOP OF PARAPET ABOVE (RUN UNINTERRUPTED TO DOUBLE TOP PLATES AT BALLOON-FRAMED WALLS) - PROVIDE (2) SIMPSON A35's TOP (TO DOUBLE TOP PLATES) and BOTTOM (TO SILL PLATE) WHERE POST OCCURS IN STUD WALL UNLESS OTHER HARDWARE IS INDICATED - SUBSTITUTE PARALLAM "PSL" POST WHERE POST LENGTHS EXCEED COMMONLY AVAILABLE CONVENTIONAL LUMBER LENGTHS (TALL PARAPETS FOR EXAMPLE) - SEE GENERAL NOTES FOR PARALLAM "PSL" POST REQUIREMENTS
- INDICATES HOLDOWN MARK - SEE DETAIL 09/S6.82. WHERE HOLDOWN OCCURS AT HSS COLUMN SEE DETAIL 01/S6.11
- W, PIPE, or HSS — INDICATES STEEL COLUMN ABOVE - RUNNING FULL HEIGHT TO TOP PLATES AT ROOF OR TOP OF PARAPET ABOVE - FOR BASE PLATE INFO SEE 09/S6.11 - FOR BLOCKOUT AT SLAB ON GRADE SEE 13/S6.01 - PROVIDE NAILERS ON SIDES OF STEEL COLUMNS WHERE ADJACENT TO STUD WALLS PER 17/S6.84
- X'-X" — INDICATES SHEAR WALL HORIZONTAL DESIGN LENGTH. ACTUAL LENGTH OF WALL MAY EXCEED, BUT SHALL NOT BE LESS THAN, THE LENGTH SHOWN
- INDICATES SHEAR WALL MARK - FOR SHEAR WALL CONSTRUCTION SEE 03/S6.81 - PROVIDE SHEAR WALL TYPE "A" CONSTRUCTION at EXTERIOR SIDES OF ALL PERIMETER WALLS and FURRED -OUT WALLS UNLESS NOTED OTHERWISE INCLUDING PORTION OF WALL ABOVE and BELOW OPENINGS - VERTICAL EXTENT FOR SHEAR WALLS INDICATED ON THIS PLAN IS FROM SLAB ON GRADE UP TO BOTTOM OF ROOF OR TOP OF PARAPET/SCREEN WALL
- INDICATES STRUCTURAL LOAD BEARING, SHEAR, OR PERIMETER WOOD STUD WALL - DO NOT SPLICE STUDS UNLESS SPECIFICALLY DETAILED OR INDICATED
- INDICATES INTERIOR, NON-BEARING WOOD STUD WALL ABOVE - CONSTRUCT PER DETAILS 01 and 15/S6.81 and 09/S6.84 and ARCHITECTURAL DRAWINGS
- HATCHED AREA INDICATES EXTENT OF DEPRESSED SLAB ON GRADE - SEE ARCH'L SLAB PLAN FOR ADD'L INFORMATION - SEE 01/S6.02
- DENOTES 8" CMU WALL

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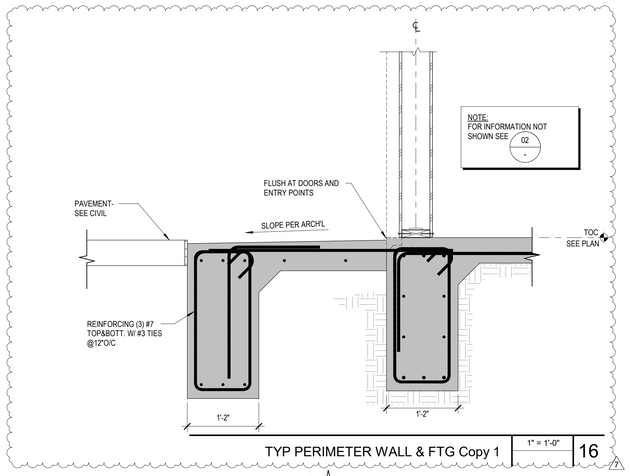
Revision	Date
7 PR 3	05/08/2026

Submittal	Date
PERMIT SET	04/19/2024

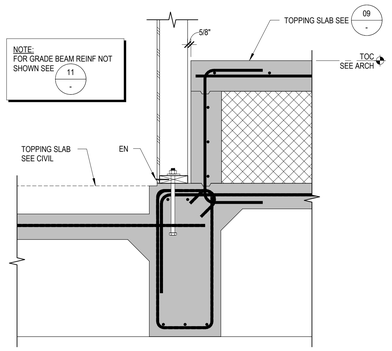
Job Number	31522
Checked By	Checker
Scale	As indicated

FOUNDATION AND FRAMING PLANS

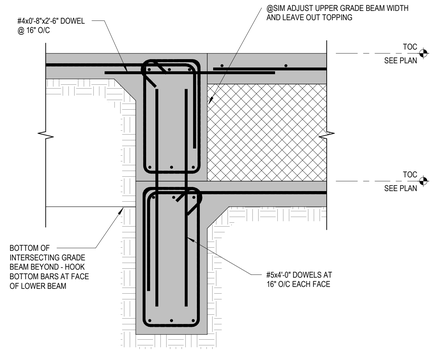
S2.01S



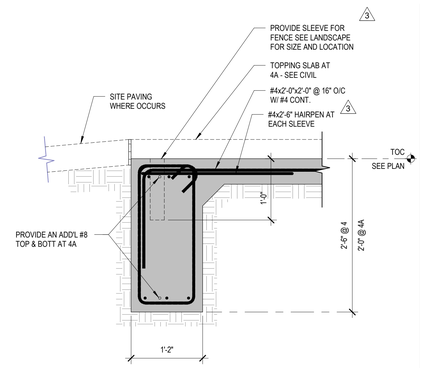
TYP PERIMETER WALL & FTG Copy 1 | 1" = 1'-0" | 16



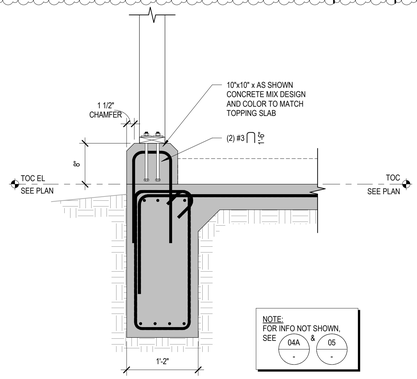
012 | 1" = 1'-0" | 12



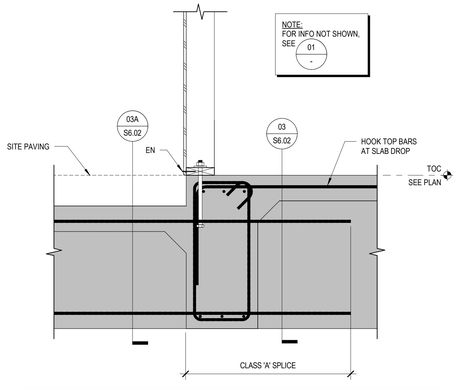
FOUNDATION DETAIL | 1" = 1'-0" | 08



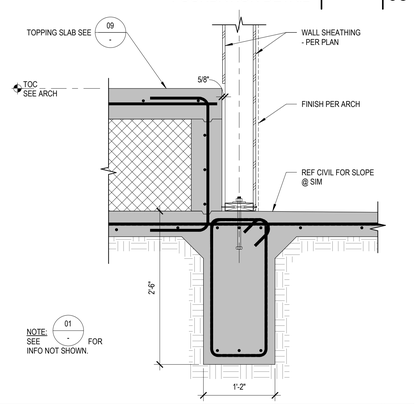
TYPICAL FOUNDATION DETAIL | 1" = 1'-0" | 04



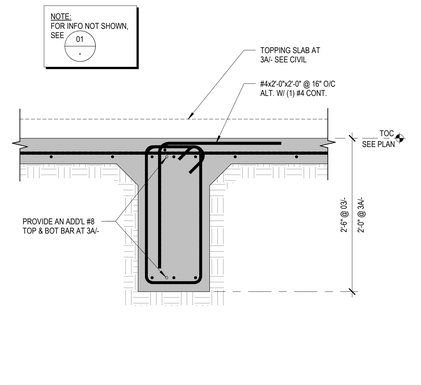
011 | 1" = 1'-0" | 15



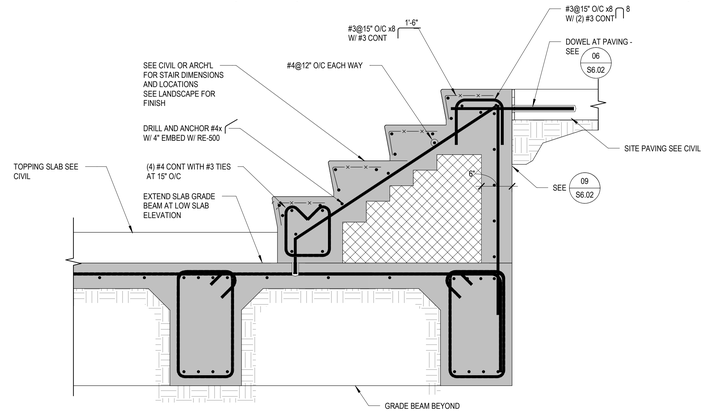
010 | 1" = 1'-0" | 11



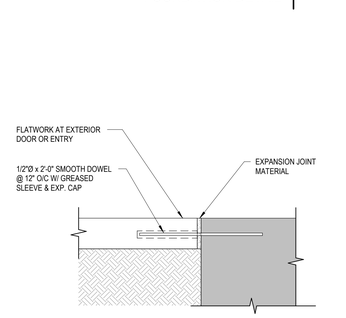
FOUNDATION DETAIL | 1" = 1'-0" | 07



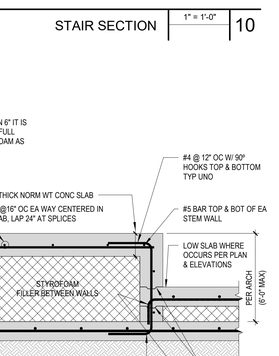
TYPICAL FOUNDATION DETAIL | 1" = 1'-0" | 03



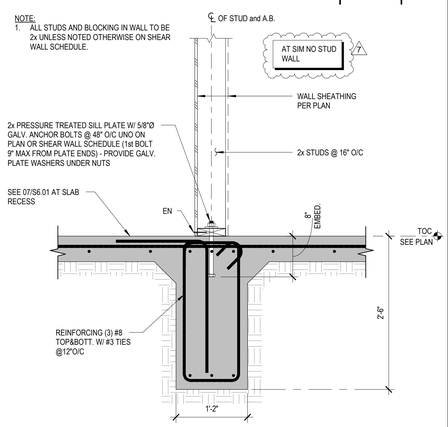
STAIR SECTION | 1" = 1'-0" | 10



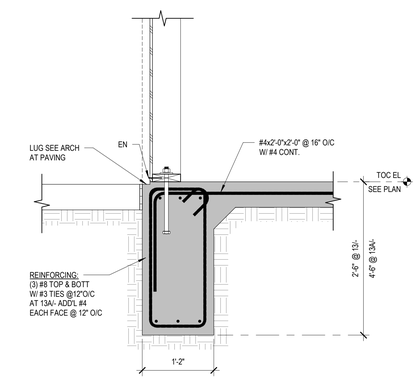
TYP PERIMETER WALL & FTG | 1" = 1'-0" | 02



TYP. FLATWORK AT EXTERIOR DOORS AND ENTRIES | 1" = 1'-0" | 06

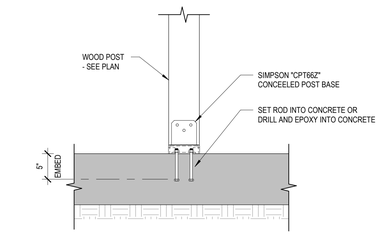


TYP INT WALL FOOTING | 1" = 1'-0" | 01



009 | 1" = 1'-0" | 13

TYP BUILT-UP CONC HOUSEKEEPING PAD1 | 3/4" = 1'-0" | 09



WOOD POST BASE CONNECTION DETAIL | 1" = 1'-0" | 05

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Section VI, Item d.

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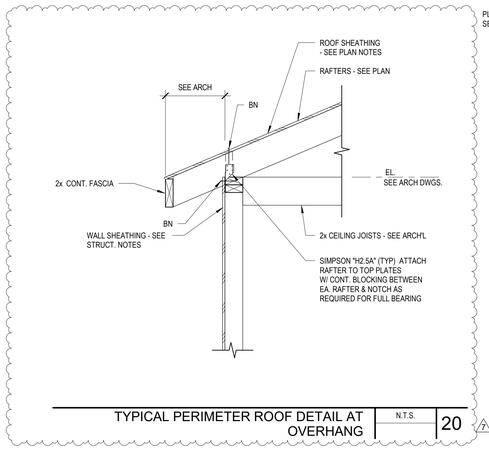
Revision	Date
3 ADDENDUM #3	05/10/2024
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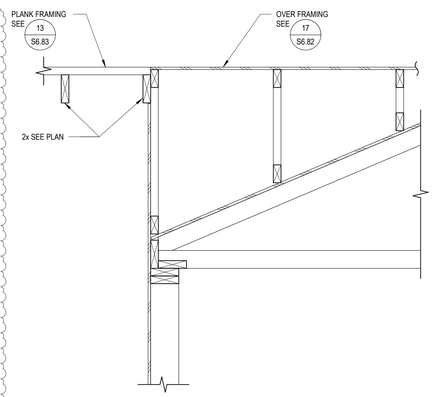
Job Number	31522
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Scale	As indicated

TYPICAL FOUNDATION AND SOG DETAILS

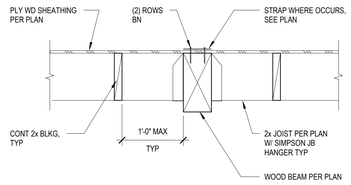
S6.02



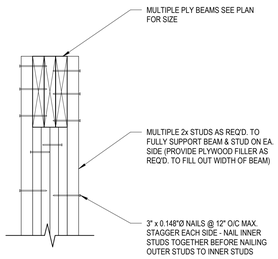
TYPICAL PERIMETER ROOF DETAIL AT OVERHANG — N.T.S. — 20 — 7



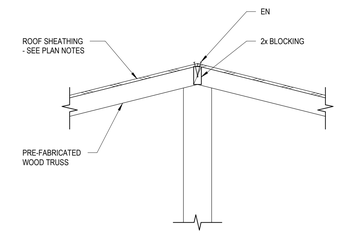
ROOF RAFTER CONNECTION DETAIL — 1" = 1'-0" — 16



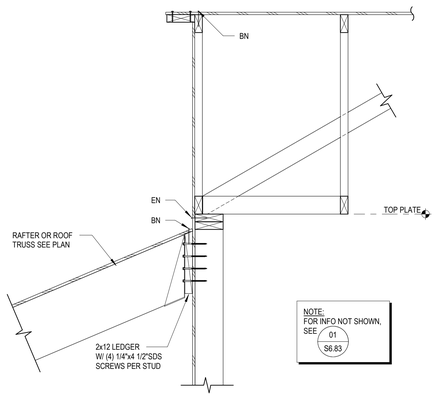
JOIST TO WOOD BEAM CONN. — 1" = 1'-0" — 12



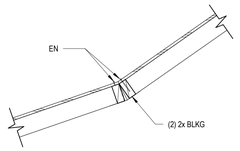
TYPICAL MULTIPLE PLY BEAM BEARING — 1 1/2" = 1'-0" — 08



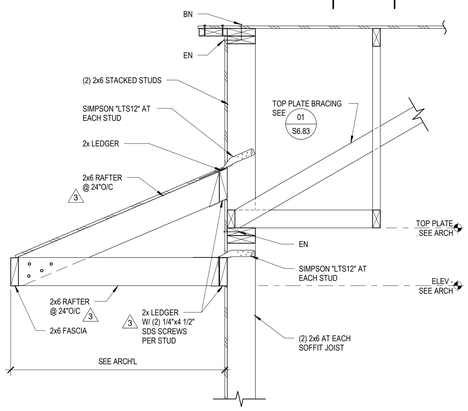
TYPICAL RIDGE CONDITION — 1" = 1'-0" — 04



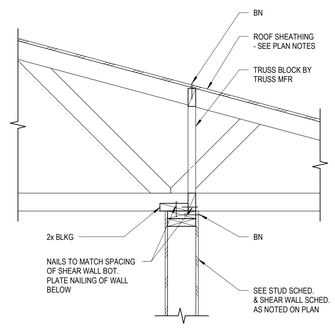
ROOF RAFTER CONNECTION DETAIL — 1" = 1'-0" — 19



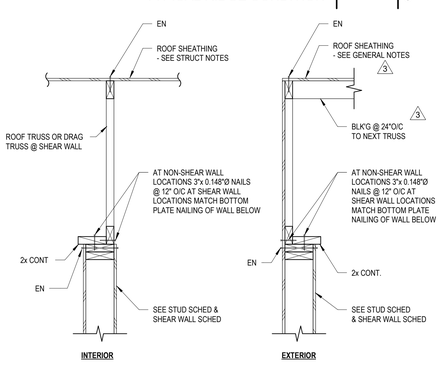
ROOF CHANGE IN SLOPE DETAIL — 1" = 1'-0" — 15



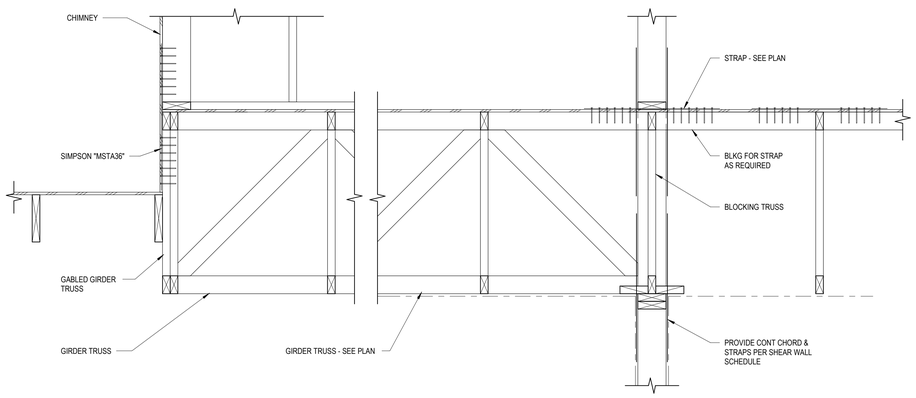
ROOF RAFTER CONNECTION DETAIL — 1" = 1'-0" — 11



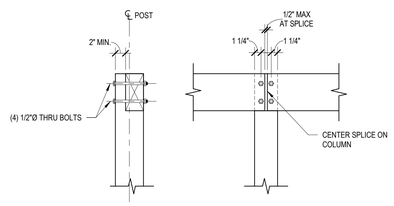
TYPICAL ROOF TRUSS PERPENDICULAR TO SHEAR WALL — 1" = 1'-0" — 07



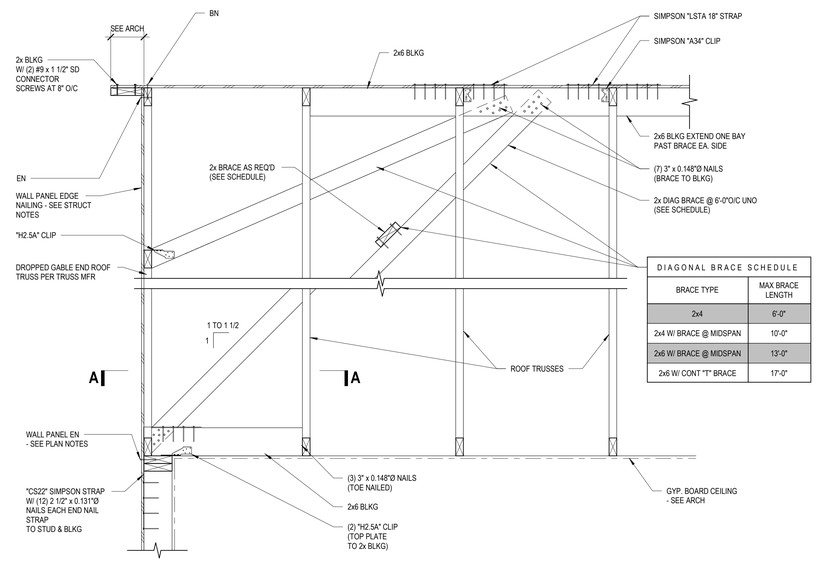
TYPICAL DETAIL AT ROOF TRUSSES PARALLEL TO WALL — 1" = 1'-0" — 03



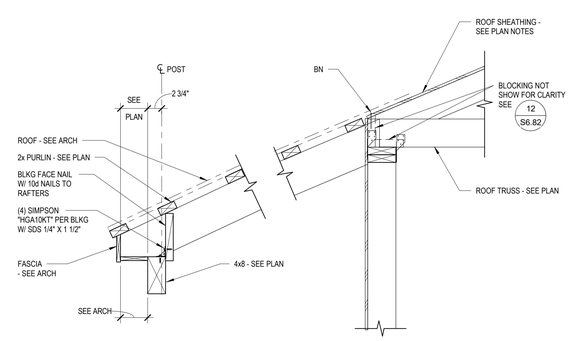
TRUSS SECTION DETAIL — 1" = 1'-0" — 14



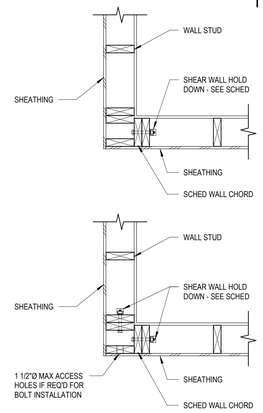
TOP OF PORCH POST DETAIL — 1" = 1'-0" — 10



TYPICAL GABLE END ROOF DETAIL — 1" = 1'-0" — 01



TYPICAL CANOPY FRAMING DETAIL — 1" = 1'-0" — 13



PLAN DETAIL AT HOLD-DOWN — 1" = 1'-0" — 09

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Scale	As indicated

TYPICAL WOOD FRAMING DETAILS

S6.83

DX AIR HANDLING UNIT SCHEDULE WITH ELECTRIC HEAT

MARK	AREA SERVED	TOTAL AIR FLOW (CFM)	TOTAL OUTSIDE AIR MAX / MIN (CFM)	E.S.P. (IN. W.G.)	AMBIENT AIR (°F)	ELECTRICAL				DX COOLING				ELECTRIC HEAT				TOTAL WEIGHT (LBS)	MFG./ MODEL
						FAN HP	VOLTS/PH/HZ	MCA	MCB	SENSIBLE CAPACITY (BTUH)	TOTAL CAPACITY (BTUH)	EDB/EWB (°F)	LDB/LWB (°F)	TOTAL CAPACITY (BTUH)	VOLTS/PH/HZ	INPUT (KW)	EAT/LAT (°F)		
AHU-1	ADMIN OFFICES, RRS	1,425	130	0.8	105	3 / 4	230 / 1Ø / 60	51	60	34,200	43,700	79.2 / 65.6	55 / 54	48,800	230 / 3Ø / 60	14.4	60.5 / 95	175	TRANE / TEM6B0C60H51
AHU-2	MULTIPURPOSE ROOM	2,500	590 / 190	1.0	105	1.5	230 / 3Ø / 60	105	175	71,600	104,500	82.4 / 68.5	55 / 54	94,100	230 / 3Ø / 60	28	54 / 90	395	TRANE / BCVE090

NOTES APPLY TO ALL UNITS UNLESS NOTED OTHERWISE (U.N.O.):

1. AHU-1: PROVIDE WITH TWO (2) AVERAGING WIRED, WALL-MOUNTED PROGRAMMABLE THERMOSTATS.
2. AHU-2: PROVIDE WITH PROGRAMMABLE, WIRED, WALL-MOUNTED THERMOSTAT, HUMIDISTAT, AND CO2 SENSOR.
3. AHU-2: PROVIDE AIR HANDLER WITH HOT GAS REHEAT.
4. AHU-2: DCV SETPOINT SHALL BE 900 PPM OF CO2 (ADJ.).
5. PROVIDE CONDENSATE PUMP EQUIVALENT TO LITTLE GIANT MODEL VCMA-15.

DX CONDENSING UNIT SCHEDULE

MARK	TOTAL CAPACITY (BTUH)	AMBIENT TEMP (°F)	MAX. SUCT. TEMP (°F)	STAGES	ELECTRICAL			MIN. EFFICIENCY (EER2 / SEER2)	WEIGHT	MFG./ MODEL
					MCA	MCB	VOLTS/ PH/ HZ			
CU-1	53,700	105	45	1	22	35	230 / 3Ø / 60	13 / 17	230	TRANE / 4TTA3060D3
CU-2	120,000	105	45	2	40	50	230 / 3Ø / 60	14.8 / 11.2 (IEER / EER)	430	TRANE / TTA12043CAA

NOTES APPLY TO ALL UNITS UNLESS NOTED OTHERWISE (U.N.O.):

1. PROVIDE WITH MANUFACTURER HAIL GUARDS.
2. PROVIDE WITH 1 YEAR PARTS/LABOR WARRANTY, AND 5-YEAR COMPRESSOR WARRANTY.

D/X MINI-SPLIT SCHEDULE

MARK	CONDENSING UNIT										FAN COIL UNIT							
	TOTAL CAPACITY (BTUH)	ELECTRICAL			COMPRESSOR		CONDENSER		MIN. EFFICIENCY (EER2 / SEER2)	MFG./ MODEL	MARK	ELECTRICAL			COOLING			REFRIGERANT	MFG./ MODEL
		VOLTS/ PH/ HZ	MCA	MCB	NO.	MAX. SUCT. TEMP (°F)	MAX. COND. TEMP (°F)	AMBIENT TEMP (°F)				VOLTS/PH/ HZ	MCA	MCB	TOTAL CAPACITY (BTUH)	EDB/EWB (°F)	LDB/LWB (°F)		
CU-3	9,000	208 / 1Ø / 60	11	28	1	45	115	105	13.3 / 21.3	TRANE / SUZ-KA09NA2	FCU-3	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	9,000	80 / 67	55 / 54	R-410A	TRANE / SLZ-KF09NA
CU-4	17,700	208 / 1Ø / 60	14	24	1	45	115	105	12.5 / 21.0	TRANE / SUZ-KA18NA2	FCU-4	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	19,700	80 / 67	55 / 54	R-410A	TRANE / SLZ-KF18NA1
CU-5	12,000	208 / 1Ø / 60	11	28	1	45	115	105	13.3 / 21.3	TRANE / PUY-A12NKA7	FCU-5	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	12,000	80 / 67	55 / 54	R-410A	TRANE / PKA-A12LA1

NOTES APPLY TO ALL UNITS UNLESS NOTED OTHERWISE (U.N.O.):

1. SINGLE POINT POWER. INDOOR UNIT SHALL BE POWERED BY THE OUTDOOR UNIT.
2. PROVIDE WITH CONDENSASTE PUMP EQUAL TO LITTLE GIANT MODEL VCMA-15.
3. PROVIDE WITH MANUFACTURER HAIL GUARDS AND WIND BAFFLE.
4. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 0°F.
5. PROVIDE WITH 1 YEAR PARTS/LABOR WARRANTY, AND 5-YEAR COMPRESSOR WARRANTY.

FAN SCHEDULE

MARK	AREA SERVED	TYPE	DRIVE TYPE	ESP (IN. W.G.)	TOTAL AIR FLOW (CFM)	RPM	ELECTRICAL		INTERLOCKED WITH	MFG./ MODEL
							HP / W	VOLTS/PH/HZ		
EF-1	T/R 117	CABINET	DIRECT	0.125	70	838	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-2	T/R 115	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-3	T/R 114	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-4	T/R 103	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-5	T/R 106	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-6	T/R 107	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-7	T/R 110	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-12	CATERING KITCHEN	CABINET	DIRECT	0.125	80	838	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-S21	T/R 21	CABINET	DIRECT	0.125	70	838	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-S22	T/R 22	CABINET	DIRECT	0.125	70	838	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-S23	ADA BATHROOM 23	CABINET	DIRECT	0.30	120	981	- 18	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A70
EF-S24	SHOWER 24	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-S25	SHOWER 25	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG
EF-S26	SHOWER 26	CABINET	DIRECT	0.125	50	808	- / 6	120 / 1Ø / 60	LIGHT SWITCH	GREENHECK / SP-A50-90-VG

NOTES APPLY TO ALL FANS UNLESS NOTED OTHERWISE (U.N.O.):

1. FURNISH AND INSTALL WITH BACKDRAFT DAMPER.
2. INTERLOCK WITH LIGHT SWITCH AND TIME DELAY SHUTOFF FOR FIVE MINUTES (ADJ.).

GRAVITY VENT SCHEDULE

MARK	TOTAL AIR FLOW (CFM)	AREA SERVED	THROAT		HOOD		PRESSURE DROP (IN. W.G.)	MFG./ MODEL
			AREA (SQ. FT.)	DIA (IN.)	LENGTH (IN.)	WIDTH (IN.)		
GV-1	420	SHOWERS EXHAUST FANS	0.6	10	20	20	0.06	GREENHECK / GRSR-10

NOTES:

1. PROVIDE GRAVITY VENT WITH MANUFACTERER INSECT/ BIRD SCREEN.
2. PROVIDE IBC COMPLIANT ROOF CURB. VERIFY ROOF SLOPE PRIOR TO ORDERING.

AIR DEVICE SCHEDULE

TAG	AIR FLOW RANGE	SUPPLY	RETURN	EXHAUST	INLET SIZE (IN.)	MODULE SIZE	MATERIAL	MFG./MODEL	REMARKS
A	0-140	X			8X6	10X8	ALUMINUM	PRICE / 600	LOUVERED
B	76 - 150	X			6Ø	12X12	ALUMINUM	PRICE / ASPD	4-WAY
C	151-240	X			8Ø	12X12	ALUMINUM	PRICE / ASPD	4-WAY
D	301 - 450		X		10X10	12X12	ALUMINUM	PRICE / 80	EGGCRATE
E	1,201 - 1,850		X		36X12	38X14	ALUMINUM	PRICE / 630	GRILLE
F	140 - 205	X			8Ø	24X5	ALUMINUM	PRICE / AS w/CFP	1" / 2-SLOT
Z	0 - 120			X	6X4	8X6	STEEL	PRICE / 700	LOUVERED

NOTES APPLY TO ALL DEVICES UNLESS NOTED OTHERWISE (U.N.O.):

1. PROVIDE CORRECT BORDER FOR INSTALLATION TYPE.
2. COORDINATE ALL FINISHES WITH ARCHITECT.
3. TYPE F: PROVIDE VCR6EC CABLE OPERATED DAMPER AND FLAT EXPOSED FRAME MOUNTING.

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Castroville, TX 78009

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City of Castroville

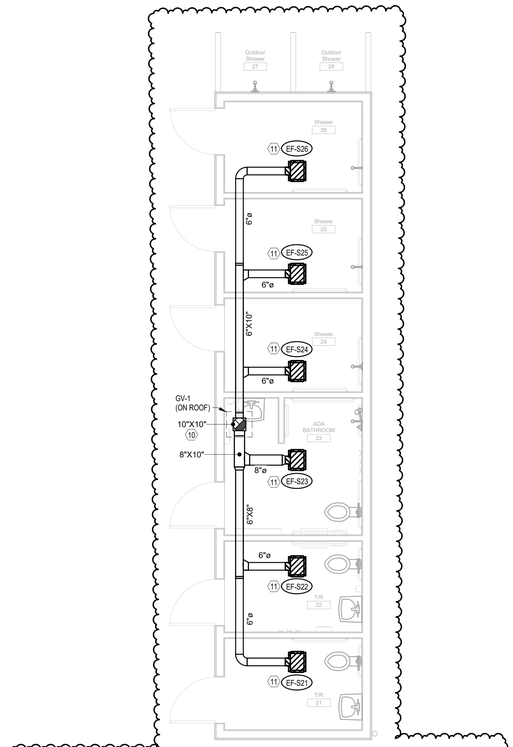
Revision	Date
PR 03	05/11/2026

Submittal	Date
PERMIT SET	04/19/2024

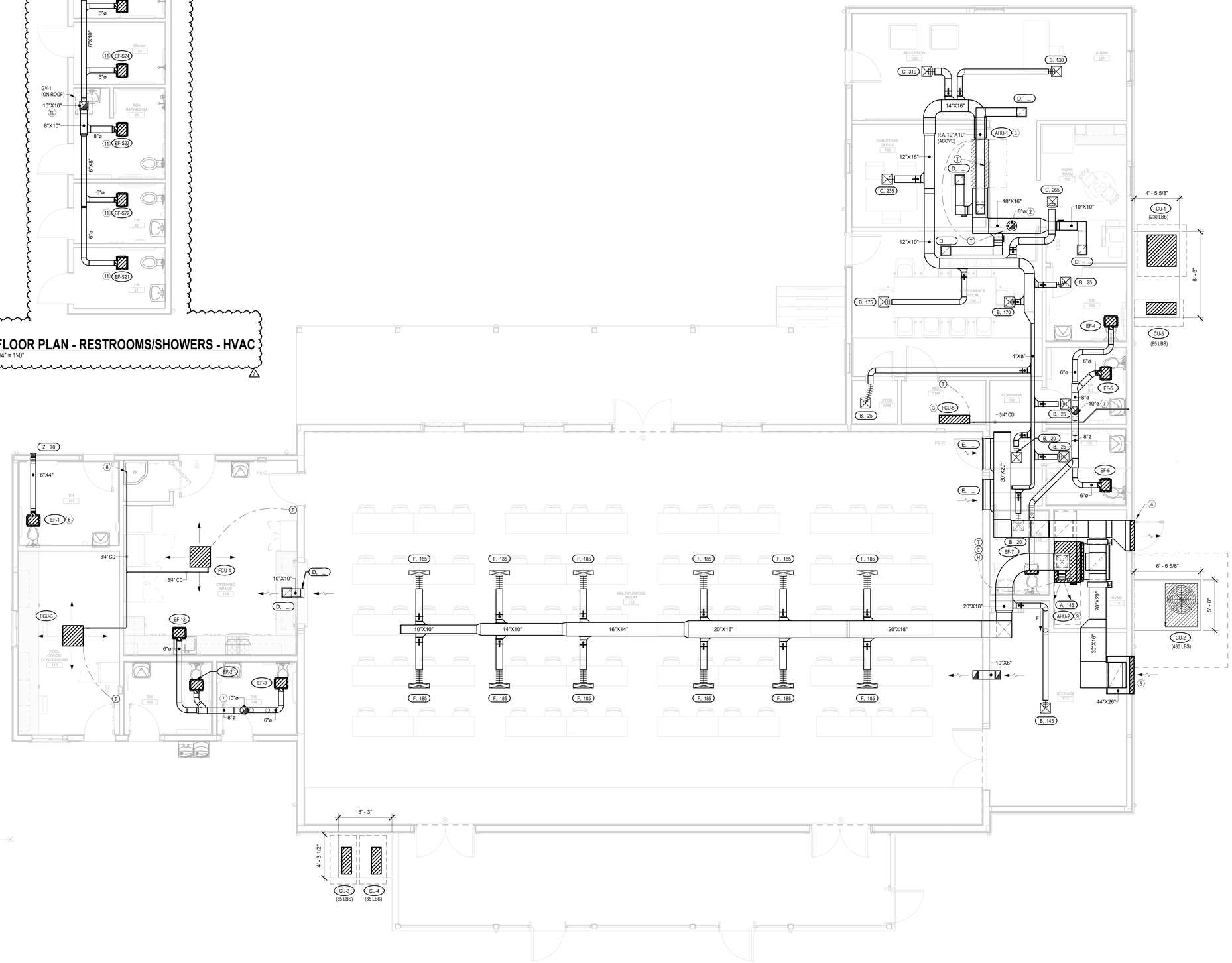
Job Number	31522
Date Published	04/19/2024
Checked By	R.M.S
Scale	

MECHANICAL SCHEDULES

M0.2



2 FLOOR PLAN - RESTROOMS/SHOWERS - HVAC
M1.1 1/4" = 1'-0"



1 FLOOR PLAN - HVAC
M1.1 1/4" = 1'-0"

HVAC GENERAL NOTES:

1. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. MAINTAIN ALL REQUIRED SERVICE CLEARANCES.
3. ALL MECHANICAL EQUIPMENT ABOVE HARD CEILINGS SHALL BE PROVIDED WITH ACCESS PANELS LARGE ENOUGH TO REMOVE EQUIPMENT IN THE FUTURE FOR REPLACEMENT.
4. REFER TO STRUCTURAL DRAWINGS FOR FURTHER INFORMATION REGARDING DIMENSIONED CONCRETE EQUIPMENT PADS.

M1.1 - KEYED NOTES

1 NOT USED.

2 PROVIDE BALANCING DAMPER IN VERTICAL ROUTE OUTSIDE AIR INTAKE THROUGH ROOF AND TERMINATE WITH ROOF CAP EQUAL TO GREENHECK/GRSI-8.

3 PROVIDE WITH CONDENSATE PUMP EQUAL TO LITTLE GIANT MODEL VCMA-15. ROUTE CONDENSATE DRAIN TO TAILPIECE IN WORK ROOM 102.

4 PROVIDE EXHAUST LOUVER WITH BACKDRAFT DAMPER AND MINIMUM OF 3.1 S.F. FREE AREA. COORDINATE FINISH WITH ARCHITECT.

5 PROVIDE INTAKE LOUVER WITH MINIMUM OF 3.5 S.F. FREE AREA. COORDINATE FINISH WITH ARCHITECT.

6 INSTALL EXHAUST FAN TIGHT TO STRUCTURE. ROUTE EXHAUST DUCT TO EXHAUST DEVICE IN SOFFIT.

7 ROUTE EXHAUST DUCT UP THROUGH ROOF AND TERMINATE WITH ROOF CAP EQUAL TO GREENHECK/GRSR-10.

8 ROUTE CONDENSATE TO MOPSINK. TERMINATE INDIRECTLY ABOVE THE MOP SINK. INSULATE PER SPECIFICATIONS.

9 PROVIDE WITH CONDENSATE PUMP EQUAL TO LITTLE GIANT MODEL VCMA-15. ROUTE CONDENSATE DRAIN TO TAILPIECE IN TR 109.

10 10" X 10" TRANSITION TO 10" ROUND EXHAUST DUCT UP TO GRAVITY VENT ON ROOF.

11 PROVIDE CEILING MOUNTED EXHAUST FAN AS SCHEDULED. PROVIDE EXHAUST FAN WITH CEILING MOUNTED GRILLE AND BACKDRAFT DAMPER.

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Scale	As indicated

FLOOR PLAN - HVAC

M1.1

PLUMBING LEGEND

(NOTE: ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON DRAWINGS)

VALVES

- PNEUMATIC ACTUATED TWO-WAY VALVE
- PNEUMATIC ACTUATED THREE-WAY VALVE
- UNION
- ORIFICE FLANGE
- BUTTERFLY VALVE
- TEMPERATURE/ PRESSURE RELIEF VALVE
- CHECK VALVE
- GATE VALVE
- GATE VALVE IN C.I. VALVE BOX
- MANUAL PRESSURE RELIEF VALVE
- STRAINER W/ BLOWDOWN GATE VALVE
- THERMOWELL W/ THERMOMETER
- THERMOMETER WELL
- PRESSURE GAUGE W/ GAUGE COCK (PI)
- EXTERIOR 2-WAY FLOOR CLEANOUT IN CONCRETE PAD
- EXTERIOR FLOOR CLEANOUT IN CONCRETE PAD
- FLOOR CLEANOUT (FCO)
- WALL CLEANOUT (WCO)
- P - TRAP
- FLANGE CONNECTION
- DROP AT 45° ANGLE
- ELBOW TURNING DOWN
- ELBOW TURNING UP
- CAPPED PIPE
- PIPE SLEEVE
- DIRECTION OF SLOPE (DNWARD) (SLOPE)
- FLOOR DRAIN (FD)
- FLOOR SINK 1/2 GRATE
- SANITARY WASTE OR VENT STACK (P / 1)
- WASTE OR VENT NO.
- BALL VALVE
- CIRCUIT SETTER, BALANCING VALVE
- VALVE IN VERTICAL

SYMBOL LEGEND

PIPING

- DOMESTIC COLD WATER (POTABLE)
- DOMESTIC HOT WATER (POTABLE)
- DOMESTIC HOT WATER RETURN (POTABLE)
- CONDENSATE DRAIN (D)
- NON-POTABLE WATER (NPW)
- SANITARY VENT
- SANITARY WASTE
- DIRECTION OF FLOW
- WATER HAMMER ARRESTOR

NOTES

PLUMBING GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
2. REFER TO ARCHITECTURAL DRAWING FOR MOUNTING HEIGHT OF PLUMBING FIXTURES.
3. CONTRACTOR SHALL REVIEW AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
4. CONTRACTOR SHALL COORDINATE WITH ALL TRADES DURING CONSTRUCTION.
5. SLOPE ALL 2-INCH WASTE PIPING AT 1/4" PER FOOT AND 3-INCH AND LARGER WASTE PIPING AT 1/8" PER FOOT.
6. REFER TO ARCHITECTURAL ELEVATION AND SECTIONS PRIOR TO ROUTING OF PIPING.
7. PLUMBING INSTALLER SHALL VERIFY ALL ROUGH-IN WITH KITCHEN EQUIPMENT.
8. INSTALL FLUSH LEVER HANDLES ON OPEN SIDE OF ADA WATER CLOSET STALLS.

ABBREVIATION

ABBREVIATION	DESCRIPTION
AC	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ARCH	ARCHITECT
BAL VA	CIRCUIT SETTER BALANCING VALVE
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BTUH	BRITISH THERMAL UNITS PER HOUR
B VA	BALL VALVE
BF	BELOW FLOOR
CAP	CAPACITY
CFH	CUBIC FEET PER HOUR
CH VA	CHECK VALVE
CI	CAST IRON
CO	CLEANOUT
CONC	CONCRETE
COND	CONDENSING
CONN	CONNECTION
CONT	CONTINUATION
CU	COPPER
CW	DOMESTIC COLD WATER (POTABLE)
C VA	CONTROL VALVE
D	CONDENSATE DRAIN LINE
DIA	DIAMETER
DIV	DIVISION
DN	DOWN
DWGS	DRAWINGS
DI	DUCTILE IRON
EFFIC	EFFICIENCY
ELEC	ELECTRICAL
EOD	EMERGENCY OVERFLOW DRAIN
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXT	EXTERIOR
EXT	EXTERNAL
F	DEGREES FAHRENHEIT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FIN	FINISHED
FLEX	FLEXIBLE
FLR	FLOOR
FT	FEET
F/SD	COMBINATION FIRE/ SMOKE DAMPER
G	NATURAL GAS
GALV	GALVANIZED
GA	GAUGE
GL VA	GLOBE VALVE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GT VA	GATE VALVE
HP	HORSEPOWER
HR	HOUR
HW	DOMESTIC HOT WATER (140F)
HWR	HEATING WATER RETURN
HWRP	HOT WATER RECIRCULATING PUMP
HWS	HEATING WATER SUPPLY
HZ	HERTZ

ABBREVIATION	DESCRIPTION
IN	INCHES
IE	INVERT ELEVATION
KW	KILOWATTS
LB	POUNDS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MTD	MOUNTED
MTR	MOTOR
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
OS&Y	OUTSIDE STEM & YOKE
OC	ON CENTERS
OH	OVERHEAD
PD	PRESSURE DROP
PH	PHASE
PLBG	PLUMBING
PR VA	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RED	REDUCER
RE:	REFERENCE
RH	RELATIVE HUMIDITY
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
RPM	REVOLUTIONS PER MINUTE
SAN	SOIL & WASTE (ABOVE GRADE)
SCH	SCHEDULE
SD	STORM DRAIN
SIM	SIMILAR
SPKR	SPRINKLER
SQ FT	SQUARE FEET
SS	STAINLESS STEEL
SS	SUPERVISORY SWITCH
STL	STEEL
STRUC	STRUCTURAL
TI	TEMPERATURE INDICATOR (THERMOMETER)
TOT	TOTAL
TYP	TYPICAL
T&P	TEMPERATURE & PRESSURE RELIEF VALVE
UON	UNLESS OTHERWISE NOTED
V	SANITARY VENT
VD	VOLUME DAMPER
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
W/	WITH

PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	DESCRIPTION	CONNECTION SIZE (IN.) CW	HW	WASTE	VENT	REMARKS
WC-1	WATERCLOSET	1 1/2	-	4	2	FLOOR MOUNTED, FLUSHVALVE, ADA COMPLIANT
LAV-1	LAVATORY	1/2	1/2	2	2	WALL HUNG
LAV-2	LAVATORY	1/2	1/2	2	2	WALL HUNG
LAV-3	HAND SINK	1/2	1/2	2	2	WALL HUNG, STAINLESS STEEL
SK-1	SINK	1/2	1/2	-	-	STAINLESS STEEL, SELF RIMMING, ADA COMPLIANT
SH-1	SHOWER	1/2	1/2	-	-	SHOWER
SH-2	SHOWER	1/2	1/2	-	-	ADA SHOWER
EDF-1	ELECTRIC DRINKING FOUNTAIN	1/2	-	2	2	ELECTRIC DRINKING FOUNTAIN W/BOTTLE FILLER
WB-1	WALL BOX	1/2	-	-	-	REFRIGERATOR ICE MAKER SUPLLY BOX
HB-1	HOSE BIBB	1/2	-	-	-	TOILET ROOMS
WH-1	WALL HYDRANT	3/4	-	-	-	EXTERIOR NON-FREEZE
FD-1	FLOOR DRAIN	-	-	-	-	FINISHED AREA, SEE FLOOR PLAN FOR SIZES

HOT WATER RECIRCULATING PUMP SCHEDULE

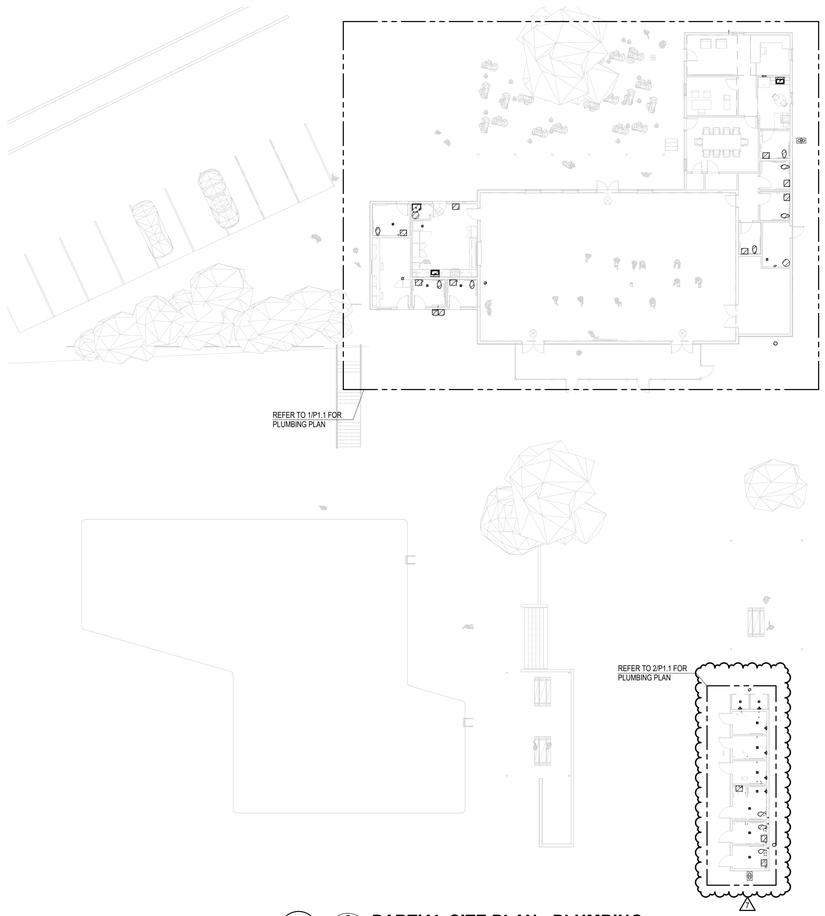
MARK	DESCRIPTION	HP	HD. FT.	GPM	RPM	VOLTS/ PH	REMARKS
HWRP-1	HOT WATER RETURN	1/12	10	2	2950	208/1Ø	B & G NO. LR-15BWR
-	-	-	-	-	-	-	-

INSTANTANEOUS ELECTRIC WATER HEATER SCHEDULE

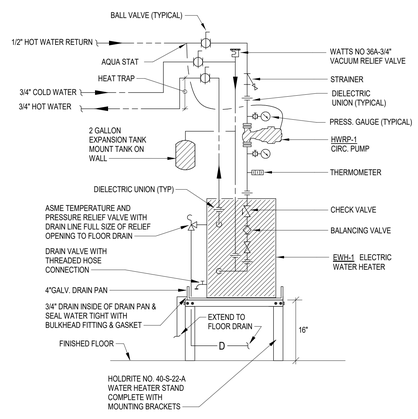
MARK	SERVING	KW	VOLTS / PH PHASE	MIN. ACTIVATION FLOW RATE (GPM)	REMARKS
IEWH-1	SHOWER	21.6	208 / 1ø	0.87	STEIBEL ELTRON, TEMPRA 29/29 PLUS
IEWH-2	SHOWER	14.4	208 / 1ø	0.58	STEIBEL ELTRON, TEMPRA 20/20 PLUS
IEWH-3	SHOWER	21.6	208 / 1ø	0.87	STEIBEL ELTRON, TEMPRA 29/29 PLUS

ELECTRIC WATER HEATER SCHEDULE

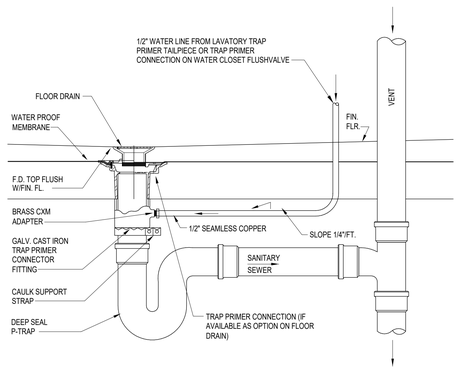
MARK	RECOVER GPH AT 80°F RISE	KW	VOLTS/ PHASE	STORAGE CAPACITY (GALLONS)	REMARKS
EWH-1	15	3	208/1Ø	30	RHEEM MODEL NO EGSP30
EWH-2	15	3	208/1Ø	30	RHEEM MODEL NO EGSP30



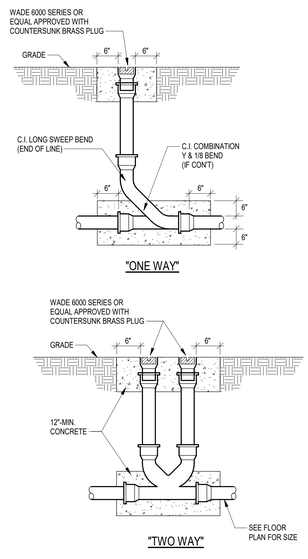
6 P0.1 **PARTIAL SITE PLAN - PLUMBING** 1/16" = 1'-0"



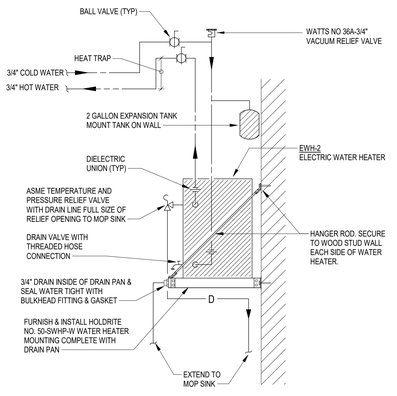
1 P0.1 **DOMESTIC WATER HEATER W/RECIR PUMP** NOT TO SCALE



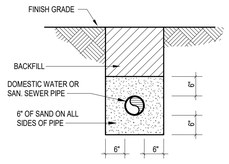
2 P0.1 **TRAP PRIMER DETAIL** NOT TO SCALE



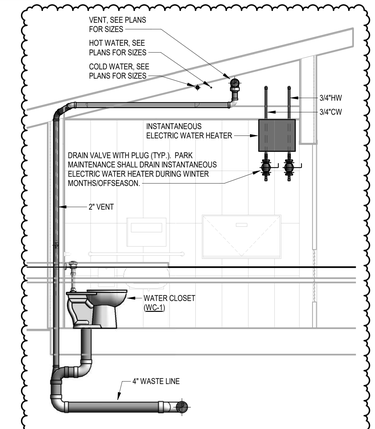
3 P0.1 **YARD CLEANOUT DETAIL** NOT TO SCALE



4 P0.1 **DOMESTIC WATER HEATER** NOT TO SCALE



5 P0.1 **PIPE IN TRENCH DETAIL** NOT TO SCALE



7 P0.1 **SECTION AT ADA BATHROOM 23** NOT TO SCALE

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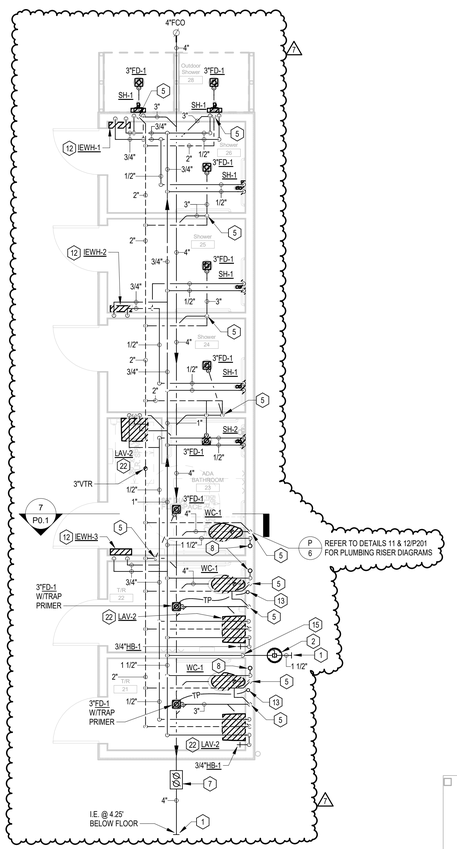
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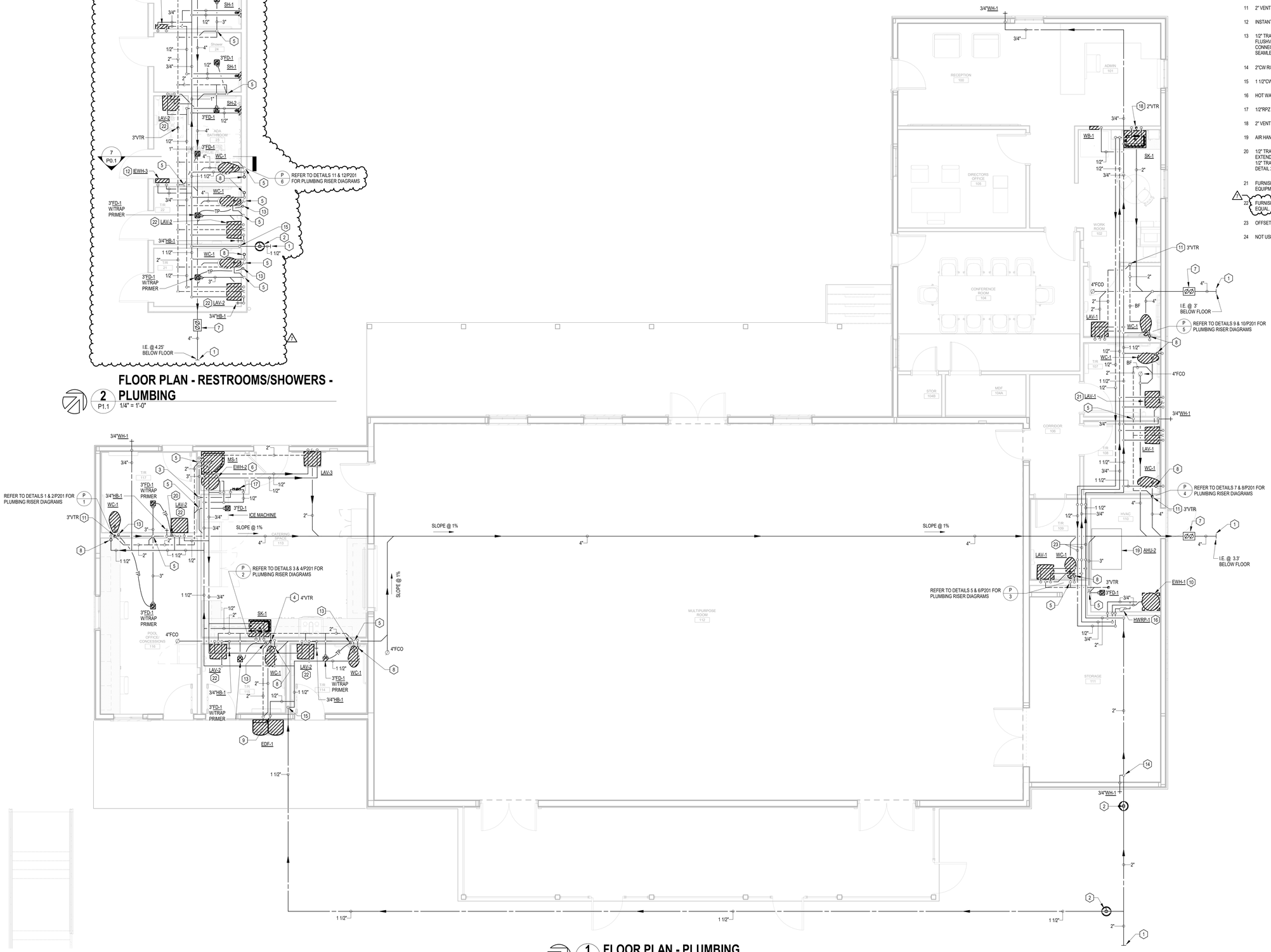
PLUMBING SYMBOLS LEGEND

P0.1



FLOOR PLAN - RESTROOMS/SHOWERS - PLUMBING

2 P1.1 1/4" = 1'-0"



FLOOR PLAN - PLUMBING

1 P1.1 1/4" = 1'-0"

P1.1 KEYED NOTES

1 REFER TO CIVIL FOR CONT.

2 VALVE IN VALVE BOX W/C.I. COVER.

3 FURNISH & INSTALL BALL VALVE PRIOR TO CONNECTING TO ICE MACHINE.

4 4" VENT RISE FROM BELOW FLOOR EXTEND TO 4"VTR.

5 2" VENT RISE FROM BELOW FLOOR EXTEND TO ABOVE CEILING/OVERHEAD.

6 ELECTRIC WATER HEATER MOUNT ON WALL OVERHEAD. REFER TO DETAIL 4/P0.1.

7 2-WAY EXTERIOR CLEANOUT IN CONCRETE PAD. CLEANOUT COVER & PAD SHALL BE FLUSH W/FINISH GRADE. REFER TO DETAIL 3/P0.1.

8 PDI SIZE 'A' SHOCK ARRESTOR WITH ACCESS PANEL.

9 OFFSET 1/2"CW LINE IN WALL ON WARM SIDE TO ELECTRIC DRINKING FOUNTAIN.

10 ELECTRIC WATER HEATER MOUNT ON FLOOR. REFER TO DETAIL 1/P0.1.

11 2" VENT RISE FROM BELOW FLOOR EXTEND TO 3"VTR.

12 INSTANTANEOUS ELECTRIC WATER HEATER MOUNT ON WALL OVERHEAD.

13 1/2" TRAP PRIMER LINE FROM TRAP PRIMER CONNECTION ON WATER CLOSET'S FLUSHVALVE TAILPIECE EXTEND TO BELOW FLOOR & ROUTE TO TRAP PRIMER CONNECTION ON FLOOD DRAIN. 1/2" TRAP PRIMER LINE BELOW FLOOR SHALL BE 1/2" SEAMLESS COPPER. REFER TO DETAIL 2/P0.1.

14 2"CW RISE FROM BELOW FLOOR EXTEND TO ABOVE CEILING/OVERHEAD.

15 1 1/2"CW RISE FROM BELOW FLOOR & EXTEND TO ABOVE CEILING/OVERHEAD.

16 HOT WATER RECIRC. PUMP. REFER TO DETAIL 1/P0.1.

17 1/2"RPZ BACKFLOW PREVENTER FOR ICE MACHINE MOUNT AT 4'AFF.

18 2" VENT RISE TO 2"VTR.

19 AIR HANDLING UNIT. REFER TO HVAC DRAWINGS.

20 1/2" TRAP PRIMER LINE FROM TRAP PRIMER CONNECTION ON LAVATORY'S TAILPIECE EXTEND TO BELOW FLOOR & ROUTE TO TRAP PRIMER CONNECTION ON FLOOD DRAIN. 1/2" TRAP PRIMER LINE BELOW FLOOR SHALL BE 1/2" SEAMLESS COPPER. REFER TO DETAIL 2/P0.1.

21 FURNISH & INSTALL CONDENSATE TAILPIECE ON LAVATORY DRAIN FOR HVAC EQUIPMENT CONDENSATE DRAIN.

22 FURNISH & INSTALL AN ASSE 1070 MIXING VALVE. BRADLEY NO. S59-4016 OR APPROVED EQUAL

23 OFFSET WATER LINES ABOVE DUCT WORK.

24 NOT USED

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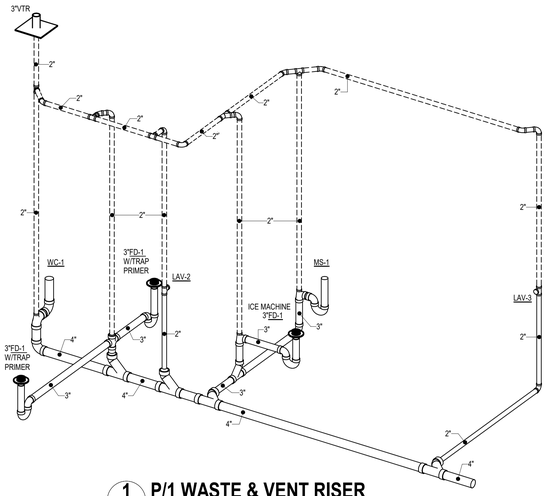
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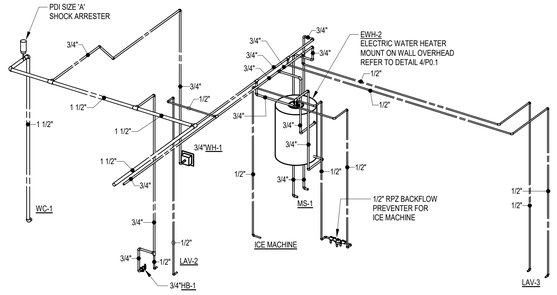
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Scale	1/4" = 1'-0"

FLOOR PLAN - PLUMBING

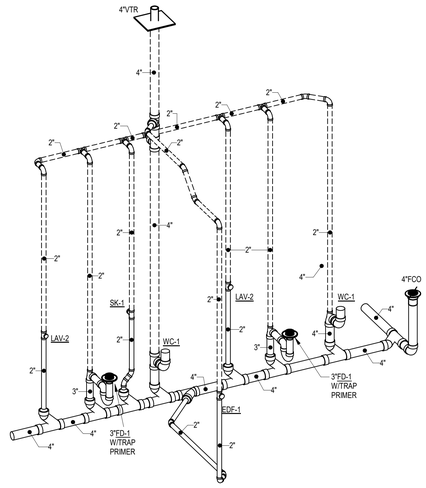
P1.1



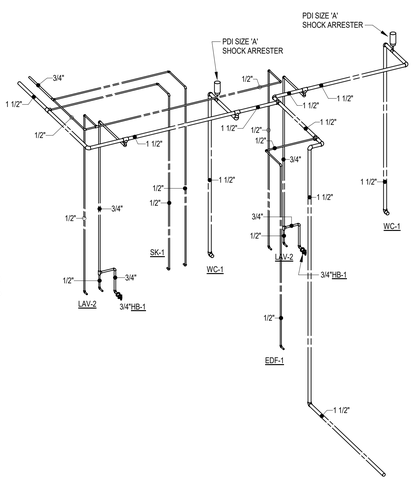
1 P2.1 **P/1 WASTE & VENT RISER**



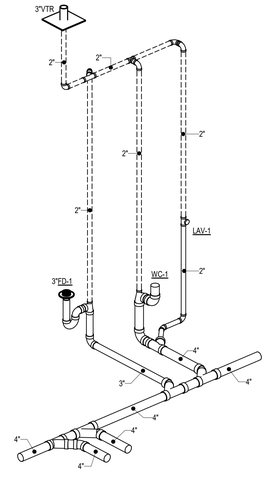
2 P2.1 **P/1 HOT & COLD WATER RISER**



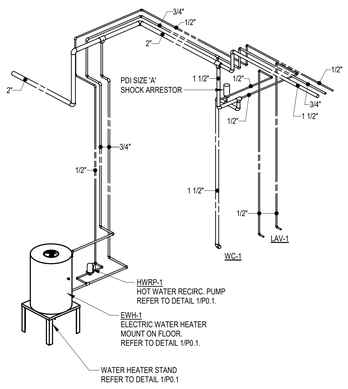
3 P2.1 **P/2 WASTE & VENT RISER**



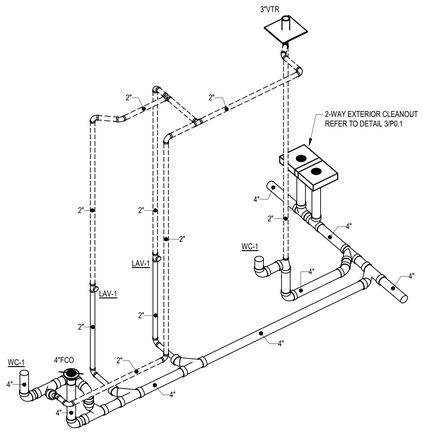
4 P2.1 **P/2 HOT & COLD WATER RISER**



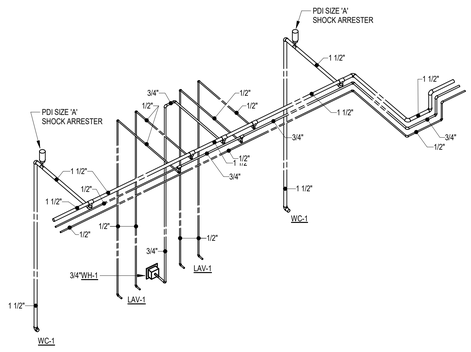
5 P2.1 **P/3 WASTE & VENT RISER**



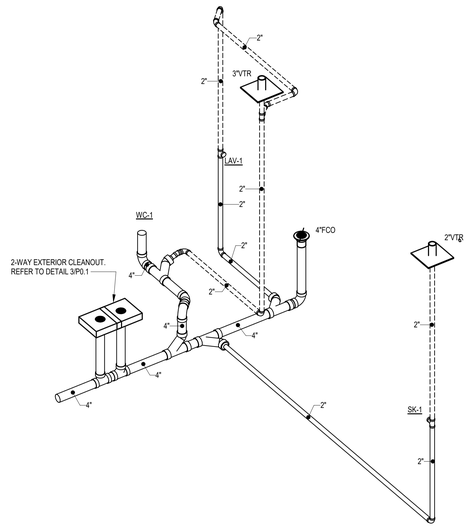
6 P2.1 **P/3 HOT & COLD WATER RISER**



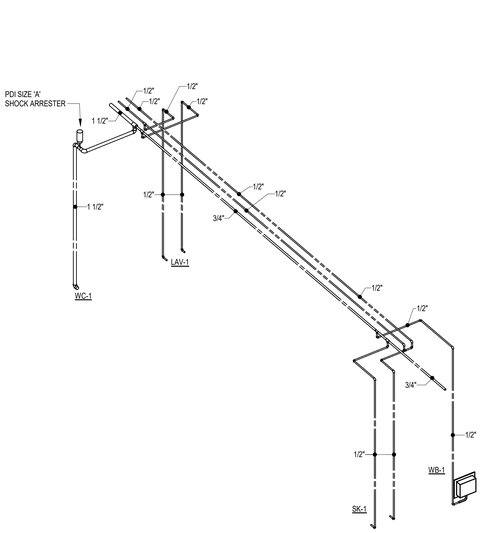
7 P2.1 **P/4 WASTE & VENT RISER**



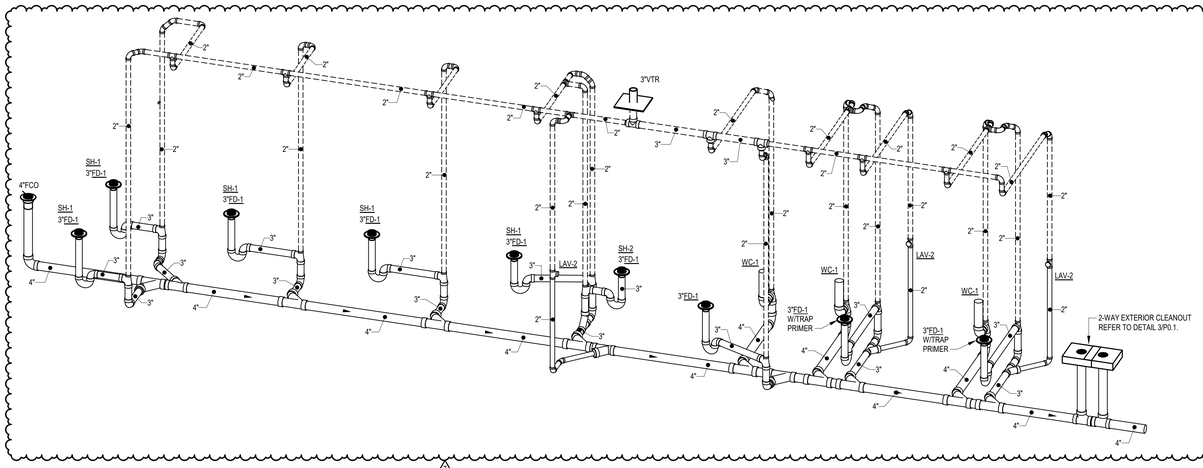
8 P2.1 **P/4 HOT & COLD WATER RISER**



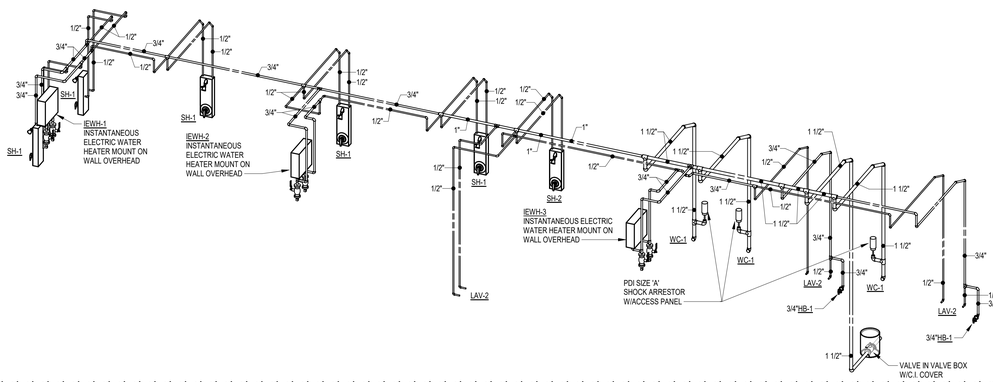
9 P2.1 **P/5 WASTE & VENT RISER**



10 P2.1 **P/5 HOT & COLD WATER RISER**



⚠1 11 P2.1 **P/6 WASTE & VENT RISER**



⚠1 12 P2.1 **P/6 HOT & COLD WATER RISER**

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PLUMBING RISERS

P2.1

KEYED NOTES - E0.2

1 APPROXIMATE LOCATION OF EXISTING SERVICE POLE.

2 APPROXIMATE LOCATION OF EXISTING POOL EQUIPMENT PANEL. PANEL NOT ON COMMUNITY BUILDING SERVICE.

3 PROVIDE A 208/120V 3P PANEL FOR POWER TO THE OUTDOOR RESTROOMS. REFER TO THE ONE LINE DIAGRAM ON E2.1 FOR ADDITIONAL INFORMATION.

4 OVERHEAD ELECTRICAL TO NEW SERVICE ENTRANCE. OVERHEAD LINES INSTALLED BY THE UTILITY COMPANY.

5 2#6 AND 1#10 GND. IN 3/4"C.

6 EXHAUST FAN CONTROL SWITCH TO BE INTERLOCKED WITH LIGHT SWITCH. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

7 ELECTRICAL CONNECTIONS TO INSTANTANEOUS ELECTRIC WATER HEATER, 208VOLT, 1-PHASE. PROVIDE A HEAVY DUTY 240VAC, 60AMP, NEMA 3R, NON-FUSED DISCONNECT SWITCH. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.

8 FURNISH AND INSTALL FEEDER CONDUITS ROUTED FROM PANEL A TO SERVE THE OUTDOOR RESTROOMS. REFER TO THE ONE LINE DIAGRAM ON E2.1 FOR ADDITIONAL INFORMATION.

9 CONNECT EXISTING PAVILION PANEL TO PANEL S. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.

10 CONNECT NEW LIGHT POLE TO EXISTING LIGHTING CIRCUIT AND CONTROLS THAT SERVE THE EXISTING LIGHT POLES.

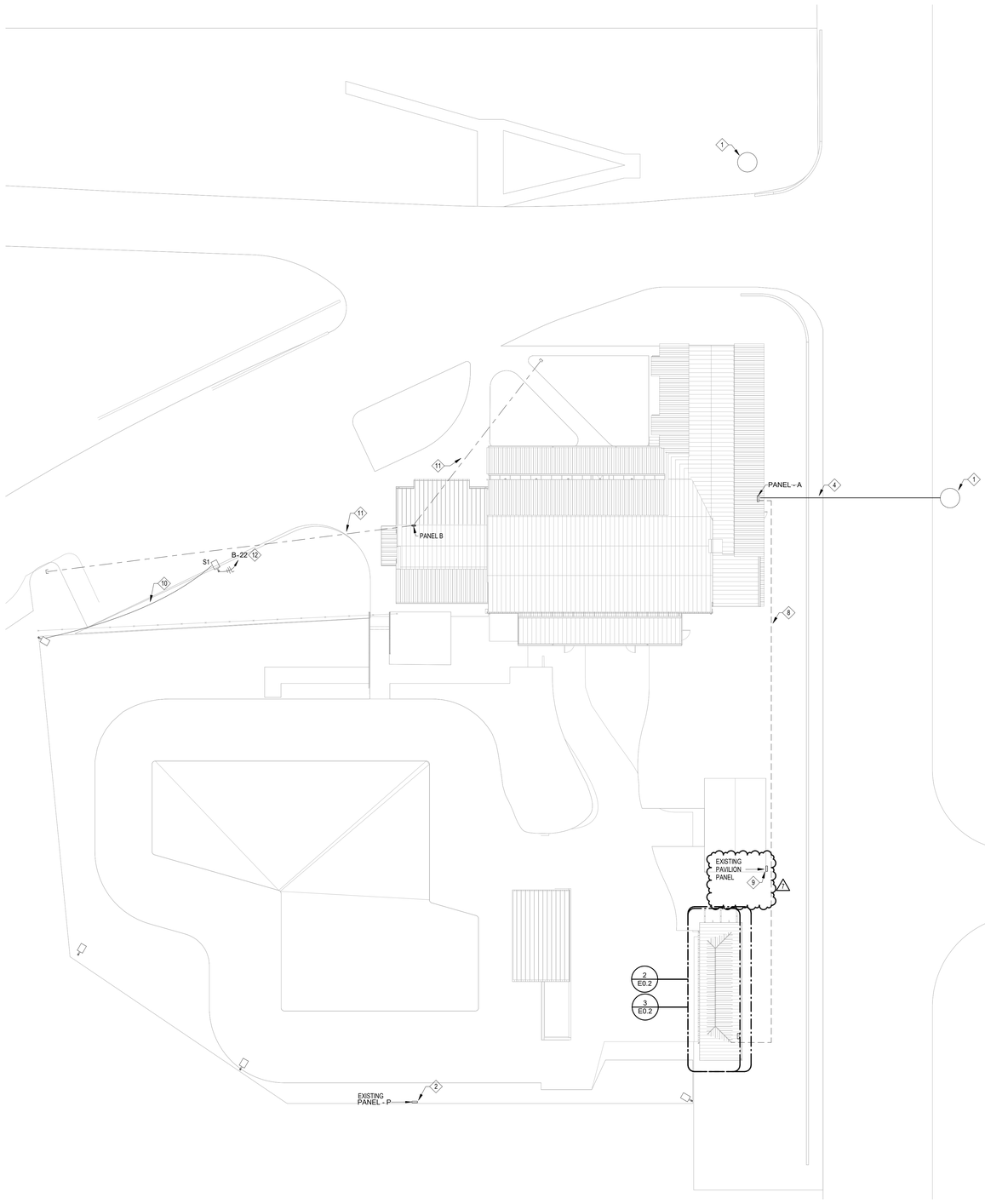
11 ROUTE 1-1/2" EMPTY CONDUIT WITH PULL STRING FROM PANEL B FOR FUTURE LANDSCAPE LIGHTING. CONFIRM LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

12 2#10 AND 1#10 GND. IN 1/2"C.

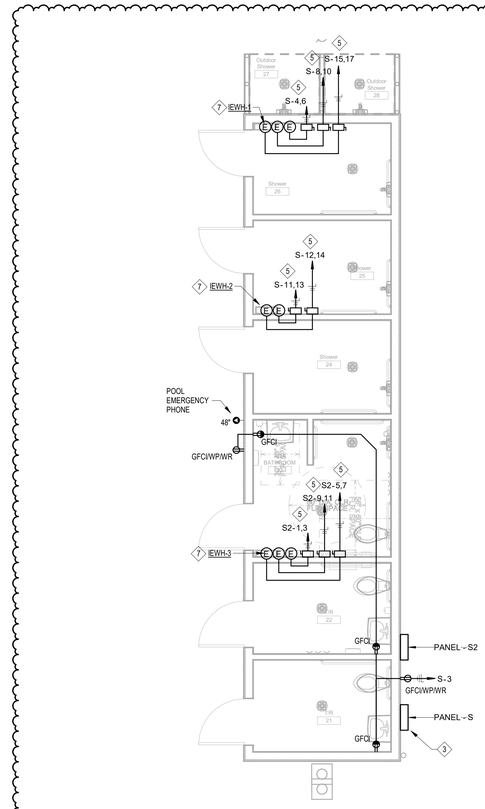
13 ELECTRICAL CONNECTION TO EXHAUST FAN, 120VOLT.

14 PROVIDE A PHOTOCELL ON THE ROOF FACING NORTH.

15 ROUTE TO PANEL VIA PHOTOCELL.



1 SITE PLAN - ELECTRICAL
E0.2 1/16" = 1'-0"



2 FLOOR PLAN - RESTROOMS - POWER
E0.2 1/4" = 1'-0"

3 FLOOR PLAN - RESTROOMS - LIGHTING
E0.2 1/4" = 1'-0"

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SITE PLAN - ELECTRICAL

E0.2

COPPER FEEDER SCHEDULE

FEEDER SYMBOL	# OF SETS	CONDUCTORS	CONDUIT SIZE	FEEDER SYMBOL	# OF SETS	CONDUCTORS	CONDUIT SIZE
20Y	1	4#12 & 1#12 G	3/4"	20D	1	3#12 & 1#12 G	3/4"
30Y	1	4#10 & 1#10 G	3/4"	30D	1	3#10 & 1#10 G	3/4"
40Y	1	4#8 & 1#10 G	3/4"	40D	1	3#8 & 1#10 G	3/4"
50Y	1	4#6 & 1#10 G	1"	50D	1	3#6 & 1#10 G	3/4"
60Y	1	4#6 & 1#10 G	1"	60D	1	3#6 & 1#10 G	1"
70Y	1	4#4 & 1#8 G	1 1/4"	70D	1	3#4 & 1#8 G	1 1/4"
80Y	1	4#3 & 1#8 G	1 1/4"	80D	1	3#3 & 1#8 G	1 1/4"
90Y	1	4#2 & 1#8 G	1 1/2"	90D	1	3#2 & 1#8 G	1 1/2"
100Y	1	4#1 & 1#6 G	1 1/2"	100D	1	3#1 & 1#8 G	1 1/4"
125Y	1	4#1/0 & 1#6 G	2"	125D	1	3#1/0 & 1#6 G	1 1/2"
150Y	1	4#1/0 & 1#6 G	2"	150D	1	3#1/0 & 1#6 G	1 1/2"
175Y	1	4#2/0 & 1#6 G	2"	175D	1	3#2/0 & 1#6 G	2"
200Y	1	4#3/0 & 1#6 G	2"	200D	1	3#3/0 & 1#6 G	2"
225Y	1	4#4/0 & 1#4 G	2 1/2"	225D	1	3#4/0 & 1#4 G	2"
250Y	1	4-250KCM & 1#4 G	2 1/2"	250D	1	3-250KCM & 1#4 G	2 1/2"
300Y	1	4-350KCM & 1#4 G	3"	300D	1	3-350KCM & 1#4 G	2 1/2"
350Y	1	4-500KCM & 1#3 G	3 1/2"	350D	1	3-500KCM & 1#3 G	3 1/2"
400Y	1	4-600KCM & 1#3 G	4"	400D	1	3-600KCM & 1#3 G	3 1/2"
450Y	2	4#4/0 & 1#2 G	2 1/2"	450D	2	3#4/0 & 1#2 G	2 1/2"
500Y	2	4-250KCM & 1#2 G	2 1/2"	500D	2	3-250KCM & 1#2 G	2 1/2"
600Y	2	4-350KCM & 1#1 G	3"	600D	2	3-350KCM & 1#1 G	3"

LOAD SUMMARY - PANEL A
208/120V 3P 4W 600A

LOAD DESCRIPTION	LOAD (KVA)	DEMAND FACTOR (%)	DEMAND LOAD (KVA)
LIGHTING LOAD	4.52	NEC 220.42(B)	5.65
RECEPTACLE LOAD	33.82	NEC 220.47	21.91
HVAC LOAD	67.46	(100)	67.46
WATER HEATER LOAD	64.24	(100)	64.24
TOTAL LOAD	170.04 KVA		159.26 KVA
	471.98 A		442.06 A

PANEL: S

Location: SHOWER BUILDING
Supply From: PANEL A
Mounting: SURFACE
Enclosure: NEMA 3R
Volts: 208/120 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 42K (3)
Mains Type: MCB
Mains Rating: 225A
MCB Rating: 150A

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	LIGHTING - EXTERIOR	20 A	1	33 VA	419 VA					1	20 A	LIGHTING/EF S21-S26 (35VA/EACH)	2
3	5-RECEPTS	20 A	1			900 VA	3640 VA			2	50 A	IEWH-1 (35A)	4
5	SPARE	20 A	1					0 VA	3640 VA	--	--	--	6
7	PAVILION PANEL	50 A	2	540 VA	3640 VA					2	50 A	IEWH-1 (35A)	8
9	--	--	--			360 VA	3640 VA			--	--	--	10
11	IEWH-2 (35A)	50 A	2					3640 VA	3640 VA	2	50 A	IEWH-2 (35A)	12
13	--	--	--	3640 VA	3640 VA					--	--	--	14
15	IEWH-1 (35A)	50 A	2			3640 VA	0 VA			1	20 A	SPARE	16
17	--	--	--					3640 VA	0 VA	1	20 A	SPARE	18
19	SPACE	--	1	--	--					1	--	SPACE	20
21	SPACE	--	1			--	--			1	--	SPACE	22
23	SPACE	--	1					--	--	1	--	SPACE	24
25	SPACE	--	1	--	--					1	--	SPACE	26
27	SPACE	--	1			--	--			1	--	SPACE	28
29	SPACE	--	1					--	--	1	--	SPACE	30
			Total Load:	11.91 kVA		12.18 kVA		14.56 kVA					
			Total Amps:	99 A		102 A		122 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	209 VA	100.00%	209 VA		
Lighting (NEC 220.42(B))	243 VA	125.00%	304 VA	**Total Conn. Load:**	38652 VA
Receptacle (NEC 220.47)	900 VA	100.00%	900 VA	**Total Est. Demand:**	38713 VA
Water Heater	36400 VA	100.00%	36400 VA	**Total Conn. Current:**	107 A
				Total Est. Demand Current:	107 A

PANEL: S2

Location: SHOWER BUILDING
Supply From: PANEL A
Mounting: SURFACE
Enclosure: NEMA 3R
Volts: 208/120 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 42K (3)
Mains Type: MCB
Mains Rating: 100A
MCB Rating: 100A

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	IEWH-3 (35A)	50 A	2	3640 VA	0 VA					1	20 A	SPARE	2
3	--	--	--			3640 VA	0 VA			1	20 A	SPARE	4
5	IEWH-3 (35A)	50 A	2					3640 VA	0 VA	1	20 A	SPARE	6
7	--	--	--	3640 VA	0 VA					1	20 A	SPARE	8
9	IEWH-3 (35A)	50 A	2			3640 VA	0 VA			1	20 A	SPARE	10
11	--	--	--					3640 VA	0 VA	1	20 A	SPARE	12
13	SPACE	--	1	--	--					1	--	SPACE	14
15	SPACE	--	1			--	--			1	--	SPACE	16
17	SPACE	--	1					--	--	1	--	SPACE	18
19	SPACE	--	1	--	--					1	--	SPACE	20
21	SPACE	--	1			--	--			1	--	SPACE	22
23	SPACE	--	1					--	--	1	--	SPACE	24
25	SPACE	--	1	--	--					1	--	SPACE	26
27	SPACE	--	1			--	--			1	--	SPACE	28
29	SPACE	--	1					--	--	1	--	SPACE	30
			Total Load:	7.28 kVA		7.28 kVA		7.28 kVA					
			Total Amps:	61 A		61 A		61 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Water Heater	21840 VA	100.00%	21840 VA		
				Total Conn. Load:	21840 VA
				Total Est. Demand:	21840 VA
				Total Conn. Current:	61 A
				Total Est. Demand Current:	61 A

KEYED NOTES - E2.1

1. PROVIDE A GFCI CIRCUIT BREAKER.
2. PANELBOARD SHALL BE UL LISTED AND LABELED AS SERVICE ENTRANCE EQUIPMENT.
3. AVAILABLE SHORT CIRCUIT FAULT CURRENT SHALL BE COORDINATED WITH LOCAL UTILITY COMPANY.

PANEL: A

Location: EXTERIOR
Supply From: SERVICE
Mounting: SURFACE
Enclosure: NEMA 3R
Volts: 208/120 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 42K (3)
Mains Type: MCB
Mains Rating: 600A
MCB Rating: 600A

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	PRINTER - WORK ROOM 102	20 A	1	300 VA	812 VA					1	20 A	LIGHTING	2
3	REFRIGERATOR - WORK RM 102	20 A	1			500 VA	900 VA			1	20 A	RECEPTACLE - RM 102, 103, 104	4
5	EXTERIOR RECEPTACLE	20 A	1					540 VA	900 VA	1	20 A	RECEPT - RM 19, 104, 106, 107, 110	6
7	RECEPTACLE - RM 104, 109, 112	20 A	1	1260 VA	720 VA					1	20 A	QUAD RECEPTACLE - ADMIN 101	8
9	QUAD RECEPTACLE - MDF 104	20 A	1			720 VA	1123 VA			2	25 A	CU-5	10
11	FLOOR RECEPT - MULTIPURPOSE 112	20 A	1					1080 VA	1123 VA	--	--	--	12
13	CEILING RECEPT - MULTIPURPOSE	20 A	1	720 VA	3120 VA					2	45 A	AHU-1	14
15	EWH-1, HWRP-1	20 A	2			1630 VA	3120 VA			--	--	--	16
17	--	--	--					1630 VA	1650 VA	2	30 A	30A RECEPTACLE - MDF 104A	18
19	FLOOR RECEPT - MULTIPURPOSE 112	20 A	1	1080 VA	1650 VA					--	--	--	20
21	CEILING RECEPT - MULTIPURPOSE	20 A	1			720 VA	1080 VA			1	20 A	RECEPT - STORAGE_MULTIPURPOSE	22
23	QUAD RECEPTACLE - MDF 104	20 A	1					720 VA	720 VA	1	20 A	EF-4/EF-5/EF-6/EF-7	24
25	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	26
27	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	28
29	RECEPTACLE - RECEPT, DIR. OFFICE	20 A	1			1080 VA	0 VA			1	20 A	SPARE	30
31	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	32
33	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	34
35	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	36
37	SPACE	--	1	--	--					1	--	SPACE	38
39	SPACE	--	1			--	--			1	--	SPACE	40
41	SPACE	--	1					--	--	1	--	SPACE	42
43	AHU-2	175 A	3	11323 VA	7280 VA					3	100 A	PANEL S2	44
45	--	--	--			11323 VA	7280 VA			--	--	--	46
47	--	--	--					11323 VA	7280 VA	--	--	--	48
49	PANEL B	100 A	3	9252 VA	1874 VA					3	35 A	CU-1	50
51	--	--	--			10360 VA	1874 VA			--	--	--	52
53	--	--	--					9300 VA	1874 VA	--	--	--	54
55	PANEL S	150 A	3	11912 VA	4360 VA					3	50 A	CU-2	56
57	--	--	--			12180 VA	4360 VA			--	--	--	58
59	--	--	--					14560 VA	4360 VA	--	--	--	60
			Total Load:	55.66 kVA		57.16 kVA		58.14 kVA					
			Total Amps:	464 A		478 A		486 A					

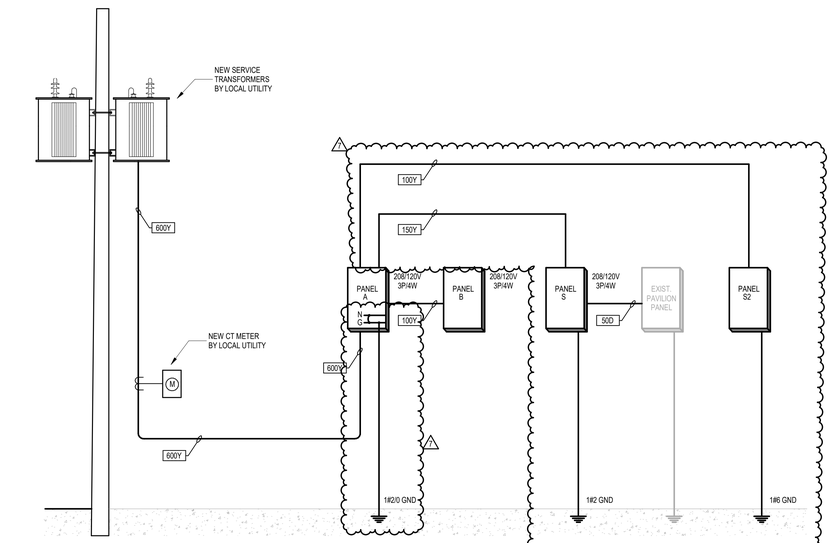
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	67524 VA	100.00%	67524 VA		
Lighting (NEC 220.42(B))	4320 VA	125.00%	5400 VA	**Total Conn. Load:**	170960 VA
Other	0 VA	0.00%	0 VA	**Total Est. Demand:**	160031 VA
Receptacle (NEC 220.47)	34004 VA	64.70%	22002 VA	**Total Conn. Current:**	475 A
Water Heater	64240 VA	100.00%	64240 VA	**Total Est. Demand Current:**	444 A

PANEL: B

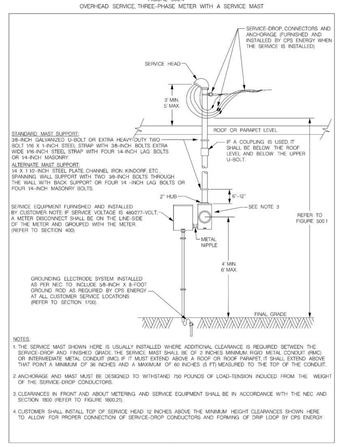
Location: CATERING SPACE 114
Supply From: PANEL A
Mounting: RECESSED
Enclosure: NEMA 1
Volts: 208/120 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 42K (3)
Mains Type: MLO
Mains Rating: 100A
MCB Rating: NA

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	A		B		C		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	OVEN HOOD - CATERING SPACE 114	20 A	1	180 VA	314 VA					1	15 A	FREEZER - CATERING KITCHEN 114	2
3	WARM. CAB. - CATERING KITCHEN 114	20 A	1			180 VA	360 VA			1	15 A	FRIDGE - CATERING KITCHEN 114	4
5	LIGHTING - EXTERIOR	20 A	1					231 VA	399 VA	1	20 A	LIGHTING	6
7	RECEPTACLE - MULTIPURPOSE 113	20 A	1	540 VA	900 VA					1	20 A	EXTERIOR RECEPTACLE	8
9	EDF-1, RECEPT - MULTIPURPOSE 113	20 A	1			550 VA	1000 VA			1	20 A	MICROWAVE - CAT. KITCHEN 114	10
11	ICE MACHINE - CAT. KITCHEN 114	15 A	1					780 VA	900 VA	1	20 A	RECEPTACLE - CONCESSIONS, T/R	12
13	RECEPTACLE - RM 113, 114, 115, 116	20 A	1	1260 VA	1568 VA					1	20 A	LIGHTING - MULTIPURPOSE 113	14
15	MICROWAVE - CAT. KITCHEN 114	20 A	1			1000 VA	720 VA			1	20 A	CEILING RECEPT - MULTIPURPOSE	16
17	CU-3	15 A	2					866 VA	1404 VA	2	25 A	CU-4	18
19	--	--	--	866 VA	1404 VA					--	--	--	20
21	OVEN - CATERING KITCHEN 114	50 A	2			4000 VA	1153 VA			1	20 A	SITE LIGHTING	22
23	--	--	--					4000 VA	720 VA	1	20 A	EF-1, EF-2, EF-3, EF-12	24
25	EWH-2	20 A	2	1500 VA	720 VA					1	20 A	CEILING RECEPT - MULTIPURPOSE	26
27	--	--	--			1500 VA	0 VA			1	20 A	SPARE	28
29	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	30
31	SPARE	20 A	1	0 VA	0 VA					1	20 A	SPARE	32
33	SPARE	20 A	1			0 VA	0 VA			1	20 A	SPARE	34
35	SPARE	20 A	1					0 VA	0 VA	1	20 A	SPARE	36
37	SPACE	--	1	--	--					1	--	SPACE	38
39	SPACE	--	1			--	--			1	--	SPACE	40
41	SPACE	--	1					--	--	1	--	SPACE	42
			Total Load:	9.25 kVA		10.36 kVA		9.30 kVA					
			Total Amps:	77 A		86 A		78 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	5440 VA	100.00%	5440 VA		
Lighting (NEC 220.42(B))	3274 VA	125.00%	4093 VA	**Total Conn. Load:**	28904 VA
Receptacle (NEC 220.47)	17224 VA	79.03%	13612 VA	**Total Est. Demand:**	26104 VA
Water Heater	3000 VA	100.00%	3000 VA	**Total Conn. Current:**	80 A
				Total Est. Demand Current:	72 A



1 ONE LINE DIAGRAM
E2.1 NOT TO SCALE



2 CPS ENERGY OVERHEAD SERVICE DETAIL
E2.1 NOT TO SCALE

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LANDSCAPE ARCHITECTURE PLANNING
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Castroville Community Building
816 Alsace Ave
Castroville, TX 78009
Developed for
City of Castroville

Revision	Date
3 ADDENDUM 3	05/10/2024
2 PR 03	05/11/2026

Submittal	Date
PERMIT SET	04/19/2024

Job Number	31522
Date Published	04/19/2024
Checked By	RAD
Scale	NOT TO SCALE

ONE LINE DIAGRAM

E2.1

FRONTERA 710 E. GIBBS STREET, DEL RIO, TX 78840 | FCTX.COM

MAY 22, 2026

Mr. Jonah Chang
Director of Parks & Recreation
1209 Fiorella St,
Castroville, TX 78009

RE: PR 2 REVISED SHOWER BUILDING

Dear Mr. Chang,

Frontera Construction respectfully submits this pricing proposal for the revised Shower Building scope associated with the existing contract for the Castroville Community Center Project. The pricing we are providing is based on the revised drawings and information issued by LPA dated May 12, 2026.

A cost breakdown by scope is attached for your review. The total proposed amount for this Change Order is $209,373.00. Applicable overhead, profit, and contractual markups have been included in accordance with the Contract Documents.

A detailed construction schedule associated with this Change Order scope is forthcoming; however, based on current information, Frontera Construction anticipates an approximate construction duration of 4 to 6 months from issuance and execution of the Change Order, depending on the timing of authorization to proceed.

This pricing is contingent upon commencement of the Change Order work no later than June 15, 2026. In the event the Change Order is executed after this date, additional costs associated with remobilization, escalation, labor availability, and material procurement may need to be evaluated and incorporated accordingly.

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This proposal is based on the current scope, material pricing, labor availability, and project conditions known at the time of submission. Any additional revisions or unforeseen conditions may require further review and adjustment.

We appreciate the opportunity to provide this pricing and are available to discuss any questions.

Sincerely,

Jose Losoya
Director of Construction Operations
Frontera Construction LLC

FRONTERA 710 E. GIBBS STREET, DEL RIO, TX 78840 | FCTX.COM

CASTROVILLE COMMUNITY CENTER

OUTDOOR BUILDING ADDITION

Owner Phasing Proposal / Change Order Cost Breakdown

CSI COST BREAKDOWN

CSI Division	Description	Amount
01	General Requirements / General Conditions	$13,078
03	Concrete	$13,000
06	Wood, Plastics & Composites	$16,500
07	Thermal & Moisture Protection	$12,700
08	Openings	$12,500
09	Finishes	$20,100
10	Specialties	$8,500
22	Plumbing	$30,800
23	Mechanical	$10,117
26	Electrical	$35,000
31	Earthwork	$15,338
	Subtotal – Direct Construction Costs	**$187,633**
	P/P Bond Premium	$3,000
	Insurance / Builder's Risk	$4,240
	Contractor Fee / OHP	$14,500
	Total Proposed Change Order	**$209,373**

Agenda Report

Agenda of: May 26, 2026

Department: Finance

Subject: Adopt updates to the City of Castroville Purchasing Policy & Procedures in accordance with changes to State law.

Recommended Motion:

As this item is included on the Consent Agenda, no separate motion is required unless the item is pulled for individual consideration. If pulled, the recommended motion would be:

"I move to approve the updates to the City of Castroville Purchasing Policy & Procedures Manual as presented."

Background:

This item is being presented as part of the Consent Agenda. Individual discussion on this item will only occur if requested by a member of the City Council, in which case the item will be removed from the Consent Agenda and considered separately.

Staff is requesting City Council approval of updates to the City's Purchasing Policy & Procedures Manual to reflect recent changes to Texas law and to improve the long-term administration of the policy.

The primary amendment reflects recent legislative changes to Texas Local Government Code Chapter 252, which increased the statutory threshold requiring formal competitive procurement from $50,000 to $100,000.

The proposed revisions also incorporate "evergreen" language throughout the policy clarifying that applicable State law shall control in the event statutory thresholds or procurement requirements are modified in the future. This approach is intended to reduce the need for future policy amendments resulting solely from legislative changes.

Additional revisions include:

- Updating competitive procurement language to reference procurement methods authorized under State law;
- Clarifying historically underutilized business (HUB) requirements;
- Updating references related to engineering and architectural procurement requirements;
- Clarifying bonding requirements for public works projects;
- Updating professional services procurement procedures; and

- Correcting outdated references, formatting inconsistencies, and minor typographical issues.

The proposed revisions do not substantially alter the City's internal purchasing approval authority structure. City Council approval would continue to be required for purchases and contracts exceeding $30,000 unless otherwise authorized or exempted by law.

STAFF RECOMMENDATION

Staff recommends approval of the updated City of Castroville Purchasing Policy & Procedures Manual.

Fiscal Impact: No direct fiscal impact. The proposed amendments are administrative in nature and are intended to improve compliance with State law and reduce future policy maintenance requirements.

☐ **Budgeted** ☐ **Requires Budget Amendment**

Source of Funding: N/A

Urgency (0-5 = Low Urgency to High Urgency): 5

Impact (0-5 = Low Impact to High Impact): 2

Submitted by: Leroy Vidales

Attachments: Updated Purchasing Policy

City of Castroville

Purchasing Policy & Procedures

Amended December 13, 2016

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1.0 PURPOSE

The purpose of this policy is to establish guidelines and accountability for the expenditure of funds used to procure goods and services used by the City. The processes used to procure goods and services should always provide the best value for the City, while providing an open and fair process for vendors.

All personnel of the City responsible for purchases shall use care and judgment when obtaining or purchasing a commodity or service and shall become familiar with and follow the City's policies and procedures as they relate to purchasing. Department heads shall be cognizant of their respective budget limitations and initiate purchases accordingly. It is the responsibility of the individual departments to anticipate requirements and initiate action to purchase goods and services in advance of the time that they are needed, and to allow sufficient time to follow purchasing procedures, including contract preparation.

Additionally, this policy manual and subsequent clarifications serves to improve the City's contracting processes, management and administration. This policy also supports our grant management program. Staff engaged in the conduct of procurement and contract administration will do so in accordance with applicable federal, state and local laws and management directives.

This policy replaces and supersedes all prior policies, directives and resolutions regarding purchasing policy and procedures. This policy shall be reviewed at least every two years by the City Council.

This manual cannot address every situation; and when an unusual situation occurs or a difficult legal or factual problem arises, the exact statutory language must be reviewed and analyzed. In the event of any conflict between this policy and applicable Federal or State law, the provisions of applicable law shall control. References in this policy to statutory thresholds, procurement limits, or other legal requirements are intended to reflect State law in effect at the time of adoption and shall automatically be interpreted consistent with any future amendments to applicable law.

2.0 CODE OF ETHICS

Public employment is a public trust. Employees will avoid any activity that would create a conflict between their personal interests and the interest of the City of Castroville and will avoid the appearance of unethical or compromising practices in relationships, actions and communications. The types of activities that should be avoided include: accepting gratuities of any kind valued at more than $25 from current or potential vendors; using confidential proprietary information for actual or anticipated personal gain; or disclosing a vendor's confidential proprietary information inappropriately to other vendors during the procurement process.

Public employees, including elected and appointed officials, must discharge their duties impartially so as to assure fair competitive access to governmental procurement by responsible contractors. Moreover, they should conduct themselves in such a manner as to foster public confidence in the integrity of the City of Castroville procurement system.

Departments shall not use purchasing strategies designed to avoid formal competitive procurement procedures such as component purchases (purchases in pieces rather than purchasing as a whole), separate purchases (purchasing goods in a series of separate purchases that normally would have been combined) and sequential purchases (purchases made over a period of time that would normally have been made as one purchase) that violates State law.

If a person fails to comply with the competitive bidding or competitive proposal procedures required by Local Government Code Chapter 252, that person may be convicted of a Class B misdemeanor. A Class B misdemeanor may be punishable by a fine up to $2,000, confinement in jail for up to 180 days, or both. Under Texas law, an individual is automatically removed from his or her position if that person is convicted of failing to comply with the competitive bidding or competitive proposal procedures.

3.0 DISCLOSURE OF CERTAIN RELATIONSHIPS

Please refer to Chapter 176 of the Texas Local Government Code (House Bill 914) for detailed information regarding the requirements for completing and filing with the City Secretary the Local Government Officer Conflict Disclosure Form (Exhibit 1).

3.1 DISCLOSURE OF INTERESTED PARTIES

House Bill 1295 amended the Texas Government Code by adding Section 2252.908, the Disclosure of Interested Parties. This requires new filings with the Ethics Commission for contracts requiring a vote of the governing body or is valued over $1 million dollars. Under this new Section 2252.908, the City is prohibited from entering into a contract with a business entity until it submits a Disclosure of Interested Parties (Form 1295) to the City at the time business entity submits the signed contract. The Bill affects all applicable contracts entered into after January 1, 2016. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Texas Ethics Commission.

The business entity will file a 1295 form with the Ethics commission electronically. Once filed by the business, the completed form will contain a unique certification number. The business entity will then print the form with the certification number, have an authorized agent of the business entity sign the form, have the form notarized and submit the form with their proposals or contracts to the City. The form must be received before the contract is entered into between business and the City.

Once received, the City must acknowledge the receipt of the filed Form 1295 by logging onto the Ethics Commission website to notify the Texas Ethics Commission of the receipt of the filed Form 1295 no later than the 30th day after the date the contract is signed. After the City acknowledges the Form 1295, the Texas Ethics Commission will post the completed Form 1295 to its website within seven business days.

Below is a link for training videos, FAQ's, directions and logins to the Texas Ethics Commission for your use.
https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4.0 PURCHASING AUTHORITY

The City Administrator is responsible for ensuring that City departments comply with federal, state and local statutes regulating competitive sealed bids, professional services, high technology purchases, cooperative purchases, and emergency and sole-source purchases.

Purchases by city employees shall be made only as authorized by the City Administrator or his/her designee in accordance with the city budget.

4.1 Department Head Purchasing Authority

Department head purchasing authority is limited to a total of $10,000 or less per single purchase. All other purchases exceeding $10,000 must be processed through the City Administrator on a purchase requisition.

4.2 City Council Approval

The City Council, through this policy delegates to the City Administrator the authority to approve purchases as established in Table I. The City Administrator is authorized to sign contracts for goods and services if funds have been appropriated in the budget.

City Council approval is required for the procurement of all contracts where the expenditure is expected to be more than $30,000. All documents must be signed by the City Administrator.

TABLE I PURCHASING AUTHORITY

The following chart illustrates the purchasing authority allowed under City policy:

Amount	Bid or Purchase Procedure	Authorization Level
Less than $2,500	No bid or quotation required but recommended.	Department Head
$2,501 to $2,999	• Three (3) quotations required. • PO required.	Department Head
$3,000 to $10,000	• Three (3) written or faxed quotations • Minimum of (2) listed HUB's are issued a bid invitation (LGC §252.0215). • If no HUB vendor is available within Medina County, the City is exempt from this provision. • PO required	Department Head
$10,001 to $30,000	• Three (3) written quotations • Minimum of (2) listed HUB's are issued a bid invitation (LGC §252.0215). • If no HUB vendor is available within Medina County, the City is exempt from this provision. • PO required	City Administrator
$30,001 to $100,000	• Three (3) written quotations • Minimum of (2) HUB's are issued a bid invitation (LGC §252.0215). • If no HUB vendor is available within Medina County, the City is exempt from this provision. • Sealed Bids for Construction Projects.	City Council
Over $100,000	Competitive sealed bids or proposals (unless exempted from competitive bidding).	City Council

Note: Written quotes should be kept in Department files for at least one year for Audit review.

5.0 TAX EXEMPT STATUS

The City of Castroville is exempt from payment of federal excise and transportation taxes, and all state and local sales taxes, with the exception of hotel/motel tax. The City claims exemption from all sales and/or use taxes under Texas Tax Code §151.309, as amended.

6.0 HISTORICALLY UNDERUTILIZED BUSINESS ENTERPRISES

Local Government Code 252.0215 requires all Texas governmental entities to contact at least two (2) historically underutilized businesses on a rotating basis when making an expenditure of more than $3,000 but less than the statutory threshold requiring competitive procurement under Texas State law. If the list fails to identify a historically underutilized business in the county in which the municipality is situated, the municipality is exempt from this requirement. Departments may obtain information about historically underutilized businesses from the Texas Comptroller's Office web site www.window.state.tx.us/procurement/prog/hub.

7.0 PURCHASE ORDERS

A purchase order (PO) represents a binding and enforceable contract with a vendor/supplier to provide the goods and services in accordance with the terms and conditions of the purchase order and associated documents.

Purchase orders should originate at the department level using a purchase requisition signed by the department head.

The cut-off date for submitting purchase requisitions for the fiscal year is August 31. All supplies and equipment for the year should be purchased by this date. Exemptions to this procedure must receive prior approvable by the City Administrator.

Once a purchase requisition has been received, approved, checked for funding and processed a purchase order number will be assigned by Accounts Payable.

If quotes have already been obtained they must be attached with the requisition.

7.1 Telephone Quotes

For telephoned price quotations, certain information should be provided to the vendor:

- Description of the item.
- Number of items required.
- Date delivery is required.
- The terms and conditions of purchase.

Whether a written or telephoned request, certain specific information should be obtained from each vendor and recorded in writing, such as:

- Name, address and telephone number of the vendor.
- Total or unit price.
- Date through which quoted price will be effective.
- Product offered if different from the product requested.

All single-item purchases over $5,000 must be reported in writing to the Finance Director for inclusion on the Fixed Assets list.

8.0 GENERAL PROCUREMENT GUIDELINES

8.1 Petty Cash (Limit $100)

Petty cash funds are set up with the approval of the City Administrator and funded from an appropriate account.

No quotes are required when purchasing items with petty cash. No item purchased with petty cash funds may exceed $100. All petty cash purchases must be supported by an original receipt/invoice for the purchase.

Individuals authorized to maintain petty cash accounts may replenish their petty cash by turning in their receipts and vouchers to Accounts Payable.

8.2 Technology Purchases

Prior to any purchase, departments shall coordinate/consult with the IT Specialist for all technology procurements. Technology procurement includes: computers; software/hardware; and, telecommunications services and devices.

8.3 Online Purchases

Purchases made via the Internet with a City Credit Card must reference a Purchase Order (if applicable) and must be approved prior to purchase. Only sites that have a "Secured" pay site are allowed. Purchases made from an online auction site are permitted (i.e. GovDeals, LoneStar Auctioneers, Federal Surplus, etc.). No personal expenses shall be purchased using city credit cards. If done so, the City will be refunded immediately.

8.4 Annual Supply/Service Contracts

Annual supply/service contracts are agreements established to provide for recurring purchases from the same supplier for a specified period of time. Annual service contracts are established so that departments are permitted to order contract items from the applicable contractor(s). Only those items specifically defined in the contract can be purchased as a part of the contract. Placing orders with other contractors that were not awarded any portion of an Annual Service Contract will be considered an unauthorized purchase.

Departments are encouraged to utilize annual supply/service agreements whenever possible in order to maximize the advantages and economics of quantity buying.

8.5 Recurring Expenses

Certain recurring monthly expenses detailed below do not require a purchase order. Invoices for these expenses should be sent directly to Accounts Payable, with appropriate account coding and signature of the department head. The following items do not require a purchase order:

1. Water
2. Sewer
3. Gas
4. Electricity
5. Telephone
6. Cellular phones
7. Fleet gasoline card
8. Insurance payments
9. Monthly, quarterly or annual payment for contracted services for water rights, wholesale power or solid waste.
10. Disbursement of occupancy tax funds according to the City Budget
11. Reimbursement/payments to other agencies
12. Payments made for employee payroll deductions
13. Automatic renewal of State and local certifications and licenses
14. Debt service payments
15. Invoices for professional services i.e. Attorney and Engineering fees
16. Progress payments for construction contracts
17. Office/equipment lease agreements

9.0 EMERGENCY PURCHASES

The purchase of any goods or services needed because of an emergency condition shall comply with the provisions of the Texas Local Government Code §252.022. Emergency purchases must meet one of these criteria:

1. a procurement made because of a public calamity that requires the immediate appropriation of money to relieve the necessity of the municipality's residents or to preserve the property of the municipality;
2. a procurement necessary to preserve or protect the public health or safety of the municipality's residents;
3. a procurement necessary because of unforeseen damage to public machinery, equipment, or other property; and
4. which, due to circumstances beyond the City's control, must be procured immediately and without following established procurement procedures.

Examples of emergency procurements include repair of a water or sewer line break, storm damage to city infrastructure requiring immediate repair, structural repairs to city buildings that would otherwise cause the building to be closed to the public, etc.

Department heads will obtain City Administrator approval prior to any procurement action when emergency procurement of materials or services is required. The department head shall be responsible for determining the validity of an emergency purchase request and shall be held fully accountable for any actions requested or subsequently taken to procure emergency goods or services.

If the City Administrator is not available, the department head will obtain only those materials or services absolutely critical to restore or re-establish essential city services. The department head shall advise the City Administrator of these actions as soon as possible.

All emergency purchases costing more than $30,000 must be ratified by the City Council. All ratifications shall occur at the first possible scheduled City Council meeting after the emergency procurement has occurred. **City Council should be informed in a timely manner of emergency purchases above $30,000.**

10.0 PURCHASES EXEMPT FROM COMPETITIVE BIDDING

Section 252.022 of the Local Government Code provides for exemptions from the competitive bidding process. The items exempted are:

10.1 Emergency Purchases

- items purchased in case of public calamity to relieve the needs of the citizens or to preserve city property;
- items to preserve or protect the public health or safety of the city's residents;
- items necessary because of unforeseen damage to public property, machinery, or equipment;

10.2 Sole Source Purchases

- items that are available only from one source because of patents, copyrights, secret processes or natural monopolies;
- films, manuscripts or books;
- electricity, gas, water or other utility services;
- captive replacement parts or components of equipment;
- books, papers, and other library materials for a public library that are available only from the person holding exclusive distribution rights to the material;
- management services provided by a non-profit organization to a municipal museum, park, zoo or other facility which the organization has financially or otherwise supported;
- rare books, papers, and other library material for a public library;

10.3 Other Exemptions

- paving, drainage, street widening and other public improvements where at least one-third of the cost are paid by special assessments levied on property that will benefit from the improvements;
- a public improvement project which has been authorized by the voters of the city, for which there is a deficiency of funds to complete the project in accordance with the plans and purposes as authorized;
- a payment under a contract by which a developer participates in the construction of a public improvement under Subchapter C, Chapter 212;
- personal property sold at public auction by a state licensed auctioneer, or sold at a going out of business sale, or sold by another political subdivision of the state, a state agency or the federal government;
- services performed by blind or severely disabled persons;
- personal, professional or planning services;
- work paid for on a daily basis (day labor);
- purchase of land or a right-of-way;

- interlocal contracts for cooperative purchasing; or
- goods purchased by a municipality for subsequent retail sale by the municipality.

10.4 Cooperative Purchases

Cooperative purchasing can occur through interlocal agreements, state contracts, piggybacking and joint purchases. The City shall take advantage of the following types of cooperative purchases when deemed to be in the City's best interest:

- Interlocal agreement purchases
- State contract purchases
- Piggyback purchases
- Joint purchases

Bids are not required for the use of approved Co-ops however; a purchase order approved by the City Administrator is required before any purchase is finalized.

11.0 COMPETITIVE PROCUREMENT REQUIREMENTS

The procurement procedures for goods and services for the City of Castroville shall be conducted in accordance with applicable provisions of the Texas Local Government Code, including Chapter 252, as amended, and any other applicable State or Federal law.
Prior to entering into any contract requiring competitive procurement under State law, the City shall utilize a procurement method authorized by law, including but not limited to:

- competitive sealed bidding;
- competitive sealed proposals;
- reverse auction procedures;
- cooperative purchasing methods; or
- any other procurement method authorized by the Texas Local Government Code or other applicable law.

The monetary thresholds and procedural requirements for competitive procurement shall be governed by applicable State law, as amended from time to time.

For general procurement of goods and services a contract must be awarded to: (a) the lowest responsible bidder, or (b) the bidder who provides goods and services at the "best value". In determining the "best value" for the city, the city may consider factors other than the purchase price of the goods and services, including among other things:

(1) the reputation of the bidder and of the bidder's goods or services;
(2) the quality of the bidder's goods or services;
(3) the extent to which the goods or services meets the city's needs;
(4) the bidder's past relationship with the city;
(5) the impact on the city to comply with laws and rules relating to contracting with historically underutilized businesses and nonprofit organizations employing

persons with disabilities;

(6) the total long term cost to the city;

(7) any relevant criteria listed in the request for bid or proposals; and /or any other lawful criteria. Local Government Code §252.043.

The city must indicate in the bid specifications and requirements that the contract will either be awarded either to the lowest responsible bidder or to the bidder who provides goods or services at the "best value" for the city. Local government Code § 252.043(c).

There are two exceptions to the above rules concerning the award of a contract.

The best value method may not be used for the construction of:

1. highways, roads, streets, bridges, utilities, water supply projects, water plants, wastewater plants, water and wastewater distribution or conveyance facilities, airport runways and taxiways, drainage projects, or related types of projects associated with civil engineering construction; or
2. buildings or structures that are incidental to projects that are primarily civil engineering construction projects.

The contract must be awarded to the lowest responsible bidder. Local Government Code 252.043 (d).

For contracts for certain professional services, Texas law prohibits cities from awarding a contract by competitive bidding. The Professional Services Procurement Act describes procedures to be followed for contracting for these services.

11.1 Competitive Bidding on Certain Public Works Projects

In awarding a contract bid under Chapter 271, Subchapter B, the City must comply with specific legal requirements.

11.2 Competitive Sealed Proposals

The City may use the competitive sealed proposal procedure for the purchase of goods and services, including high technology items and insurance.

Competitive sealed proposals may be used for civil engineering projects permitted under Local Government Code, Chapter 271, §271.115.

When publicly opening sealed proposals, only the names of the firms submitting proposals shall be announced. After the analysis of proposals is completed, a recommendation by City staff to the City Council for award to the lowest and most responsive bidder which best

meets all the evaluation criteria will be made. If there are vendor negotiations, care should be made to avoid disclosing proposal contents to other bidders. All proposals that were submitted will be open to public inspection after contract award addressed in Section 552.104 of the Texas Public Information Act.

However, any proprietary information designated as such by the vendor will not be made available for public inspection per Section 552.110 of the Texas Public Information Act.

12.0 PROCEDURES

12.1 Notice of Competitive Procurement

All contracts requiring competitive bids or proposals must be advertised and must contain notice of the date and time at which the bids will be publicly opened and read aloud. The advertisement must be in a newspaper published in the City, and must be published at least once a week for two consecutive weeks before the bid opening. The first publication must be on or before the fourteenth (14) day before the date the bids are publicly opened and read aloud. If the contract pertains to a public works project, the second publication must be on the 10th day before the bids may be submitted. Local Government Code §271.025.

If the contract is for purchase of machinery for road or street construction or maintenance, the notice for bids and the order for purchase must include a general specification of the machinery. Local Government Code §252.041(c).

The City Secretary shall be responsible for placing the bid notification ads.

12.2 Pre-Bid/Submittal Conference

If a pre-bid/submittal meeting is planned, the solicitation should identify when and where it will be held. Pre-bid meetings should be conducted a minimum of 5 to 10 calendar days after the solicitation is advertised and/or distributed and a minimum of 7 calendar days prior to the proposal due date. If attendance is mandatory, this should be clearly stated.

The purpose of the pre-bid/submittal conference is only to clarify the solicitation and not to facilitate arguments from contractors regarding the City's requirements. If valid suggestions or objections are received, they should be seriously considered following the pre-bid meeting and, if modification of the solicitation is necessary, an addendum should be issued promptly.

12.3 Opening of Bids

Bids must be publicly opened by the City on the specified date, time and place. Bids must be read aloud and then kept on file and available for public inspection. For bids or proposals that contain trade secrets or confidential information, the portion with the trade secrets or confidential information will not be available, but the remainder of the bid or proposal must be available for public inspection.

Public opening of sealed bids or proposals will be attended by the Department Head/Project Manager, or designated representatives. If the bid is to be awarded to the lowest responsible bidder, the bids will be opened and read aloud with the apparent low bidder announced. If the bid is to be awarded based upon best value, the bids will be opened and read aloud; the City Council will then determine which bidder provides the City with the best value.

However, an announcement will be made to those present at the bid opening that a recommendation will be presented to the City Council for the award to the lowest responsible bidder or to the bidder who provides the best value to the City, after an analysis of the bids is made by staff. The City reserves the right to reject any and all bids.

The requesting department is responsible for reviewing the specifications offered in each bid to insure the specifications meet the bid requirements. If the bids offered meet the specifications requested, the recommendations may then be made based on the procedure set out in Texas Local Government Code Chapter 252, Sub Chapter C, 252.043.

12.4 Awarding of Contract

For general procurement of goods and services a contract must be awarded to: (a) the lowest responsible bidder, or (b) the bidder who provides goods and services at the “best value” for the City.

If the competitive sealed proposals requirement applies to the contract the contract must be awarded to the responsible offeror whose proposal is determined to be the most advantageous to the City considering the relative importance of price and the evaluation factors included in the request for proposal.

If competitive bids or proposals are required and the City receives no bids in response to a request, the City must either re-advertise or decide not to undertake the contract.

If the City receives only one bid or proposal in response to a request, the City may accept the bid or proposal received, reject the bid or proposal and re-advertise, or reject the bid or proposal. City Council may reject any and all bids.

In most cases, a city may not provide a preference for local businesses when awarding bids. State law allows such a preference only in specifically authorized situations.

The City may award a contract to a bidder whose principal place of business is in the City and whose bid is within 5% of the lowest bidder whose principle business is not located in the City per the Texas Local Government Code §271.905. In order to award a purchase to the local bidder in such circumstances, the City Council must determine in writing, that the local bidder offers the City the best combination of contract price and additional economic development opportunities created by the contract award, including the employment of residents of the City and increased tax revenues to the City, pursuant to Local Government Code §271.905. This section does not prohibit the City from rejecting all bids.

In the event there are two or more responsible bidders with the identical lowest bid that fully meet the specifications and needs of the City, the bidder who is a resident of the City shall be awarded the bid. If there is not a local resident bidder or there is more than one local resident bidder, the award of the contract will be determined by the casting of lots. The casting of lots must be in the manner prescribed by the Mayor in the presence of the City Council. All qualified bidders may have a representative present. “Casting of lots” means the use of some object to determine an outcome by chance.

12.5 Bid Discrepancies and Disqualifications

Under some circumstances certain discrepancies in bids that have been submitted may be waived by the City Council. However, there are several reasons that require a bid to be disqualified. These reasons are as follows:

1. Any bid received that is not signed by an authorized company representative.
2. Any bid received that did not return required information such as addendums, bonding and/or insurance requirements. This requirement may be waived as a technicality but must be approved by the City Attorney.

13.0 PROTEST PROCEDURES

The City Administrator has the authority to settle or resolve any claim of an alleged protest of a recommended award. This includes but is not limited to protests of award or non-selection for award or other matters of a contractual or procurement nature.

A statement of protest, if any, shall be submitted to the City Secretary for transmittal to and consideration by the City of Castroville. A protest must be submitted in writing and must be supported by sufficient information to enable the protest to be considered. A protest will not be considered if it is insufficiently supported or it is not received within the time limits set forth below. A protest may be submitted upon the following reasons:

- A protest relating to errors in computing tabulation or evaluation of bid,
- A protest relating to violation of rules or statutes,
- A protest regarding discrepancies with material differences or quality of item,
- A protest relating to restrictive procedures, alleged impropriety, or other similar situations arising prior to bid opening, or
- A protest of the award of contract or alleged impropriety arising after bid opening as set forth below,
- A protest based upon restrictive procedures or alleged impropriety or other similar situation arising prior to bid opening must be received by the City of Castroville's City Secretary no later than seven (7) working days prior to the specified bid opening date and may only be protested once.
- A protest of the award of contract or alleged impropriety arising after the bid opening must be received by the City of Castroville's City Secretary within seven (7) working days following the earlier of the date on which the bidder knew or which a diligent bidder would have known of the award or alleged impropriety.

When a protest is filed, the City usually will not make an award until a decision is made. However, the City will delay an award if the City urgently requires the supplies or services to be purchased, or failure to make the award promptly will unduly delay delivery or performance. In those instances, the City will notify the protestor and make every effort to resolve the protest before the award.

The City Administrator will review the appeal and render a decision. Such decision will be considered final with no further appeal process. The final decision of the City Administrator regarding the bid protest will be incorporated in the Agenda Item Staff Report form as part of the recommendation for award of contract.

14.0 SUSPENSION AND DISBARMENT

Debarment is an action to exclude individuals or companies from contracting with an organization; the purpose is to protect the government from awarding contracts to individuals, companies, or principals of companies that have an inability or unwillingness to fulfill contract requirements. It protects the City's interest by preventing improper conduct from participation in the City's business. Debarment is particularly applied when using federal funds. City staff assumes responsibility for identifying whether parties are debarred or suspended from doing business with the City.

The City may not contract with parties that are suspended or debarred as listed on the State of Texas Vendor Debarment or Federal Excluded Parties Lists (FEPL) websites, nor with the principals of any suspended or debarred entity, either individually or as part of any other entity.

Prior to awarding a contract, departments are required to verify the vendor/contractor is not suspended or debarred by accessing the United States General Services Administration's Excluded Parties List System (EPLS) at www.epls.gov. The State of Texas debarred list is located at www.window.state.tx.us/procurement/prog/vendor_performance/debarred. A print screen of the EPLS and state debarred vendor list indicating that the prime consultant or contractor is not found on the list must be included in the project file.

14.1 Suspension and Debarment Process

The City of Castroville may suspend or debar a vendor from participation in City purchasing opportunities and practices upon showing a just cause, and during the period of suspension or debarment, the City shall reject any bid, proposal or other offer by the vendor and shall return any submission to the suspended/debarred vendor. This section applies to both contractors and subcontractors.

Just Cause for Suspension. Just cause for suspension shall include any of the following:

1. Failure to comply. Failure to comply with the conditions, specifications or term of a bid or proposal or contract with the City including recent record of unsatisfactory performance with the terms of one or more contracts.
2. Misrepresentation. Commission of any misrepresentation with a bid or proposal.
3. Criminal offense. Charged by a court of competent jurisdiction with the commission of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of such contract or subcontract. If charges are dropped or the vendor found not guilty, the suspension shall be lifted automatically upon notification and proof of final court disposition provided to the City by the vendor.
4. Conviction.
    a. Conviction under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property or any other offense indicating a lack of business integrity or honesty which currently, directly and seriously affects that vendor's responsibility as a City supplier. If charges are dismissed or the vendor found not guilty, the suspension shall be lifted automatically upon notification and proof of final court disposition provided to the City by the vendor.
    b. Conviction under state or federal antitrust statutes arriving out of the submission of bids or proposals.

5. Insolvency. Vendor becomes insolvent, has proceedings in bankruptcy instituted against it or consolidates its debts or assigns over its estate or affects for payment thereof or has a receiver appointed over its property.
6. Other. Any other cause the City Administrator determines to be so serious or compelling in nature, that it materially and adversely affects the responsibility of the business as a government contractor, including but not limited to suspension by another government entity for substantial cause.

Just Cause for Debarment. Just cause for debarment shall include any of the following:

1. Failure to Comply. Failure to comply with conditions, specifications, drawings, schedules or terms of a bid, proposal or contract with the City.
2. A history of unsatisfactory performance of a contract.
3. Conviction.
    a. Conviction by or judgment obtained in a court of competent jurisdiction for commission of offenses in connection with the vendor's commercial enterprise. If the conviction is reversed through the appellate process, the debarment shall be immediately lifted upon written notification and proof of final court disposition to the City from the vendor.
    b. Conviction for the commission of anti-fraud or act of collusion in connection with a bid, quotation, proposal or other act incident to doing business with the City.
4. Federal Debarment List. Inclusion on any Federal debarred vendor list.
5. Notice of debarment activities from other governmental entities.

14.2 Procedures

14.3 Investigation

The Finance Director shall promptly investigate and prepare a written report concerning a proposed suspension or debarment. The report shall be forwarded to the City Administrator stating with specificity the facts supporting the request suspension or debarment.

14.4 Decision

Within five (5) business days of receipt of the report, the City Administrator may issue a notice of suspension or debarment. The vendor shall be immediately advised by certified mail with return receipt requested.

14.5 Appeal

The vendor may within five (5) business days of receipt of notice, present a written request for reconsideration including additional information relating to the reason given for suspension or debarment. The City Administrator in consultation with the City Attorney shall consider such additional information in deciding whether the decision to suspend or debar should be delayed or revised. If the original decision to suspend or debar is determined to be proper and justified, the vendor shall be suspended or debarred.

14.6 Duration of Suspension/Debarment

14.7 Suspension

A vendor may be suspended for a maximum period of 6 months.

14.8 Debarment

A vendor may be debarred for a period not to exceed five (5) years if after investigation it is found to be engaged in any of the activities listed above.

15.0 PROFESSIONAL SERVICES

Personal and professional services are exempt from the competitive bidding process and are procured through the use of Request for Qualification.

Professional Services are services which involve mental or intellectual skills, usually accompanied by formal certification or licensing by a state agency, such as accounting, architecture, engineering, medicine, planning, economics, law, financial advisory services and scientific or laboratory consulting services.

Chapter 2254 of the Texas Government Code prohibits a city from selecting a professional on the basis of competitive bids. Professional services are defined as accounting, architecture, landscape architecture, land surveying, medicine, optometry, professional engineering, real estate appraising; or professional nursing. Section 2254.003 provides that awards for professional services be on the basis of demonstrated competence and qualifications and for a fair and reasonable price.

In addition to those services specifically covered by the Professional Services Procurement Act, there are other services that may be considered either professional or personal and therefore exempt from competitive bidding.

The City may utilize the City Engineer for preliminary design and design services for City projects. If the City desires to initiate a competitive process for choosing a professional services provider the City will utilize a two-step selection process. First, select the most highly qualified individual or firm capable of performing the services on the basis of demonstrated competence and qualifications. Then the contract negotiation process begins. The city first negotiates with the selected provider. If the parties cannot reach an agreement, the City must formally, and in writing, inform the provider that it is ending negotiations. The City may then negotiate with the next provider in the order of the selection ranking process. The same negotiation process will continue until an agreement is reached that culminated in an executed contract.

If the City is unable to negotiate a satisfactory contract with the most highly qualified provider, the City shall:

- formally end negotiations with that provider;
- select the next most highly qualified provider; and
- attempt to negotiate a contract with the provider at a fair and reasonable price.

15.1 Request for Proposal (RFP) or Request for Qualifications (RFQ)

The department requesting professional services will prepare, issue, and receive responses to a Request for Qualifications (RFQ)/Request for Proposals (RFP) and conduct the evaluation process.

Either the RFP or the RFQ process (or a combination) may be used. The primary difference between the two processes is the RFP process is received and evaluated and then computed. The proposal includes a scope of work and a cost proposal. In the RFQ process, Statements of Qualifications (SOQs) are received and a selection is made based upon those qualifications. In this process, a mutually acceptable scope of work and contract amount is negotiated with the successful bidder.

The City Administrator may authorize exceptions to these procedures if special circumstances exist. These circumstances may include time restrictions, unusual nature of a specific project or service, or if an existing agreement warrants variation from the policy.

The RFP/RFQ must be approved by the City Administrator, must be in writing and must be posted on the City's web site and publicly advertised at least twice within fourteen (14) days prior to the date set for opening. Proposals or SOQs must be submitted to the City Secretary in a sealed envelope marked according to specific instructions.

Proposals shall be opened at a date, time and place designated in the Request for Proposal (RFP) or Request for Qualifications (RFQ). All proposals shall be opened by the issuing department head or their designee, and the name of the Respondent will be read aloud.

The proposals shall be analyzed, (based on the "best overall value" to the City), and documented including staff recommendations. Award shall be made by the City Council for all proposals over $30,000.

The department requesting the service is responsible for contract drafting, preparing the agenda item staff report and obtaining City Council approval to award the contract to the selected provider. After obtaining the required approval, the department requesting the service is responsible for proper execution and delivery of a contract. The department requesting the service is also responsible for contract amendments whenever there is a change in any terms and conditions of the contract (i.e. contract amount, due dates, performance requirements). The department is also responsible for contract extensions to exercise any renewal provisions of the original contract or to allow additional time for performance of the contract. Contract extensions shall be completed prior to the expiration of the original contract.

16.0 ENGINEERING PRACTICES ACT

The Texas Engineering Practices Act provides that a city may not construct a public work involving engineering in which the public health, welfare, or safety is involved, unless: (1) the engineering plans, specifications, and estimates have been prepared by a licensed professional engineer; and (2) the engineering for construction is to be performed under the direct supervision of a licensed professional engineer. Texas Occ. Code § 1001.407.

There are two circumstances in which the above requirements do not apply to the construction of a public work by the city. First, they do not apply to a public work that involves a total expenditure of $8,000 or less, even if the work involves structural, electrical or mechanical engineering. If the expenditure for such a public work will amount to or exceed $8,000, the use of an engineer is required. Second, if the work done does not involve structural, electrical or mechanical engineering, then the use of an engineer is not required as long as the total contemplated expenditure on the project will not exceed $20,000.

The City shall comply with the Texas Engineering Practice Act, as amended from time to time, and any applicable statutory thresholds established by State law shall control.

17.0 ARCHITECTS ACT

The Texas Architects Act provides that a registered architect must prepare the architectural plans and specifications for:

1. A new building that is to be constructed and owned by the City if the building will be used for education, assembly, or office occupancy and the construction costs exceed $100,000; or
2. Any alteration or addition to an existing building that is owned by the City if the building is used or will be used for education, assembly or office occupancy, the construction costs of the alterations or additions exceed $50,000 and the alterations or additions requires the removal, relocation, or addition of any walls or partitions or the alteration or addition of an exit.

The City shall comply with the Texas Architects Act, as amended from time to time, and any applicable statutory thresholds established by State law shall control.

18.0 GRANTS

All grants have specific contract provisions, laws, regulations, or rules that must be adhered to. Most federal grants must follow certain compliance requirements. These requirements relate to Activities Allowed or Unallowed; Allowable Costs; Cash Management; Davis-Bacon Act; Eligibility; Equipment and Real Property Management; Matching, Level of Effort, and Earmarking; Period of Availability; Procurement and Suspension and Debarment; Program Income; Real Property Acquisition; Reporting; Subrecipient Monitoring; and Specific Tests and Provisions. These requirements are described in further detail in OMB Circular A-133.

All departments who receive federal funds shall obtain a copy of the current Office of Management Budget (OMB) Circular A-133 to review. This Supplement is revised annually and includes general and specific requirements for federal grants. Grantees are responsible for adhering to their specific grant requirements, from federal, state, and private sources.

19.0 ALTERNATIVE DELIVERY METHODS FOR CONSTRUCTION RELATED PROJECTS

Alternative project delivery methods as defined in the Local Government Code, Chapter 271, Subchapter H, may be used as applicable. The alternative project delivery method includes: design-build projects, construction manager-agents, construction manager at-risk, job order contracts, and best value bids.

20.0 LEASE-PURCHASE AGREEMENTS

The City may obtain the use of equipment or other personal property through a lease purchase agreement or sale lease-back agreement. Local Government Code §271.005(a). In these arrangements, an equipment vendor leases a piece of equipment to the City with an option to purchase. Alternately, an equipment vendor sells the equipment to a financing institution, who then leases the equipment to the City. The lease may contain an option to purchase. The contract may not be more than 25 years. Local Government Code §271.009.

Competitive bidding requirements apply to lease purchase arrangements.

21.0 RECEIPT OF GOODS

When any materials, equipment or supplies are received, the department that placed the order is responsible for inspecting the shipment and initiating the payment process.

22.0 DISPOSAL of SURPLUS CITY PROPERTY

Review City Ordinance No. 2005-09.

23.0 PROMPT PAYMENT

In order to comply with state statutes, Texas Local Government Code (Subtitle F. State and Local Contracts and Fund Management, Chapter 2251, Payment for Goods and Services) and avoid the interest penalty, invoices must be paid within thirty (30) days of the delivery or invoice date whichever is later, or interest at the rate of 1% per month is automatically imposed. Vendor payments will be due and payable to the vendor within the applicable payment terms in compliance with the Prompt Payment Act.

If an error on an invoice is received from a vendor, the City has until the 21st day after receipt to notify the vendor of the dispute. Then if the dispute is resolved and found in favor of the City, the vendor must submit a new invoice and the City has 30 days from receipt of the new invoice in which to pay. If the dispute is found in favor of the vendor, interest is due from the original date the invoice became overdue.

However, this policy does not apply to payments made by the City in the event:

1. There is a bona fide dispute between the City and the vendor concerning the supplies, materials, services or equipment delivered or the services performed that causes the payment to be late; or
2. The terms of a federal agreement, grant, regulation, or statute prevent the City from making a timely payment with Federal funds; or
3. There is a bona fide dispute between the vendor and a subcontractor or between a subcontractor and its suppliers concerning supplies, material, or equipment delivered or the services performed which caused the payment to be late; or
4. When the invoice is not mailed to the proper office, if an office address is specified in the instructions on the purchase order.

In order to comply with the prompt payment act and avoid the interest penalty, all invoices must be sent to Accounts Payable within twenty (20) days to allow for processing time.

24.0 CHANGE ORDERS

After awarding a bid contract, the City may make changes to plans, specifications or quantities if necessary. Such changes may not increase or decrease the original contract price by more than 25%.

If a change order involves a decrease or an increase of $30,000 or less, the City Administrator is authorized by the City Council to approve the change. The original contract price may not be increased by more than $30,000 without formal approval by the City Council and the original contract price may not be increased by more than 25%. The original contract price may not be decreased by more than 25% without the consent of the contractor. Local Government Code §252.048.

25.0 INSURANCE REQUIREMENTS

Contractors, vendors and consultants require insurance coverage when doing business with the City. In general, if a service is being provided on City property, proof of insurance is required. Specific insurance requirements are incorporated into bid documents and specifications for each bid and proposal. Insurance Certificates are reviewed and updated annually and must list the “City of Castroville” as additional insured. Insurance certificates are maintained and filed in the Office of the City Secretary.

Whenever the City contracts with an outside party (contractor, consultant, vendor or concessionaire) for goods and services whose work, or employees, may expose the City and the public at risk of any kind are required to sign an indemnity clause (hold harmless clause) along with a contractual agreement that will transfer the risk of the project from the City to the Contractor. They must also provide a current insurance certificate to the City that shows their liability meets the City's requirement. Insurance requirements may vary from project to project depending on the type of work or service being provided.

26.0 BONDING REQUIREMENTS

Ensure that the successful bidder will enter into a contract with the City and complete the project as defined by the bid specifications, bidders may be required to provide the City with surety bond guaranteeing successful completion of the contract. There are three types of surety bonds commonly used with City contracts; the bid bond, performance (and maintenance) bond, and the payment bond. A surety is a firm (usually an insurance company) that will guarantee that the bidder will perform as defined by the specifications. The City will only accept corporate sureties as bonding entities. Personal sureties are unacceptable.

The following provisions shall apply when a solicitation requires specific bond requirements based on the complexity of the project and risk to the City as determined by the City Administrator and in accordance with State law.

26.1 Bid Bond

It is the City's option whether to require bidders to provide the City with a bid bond along with their bid submissions.

Bid bonds are issued by a surety financially guaranteeing that the successful bidder will enter into an agreement with the City to perform the project or provide the service as defined in the specifications. The City requires that the bid bond be accompanied with an appropriate completed "Power of Attorney" executing the bid bond for the bidder.

As an alternative, the City may accept a cashier's check, with the City named as payee, to be held in escrow until the successful bidder signs the City's project contract.

BID BOND AMOUNT: The bid bond minimum limit (or cashier's check) is five percent (5%) of the total amount bid.

26.2 Performance Bond

Performance bonds financially guarantee that once the successful bidder enters into a contract with the City to perform work, the contractor will complete the project. Should the contractor fail, then the surety will, generally, hire an alternate contractor to complete the work, allow the City to select another contractor and pay the difference between the first contractor's price and the new contractor's price, or pay the original contractor whatever it takes to complete the project.

26.3 Payment Bond

A payment bond will pay any outstanding bills for labor, materials, and supplies used in the City's project from the contractor's subcontractors and suppliers should the prime contractor default on their payment. Payment bonds must be written for one hundred percent (100%) of the total bid price.

26.4 Maintenance Bond

Maintenance bonds financial guarantee that the contractor will maintain and keep in good repair the work contracted to be done and performed from the date of acceptance of the work by the City for a predetermined period of time. For public works projects, the bond would also include any necessary back filling that may arise because of sunken conditions.

The bond is designed to provide financial protection to the City for all defective conditions arising by reason of defective material, work or labor performed by the contractor. In the event the contractor does not fulfill its maintenance obligation. The bonding company will pay to maintain the project as defined in the contract specifications.

26.5 State Law Regarding Bonding

Chapter 2253 of the Government Code requires bonds for payment and performance of contracts on certain public works projects and sets the standards when the bonds are required.

Public works projects in excess of $25,000, or such other threshold established by State law, will require the contractor to execute a payment bond solely for the protection of beneficiaries who supply materials or labor to the public works project and have a direct contractual relationship with the contractor.

Public works projects in excess of $100,000 will require the contractors to execute a performance bond solely for the protection of the municipality. The City reserves the right to require a performance bond on contracts less than $100,000.

Performance bonds must be written for the total contract amount and executed by a corporate surety in accordance with the Insurance Code prior to commencement of the work.

Any performance bond must be by a surety authorized to do business in Texas in accordance with Government Code §2253. The bond must be payable to the City and approved by City Attorney as to form.

26.6 Insurance Requirements

Most solicitations issued by the City of Castroville contain insurance and bonding requirements. The bonding and insurance requirements cannot be waived. The awarded bidder will be required to furnish the City with an insurance certificate satisfying all requirements stated in the solicitation document. It is advisable that potential respondents consult their insurance agent prior to submitting a bid to determine whether or not they will be able to secure the necessary insurance if awarded the contract.

The City reserves the right to review the insurance requirements and modify insurance coverage and their limits when deemed necessary. The City will not accept a Memorandum of Insurance or Binder as proof of insurance.

The following standard insurance policies shall be required:

- General Liability Insurance
- Business Automobile Liability Insurance
- Worker's Compensation Insurance
- Employers Liability Insurance

26.7 Workers Compensation Coverage

Texas Labor Code § 406.096(a) & (b) requires that each contractor and subcontractor involved in a building or construction contract with a governmental entity in Texas provide proof that it covers its employees through workers' compensation insurance.

The phrase "building or construction" is defined to include any of the following:

- erecting or preparing to erect a structure, including a building, bridge, road, public utility facility, or related structure;
- remodeling, extending, repairing or demolishing a structure; or
- otherwise improving real property or a structure related to real property through similar activities.

27.0 PREVAILING WAGE RATE

For all City of Castroville funded public works construction projects, the City of Castroville, in accordance with Texas Government Code §2258, requires that not less than the general prevailing daily wage rate for work of similar character be paid to contractor and subcontractor employees. These wage rates are derived from the most current applicable federal prevailing wage rates as published by the United States Department of Labor, Dallas, Texas. The prevailing wage requirement does not apply to maintenance work.

Any deviation from Wage and Labor Standard Provision compliance shall be cause for City's withholding either periodic interim or final payment to the contractor until such deviations are properly corrected.

28.0 MATERIAL SAFETY DATA SHEETS

Under the Hazardous Communication Act, commonly known as the Texas Right to Know Act, a vendor must provide to the City with each delivery, material safety data sheets, which are applicable to hazardous substances, defined in the Act.

29.0 TRENCH EXCAVATION

If a contract will require that a trench be dug to a depth of greater than 5 feet, the bid documents must include certain requirements as detailed in the Health & Safety Code §756.023.

30.0 DEFINITIONS

Bid Bond	A bond required of a contractor which ensures that the contractor will enter into a contract for which the contractor has submitted a formal written bid.
Component Purchases	Purchases of a component part of an item that in normal purchasing practices would be purchased in one purchase.
High Technology Procurement	The purchase of insurance or equipment, goods, or services of a highly technical nature, including data processing equipment and software and firmware used in conjunction with data processing equipment; telecommunications equipment, radio and microwave systems; electronic distributed control systems, including building energy management systems; and technical services related to those items.
Payment Bond	A bond required that ensures that all suppliers and subcontractors of the contractor will be paid for work and/or materials supplied in the course of the contract.
Performance Bond	A bond required that guarantees vendor performance during the execution of the contract.
Professional Services	Services that involve labor and skill that is predominantly mental and intellectual, rather than physical or manual; disciplines requiring special knowledge or attainment and a high order of learning, skill and intelligence. Professional services include, but are not limited to: accounting, architecture, landscape architecture, land surveying, medicine, optometry, professional engineering, real estate appraising, or professional nursing.
Public Works Contracts	Contracts for the construction, alteration, repair, or renovation of a building, structure, road, highway or other improvements or additions to real property.
Request for Proposals (RFP)	A competitive procurement process allowing the City to consider a variety of factors when selecting a party for award of a contract. RFP's may be used for the procurement of consulting and other professional services, except for architects, landscape architects, engineers, and land surveyors. The process includes soliciting proposals from respondents, then evaluating and ranking the proposals based upon predetermined criteria, which may include a cost component. Negotiations are then conducted to finalize a contract.
Request for Qualifications (RFQ)	The selection process for architectural, including landscape architectural, engineering, and land surveying services as defined by the Professional Services Procurement Act set forth in the Texas Government Code Chapter 2254. Qualification statement are solicited, then evaluated and ranked based upon demonstrated competence and qualifications. There is no request for a price proposal until the top ranked firm is selected. Negotiations are then conducted to finalize a contract.
Separate Purchases	Purchases, made separately, of items that in normal purchasing practices would be purchased in one purchase.
Sequential Purchases	Purchases made over a period of time that, in normal purchasing practices, would be in one purchase.

31.0 EXHIBITS

Exhibit 1 – Conflict of Interest Form (Government Official) in accordance with Chapter 176 Local Government Code

Exhibit 2 –Certificate of Interest Parties

Exhibit 3 – W-9 Request for Taxpayer Identification Number and Certification

Exhibit 4 – Texas Sales and Use Tax Exemption Certification

Exhibit 1 – Local Government Officer Conflict Disclosure Statement

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM **CIS**

(Instructions for completing and filing this form are provided on the next page.)

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of person described by Sections 176.002(a) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with person named in item 3**

5 **List gifts accepted by the local government officer and any family member, excluding gifts described by Section 176.003(a-1), if aggregate value of the gifts accepted from person named in item 3 exceed $250 during the 12-month period described by Section 176.003(a)(2)(B)**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to a family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a), Local Government Code.

_____

Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____

Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 06/29/2007

LOCAL GOVERNMENT OFFICER
CONFLICTS DISCLOSURE STATEMENT

Section 176.003 of the Local Government Code requires certain local government officers to file this form. A "local government officer" is defined as a member of the governing body of a local governmental entity; a director, superintendent, administrator, president, or other person designated as the executive officer of the local governmental entity; or an employee of a local governmental entity with respect to whom the local governmental entity has, in accordance with Section 176.005, extended the requirements of Sections 176.003 and 176.004. This form is required to be filed with the records administrator of the local governmental entity not later than 5 p.m. on the seventh business day after the date on which the officer becomes aware of the facts that require the filing of this statement.

A local government officer commits an offense if the officer knowingly violates Section 176.003, Local Government Code. An offense under this section is a Class C misdemeanor.

Please refer to chapter 176 of the Local Government Code for detailed information regarding the requirement to file this form.

INSTRUCTIONS FOR COMPLETING THIS FORM

The following numbers correspond to the numbered boxes on the other side.

1. Name of Local Government Officer. Enter the name of the local government officer filing this statement.

2. Office Held. Enter the name of the office held by the local government officer filing this statement.

3. Name of person described by Sections 176.002(a) and 176.003(a), Local Government Code. Enter the name of the person described by Section 176.002, Local Government Code with whom the officer has an employment or other business relationship as described by Section 176.003(a), Local Government Code.

4. Description of the nature and extent of employment or business relationship with person named in item 3. Describe the nature and extent of the employment or other business relationship with the person in item 3 as described by Section 176.003(a), Local Government Code.

5. List gifts accepted, excluding gifts described by Section 176.003(a-1), if aggregate value of the gifts accepted from person named in item 3 exceed $250. List gifts accepted during the 12-month period (described by Section 176.003(a), Local Government Code) by the local government officer or family member of the officer, excluding gifts described by Section 176.003(a-1), from the person named in item 3 that in the aggregate exceed $250 in value.

6. Affidavit. Signature of local government officer.

Adopted 06/29/2007

Exhibit 2 – Certificate of Interest Parties

CERTIFICATE OF INTERESTED PARTIES — FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 **Name of business entity filing form, and the city, state and country of the business entity's place of business.**

2 **Name of governmental entity or state agency that is a party to the contract for which the form is being filed.**

3 **Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.**

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

Must file online at www.ethics.state.tx.us/File

5 **Check only if there is NO Interested Party.** ☐

6 **AFFIDAVIT** I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

_____
Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____ _____ _____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 4/8/2016

Exhibit 3 – W-9 Request for Taxpayer Identification Number and Certification

Form **W-9**
(Rev. January 2011)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification (required): ☐ Individual/sole proprietor ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ►

☐ Other (see instructions) ►

☐ Exempt payee

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

			–		–				

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here **Signature of U.S. person** ► **Date** ►

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

Cat. No. 10231X Form **W-9** (Rev. 1-2011)

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,
- The U.S. grantor or other owner of a grantor trust and not the trust, and
- The U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person, do not use Form W-9. Instead, use the appropriate Form W-8 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.

2. The treaty article addressing the income.

3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.

4. The type and amount of income that qualifies for the exemption from tax.

5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS a percentage of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,

2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),

3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate Instructions for the Requester of Form W-9.

Also see *Special rules for partnerships* on page 1.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account, for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name

If you are an individual, you must generally enter the name shown on your income tax return. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name/disregarded entity name" line.

Partnership, C Corporation, or S Corporation. Enter the entity's name on the "Name" line and any business, trade, or "doing business as (DBA) name" on the "Business name/disregarded entity name" line.

Disregarded entity. Enter the owner's name on the "Name" line. The name of the entity entered on the "Name" line should never be a disregarded entity. The name on the "Name" line must be the name shown on the income tax return on which the income will be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a domestic owner, the domestic owner's name is required to be provided on the "Name" line. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on the "Business name/disregarded entity name" line. If the owner of the disregarded entity is a foreign person, you must complete an appropriate Form W-8.

Note. Check the appropriate box for the federal tax classification of the person whose name is entered on the "Name" line (Individual/sole proprietor, Partnership, C Corporation, S Corporation, Trust/estate).

Limited Liability Company (LLC). If the person identified on the "Name" line is an LLC, check the "Limited liability company" box only and enter the appropriate code for the tax classification in the space provided. If you are an LLC that is treated as a partnership for federal tax purposes, enter "P" for partnership. If you are an LLC that has filed a Form 8832 or a Form 2553 to be taxed as a corporation, enter "C" for C corporation or "S" for S corporation. If you are an LLC that is disregarded as an entity separate from its owner under Regulation section 301.7701-3 (except for employment and excise tax), do not check the LLC box unless the owner of the LLC (required to be identified on the "Name" line) is another LLC that is not disregarded for federal tax purposes. If the LLC is disregarded as an entity separate from its owner, enter the appropriate tax classification of the owner identified on the "Name" line.

Other entities. Enter your business name as shown on required federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name/ disregarded entity name" line.

Exempt Payee

If you are exempt from backup withholding, enter your name as described above and check the appropriate box for your status, then check the "Exempt payee" box in the line following the "Business name/ disregarded entity name," sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note. If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

The following payees are exempt from backup withholding:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2),

2. The United States or any of its agencies or instrumentalities,

3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities,

4. A foreign government or any of its political subdivisions, agencies, or instrumentalities, or

5. An international organization or any of its agencies or instrumentalities.

Other payees that may be exempt from backup withholding include:

6. A corporation,

7. A foreign central bank of issue,

8. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States,

9. A futures commission merchant registered with the Commodity Futures Trading Commission,

10. A real estate investment trust,

11. An entity registered at all times during the tax year under the Investment Company Act of 1940,

12. A common trust fund operated by a bank under section 584(a),

13. A financial institution,

14. A middleman known in the investment community as a nominee or custodian, or

15. A trust exempt from tax under section 664 or described in section 4947.

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 15.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 9
Broker transactions	Exempt payees 1 through 5 and 7 through 13. Also, C corporations.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 5
Payments over $600 required to be reported and direct sales over $5,000 [1]	Generally, exempt payees 1 through 7 [2]

[1] See Form 1099-MISC, Miscellaneous Income, and its instructions.

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney, and payments for services paid by a federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited Liability Company (LLC)* on page 2), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at *www.ssa.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting IRS.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: *A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.*

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, below, and items 4 and 5 on page 4 indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on the "Name" line must sign. Exempt payees, see *Exempt Payee* on page 3.

Signature requirements. Complete the certification as indicated in items 1 through 3, below, and items 4 and 5 on page 4.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account [1]
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor [2]
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee [1]
b. So-called trust account that is not a legal or valid trust under state law	The actual owner [1]
5. Sole proprietorship or disregarded entity owned by an individual	The owner [3]
6. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulation section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	**Give name and EIN of:**
7. Disregarded entity not owned by an individual	The owner
8. A valid trust, estate, or pension trust	Legal entity [4]
9. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
10. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
11. Partnership or multi-member LLC	The partnership
12. A broker or registered nominee	The broker or nominee
13. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
14. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulation section 1.671-4(b)(2)(i)(B))	The trust

[1] List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

[2] Circle the minor's name and furnish the minor's SSN.

[3] You must show your individual name and you may also enter your business or "DBA" name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

[4] List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 1.

***Note.** Grantor also must provide a Form W-9 to trustee of trust.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, social security number (SSN), or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Publication 4535, Identity Theft Prevention and Victim Assistance.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes. Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov.* You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: *spam@uce.gov* or contact them at *www.ftc.gov/idtheft* or 1-877-IDTHEFT (1-877-438-4338).

Visit IRS.gov to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

Exhibit 4 - Texas Sales and Use Tax Exemption Certification

01-339 (Back)
(Rev. 9-07/6)

TEXAS SALES AND USE TAX EXEMPTION CERTIFICATION

Name of purchaser, firm or agency	
CITY OF CASTROVILLE	
Address *(Street & number, P.O. Box or Route number)*	Phone *(Area code and number)*
1209 FIORELLA STREET	
City, State, ZIP code	
CASTROVILLE, TEXAS 78009	

I, the purchaser named above, claim an exemption from payment of sales and use taxes (for the purchase of taxable items described below or on the attached order or invoice) from:

Seller: _____

Street address: _____ City, State, ZIP code: _____

Description of items to be purchased or on the attached order or invoice:

_____

_____

_____

Purchaser claims this exemption for the following reason:

MUNICIPALITY TAX ID #1-746000497-5

I understand that I will be liable for payment of all state and local sales or use taxes which may become due for failure to comply with the provisions of the Tax Code and/or all applicable law.

I understand that it is a criminal offense to give an exemption certificate to the seller for taxable items that I know, at the time of purchase, will be used in a manner other than that expressed in this certificate, and depending on the amount of tax evaded, the offense may range from a Class C misdemeanor to a felony of the second degree.

Purchaser	Title	Date
sign here ▸		

NOTE: This certificate cannot be issued for the purchase, lease, or rental of a motor vehicle.
THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID.
Sales and Use Tax "Exemption Numbers" or "Tax Exempt" Numbers do not exist.

This certificate should be furnished to the supplier. Do **not** send the completed certificate to the Comptroller of Public Accounts.

City Administrator's Report

To: Mayor Alexander & City Council

CC: Staff

From: R. Scott Dixon, City Administrator

Date: May 21, 2026

Re: City Administrator's Report

Mayor and Council,

The items outlined below are provided to keep you informed on ongoing projects, initiatives, and operational priorities. My intent with this report—and all communications to Council—is to ensure that you have timely, accurate, and decision-useful information as you carry out your policy-making and oversight responsibilities.

Drainage Projects

Geneva Channel

Unfortunately, weather has prevented the fleximat from being installed. It will be installed over the next two weeks (weather permitting). Following installation of the fleximat, staff will complete the project by installing safety measures along the top of the channel.

Garza Creek

The City received six bids ranging from $735,000 to $1.5 million for the Garza Creek stabilization project. The project is ready for council consideration and award and is on the agenda for council action.

Athens-Area Drainage / Country Village Channel

We are very grateful for the continued rain but it has put a *dampe*r on our drainage activities. Staff will continue to implement the drainage maintenance plan that was shared with council at the April 28th meeting.

Steinbach Hus

Staff is waiting on an initial cost estimate for both the survey work and design. Depending on the cost, this item may be brought back to council for authorization at the first meeting in June.

BMA Trail Access

No Change. Staff made contact with both BMA's staff and their attorney to relay the projected costs and proposed contract changes (extend from a one year initial term to a five year initial term). Staff will attend the June meeting of the BMA Board to present and discuss these changes.

Streets, Maintenance, and Paving Plan

Council approved both the HA5 and bonded mix overlay (BMO) projects and both are scheduled to be completed by the end of July (weather permitting). The HA5 application in Westheim, Country Village Estates, and Alsatian Oaks is scheduled to commence on Monday, June 8th. Staff held a pre-project meeting with the contractor's representatives to discuss the communication plan, equipment and material staging areas and proposed shuttle service for residents. A sample of the notice that will be used for this project as well as the project map has been included with this report for council's reference.

WWTP Pond Closure

Lochner continues to advance preliminary engineering and hydraulic evaluation efforts associated with the proposed concept. Staff has been advised that a simplified two-dimensional (2D) hydraulic model has now been completed and vetted in order to better evaluate pond discharge impacts and reduce the risk of downstream damage or unintended flooding conditions.

The engineering team is currently evaluating various detention pond configurations, outlet structures, and potential earthen check dam alternatives in an effort to reduce the size and overall cost of the required outlet infrastructure while maintaining regulatory compliance and operational effectiveness.

According to Lochner, the hydraulic modeling effort has proven beneficial in evaluating anticipated water depths within the park area under multiple storm event scenarios. The engineering team is currently preparing conceptual design sketches and anticipates transmitting those materials to the City in advance of a scheduled **meeting with staff on June 4 to** review the analysis results and conceptual approach in greater detail. Lochner has indicated that the concepts should be sufficiently developed at that time to allow the City to better understand the proposed approach, evaluate potential impacts, and provide additional policy direction regarding the preferred path forward.

Additional updates are anticipated as the engineering team continues refining the conceptual design, project schedule, and associated cost estimates.

Multimodal Planning Effort

The City's multimodal (Alternative Transportation Plan) has been presented to the Planning & Zoning Commission which has recommend its adoption. It is on the council agenda for consideration and adoption.

Community Center at Regional Park (Construction)

No Change. Construction of the Community Center is currently approximately **89% complete**. Substantial completion & owner move-in date **has been pushed back two weeks** to the **middle of June**. Due to events at the pool that take place prior to this date, staff is coordinating with Frontera to complete the western (pool-dedicated areas) portion of the project by the end of May as originally planned.

Pool Restroom/Shower Building

The council consent agenda includes an item that will authorize a change order to construct the restroom and shower facility. The total cost is expected to be within the amount authorized by council for this project.

Parking Improvements at Regional Park

Following council's direction at the May 12th meeting, staff has obtained three bids (ranging from $82,000 to $95,000) for the construction and paving of the upper parking lot as a separate stand-alone project. The council agenda includes an action item to award the project.

ADA Handrail at Swimming Pool

The handrail has been installed a few days prior to the anticipated date of May 22nd. This project is complete.

Lion's Park Splash Pad

Staff ran tests of the system and found that five of the water features were not working properly. Additional plumbing repairs will be needed. Once completed, staff will fill the voids with cement flowable fill and have the surface pad area re-poured. Unfortunately, the completion of this work will likely push the re-opening of the splashpad to the middle of June (weather permitting).

Hwy 90 TxDoT Construction Project

No Change. As previously reported, based on preliminary coordination, the project presents **utility conflicts across all major systems**, including water, wastewater, gas, and electric. The City has engaged **Respec** (water and sewer) and **SEnergy** (gas and electric) to assist in identifying and evaluating these conflicts.
At this stage, the total cost of utility relocations remains uncertain; however, staff estimates a **potential cost range of approximately $1.2 million to $1.5 million**, subject to refinement as design progresses. Final cost responsibility will be determined through the Advanced Funding Agreement (AFA) with TxDOT once 90–100% design plans are available.
The current project schedule anticipates:

- Draft AFA development beginning August 2026

- Final plans and cost estimates by November 2026
- Council consideration of the AFA in late 2026
- Funding to be provided to TxDOT no later than **February 6, 2027**
- Project letting anticipated April 2027

Staff will continue to monitor design progress and will provide updates as additional information becomes available.

County Streets Plan

Staff has obtained the county's costs for sealant and mill and overlay work. These costs range from $.98 sq./ft, to $1.50 sq./ft. and vary based on the condition of the roadway. Staff will continue to coordinate with the county to identify potential street projects and finalize costs. Staff will be coordinating with the City Attorney to develop an interlocal agreement.

Steinbach Hus Repairs

No Change. As directed by council at the April 14th meeting, staff will coordinate repairs to the roof, beams, windows, doors, and other wood elements of the Steinbach Hus. These repairs will be completed over the next 6 to 8 weeks.

City Hall Repairs

The City Hall roof repairs have been completed. The project entailed removing the vinyl, rocks and tar on the two flat roof sections and installing a foam core barrier, cardboard sheeting overlay and TPO sheeting. Following completion, the city had another rain event that revealed that water was continuing to penetrate the building through the upper story windows above the flat roof areas. These windows have had additional flashing installed and will be evaluated in the next rain event to determine whether all of the leaks have been fixed.

Library Expansion Project / City Hall Maintenance

Since January, staff has provided multiple updates regarding the City Hall Renovation and Library Expansion efforts through City Administrator Reports, CIP discussions, and related agenda discussions.

As Council is aware, the project originally began as a combined initiative that contemplated both:

- renovation and modernization of City Hall; and
- expansion of the Public Library to address operational, programming, and space needs identified by staff and stakeholders.

Following the April and May Council discussions, the overall direction of the project has evolved considerably. Based upon recent discussions and feedback from Council, there now appears to be general consensus to proceed with advancement of the Library Expansion Project while limiting the City Hall component primarily to maintenance, preservation, and necessary repair items unless otherwise directed by Council in the future.

Over the past several months, staff has attempted on multiple occasions to place the project on the regular agenda in order to have the design build team obtain more formal policy direction regarding scope, phasing, priorities, and contracting. However, Mayor Alexander has directed staff to remove those items from the agenda and instead provide updates and receive discussion through the City Administrator's Report process.

Background / Prior Direction
The City previously selected Pugh Constructors and Ford, Powell & Carson through the design-build procurement process to assist with evaluation, conceptual planning, and development of both the City Hall and Library projects. The original intent was to allow the team to advance both projects concurrently under a unified design-build framework.

Throughout the spring, staff coordinated with the design-build team regarding:
- conceptual layouts;
- parking configurations;
- preliminary cost considerations;
- historical preservation considerations;
- stakeholder input related to the Library; and
- potential phasing strategies for both facilities.

As reflected in prior reports, Council provided direction that:
- Library stakeholder input should be incorporated "where feasible";
- City Hall discussions should be deferred pending seating of the new Council; and
- routine maintenance items at City Hall, particularly roof-related issues, should proceed separately from larger renovation discussions.

Since that time, staff has continued coordinating with the project team in an effort to clarify the appropriate contractual and procedural path forward.

Current Contractual / Procedural Status
Following legal and procedural review by the design-build team, staff was recently advised that the previously executed feasibility/master planning agreement is not sufficient by itself to authorize advancement into formal project design and implementation phases.

Specifically, the design-build team has advised that:
- the prior agreement functioned primarily as a feasibility and conceptual planning document;
- additional contractual authorization is required before formal design services may proceed; and
- a separate Design-Build Agreement and subsequent Design-Build Amendment would ultimately be required before any construction work could be formally authorized.

The proposed process outlined by the contractor generally consists of:
1. Preliminary Design / refinement of Owner criteria;
2. Development of cost estimates and project scope;
3. Execution of a Design-Build Amendment authorizing the project to proceed;

4. Completion of final construction documents and permitting; and
5. Construction.

Importantly, staff has been advised that execution of the proposed design agreement would obligate the City only for design-related services and would not constitute authorization to proceed with construction unless and until Council separately approves a future Design-Build Amendment.

Library Expansion
Based on recent Council discussions, staff believes there is substantially more alignment regarding advancement of the Library Expansion Project than the City Hall component.

The design-build team has indicated that the Library project could proceed under a **revised standalone design-build agreement** focused specifically on:

- library expansion;
- associated site work and parking improvements; and
- related engineering and architectural services.

The contractor has also indicated that **separating the Library project** from the City Hall discussions may simplify project administration and allow progress to continue while Council further evaluates long-term City Hall priorities.

Staff has continued to coordinate with Library staff and the project team regarding conceptual layouts, parking, timelines, and potential grant opportunities previously discussed with Council. Earlier conceptual work included revised parking layouts providing approximately twenty-two (22) standard parking spaces and one (1) ADA space.

City Hall
Unlike the Library project, Council direction regarding City Hall has continued to evolve. Recent discussions have generally centered around:

- roof repairs;
- window restoration versus replacement;
- masonry and exterior envelope maintenance;
- drainage and moisture concerns; and
- limited preservation-oriented work rather than a comprehensive interior remodel.

The Mayor and several Council Members have expressed concerns regarding undertaking a larger-scale City Hall renovation project at this time absent more detailed plans, pricing, and long-term budget discussions.

The design-build team has advised that if Council ultimately limits the scope to maintenance and preservation-related activities only, those items may potentially be handled through a simpler contracting approach rather than a full design-build delivery model.

Because staff has not yet received clear or final direction regarding:

- the desired extent of City Hall improvements;

- long-term occupancy and space planning;
- interior renovation priorities; or
- available funding levels beyond previously discussed maintenance needs,

staff has recommended discussing the future of the City Hall component further during the upcoming budget and capital planning discussions before advancing into formal design.

In the interim, staff continues to coordinate with the architect regarding evaluation of the historic windows and associated long-term maintenance considerations, including:

- restoration feasibility;
- replacement alternatives;
- lifecycle maintenance expectations; and
- comparative cost impacts.

Next Steps

Absent further Council direction, staff anticipates the following potential next steps:

1. Continue routine maintenance and emergency repair efforts at City Hall as needed;
2. Obtain additional professional input regarding window restoration versus replacement options, including lifecycle maintenance considerations and comparative costs;
3. Seek Council direction during the City Administrator's Report regarding whether Council desires to formally separate the Library Expansion and City Hall components into two independent projects;
4. Seek clarification from Council regarding whether:
    - the Library Expansion Project should continue utilizing the design-build delivery approach as recommended by the project team; and
    - the City Hall work should instead proceed utilizing a simpler contractor or proposal-based approach focused primarily on maintenance and preservation activities;
5. Present additional budget, scope, and capital planning considerations during upcoming budget/CIP discussions;
6. If directed by Council, return with a proposed standalone Library design agreement for consideration and potential approval; and
7. Continue refining scope, scheduling, and cost expectations prior to a

Flat Creek Water Well Project

Respec has been coordinating with staff and the engineers for the developers on the design of the proposed elevated storage tank. A progress report will be provided to the City and developer group within the next week. Shad Schmid, the developer of the Flat Creek subdivision recently confirmed that the developers have made progress on the legal agreement between the developers that will facilitate the tower's construction.

Joint Airport Zoning Ordinance

Staff will re-engage with the County on the airport zoning issue. For council's context and information, following the dissolution of the joint airport zoning board, staff was directed to

develop zoning standards for the airport and surrounding area that represented the minimal standards required by the FAA. The New Braunfels zoning standards were specifically referenced as a possible guide. Staff has developed these draft standards, they have been included with this report for council's reference. Since these standards must be adopted by both the City and County, staff has attempted to seek the county's input prior to presenting them for adoption. After months of no progress, this item "fell through the cracks". Staff sincerely apologizes for the lack of progress and will redouble its efforts to get this moving again.

City Response to FAA Letter

Staff will review the FAA's letter (included with this report for council's reference) and advise council at a future meeting on possible actions or responses regarding the lease of the baseball fields. As has been previously discussed, several remedies may be available including: a payment of the FMV lease to the airport (approximately $36,000), recognition of in-kind services by the City such as utility improvements/maintenance or ongoing security services, seeking removal of the aviation designation for the property from the FAA, seeking FAA approval of a "land swap" between the City and the airport, or seeking to reduce the FMV lease amount to a nominal amount in recognition of the "public use" of the baseball fields.

Paper Street Ordinance

Another item that has "fallen through the cracks" is the paper street ordinance that staff was requested to draft on August 12th of last year. The minutes of the August 12th meeting are below:

h. Discussion and possible action regarding the use of undeveloped Rights-of-Way ("Paper Streets") for vehicle traffic Mayor Alexander said he had placed on the agenda for the City Council to set rules on paper streets access. Mayor Alexander said the paper streets were used to have river access, but the City Council should look at the issues of restricting vehicle access and still allow pedestrian access. The property owner at 1306 London going up Cross Hill spoke on having dead animals dumped, stealing, and trespassers on their property. Mayor Alexander said people on the river would support closing of the river access streets. Councilmember Marchman said people were misusing the paper street near him by playing loud music and partying. Councilmember Merz suggested placing signage for pedestrian foot traffic only. Councilmember Lee said London was not a paper street and Public Works Assistant Public Works Director said it was closed to the public due for safety purposes. A motion was made by Councilmember Marchman and duly seconded by Councilmember Martinez to direct City Administrator Dixon and City Attorney to draft an ordinance on restricting vehicle access on unimproved roadways. A vote was taken (4:0 all ayes) the motion carried by all present.

Staff has already reached out to the City Attorney to coordinate drafting a proposed ordinance and will have this for council consideration as soon as possible.

If I have omitted any items or if additional information is needed on any topic included in this report, please let me know and I will ensure it is addressed promptly.

It is my privilege to serve the residents and elected officials of Castroville.

Thank you,



R. Scott Dixon, MPA, CGFO, ICMA-CM

City Administrator, Castroville, TX



NOTICE:

City of Castroville Residents

Streets will be closing daily:

Monday June 8th AND Tuesday June 9th

Wednesday June 10th AND Thursday June 11th

Friday June 12th AND Saturday June 13th

****See other side for map of your street's specific day of closure****

WHY IS MY ROAD CLOSING?

Roads in your subdivision are having a pavement preservation treatment installed that will help significantly extend the life of asphalt streets. The benefits of properly maintained streets include higher property values, a smoother/safer ride, and reduced costs to the community by prolonging the need for replacement. HA5 (High Density Mineral Bond) will be installed in a two-stage process over two days.

Work will commence at 7:00 AM on the streets being treated and will be closed until approximately 7:00 PM each day of the project. The roads will reopen at that time to allow homeowners vehicles access to their homes. A tow truck will be called for any cars parked on the streets scheduled to be treated that day. Please do not park within 50 feet of any street being worked on. Towing expenses will be the owner's responsibility.

WHAT IF I DRIVE ON THE ROAD WHILE CLOSED?

You will be liable for damage to your vehicle and to repair the area of road you have driven on. Minimum repair cost is $750 to repair the installed surface treatment. In the event of a life-threatening emergency, emergency vehicles will not be stopped from driving on the treated surface.

SHUTTLE SERVICE

A shuttle service is being provided for your convenience from **7am until 7pm** while the streets are being treated. The shuttle will take you to/from your car. The shuttle service driver's ability to recognize the curing stage of the newly installed surface treatment and the lighter weight vehicle makes this service possible. Please contact our shuttle driver 24 hours in advance if you have a specific appointment time that you need accommodation for.

To reach the shuttle please call 254-644-5495. The shuttle number will be available to take your call beginning at 7am on each closure day.

SHUTTLE DISCLAIMER: There are times when the entire roadway is simply not available for any travel whatsoever and the golf cart will not be able to perform the service until the proper amount of curing has taken place. When there are no sidewalks available, there may be a 2-3 hour window of time when we cannot be on the road. We appreciate your cooperation as we work to improve your roadways.

ALL OUTSIDE WATER MUST BE TURNED OFF

Water may damage the installation of the surface treatment. Please do not have sprinklers, hoses, etc. set to come on 24 hours before the road closure, during the road closure, or 24 hours after the road closure. Damage due to outdoor water use will result in the same minimum repair cost of $750 to repair the installed surface treatment.

WEATHER CANCELLATION PROCEDURES:

If your street is cancelled due to weather, THAT DAY will be rescheduled. All other days will proceed as scheduled. You will receive notification of your new closure date 2-3 days prior to the newly rescheduled date. You will not receive a cancellation notice (if we have removed the barricades, you can bring your cars back in) and you will not receive immediate notice of your new date. If you require earlier notification of your rescheduled closure date, please call the office number and we will be happy to let you know of any approved dates.

Project Contacts: HOLBROOK OFFICE @ 210-806-0920
Superintendent: Tyson Biddle @ 435-999-4428
Operations Manager - Shane Pendergrass @ 435-773-7823

SPANISH

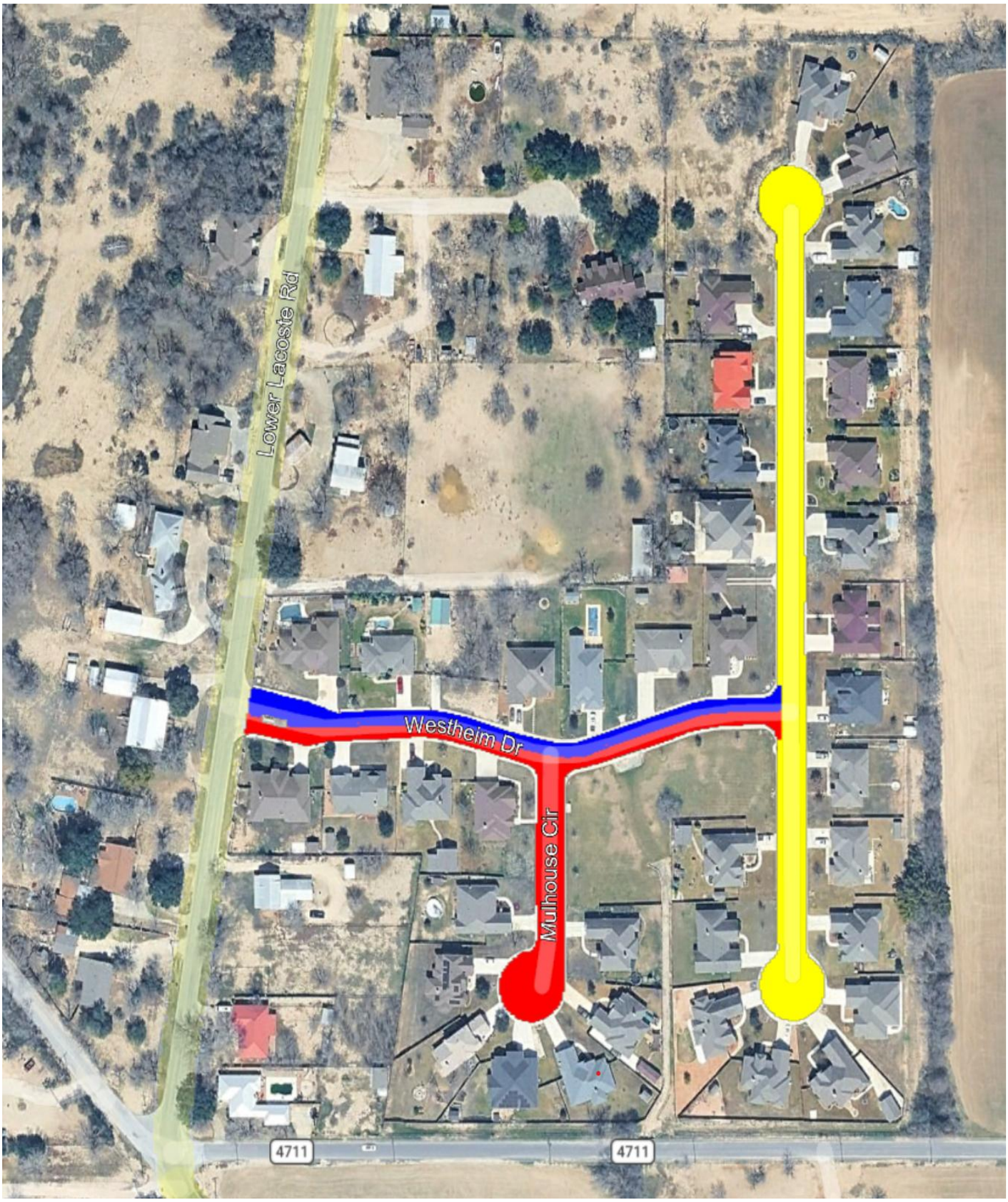
ENGLISH

Scan this QR code for updates on rainout days

Westheim Village

Castroville Residents:

The areas highlighted in RED will be CLOSED Monday June 8th AND Tuesday June 9th
The areas highlighted in BLUE will be CLOSED Wednesday June 10th AND Thursday June 11th
The areas highlighted in YELLOW will be CLOSED Friday June 12th AND Saturday June 13th
All areas will be closed from 7am to 7pm each day
PLEASE PLAN ACCORDINGLY



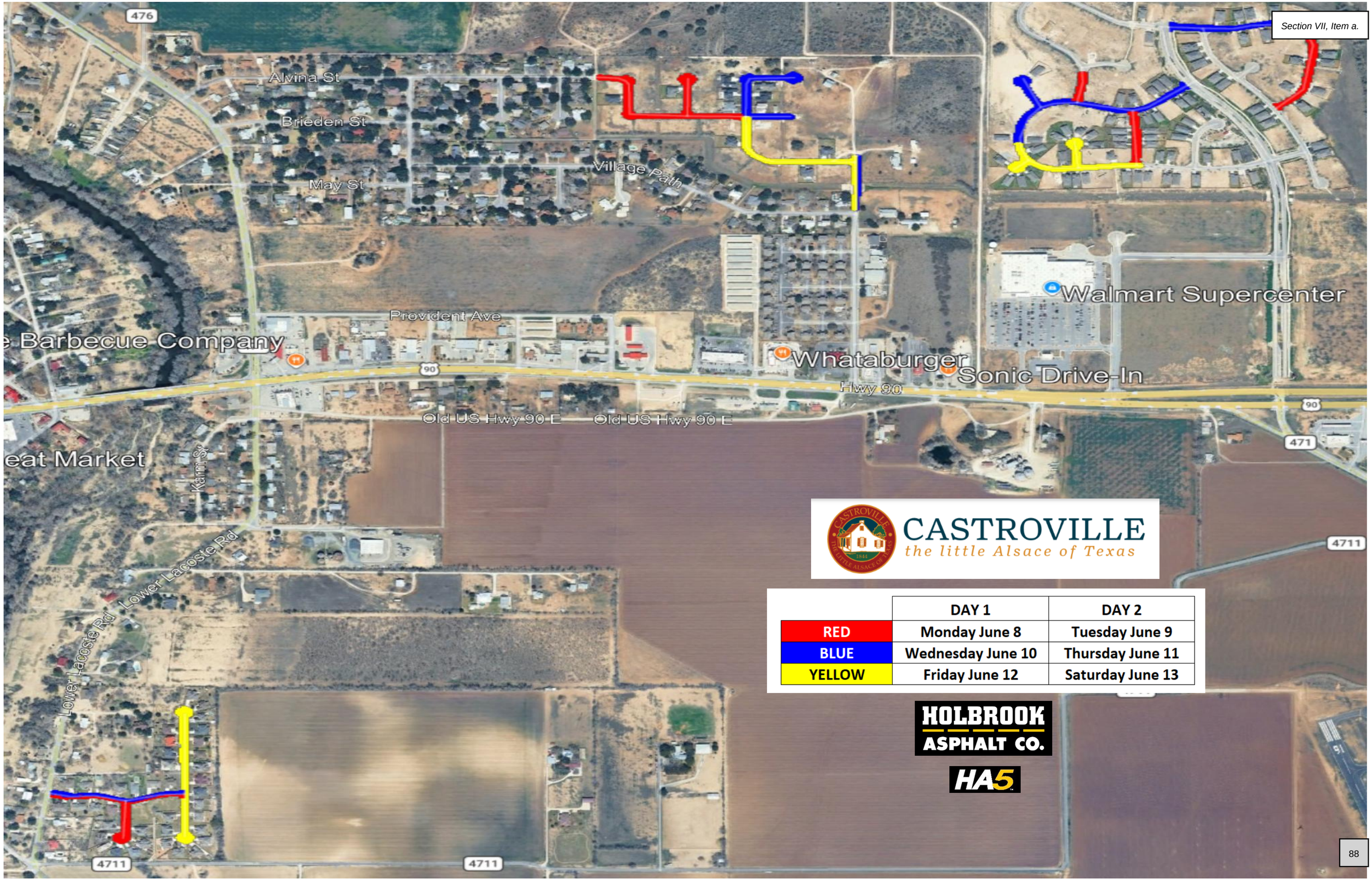
GARBAGE COLLECTION:

If your closure is on your garbage day, your can will be collected first on their route for the day.

Please place your cans out on the street the night prior to your closure so that we can get them in and out before we shut down scheduled streets for the day.



HOLBROOK ASPHALT CO.
Asset Preservatio



CASTROVILLE
the little Alsace of Texas

	DAY 1	DAY 2
RED	Monday June 8	Tuesday June 9
BLUE	Wednesday June 10	Thursday June 11
YELLOW	Friday June 12	Saturday June 13

HOLBROOK ASPHALT CO.

HA5

U.S. Department of Transportation
Federal Aviation Administration

Federal Aviation Administration
Airports Division, Southwest Region
Safety and Standards Branch

10101 Hillwood Parkway
Fort Worth, Texas 76177

February 9, 2026

Mr. Michael Haley
Airport Manager
Castroville Municipal Airport
10500 Airport Road
Castroville, TX 78009
michael.haley@castrovilletx.org

Dear Mr. Haley:

Thank you for your January 26, 2026, letter requesting guidance on nonaeronautical community use consideration of airport-owned lands. Specifically, your request was regarding 18-acres of land currently being used by the Medina Valley Youth Baseball League. Designating the land community use would allow the City of Castroville, as sponsor of the Castroville Municipal Airport to provide a nonaeronautical lease at a nominal rate below the fair market value for nonaeronautical lands.

According to our files, the Medina Valley Youth Baseball League began leasing land for nonaeronautical use from the airport in 1973. At that time the FAA authorized the nonaeronautical use of the land and the approved lease was for 10 years with an additional 10 years of extensions. In 1999, the FAA Policy and Procedures on the Use of Airport Revenue was released (February16, 1999). This policy continued the requirement for federally obligated airports to receive fair market value for all nonaeronautical land uses.

Although there is a community use provision authorizing nonaeronautical land leases for less than fair market value, the land use must meet certain requirements. The provision allows for the nonaeronautical use at a nominal fee if the use of the property meets a general public use desired by the local community and the public use does not adversely affect the capacity, security, safety or operations of the airport.

During an FAA Land Use Inspection conducted April 16-18, 2024, the FAA identified the ballfield use of the 18-acres to be a violation of the airport sponsor's grant assurances. The failure of the sponsor to charge fair market value for the nonaeronautical land use was cited as the reason for the deficiency. The use of the ballfield for Little League use does not qualify for a community use exemption to the rule as the use of the land is restricted to specific users required to pay a fee (little league) to the lease holder.

Additionally, in 2023, in response to an airport Master Plan update, the airport amended the Airport Layout Plan and removed the little league complex from the airport drawing. The result of the Master Plan and Airport Layout Plan (ultimate airport plan) introduces a parking apron and six hangars, removing the ballfield. In response to the 2024 Land Use Inspection, airport staff identified the aeronautical need for new hangars as outlined in the Master Plan.

The FAA did not release the 18-acres for nonaeronautical use beyond the original 1973 lease (expired in 1988). Although the City has continued authorizing the ballfield lease, the FAA has not authorized the continued nonaeronautical use of the airport land and now that an aeronautical need has been presented, we expect the sponsor to accommodate the aeronautical need. The continued use of the 18-acres for nonaeronautical use is a violation of the airport sponsor's federal obligations and has not been authorized by the FAA.

During the FAA 2024 Land Use Inspection the airport staff informed this office that a two-year lease for the Medina Valley Youth Baseball League was expiring in October, 2024 since an aeronautical need had been identified in the Master Planning process. There was discussion that the sponsor might need to provide more time for the Little League to relocate, so the discussion of a three-year extension at Fair Market Value was discussed.

In closing, the use of the 18-acres does not qualify for a community use exception. The FAA expects the airport sponsor to receive no less than Fair Market Value for the non-aeronautical use of the land. Additionally, the FAA has not authorized any further nonaeronautical use of the airport land. In the event that the sponsor wants to request a nonaeronautical authorization please forward that request to your TxDOT assigned planner.

If you need further assistance or have any questions, please do not hesitate to contact this office.

Sincerely,

Gary J. Loftus, MBA, A.A.E.
Airports Compliance Program Manager
Southwest Region Airports Division

cc: Michael Van Vliet
Texas Department of Transportation (Aviation Division)
Michael.vanvliet@txdot.gov

ASW 620
ASW 650
ACO-100

Monthly Report

From: Debra Howe, City Secretary

Activities/Projects:

Maintenance Project for Steinbach Haus. (Funds approve 04/14/2026 meeting)
Project starting at Haus weather permitting – week of May 25th.

2026 General May 2, 2026

Canvassing of the votes on May 12th and Swearing -In Ceremony for District 4 – Tobin Shipp, and District 5 – Valarie Solis.
Swearing In Ceremony for District 3 Nicol Schriner by (mother) Retired Justice of the Peace Peggy Schriner.

Open Records requests
May completed includes: (2) PD, (1) Community Development, (2) pending AG, (3) pending per requestor.



School and convent of the Sisters of Divine Providence, Castroville, Texas, ca. 1906

Just a reminder that we have online permitting. You can apply, pay fees, and check status! Here is the link. Citizen Portal (iworq.net)

Monthly Community Development Report

April 2026

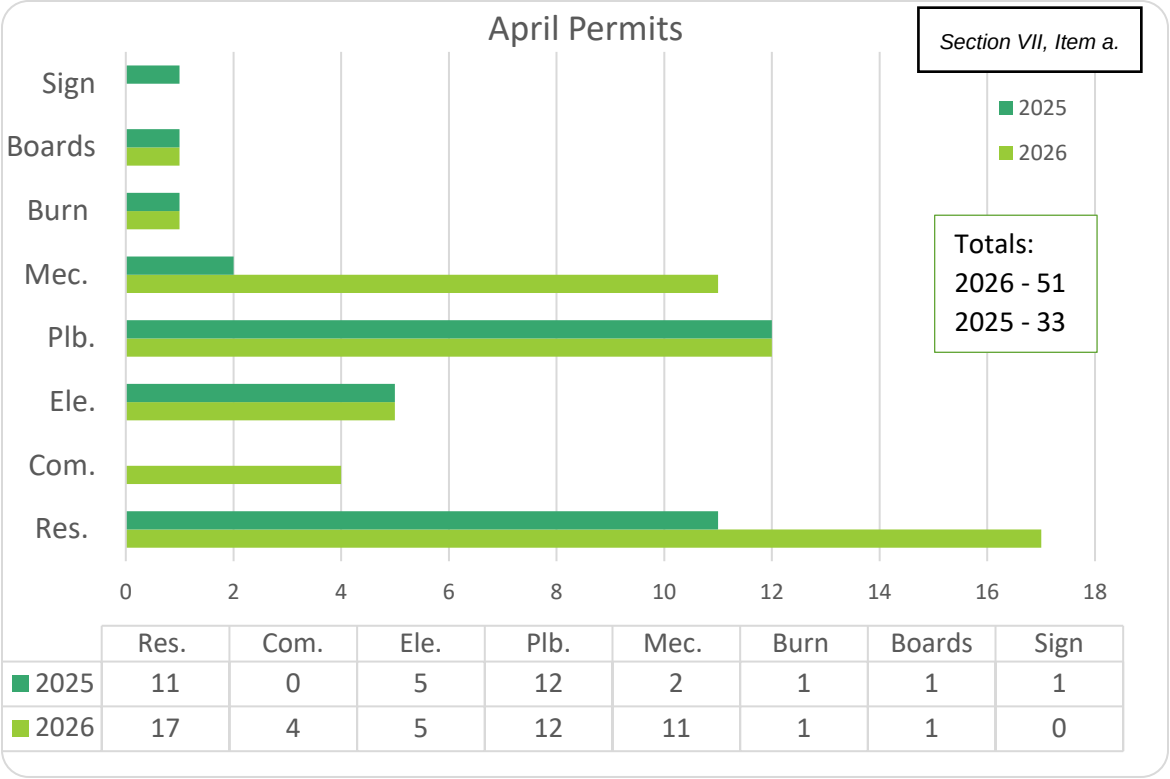
Breana Soto

NEW BUILDS

Pending Plan Review: 11

Approved and Issued: 3

Completed and Closed: 3



	Res.	Com.	Ele.	Plb.	Mec.	Burn	Boards	Sign
2025	11	0	5	12	2	1	1	1
2026	17	4	5	12	11	1	1	0

Permit Fees

2026	2025
$41,427	$32,312

Boards and Commissions

	HLC	P&Z	ZBOA
Next Meeting Date	May 19, 2026	May 13, 2026	TBD
Meeting Date and Items	April 21, 2026 • 307 London – Pulled Request • 909 Angelo - Approved	April 8, 2026 • Didn't have quorum, no meeting.	None

If you live in one of our 96 Historic Structures and need a plaque or would like to replace your existing one, please contact Breana.soto@castrovilletx.gov

Castroville's Active Transportation Grant

- ☒ TXDOT approves contract.
- ☒ Bring to Council for input on how to move forward – **August 12th meeting.**
- ☒ Bring to Council for stakeholder committee– **Tentatively scheduled for September 23th meeting.**
- ☒ Public engagement meetings – **National Night Out, Boo Bash. Public Engagement on 2-2-2026**
- ☒ Receive feedback, create draft plan
- ☒ Open public comment period
- ☒ Receive feedback, create final draft
- ☒ Bring to P&Z for adoption – May 13 (Approved)
- ☐ Bring to City Council for adoption

Garza (Garcia) Creek Report

- ☒ Presentations to City Council – **Either of the June 24th or July 8th Meeting**
- ☒ City Council will decide how to move forward with project – **Design/ Build**
- ☒ Go through RFP Process – **Advertise on January 20th**
- ☒ Deadline for Questions – February 9th
- ☒ City Responses Issues – February 17th
- ☒ Proposals Due – May 18th
- ☐ City Council Award – May 26th
- ☐ Notice to Process – June 1st

Throughfare Plan

- ☒ Meet with County about alignment with County plans.
- ☒ Meet with TXDOT about alignment/ discrepancies with TxDOT plans.
- ☒ Meet with County engineer about suggestions from TxDOT. **TxDOT had a lot of great suggestions.**
- ☐ **Directed to move forward with adoption of thoroughfare plan. Waiting on engineer to send revised plan for Council to review.**
- ☐ Bring to City Council for review.
- ☐ Make changes to plan per Council recommendation.
- ☐ Send out required public notifications.
- ☐ Bring to City Council for approval.

City of Castroville Finance Department Monthly Report

Monthly Report: May 2026

Submitted by: Leroy Vidales, Finance Director

Budget Workshops

The Finance Department will begin the Fiscal Year 2026–2027 budget workshop process with City Council on Tuesday, May 26, 2026.

The initial workshop discussion will focus on projected revenues for the following funds:

- General Fund
- Enterprise Funds
- Airport Fund

Staff will provide historical trends, current year projections, and preliminary revenue estimates to assist Council in the budget development process.

Request for Qualifications (RFQ) – Auditing Services

The City will be issuing a Request for Qualifications (RFQ) for professional auditing services on June 4, 2026.

The current auditing services agreement expires on September 30, 2026. The RFQ will be publicly advertised on:

- The City of Castroville website
- The Hondo Anvil Herald

Staff anticipates bringing a recommendation and possible award to City Council on July 14, 2026.

The proposed agreement term will consist of:

- Three (3) years, with
- The option to extend for two (2) additional one-year terms.

Request for Proposal (RFP) – Bank Depository Services

The City will also issue a Request for Proposal (RFP) for bank depository services on June 4, 2026.

The current bank depository agreement expires on September 30, 2026. The RFP will be publicly advertised on:

- The City of Castroville website
- The Hondo Anvil Herald

Staff anticipates bringing a recommendation and possible award to City Council on July 14, 2026.

The proposed agreement term will consist of:

- Three (3) years, with
- The option to extend for two (2) additional one-year terms.

Additional Information

This month's Finance Department report is shorter than normal as City Council recently approved the Second Quarter Financial Report at the last regular City Council meeting

May 2026 Castroville Public Library Director's Report

Summer Camps: We will finish with sign-ups this Saturday. Just about every camp is full. We begin on 6/16.

Programs: Line up programs for June are as follows:

- Stitch Group
- 2 book groups
- Senior Bingo/Trivia/exercise
- Chair Dancing
- Intro to Alzheimer's and Dementia – 3-week series from Casey McPhearson TX A&M AgriLife Extension
- Financial Wellness Classes with Jena Prevo
    - Retirement & your 401K
    - Protecting Your Money
    - Million Dollar Babie
- Genealogy – the next step by Mia from the Landmark Inn
- Writers Group
- Adult Craft Group
- Kinetic Kids Rock Painting

Summer Camp Field Trips

- QuSauve/Dough Station/Movie Theater

Grant Update:

- $1,000.00 Awarded by Dollar General
- $5,000.00 Medina Co-Cop and CoBank – outside back of bldg.
- $ 500.00 Spark Goods for Digital learning/adult programs
- $1,000.00 2 gift cards in $500.00 each food pantry supplies

Expansion: I have no update

Statistics: Upward other than circulation –

Responsibilities of Each LAB Member – going forward, I will be recording our meetings for accurate minutes…

According to the bylaws and the TX Library Association and Medina Community Library 8.3 **– Removal:** Any officer may be removed at any time, with or without cause, by resolution of the directors at any meeting of the Board. I spoke to Debra Howe, and she said that if any person misses 3 times, the Chair needs to reach out to the members and ask them to step down. I think as a group, we need to make a decision with our two missing board members and vote.

I need to table the Family History Digitization project but would like to put everything in totes (we will eat the cost) and get them stored before our expansion. I would like to give them to a museum and did email Sharri for any advise on that; not as a board member but I do know she was involved in the last digitization project. All I know is they need to be gone before our expansion.

City of Castroville Parks & Recreation Department

Monthly Report: April 2026

Submitted by: Jonah Chang, Director of Parks & Recreation

1. Department Overview & Updates

- Community Center Construction:
  - Construction is still underway. Overall, the project is 88% complete.
  - The project has been moving along well and is still projected to be substantially complete on May 28, 2026. Some of the upcoming tasks include final site grading, sidewalk & curb construction, installation of fencing & handrails, doors, etc.
- Community Center Policy:
  - After the Parks & Recreation Board reviewed the policy, city staff reviewed them and would like to recommend some changes.
    - Attachment #1 (Includes minor page formatting, updated information, decoration section update, and facility map simplification.)
  - If these changes are acceptable & approved by the Board, I would like to send this to City Council for review & future approval.
- Pool Shower/Restroom Building:
  - LPA, Frontera, and city staff are still working through the updated floor plan. Overall, the updated floor plan and estimated costs provided come in within budget.
  - Attachment #2 Building Rendering
  - Attachment #3 Floorplan
- BMA Agreement:
  - Three fencing quotes have been received and range from $6,744-$15,982
  - I've emailed the attorney for BMA to discuss the contract and plan to meet with BMA at the June meeting.
- Splash Pad:
  - Repairs are still underway and are projected to be done before summer 2026!
- September Square Update:
  - No update as of April 30, 2026.
- Parks Special Project Fund:

Balance	$37,021.37
RESTRICTED: Otters	$5.680
RESTRICTED: CSE Donations	$5,000
Outstanding Charges:	$3,800.39
UNRESTRICTED Balance:	**$22.540.98**

- Medina Valley Baseball Contract:
  - At the City Council Meeting on April 14, 2026, there was much discussion about the Baseball field and the use of non-aeronautical space.
  - MVYBA still has an active contract which is set to expire in September 2027.

2. Programs & Events

- April Events: Easter Weekend, Tour De Castroville, Monthly Work Session at Regional Park.
- Upcoming Events: Pool opens weekends in May, Show Your Ride(5/16), Community Center Substantial Completion(5/15)!

3. Future Priorities & Projects

- Tree Replacement (Garden of Roots & Lions Park) Fall 2026 Planting

4. Reservation Report April 2026

Facility	**Bookings**
Regional Park- Volleyball Courts	2
Regional Park- Soccer Fields	0
Regional Park- Amphitheater	2
Regional Park- Area Rentals	10
Regional Park- Pavilion Rentals	13
Regional Park Table Rentals	54
City Pool- Parties	0
RV Park Bookings	57
Regional Park- Tent Camping	10

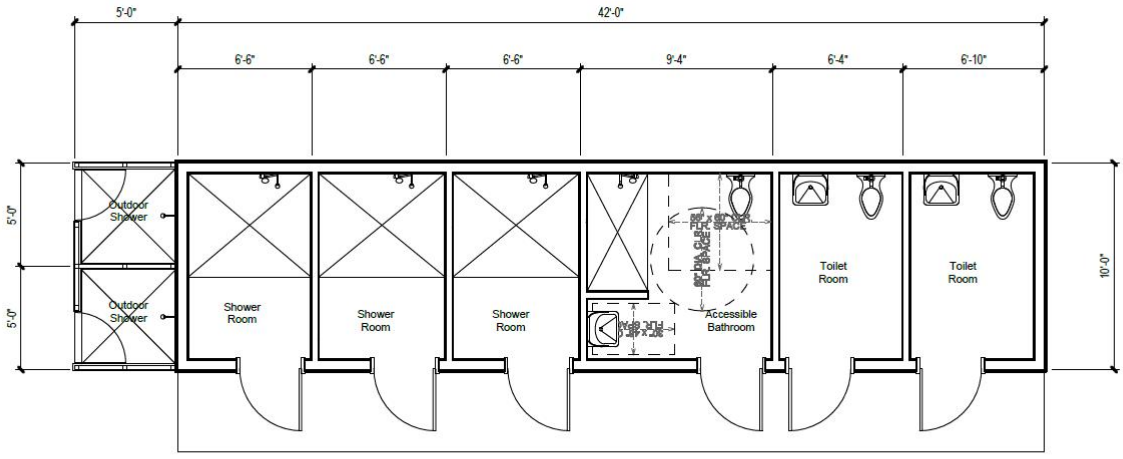
5. Work Orders & Repairs April 2026

Department	Problem Code	# of Work Orders
Parks: 110	007: City Parks Maintenance	0
	500: City Parks Maintenance	3
	501: City bldg. Maintenance	3
	505: Equipment Repairs & Maintenance	0
	510: Regional Park Maintenance	28
	515: RV Park Maintenance	4
	520: Swimming Pool Maintenance	0
	530: Lions Park Maintenance	38
	535: Splash Pad Maintenance	0
	599: Misc. Facilities & Parks	25
	801: Weeds/Overgrown Brush	0
	802: Mowing & Weed Eating	11
	806: Tree Issue (Trim & Clear)	0
	819: Misc Streets	0
	978: Vehicle & Equipment Maintenance	2
Facilities: 17 Total	500: City Parks Maintenance	0
	501: City Bldg. Maintenance	5
	506: Flags	0
	515: RV Park Maintenance	0
	520: Swimming Pool Maintenance	9
	599: Misc. Facilities & Parks	3
TOTAL: 127Work Orders		

Pool Restroom & Shower Building

ATTACHMENT #2
Pool Restroom & Shower Building Rendering





ATTACHMENT #3
Pool Restroom & Shower Building Floor Plan

ALT SHOWER BLDG PLAN 1/4" = 1'-0" 1

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

CITY OF CASTROVILLE REGIONAL PARK

Developed for
City of Castroville

Job Number	3069301
Checked By	Checker
Scale	1/4" = 1'-0"

Unnamed

A2.01U

memo

To: Scott Dixon

From: John Gomez

Date: May 26, 2026

Re: **Public Works Monthly Staff Report – April 2026**
This report reflects activity for the month of April, with select updates included through the date of submission.

Department monthly highlights:

Work Order Activity

During the reporting period, staff received a total of **156 service requests** across all departments.

Work Orders

Department	Issued	Closed	Open (at month end)
Electric	29	29	0
Water	29	29	0
Streets	79	77	2
Gas	19	18	1
TOTAL	**156**	**153**	**3**

Utility Department Operations & Staffing Update

Electric Department Vacancies: The Electric Department has continued staffing efforts with the hiring of a new Electric Apprentice following the completion of interviews and the selection process. This addition strengthens the department's workforce and supports ongoing utility operations and service reliability.

Professional Development: Staff across departments continue to pursue training and certifications that support operational readiness and long-term workforce development.

Department Updates:

The City's mosquito fogging program resumed during the month of April and is currently scheduled on a weekly basis each Tuesday, weather permitting. Fogging operations begin at dusk and generally require approximately 2–3 hours to complete citywide coverage.

The mosquito control program is intended to help reduce mosquito populations and minimize the risk of mosquito-borne illnesses throughout the community. The contractor is utilizing EPA-approved mosquito control products in accordance with applicable safety guidelines.

At this time, operations have been proceeding smoothly with no reported issues or concerns. Staff will continue monitoring weather conditions and coordinating scheduling adjustments as necessary.

Project Updates:

Flat Creek Subdivision

AT&T crews continued installation and pulling of communication wiring throughout the subdivision. DNT Utility crews advanced punch-list corrections identified during the project walkthrough. The C3 crew completed mulch placement and hydroseeding operations along the subdivision perimeter areas and expanded the concrete pads designated for cluster box units (CBUs).





Alsatian Oaks Phase II

DNT crews continued trench excavation operations for the installation of additional communication conduit along the collector roadway. The manhole crew continued excavation activities around the manhole structure in preparation for the placement of flowable fill. The concrete crew continued forming and placing reinforcing steel for sidewalk construction throughout the subdivision.





Town East Crossing Retail

The concrete crew continued sidewalk construction activities, including the placement of forms and reinforcing steel. Crews also continued construction of the concrete drainage structure associated with the detention pond outfall piping. The painting crew completed exterior coating operations on the building and has since transitioned to the installation of exterior Styrofoam insulation panels.





Castroville Community Building

The drywall crew continued installation of sheetrock panels and progressed with taping and finishing activities throughout the building. The tile crew continued tile installation in the restroom areas and other interior sections of the facility. The utility crew completed placement of the concrete slab surrounding the storm drain structure located at the rear of the building.



SCADA

The SCADA system transition from BLOC to Data Flow Systems (DFS) is progressing well. As of May 12, 2026, all lift stations have been successfully transitioned to the new DFS platform.

Future Electric is currently completing final punch-list items associated with the installation and integration process. Remaining work is anticipated to be completed by May 18 or May 19, 2026, during the return visit of the DFS representative to verify full system functionality and completion.

DFS will also be providing operational training for staff in the near future.

The City is currently awaiting installation of a dedicated phone line by HTS for the SCADA cabinet. A service ticket has been submitted, and staff has requested expedited installation. Until the phone line is installed and activated, alarm notifications from the new SCADA system are not yet operational.

Additionally, VC3 is working to configure secure remote access software for the new system. Remote access capabilities will remain unavailable until the security configuration and setup process is completed.

Overall, the transition is progressing as expected, with remaining items focused primarily on communications and remote access functionality.

Public Works Teamwork in Action

The City of Castroville Public Works Department is continuing efforts to improve street maintenance operations throughout the community through a department-wide team approach.

To help address current workload demands and allow the Streets Department to focus on larger priority projects, additional Public Works divisions have stepped in to assist with daily maintenance activities. Recently, the Gas Department assisted with mowing operations, while the Electric Department provided support with pothole repairs and street maintenance efforts.

This “all hands on deck” approach reflects the City’s commitment to improving services, supporting one another across departments, and continuing to enhance the condition of our streets and public infrastructure.

We appreciate the hard work and dedication of all Public Works employees serving the Castroville community.





Agenda Report

Agenda of: March 26, 2026

Department: Community Development Director

Subject: Garza (Garcia) Creek RPF

Recommended Motion

"I move to award the contract for the Garza (Garcia) Creek Drainage Improvements Project Design-Build Services to JDK Associates, Inc. in the amount of $735,011.00, and authorize the City Administrator to negotiate and execute all necessary contract documents, subject to final legal review and confirmation of all required bonds and insurance."

Background

The City solicited Request for Proposals (RFPs) for the Garza (Garcia) Creek Drainage Improvements Project utilizing the Design-Build delivery method in accordance with Texas Government Code Chapter 2269. The project is intended to address drainage and channel stabilization issues along Garza (Garcia) Creek through implementation of improvements identified in the existing 30% plans prepared by K-Friese.

Following evaluation of the submitted proposals, staff recommends awarding the contract to JDK Associates as the proposal determined to provide the best overall value to the City.

The City issued the Garza (Garcia) Creek Drainage Improvements Project RFP on March 31, 2026. The project was rebid to provide additional clarification regarding project expectations, procurement requirements, and scope limitations, while also emphasizing practical and cost-efficient solutions.

The project includes drainage and channel stabilization improvements, including:

- Stabilization and regrading of the Garza (Garcia) Creek channel
- Structural stabilization measures
- Rock riprap and check dams
- Drop structures and stilling basin improvements
- Outfall improvements and site restoration

The City previously completed 30% design plans for the project, which established the baseline scope and limits of work. The successful Design-Build team will refine and advance those plans to construction.

A pre-proposal meeting was held on April 20, 2026, and proposals were due on May 18, 2026.

A total of six (6) proposals were received and evaluated by a City staff evaluation committee using the criteria identified in the RFP, including:

- Firm qualifications and relevant experience
- Project understanding and technical approach
- Project schedule and delivery strategy
- Cost proposal and overall value
- References and past performance

Following review and scoring of the proposals, JDK Associates received the highest overall ranking and was determined to provide the best value to the City.

Staff believes the selected firm demonstrated:

- Strong experience with similar drainage and stabilization projects
- A practical and constructible approach to the project
- Understanding of the City's desire for cost-efficient solutions
- Ability to advance the existing 30% plans without unnecessary redesign
- Competitive pricing and overall project value

The recommended proposal aligns with the City Council's direction to pursue a practical and fiscally responsible solution for the Garza (Garcia) Creek Drainage Improvements Project.

Fiscal Impact

☒ Budgeted ☐ Requires Budget Amendment

Source of Funding: Account Code:

Attachments:

- Bid Tabulation
- Evaluations
- JDK Associates Proposal

Urgency (0-5 = Low Urgency to High Urgency): 3

Impact (0-5 = Low Impact to High Impact): 3

Submitted by: Breana Soto

CITY OF CASTROVILLE

Bid/Proposal Tabulation

Garza (Garcia) Creek Drainage Improvements Project

Design-Build Services

Owner: City of Castroville
Project Location: Castroville City Hall
Proposal Opening Date: March 19, 2026

Proposal Tabulation

Proposer	Proposal Amount	Submission Date
Northwest Stone LLC	$746,350	May 18, 2026
JDK Associates	$735,011	May 18, 2026
Knight Erosion Control, Inc. (KEC Engineering & Construction)	$1,032,990	May 18, 2026
Lewis Concrete Restoration	$1,640,520	May 18, 2026
B&C Construction	$980,000	May 18, 2026
Mike Larson Company	$982,500	May 18, 2026

Plan Holder / Proposer List

Firm	Location	Contact
Northwest Stone LLC	San Antonio, TX	Polo Ocana
JDK Associates	Bulverde, TX	James Kenny
Knight Erosion Control, Inc. (KEC Engineering & Construction)	Hurst, TX	Russell Hergesell
Lewis Concrete Restoration	Buda, TX	Brian Heinsohn
B&C Construction	Did Not Provide	Did Not Provide
Mike Larson Company	Niederwald, TX	Mike Larsen

Contract Award Status

The City of Castroville received proposals for the Garza (Garcia) Creek Drainage Improvements – Design-Build Services solicitation. Proposals are currently awaiting to be seen by City Council.

At this time, no contract has been awarded.

The project is scheduled to be presented to the Castroville City Council for consideration of award at the May 26, 2026 City Council meeting.

Contract award information will be made available following Council action.

Proposal Opening Certification

I certify that the proposals listed above were received by the City of Castroville for the Garza (Garcia) Creek Drainage Improvements Design-Build Services solicitation.

Prepared by:
Breana Soto
Community Development Director
City of Castroville

Date: May 21, 2026

Garza (Garcia) Creek Drainage Improvements Project

Design-Build RFP Evaluation Rubric

Proposal Submission Checklist

- Submit seven (7) hard copies of the proposal
- Submit one (1) electronic copy on thumb drive or equivalent
- Proposal must be submitted in a sealed envelope or container
- Envelope must clearly state the project name and respondent information
- Responses are due no later than 4:00 PM CST on May 11, 2026
- Responses must be manually signed and dated by an authorized representative
- Facsimile and email submissions will not be accepted
- Late submissions will not be considered

The following evaluation criteria will be used by the City to evaluate proposals submitted in response to the Garza (Garcia) Creek Drainage Improvements Project RFP. Evaluation will be based on overall best value to the City in accordance with Texas Government Code Chapter 2269.

Required Proposal Submittal	RFP Requirement	Evaluation Criteria	Max Points
Firm Qualifications	Description of firm, Design-Build team structure, key subconsultants, resumes, and relevant drainage/stabilization experience	Experience with similar drainage, creek stabilization, and infrastructure projects; qualifications of key personnel; technical competence and past performance	20
Project Understanding & Technical Approach	Narrative describing understanding of the project and proposed approach to delivering the improvements shown in the 30% plans	Understanding of project scope, constructability, feasibility, implementation strategy, and quality of proposed approach	20
Project Schedule	Proposed overall project schedule identifying major milestones for design and construction	Ability to deliver the project efficiently and realistically, including sequencing and coordination	15

Cost Proposal	Proposed pricing approach, including lump sum or GMP and summary-level cost breakdown	Reasonableness, competitiveness, clarity of pricing, cost controls, and overall value to the City	40
References & Past Performance	References for similar projects and prior client performance	Quality of work, responsiveness, schedule adherence, and overall project performance	5

Firm Name	Firm Qualifications (20)	Project Understanding & Technical Approach (20)	Project Schedule (15)	Cost Proposal (40)	References & Past Performance (5)	Total
B&C Construction	10	10	5	30	0	55
Knight Erosion Control	18	20	15	30	0	83
Northwest Stone	20	15	15	35	5	80
Mike Larson Company	20	20	15	35	5	95
JDK Associates	20	20	15	35	5	95
Lewis Concrete Restoration	15	15	5	30	5	70

Scoring Guidance

- Excellent: Proposal significantly exceeds requirements
- Good: Proposal fully meets requirements with strong overall approach
- Satisfactory: Proposal generally meets requirements with minor weaknesses
- Marginal: Proposal contains deficiencies or limited detail
- Unsatisfactory: Proposal fails to meet requirements or demonstrates major deficiencies

City Reservation of Rights

The City reserves the right to reject any or all proposals, waive informalities, request clarification, negotiate with respondents, and award the contract in the best interest of the City.

Evaluator Signature: _____

Date: 5-20-26

Cost Proposal	Proposed pricing approach, including lump sum or GMP and summary-level cost breakdown	Reasonableness, competitiveness, clarity of pricing, cost controls, and overall value to the City	40
References & Past Performance	References for similar projects and prior client performance	Quality of work, responsiveness, schedule adherence, and overall project performance	5

Firm Name	Firm Qualifications (20)	Project Understanding & Technical Approach (20)	Project Schedule (15)	Cost Proposal (40)	References & Past Performance (5)	Total
B&C Construction	3	5	3	16	2	29
Knight Erosion Control	15	12	10	35	5	77
Northwest Stone	12	13	12	35	4	76
Mike Larson Company	11	10	6	19	3	49
JDK Associates	16	14	10	36	4	80
Lewis Concrete Restoration	16	16	10	34	3	79

Scoring Guidance

- Excellent: Proposal significantly exceeds requirements
- Good: Proposal fully meets requirements with strong overall approach
- Satisfactory: Proposal generally meets requirements with minor weaknesses
- Marginal: Proposal contains deficiencies or limited detail
- Unsatisfactory: Proposal fails to meet requirements or demonstrates major deficiencies

City Reservation of Rights

The City reserves the right to reject any or all proposals, waive informalities, request clarification, negotiate with respondents, and award the contract in the best interest of the City.

Evaluator Signature: _____

Date: 5/20/26

Cost Proposal	Proposed pricing approach, including lump sum or GMP and summary-level cost breakdown	Reasonableness, competitiveness, clarity of pricing, cost controls, and overall value to the City	40
References & Past Performance	References for similar projects and prior client performance	Quality of work, responsiveness, schedule adherence, and overall project performance	5

Firm Name	Firm Qualifications (20)	Project Understanding & Technical Approach (20)	Project Schedule (15)	Cost Proposal (40)	References & Past Performance (5)	Total
B&C Construction	10	10	Ø	35	Ø	55
Knight Erosion Control	20	20	15	35	Ø	90
Northwest Stone	20	20	15	40	5	100
Mike Larson Company	20	20	15	35	5	95
JDK Associates	20	20	15	40	5	100
Lewis Concrete Restoration	15	20	10	35	3	83

Scoring Guidance

- Excellent: Proposal significantly exceeds requirements
- Good: Proposal fully meets requirements with strong overall approach
- Satisfactory: Proposal generally meets requirements with minor weaknesses
- Marginal: Proposal contains deficiencies or limited detail
- Unsatisfactory: Proposal fails to meet requirements or demonstrates major deficiencies

City Reservation of Rights

The City reserves the right to reject any or all proposals, waive informalities, request clarification, negotiate with respondents, and award the contract in the best interest of the City.

Evaluator Signature: _____

Date: May 20, 2026

Cost Proposal	Proposed pricing approach, including lump sum or GMP and summary-level cost breakdown	Reasonableness, competitiveness, clarity of pricing, cost controls, and overall value to the City	40
References & Past Performance	References for similar projects and prior client performance	Quality of work, responsiveness, schedule adherence, and overall project performance	5

Firm Name	Firm Qualifications (20)	Project Understanding & Technical Approach (20)	Project Schedule (15)	Cost Proposal (40)	References & Past Performance (5)	Total
B&C Construction	5	5	5	30	0	45
Knight Erosion Control	18	12	15	25	5	75
Northwest Stone	18	16	15	35	5	89
Mike Larson Company	14	14	15	30	5	78
JDK Associates	20	20	15	40	5	100
Lewis Concrete Restoration	15	15	10	22	5	67

Scoring Guidance

- Excellent: Proposal significantly exceeds requirements
- Good: Proposal fully meets requirements with strong overall approach
- Satisfactory: Proposal generally meets requirements with minor weaknesses
- Marginal: Proposal contains deficiencies or limited detail
- Unsatisfactory: Proposal fails to meet requirements or demonstrates major deficiencies

City Reservation of Rights

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Evaluator Signature: Brian Soto

Date: 5-20-2026

City of Castroville

Design-Build Services for Garcia Creek Drainage Improvements Project

2425 W. Ammann Rd., Bulverde, Texas 78163
Phone: (830) 980-4037
www.jdkinc.com

ATTENTION

Breana Soto
Community Development Director
City of Castroville
703 Paris St.
Castroville, Texas 78009

Submitted by

JDK Associates, Inc.
2425 W. Ammann Rd.
Bulverde, Texas 78163

Firm and Design Team Qualifications

2425 W. Ammann Rd., Bulverde, Texas 78163
Phone: (830) 980-4037
www.jdkinc.com

Statement of Qualifications



2425 W. Ammann Rd.
Bulverde, Texas 78163
(830) 980-4037
www.jdkinc.com

Founded in May 1992, JDK Associates, Inc. provides retaining wall, erosion control, and drainage solutions throughout the State of Texas, with offices in Whitesboro and Bulverde. JDK specializes in the installation of modular block retaining wall systems and articulating concrete block systems, including reinforced retaining walls, rock anchor walls, and alternative retaining wall solutions. We work closely with contractors, developers, engineers, and property owners to develop practical, cost-effective solutions for erosion and drainage control challenges. Our team continuously researches innovative products and construction methods to ensure every project is completed with reliable, long-lasting results. In addition to new construction, JDK also repairs existing retaining walls that have failed due to improper installation, structural deficiencies, or damage.

With decades of experience, JDK Associates, Inc. has successfully partnered with homeowners, developers, landscape contractors, general contractors, architects, educational institutions, and municipalities across Texas. To date, we have installed more than one million square feet of segmental retaining walls.

Representative Projects

- Rock Creek Golf Course — Gordonville
- Medina Valley High School No. 2 — Bexar County
- Hill Country College Preparatory High School — Bulverde
- Snowden Apartments — San Antonio
- Camino Real International Bridge — Eagle Pass
- Baylor University Football Development — Waco
- Basswood Landing — Fort Worth
- Silos Elementary School — Bexar County
- Wolf Tank — Laredo
- San Pedro Creek — San Antonio
- Multiple DR Horton and Lennar residential developments throughout San Antonio and surrounding areas

Our projects have ranged in size from approximately 1,000 square feet to more than 150,000 square feet.

JDK Associates, Inc. welcomes the opportunity to work with you on your next project. Contact us to discuss how we can be of service to you and your organization.

James S. Kenney, President

2425 W. Ammann Rd.
Bulverde, Texas 78163
(830) 980-4037
www.jdkinc.com



JAMES S. KENNEY
PRESIDENT

CONTACT
Address
2425 W. Ammann Rd.
Bulverde, Texas 78163

Phone
(830) 980-4037

Email
Steve@jdkinc.com

SKILLS
Staff Management
Financial Management
Budgeting
Negotiation
Contract Management
Business Planning
Business Development
Strategic Planning
Business Administration
Financial Administration
Project Management
Leadership
Organizational and Time Management
Consulting

President with over 30 years of successful experience in retaining wall and drainage construction and management. Recognized consistently for performance excellence and contribution to success in the retaining wall industry. Strength in industry problem solving and construction backed by ongoing training in construction. Excellent reputation for resolving problems and improving client satisfaction.

WORK HISTORY

JDK ASSOCIATES, INC.
PRESIDENT
MAY 1992 – PRESENT

- Oversee business-wide changes to modernize procedures and organization.
- Achieve under-budget and on-time project management to adhere to project goals.
- Improve supply chain to reduce materials costs and optimize performance.
- Shape solutions and approaches by leveraging trends in client marketplaces and industries.
- Initiate operational improvements using lean methodologies to drive efficiency and reduce costs.
- Develop and implement new strategies and policies in collaboration with executive partners to establish and achieve long-term business objectives, providing the company with strong and sustainable organizational leadership.
- Develop innovative sales and marketing strategies to facilitate business expansion.
- Align organizational objectives with company mission, increasing revenue, profit, and business growth by collaboratively developing integrated strategies.
- Foster new business through participation in trade shows initiating communication with prospective clients.
- Supervise, support, and educate 25-30 field personnel to achieve and maintain proper construction techniques and optimal productivity.
- Conduct research on emerging trends within the industry and capitalize on finds to develop new services and strategies.

JAMES S. KENNEY
PRESIDENT

CERTIFICATIONS & CONTINUING EDUCATION

- NCMA Level II Segmental Retaining Wall Installer
- Silica Awareness Education 101
- Keystone Hardscapes Academy Continuing Education
- OSHA 30-Hour



NICOLAS AGUILLON

SUPERINTENDENT

CONTACT

Address
2425 W. Ammann Rd.
Bulverde, Texas 78163

Phone
(830) 980-4037

Email
Nico@jdkinc.com

SKILLS

Staff Management
Construction Project Management
Leadership
Organizational and Time Management
Scheduling
Safety and Compliance
Stock and Inventory
Trouble Shooting/Preventative Maintenance
Commercial Construction Projects
Residential Construction Projects
Attention to Detail and Eye for Perfection

LANGUAGES

English, Spanish

Superintendent with over 30 years of experience in retaining wall construction and site management. Consistently recognized for performance excellence and meaningful contributions to the retaining wall industry. Proven problem-solver with deep construction expertise supported by ongoing professional training. Known for resolving complex challenges and improving client satisfaction.

WORK HISTORY

JDK ASSOCIATES, INC.
SUPERINTENDENT
MAY 1995 – PRESENT

- Manage on-site construction staff, materials, scheduling, and job site safety to ensure efficient and compliant operations.
- Deliver projects on time and under budget while meeting or exceeding defined project goals.
- Improve supply chain processes to reduce material costs, increase efficiency, and optimize overall job performance.
- Develop and implement strategies and operational policies in collaboration with executive leadership to support long-term business objectives and organizational stability.
- Align day-to-day operations with company mission, driving revenue growth, profitability, and overall business expansion.
- Support business development efforts by communicating with prospective clients and fostering long-term professional relationships.
- Supervise, train, and mentor 25–30 field personnel, ensuring proper construction techniques, safety standards, and peak productivity.
- Perform ongoing quality control inspections, proactively identifying and resolving issues to maintain high workmanship standards.

CERTIFICATIONS & CONTINUING EDUCATION

- NCMA Level II Segmental Retaining Wall Installer
- OSHA 30-Hour
- CPR, AED and First Aid Certified



ENRIQUE MARTINEZ, P.E.
Principal

EDUCATION

University of Texas at Austin,
B.S. Civil Engineering, 1985

REGISTRATION

Professional Engineer - State of Texas
No. 68166

Qualified Windstorm Inspector -
Texas Department of Insurance No. 68166

PROFESSIONAL BACKGROUND

1998-Present AccuTech Consultants
Principal

1996-1998 Danysh & Associates
Chief Engineer

1985-1996 Danysh-Lundy & Associates
Senior Staff Engineer

PROFESSIONAL EXPERIENCE

Mr. Martinez brings over 40 years of progressive structural engineering experience. His diverse background includes planning, design and construction administration of foundations and superstructures for a wide variety of buildings, retaining walls, bridges and wastewater processing systems.

Examples of Mr. Martinez building projects include numerous retail facilities for HEB, Valero's, Lowe's, Taco Cabana, Wendy's, Religious structures, such as the First Presbyterian Church in Kerrville and Educational facilities at campuses such as UTSA, UT Pan AM, and San Antonio College. In the area of Federal/Municipal type work, Mr. Martinez has designed new structures and evaluated/ renovated existing structures at Kelly AFB/ Port SA, Randolph AFB, Fort Sam Houston and Lackland AFB.

In the area of Civil Structures Mr. Martinez has designed new and modified existing drainage structures, oxidation basins, MSE walls, clarifiers, pump stations, chlorine tanks, aerobic digesters and related structures at the Dos Rios, Leon Creek, Salado Creek, Walnut Branch and Medio Creek Wastewater Treatment Facilities. He has also engineered roadway and pedestrian bridges utilizing precast/prestressed concrete, cast-in-place concrete, and rolled steel elements. He has also been involved in several renovation projects on the San Antonio River including the Crockett Street development and Drury Inn expansion projects. Mr. Martinez has worked on the Mission Reach portion of the revitalization project for the San Antonio River, which included waterway channels, retaining walls and dam structures.

JAMES INGALLS, PE

Principal, INK Civil
Professional Engineer, Texas #107416

Texas A&M University
BS, Civil Engineering, 2006

Experienced with over 20 years of experience in street design, street rehabilitation, roadway plan and profile alignments, detention modeling, floodplain modeling, sewer and water line modeling, design and replacement, land development procedures, single family, multi-family, and commercial site design, traffic modeling and analyses, and GIS analyses with database development.

Professional Experience

INK Civil, New Braunfels, TX Principal	2011 – Present
HMT Engineering & Surveying, New Braunfels, TX Project Manager	2008 – 2011
Jacobs Engineering Graduate Engineer	2006 - 2008

Professional Affiliations

American Society of Civil Engineers (ASCE)	2006 - Present
National Society of Professional Engineers (NSPE)	2006 - Present
Leadership New Braunfels, Class of 2015	2015
Greater New Braunfels Economic Development Foundation (GNBEDF)	2008 - Present
Greater New Braunfels Chamber of Commerce	2008 - Present

Volunteer Affiliations

Downtown Rotary Club of New Braunfels, Board Member, President Elect	2020 – Present
Wurstfest Association, Kleine Opa	2026 – Present
Smithson Valley Athletic Booster Club, Board Member, President	2022 – Present

Company Contacts

Steve Kenney – President
2425 W. Ammann Rd
Bulverde, TX 78163
(830) 980-4037
Steve@jdkinc.com

Morgan Mueller – Operations Manager / Estimator
2425 W. Ammann Rd
Bulverde, TX 78163
(830) 980-4037
Morgan@jdkinc.com

Tonya Finley - Controller
P.O. Box 478
Whitesboro, TX 76273
(940) 686-6236
Tonya@jdkinc.com

Project Understanding and Technical Approach

2425 W. Ammann Rd., Bulverde, Texas 78163
Phone: (830) 980-4037
www.jdkinc.com

Design-Build Proposal

Garcia Creek Drainage Improvements

Submitted By

JDK Associates, Inc.

May 18, 2026

JDK Associates, Inc. is pleased to submit this Design-Build Proposal for the Garcia Creek Drainage Improvements project. Based on the currently available information and the existing 30% design documents, our team is prepared to advance the project through final design, construction, and project closeout with a focus on constructability, cost control, schedule reliability, and long-term performance.

Our approach is centered on delivering practical and durable drainage improvements that address existing erosion concerns, improve channel stability, protect adjacent infrastructure, and reduce future maintenance requirements for the City. By integrating design refinement and construction execution under a single coordinated team, the project can progress efficiently from development into implementation while minimizing coordination gaps and maintaining continuity throughout project delivery.

The proposed improvements are intended to stabilize critical sections of Garcia Creek through targeted grading, retaining wall construction, structural channel improvements, riprap protection, energy dissipation features, and outfall modifications that function cohesively within the existing drainage corridor.

JDK Associates understands the importance of responsiveness, communication, and flexibility throughout municipal infrastructure projects. Our team is committed to proactive coordination with the City, utility providers, and stakeholders to support efficient project execution while maintaining safety, quality, and schedule objectives.

2425 W. Ammann Rd., Bulverde, Texas 78163
Phone: (830) 980-4037
www.jdkinc.com

We believe the Design-Build delivery method provides the City with a streamlined and cost-effective solution that accelerates implementation, improves constructability coordination, and supports the long-term performance of the Garcia Creek corridor improvements.

Thank you for your time and consideration,

James Kenney, President

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Phone: (830) 980-4037
www.jdkinc.com

Project Understanding

The Garcia Creek Drainage Improvements project is intended to address localized erosion, channel instability, and infrastructure protection through a combination of grading, stabilization, and structural drainage improvements. Based on the existing 30% design documents, the proposed improvements generally include the following:

1. Channel Stabilization and Regrading

- Regrading portions of the Garcia Creek channel to improve flow conveyance and restore hydraulic function.
- Stabilization of eroded channel banks to reduce sediment transport and minimize long-term maintenance requirements.

2. Structural Stabilization Measures

- Installation of engineered stabilization systems, including modular block retaining walls utilizing cementitious backfill, reinforced stabilization elements, structural channel protection, and related improvements necessary to protect adjacent infrastructure and reduce future erosion.

3. Riprap Protection and Check Dams

- Placement of rock riprap at critical locations for scour protection and erosion control.
- Construction of check dams to reduce flow velocities and improve channel stability.

4. Drop Structures and Energy Dissipation

- Construction of drop structures to manage grade transitions within the channel.
- Installation of stilling basin improvements to dissipate flow energy and reduce downstream erosion potential.

5. Existing RCP Outfall Improvements

- Evaluation and modification of existing reinforced concrete pipe (RCP) outfalls to improve performance and integrate with the proposed channel improvements.

6. Utility Coordination

- Coordination of existing utilities located within the project limits.
- Coordination with utility owners to minimize conflicts and protect existing infrastructure during construction.

7. Site Restoration and Erosion Control

- Restoration of disturbed areas through grading and stabilization activities.
- Installation of temporary and permanent erosion control measures as required for construction activities.

8. Easement Support

- The City will be responsible for acquisition of all required easements.
- The Design-Build Team will assist in identifying any additional easement needs identified during final design development.

Scope of Services

1. Design Development and Construction Documents

JDK Associates, along with AccuTech Consultants, LLC and INK Civil will advance the existing 30% design documents into construction-ready plans suitable for implementation of the proposed drainage improvements. This effort will include refinement of grading, layout, structural details, erosion control measures, construction details, and supporting documentation necessary for efficient construction execution.

Final design development will refine the existing 30% design concept for constructability, coordination, and implementation purposes. Unless otherwise authorized, the Design-Build Team assumes the underlying drainage criteria, hydraulic assumptions, permitting basis, and overall project intent established in the existing design documents remain substantially valid.

Design development efforts will focus on advancing the existing project concept into construction-ready documentation while incorporating practical construction

considerations, material coordination, site access requirements, and field implementation sequencing necessary to support efficient project delivery.

Any substantial modifications to the approved project concept, design criteria, alignment, hydraulic assumptions, structural configuration, or owner-directed scope changes identified during final design development may require corresponding adjustments to project schedule, construction quantities, and contract amount through written authorization by the City.

2. Civil and Structural Engineering

JDK Associates will provide civil and structural engineering services necessary to support the proposed improvements, including:

- Channel grading and stabilization
- Modular block retaining wall design
- Flow wall and apron detailing
- Riprap and erosion control design
- Outfall improvement detailing
- Construction support documentation

Engineering efforts will focus on development of practical and constructible solutions consistent with the existing project concept.

3. Project Scheduling and Phasing

JDK Associates will develop and maintain a project schedule identifying:

- Design development milestones
- Procurement activities
- Construction sequencing
- Coordination requirements
- Anticipated construction durations

The schedule will serve as a working tool to support timely project delivery and coordination with the City.

4. Construction Execution Support

During construction, JDK Associates will provide coordination and engineering support necessary to facilitate implementation of the proposed improvements and address field conditions encountered during construction.

5. Project Closeout Documentation

Upon completion of construction activities, JDK Associates will provide project closeout documentation, which may include:

- Record information
- Final project documentation
- Construction completion records
- Closeout deliverables required by the City

6. Engineering Analysis Limitations

This proposal includes only the engineering analyses necessary to support refinement of the existing design and preparation of construction documentation for the identified improvements. Final design will rely on available information and previously developed analyses provided by others.

Unless specifically authorized as an additional service, this proposal does not include:

- Hydrologic studies
- Watershed studies
- System-wide drainage analysis
- Floodplain analysis or permitting

Geotechnical Information

Final design and construction activities will rely on available geotechnical information, subsurface data, and soil-related observations provided by the City or previously developed by others, if available. The Design-Build Team assumes that existing geotechnical information reasonably represents subsurface conditions within the project limits for purposes of design refinement and construction planning.

Unless specifically authorized as an additional service, this proposal does not include:

- Geotechnical investigations
- Subsurface utility exploration
- Soil borings or laboratory testing
- Geotechnical engineering reports
- Pavement design evaluations
- Groundwater analysis
- Slope stability analysis beyond observations necessary for construction implementation

If previously unknown subsurface conditions, unsuitable materials, groundwater conditions, buried obstructions, or geotechnical-related issues are encountered during design development or construction, adjustments to the project scope, schedule, construction methods, or contract amount may be required.

Assumptions and Exclusions

This proposal is based on currently available project information and the existing 30% design documents. Any substantial changes in scope, site conditions, owner requirements, or previously unknown conditions may require adjustments to the project schedule and fee.

The project schedule remains subject to review durations, utility coordination, material availability, weather conditions, site access, and unforeseen field conditions.

Assumptions

- CAD files including boundary, topographic, and improvement survey information will be provided by the City.
- CAD files associated with the existing 30% design prepared by K Friese & Associates will be provided.
- Reasonable construction access to all work areas will be available.
- The City will acquire all required easements.

Exclusions

The following services are specifically excluded from this proposal unless authorized separately:

- Hydrologic or hydraulic analysis of Garcia Creek or the Medina River
- Floodplain analysis, modeling, or permitting
- FEMA coordination
- Environmental studies or permitting
- USACE jurisdictional determination or permitting
- SWPPP preparation or stormwater permitting
- Utility relocations
- Landscaping, irrigation, seeding, or sod restoration

Project Schedule and Delivery

2425 W. Ammann Rd., Bulverde, Texas 78163
Phone: (830) 980-4037
www.jdkinc.com

Preliminary Project Schedule

Phase	Estimated Duration	Approximate Timing
Advance 30% Design to Construction-Ready Documents	4–6 Weeks	Weeks 1–6
Mobilization and Site Preparation	1 Week	Week 7
Construct South Retaining Wall	2–3 Weeks	Weeks 8–11
Construct North Retaining Wall	4–5 Weeks	Weeks 12–17
Construct Upper and Lower Flow Walls	1–2 Weeks	Weeks 18–19
Construct Drop Structures, Aprons, and Stilling Basin Improvements	2–3 Weeks	Weeks 20–23
Install Riprap and Check Dams	1 Week	Week 24
Site Cleanup and Demobilization	1–2 Weeks	Weeks 25–26
Final Punch List and Project Closeout	2–3 Weeks	Weeks 27–29

This schedule is preliminary and provided for planning purposes only. Final sequencing and durations will be refined during project initiation and may be adjusted based on field conditions, coordination requirements, material availability, permitting, and owner review timelines.

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Cost Proposal

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Fee Schedule

Line Item	Fee
Advance 30% Design to Construction-Ready Documents	$50,000.00
Mobilization and Site Preparation	$27,000.00
Construct South Retaining Wall	$139,154.00
Construct North Retaining Wall	$321,879.00
Construct Upper and Lower Flow Walls	$55,986.00
Construct Drop Structures, Aprons, and Stilling Basin Improvements	$34,968.00
Install Riprap and Check Dams	$97,024.00
Site Cleanup and Demobilization	$7,500.00
Final Punch List and Project Closeout Documentation	$1,500.00
Total Lump Sum Fee	**$735,011.00**

The fee schedule above is presented as a lump sum by line item based on the current project understanding and anticipated quantities. The total lump sum fee of $735,011.00 excludes the optional add-on items listed below. Any substantial changes in scope, quantities, site conditions, owner requirements, or unforeseen conditions may require adjustment to the project fee and schedule.

Optional Add-On Items

Add-On Option	Fee Allowance
4' Chain Link Fence	$25,000.00
100% Performance and Payment Bond	$11,596.11

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Warranty

The Design-Build Team warrants that all construction work performed under this project will be completed in a good and workmanlike manner consistent with generally accepted construction practices.

The Design-Build Team shall provide a one (1) year workmanship warranty commencing on the date of Substantial Completion for all installed improvements associated with the project. During the warranty period, the Design-Build Team shall correct defects in workmanship identified by the City at no additional cost, excluding damage resulting from:

- Acts of God or extreme weather events
- Improper operation or maintenance by others
- Unauthorized modifications or repairs
- Normal wear and tear
- Damage caused by third parties

Manufacturer warranties for materials, proprietary systems, or specialty products will be transferred to the City upon project completion to the extent assignable.

This warranty is limited to correction of defective workmanship and does not include warranty of design, hydraulic performance beyond the existing design criteria, or conditions resulting from unforeseen site or subsurface conditions.

Closing

JDK Associates appreciates the opportunity to submit this proposal for the Garcia Creek Drainage Improvements project and welcomes the opportunity to support the City in advancing the project through final design and construction implementation.

We believe this approach offers a practical, constructible, and cost-effective solution that addresses the identified drainage and stabilization needs while supporting the long-term performance and maintainability of the Garcia Creek corridor.

We look forward to the opportunity to work collaboratively with the City to successfully deliver the Garcia Creek Drainage Improvements project.

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References and Past Performance

2425 W. Ammann Rd., Bulverde, Texas 78163
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www.jdkinc.com

North Rock Construction
5501 Fishtrap Road
Suite 331
Denton, TX 76272

April 24, 2026

To whom it may concern,

I am pleased to write this letter of recommendation for JDK Associates, Inc. North Rock has had a working relationship for over thirteen years. JDK has designed and installed multiple types of retaining walls for our municipality projects. Many of which are high end parks and recreation projects ranging from $400,000.00 to $6,000,000.00 with retaining walls scopes between $50,000.00 to $400,000.00. These projects require detailed work and generally have a small footprint of disturbance to work in. They require strict adherence to local codes and engineering standards. JDK has always finished their work with zero punch list items.

JDK has continued to deliver exceptional workmanship and professionalism over the years. They have constructed retaining walls that are not only aesthetically pleasing but structurally sound and durable. Their team carefully managed drainage and backfill, ensured proper compaction, and followed the approved plans to a high degree of accuracy. The results of their workmanship have helped to build our reputation with our clients, architectural firms and engineers.

In addition to quality workmanship, JDK demonstrated outstanding project management. They communicated clearly and proactively about timelines, milestones, and any potential changes. They maintained strong safety practices on site, coordinated efficiently with other trades, and completed the project with minimal disruption to surrounding areas. JDK has come up with solutions that have assisted in keeping our projects moving forward and have brought added value to our clients thru value engineering.

I highly recommend JDK for retaining wall projects. Their blend of technical expertise, reliable delivery, and customer-focused approach makes them an asset to any project seeking dependable and high-quality results. If you would like to discuss my experience further, please feel free to contact me.

Sincerely,

John F. Gann II
COO
214-793-8288

LENNAR

May 5, 2026

To Whom It May Concern,

Lennar Corporation is pleased to recommend JDK Inc. for retaining wall construction and structural design services.

JDK Inc. has been a trusted partner on numerous large-scale residential development projects across the Texas Hill Country, including the San Antonio and Austin markets. Their team has consistently demonstrated a high level of professionalism, responsiveness, and technical expertise.

JDK Inc. is well-equipped to handle projects of significant scale and complexity, with experience constructing retaining wall systems encompassing hundreds of thousands of square feet of face area. Their ability to manage large workloads while maintaining quality and schedule has made them a reliable contributor to our development efforts.

In addition to their construction capabilities, JDK Inc. provides sound structural design solutions that align with project requirements and regulatory standards. Their collaborative approach and willingness to adapt to project needs have been valuable in ensuring successful outcomes.

Based on our experience, Lennar Corporation confidently recommends JDK Inc. for retaining wall construction and structural design services. We look forward to continuing our working relationship with their team.

If you have any questions, please feel free to contact us.

Sincerely,

Buck Nunley

Sr. Land Development Manager
Lennar Corporation
buck.nunley@lennar.com

METRO
METROPOLITAN CONTRACTING

City of Castroville
1209 Fiorella Street
Castroville, TX 78009
April 16, 2026

To Whom it May Concern,

I have personally contracted with JDK Associates over the last several years to perform modular block retaining wall work. The size of their projects has ranged from a small wall for a tree well, to constructing all the walls for a mass grading project that spanned over eight acres of undeveloped land.

The quality of work, attentiveness, problem-solving, and adherence to safety standards have been consistently at a high level in all my projects. Not to mention that they also provide competitive pricing anytime that we put a project out to bid. JDK is a highly capable outfit that I would happily bring back to any project that involves retaining wall construction.

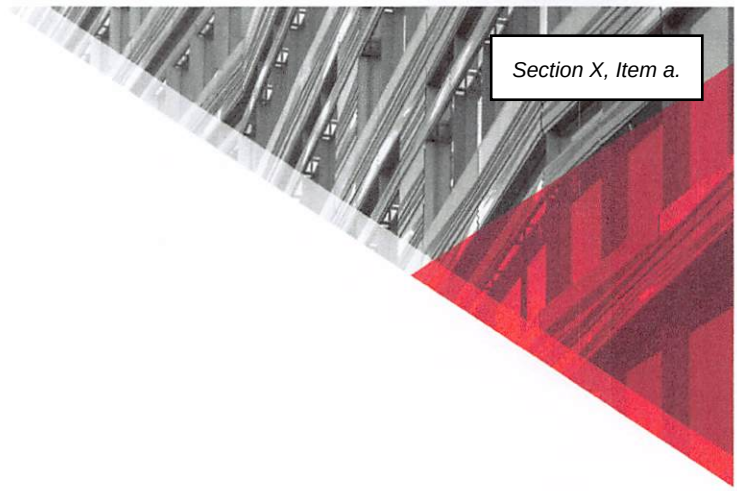
They have been a part of coordination from the start of our projects. Their know-how recently played a key role in coming up with a solution to a water intrusion problem that was uncovered during construction prior to them mobilizing to start work.

I would highly recommend JDK Associates for any retaining wall construction needs. Their quality and efficiency set them apart from other contractors in our industry. Should you have any specific questions about their performance, please do not hesitate to contact me.

Best Regards,

Emilio Watts
Project Manager
Metropolitan Contracting Company

Email: ewatts@metrobuilt.com
Cell: (830) 335-9706



SUNDT

Sundt Construction
85 NE Loop 410, Suite 301
San Antonio, TX 78216

Re: JDK Associates, Inc Letter of Recommendation

To whom it may concern,

Please find this letter of recommendation for JDK Associates for any limestone block or segmental retaining wall scope needs. I have used Steve Kenney and his team exclusively for my limestone block and segmental retaining walls for over 10 years, as both the Branch Manager for a large commercial landscape company previously and in my current position as a Senior Project Manager with Sundt Construction. His team has provided outstanding service, high-quality work and performed the work with zero safety incidents.

I'm happy to recommend JDK Associates services to any company. If you have any specific questions regarding their abilities or performance please feel free to reach out to me at the below email or phone.

Respectfully,

Dan Green
Sr Project Manager
Sundt Construction
dpgreen@sundt.com
210-517-3487

Project Reference Sheet

Double Diamond Resorts – Rock Creek Golf Course

Rock Creek Golf Course

Client

Double Diamond Resorts

Location

Gordonville, Texas

Project Duration

Ongoing partnership spanning more than 10 years



Hole #17 Rock Creek Golf Course

Project Value

Over $1,000,000 in completed work

Project Description

Over the past decade, JDK has worked closely with Double Diamond Resorts on a variety of infrastructure and erosion control projects at Rock Creek Golf Course. The projects have primarily focused on protecting and stabilizing the creek system throughout the property to improve long-term drainage performance and reduce erosion impacts.

Scope of Work

- Construction of retaining walls
- Installation of rip rap for erosion protection
- Creek cleaning and debris removal
- Creek rerouting and stabilization
- General erosion control improvements

Services Provided

Erosion Control • Site Stabilization • Creek Restoration • Retaining Wall Construction • Drainage Improvements

PROJECT REFERENCE SHEET

Lackland Corridor Gateway

Project Overview

Project Name	Lackland Corridor Gateway
Owner	City of San Antonio
Location	Bexar County, Texas
General Contractor	Jerdon Enterprise LP
Contractor	JDK Associates, Inc.
Scope of Work	Installation of approximately 5,728 square feet of modular block retaining wall
Project Completion Date	November 2018
Final Contract Amount	$144,249

Project Description

JDK Associates successfully completed the installation of approximately 5,728 square feet of modular block retaining wall for the Lackland Corridor Gateway project located in Bexar County, Texas. The project was performed under contract with Jerdon Enterprise LP for the City of San Antonio and was completed in November 2018.

The retaining wall system was installed in accordance with project specifications and contributed to the corridor gateway improvements associated with the overall development.



Project Reference Sheet

San Pedro Creek Culture Park – Phase 3



Client

- Sundt/Davila a Joint Venture

Owner

- San Antonio River Authority

Project Location

- San Antonio, Texas

Scope of Work

JDK partnered with Sundt/Davila on Phase 3 of the San Pedro Creek Culture Park project for the San Antonio River Authority. The project included the construction of more than 20,000 square feet of limestone quarry block retaining walls.

Project Value

- Final contract value exceeded $2.4 million

Completion Date

- Retaining wall scope completed in April 2025

Key Features

- Limestone quarry block retaining walls
- Large-scale civil and public infrastructure project
- Collaboration with major regional construction partners

Project Summary

The San Pedro Creek Culture Park Phase 3 project contributed to the continued revitalization and enhancement of the San Pedro Creek corridor in downtown San Antonio. JDK successfully completed the retaining wall portion of the project, delivering over 20,000 square feet of limestone quarry block retaining walls as part of a high-profile public infrastructure development.

Project Reference Sheet

Project Information

Project Name: Beitel Creek Greenway – Perrin Homestead to Thousand Oaks
Location: San Antonio, Texas
Project Type: Pedestrian Bridge Retaining Wall
Retaining Wall Area: Approximately 4,900 Square Feet
Completion Date: February 2026
Final Contract Amount: $147,490.25

Project Team

Client / Contractor: J. Sanchez Contracting, Inc
Owner: City of San Antonio

Scope of Work

Construction of a pedestrian bridge retaining wall system for the Beitel Creek Greenway trail segment extending from Perrin Homestead Road to Thousand Oaks Drive in San Antonio, Texas.

Project Summary

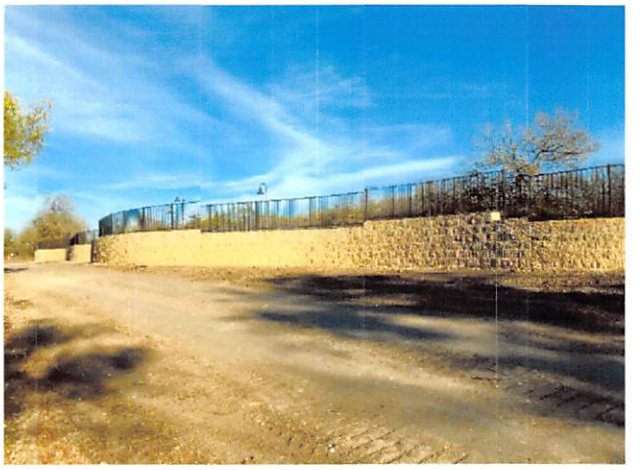
The project included the successful completion of approximately 4,900 square feet of modular block retaining wall construction associated with pedestrian bridge improvements along the Beitel Creek Greenway corridor. Work was completed in February 2026 under contract with J. Sanchez Contracting, Inc. for the City of San Antonio.



PROJECT REFERENCE SHEET

Escondido Creek Parkway

Project Information	Details
Project Location	Karnes County, Texas
Project Owner	San Antonio River Authority
General Contractor	Jerdon Enterprises, LP
Subcontractor	JDK Associates, Inc.
Project Completion	December 2019
Final Contract Amount	$89,842



Project Description

JDK performed specialty site construction improvements for the Escondido Creek Parkway project in Karnes County, Texas under contract with Jerdon Enterprises, LP for the San Antonio River Authority. The work included retaining wall construction and perimeter fencing improvements completed in accordance with project specifications and schedule requirements.

Scope of Work

- Constructed approximately **2,200 square feet** of modular block retaining walls
- Installed approximately **370 lineal feet** of aluminum panel fencing
- Coordinated installation activities to maintain project schedule and quality standards

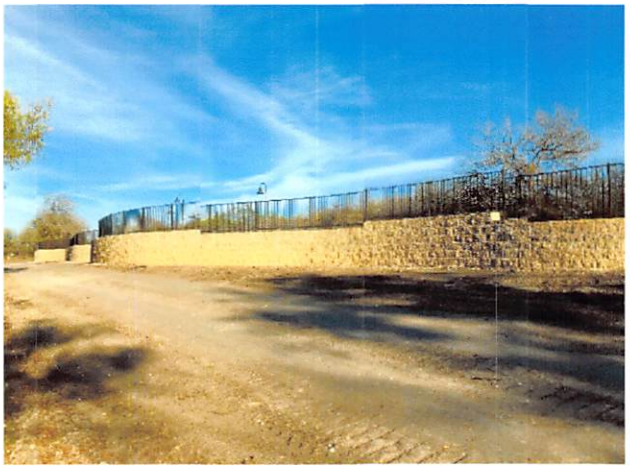
Key Project Features

- Successful delivery of retaining wall and fencing systems
- Work completed in compliance with project specifications
- Maintained coordination with the general contractor and owner representatives
- Project completed on schedule in December 2019

PROJECT REFERENCE SHEET

Escondido Creek Parkway

Project Information	Details
Project Location	Karnes County, Texas
Project Owner	San Antonio River Authority
General Contractor	Jerdon Enterprises, LP
Subcontractor	JDK Associates, Inc.
Project Completion	December 2019
Final Contract Amount	$89,842



Project Description

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- Project completed on schedule in December 2019

Agenda Report

Agenda of: May 26, 2026

Department: Community Development Department

Subject: Active Transportation Plan

Recommended Motion:

I move to approve the Reconnecting Castroville Active Transportation Plan with the modifications as discussed.

BACKGROUND:

The attached draft Active Transportation Plan (ATP) was prepared in partnership with Toole Design through funding assistance and coordination with Texas Department of Transportation (TxDOT). The purpose of the plan is to establish a long-term vision, framework, and recommendations for improving pedestrian, bicycle, and multimodal connectivity throughout the City of Castroville.

The plan evaluates existing transportation conditions, identifies barriers and safety concerns, incorporates public and stakeholder feedback, and recommends infrastructure and policy strategies intended to improve connectivity, safety, and mobility for residents and visitors.

Key themes identified throughout the plan include:

- Improving pedestrian and bicycle connectivity across Highway 90;
- Enhancing safety through traffic calming and speed management;
- Expanding sidewalk and trail connectivity;
- Supporting safer routes to schools and parks;
- Preserving Castroville's historic, walkable character while accommodating growth; and
- Developing a connected transportation network for all ages and abilities.

The plan was developed through a public engagement process that included community meetings, surveys, stakeholder advisory committee participation, National Night Out outreach, Boo Bash engagement activities, and stakeholder walk audits. Over 300 individuals participated in the engagement process.

The draft plan identifies Highway 90 as the community's primary transportation safety and connectivity concern due to high vehicle speeds, limited crossing opportunities, and barriers to pedestrian and bicycle

movement. The plan also highlights opportunities to improve connectivity between neighborhoods, schools, parks, downtown, and commercial areas.

Recommendations within the plan include:

- Traffic calming strategies;
- Access management improvements;
- Network connectivity standards;
- Sidewalk and shared-use path expansion;
- Enhanced pedestrian crossings;
- Safe Routes to School initiatives;
- Potential Highway 90 boulevard conversion concepts; and
- Policy tools intended to improve multimodal safety and connectivity.

The Active Transportation Plan is intended to serve as a guiding planning document for future infrastructure improvements, grant opportunities, capital planning efforts, development review considerations, and policy discussions. The plan itself does not authorize construction projects or funding expenditures.

The Planning and Zoning Commission recommended approval of the plan to City Council on May 13, 2026. They did have two comments they would like to see included in the plan:

- They would like to see the pedestrian bridge connecting the Steinbach House and Landmark Inn shown on the map, and also include language regarding the bridge in the future priorities section.
- They would also like language added, wherever appropriate, emphasizing the importance of street maintenance to help prevent further deterioration along the edges of our already narrow streets.

FISCAL IMPACT:

Adoption of the Active Transportation Plan does not create an immediate fiscal impact. Future projects and implementation items identified in the plan would be subject to future funding availability, grant opportunities, budgeting, engineering analysis, and separate City Council considerations.

RECOMMENDATION:

Staff recommends that the City Council adopt the Active Transportation Plan.

ATTACHMENTS:

- Draft Reconnecting Castroville Active Transportation Plan



City of Castroville

Active Transportation Plan

May 2026 DRAFT

Acknowledgments

This plan was prepared on behalf of the people of Castroville with support from local stakeholders.

Project Management Team

Breana Soto, *Community Development Director, City of Castroville*

Scott Dixon, *City Administrator, City of Castroville*

Chip Perry, *Texas Department of Transportation*

Ivonne De La Rosa, *Texas Department of Transportation*

Stakeholder Advisory Committee

Adriana Arrington-Calk, *Chair of the Parks and Recreation Board, City of Castroville*

David Merz, *District 4 Council Member, City of Castroville*

Doug Demino, *Historical Landmark Commission, City of Castroville*

Jim Welch, *Planning and Zoning Commission, City of Castroville*

Steve Conard, *Health and Safety Director, Medina Valley ISD*

Prepared by:

TOOLE DESIGN

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, concept drawings, cost opinions, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Existing conditions have not been field-verified. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein.

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Introduction

Castroville is a historic agricultural community located west of San Antonio along the Medina River. The city seeks to preserve its distinctive small-city character while thoughtfully modernizing, supporting local economic activity, and welcoming visitors to its festivals and historic downtown.

Castroville's identity is closely tied to the Alsace region of France, the homeland of many of its original settlers recruited by Henri Castro. This heritage is reflected in the city's compact, rectilinear street grid and modest block sizes. This urban form remains largely intact today and provides a strong foundation for walkable, people-oriented transportation investments.

In the mid-20th century, Castroville was bisected by Highway 90, a high-speed multilane highway owned by the Texas Department of Transportation. This presents significant challenges for bicycle and pedestrian travel, degrading safety and comfort. There are few places to cross and motor vehicle traffic often travels at high speeds on both Highway 90 and on adjacent streets.

This Active Transportation Plan charts a path forward for the City of Castroville, reckoning with the challenges presented by Highway 90 while presenting transportation best practices that can make it possible for people of all ages and abilities to walk or bike.



People congregating in Houston Square in the early twentieth century. Source: UTSA Libraries Special Collections



Aerial image of Highway 90 bisecting the City of Castroville.

What is an Active Transportation Plan?

An Active Transportation Plan is a document that helps guide local pedestrian and bicycle infrastructure investments and policy decisions in the future. Through this plan, TxDOT has contributed funding for safety and active transportation experts to make professional recommendations on how to best improve conditions in Castroville based on local feedback.

Not every recommendation in this plan is intended to be implemented immediately or exactly as described. Community needs, travel patterns, and local conditions will continue to evolve, which may shift priorities over time. In addition, funding availability can change, sometimes creating opportunities to advance projects that were previously considered infeasible or difficult to implement.

While flexibility is essential, this plan establishes a framework to guide future active transportation investments in Castroville. It provides a shared vision, goals, best practices, and priorities to help decision-makers advance infrastructure projects and policies that improve safety, connectivity, and accessibility for people walking, biking, and rolling.

What is Active Transportation?

Active transportation includes walking, biking, and using a wheelchair or other mobility device. This includes electric bikes, scooters, skateboards, and other human-powered or electric-assisted ways of moving.



01

Castroville

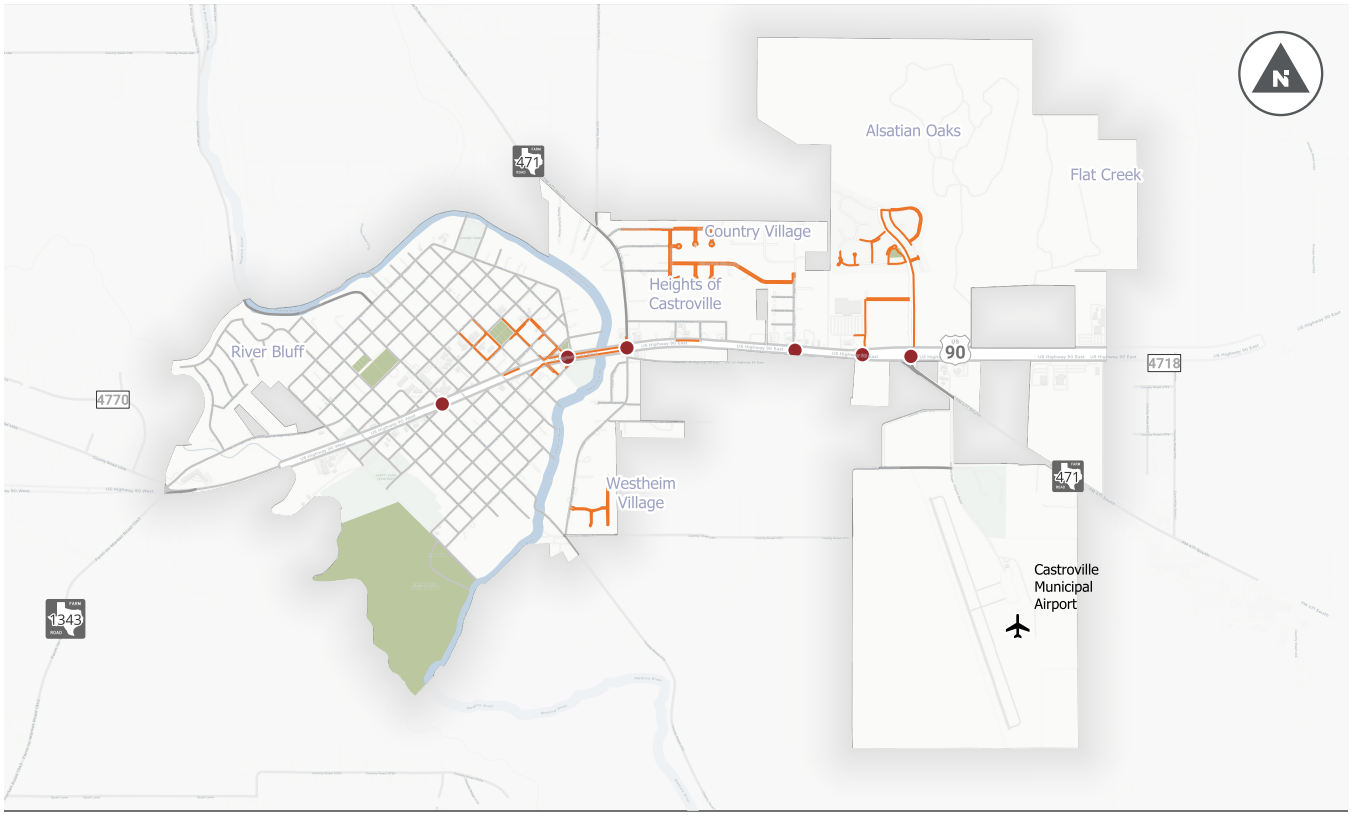


Context

Castroville is a small city of less than 4,000 people, around 10 miles from San Antonio's westernmost development boundary. Downtown Castroville has a densely gridded development style, with shared streets and some centralized mixed use development patterns, in contrast to the new residential and commercial development on the edges of the city and east of the Medina River.

The grid is crossed by **Highway 90** creating a high-speed corridor and a series of skewed intersections that create increased risk for all road users. The **Medina River** further limits connectivity between the historic downtown and areas east of the Medina River, with the Highway 90 bridge providing the primary crossing point in town.

Existing active transportation facilities in Castroville.



Community Connections

The ideas and recommendations presented in this plan were created by the people of Castroville.

In the fall of 2025, the project team met with residents and visitors at local events, distributed a survey (online and paper), and completed a walk audit with stakeholders. Engagement activities were integrated into community events and supplemented with standalone, plan-specific events to reach residents of all ages and abilities in familiar, accessible settings.

To complement in-person engagement activities, the project team conducted a community survey available online and on paper to reach a broader sample of community members. Over 300 people interacted with our engagement process. These activities helped develop a deeper understanding of Castroville's transportation priorities and needs.

Engagement Events

NATIONAL NIGHT OUT

25

- Engaged with over 25 community members
- Date: 10/7/25
- Time: 5pm-7pm
- Location: Houston Square

BOO BASH

200

- Engaged with over 200 community members
- Date: 10/25/25
- Time: 5pm-8pm
- Location: Castroville Regional Park

STAKEHOLDER GROUP WALK

4

- Engaged with 4 community members
- Date: 12/2/25
- Time: 10am-12pm
- Location: Downtown Castroville

COMMUNITY MEETING #1

4

- Engaged with 4 community members
- Date: 12/2/25
- Time: 5pm-7pm
- Location: City Hall

SURVEY

86

- Engaged with 86 community members
- Online and paper options
- Duration: 10/7/25-12/12/25

COMMUNITY MEETING #2

4

- Engaged with 4 community members
- Date: 2/2/26
- Time: 5pm-7pm
- Location: City Hall



The project team used engagement boards as an interactive, map-based tool to collect place-specific feedback from community members during National Night Out. Using a large aerial map of Castroville, participants were invited to identify locations that work well, locations that need improvement, and areas of concern related to walking, biking, and rolling.



The project team engaging with a family at National Night Out.



Stakeholder committee waiting to cross Highway 90 at Constantinople.



Stakeholder committee walking along Houston Square. The walk supported real-time discussion of barriers, safety concerns, and opportunities for improvement, helping ground insights in lived experience and on-the-ground observations.



A community meeting in December 2025. The open house-style event provided a structured forum for community members to review project information, ask questions, and share detailed input on priorities and goals for improving walking, biking, and rolling throughout Castroville.

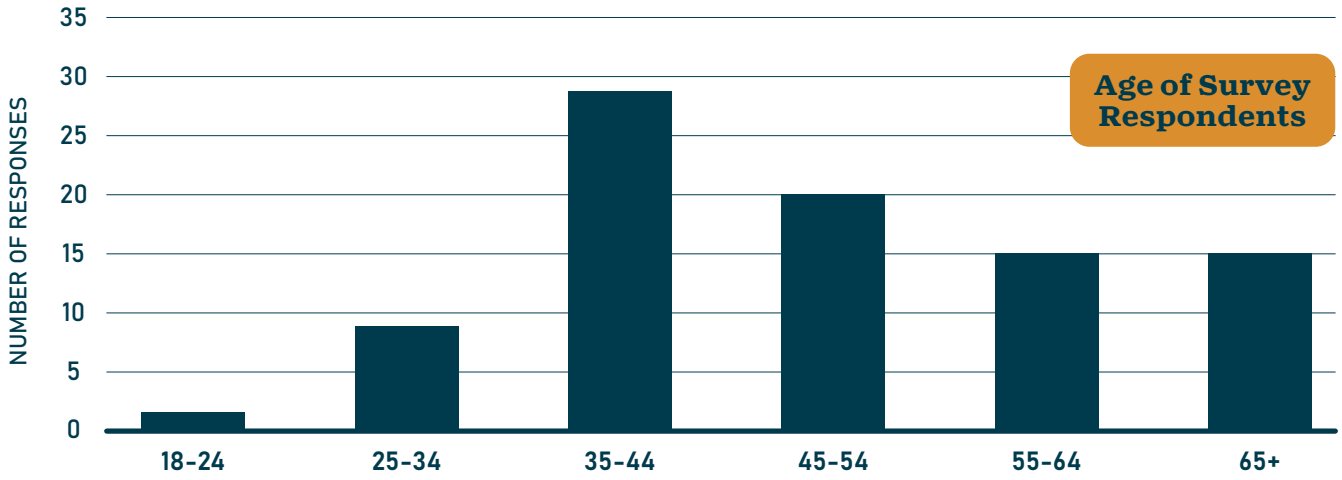


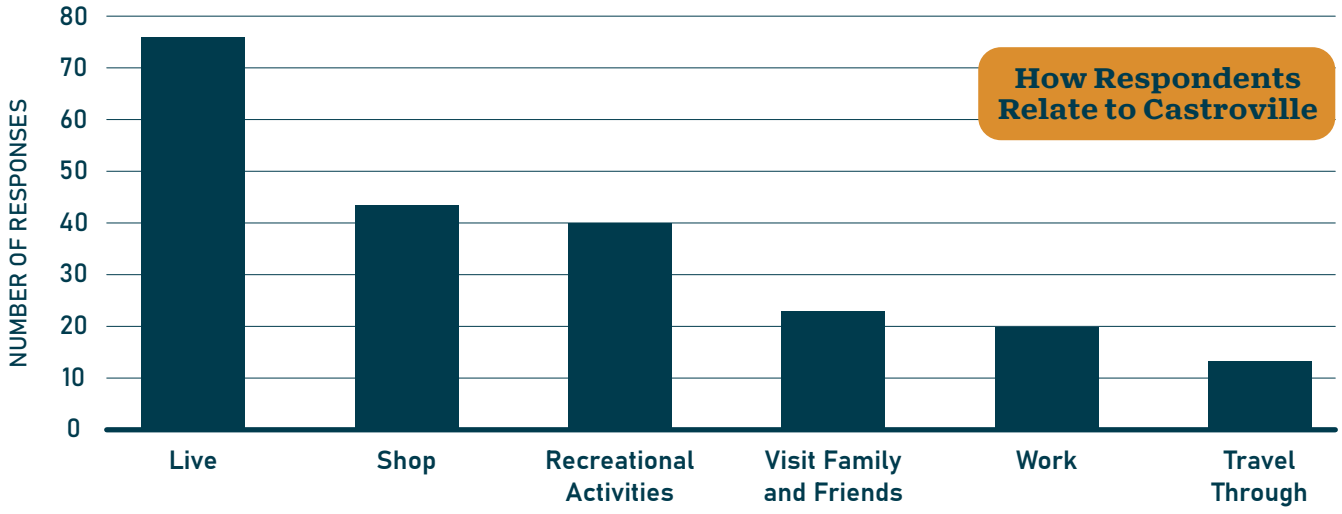
"As Castroville residents, we walk in the evenings four to five times a week. Unfortunately, fast drivers make these walks feel unsafe, even in residential areas. Creating dedicated sidewalks within the existing roadway and implementing traffic calming measures would help create a safer and more comfortable environment for people who walk regularly in the community."

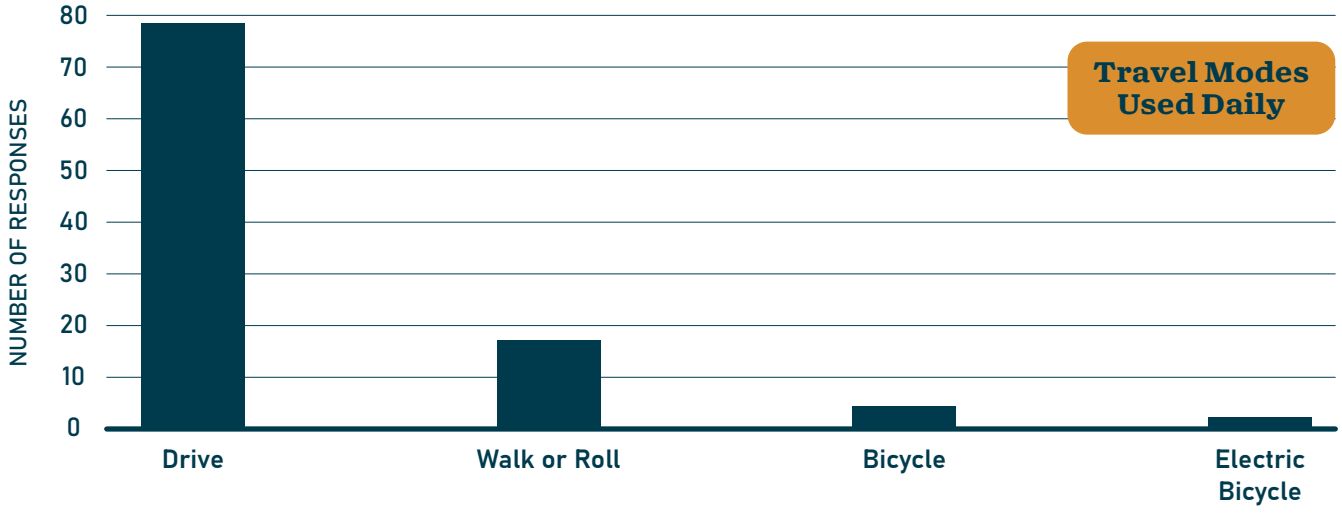


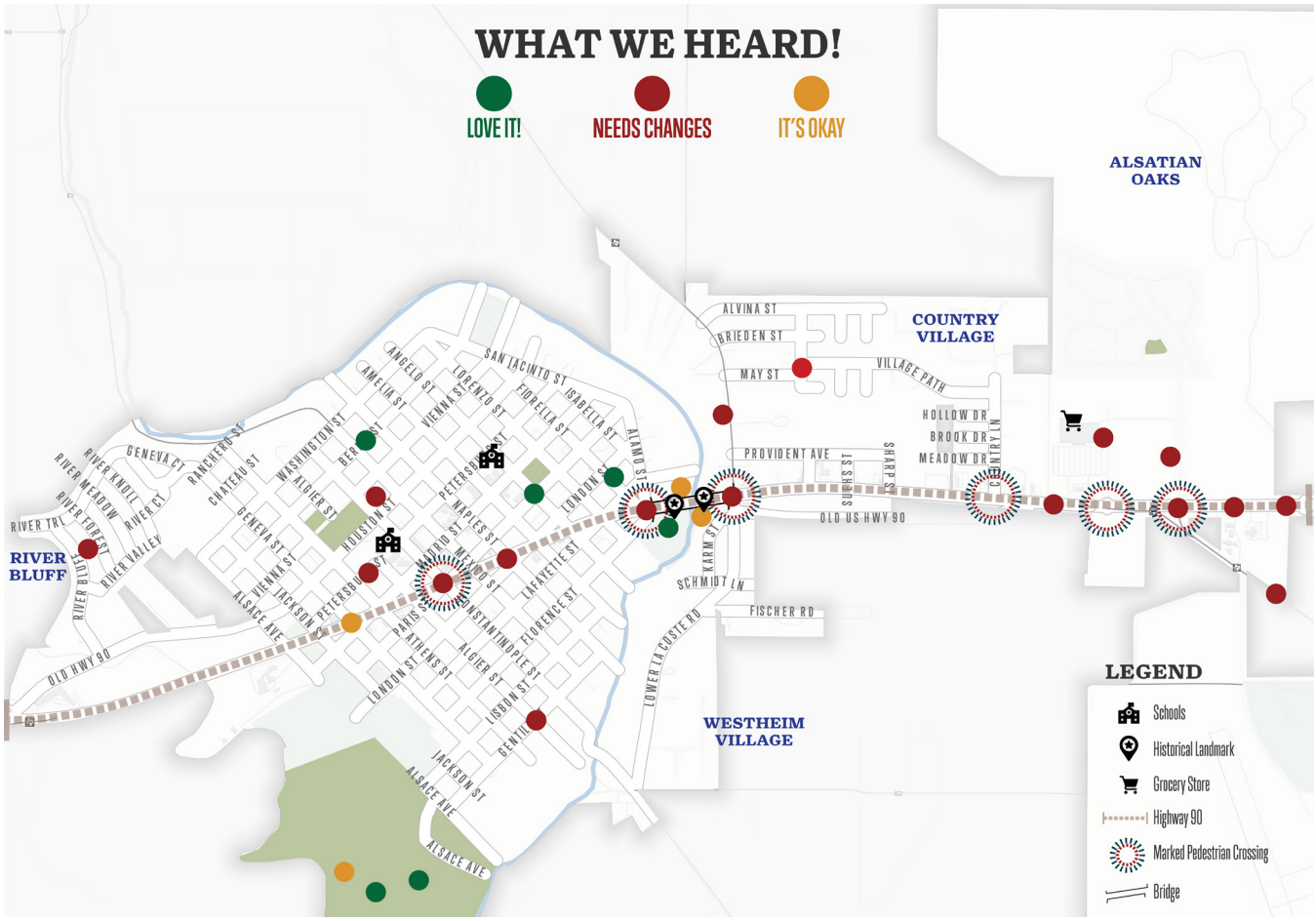
"My wife and I enjoy biking into Castroville from west of downtown along Old Highway 90. On Saturdays, we ride in for breakfast tacos at Andrea's and enjoy sitting outside to watch traffic go by. Afterward, we ride around the north side of town, but there is no safe way to cross to the south side. Even with these challenges, we love our town. We moved here four years ago from a big city and have no regrets."

Who We Heard From









This map summarizes community input collected during an in-person engagement event, where participants placed colored sticky dots on a printed map to identify locations they like, areas that are acceptable but could be improved, and areas where change is needed.



Engagement Takeaways

- **Highway 90 emerged as the community's top safety concern.** Across all engagement activities, participants identified Highway 90 as the most challenging corridor for walking, biking, and crossing. Concerns focused on high vehicle speeds, limited and unsafe crossings, and poor connectivity.

> **"We need sidewalks all the way down Highway 90."**

- **Safety is the primary driver of travel behavior.** Many community members indicated they would walk or bike more if conditions felt safer. Issues such as speeding vehicles, lack of sidewalks, inadequate lighting, and difficult crossings were repeatedly cited as barriers.

> **"Kids walking to school don't have safe sidewalks."**

- **School travel needs immediate attention.** Engagement revealed significant concerns related to student safety, including informal pick-up and drop-off behavior, lack of crossing guards, and limited safe walking or biking routes to school. Participants expressed interest in solutions such as remote drop-off locations paired with safe pedestrian connections, highlighting the new parking lot at Lions Park as a potential option.

- **Connectivity gaps limit everyday walking and biking.** Missing sidewalks and crossings were identified as barriers that prevent people from accessing schools, parks, downtown, and other daily destinations without driving.

- **Parks are a community strength.** Engagement highlighted strong support for existing parks and recreational areas, with participants expressing appreciation for these spaces and a desire to better connect them through safe walking and biking routes.

> **"Let's make it easier to bike between neighborhoods."**

- **Speed management is a top priority.** Participants raised concerns about vehicle speeds, particularly along Highway 90, and supported strategies such as reduced speed limits, traffic calming, and center medians to improve safety.

- **Clear organization and design matter.** Feedback emphasized the need for better-defined parking areas, clearer circulation, and improved signage to reduce conflicts between vehicles and people walking or biking, especially in downtown, near schools, and during events.

- **Balancing investments are important to the community.** Participants expressed a desire for improvements that serve community members' everyday needs and are distributed across all neighborhoods, rather than focusing on a limited number of areas or primarily near tourism-related destinations.

Insights from Previous Plans

Castroville has developed a vision for the future that reflects the needs of a growing and adaptable small city in an agricultural context. This includes protecting and expanding the design style present downtown while balancing the commercial and residential sprawl in the outer regions of Castroville. Upcoming projects focus on improvements to Highway 90, modernization of the downtown core, and neighborhood node-based mixed-use redevelopment.

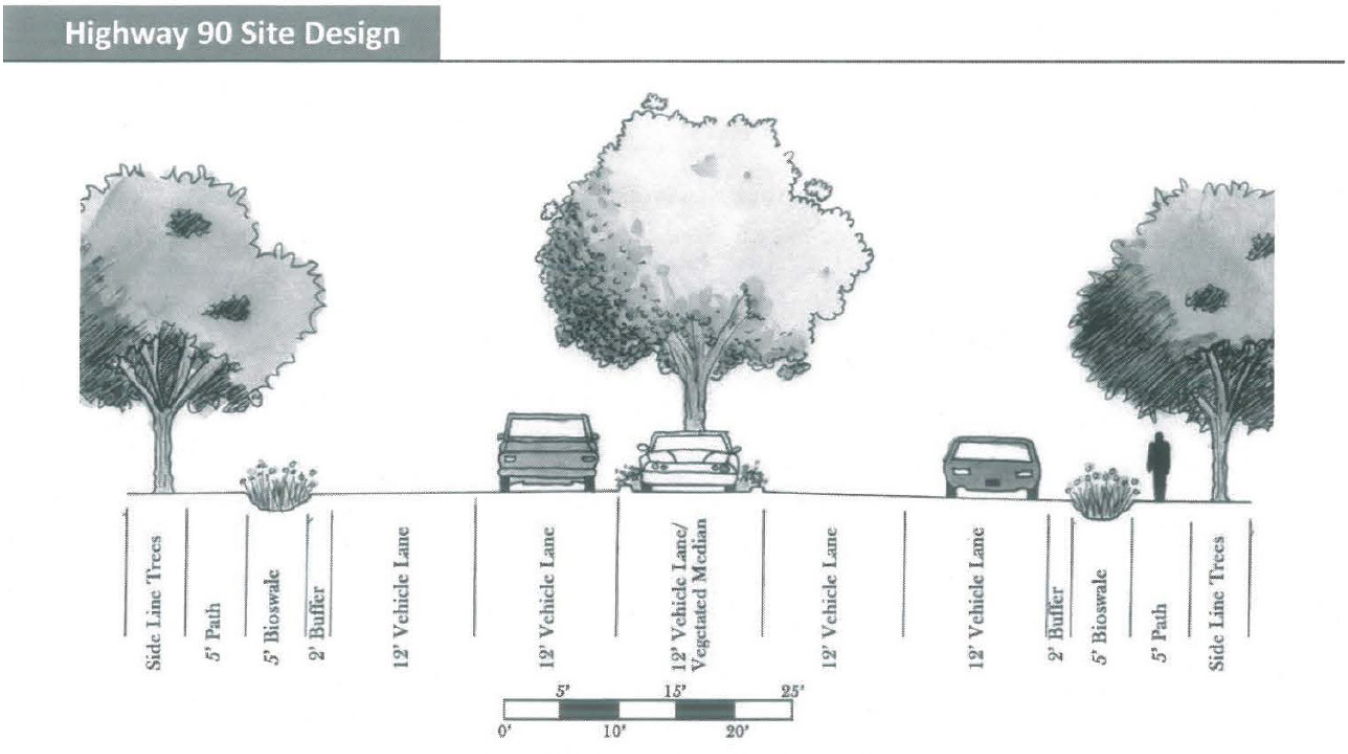
Related Plans:

- Downtown Master Plan and Engagement Appendix – 2025
- Castroville Parks Master Plan – 2022
- A Vision Plan for Castroville – 2016
- Downtown Conservation and Revitalization Study – 2010
- Castroville Master Plan – 2008
- Visionaries in Preservation Plan for Castroville – 2002

Upcoming and Potential Projects:

- Highway 90 boulevard conversion
- Paris and Fiorella development
- Houston Square improvement
- Public Works Infill development
- 5-mile bike trail
- Event systems and support

Previous concept design of a Highway 90 boulevard conversion.



Takeaways for Active Transportation Planning

Safe Crossings and Mobility: Particularly over Highway 90 and the Medina River; improve access to schools, library, parks, Walmart and local businesses. Traffic calming is critical on streets adjacent to Highway 90.

Walkable Core: Transform downtown into a pedestrian-oriented center anchored by Paris Street, Fiorella Street, and Houston Square.

Connected Trail Network: Build a citywide system of trails, sidewalks, and bikeways linking neighborhoods, parks, schools, and regional systems. Long distance connectivity can support bicycle events.

Complete and Shared Streets: Apply context-sensitive street design to balance vehicles with walkers, bikers, and public space.

Healthy, Sustainable Growth: Support active transportation to improve public health, reduce pollution, and reinforce Castroville's historic and cultural identity.



Marked pedestrian crossing near the Landmark Inn across Highway 90.

Highway 90 is a source of transportation safety and connectivity concerns. The current layout and design speed of Highway 90 is not compatible with a safe experience for people walking and biking. Traffic calming and boulevard conversion are mentioned frequently in previous plans and would improve the pedestrian experience.

- Highway to Boulevard Conversion Considerations
  - » Significant local interest
  - » TxDOT jurisdiction
  - » Uncertainty in next steps
  - » Plans have suggested a Highway 90 bypass, bridge, or tunnel option, but these may be overly expensive compared to traffic realignment and calming.

Community input reflects varied preferences for supporting walking and mobility, including interest in both ADA-compliant sidewalks and shared street environments. These perspectives reflect local context and priorities, such as the value of traffic calming, safer crossings on major roads, and strategic investments in lower-intensity areas. A balanced approach that combines sidewalks where most needed with shared streets, traffic calming, and shared-use paths connecting key destinations has broad community support.



Paris St and Lorenzo St in downtown Castroville.

Vision and Goals

Vision

Castroville will be a cohesive, community-oriented city where people of all ages and abilities can choose to walk and bike anywhere in the city without encountering barriers to safe, comfortable travel.

Goals and Objectives

Goals, objectives and recommended performance measures are in Appendix A.

1 *Safety*

Increase safety for everyone traveling in Castroville – especially pedestrians, bicyclists, and other vulnerable road users.

Objectives

- Reduce vehicle speeds, which increases safety for everyone.
- Reduce conflicts and improve visibility between road users.
- Eliminate pedestrian and bicyclist traffic collisions with motor vehicles.
- Create a street system that users of all ages and abilities can use safely.

2 *Connectivity and Access*

Mitigate physical barriers to active transportation and build a cohesive sense of place (e.g., Highway 90, Medina River).

Objectives

- Provide safe and comfortable places to cross busy streets and highways.
- Enhance north-south connections in town.
- Enhance east-west connections in town.
- Develop a network of shared streets and protected facilities between new and historic development.
- Establish high-quality routes between businesses, schools, parks, recreation areas, and neighborhoods.

3 *Community*

Develop a plan that incorporates and is responsive to the current and future needs of the residents of Castroville.

Objectives

- Communicate project progress, outcomes, and implementation effectively, while allowing space for response to public comment and reorientation.
- Support Castroville festivals and events.
- Create holistic policies that support current and future needs.
- Evaluate implementation progress at regular intervals.

02

Challenges and Opportunities

Barriers

Castroville has **limited existing pedestrian and bicycle infrastructure,** which constrains opportunities for safe and convenient active transportation.

Sidewalks are concentrated near Houston Square in downtown Castroville and are also located within several residential neighborhoods, leaving large portions of the community without pedestrian facilities.

The existing sidewalk **network is fragmented, lacking continuous connections** to schools, parks, commercial areas, and other key destinations.

There are **six total crossings of Highway 90** in town, only two of which are in Old Castroville.

There are currently **no existing bicycle facilities** in Castroville, which further discourages bicycling as a viable transportation mode.

Walkers and bikers in Castroville experience challenges based on this context. Physical barriers, like Highway 90 and the Medina River, make it harder for people walking and biking to reach their destinations safely and efficiently.

Highway 90

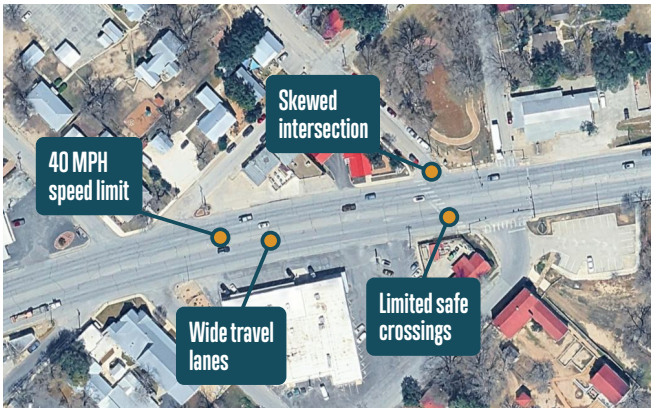
- High vehicle speeds
- Limited safe crossings
- Wide lanes, numerous lanes
- Skewed intersections

Medina River

- Limited safe crossings
- Flood hazard
- Complicated shoreline jurisdiction
- Dangerous bridges



View on Paris Street without sidewalks.





Medina River crossing in south Castroville with signage indicating it is not a pedestrian walkway.

Key Crossings

Along Highway 90, pedestrian crossings are sparse. Highway 90 has six pedestrian crossings in Castroville, including four east of the Medina River and two in downtown Castroville. Spacing between crossings ranges from 800 feet to more than 3,000 feet. Where crossings are present, distances for pedestrians to cross the travel lanes are long, spanning between 90 and 140 feet. There is also inadequate space, limited visibility, minimal separation from vehicle traffic, and narrow or missing sidewalks at crossing points. These conditions present barriers for both residents and visitors trying to cross Highway 90 when walking or biking.

Community members ranked more sidewalks and safer places to cross the street highest among improvements that would encourage more walking.

#1 MORE SIDEWALKS

#2 SAFER PLACES TO CROSS THE STREET

#3 MORE DESTINATIONS WITHIN WALKING DISTANCE



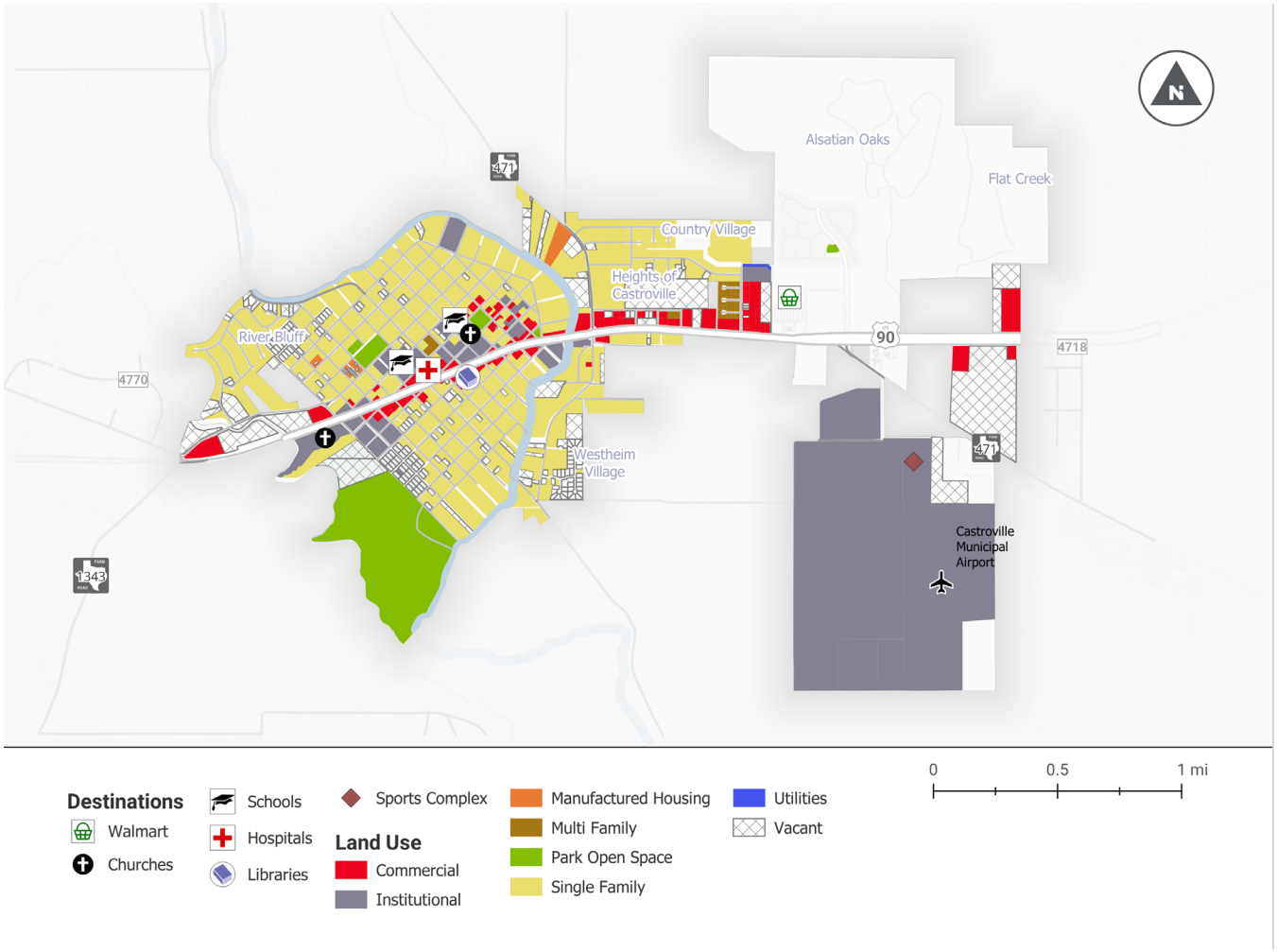
Other Existing Conditions

Key Destinations

Nearly all of Castroville's commercial shops, churches, schools, and hospitals are located along or adjacent to Highway 90, making the corridor the primary hub for daily needs and essential services. In contrast, most parks and open spaces are located within residential neighborhoods, creating geographic separation between where people live, play, and access goods and services.

This separation is further complicated by the physical barriers posed by Highway 90 and the Medina River. For people walking and biking, these features inhibit mobility and access to various types of destinations, as there are only a few locations to cross and limited facilities to support active travel. Strengthening these connections is critical to providing safe, multimodal, and reliable access to destinations across Castroville.

Key destinations where active transportation infrastructure could be prioritized to bridge these gaps and better connect people to destinations they need.

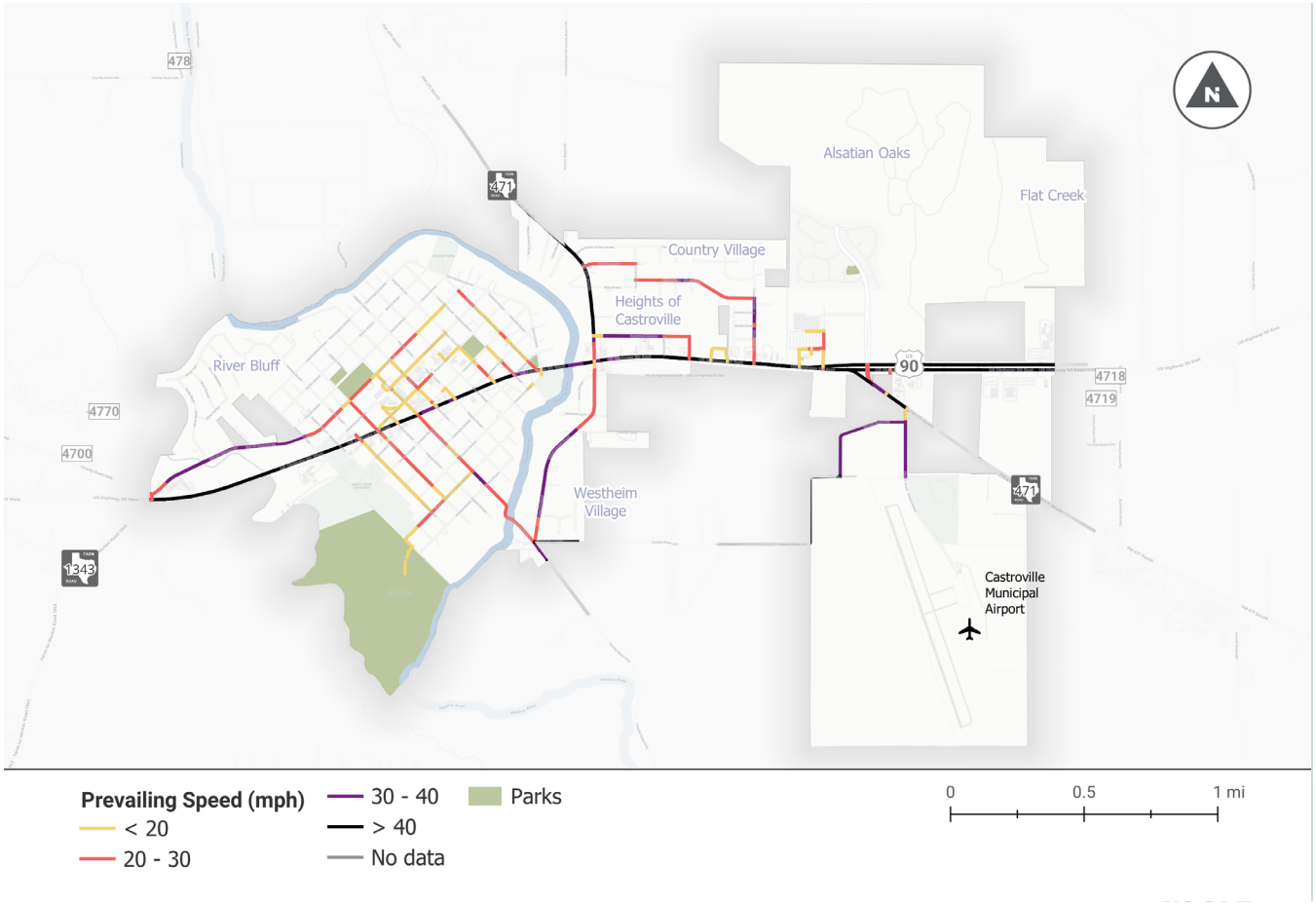


Observed Speed

In Castroville, the highest vehicle speeds are observed along Highway 90 and FM 471. Speeds on Highway 90 regularly exceed the posted speed limit, with occasional speeding in excess of 65 MPH. These roadways carry both regional through traffic and support local traffic completing short trips. The higher speeds are reflective of both the roadway design and land use (e.g., 12-foot travel lanes, limited signalized intersections, rural to rural community land uses) as well as the role of each road as an important regional travel corridor.

Local neighborhood streets, in contrast, generally exhibit lower travel speeds. Speeds on local streets vary depending on the presence of stop signs. Areas with stop signs in a series tend to slow traffic, while uninterrupted segments allow vehicles to accelerate more quickly. The relationship between observed speeds, roadway design, and proximity to destinations highlights the need to consider traffic calming and speed management strategies to improve safety and comfort for walkers and bikers.

Observed vehicle speeds in Castroville.



Safety and Comfort

Safety

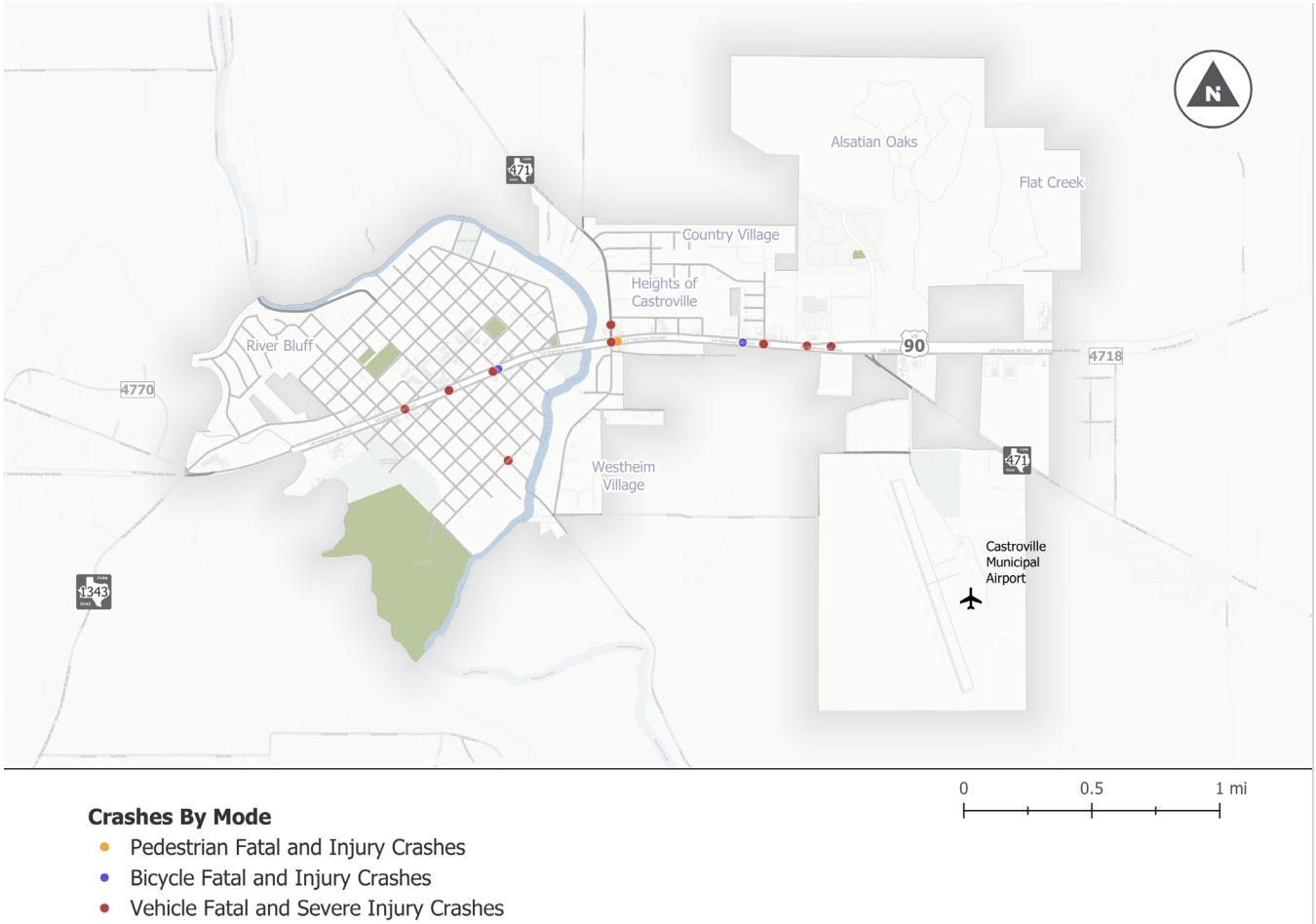
The City of Castroville's primary barrier to safe and comfortable active transportation is Highway 90.

- Castroville has had very few serious crashes in the last five years.
- Ten out of twelve crashes occurred on Highway 90.
- Crashes involving people walking and biking were rare and occurred only along Highway 90.
- High speeds, high vehicle volumes, a lack of consistent pedestrian infrastructure, uncontrolled driveway access, and skewed intersections all contribute to degraded safety and high stress levels for people walking and biking.
- No fatal pedestrian or bicyclist crashes were reported during the study period.*

TxDOT has identified poor lighting, moderate vehicle speeds, and areas with high social vulnerability as key risk factors statewide that contribute to pedestrian and bicyclist safety risks. This understanding has been incorporated into our recommendations.

**Crash data appears to be underreported, especially in 2020 and 2021.*

Crashes in Castroville from 2020-2024.

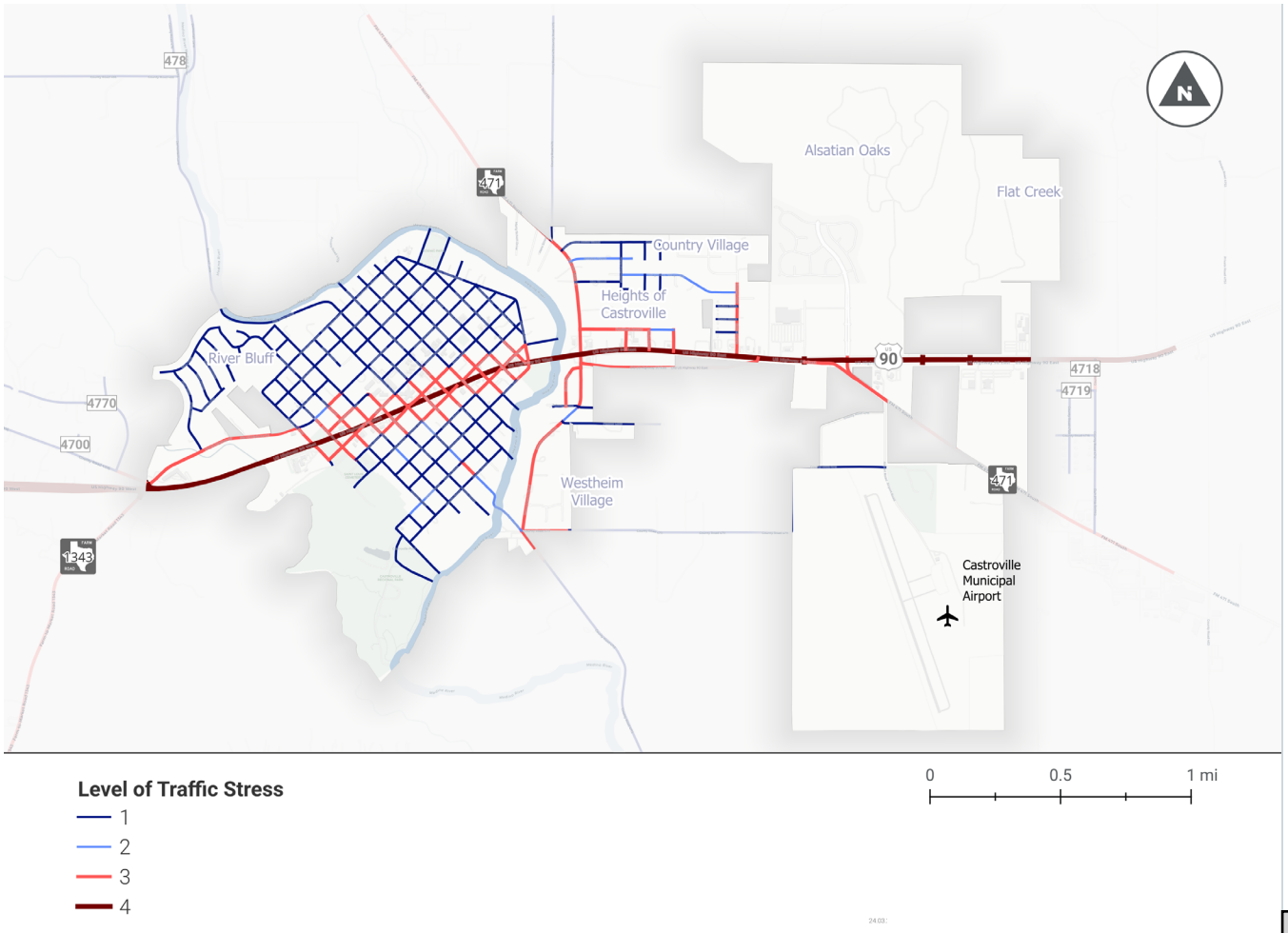


Comfort

Beyond being a safety concern, Highway 90 is uncomfortable for people walking and biking. Other major corridors, including Old Highway 90, FM 471, and Lower Lacoste Road also present higher stress levels than are comfortable. In contrast, most other streets in Castroville are considered low stress, reflecting their lower speeds, traffic volumes, and local functional classification.

Stress Score	Mileage	%	Description
1	10.5	61%	Local streets with low prevailing speed have low stress.
2	0.6	3%	Local streets with prevailing speed above 25 mph have relatively low stress.
3	4.3	25%	FM 471, roadway segments immediately adjacent to Highway 90, and other segments with high prevailing speed have relatively high stress. The high prevailing speed was supported by data, field observations, and inputs from stakeholders.
4	1.9	11%	Highway 90 is very high stress, considering the high volume (25k+ per day).

Map of the level of traffic stress.



Community members asked for safer and separated, protected facilities to bike in Castroville.

#1

SAFER STREETS FOR BIKING

#2

PROTECTED BIKE LANES

#3

WELL CONNECTED BIKE LANE NETWORK



Opportunities

Historic Grid

The rectilinear grid is an asset for a small city. It is helpful for pedestrians because it creates shorter blocks and more direct routes, making it easier to walk from place to place. With many connected streets, people have more choices for where to walk, which can reduce crowding and make walking feel safer and more convenient.



Grid network in downtown Castroville.

Compact Core

Castroville's compact downtown core benefits pedestrians by placing shops, jobs, and services close together, so people can reach many places with short walks.

From an investment and infrastructure perspective, compact areas are more efficient because roads, utilities, and transit serve more people in a smaller space, saving money and supporting active street life.

Parks and Squares

Castroville has well-loved public spaces, exemplified by Houston and September Squares, and Castroville Regional Park.

These destinations center pedestrian experience and are the site of many of Castroville's community events and festivals.



Castroville Regional Park. (Photo Credit: Troy Wagner)



Old Fashion Christmas in Houston Square.

03

Infrastructure Strategies and Tools



Infrastructure Strategies and Tools

There are many infrastructure strategies and tools that can address transportation safety. These guide how the built environment is constructed and result in systemic safety improvements when implemented correctly.

Infrastructure strategies that would be beneficial to Castroville are explored in this chapter:

01

Traffic Calming
Design elements that naturally slow traffic.

02

Access Management
Infrastructure that controls how traffic flows into parking lots or commercial driveways, and how streets interact with one another.

03

Network Connectivity
Standards that promote more connected street networks like that found in Old Castroville.

Applying these strategies to new development and property updates in Castroville could significantly improve safety and connectivity across all modes.

Traffic Calming

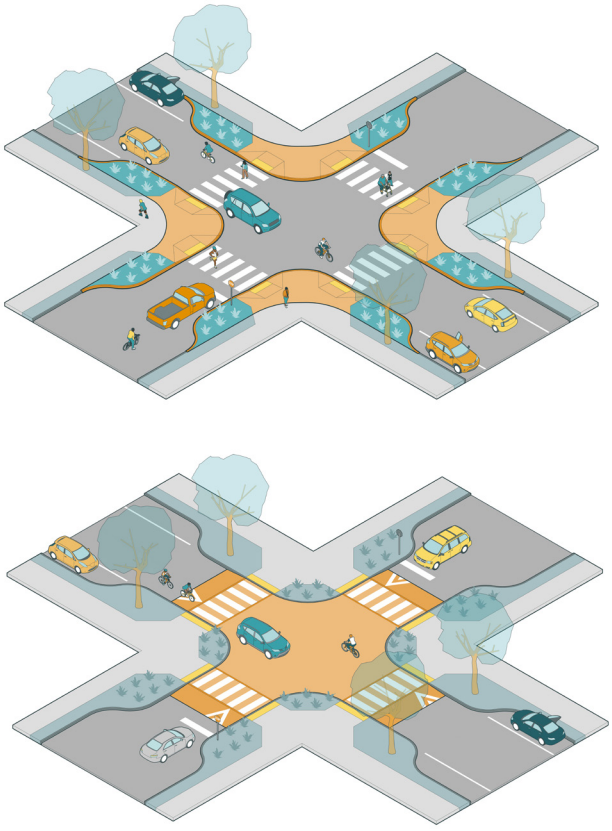
Problem: Roadway design and land use can contribute to high speeds that create unsafe conditions for people in and around vehicles. Greater vehicle speeds also increase the frequency and severity of crashes for all road users. In Castroville, this is a particular problem on Highway 90 and adjacent streets.

Link to Castroville: Highway 90 and its adjacent streets experience higher speeds that are unsafe for the residential context. Traffic calming could be targeted near Highway 90, Houston Square, schools, downtown neighborhoods, popular points of interest (library, local businesses), and parks.

> **"Drivers go too fast – more signs or signals, please!"**

Traffic calming can incorporate many different techniques. Some of the more popular are speed humps, raised intersections, curb extensions, and lane narrowing.

See the Toolkit on page 32 for more examples of traffic calming approaches.



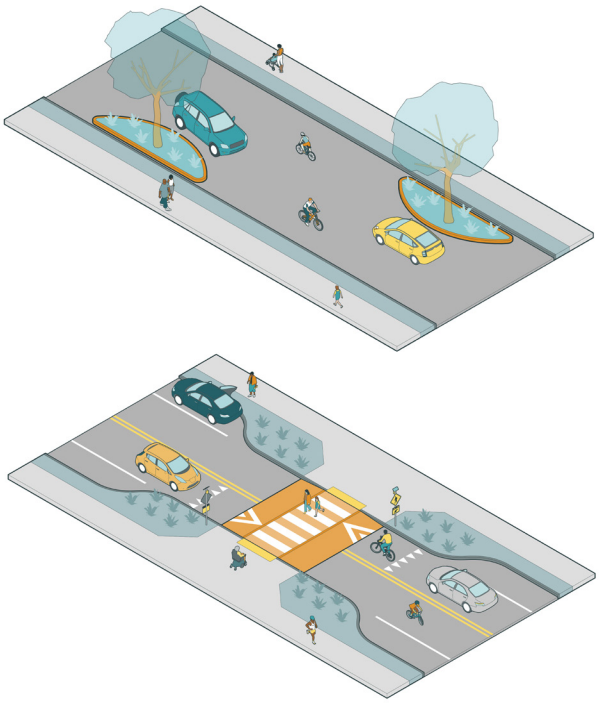
Intersection traffic calming solutions.
(Source: Fairfax City Neighborways Design Guide)

Best Practices

- Develop a process to identify high speed locations, which may include resident reporting.
- Observe and collect data to gauge the scale of the problem.
- Report on data collection results and deploy techniques to mitigate speeds at problem locations.
- Temporary traffic calming techniques can be tested at these locations (e.g., demonstration projects) and made permanent if successful.
- Temporary traffic calming will be deployed during local events and around schools.
- Use target speed to set speed limits on locally owned roads.

Recommendations

- Establish a traffic calming ordinance or policy.
- Identify the preferred traffic calming techniques through demonstration projects and community-engaged planning.
- Train public works or maintenance staff to install temporary traffic calming measures as demonstration projects.
  - » Identify streets and events to test speed management techniques.
  - » Collect before/after data on traffic calming effectiveness.
  - » Install permanent traffic calming where necessary.
- Create a mechanism to communicate traffic calming actions with the public.



Street traffic calming solutions.
(Source: Fairfax City Neighborways Design Guide)

Alsatian Connection

Castroville's roots trace back to the Alsace region of France, where streets and public spaces have long been designed to support walking, social interaction, and community life. In Haguenau, there are curb extensions, parklets, and narrow lanes to help manage traffic speeds for all modes. These examples highlight design approaches that continue to influence how people move and gather today.



Access Management

Problem: Access management refers to the design, application, and control of entry and exit points to properties along a roadway. Unclear policies on the placement of residential and commercial driveways can put people biking and walking at risk. Access points that are too close together or too far apart create opportunities for intermodal conflict.

Link to Castroville: Highway 90 and the streets adjacent to Houston Square have a lot of conflict points with driveways and parking lots.

Best Practices

- Skewed streets should be closed to through traffic or realigned to create a 90-degree angle.
- Commercial driveways should be consolidated to increase the distance between access points.
- Commercial driveways should be only wide enough to accommodate vehicle turning movements.
- Sidewalks and pedestrian facilities should be protected by medians. Medians also limit left-turn conflicts and calm traffic.
- Improve intersection operations and controls to be simpler for all road users.
- Realigning skewed intersections to improve safety and predictable operations.
- Active transportation facilities (sidewalks, shared use paths) should continue across driveways and parking lots using consistent materials or visible markings. The cross slope should be ADA accessible (1.5% max).
- Shared parking in the rear of building, and driveways on less busy access roads are preferred.
- Align access management with land use policies, including adopting access management policies.





Existing conditions in Castroville where access management could be applied.






Examples of access management from Hondo, TX.

Recommendations

- Identify and update necessary development and maintenance regulations for driveways and access points.
- Hold information sessions for the public and City staff.
- Apply design standards to city properties.
- Enforce design standards on new properties and those being updated.
- Offer incentives to property owners to reconstruct entrances.

Alsatian Connection

The Plaza d'Armes in Sélestat creates a comfortable space for all modes, with parking, planters, and bike parking.

The plaza is used for business activities but is not overwhelmed by any one mode or use.





Network Connectivity Standards

Problem: Network connectivity is a measure of how well a transportation network's links and nodes are connected, providing multiple direct routes between origins and destinations and minimizing travel distance, time, and conflict points. Transportation networks with limited connectivity create safety and other problems, like increased congestion and decreased access to commercial areas.

Link to Castroville: Downtown Castroville has great network connectivity. The Heights of Castroville, Alsatian Oaks, and River Bluff have limited network connectivity.

Five- and ten-minute walk distances in Castroville neighborhoods.



Places with high intersection density are better for walking. In the walkshed map above, a person can cover a much larger distance in Downtown Castroville than in Alsatian Oaks, because they can choose from many different routes. The Heights and Alsatian Oaks neighborhoods show a smaller distance can be covered with less network connectivity.

In Alsatian Oaks people using any mode can only exit the neighborhood one way, which will inevitably cause congestion, lead to longer emergency response times, and cause other issues. This can be avoided in the future by having policies to preserve and promote network standards. In addition, Castroville could go one step further and require new developments to include sidewalks, paths, and trails to support long-term multimodal connectivity.



Castroville, Hondo, Sabinal



San Antonio, San Antonio, San Antonio

Best Practices

- New developments should continue or mimic the grid network of Old Castroville and including walking and biking facilities.
- Neighborhoods should have multiple exits. Dead-ends and cul-de-sacs should be discouraged.
- The maximum block length should be reduced.
- Mid-block crossings with a striped crosswalk should be placed on roads where intersections are greater than 600 feet apart.
- Paths for people walking or biking should be used to increase connectivity between streets where possible.

Recommendations

- Identify and update necessary development and maintenance regulations.
- Hold information sessions for the public and city staff.
- Create pedestrian paths that increase connectivity.
- Enforce standards on new properties and those being updated.
- Offer incentives to property owners to update their properties.
- Zoning and land use regulations should be updated to promote network connectivity and disincentivize no-outlet roads.

Alsatian Connection

Even residential neighborhoods are seen to have a connected grid development pattern in Haguenau and Colmar.





Infrastructure Toolkit

Traffic Calming Techniques

Castroville should focus its efforts on Highway 90 and on streets immediately adjacent to Highway 90 where drivers do not have time to adjust to the slower context. Traffic calming is best accomplished by implementing tools that fit the needs of the community. A combination of traffic calming measures can increase safety for the Castroville community and for all road users. For more information on traffic calming measures, see the FHWA Traffic Calming E-Primer[1].

Horizontal Deflection

Horizontal deflection is a traffic calming technique that uses lateral shifts in the roadway alignment to slow vehicle speeds. It hinders the ability of a car to drive in straight line by creating a horizontal shift in the roadway. This forces the driver to slow the vehicle to comfortably navigate the roadway design. Horizontal deflection tactics can include but are not limited to:

- Lateral roadway shift
- Chicane
- Traffic circle
- Small modern traffic circle and mini traffic circle
- Roundabout



Mini-roundabout

Vertical Deflection

Vertical deflection creates a change in the height of the roadway that forces a driver to slow down to safely navigate the roadway. Vertical deflection tactics can include but are not limited to:

- Speed humps
- Speed cushions
- Speed tables
- Offset speed tables
- Raised crosswalks
- Raised intersections
- Bio retention areas or bioswales
- Transverse rumble strip markings



Speed hump

1 https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer

Bioswales

Bioswales are vegetated stormwater features integrated into streetscapes, such as curb extensions, medians, or buffer zones, which capture and treat roadway runoff while enhancing pedestrian and bicycle comfort and safety. They are a good fit for Castroville as they slow traffic while also mitigating flood hazards. They can be paired with techniques such as daylighting, where parking is not allowed directly next to intersections or crosswalks, and curb extensions, where the street is narrowed to shorten pedestrian crossing distances.



Bioswale and chicaning

Street Width Reduction

Narrows the width of a vehicle travel lane to slow down vehicles. Reducing lane width also reduces the distance that a pedestrian must cross, reducing their exposure to vehicles. Street width reductions may include:

- Corner extensions
- Chokers
- Median islands
- On-street parking
- Road diets
- Routing restrictions (diverters, closures, median barriers, and forced turning islands)



Curb extension

Additional Traffic Calming Measures

- Advisory bike lanes: Usable shoulders for bicyclists and pedestrians on a roadway that is otherwise too narrow to accommodate a full bicycle lane.
- Shared streets: Designed to serve pedestrians, bicyclists, and motor vehicle traffic in the same slow-speed travel area. Serve bidirectional travel without lane markings. This is the current prevailing method of road striping in Castroville.
- Pedestrian shoulder: A designated, clearly defined portion of a street or pathway reserved exclusively for people walking.



Advisory bike lane

04

Policy Tools

Castroville's active transportation planning goals can be supported by policies and programs that improve outcomes alongside engineering projects.

Reducing Speeds Where Vehicles Mix with Walkers and Bikers

Safety for walkers and bikers is directly related to vehicle speeds. Reducing speeds, especially on roadways where walkers and bikers are present, is key to decreasing the rate and severity of crashes. Traveling at a lower speed gives drivers more time to react to other road users, changes in roadway design, and to slow down for intersections or crossings. Slower speeds also make the roadway environment calmer, reducing noise and increasing walkability. Beyond reducing speed limits, narrowing travel lanes can force drivers to reduce speeds, which improves safety for all.

Castroville Connection

Reducing speeds along the Highway 90 corridor and adjacent intersections is fundamental to accommodating and improving safety for walkers and bikers. **Converting the highway to a boulevard** is one way to approach this goal. These changes can support economic activity, reduce congestion, and improve multimodal transportation options.

Policy Steps

- Reduce speed limit on local roads in Castroville to 25mph or lower
- Coordinate with TxDOT to explore boulevard and traffic calming options on Highway 90 through Castroville
- Test temporary traffic calming measures on streets near schools and Houston Square

Highway to Boulevard Example: Lancaster, CA

Lancaster Boulevard in Lancaster, CA was converted from a multilane highway to a pedestrian-focused boulevard in 2010. The project included a reduction in the speed limit from 35 MPH to 15 MPH. The new boulevard also includes a single, narrowed travel lane in each direction, walking and biking facilities, mid-block crossings, on-street parking, and a landscaped median.

Accommodating multimodal travel, slowing drivers down, and including parking has allowed local businesses to grow and prosper along the corridor. Since its conversion, over 800 jobs have been created along the corridor, generating $273 million in economic activity and doubling tax revenue.



Pre- and post-implementation Google Street View images of Lancaster Boulevard.

Safe Routes to School (SRTS)

Students who walk or bike to school can be exposed to unsafe roadway conditions, might be more difficult to see, and make different risk calculations compared to adults walking and biking. SRTS is a combination of infrastructure, policy, and program actions that helps children get to school safely and actively by walking, biking, or rolling. When students have safe routes, they get more physical activity, build independence, and arrive at school ready to learn.

"Most of us drive to scool because it's not safe to walk or bike."

Castroville Connection

Traffic from Highway 90 and from pick-up/drop-off areas create safety and connectivity challenges for students walking or biking to school. The middle school and high school are just outside of town but cannot be safely accessed without a vehicle because of speeds and the lack of facilities for walkers or bikers on FM 471 and Highway 90.

Castroville Elementary School is located one block north of Highway 90, which has limited crossing facilities and is the most significant barrier to the safe travel of pedestrians in Castroville.

Possible SRTS activities:

- Hosting Bike Rodeos (bicycle skills workshops for students).
- Incorporating bicycle and pedestrian education into other subjects in school curriculum.
- Walking school bus or bike bus.
- Promoting events like Walk or Bike to School Day.
- Conducting walk audits at schools to document safety issues.
- Conducting arrival and dismissal assessments.
- Implementing equitable speed enforcing strategies around schools and parks can save lives and reduce serious injuries.
- Placing crossing guards at busy intersections and driveways.
- Organizing school pickup and drop off plans that focus on safety.



Bike rodeo activity in Raleigh, NC.

Policy Steps

- Meet with the Parent Teacher Organization to identify interest.
- Build a core team (PTO, school district).
- Identify goals and target schools.
- Perform on-the-ground assessment to gather baseline information.
- Develop a SRTS Action Plan.
- Engage the community (students, teachers, parents).
- Launch program activities.
- Pursue funding and partnerships.
- Implement engineering improvement.
- Monitor progress and adjust.

Integrating Walking and Biking Programs

Infrastructure alone cannot create a safe and welcoming environment for people walking and biking. Without complementary programs and policies, infrastructure projects risk underuse. By formally prioritizing walking and biking, the City of Castroville can foster a strong active transportation culture.

Types of Walking and Biking Events

Community Bike Rides

Host monthly community bike rides to encourage bicycling for recreation and short everyday trips. Rotate starting points through different neighborhoods to highlight local destinations, including downtown, parks, schools, and the historic district.



Walking Club

Organize a community walking club to promote health, wellness, and social connection through regular walking activities. Walking clubs can meet at local parks, downtown areas, or neighborhood trails and encourage residents of all ages to participate.



Walk and Bike to School Day

Host annual Walk and Bike to School Day events to celebrate active transportation and raise awareness about student safety.

Bicycle Safety Course

Offer bicycle safety courses for youth and adults to improve knowledge and confidence when riding. Courses can include instruction on rules of the road, route selection, and safe bicycle handling.



Helmet and Light Safety Programs

Host helmet and safety light distribution events to encourage safe riding practices. Programs can include helmet fittings, basic maintenance demonstrations, and safety education for children and adults.



Lighting and landscaping amenities for pedestrians.

Support Walking and Biking with Infrastructure and Amenities

Design elements such as street trees, lighting, public art, water stations, landscaping, and benches along key corridors and near destinations can improve walking and biking experiences. These features also provide necessary rest points for people who are unable or uninterested in walking long distances at once. Bicycle support amenities, like parking and a public bicycle maintenance station can also help users feel safer riding.

Castroville Connection

Castroville has a dynamic and well-attended slate of local programming, including events like Old Fashioned Christmas and the Tour de Castroville. Biking and walking could be incorporated into existing local events or be the focus of new events that would help establish community in active transportation.

Policy Steps

- Adopt a Complete Streets policy.
- Identify a local walk/bike champion to lead events and efforts.
- Launch Walk/Bike to School Day with Medina Valley ISD.
- Host community walking event or bike ride, and make recurring if successful.
- Add street furniture and amenity guidance to local policies.
- Apply for local grants to add street furniture and amenities to key destinations.

Education Campaigns

Transportation behaviors and competencies vary widely, further complicated by new technologies and updated guidance. Without education and outreach, safe routes and active transportation facilities may remain underused. Develop materials and programs that reinforce the educational efforts, with the campaign focus changing each year or every two years.

Campaign strategies can include physical media, such as yard signs, as well as interactive events like bicycle scavenger hunts. Strengthen collaboration across departments and community groups by piloting related support programs.

Castroville Connection

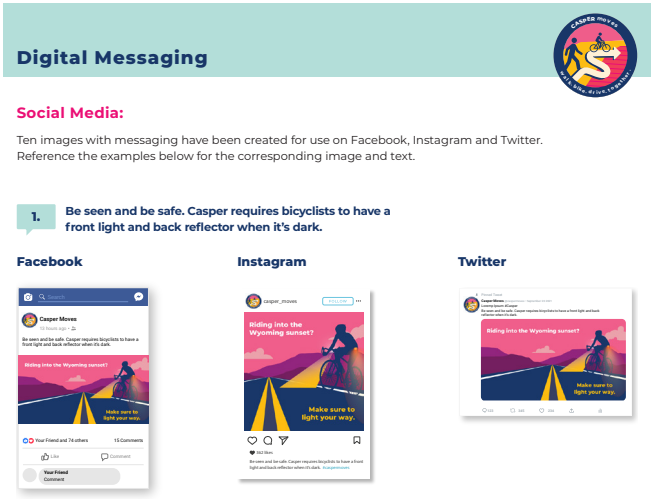
Launch themed media campaigns annually, in coordination with local community leaders, to select topics that address the needs of Castroville. Utilize high-participation events, particularly National Night Out, to introduce campaign messages, distribute materials, and engage families in hands-on safety activities.

Policy Steps

- Establish campaign coordinator (City staff member, police marketing, school board member).
- Identify first campaign topic (SRTS, speeding, bicycle behaviors).
- Develop materials, identify possible synergy within City departments and local businesses.
- Host or attend local events (Fiorella Fridays, Boo Bash) to distribute materials.



Elk Grove City Bicycle Education Campaign Scavenger Hunt



Casper Bicycle Education Campaign Social Media

05

The Active Transportation Network



Network Vision and Connectivity

In alignment with the plan goals and vision, all transportation modes should be fully considered and integrated into local planning and development activities, supported by evidence, oversight, and iteration.

Oversight: Establish a Bicycle and Pedestrian Advisory Committee.

Iteration: Use demonstration projects to try out new transportation solutions before permanently committing.

Evidence: Emphasize all-mode, all-user benefits backed by research.

Oversight: Establish a Bicycle and Pedestrian Advisory Committee

The City of Castroville should establish a local bicycle and pedestrian advisory committee as part of the adoption of the forthcoming active transportation plan.

A *Bicycle and Pedestrian Advisory Committee* is a standing body of local stakeholders who help guide active transportation planning and projects in a community.

- A body of volunteers or appointed members.
- Maintains momentum after a plan is published.
- Hosts community events like walk audits and propose or guide policy development.
- Supports coordination across city departments and stakeholders to improve active transportation, including championing a requirement to include walking and biking facilities for all new development.

Iteration: Demonstration Projects

New active transportation infrastructure does not have to be permanent or perfect initially. Demonstration projects provide a low-cost, flexible approach to test new ideas, street designs, and traffic patterns before advancing to long-term, capital improvements. By piloting changes with temporary materials, communities can evaluate performance, gather feedback, and refine designs prior to permanent implementation.



Painted crosswalk demonstration project.



Temporary curb extension demonstration project.

Evidence: Benefits to All Road Users

Improving the safety and experiences of active transportation users has significant benefits for all road users.

Changes to the road environment through access management, traffic calming, and increased network connectivity have a host of secondary benefits that can positively impact a community, including the following:

- **Safer Streets:** Access management provides more intuitive travel patterns for all users. Design elements that protect walkers and bikers (traffic calming, improved crossings, lighting) also reduce vehicle crashes. Lower vehicle speeds reduce crash frequency and severity.
- **Decreased Congestion:** Network connectivity provides redundant routes that can distribute traffic across roads instead of concentrating it at limited neighborhood access points. In addition, investment in active transportation can shift short trips to active modes and reduce congestion.
- **Faster Emergency Response:** Neighborhoods with limited access points have slower emergency response times because there are fewer entrances that vehicles can use. Having fewer entrances forces vehicles into a more circuitous route to enter the neighborhood, which impacts emergency response times of first responders.
- **Increased Sales for Small Businesses:** Gridded street networks have more flexibility in their use types. Old Castroville, even outside of the core, has relatively more local businesses compared to the new neighborhoods in and around Castroville. A gridded street network creates corner lots where entrepreneurs can set up a shop or local business. People can more easily browse nearby shops in a dense network that allows for corner shops.
- **Community Character Kept Intact:** Connected grid networks are more aligned with Old Castroville, contributing to the overall sense of community, honoring Alsatian heritage, and supporting historic walking tours.
- **Mitigated Flood Hazard:** Access management can allow for the introduction of bioswales, planters, and parklets that disrupt the continuity of impermeable, thereby mitigating flood risk.

What Do These Recommendations Mean?

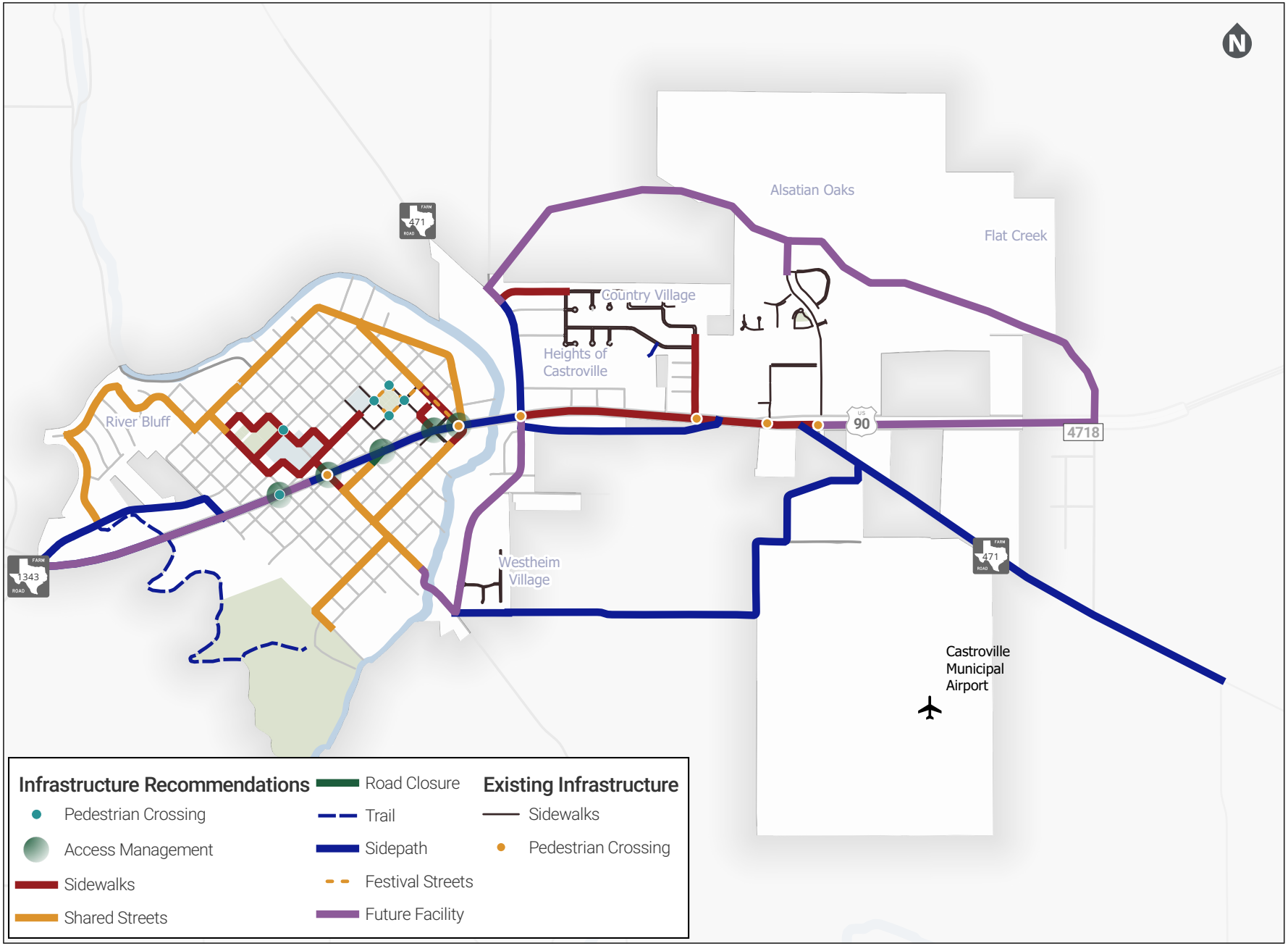
The recommendations in this plan reflect the established best practices for improving transportation safety and connectivity. They identify infrastructure and programmatic improvements that, if implemented, would help advance the transportation goals established by the City of Castroville.

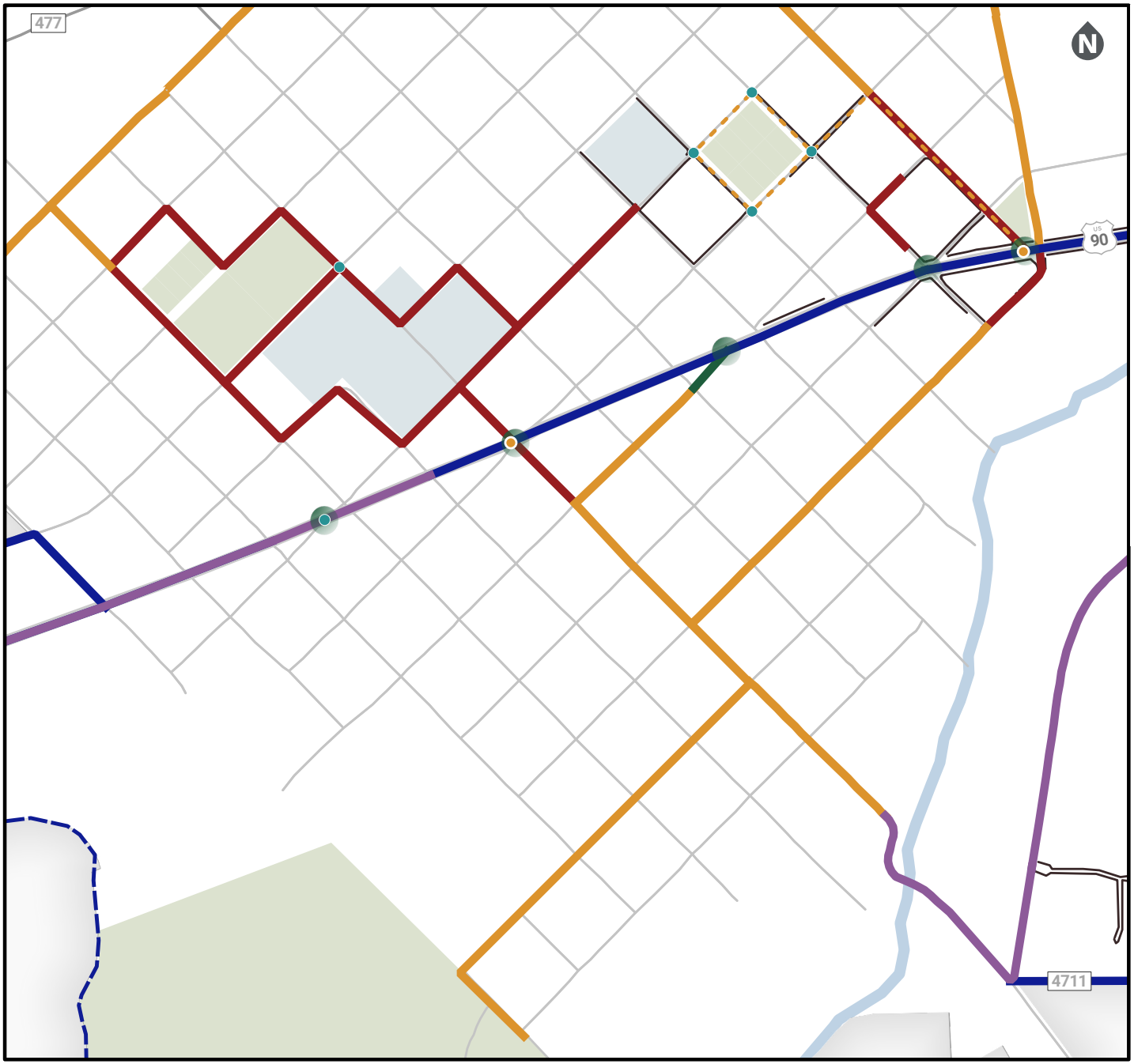
Not every recommendation may be feasible in the near term due to design, funding, or operational constraints. However, these recommendations are included to identify the improvements needed to achieve safe and connected conditions for people walking, biking, and rolling. The majority of proposed recommendations, especially along Highway 90, could be achieved through lane width reductions and by re-purposing the existing shoulders and center turn lanes, minimizing the need for additional right-of-way.

For example, pedestrians should be able to safely cross the low water crossing bridge on Constantinople Street. While current design and financial constraints may make this difficult to implement immediately, the improvement is included to highlight the minimum safety conditions that should ultimately be achieved.

The plan also encourages an iterative, demonstration-oriented approach to implementation. This allows Castroville to test new ideas and improvements through pilot projects or temporary installations before committing to permanent designs, helping ensure that solutions are effective and responsive to community needs.

Active Transportation Network Map





Infrastructure Recommendations (Inset)

- Access Management
- Pedestrian Crossing
- Sidewalks
- Shared Streets
- Road Closure
- Trail
- Sidepath
- Festival Streets
- Future Facility

Existing Infrastructure

- Sidewalks
- Pedestrian Crossing

Projects

Highway 90

A Highway 90 project in collaboration with the Texas Department of Transportation (TxDOT) is the most important project to meet Castroville's goals. It should be pursued via conversations with TxDOT and inclusion in TxDOT's Surface Transportation Improvement Program (STIP). A comprehensive complete streets and speed management project initiated by TxDOT on Highway 90 could address many of the current barriers to safe walking and biking (improving sidewalks, crossings, access management).

Highway 90 needs sidewalks and speed management to ensure pedestrian safety and community cohesion. A pedestrian bridge over Highway 90 has been proposed previously. However, this would not address the underlying risk that motor vehicle speeds pose to those outside of a vehicle and would be expensive to maintain. Complete pedestrian facilities, a sidepath, access control, and traffic calming are a priority on Highway 90. Recommended improvements could be achieved within the existing right-of-way through reductions in travel lane width, using shoulder areas, and modifying center turn lanes. As discussed in previous planning efforts in Castroville, gateway treatments and transverse rumble strips that physically delineate the approach into Old Castroville from surrounding agricultural land use contexts would also be beneficial.

Potential Features:

- Sidewalk installation (north)
- Sidepath (south): A sidepath is a path alongside a roadway designed to be used by people walking and biking
- Access management
- Curb ramps
- Pedestrian refuge islands
- Center median
- Gateway treatment
- Transverse rumble strips on approach
- Midblock crossing on Western edge of downtown



Access Management

These projects do not follow a single standard treatment but instead include a set of commonly used strategies that clarify vehicle movements and improve overall street function, often supporting better separation between travel modes. In Castroville, access management recommendations fall into two categories: treatments addressing skewed street geometry and measures related to parking management and control.

Realignment of Skewed Streets

Restrict vehicle access on road segments that meet Highway 90 at an acute angle to realign traffic pattern to create 4-leg intersections with less severe turning angles. Skew realignment might include closing road legs where small wedges are formed. These can increase speeds on side streets and create unnatural turning movements that lead to more severe crashes. Each of the highlighted sections should be considered for realignment.



Lafayette Street and Fiorella Street: Restrict vehicle access at Highway 90 and Lafayette Street at both north and south intersection points. Convert Fiorella into a one-way street, with vehicle traffic traveling north.



Paris Street: Restrict vehicle access at Highway 90 and Paris Street at both north and south intersection points.



London Street: Restrict vehicle access at Highway 90 and London Street at both north and south intersection points.



Madrid Street: Restrict vehicle access at Highway 90 and Madrid Street at both north and south intersection points.

Parking Control

Constrain parking lot access and delineate pedestrian space to reduce conflict points and improve safety for people walking and bicycling. Unmanaged parking areas and frequent curb cuts can create unpredictable vehicle movements, which increase crash risks. Access points should be consolidated where feasible, clearly defined, and aligned with adjacent intersections to simplify turning movements and improve sight distance.



Parking Control: The images above show example application areas of parking control and management. Reconfiguring block-length access points into single or multiple driveways allows for greater delineation between spaces and increases safety for all modes. The areas highlighted in orange indicate where parking control could be implemented along Highway 90.

Crossing Improvement

Intersections need marked crosswalks and pedestrian protections. The existing marked pedestrian crossings at Highway 90 and Fiorella Street as well at Highway 90 and Constantinople Street should be improved. We also recommend a new midblock crossing on Highway 90 between Geneva Street and Athens Street to improve connectivity on the western edge of downtown. The midblock crossing should include, at minimum, a pedestrian hybrid beacon or full signal, curb extensions, and a median refuge.



Midblock Crossing: Highway 90 between Geneva Street and Athens Street.

Festival Streets

Festival streets are flexible, pedestrian-oriented streets designed to function primarily as low-speed streets but can convert into a car-free space for community events and festivals. While related to the concept of a shared street, festival streets will have separate spaces for pedestrians (e.g., sidewalks, marked crossings). Their flexible design includes flush curbs, minimal grade separation, and removable barriers to allow temporary closures.

Around Houston Square, festival street treatments could be used to slow vehicle speeds and reinforce the area as a place for people, gathering, and local activity. Traffic calming and strong visual cues, such as paint, temporary or permanent barriers, and planters, can signal to drivers that they are entering a shared environment where people walking and biking have priority. These treatments can improve safety, enhance the character of the square, and support flexible use of street space during daily activity and special events.

"We need crosswalks along Highway 90, so we're not playing frogger."



Marked Crossings: Houston Square.



Marked Crossings: Houston and Constantinople.



Festival Streets: Houston Square, Paris Street to Fiorella.

Shared Streets

Most streets in Castroville's historic grid can, and already do, function as shared streets. But for selected streets we're recommending additional treatments to reinforce the concept. A shared street environment accommodates all modes while prioritizing the safety and comfort of people walking and biking. Treatments may include reconfiguring traffic and parking patterns, using distinctive paving materials like brick or other textured surfaces to clearly define shared space, and installing temporary or permanent traffic-calming elements.

The most important feature of a shared street is that traffic is slowed to a pace compatible with pedestrian safety. Mechanisms that encourage traffic calming are discussed in more detail in the policy recommendation memo.

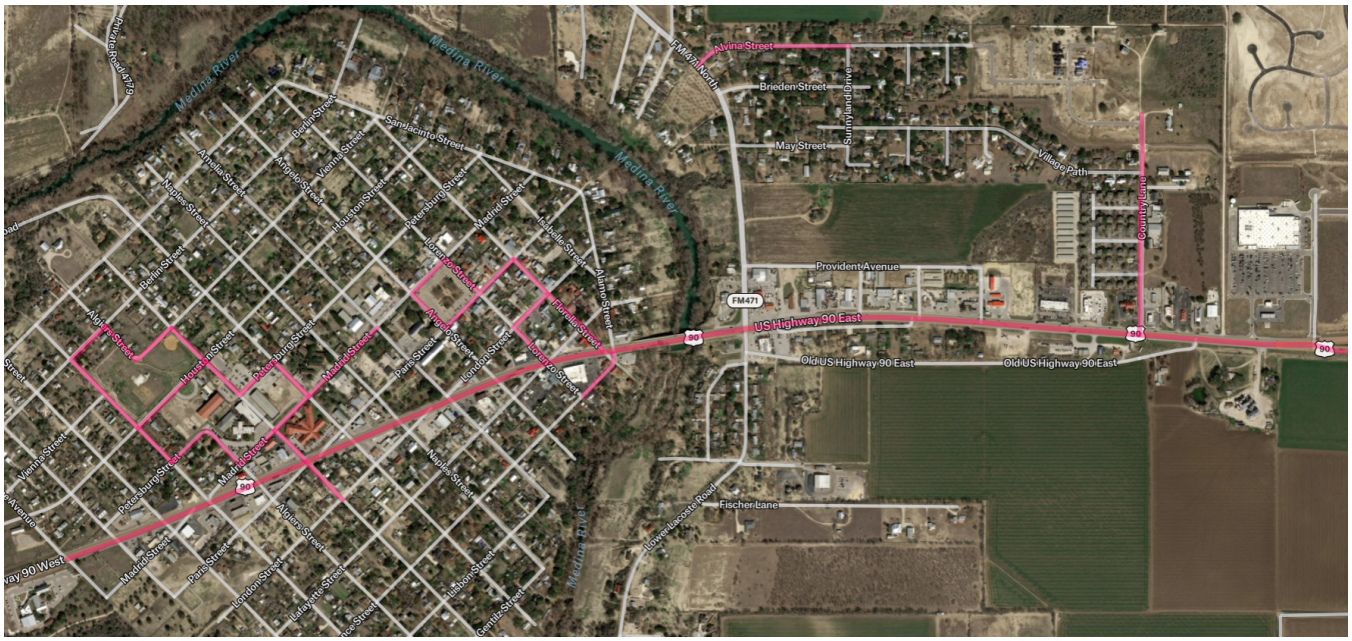
Shared streets are located away from Highway 90 where sidewalk connections are less feasible due to limited right of way and perception of local disinterest. Shared streets should transition to sidewalk before meeting Highway 90. We recommend that the last block of the shared street needs sidewalk to separate walkers from cars, which might be turning from Highway 90 at higher speeds.



Shared streets in Castroville.

Sidewalks

Sidewalks compliant with the Americans with Disability Act should be prioritized and installed on the north side of Highway 90 in Castroville, on streets adjacent to the schools, and on roads connecting communities where vehicle speeds may be high.



Sidewalks in Castroville.

Recommended Sidewalk Locations:

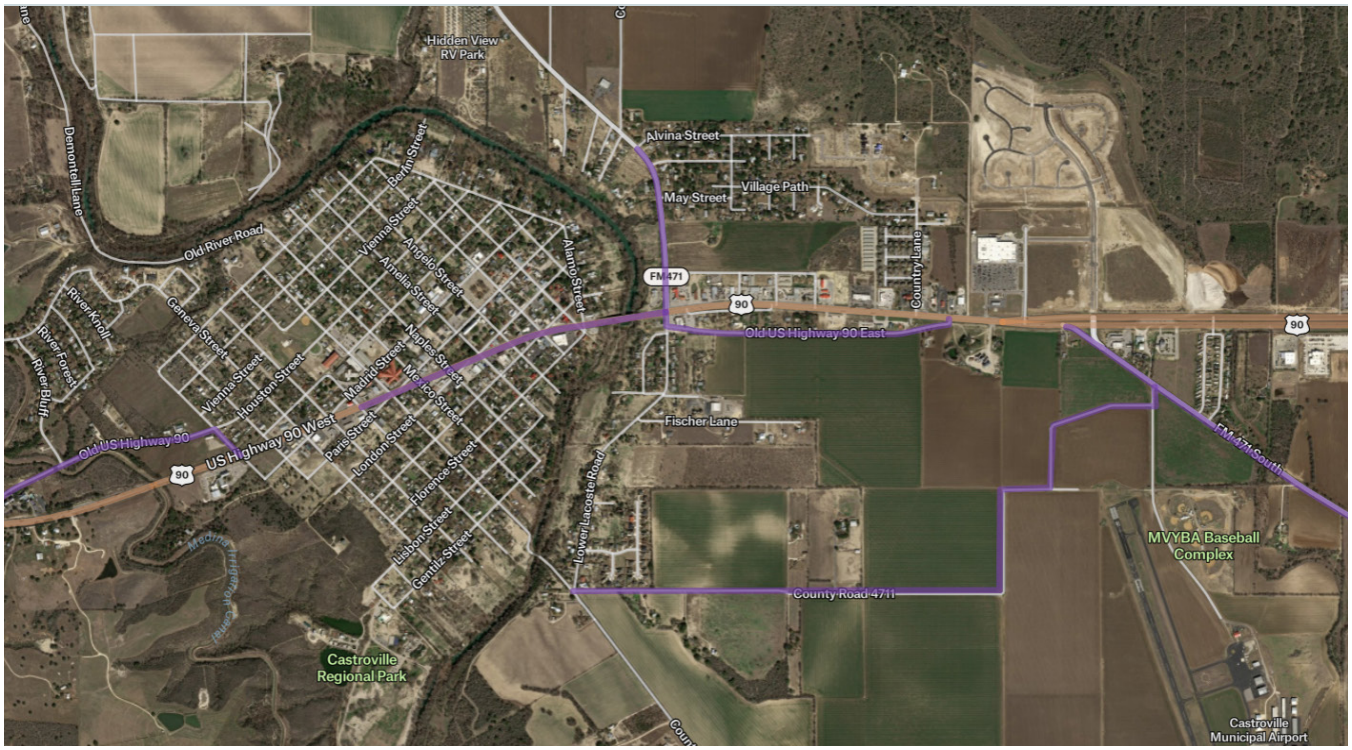
- Local streets: Constantinople Street, London Street, Geneva Street, Lisbon Street, Vienna Street, Algiers Street, Berlin Street, Athens Street, Petersburg Street, Madrid Street, Alsace Avenue, Florella Street, Houston Street, Alvina Street, Country Lane, and Lower Lacoste Road.
- Highway 90 throughout Castroville.

Sidepaths

Sidepaths are fully separated, multi-use facilities designed to support walking, biking, and other low speed micromobility modes. If light utility vehicles (UTVs) like golf carts are permitted, they must operate at speeds no greater than 15 mph and must always yield to people walking and biking. We recommend sidepaths along Highway 90 in downtown Castroville , Old Highway 90, FM471, and County Road 4711. TxDOT is also planning to include a sidepath on Highway 90 from Algiers Street to FM1343, shown on the Future Facilities map. In the short term, sidepaths along Old Highway 90 and County Road 4711 could be marked as on-street advisory bike lanes before sidepaths are fully installed.



Advisory Bike Lanes could be implemented along Old Highway 90 and County Road 4711 as a first step in the implementation process to accommodate bikers and walkers on existing infrastructure.



Sidepaths: Along Highway 90, Old Highway 90, FM471, and County Road 4711.

Trails

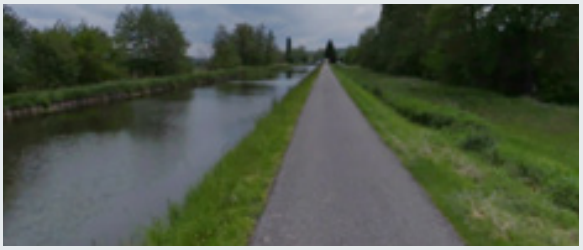
Trails are multi-use paths independent of the roadway network that are often located in parks or along greenspace and utility easements. They are more oriented toward recreational uses in addition to transportation and often include environmental and land management considerations. We recommend trails along Old Highway 90 as well as along County Road 4711. We recommend a trail along the Medina Irrigation Canal connecting to the Castroville Regional Park.

In addition, we recommend developing a trail specification to provide Castroville with a consistent framework for planning, designing, and building trails. Its purpose is to ensure that trails built by the city, developers, or partner agencies follow the same design expectations and provide a consistent user experience.

There is local interest in a regional network of trails and sidepaths that could support active transportation and other light modes (such as UTVs). A path connecting Hondo, Castroville, and La Coste, with access to Castroville Regional Park, Downtown Castroville, and the regional schools could be an initial idea. An intercity trail system is jurisdictionally complicated, and would be best managed by a regional body, such as the future MPO transportation advisory committee.

Alsatian Connection

This trail along the Canal du Rhone au Rhin connects small cities like Eglingen and Heidwiller.





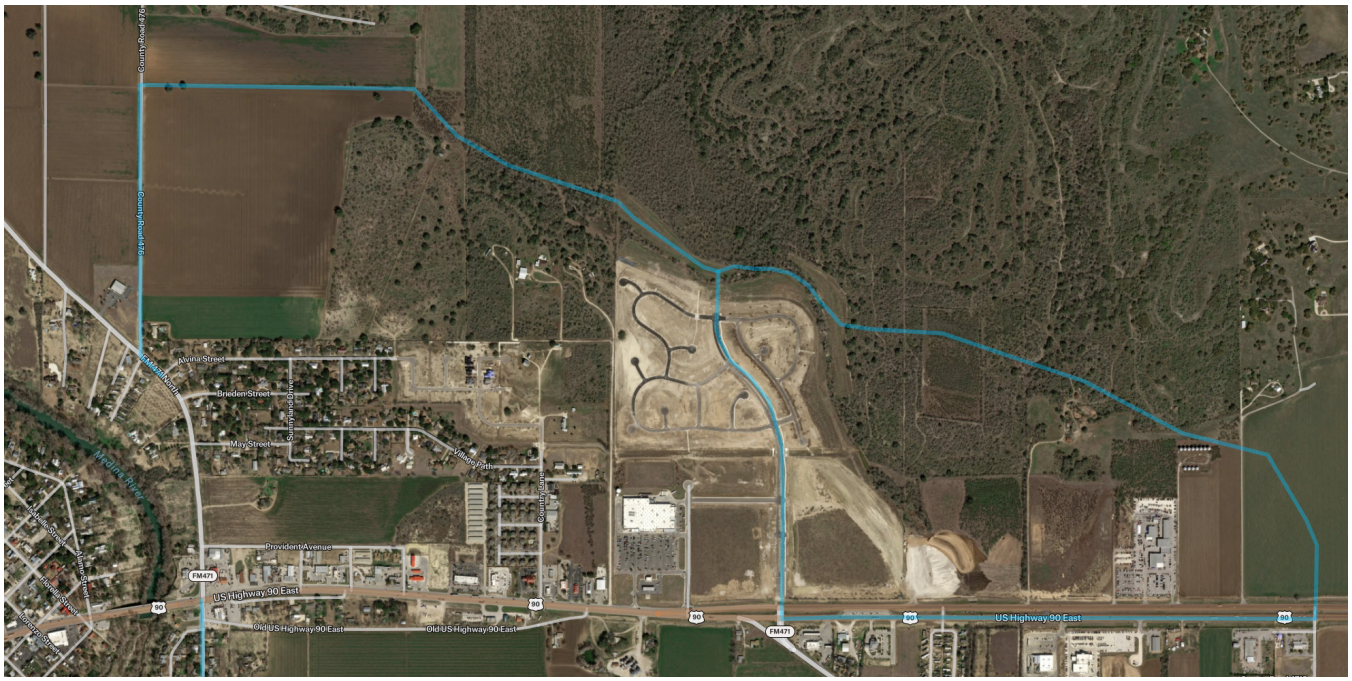
Trails: Along the Medina Irrigation Canal.

Future Facilities

These streets have been identified as candidates for future active transportation treatments, contingent on new development or grant opportunities.

- **TxDOT Highway 90 Planned Projects**
  - » Planned Project: TxDOT has a planned reconstruction project from Algiers Street to FM1343 that includes a 10 foot sidepath on the north side of Highway 90 and an 8 foot sidewalk on the south side.
  - » Planned Project: TxDOT has a planned reconstruction project from the intersection of Highway 90 and FM471 east to SH211. Highway 90 is planned to become a controlled-access facility, with sidepaths on the frontage roads.
- **Constantinople Low Water Crossing (LWC) Bridge**
  - » Recommendation: The LWC bridge should include dedicated space for pedestrians to cross. Other than Highway 90, there are no Medina River crossings in Castroville.
- **Constantinople (Gentilz to Lower Lacoste)**
  - » Recommendation: Sidewalk facilities and traffic calming.
- **FM-471 (North of Highway 90)**
  - » Recommendation: Sidewalk facilities, crossing improvements, and traffic calming.
- **FM-471 (South of Highway 90/Lower Lacoste)**
  - » Recommendation: Sidewalk facilities or shared use path.
- **Alsatian Oaks (Northern FM-476 Connection)**
  - » Recommendation: Sidewalk facilities or shared use path.

As Castroville continues to grow and new development occurs, areas that currently have limited demand for active transportation infrastructure may require improvements. This plan identifies corridors where infrastructure upgrades will likely be needed as development takes place, helping ensure safe and connected routes to downtown Castroville. Depending on the context and nature of future development, appropriate improvements may include sidewalks, shared-use paths, traffic calming measures, crossing enhancements, or other design elements that support safe and comfortable travel for people walking, biking, and rolling.



Future Facilities: New sidewalks or paths should be installed along and connecting to new developments north of Highway 90 in New Castroville.



Future Facilities: Planned developments outside of Castroville should have sidewalks or paths that give people access to Old Castroville.

Implementation Concepts

It can be difficult to imagine how places might change to meet active transportation goals. Concept designs are tools to help visualize these changes. Concept development is a planning exercise, representing no actionable engineering. Final designs may look different from the initial vision.

Houston Square Streets

Problem: The streets surrounding Houston Square (Paris, Madrid, Angelo, Lorenzo) interact negatively with the square through a poorly defined parking lot border. Pedestrian user experiences are not clearly identified. There are incomplete sidewalks, and no crosswalks or otherwise marked areas for safe walking around the square.

Short-Term Design Solution: Create clear pedestrian paths on either side of the streets surrounding Houston Square. Use paint, planters, moveable concrete barriers, and other temporary materials to try a clear traffic pattern for all modes.

Features:

- Crosswalks
- Pedestrian paths
- Protected parking lot boundaries
- Parking lot egresses
- Curb extensions
- Additional sidewalks to close gaps

Long-Term Design Solution: Houston Square is a central community landmark where residents and visitors gather for socializing, events, and festivals. Castroville's active transportation goals could be advanced by reimagining the streets surrounding the square to better prioritize people and community activity. Potential improvements include creating a flush, shared streetscape that accommodates multiple travel modes, incorporating brick or other materials that signal a slow-speed plaza environment, and enhancing pedestrian space along the square's edges. These design changes could help calm traffic, support local businesses, and create a more comfortable environment for walking, biking, and community events. Communities such as Sulphur Springs, located northeast of Dallas, have successfully transformed similar historic square streets into people-oriented spaces through thoughtful street redesign. A comparable approach in Castroville would align with the Downtown Master Plan and support the City's broader goals for active transportation, placemaking, and downtown vitality.

Design Highlight

Curb extensions with amenities



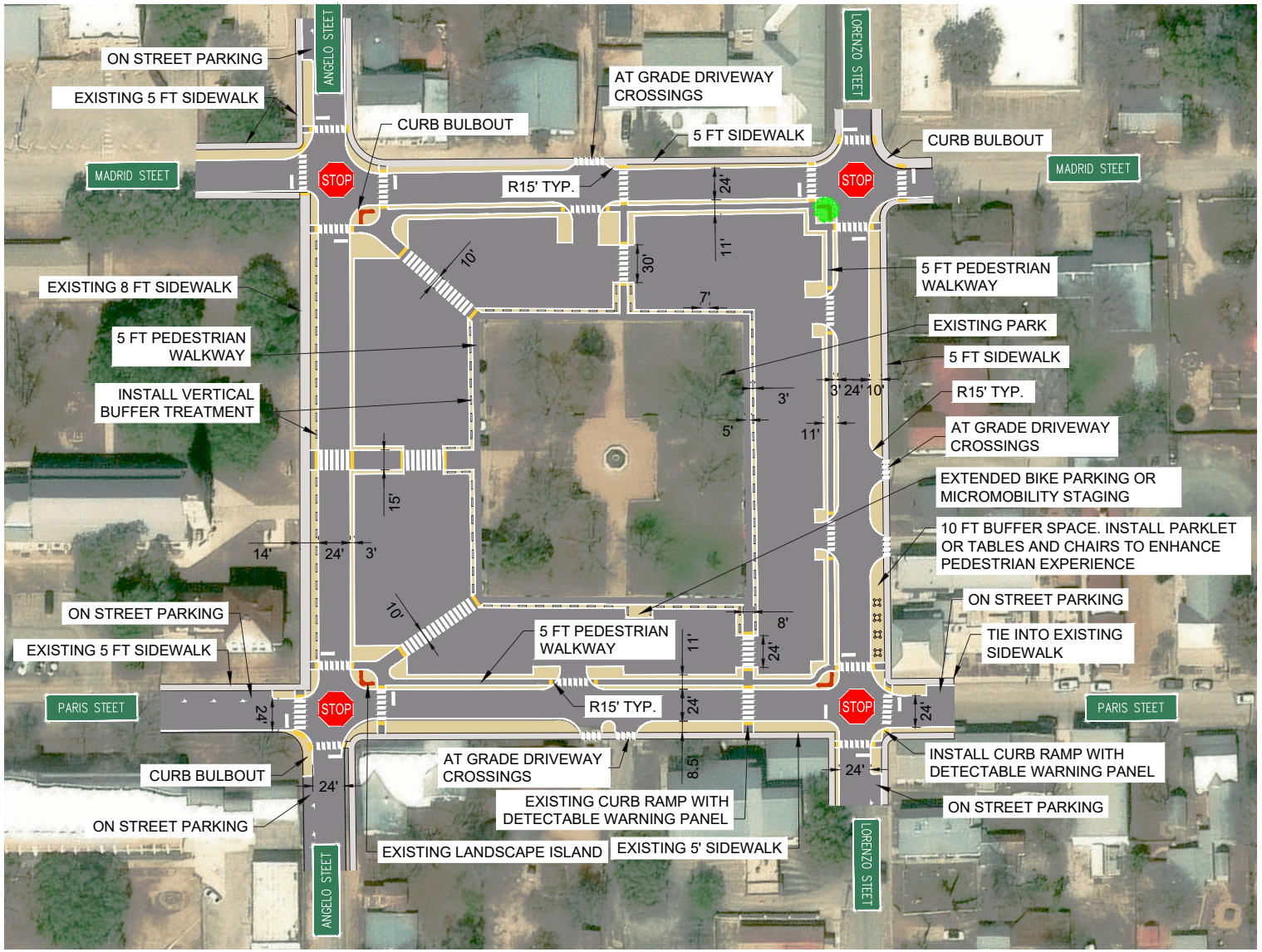




Sulphur Springs, Texas.

Houston Square Streets

Short-Term Design Solution



LEGEND

- SIDEWALK
- PAINTED BUFFER
- EXISTING BRICK LANDSCAPE MEDIAN
- DETECTABLE WARNING SURFACE (DWS)
- EXISTING SHADE TREE
- PARKING STOP

0 40' 80' 120'
SCALE IN FEET

N

Highway 90 at Fiorella

Problem: Skewed street angles and wide crossing distances on Highway 90 have created a difficult walking condition and high speed, intermodal conflicts.

Design Solution: Install a sidepath on the eastbound side of Highway 90 and add sidewalks to fill gaps on the westbound side to create continuous active transportation facilities. Street segments of Fiorella and Lafayette that are within one block of Highway 90 will be converted to a one-way street, with a realignment of the signal and pedestrian crossing to be more intuitive. In the future, we recommend investing in September Square to connect the internal path to the street sidewalk facilities.

Features:

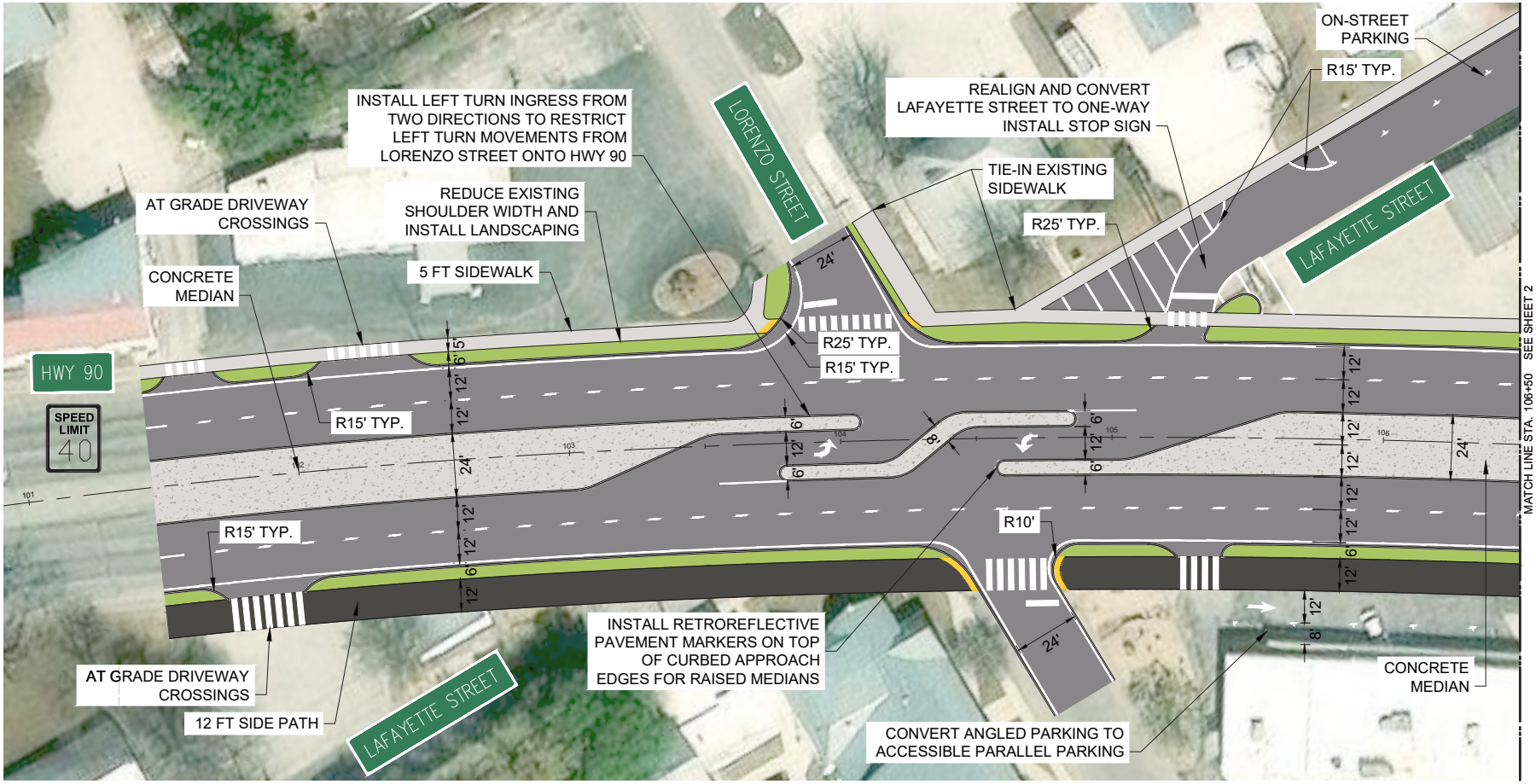
- Sidepath
- Sidewalk gap closures
- Pedestrian refuge island
- Road realignment
- Crossing realignment
- One-way conversions
- Signal simplification
- New sidewalks
- Back-in angled parking
- Crosswalks
- Curb extensions

Design Highlight

A sidepath along 38th Street in Austin, TX illustrates how this type of facility can improve safety and fill critical gaps in the walking and biking network.



Highway 90 at Fiorella (West)

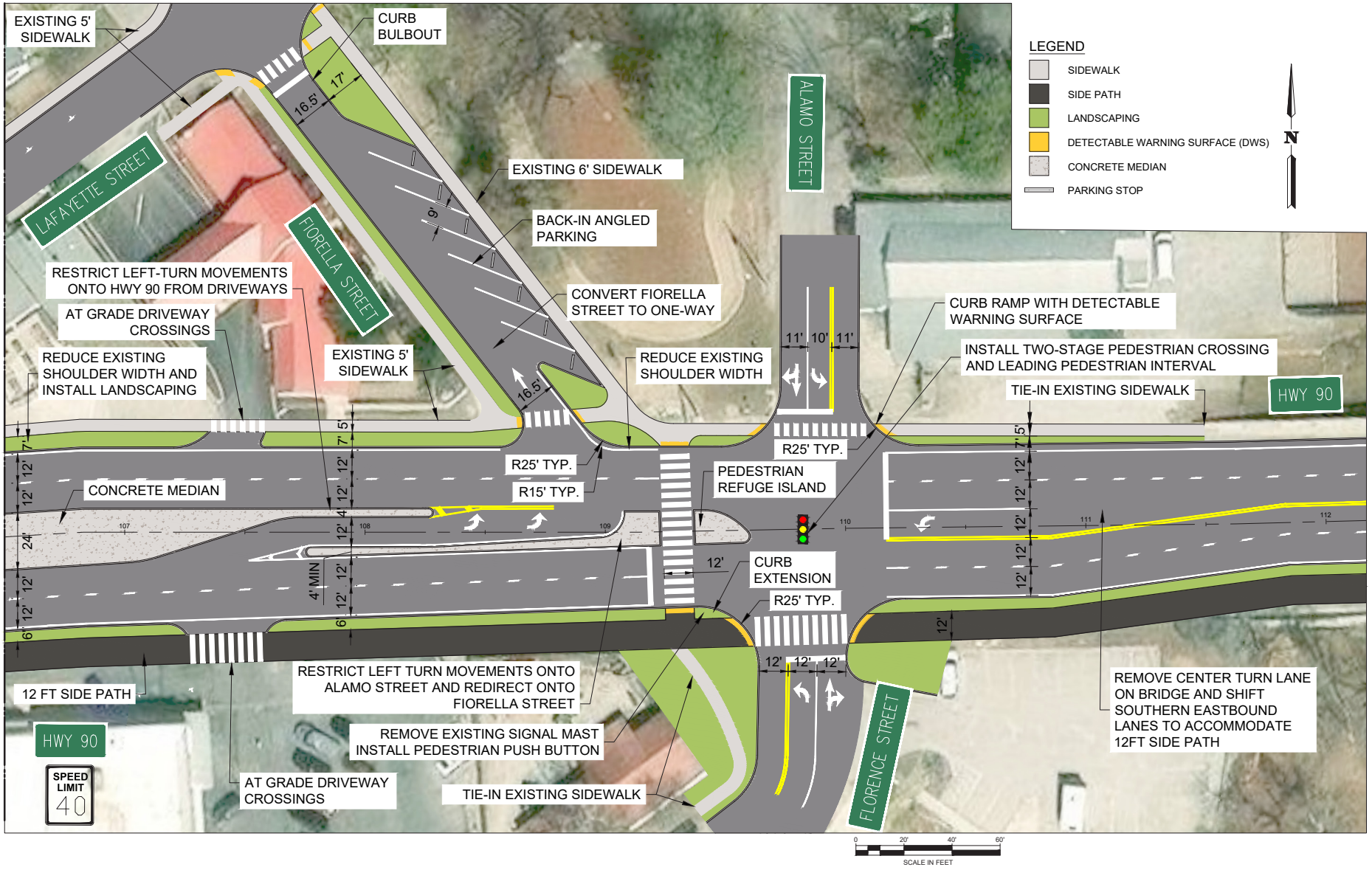


LEGEND

- SIDEWALK
- SIDE PATH
- LANDSCAPING
- DETECTABLE WARNING SURFACE (DWS)
- CONCRETE MEDIAN

0 20' 40' 60'
SCALE IN FEET

Highway 90 at Fiorella (East)



Highway 90 at Constantinople

Problem: Skewed street angles and wide crossing distances on Highway 90 have created difficult walking conditions and high speed, intermodal conflicts. Constantinople serves as the primary connecting street between downtown neighborhoods north and south of Highway 90 in Castroville and has higher traffic volumes than other local roads. This is also the only other signalized intersection with a pedestrian crossing along Highway 90 in downtown Castroville beside Fiorella.

Design Solution: Install a sidepath on the eastbound side of Highway 90 and add sidewalks to fill gaps on the westbound side to create continuous active transportation facilities. The small wedge sections of Paris Street on either side of Highway 90 will be closed to through traffic. Sidewalks will continue on Constantinople from the elementary school to London Street before Constantinople transitions into a shared street.

Features:

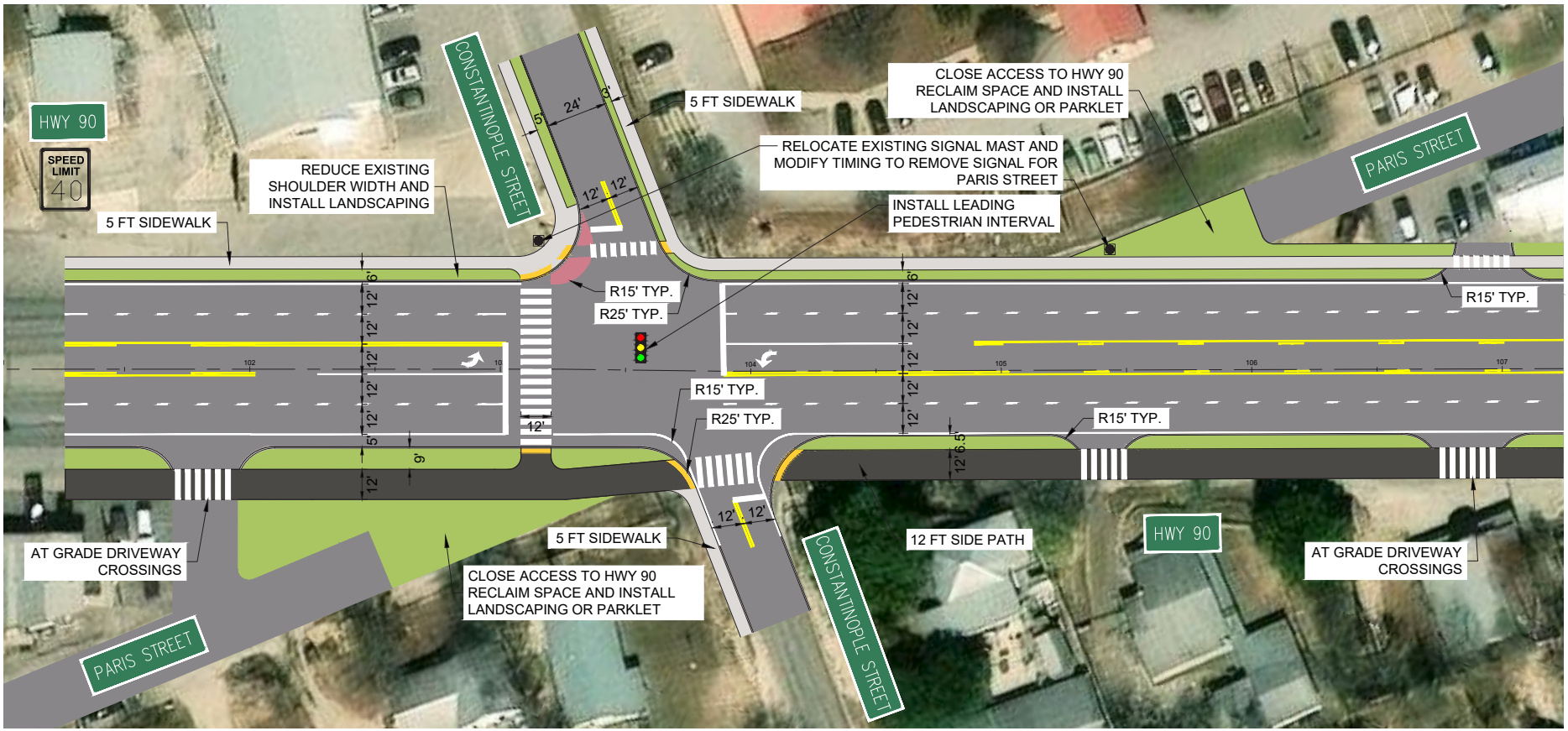
- Sidepath
- Sidewalk gap closures
- New sidewalks along parking lots
- Road closures
- Pedestrian refuge island
- Road realignment
- Crossing realignment
- Signal simplification
- New sidewalks
- Crosswalks
- Curb extensions

Design Highlight

Bioswale skew realignment



Highway 90 at Constantinople



LEGEND

- SIDEWALK
- SIDE PATH
- LANDSCAPING
- DETECTABLE WARNING SURFACE (DWS)
- CONCRETE APRON

N

0 20' 40' 60'
SCALE IN FEET

06

Prioritization and Evaluation

Prioritization Strategy

Project prioritization is guided by the plan's goals, community needs identified through engagement activities, available data, local context, and feasibility. The prioritization strategy included here reflects a balanced consideration of community priorities, professional judgment, and real-world implementation realities.

Prioritization Criteria

Projects are assigned to implementation phases using the following criteria:



Safety: Locations with documented conflicts, high vehicle speeds, proximity to important destinations (e.g., schools), or known crossing challenges are prioritized earlier.



Feasibility and Cost: Lower-cost and operational changes that can be implemented quickly are prioritized in the near-term, while capital-intensive projects are phased later.



Connectivity and Access: Projects that close critical gaps in the walking and biking network are prioritized earlier. This includes Highway 90, Houston Square, and school connections.



Opportunity for Demonstration: Projects suitable for low-cost pilot implementations are prioritized early to test concepts before committing to permanent construction.



Community: Engagement activities identified residents' top priorities.

Phasing Framework

Projects are organized into three implementation phases. This phasing reflects both readiness for implementation and the anticipated level of investment and coordination required.

SHORT-TERM
0-5 YEARS

Quick wins and demonstrations that focus on low-cost improvements, safety project pilots, and high-priority school connections.

MEDIUM-TERM
5-10 YEARS

Interim upgrades that formalize successful demonstrations and expand network connectivity.

LONG-TERM
10+ YEARS

Permanent capital investments to implement major reconstruction projects that move towards a comprehensive active transportation network.



A short-term pilot in Columbus lead to interim infrastructure, before permanent redesign.



After permanent redesign.

Demonstration-to-Permanent Approach

Except for new sidewalk construction and projects along Highway 90, most project types follow a demonstration-to-permanent progression where appropriate. Each step in the approach is detailed below.

DEMONSTRATION PHASE

Projects can initially be implemented using temporary, low-cost materials such as paint, flexible delineators, movable planters, and signage.

Demonstrations allow Castroville to test changes in traffic patterns, measure impacts on vehicle speeds and pedestrian safety, collect community feedback on designs, and refine projects before capital investment.

INTERIM PHASE

If projects receive positive community feedback, they may transition to interim upgrades using more durable materials (e.g., hardened centerlines, upgraded signage, modular curbs). If outcomes from the demonstration are mixed, designs should be refined and re-tested before advancing.

PERMANENT PHASE

Projects that demonstrate clear safety, connectivity, operational and community benefits will transition to permanent construction. This could include high-visibility crossings, concrete curb extensions, landscaped pedestrian spaces, reconstructed streets with permanent traffic calming elements, and concrete medians.

If grant funding or planned street reconstruction projects create opportunities to advance improvements ahead of schedule and skip earlier phases, the City of Castroville should leverage those opportunities to accelerate implementation.



Before and after images of a crossing demonstration project.

Project Sequence

In the table below, the lightest cells indicate demonstration projects, mid-tone cells indicate interim projects, and dark cells indicate permanent construction projects. **Project types are ordered by priority**, with highest priority given to Highway 90 projects, sidewalks, and crossing improvements.

Project Type	Short-Term (0-5 Years) *Quick Wins and Priorities*	Medium-Term (5-10 Years) *Interim Upgrades*	Long-Term (10+ Years) *Capital Investments*
Highway 90	Planned reconstruction along Highway 90 including sidepath and sidewalk. Continue facilities throughout the city limits along Highway 90 at priority locations near crossings. Add gateway treatments and speed management. Install crossing improvements at Fiorella and Constantinople intersections: realign crosswalks and install high-visibility crosswalks, curb extensions, and ADA compliant features.	Construct sidepath and sidewalks to fill in remaining gaps along HIghway 90. Shift travel lanes across the Medina River bridge. Construct midblock crossing.	Construct center medians and pedestrian refuge spaces to both control traffic patterns and provide greater pedestrian safety.
Sidewalks	Install sidewalks adjacent to Castroville Elementary School and sidewalks connecting to Highway 90 at Constantinople.	Install sidewalks to fill network gaps in downtown Castroville.	Install sidewalks east of the Medina River.
Crossing Improvements	Install painted crosswalks (permanent paint) and temporary curb extensions. Target locations around Houston Square and near Castroville Elementary School (Houston and Constantinople).	Install hardened curb extensions and high-visibility crosswalks.	Construct concrete curb extensions and ADA-compliant features.
Access Management	Use barriers, paint, and signage to adjust traffic patterns and create pedestrian-priority areas. Target intersections along Highway 90: Fiorella, Lafayette, London, Madrid, Paris.	Replace temporary materials with durable infrastructure and formalize a parking control strategy.	Reconstruct streets to create permanent pedestrian-priority areas.
Sidepaths	Coordinate with TxDOT and property owners for driveway access management and crossings. Install pedestrian wayfinding along future sidepath routes. Install advisory bike lanes on Old Highway 90 and County Road 4711.	Construct a sidepath along the south side of Highway 90 and along FM471.	Install pedestrian-scale lighting, rest areas (furniture), and landscaping along sidepaths.
Festival Streets	Install painted parking boundaries, pedestrian spaces, and traffic calming treatments. Detailed guidance is in the Appendix.	Install temporary barriers to separate parking areas and upgrade traffic calming elements to durable materials.	Reconstruct streets with decorative paving, flush curbs, and retractable bollards for temporary event closures. Build lighting, street furniture, and placemaking elements.
Shared Streets	Install painted traffic calming treatments on identified neighborhood streets.	Install durable traffic calming treatments.	Reconstruct streets with permanent and landscaped traffic calming elements.
Trails	Use signage to open the Medina Irrigation Canal with connection into Castroville Regional Park.	Improve Medina Irrigation Canal trail accessibility, parking areas, access points, and amenities.	Plan and construct additional trail connections in and around the city to connect to other parks and towns.

Evaluation

Implementation of this active transportation plan is an ongoing process. Evaluation provides an opportunity for the City of Castroville to update project priorities, address emerging concerns, respond to changes in development, and align with policy changes.

To help ensure Castroville achieves its goals, progress can be tracked through a set of performance measures. These measures allow Castroville to monitor outcomes, adjust strategies over time, and communicate progress transparently to the community and stakeholders.

Goals	Objectives	Performance Measures
Safety	Reduce vehicle speeds, which increases safety for all road users.	Average vehicle speeds before/after traffic calming or roadway design changes.
	Reduce conflicts and improve visibility between all road users.	Number of intersections with upgraded crosswalks, lighting, or visibility improvements.
	Eliminate pedestrian and bicyclist traffic collisions with motor vehicles.	Number of pedestrians and bicyclists killed or severely injured from traffic collisions.
	Create a street system that users of all ages and abilities can use safely.	$ spent on designing and constructing pedestrian and bicyclist safety improvement projects, including traffic calming and high-visibility crosswalks. Percentage of network designed to all ages and abilities standards (e.g., protected facilities, ADA-compliant sidewalks).
Connectivity and Access	Provide safe and comfortable places to cross busy streets and highways.	Number of new and improved safe crossings of Highway 90. Maximum distance between safe pedestrian crossings on Highway 90.
	Enhance north-south connections in Castroville.	Percentage of population living within ¼ mile of continuous north-south facilities.
	Enhance east-west connections in Castroville.	Percentage of population living within ¼ mile of continuous east-west facilities.
	Develop a network of shared streets and protected facilities between new and historic development.	Percentage of roadway miles with sidewalks, bike lanes, or shared-use paths. Percentage of streets designated as shared streets.
	Establish high-quality routes between businesses, schools, parks, recreation areas, and neighborhoods.	Percentage of population within 1/4 mile of a low-stress walk or bike route to schools, parks, and points of interest.
Community	Communicate project progress, outcomes, and implementation effectively, while allowing space for response to public comment and reorientation.	Number of communications distributed through engagement tools.
	Support Castroville festivals and events.	Percentage of attendees arriving at events via walking or biking.
	Create holistic policies that support current and future needs.	Adoption of active transportation supportive policies (e.g., complete streets, safe routes to school).
	Evaluate implementation progress at regular intervals.	Annual progress tracking against plan implementation milestones.



This active transportation plan is intended to be a living document. Evaluation findings should inform future decision-making and should be shared publicly. If performance measures show limited progress toward a goal, Castroville should reassess project prioritization, implementation strategies, and partnership approaches.

City of Castroville

Active Transportation Plan

May 2026 DRAFT

Agenda Report

Agenda of: May 26th, 2026

Department: Parks & Recreation

Subject: Regional Park- Top Parking Lot

Recommended Motion:

I move that City Council go into an agreement for the construction of a parking lot with _____ in an amount not to exceed $*XX,XXX*.

Background:

At the February 24 City Council meeting, staff presented several Capital Improvement Program (CIP) projects, including proposed parking lot expansions and improvements at the Regional Park. Following discussion regarding project scope, site needs, and anticipated community benefits, City Council approved the Regional Park Parking Lots project with a total authorized budget not to exceed $200,000. At the May 12th City Council meeting, Council approved separating the project into two individual parking lot projects in order to streamline project delivery. Since Council direction was provided, staff has worked closely with local contractors to refine the design and maximize the number of parking spaces available within the upper parking lot area while maintaining safe traffic flow and accessibility. Contractors were also advised of the site's existing grade and drainage challenges and the necessity of incorporating an appropriate retaining wall solution into their proposals. Staff solicited and reviewed proposals from three qualified local contractors. Submitted proposals ranged from $82,750 to $94,995. The proposed improvements will enhance parking capacity, improve circulation and site accessibility, and better accommodate the growing use of Regional Park amenities by residents and visitors.

Staff Recommendation

Staff recommends approving the lowest qualified proposal submitted by Double J Asphalt Sealant Specialists in an amount not to exceed $82,750.

Fiscal Impact:

Fund Balance- CIP Project: $200,000

☐ **Budgeted** ☒ **Requires Budget Amendment**

Source of Funding: Account Code: 10-50904-413.06

Attachments:

February 24, 2026, Meeting Minutes

Double J asphalt Sealant Specialist Proposal = $82,750

WRC Proposal = $83,892.09

TKC Limitless Proposal = $94,995

Urgency (0-5 = Low Urgency to High Urgency): 5

Impact (0-5 = Low Impact to High Impact): 5

Submitted by: Jonah Chang, Director of Parks & Recreation

CITY OF CASTROVILLE CITY COUNCIL
SPECIAL CALLED COUNCIL MEETING/WORK SESSION
1209 Fiorella
City Council Chamber
February 24, 2026
Tuesday
3:00 p.m.
MINUTES

I. CALL TO ORDER

Mayor Bruce Alexander called the meeting to order at 3:00 p.m.

II. ROLL CALL

Present:

Mayor Bruce Alexander	Scott Dixon, City Administrator
Mayor Pro Tem Sheena Martinez	Debra Howe, City Secretary
Councilmember Houston Marchman	Leroy Vidales, Finance Director
Councilmember Phil King	John Gomez, Public Works Director
Councilmember David Merz	Jonah Chang, Parks and Recreation Director
Councilmember Robert Lee	

Others in attendance:
Daniel Jones, Denton, Navarro, Rodrigues, Santee, Benal & Zach
Utility and Police Employees

III. CITZENS COMMENTS

The City Council will hear comments from any citizen or visitor. Speakers must address their comments to the presiding officer rather than individual council members or staff; stand at the podium, speak clearly into the microphone, and state your name and residential address before speaking. Speakers will be allowed a maximum of 3 minutes for testimony. Speakers making personal, impertinent, profane, or slanderous remarks will be given one warning before losing the privilege to speak or may be removed from the room. In accordance with the State Open Meetings Act, the City Council is restricted from discussing or taking action on items not listed on the agenda. Action can only be taken at a future meeting.

Adriana Arrington-Calk, Chairman of the Parks and Recreation Advisory Board, spoke in support of the TPWD Grant the City had been awarded for Lions Park. Ms. Arrington-Calk said the project would be for an all-abilities playground and hoped the City Council would support by appropriation of funds during the CIP discussion. Ms. Arrington-Calk also encouraged the City Council to look at providing funding for a new shower/restrooms building at the pool.

Mayor Alexander requested the meeting be stopped at 4:45 p.m. to prepare for the regular meeting beginning at 5:00 p.m.

A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to stop the meeting at 4:45 p.m. A vote was taken (5:0 all ayes) the motion carried by all present.

IV. DISCUSSION AND ACTION ITEMS

a. Discussion and possible action to identify, prioritize, and allocate funding for capital projects related to both general fund and utility fund projects

City Administrator Dixon briefed the City Council on funding sources for the projects listed and identified at the last work session. Mr. Dixon said the City had Hot Funds (for certain projects), unrestricted, restricted, and bond funds for projects the City Council identified. City Council was provided information on cash on hand in the General Fund – FY24 Audited Fund Balance - $3,799,674, FY25 Audited Fund Balance - $3,812,326, FY26 Operating Budget - $5,409,025 which equated to 365 days - $14,819 per day. Mayor Alexander asked how much the City had in the General Fund Balance. Mr. Dixon said General Fund had 257 days shown at $3,812,326, and the City's practice was 120 days in reserves equal to $1,778,280. This left an excess Fund Balance of $2,034,046 with a commitment of $443,620 in interest for the City Hall remodel project. Mayor Alexander said he had not realized all the interest was to be used for the City Hall project. Mr. Dixon said that had been approved by the previous City Council but the current City Council could change direction. In the Utility Fund – FY24 Audit Fund Balance - $6,181,169, FY25 estimated Fund Balance - $7,223,308 with FY26 Operating Budget - $9,314,315 which equated to 365 days -$25.519 per day. Mr. Dixon said the Utility Fund Balance of $7,223,308 minus the $3,062,280 for 120 day reserves left $4,161,028 in Excess Fund Balance. This did include restricted funds in the amount of $2,525,747 shown in Water Acquisition Fund ($437,101), Water/Sewer Impact Fee ($1,959,018), and Utility Drainage Fund ($129,628). Mayor Alexander asked for the amount the City should spend down on remaining bond funds as there was a time limit on use. Councilmember Lee felt the City should not go out and borrow more funds since the City still owed millions on the Sewer Treatment Plant Project. Mr. Lee asked if the City could use Impact Fees to repay the loan. Mr. Dixon said no they could be used for maintenance on the lines but not use as loan payments. Mayor Alexander said $6 million could be used for water and/or wastewater projects. Councilmember Lee asked if all the Utility Funds were committed. Mr. Dixon said the 2024 Bond for drainage at $1,318,196 was for Garcia/Garza Creek and the City was unsure of the cost for the project yet. Councilmember Merz spoke on the streets map with street identified for maintenance saying it was showing the newer streets, not the old portions of town to prolong the life of the streets. Mr. Merz said to budget $300,000 each year with increases as other developments came into the City. Councilmember Martinez said the streets in her district, River Bluff, would need to be completely re-built due to the base materials being inadequate. Mayor Alexander said they used to do a double seal coat and this had been very successful in the past, but it depended on previous maintenance, materials, and traffic flow on the life of the street. Mayor Alexander asked why the streets in Alsatian Oaks were targeted for maintenance, when they were not in poor condition. Mr. Dixon said they were trying to be proactive on keeping the newer streets in good condition. Mr. Dixon said the City had a contract with GoodRoads and he could have the company come back to discuss the study they had conducted on the streets. Councilmember Martinez spoke on information provided at a previous 2024 CIP workshop identifying the unfunded projects the previous City Council approved. Mr. Dixon clarified did this City Council wished to proceed with this list only. Mayor Alexander said they would review the list and decide. Mayor Alexander said the City needed a street plan and he had spoken with the County Judge and Commissioner that day on working with the City on some street projects. Councilmember Marchman clarified they had $6 million to spend now and in looking at the old list he felt $400,000 was not enough to make a difference on

the streets but more like a seven-figure amount should be allotted. Mr. Dixon said the previous City Council had worked toward borrowing $6 million every two years for Utilities and $2.5 million for General Fund projects but the growth did not happen as planned so it was not recommended. Mayor Alexander said if they had known of the amount of reserves they had now they could have already been working on projects. Councilmember Merz said the CIP information was on the website with the numbers and there was $40 million of unfunded projects in the City's CIP. Mr. Merz said for example they could spend sales tax and property tax revenues but they may still have to look at raising taxes to have the funds to do proper maintenance on the utilities and streets in the future. Councilmember King said the previous City Council had made a commitment to build the Community Center and he was glad the City was receiving match grants but the City did have challenges in other areas and they had to balance the needs and wants out. Councilmember Lee was glad they were talking about the needs of the City and said streets would always be an issue. Mr. Lee was in favor of having a street maintenance plan in place. Mayor Alexander said the County could not be the street contractor and the County would be reimbursed for the work but the cost would be less than bidding out a project to a private company. Mayor Alexander said the City Council needed to have a priority list of streets prepared and needed to rely on the Public Works Department for input. Mr. Dixon said that would depend on how much the City wished to spend, and if they wanted to employees and more equipment. Mr. Dixon provided proposed CIP Projects with timelines and proposed costs supported by the General Fund as: Street Overlay & Maintenance (General Fund Operating Budget) - $400,000 (ongoing- beginning in 2026), City Hall Option "B" (committed funds & 2025 Bond) - $3,150,000 (2026-2027), Library Addition Option "B" (2025 Bond) - $550,000 (2026-27), Library Off-Street Parking (General Fund Reserves) - $200,000 (2026), Steinbach Drainage (General Fund Reserves) - $30,000 (2026), Lions Park Playscape (TPWD 50/50 Grant & General Fund Reserves) - $750,000 (2026), Lions Park Fence (General Fund Reserves) $50,000 (2026), Regional Park Parking (General Fund Reserves) - $150,000 (2026), Pool Showers/Restrooms (General Fund Reserves) - $205,000 (2026), New Police Department Facility (Future Bond) - $3,500,000 (2028), and a New Animal Services Building (Future Bond) - $2,500,000 (2030). Mr. Dixon said they also had the Utility Fund CIP proposed projects with cost and timeline to review. Mayor Alexander said he felt the Steinbach Haus drainage project was a maintenance item, not a CIP project but doing an engineered study on the drainage $30,000 would not be enough to complete the project. Mayor Alexander said there were drainage issues all over town and he was not in favor of purchasing another maintainer but the City could do bar ditch maintenance with a front end loader, dump truck and road grader. Mayor Alexander said the City had to take care of the drainage issues. The City Council went through the list provided and chose the top projects they thought were most important for funding. Councilmembers went back and forth on what was important to each and the amount they felt they could commit to get each of the projects completed. The City Council spoke briefly on the northern route and Mr. Dixon said that project was unfunded. Mr. Dixon said there were two TIRZ – Alsatian Oaks and the Downtown TIRZ with those funds to be spent on maintenance spelt out in the TIRZ. Councilmember Marchman asked why the Gas truck and the Combo truck were not in these projects. Mr. Dixon said they would still need some additional funding, but the Gas budget did have some funds available.

Councilmember King was in favor of committing $400,000 each year in the operating budget for street maintenance and would rather have more money put toward the City Hall project and not do parking at the Pool or Library at this time. The City Council was still discussing each of the projects and funding amounts at the stop time and they agreed to recess the meeting to continue discussion after the regular called meeting was complete.

A motion was made by Councilmember Marchman and duly seconded by Councilmember Lee to recess the meeting at 4:45 p.m. to resume after the regular called meeting was complete. A vote was taken (5:0 all ayes) the motion carried by all present.

Mayor Alexander reconvened the meeting at 9:02 p.m.
All members of the City Council were present.

A motion was made by Councilmember King and duly seconded by to Councilmember Marchman to reopen the meeting. A vote was taken (5:0 all ayes) the motion carried by all present.

A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to end the meeting at 9:30 p.m. A vote was taken (5:0 all ayes) the motion carried by all present.

Discussions continued. Councilmember King felt they should fund the full amount for City Hall remodel. Mayor Alexander was not in favor of a funding full amount, more like $1 million and look at more funds after the project is started. Councilmember Lee wanted to explore building a new City Hall and putting some funds into improvements to the current building. Councilmember Marchman was not in favor of this suggestion. Councilmember Marchman said the windows needed to be repaired now, not wait on a remodel. Councilmember Merz said they had enough money to do the complete City Hall project and all of the other projects identified.

A motion was made by Councilmember King and duly seconded by Councilmember Merz to remove the Street Maintenance and approve the funding amounts with General Fund Reserves for: City Hall Option "B" for $3,150, 000; Library Option "B" for $549,000; Lions Park Playscape Grant match for $469,367; Regional Park Parking for $200,000; and Pool Showers/Restroom Building for $205,000. A vote was taken (2 ayes (King, Merz) 3 nays (Martinez, Marchman, Lee) the motion failed.

A motion was made by Councilmember Martinez and duly seconded by Councilmember Marchman to approve funding amounts for Streets/Drainage for $400,000; City Hall remodel for $1,000,000; Library Option "B" for $549,000, Lions Park Playscape Grant match for $469,367; Regional Park Parking for $200,000; and Pool Showers/Restroom Building for $205,000. A vote was taken (3 ayes: 2 nays (King, Merz) the motion carried by a majority vote.

V. ADJOURN

Mayor Alexander adjourned the meeting at 9:32 p.m.

Bruce Alexander
Mayor

ATTEST:

Debra Howe
City Secretary

Double J Asphalt Sealant Specialist
P.O.Box 80
Hondo,Tx.78861

QUOTE

Castroville Regional park
Castroville Tx

Quote # 000021

Quote Date 05/22/2026

Item	Description	Unit Price	Quantity	Amount
	Approximately 27,000 sf of parking area to be cleaned graded and adding base material where needed and finalize with a 2 course Chipseal surface treatment. Striping included in price. Materials : CRS2 emulsified oil, grade 4 limestone rock. 2 base crushed limestone base. Butter stick block (24” x 24” x 6’)retaining wall approximately 150 l.f. to be installed.	2.25	27000.00	60,750.00
	Excavation of hill and adding base and a two course surface treatment. Note: We are not responsible for locating or relocating any utilities.	1.00	22000.00	22,000.00

NOTES: We greatly appreciate the opportunity in giving you a quote!
Jesse Oranday (830)426-0228 jesseoranday@gmail.com
James Oranday (830)741-1695 jaoranday74@gmail.com

Subtotal	82,750.00
Total	82,750.00
Amount Paid	0.00
Quote	$82,750.00

Wayne Rodgers Construction Co Inc
P.O. Box 387
Castroville, TX 78009
Phone/Fax: (830) 931-3242

Proposal

Date
5/20/2026

Name / Address
City of Castroville 1209 Fiorella Castroville, Tx 78009

Estimate #
2026-5-8

Description	Qty	U/M	Total
Regional Park Parking Lots Castroville, TX			
Park Entrance Lot- 19,845 SF, 60 Spaces. Provide 8" of A2 base and Surface with 2 course Chip Seal			
General Conditions	1	LS	
Mobilize	1	EA	
Excavate Site Dirt	835	CY	
Common Fill: On Site Material	500	CY	
Trucking Export	335	CY	
Subgrade Prep: Paving	2,332	SY	
Flex Base: Paving, 8"	1,094	TN	
Prime Oil	441	GAL	
2 Course Surface Treatment	2,205	SY	
Striping	1	LS	
Site Grading	1	LS	
2x2x4 Limestone Block Retaining Wall- As Needed Length	1	LS	
Park Entrance Lot Total			83,892.09
GENERAL EXCLUSIONS: •Any Permits •Bonds •Construction Materials Testing			

Acceptance of Proposal: Signature

Total

Wayne Rodgers Construction Co Inc
P.O. Box 387
Castroville, TX 78009
Phone/Fax: (830) 931-3242

Proposal

Date
5/20/2026

Name / Address
City of Castroville 1209 Fiorella Castroville, Tx 78009

Estimate #
2026-5-8

Description	Qty	U/M	Total
•Surveying •Water Meter •Rock excavation •Demo of Existing Structures not Specified on Plans •Asbestos/ Lead Surveys and Abatement •Demo Of Existing Buildings and Appurtenances •Utility Demo and Relocation •Haul off of other trade's spoils •Clean up from other trades •Haul off and Disposal of Contaminated Materials •All SWPPP Install, Permit & Inspections •Concrete Beam, Footing and Pier Excavations & Backfill •Backfill of footings, tilt walls and retainer blocks •Utility Provider Costs and Impact Fees •Landscaping, Landscaping Materials and Topsoil •Landscaping excavation deeper than 4" from proposed grades •Revegetation •Asphalt repair after paving completion to areas damaged by others •Any Items not Specifically Included in this Proposal *Price is good 30 days from Proposal Date. *1 Year Asphalt warranty starts from dated asphalt is layed *WRC is not responsible for bird baths or ponding on slopes less than 2%			

Acceptance of Proposal: Signature

Total

Wayne Rodgers Construction Co Inc
P.O. Box 387
Castroville, TX 78009
Phone/Fax: (830) 931-3242

Proposal

Date
5/20/2026

Name / Address
City of Castroville 1209 Fiorella Castroville, Tx 78009

Estimate #
2026-5-8

Description	Qty	U/M	Total

Total $83,892.09

Acceptance of Proposal: Signature

TKC LIMITLESS CONSTRUCTION

PO BOX 38
Castroville, TX 78009 US
TKClimitlessconstruction@yahoo.com

Estimate

ADDRESS
Jonah Chang
Regional Park
Castroville, Texas 78009
Medina

SHIP TO
Jonah Chang
Regional Park
Castroville, Texas 78009
Medina

ESTIMATE 4678-Top Lot
DATE 05/17/2026
EXPIRATION DATE 05/31/2026

PAYMENT METHOD
Check

DATE		DESCRIPTION	QTY	RATE	AMOUNT
		Top of the hill purposed parking lot with retaining wall.			
	Excavation	This will include excavating the hill (highest point at 8-9 feet) roughly 20 feet back from the light pole, material will be cut back in lifts/with a 3-foot setback with footers for the retaining wall. Total set back from pole is estimated at 29 feet. -Equipment/Labor for 3 days. Note: Material removed from the area will not be usable, either material can be relocated with-in the park or hauled off. (Haul off prices vary and are not included on this estimate due to the undetermined amount being removed.	1	4,500.00	4,500.00
	Retaining Wall	Installation of limestone (Butter Blocks) for retaining wall up to 200 feet long / Single stack at 40 counts for single row. (Estimated, cost can vary due to grade. Quote is listed at 60 to cover first row. Cost includes Material, Transport and installation. (Note:) Numbers are estimated, cost can vary less or more depending on grade and elevation.	60	225.00	13,500.00
	Base Work	-Sub-Base work: Previous pavement will be dug out and removed; grass and high areas will	26,550	1.65	43,807.50

	need to be graded to insure proper water drainage. -Base will be laid at 6 inches and sub compacted to 4 inches at 90% compaction. This will include equipment, material and labor for installation for 118X225= 26,550/Sq.ft			
Chip Seal	This will include chip and seal application using grade 4 black rock for the first shot, rolled and compacted. The second coat will be grading 5 black trap rock for the smooth finish.	26,550	1.25	33,187.50
Equipment Rate	This will include the daily rate for equipment required on site/ Cost is included above. Backhoe- Case 590 SM Skid Steer/ attachments Rollers/ Steel wheel and Nematic Blade / Maintainer Water Truck -Signed Estimate and phase schedule will need to be established prior to deposit and start date can be set. -Due to material cost change more frequently the bid is good for 10 days. After a new quote will need to be supplied. Nothing Follows	1	0.00	0.00

SUBTOTAL	94,995.00
TAX	0.00
TOTAL	**$94,995.00**

Accepted By

Accepted Date

Agenda Report

Agenda of: May 26, 2026

Department: Public Works

Subject: TxDoT Hwy 90 Project-Update

Recommended Motion:

This item is for discussion and informational purposes only. No action is requested at this time. Staff will provide an update regarding the subdivision entry and exit improvements required by TxDOT along Hwy 90, as well as the TxDOT funded roadway and drainage improvement project.

Background:

The construction currently taking place along Hwy 90 is not part of a TxDOT funded project. These activities are associated with two private developments, and the roadway improvements are being completed by the developers as part of their required traffic mitigation commitments.

The City is not responsible for construction phasing, traffic congestion, or traffic diversion associated with these private development projects. It was brought to the City's attention that the developers were expected to coordinate construction plans with the City prior to beginning work. This coordination did not occur prior to the start of the Alsatian Oaks improvements.

During construction, the City identified several necessary gas line adjustments and improvements. At that time, the developer provided the construction plans to the City, and the Alsatian Oaks developer reimbursed the City for the associated utility work costs.

The Alsatian Oaks roadway improvements are nearing completion. Once those improvements are complete, the Flat Creek subdivision roadway and turn lane improvements are expected to begin. The City has recently requested a copy of the TxDOT approved plans from the Flat Creek developer.

The TxDOT funded US 90 roadway and drainage improvement project within the City limits remains in the design phase with the TxDOT District Office. The City and TxDOT have held numerous meetings and ongoing coordination discussions regarding drainage and utility conflicts within the project area.

The City will continue reviewing the 30% design plans for utility conflicts and any potential exceptions to TxDOT policy requirements. Because the plans are still in the early stages of development, they will

not be publicly shared until they are finalized, as significant changes may still occur before final approval.

PROJECT INFORMATION – TxDOT Funded Hwy 90 Improvements

Project Limits:

- FM 1343 to FM 471 South
- Approximate Length: 3.0 Miles

Key Elements of the Project:

- Pavement rehabilitation with areas of full-depth reconstruction
- Replacement of the irrigation canal bridge
- 40-inch depth reconstruction limits
- 7-inch pavement rehabilitation section
- Operational improvements at FM 471 North
- Minor drainage improvements near the Whataburger area, including ditches and driveway pipes

The most recent review package received by the City is the 30% design set issued by TxDOT's design consultant and utility coordinator. Since receiving the plans, City staff have coordinated internally with Respec and SEnergy to review utility conflicts and compliance with the updated Utility Accommodation Rules (UAR).

Utility coordination efforts currently include:

- Water
- Sewer
- Gas
- Electric

Respec is assisting with water and sewer utility conflicts and design coordination. SEnergy is assisting with gas and electric utility conflicts, design coordination, and potential exception requests.

The City maintains project files and 30% plan sheets documenting identified conflicts and is actively coordinating with TxDOT and utility partners to resolve those issues.

Since the project kickoff meeting in mid-April 2025, City staff have participated in several coordination meetings with TxDOT.

COORDINATION & JOINT BIDDING:

The City intends to coordinate and jointly bid portions of the utility work with the TxDOT project. Coordination efforts are ongoing to ensure City utility adjustments and improvements are incorporated appropriately into the evolving TxDOT design.

SCHEDULE:

TxDOT's project schedule has changed since the original kickoff meeting in April 2025. The City continues to monitor schedule updates and design revisions as they occur.

Below is the latest project schedule for reference.

NOPCs Sent Out	April 10, 2025
Utility Kickoff Meeting	April 17, 2025
30% TxDOT Submittal Due	May 28, 2026
60% Joint Bid Utility Submittal Due	July 30, 2026
60% TxDOT Submittal Due	August 27, 2026
95% Joint Bid Utility Submittal Due	November 2, 2026
95% TxDOT Submittal Due	December 1, 2026
Utility Clearance Date	**December 1, 2026**
Letting	April 1, 2027

Recent Developments:

On May 14, 2026, the City was informed that additional turn lanes are being proposed at FM 471 and US 90. Staff are currently preparing comments and responses regarding this and other outstanding items for discussion at the upcoming June 11 meeting.

DISCUSSION: Questions.

Fiscal Impact: TBD

Based on the current project schedule, staff anticipates returning to Council in November 2026 with projected cost information and requests for approval.

☐ **Budgeted** ☐ **Requires Budget Amendment**

Source of Funding: Account Code:

Attachments:

Attachment A- US Hwy 90 Alsatian Oaks Planset

Attachment B-Flat Creek US 90 Turnaround

Attachment C-HWY90_Plan Set (FINAL) (1)

Urgency (0-5 = Low Urgency to High Urgency): 4

Impact (0-5 = Low Impact to High Impact): 4

Submitted by: Scott Dixon/John Gomez

Plotted on: 2/22/2024

US 90 AT ALSATIAN OAKS

PLANS OF PROPOSED

US 90 TURN LANE & TURNAROUND

CASTROVILLE, TEXAS
BEXAR COUNTY
CONTROL 0024 SECTION 07

INDEX OF SHEETS

SEE PAGE 2

POSTED SPEED = 45 MPH

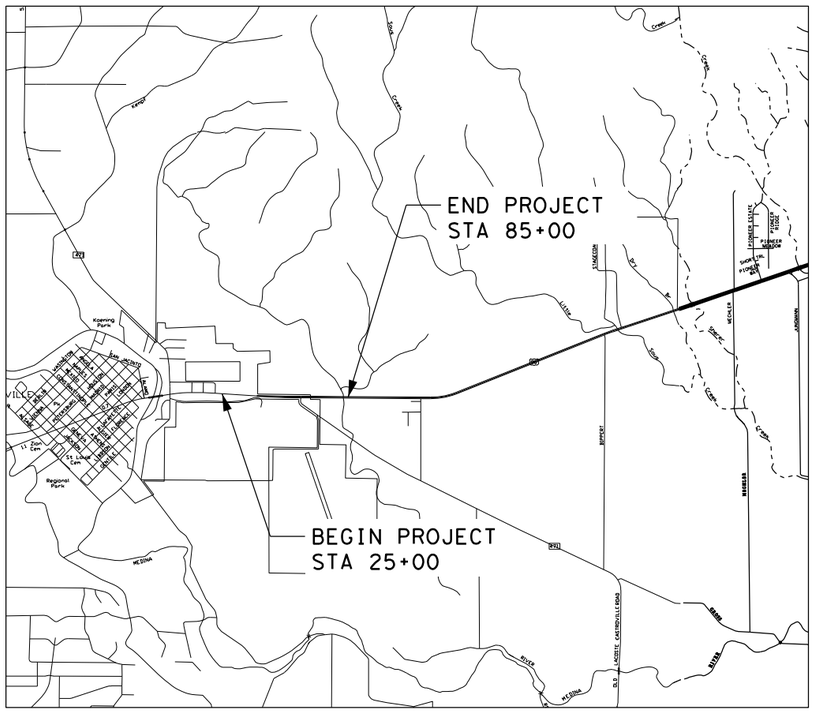
TOTAL DISTURBED AREA = 2.20 AC

DESIGN SPEED = 45 MPH

TOTAL PROJECT LENGTH = 0.85 MILES

LIMITS: FROM COUNTRY LANE TO 1,200 FEET EAST OF FM 471

CONSISTING OF: TURN LANES, GRADING, DRAINAGE, AND SIGNALS



EXCEPTIONS: NONE
EQUATIONS: NONE
RR X-ING'S: NONE

TDLR INSPECTION NOT REQUIRED

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT.

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

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

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

Texas Department of Transportation
©2024

DISTRICT ENGINEER

REVIEW OF THE PLANS BY THE DISTRICT IS LIMITED TO WATER, WASTEWATER, DRAINAGE AND ROADS AND DOES NOT INDICATE A REVIEW OF THE ADEQUACY OF THE DESIGN FOR THE FACILITIES. IN APPROVING THESE PLANS, THE DISTRICT MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

Design Filename: P:\127\36\03\Design\Civil\General\1273603_TSH.dgn

Plotted on: 3/27/2024

Design Filename: P:\127\36\03\Design\Civil\General\1273603_INDEX.dgn

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15	SIGNING AND PAVEMENT MARKING QUANTITIES
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139	US 90 AT COUNTY LN ELEVATION VIEWS
140	US 90 AT TONDRE PKWY EXISTING CONDITIONS
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209-211	**EC (9)-13

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/27/2024 DATE

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED BY(**) HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED
PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 5/6/2024 DATE

THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED BY(*) HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

INDEX OF SHEETS

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TxDOT CONSTRUCTION GENERAL NOTES

1. The design and construction will provide for preserving all existing features in or near the State Right Of Way being affected by the widening. This includes but is not limited to, existing driveway gate set-backs, relocation of electronic private property gates, mailbox turnouts, mail boxes and supports, cattle guards, roadway signing, existing rip-rap or other permanent erosion control features, diversionary berms, swales, ditches, amount and configuration of driveway flares and driveway centerline profile, metal beam guard fence and end treatments, etc. Existing driveway culverts and safety end treatments if effected by roadway widening will be reconstructed to preserve existing front slope rates. The coordination of items that effect existing private property access, mail delivery, etc. is the responsibility of the developer. The written concurrence of any effected property owners for construction effecting their driveways or mailbox turnouts must be obtained and provided TxDOT prior to TxDOT driveway permits being issued.

2. For work in State Right Of Way, the developer is responsible for coordination of, obtaining permits for, and complying with any and all state and federal regulatory agencies and all applicable laws, rules and regulations pertaining to the regulation of drainage, preservation of cultural resources, natural resources and the environment. The developer is responsible for determining if the project is in an environmentally sensitive area such as within the recharge or contributing zone of protected aquifers, and act in accordance with all resource agency regulations.

If TxDOT has a CZP or WPAP on file with TCEQ, the developer is responsible for amending TxDOT's permit, obtaining TCEQ approval and providing TxDOT with the approved amended permit. The amended permit will address the relocation of any TxDOT permanent BMP's including vegetative filter strips that may be impacted by work done within TxDOT ROW.

If TxDOT does not have a CZP or WPAP on file with TCEQ, any permanent BMP's including vegetative filter strips, that may be required in order to treat additional impervious cover placed in TxDOT ROW will be located in private property and the developer will provide TxDOT with evidence of TCEQ approval of the additional impervious cover.

The developer may not operate under resource agency environmental clearance of a previous or ongoing TxDOT project, but will be required to obtain separate resource/environmental agency clearance.

3. If waste areas or material source areas result from this project, the Contractor is reminded to follow the requirements of the Texas Aggregate Quarry and Pit Safety Act. In addition, it is requested that these areas not be visible from any highway on the State system.

4. Any trees existing within State Right Of Way are the natural resources of the State and will be protected. In the event that trees must be removed, TxDOT written permission will be received in advance and will identify the specific trees by species, diameter and location to be removed. The developer will be fined for any unpermitted removal of trees.

5. The developer will maintain at the project site, and make available upon request, copies of all approved environmental plans and permits relating to work in State Right Of Way.

6. Prior to beginning grading activity the contractor will set and maintain roadway stationing, control points, marks, stakes to establish lines, slopes, grades and centerlines.

7. Any slopes in State Right Of Way which become steeper than 3:1 as a result of the work will be treated with 4" thick reinforced concrete riprap and be treated with metal beam guard fence. This may entail additional rip-rap beyond that shown in the plans.

8. TxDOT Inspector will be contacted by the contractor 48 hours prior to work occurring in State Right Of Way.

9. State Right Of Way will not be used as an area for contractor parking or for staging the receipt of materials or equipment.

10. Traffic control and construction barricades will meet the requirements of the Texas MUTCD.

11. At no time will the roadway travel way be blocked.

12. Lane closures will only be permitted with 48 hour prior approval of the TxDOT Inspector. Lane closures will be permitted only between 9:00 a.m. and 2:00 p.m. Monday through Friday.

13. A minimum 3:1 (H:V) temporary safety slope of stable compacted material will be required adjacent to the State highway edge of pavement at all times during non working hours.

14. Only one side of the roadway will be open to construction at a time. Work will be completed and pavement edges backfilled on one side of the road before work will begin on the opposite side of the roadway.

15. Any pavement edge drop-offs between 1 and 2 inches in height will have CW 8-11 warning signs. Any pavement edge drop-off 2 inches or greater will have a 3:1 compacted safety slope and CW 8-9a or CW 8-11 signs plus channelizing devices. Pavement edges will be shouldered up with compacted embankment material and 4 inches of topsoil as soon as possible after paving is completed on the side of the road being widened.

16. Proof rolling of subgrade is required and shall be witnessed by TxDOT prior to placement of pavement structure unless otherwise approved by the TxDOT Inspector.

17. All Flexible Base will have a minimum Plasticity Index of 4.

18. All courses of asphaltic concrete pavement (regardless of type) will be placed with a asphalt paving equipment meeting the requirements of TxDOT Item 320, "Equipment for Asphalt Concrete Pavement", unless otherwise approved by the TxDOT Inspector.

19. All surface aggregates will meet the requirements of TxDOT friction classification "B" and will meet PG Binder grade 70-22.

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GENERAL NOTES

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20. All surface Asphalt Concrete Pavement will be under-sealed with a One Course Surface Treatment.

21. All Asphaltic Concrete Pavement used in base courses will be Type "B" and will meet PG binder grade 64-22.

22. All pavement widening including shoulders will match the existing pavement cross slope.

23. All pavement markings will be Type I thermoplastic with under-seal meeting TxDOT specifications.

24. All materials and construction methods used in State Right Of Way will meet TxDOT specifications. This supersedes all other specifications in the plans.

25. All turn lane concrete pavement in state ROW will meet the requirements of TxDOT Item 360 Class P concrete and will be batched at concrete plans having a current approved mix design. Class P concrete shall have 7 and 28 day compressive strength of 3200 psi and 4400 psi respectively.

26. When widening existing concrete pavements, joints in the new pavement will match joints in existing pavement and curb.

27. The contractor is responsible for ensuring that TxDOT approved materials, mix designs, approved sources and products are used for all work in state ROW. The contractor will arrange for the services of a qualified testing laboratory for all items requiring testing and will notify TxDOT of any discrepancies between test results and TxDOT specs in a timely manner. The contractor will provide to TxDOT invoices and testing results as soon they are available. Failure to do this will result in rejection of the work.

28. Sawing of contraction/construction joints in concrete pavement will be accomplished as soon as personnel can walk on the concrete without damaging the surface regardless of time of day or weather conditions. Stand-by power driven concrete saws will be provided during the sawing operation. Curing compound will be re-applied to the sawed joint immediately upon sawing the joint.

29. Any concrete curb to be removed will be saw-cut at the limits of removal and be removed entirely. Slicing the top portion of the curb off and leaving remaining portion of curb in place is unacceptable.

30. Any damage to TxDOT facilities will be repaired at no expense to the State, to TxDOT's satisfaction.

31. Sidewalks placed in the highway right-of-way will be a minimum width of five feet or comply with the more stringent width as required by city ordinance and will meet all other requirements of the Americans with Disabilities Act. Pedestrian ramps will be provided at street and driveway intersections as shown on the current State Standard for Pedestrian Facilities. Color contrast and texturing of pedestrian ramps will be place at street intersection ramps only as shown on the current State Standard for Pedestrian Facilities. Pedestrian ramps at driveway intersections will not receive any color contrast or texturing.

32. The contractor will use Best Management Practices (BMP's) to minimize erosion and sedimentation in the State Right Of Way resulting from the proposed construction. Re-vegetation of disturbed areas will be completed in accordance with TxDOT Standard Specifications. Permanent vegetative cover must achieve 70% coverage prior to project acceptance. Soil Retention Blankets may be required to prevent erosion of topsoil prior to vegetation re-establishment

33. Prior to seeding or re-vegetation the front slopes will be shouldered up with topsoil to eliminate any pavement edge drop-off.

34. Mud tracked onto the roadway from the site will be immediately removed to the satisfaction of TxDOT.

35. It will be the developer/owner's responsibility to clean out, to the state's satisfaction, any drainage structure or storm sewer system that becomes silted as a result of their operations.

36. The adjustment of any utilities in State Right Of Way or adjacent private easement will be the responsibility of the developer/owner's.

37. The contractor is responsible for placing and maintaining existing signs on TxDOT approved temporary mounts until permanent signs are placed.

38. The final placement of permanent signs will be coordinated prior to placement with the local TxDOT Inspector.

39. For work within the State Right Of Way where removal of materials or debris within the construction limits and not incorporated in the finished roadway section of right of way, will be disposed of in a manner acceptable to the Maintenance Supervisor at no expense to the State. Materials that are not determined to be salvageable by the Maintenance Supervisor become the property of the Contractor for proper disposal at their expense. Materials determined to be salvageable will be returned to the State and delivered to the location as determined by the Maintenance Supervisor.

40. Contact TxDOT representative, Mark Perez 210-218-7430, 48 hours before beginning signal work or when working within 400 feet of existing traffic signals. The contractor is responsible for repair or replacement of any signal equipment damaged by construction operations. The method of rep1air or replacement shall be pre-approved and inspected. Depending on the type and extent of the damages, the Engineer reserves the right to perform repair or replacement work and the Contractor will be billed for this work. When working near aerial electrical lines or utility poles, comply with Federal, State and local regulations.

41. All quantities shown in the TxDOT permit plans are for contractor's information only. TxDOT's review and approval of the permit in no way implies that all items of work necessary for the completion of the work are reflected in the plans nor does it imply the accuracy of the item quantities shown.

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GENERAL NOTES

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County: Medina

Highway: US 90

**********GENERAL NOTES**********
2014 Specification Book (Revised September 25, 2023)

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

Item	Description	Rate/Area	Quant-Unit
344-6135	Tack Coat	0.1 Gal/106,237	10,624-Gal

========== **Asphalt Concrete Pavement** ==========

Type	Location	Depth	Rate	Area	Quant-Tons
Superpave	Main Rdwy	1.5”	110lbs/sy-in	55,612	4,588
HMA Ty D	Main Rdwy	2.0”	110lbs/sy-in	16,691	1,836
HMA Ty B	Main Rdwy	4.0” (1st lift)	110lbs/sy-in	16,691	3,672
HMA Ty B	Main Rdwy	4.0” (2nd lift)	110lbs/sy-in	17,242	3,793
HMA Ty B	Main Rdwy	3.5” (3rd lift)	110lbs/sy-in	17,762	3,419

G-2 Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damage, the Engineer reserves the right to perform the repair or replacement work and the Contractor will be billed for this work.

City of San Antonio: (210) 207-8642

G-3 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. Deface traffic signs so that they will not reappear in public as signs.

G-4 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-5 Notify the Engineer at least two weeks prior to a proposed traffic pattern change(s) that will require a revision to traffic signals.

G-6 Locate and reference all manholes and valves within the construction area with station and offset or GPS. Each manhole and valve shall be identified by its owner (SAWS, CPS, etc.). No roadwork will begin until this list has been submitted. All valves and manhole covers have to be accessible at all times, therefore; temp. CTB, material stockpiles, etc. cannot be placed over these valves or covers.

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G-7 The Contractor has the option to adjust or construct all manholes and valves to final pavement elevations prior to the final mat of HMA or after final mat of HMA. If between the final elevation adjustment and the final mat of HMA, 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 and the concrete apron around the manhole and valve will be part of the manhole and valve work. The asphalt tapers are part of the HMA work.

G-8 Hurricane Evacuation

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

G-15 Contractor questions on this project are to be addressed to the following individual(s):
Justin Clark, PE Jclark@pape-dawson.com
Bret Chapman, PE BChapman@pape-dawson.com
Raymond Guerra, PE RGuerra@pape-dawson.com
Brooke Lindholm, PE BLindholm@pape-dawson.com

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be sent out to all bidders.

--Item 166--

166-1 Contractor questions on this project are to be addressed to the following individual(s): to
Justin Clark, PE Jclark@pape-dawson.com SY
Bret Chapman, PE BChapman@pape-dawson.com
Raymond Guerra, PE RGuerra@pape-dawson.com
Brooke Lindholm, PE BLindholm@pape-dawson.com

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GENERAL NOTES

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168-1 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 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 320--

320-1 Construct all longitudinal ACP joints adjacent to a travel lane with a joint maker device that will create a 3:1 to 6:1 taper. For placement of 2 inches or more, the device shall provide a maximum ½ inch vertical edge. Taper outside edges (next to the grass) or backfill (shoulder-up) the same day.

320-2 Provide a material transfer device capable of providing a continuous flow of material to the paver. The material transfer device will consist of a windrow elevator or better.

320-3 When placing Item 346 mixtures, use a self-propelled wheel mounted MTV capable of receiving mix from the haul trucks, separate from the paver. It shall have a minimum storage capacity of approximately 25 tons. It shall be equipped with a pivoting discharge conveyor and shall completely and thoroughly remix the material prior to placement. The effectiveness of the MTV's remixing ability is subject to the approval of the Engineer. In addition, the paver shall have a surge storage insert with a minimum capacity of 20 tons.

--Item 502--

502-1 General

502-1A 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 corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

502-1B Treat the pavement drop-offs as shown in the TCP.

502-1C Avoid placing stockpiles, equipment, and other construction materials within the roadway's horizontal clear zone or at any location that will constitute a hazard and will endanger traffic. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.

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502-1D If Nighttime work is required and work is not behind positive barrier then full Class 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.

502-1E The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

502-1F Mounting and moving the mailbox as needed for the various construction phases is subsidiary to Item 502.

502-1G Access to adjoining property must be maintained at all times.

502-2 Barricades, Signs, and Traffic Control Devices

502-2A 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.

502-2B After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

502-2D Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

502-2E Cover permanent signs if not used. This is subsidiary to Item 502.

502-3 Lane and Ramp Closures and Detours

502-3A Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. 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. At least one lane must always remain open.

502-3B For closures not listed in the TCP; the lane closures are limited to between the hours of 6AM-9PM and at least one lane must remain open at all times.

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502-3C At no time shall two consecutive intersecting roadways be closed at one time during construction.

502-3E Unless otherwise noted in the plans and/or as directed by the Engineer, daily lane closures shall be limited according to the following restrictions:

Nighttime: 9PM-6AM
(With uniformed off duty law enforcement officers)

Weekend closures when approved by the Engineer: 9pm on Fridays – 6am on Mondays

No lane closures will be permitted for the following dates and/or special events:
Between December 15 and January 1
Fiesta Week and Sales Tax Holidays (Bexar County Only)
Wednesday before Thanksgiving thru the Sunday after Thanksgiving
Saturday and Sunday before Memorial Day and Labor Day
Saturday or Sunday when July 4 falls on a Friday or Monday
Election days (Bexar County Only)
During major events at the AT&T Center (Spurs home games, Rodeo, concerts, etc.)
Alamodome, and/or Convention Center (Bexar County Only)
Easter Weekend 03/29/2024-03/31/2024

502-4 Traffic Signals

502-4A There are traffic signals at the intersection of US 90/Country Ln, US 90/Alsatian Oaks, US 90/FM 471. Always keep the signals in operation except when necessary for specific installation operations, including any modifications to existing signal heads to always maintain clear visibility. Adjustment of any signal head will be subsidiary to Item 502. When it is necessary for a signal to be turned off, or when left-turn lanes are closed, hire off duty police officers to control the traffic until the signals are back in satisfactory condition.

502-4B Moving or adjustment of traffic signal heads, VIVDS, and radar detection for the purpose of alignment with the shifting of lanes in conjunction with the traffic control plan will be subsidiary to various bid items.

502-4C Coordinate with the appropriate entity when left-turn lanes are closed and/or for signal timing revisions as necessary.

502-5 Hauling

502-5A The use of rubber-tired equipment will be required for moving dirt or other materials along or across pavement surfaces. Where the contractor desires to move any equipment not licensed for

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operation on public highways, on or across pavement, they shall protect the pavement from damage as directed/approved by the Engineer.

502-5B Throughout construction operations, the Contractor will be required to conduct their hauling operations in a manner such that vehicles will not haul over previously recompacted subgrade or compacted base material, except in short sections for dumping manipulations.

502-5C The Contractor shall keep the roadway clean and free of dirt or other materials during hauling operations. If the Contractor does not maintain a clean roadway, they shall cease all construction operations, when directed by the Engineer, to clean the roadway to the satisfaction of the Engineer.

--Item 506--

506-1A An Inspector will perform a regularly scheduled SW3P inspection every 7 calendar days.

506-2 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.

506-3 Failure to correctly maintain daily monitoring reports and submitting to TxDOT on a daily/weekly basis may result in the monthly estimate being withheld.

--Item 531--

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

--Item 585--

585-1B Use Surface Test Type A for travel lanes.*Contact the Pavement Engineer and Area Engineer to determine which Surface Test Type is appropriate for the travel lanes.*

--Item 618--

618-1 It might be necessary to cut concrete for placement of conduit. Saw cut existing concrete, remove the concrete from the steel reinforcement (bars or fabric) and bend the steel to install the conduit. After the conduit has been placed, bend the steel back to its original position and back-fill the trench with an approved concrete. This work is subsidiary to this Item.

618-2 The conduit depth for illumination under the City of San Antonio streets is 36 inches.

--Item 644--

644-1 The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

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GENERAL NOTES

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644-2 Triangular Slipbase Systems with set screws are not allowed.

--Item 666--

666-1 Use TY II markings (vs. an acrylic or epoxy) on asphalt surfaces as the sealer for the TY I markings, unless otherwise approved by the Engineer.

--Item 672--

672-1 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 680--

680-1 Furnish and install all required materials and equipment necessary for the complete and operating traffic signal installation at the following intersections:
US 90 at Country Lane, US 90 at Tondre Pkwy, US 90 at Alsatian Oaks Pkwy, and US 90 at Turnaround.

680-2 The locations shown on the plans for signal pole foundations, controller foundations, conduit and other items may be adjusted to better fit field conditions as approved.

680-3 Furnish and install a new Henke Enterprises or Mobotrex eight-phase NEMA TS2 Type 2 controller and cabinet, meeting the requirements of Departmental Materials Specifications DMS-11170. Provide detector panel toggle switches that additionally permit the user to disconnect the detector. For both ground and pole-mount cabinets, provide cabinet configuration with 16 position load bay.

680-4 Deliver TS type 2 controller cabinet and assembly to the TxDOT San Antonio district signal shop for programming and testing two weeks in advance prior to contractor installing equipment in the field. Coordinate drop off and pick up with Mark Perez (210) 218-7430.

680-5 Connect all field wiring to the controller assembly into the polyphaser. The Signal Shop representative will assist in determining how the detection cables are to be connected, and will also program the controller for operation, hook up the malfunction management unit (MMU) or conflict monitor, detector units, and other equipment, and turn on the controller. Have a qualified technician on the project site to place the traffic signals in operation.

680-6 Once final punch list is complete, contractor is allowed to begin flashing signal operations. Signal shall flash for a minimum of 7 days prior to full operation, unless otherwise approved by the Engineer.

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680-7 Use LED lamps from the prequalified material producer lists as shown on the Texas Department of Transportation (TxDOT) – Construction Division's (CST) material producer list. Category is "Roadway Illumination and Electrical Supplies." under item 610. No substitutions will be allowed for materials found on this list.

680-8 Demonstrate that the field wiring is properly installed. Install the electrical equipment in a neat and workmanlike manner.

680-9 Use the following wiring sequence when connecting signal sections to the cabinet:

Conductor No.	Base Color	Tracer Color	Signal Face
1	Black		Yellow Ball
2	White		Neutral
3	Red		Red Ball
4	Green		Green Ball
5	Orange		Yellow Arrow
6	Blue		Green Arrow
7	White	Black	Spare

680-10 All existing signal equipment with the exception of the signal controller and related equipment become the property of the Contractor. Deliver the controller and related equipment to the Signal shop, located at 4615 NW Loop 410 (corner of IH 410 and Callaghan Road) in San Antonio, Texas or to the Area Office as directed.

680-11 Use qualified personnel to respond to and diagnose all trouble calls during the thirty-day test period. Repair any malfunction to Contractor-supplied signal equipment. Provide to the Engineer a local telephone number, not subject to frequent changes and available on a 24-hour

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GENERAL NOTES

SHEET 6 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS		–		0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Design Filename: P:\127\36\03\Design\Civil\General\1273603_GeneralNotes.dgn

Plotted on: 2/28/2024

basis, for reporting trouble calls. Response time to reported calls must be less than 2 hours. Make appropriate repairs within 24 hours. Place a logbook in the controller cabinet and keep a record of each trouble call reported. Notify the Engineer of each trouble call. Do not clear the error log in the conflict monitor or MMU during the thirty-day test period without approval.

680-12 Integrate the proposed traffic signal(s) into the existing Advanced Traffic Management System (ATMS) as shown on the plans. Centracs ATMS software, which utilizes Econolite controllers, is currently in use in the San Antonio District. Provide controllers on this project that fully communicate with the existing ATMS software.

680-13 This project includes the installation of at least one cellular modem at the location(s) specified in the plans. Cellular modem(s) and power supply(s) will be furnished by the department. Provide all materials not supplied by the department necessary for the cellular modem installation. All materials provided by the contractor must be new unless otherwise shown on the plans. Equipment provided by the department shall be stored by the department for pick up at the TxDOT San Antonio TransGuide Office, 3500 NW Loop 410 San Antonio, TX 78229. Prevent damage to all cellular modem components supplied by the department. Replace any component that is damaged or lost during transportation or installation at the contractor's expense. Verify operation of the cellular modem(s) together with operation of its links; demonstrate that data can be transmitted at a satisfactory rate from the field location to the central location. Demonstrate that the cellular modem(s) data packets are being received at the central site via a networked computer. Transportation, installation and incidentals for installation of the cellular modem(s) shall be considered subsidiary to item 680.

680-14 Provide a submittal compliance matrix with all traffic signal submittals.

680-15 Field verify the depths of the drill shafts to meet the minimum clearances specified in the plans before ordering materials.

680-16 Ensure that all TMS (Traffic Management System) equipment furnished and installed is completely compatible with the existing hardware and software located within the TransGuide operations center (i.e. TransGuide central software). The contractor shall contact the traffic management engineer for details on the system network architecture.

680-17 Contractor shall be responsible for integrating and testing all new TMS equipment and any existing TMS equipment that is relocated into the existing network management system, subsidiary to the various bid items.

--Item 682--

682-1 Pedestrian signals may be by a different manufacturer than the vehicle signal heads.

682-2 Cover all signal faces until placed in operation. This work is subsidiary to various bid items.

Control: 0024 **Sheet**

County: Medina

Highway: US 90

682-3 All mounting attachments shall be constructed of steel pipe and mounted as shown on the plans.

--Item 684--

684-1 Provide an extra 10' for each cable terminating in the controller cabinet. All cables must be continuous without splices from terminal point to terminal point. All proposed signal cable must be #12 AWG stranded copper.

--Item 686 & 687--

686-1 Provide all signal poles from the same manufacturer. Pedestrian poles may be from a different manufacturer.

--Item 688--

688-1 The sealant used for vehicle loop wire must be approved.

688-2 The button placement must be coordinated with the concrete pad to access the button according to ADA and TAS. If any mounting modifications are needed (extensions, brackets, etc.) to meet ADA and TAS requirements the adjustment will be subsidiary to Item 688. The concrete pad (if required) will be paid separately.

688-3 The pedestrian push button must be wired with a 2/C#14 loop detector cable in lieu of a #12 A.W.G. XHHW wire.

688-4 Furnish and install new Polara Enterprises accessible pedestrian signals (APS) push buttons or approved equivalent.

--Item 3076, 3077, 3079, 3080, 3081, & 3082 --

1. Table 10 in Item 3076 and Table 11in Item 3077, 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 12.55 mm Rut Depth, Tested at 50 degrees C will be 5,000 and 10,000 respectively.

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

3. 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

4. Hold a pre-paving meeting one month prior to the placement of the hot mix. The date and time of pre-paving meeting should be coordinated with the Engineer prior to scheduling.

5. Do not use diesel or solvents as asphalt release agents in production, transportation, or construction. A list of approved asphalt release agents is available from the District Laboratory.

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GENERAL NOTES

SHEET 7 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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6. No more than one hot mix lot will be open for any specific type of hot mix, unless authorized. After a lot is open and the Contractor gets approval to change plants, the previous lot will be closed, and a new lot will be opened. The numbering for the lots produced at the new plant will start with No. 1. If allowed to switch back to the original or previous plant, the next lot from that plant will resume numbering sequentially from the last lot produced by that plant.

--Item 3084 & 3085 --
The minimum application rates are listed in Table UC/BC. The Engineer may adjust the application rates taking into consideration the existing pavement surface conditions.

Table UC/BC

Material	Minimum Application Rate (gal. per square yard)
TRAIL – Hot Asphalt	0.15
Spray Applied Underseal Membrane	0.20
Seal Coat – Emulsion (CHFRS-2P, CRS-2P)	0.25
Seal Coat – Asphalt (AC-15P, AC-20-5TR, AC-20XP, AC10-2TR)	0.23
Aggregate for Seal Coat Options TY PB GR 4(AC) or TY B GR 4(Emulsion)	1 CY:120 SY

6185-1 2 shadow vehicles with TMA will be required for this project. The TMA's will be measured and paid for by the DAY for each TMA/TA set up and operational on the worksite. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project. See TMA and TA Summary sheet in the plans.

--Item 6292--

6292-1 Radar presence detection device must utilize true-presence detection. Systems using locking algorithms to attempt presence detection will not be accepted. In addition, radar systems will not be allowed to use extensions/delays or place the controller on locking detection to aid in presence detection.

6292-2 Radar presence detection device must be able to detect up to 10 lanes with a minimum offset of 6' and have at least 16 zones and channels per unit.

6292-3 Radar presence detection device must be mounted on the same side of the intersection as the lanes it is set to detect.

6292-4 Final placement of radar devices must be approved by the engineer.

Control: 0024 **Sheet**

County: Medina

Highway: US 90

6292-5 Furnish and install new Wavetronix SmartSensor Matrix, or approved equivalent, for radar presence detectors and Wavetronix SmartSensor Advance, or approved equivalent, for radar advanced detection devices.

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GENERAL NOTES

SHEET 8 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS		–		0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		16

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ITEM	0160-6003	0164-6001	0164-6009	0168-6001	0502-6001	0506-6002	0506-6011	0506-6038	0506-6039
INTERSECTION	FURNISHING AND PLACING TOPSOIL (4")	BROADCAST SEED (PERM) (RURAL) (SANDY)	BROADCAST SEED (TEMP) (WARM)	VEGETATIVE WATERING	BARRICADES, SIGNS AND TRAFFIC HANDLING	ROCK FILTER DAMS (INSTALL) (TY 2)	ROCK FILTER DAMS (REMOVE)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)
	SY	SY	SY	MG	MO	LF	LF	LF	LF
TRAFFIC CONTROL PLAN					8				
SW3P	6615	6615	6615	103.19		210	210	3050	3050
TOTALS	6615	6615	6615	103.19	8	210	210	3050	3050

ITEM	0506-6040	0506-6043	0512-6005	0512-6029	0512-6053	0545-6001	0545-6005	0662-6060	0662-6061
INTERSECTION	BIODEG EROSN CONT LOGS (INSTL) (8")	BIODEG EROSN CONT LOGS (REMOVE)	PORT CTB (FUR & INST) (F-SHAPE) (TY 1)	PORT CTB (MOVE) (F-SHAPE) (TY 1)	PORT CTB (REMOVE) (F-SHAPE) (TY 1)	CRASH CUSH ATTEN (INSTL)	CRASH CUSH ATTEN (REMOVE)	WK ZN PAV MRK REMOV (W)4" (BRK)	WK ZN PAV MRK REMOV (W)4" (DOT)
	LF	LF	LF	LF	LF	EA	EA	LF	LF
TRAFFIC CONTROL PLAN			1275	2790	1275	2	2	5440	3230
SW3P	720	720							
TOTALS	720	720	1275	2790	1275	2	2	5440	3230

ITEM	0662-6063	0662-6075	0662-6080	0662-6090	0662-6095	0677-6001	6185-6002
INTERSECTION	WK ZN PAV MRK REMOV (W)4" (SLD)	WK ZN PAV MRK REMOV (W)24" (SLD)	WK ZN PAV MRK REMOV (W) (ARROW)	WK ZN PAV MRK REMOV (W) (WORD)	WK ZN PAV MRK REMOV (Y)4" (SLD)	ELIM EXT PAV MRK & MRKS (4")	TMA (STATIONARY)
	LF	LF	EA	EA	LF	LF	DAY
TRAFFIC CONTROL PLAN	12705	715	13	9	7485	14197	50
SW3P							
TOTALS	12705	715	13	9	7485	14197	50

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TRAFFIC CONTROL PLAN QUANTITIES

SHEET 1 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/30/2024
Design Filename: P:\127\36\03\Design\Civil\Summaries\1273603_TCP_QTY.dgn

SHT NO	ITEM / LOCATION	0100-6002 PREPARING ROW (STA)	0104-6011 REMOVING CONC (MEDIANS) (SY)	0104-6015 REMOVING CONC (SIDEWALKS) (SY)	0104-6017 REMOVING CONC (DRIVEWAYS) (SY)	0104-6021 REMOVING CONC (CURB) (LF)	0104-6022 REMOVING CONC (CURB AND GUTTER) (LF)	0104-6032 REMOVING CONC (WHEELCHAIR RAMP) (SY)
99	ROADWAY PLAN BEGIN PROJECT TO STA 25+00	10.0	10	16	59		67	37
100	ROADWAY PLAN STA 25+00 TO STA 35+00	10.0	63	33			494	58
101	ROADWAY PLAN STA 35+00 TO STA 45+00	10.0		72	200	155		
102	ROADWAY PLAN STA 45+00 TO STA 55+00	10.0	21		325	110		
103	ROADWAY PLAN STA 55+00 TO END PROJECT	3.0						
104	ROADWAY PLAN FM 471 BEGIN PROJECT TO STA 32+00	9.0						
105	ROADWAY PLAN FM 471 32+00 TO END PROJECT	3.2	83			493		
	TOTALS	55.2	177	121	584	758	561	95

SHT NO	ITEM / LOCATION	0105-6039 REMOVE STAB BASE AND ASPH PAV (6"-20") (SY)	0106-6002 OBLITERATING ABANDONED ROAD (SY)	0110-6001 EXCAVATION (ROADWAY) (CY)	0132-6003 EMBANKMENT (FINAL) (ORD COMP) (TY B) (CY)	0316-6224 AGGR (TY-PB GR-4 SAC-B) (CY)	0316-6413 ASPH (AC-15P, HFRS-2P OR CRS-2P) (GAL)	0354-6021 PLANE ASPH CONC PAV (0" TO 2") (SY)
99	ROADWAY PLAN BEGIN PROJECT TO STA 25+00	238		6059	2683			201
100	ROADWAY PLAN STA 25+00 TO STA 35+00	556						201
101	ROADWAY PLAN STA 35+00 TO STA 45+00	295	227			1	25	75
102	ROADWAY PLAN STA 45+00 TO STA 55+00	150				20	532	20
103	ROADWAY PLAN STA 55+00 TO END PROJECT	20						
104	ROADWAY PLAN FM 471 BEGIN PROJECT TO STA 32+00	53						
105	ROADWAY PLAN FM 471 32+00 TO END PROJECT	67	551					
	TOTALS	1379	778	6059	2683	21	557	497

SHT NO	ITEM / LOCATION	0529-6002 CONC CURB (TY II) (LF)	0529-6009 CONC CURB (DOWEL) (SLOTTED) (LF)	0530-6004 DRIVEWAYS (CONC) (SY)	0530-6016 DRIVEWAYS (BASE) (SY)	0530-6019 DRIVEWAYS (ACP) (TYPE 1) (SY)	0531-6001 CONC SIDEWALKS (4") (SY)	0531-6018 CURB RAMPS (TY 1) (SY)
99	ROADWAY PLAN BEGIN PROJECT TO STA 25+00	670	35	311	64	98	8	15
100	ROADWAY PLAN STA 25+00 TO STA 35+00	1233	9		45	274	36	30
101	ROADWAY PLAN STA 35+00 TO STA 45+00	946		123	115		45	75
102	ROADWAY PLAN STA 45+00 TO STA 55+00	286		245	60	93		
103	ROADWAY PLAN STA 55+00 TO END PROJECT							
104	ROADWAY PLAN FM 471 BEGIN PROJECT TO STA 32+00							
105	ROADWAY PLAN FM 471 32+00 TO END PROJECT	37					5	15
	TOTALS	3172	44	679	284	465	94	135

SHT NO	ITEM / LOCATION	0531-6019 CURB RAMPS (TY 2) (SY)	0536-6002 CONC MEDIAN (SY)	0543-6021 REMOVE CABLE BARRIER (LF)	0543-6022 REMOVE CABLE BARRIER TERMINAL SECTION (EA)	0560-6011 MAILBOX INSTALL-S (TWW-POST) TY 4 (EA)	0560-6013 MAILBOX INSTALL-M (TWW-POST) TY 4 (EA)	3076-6001 D-GR HMA TY-B PG64-22 (TON)
99	ROADWAY PLAN BEGIN PROJECT TO STA 25+00		139					1719
100	ROADWAY PLAN STA 25+00 TO STA 35+00	15	672				1	3323
101	ROADWAY PLAN STA 35+00 TO STA 45+00		436	503	2	1		3201
102	ROADWAY PLAN STA 45+00 TO STA 55+00		255	409	2			1408
103	ROADWAY PLAN STA 55+00 TO END PROJECT							85
104	ROADWAY PLAN FM 471 BEGIN PROJECT TO STA 32+00							237
105	ROADWAY PLAN FM 471 32+00 TO END PROJECT		17					911
	TOTALS	15	1519	912	4	1	1	10885

SHT NO	ITEM / LOCATION	3076-6040 D-GR HMA TY-D PG70-22 (TON)	3076-6066 TACK COAT (GAL)	3077-6065 SP MIXES SP-D SAC-A PG76-22 (TON)
99	ROADWAY PLAN BEGIN PROJECT TO STA 25+00	289	1852	870
100	ROADWAY PLAN STA 25+00 TO STA 35+00	564	3008	1202
101	ROADWAY PLAN STA 35+00 TO STA 45+00	541	2935	1192
102	ROADWAY PLAN STA 45+00 TO STA 55+00	236	1385	604
103	ROADWAY PLAN STA 55+00 TO END PROJECT	14	161	100
104	ROADWAY PLAN FM 471 BEGIN PROJECT TO STA 32+00	38	568	380
105	ROADWAY PLAN FM 471 32+00 TO END PROJECT	154	715	240
	TOTALS	1836	10624	4588

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US 90 AT ALSATIAN OAKS

SUMMARY OF ROADWAY QUANTITIES

SHEET 2 OF 5

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	_			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	253
CHK DWG:	SA	MEDINA	24	6		12

Plotted on: 5/8/2024

Design Filename: P:\127\36\03\Design\Civil\Summaries\1273603_RDWY_QTY.dgn

	ITEM	0400-6005	0400-6006	0432-6002	0432-6031	0464-6018	0464-6046	0464-6084
SHT NO	QUANTITY SUMMARY	CEM STABIL BKFL	CUT & RESTORING PAV	RIPRAP (CONC)(5 IN)	RIPRAP (STONE PROTECTION)(12 IN)	RC PIPE (CL IV)(24 IN)	RC PIPE (ARCH)(CL IV)(DES 3)	RC PIPE (ARCH)(CL IV)(DES 1)
		CY	SY	CY	CY	LF	LF	LF
1	DRAINAGE AREA MAPS AND LAYOUT (STA 16+00 TO STA 22+00)	3.0				356		
2	DRAINAGE AREA MAPS AND LAYOUT (STA 22+00 TO STA 27+00)	12.9		64.0	1.0	401		
3	DRAINAGE AREA MAPS AND LAYOUT (STA 27+00 TO STA 32+00)	14.3		44.0			134	
4	DRAINAGE AREA MAPS AND LAYOUT (STA 32+00 TO STA 37+00)			77.0				
5	DRAINAGE AREA MAPS AND LAYOUT (STA 37+00 TO STA 42+00)	52.5					386	
6	DRAINAGE AREA MAPS AND LAYOUT (STA 42+00 TO STA 47+00)	18.0	29				87	
7	DRAINAGE AREA MAPS AND LAYOUT (STA 47+00 TO STA 52+00)	4.2						36
8	DRAINAGE AREA MAPS AND LAYOUT (STA 52+00 TO STA 57+00)	9.7						98
	TOTALS	114.6	29	185.0	1.0	757	607	134

	ITEM	0467-6391	0467-6517	0467-6542	0467-6543	0496-6004	0496-6007
SHT NO	QUANTITY SUMMARY	SET (TY II) (24 IN) (RCP) (4: 1) (P)	SET (TY II) (DES 1) (RCP) (4: 1) (P)	SET (TY II) (DES 3) (RCP) (4: 1) (C)	SET (TY II) (DES 3) (RCP) (4: 1) (P)	REMOV STR (SET)	REMOV STR (PIPE)
		EA	EA	EA	EA	EA	LF
1	DRAINAGE AREA MAPS AND LAYOUT (STA 16+00 TO STA 22+00)	2				4	96
2	DRAINAGE AREA MAPS AND LAYOUT (STA 22+00 TO STA 27+00)	8				6	234
3	DRAINAGE AREA MAPS AND LAYOUT (STA 27+00 TO STA 32+00)				2	2	108
4	DRAINAGE AREA MAPS AND LAYOUT (STA 32+00 TO STA 37+00)						
5	DRAINAGE AREA MAPS AND LAYOUT (STA 37+00 TO STA 42+00)				4	2	66
6	DRAINAGE AREA MAPS AND LAYOUT (STA 42+00 TO STA 47+00)			2		2	70
7	DRAINAGE AREA MAPS AND LAYOUT (STA 47+00 TO STA 52+00)		1				
8	DRAINAGE AREA MAPS AND LAYOUT (STA 52+00 TO STA 57+00)		1				
	TOTALS	10	2	2	6	16	574

REV. NO.	DATE	DESCRIPTION	BY

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DRAINAGE QUANTITIES

SHEET 3 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

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ITEM	0416-6031	0416-6032	0416-6034	0618-6046	0618-6047	0618-6053	0618-6054	0620-6009	0621-6005	0624-6010
INTERSECTION	DRILL SHAFT (TRF SIG POLE) (30 IN)	DRILL SHAFT (TRF SIG POLE) (36 IN)	DRILL SHAFT (TRF SIG POLE) (48 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	CONDT (PVC) (SCH 80) (3")	CONDT (PVC) (SCH 80) (3") (BORE)	ELEC CONDR (NO.6) BARE	TRAY CABLE (4 CONDR) (12 AWG)	GROUND BOX TY D (162922)W/APRON
	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA
US 90 AT COUNTRY LANE			22	315		210		595	610	
US 90 AT TONDRE PKWY	33	39		340	285	820	565	1685	1225	5
US 90 AT FM 471		26	44	280	325	355	530	1610	1130	9
US 90 AT WB TURNAROUND	11		22	155	65	330	125	475	300	2
TOTALS	44	65	88	1090	675	1715	1220	4365	3265	16

ITEM	0628-6164	0666-6018	0666-6309	0666-6318	0677-6002	0678-6002	0680-6002	0680-6003	0680-6004	0680-6011
INTERSECTION	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	REFL PAV MRK TY I (W)6" (DOT)(100MIL)	RE PM W/RET REQ TY I (W)6" (SLD)(100MIL)	RE PM W/RET REQ TY I (Y)6" (BRK)(100MIL)	ELIM EXT PAV MRK & MRKS (6")	PAV SURF PREP FOR MRK (6")	INSTALL HWY TRF SIG (ISOLATED)	INSTALL HWY TRF SIG (SYSTEM)	REMOVING TRAFFIC SIGNALS	INSTALL HWY TRF SIG (UPGRADE)
	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA
US 90 AT COUNTRY LANE		75	120	120	240	315			1	1
US 90 AT TONDRE PKWY								1	1	
US 90 AT FM 471	1							1	1	
US 90 AT WB TURNAROUND	1						1			
TOTALS	2	75	120	120	240	315	1	2	3	1

ITEM	0680-XX01*	0680-XX02*	0680-XX03*	0680-XX04*	0682-6001	0682-6002	0682-6003	0682-6004	0682-6005	0682-6006
INTERSECTION	TS2 TYPE 2 SIGNAL CONTROLLER CABINET ASSEMBLY	*TRAFFIC SIGNAL CONTROLLER (ECONOLITE COBALT)	*MALFUNCTION MONITOR UNIT	COMMUNICATION PACKAGE	VEH SIG SEC (12")LED(GRN)	VEH SIG SEC (12")LED(GRN ARW)	VEH SIG SEC (12")LED(YEL)	VEH SIG SEC (12")LED(YEL ARW)	VEH SIG SEC (12")LED(RED)	VEH SIG SEC (12")LED(RED ARW)
	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
US 90 AT COUNTRY LANE					8	1	8	2	8	1
US 90 AT TONDRE PKWY	1	1	1	1	5	11	7	9	10	6
US 90 AT FM 471	1	1	1	1	8	5	8	5	9	4
US 90 AT WB TURNAROUND	1	1	1	1	2	4	2	4	2	4
TOTALS	3	3	3	3	23	21	25	20	29	15

ITEM	0682-6007	0682-6008	0682-6009	0682-6018	0682-6047	0682-6054	0682-6055	0684-6009	0684-6012	0684-6080
INTERSECTION	VEH SIG SEC (12")LED(GRN U-TURN ARW)	VEH SIG SEC (12")LED(YEL U-TURN ARW)	VEH SIG SEC (12")LED(RED U-TURN ARW)	PED SIG SEC (LED)(COUNTDOWN)	LOUVER (12") (ADJUSTABLE)	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	BACKPLATE W/REF BRDR(4 SEC)(VENT)ALUM	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)
	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF
US 90 AT COUNTRY LANE	1	1	1	2		9	1	450	1255	435
US 90 AT TONDRE PKWY				6	12	16		990	2210	945
US 90 AT FM 471				8		13		1735	2020	1690
US 90 AT WB TURNAROUND					6	6			620	
TOTALS	1	1	1	16	18	44	1	3175	6105	3070

ITEM	0686-6003	0686-6023	0686-6027	0686-6039	0686-6041	0686-6043	0686-6051	0686-6063	0686-6071	0686-6187
INTERSECTION	INS TRF SIG PL ARM (S) LUM ARM (8')	INS TRF SIG PL AM (S)1 ARM(20')LUM	INS TRF SIG PL AM(S)1 ARM(24')LUM	INS TRF SIG PL AM(S)1 ARM(36')LUM	INS TRF SIG PL AM(S)1 ARM(40')	INS TRF SIG PL AM(S)1 ARM(40')LUM	INS TRF SIG PL AM(S)1 ARM(48')LUM	INS TRF SIG PL AM(S)1 ARM(60')LUM	INS TRF SIG PL AM(S)2 ARM(20-20')LUM	INS TRF SIG PL AM(S)2 ARM(50-36')LUM
	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
US 90 AT COUNTRY LANE	1							1		
US 90 AT TONDRE PKWY		1	1	1	1		1		1	
US 90 AT FM 471	2					1	1			
US 90 AT WB TURNAROUND			1							1
TOTALS	3	1	2	1	1	1	2	1	1	1

ITEM	0686-XXXX ***	0687-6001	0688-6001	0688-6003	6000-6128	6001-6001	6004-6031	6010-6010	6027-6003	6027-6008
INTERSECTION	RELOCATE POLES FROM TONDRE	PED POLE ASSEMBLY	PED DETECT PUSH BUTTON (APS)	PED DETECTOR CONTROLLER UNIT	INSTALL LUMINAIRE (LED)	PORTABLE CHANGEABLE MESSAGE SIGN	ITS COM CBL (ETHERNET)	CCTV FIELD EQUIP (ANALOG) (INSTALL ONLY)	CONDUIT (PREPARE)	GROUND BOX (PREPARE)
	EA	EA	EA	EA	EA	DAY	LF	EA	LF	EA
US 90 AT COUNTRY LANE		2	2		1	45	180	1	110	2
US 90 AT TONDRE PKWY		5	6	1		45	215	1		
US 90 AT FM 471	2	7	8	1	2	45	160	1		
US 90 AT WB TURNAROUND						30				
TOTALS	2	14	16	2	3	165	555	3	110	2

ITEM	6292-6001	6292-6002	6292-XX01**	6292-XX02 **
INTERSECTION	RVDS (PRESENCE DETECTION ONLY)	RVDS (ADVANCE DETECTION ONLY)	**RVDS (PRESENCE DETECTION ONLY) COMM CABLE	**RVDS (ADVANCE DETECTION ONLY) COMM CABLE
	EA	EA	LF	LF
US 90 AT COUNTRY LANE	1	1	235	235
US 90 AT TONDRE PKWY	4	2	850	545
US 90 AT FM 471	4	2	1315	550
US 90 AT WB TURNAROUND	2	1	180	190
TOTALS	11	6	2580	1520

* SUBSIDIARY TO BID ITEM 0680-6003

* * SUBSIDIARY TO BID ITEM 6292-6001 & 6292-6002

* * * INCLUDES THE REMOVAL FROM EXISTING TONDRE INTERSECTION AND REINSTALL AT FM 471.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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TRAFFIC SIGNAL QUANTITY SUMMARY

SHEET 4 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	255
CHK DWG:	SA	MEDINA	24	6		14

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\Summaries\1273603_tsig_QTY.dgn

ITEM	0416-6015	0636-6002	0644-6001	0644-6004	0644-6076	0647-6001	0666-6018	0666-6036
QUANTITY SUMMARY	DRILL SHAFT (NON - REINFORCED) (12 IN)	ALUMINUM SIGNS (TY G)	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	REMOVE SM RD SN SUP&AM	INSTALL LRSS (STRUCT STEEL)	REFL PAV MRK TY I (W)6" (DOT)(100MIL)	REFL PAV MRK TY I (W)8" (SLD)(100MIL)
	LF	SF	EA	EA	EA	LB	LF	LF
SIGNING & PAVEMENT MARKING LAYOUT 1			2	1	3		678	338
SIGNING & PAVEMENT MARKING LAYOUT 2	11	99	7	3	2	573	444	2250
SIGNING & PAVEMENT MARKING LAYOUT 3	4	32	3	10	6	184	1208	1051
SIGNING & PAVEMENT MARKING LAYOUT 4	7	71	3	4	2	395	533	590
SIGNING & PAVEMENT MARKING LAYOUT 5								
TOTALS	22	202	15	18	13	1152	2863	4229

ITEM	0666-6048	0666-6054	0666-6078	0666-6102	0666-6147	0666-6224	0666-6225	0666-6226
QUANTITY SUMMARY	REFL PAV MRK TY I (W)24" (SLD)(100MIL)	REFL PAV MRK TY I (W)(ARROW)(100MIL)	REFL PAV MRK TY I (W)(WORD)(100MIL)	REF PAV MRK TY I(W)36" (YLD TRI)(100MIL)	REFL PAV MRK TY I (Y)24" (SLD)(100MIL)	PAVEMENT SEALER 4"	PAVEMENT SEALER 6"	PAVEMENT SEALER 8"
	LF	EA	EA	EA	LF	LF	LF	LF
SIGNING & PAVEMENT MARKING LAYOUT 1	205	2	2				6484	338
SIGNING & PAVEMENT MARKING LAYOUT 2	610	11	11				7212	2250
SIGNING & PAVEMENT MARKING LAYOUT 3	679	5	5	13			7451	1051
SIGNING & PAVEMENT MARKING LAYOUT 4	77	5	2		105	775	4000	590
SIGNING & PAVEMENT MARKING LAYOUT 5							497	
TOTALS	1571	23	20	13	105	775	25644	4229

ITEM	0666-6230	0666-6231	0666-6232	0666-6243	0666-6303	0666-6309	0666-6318	0666-6321
QUANTITY SUMMARY	PAVEMENT SEALER 24"	PAVEMENT SEALER (ARROW)	PAVEMENT SEALER (WORD)	PAVEMENT SEALER (YLD TRI)	RE PM W/RET REQ TY I (W)4" (SLD)(100MIL)	RE PM W/RET REQ TY I (W)6" (SLD)(100MIL)	RE PM W/RET REQ TY I (Y)6" (BRK)(100MIL)	RE PM W/RET REQ TY I (Y)6" (SLD)(100MIL)
	LF	EA	EA	EA	LF	LF	LF	LF
SIGNING & PAVEMENT MARKING LAYOUT 1	205	2	2			1714	2454	1638
SIGNING & PAVEMENT MARKING LAYOUT 2	610	11	11			2415	2572	1781
SIGNING & PAVEMENT MARKING LAYOUT 3	679	5	5	13		2951	1693	1599
SIGNING & PAVEMENT MARKING LAYOUT 4	182	5	2		775	1324	1108	1035
SIGNING & PAVEMENT MARKING LAYOUT 5						258	239	
TOTALS	1676	23	20	13	775	8662	8066	6053

ITEM	0672-6010	0678-6001	0678-6002	0678-6004	0678-6008	0678-6009	0678-6016	0678-6023
QUANTITY SUMMARY	REFL PAV MRKR TY II-C-R	PAV SURF PREP FOR MRK (4")	PAV SURF PREP FOR MRK (6")	PAV SURF PREP FOR MRK (8")	PAV SURF PREP FOR MRK (24")	PAV SURF PREP FOR MRK (ARROW)	PAV SURF PREP FOR MRK (WORD)	PAV SURF PREP FOR MRK (36")(YLD TRI)
	EA	LF	LF	LF	LF	EA	EA	EA
SIGNING & PAVEMENT MARKING LAYOUT 1	48		6484	338	205	2	2	
SIGNING & PAVEMENT MARKING LAYOUT 2	134		7212	2250	610	11	11	
SIGNING & PAVEMENT MARKING LAYOUT 3	74		7451	1051	679	5	5	13
SIGNING & PAVEMENT MARKING LAYOUT 4	43	775	4000	590	182	5	2	
SIGNING & PAVEMENT MARKING LAYOUT 5	3		497					
TOTALS	302	775	25644	4229	1676	23	20	13

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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PAVEMENT MARKING AND SIGN QUANTITIES

SHEET 5 OF 5

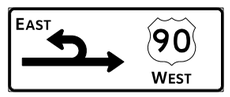
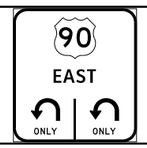
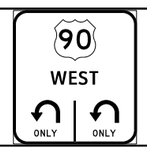
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

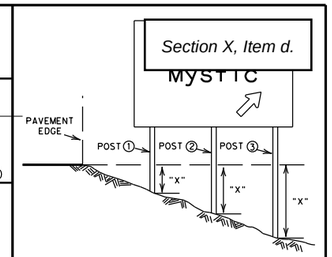
Plotted on: 2/28/2024

Design Filename: P:\127\36\03\Design\Civil\Summaries\1273603_SPM_QTY.dgn

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SUMMARY OF LARGE SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN BACK-GROUND COLOR	SIGN TEXT	SIGN DIMENSIONS	PLAQUES, & OTHER ATTACHMENTS		BACKGROUND SUBSTRATE (SQ FT)		TYPE OF MOUNT	"X" DIMENSION ◒			GALVANIZED STRUCTURAL STEEL					DRILLED SHAFT				
					DIRECT APPLY	⚹ ALUMINUM (TYPE A)	GROUND MOUNT (TYPE G)	OVERHEAD (TYPE O)		post ①	post ②	post ③	SIZE	LINEAR FEET post ①	post ②	post ③	TOTAL WEIGHT LBS.	LINEAR FEET NON-REINF 12"ϕ	REINFORCED 24"ϕ	30"ϕ	36"ϕ
	2-7	GREEN		8'0"x3'6"			28		320	0	0		S3X5.7	10.5	10.5		177.5	3.5			
	2-10	GREEN		8'0"x4'0"			32		320	0	0		S3X5.7	11	11		183.2	3.5			
	2-14	GREEN		6'0"x6'6"			39		320	0	0		S3X5.7	13.5	13.5		211.7	3.5			
	3-9	GREEN		8'0"x4'0"			32		320	0	0		S3X5.7	11	11		183.2	3.5			
	4-6	GREEN		6'0"x6'6"			39		320	0	0		S3X5.7	13.5	13.5		211.7	3.5			
	4-8	GREEN		8'0"x4'0"			32		320	0	0		S3X5.7	11	11		183.2	3.5			
PAGE TOTALS							202										1150.5	21			



◒ The "X" dimension is the elevation difference at the post between the ground and the edge of pavement or top of curb.

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

The post lengths listed here are approximations, The corrected post lengths will be furnished by the Contractor after the stud posts are placed.

Tower heights shall be verified with the Engineer before fabrication.

⚹ This column is for aluminum Type A and not direct apply. Direct apply is subsidiary to the sign.

SIGN TYPE

SIGN TYPE 1 3 0
- 1 — Wind Design Zone
- 3 — Series No.
- 0 — Aluminum/Fiberglass
- 1 — Aluminum
- 2 — Fiberglass
- 0 — No. of Posts

See sheet SMD(8W1)

SUMMARY OF LARGE SIGNS

SOLS

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DN.:-TxDOT	REVISIONS		
CK.:-TxDOT	11-93	1-04	
DW.:-TxDOT	8-95	9-08	
CK.:-TxDOT	5-01		

CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		16

DATE: 2/22/2024 11:25:18 AM
FILE: P:\127\36\03\Design\Civil\Summaries\sum108.dgn

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	1-1	M3-4	WEST 90	24" X 12"	X		10 BWG	1	SA	P		
		M1-4		24" X 24"								
	1-2	R6-1R	ONE WAY	36" X 12"	X		10 BWG	1	SA	T		
	1-3	R2-1	SPEED LIMIT 45	24" X 30"	X		10 BWG	1	SA	T		
	1-4	M2-1	JCT	21" X 15"	X		10 BWG	1	SA	T		
		M1-6F	FARM 471 ROAD	24" X 24"								
		M5-1R		21" X 15"								
	1-5	R1-1	STOP	30" X 30"	X		10 BWG	1	SA	P		
	2-1	R3-7R	RIGHT LANE MUST TURN RIGHT	30" X 30"	X		10 BWG	1	SA	P		
	2-2	CUSTOM SIGN	FARM 471 ROAD	24" X 24"	X							
		CUSTOM SIGN	FARM 471 ROAD	24" X 24"								
	2-3	R3-8SSR	ONLY	48" X 30"	X		10 BWG	1	SA	T		
	2-4	R2-1	SPEED LIMIT 45	24" X 30"	X		10 BWG	1	SA	T		
	2-5	R3-4	FRONT	24" X 30"	X		10 BWG	1	SA	T		
		R5-1	DO NOT ENTER	36" X 36"								
		R5-1a	WRONG WAY	36" X 24"								
	2-6	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY	36" X 24"								
	2-8	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
	2-9	R6-1L	ONE WAY	36" X 12"	X		10 BWG	1	SA	T		
	2-11	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY	36" X 24"								

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 1 OF 3

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
4-16 8-16	DIST	COUNTY		258
	SA	MEDINA		17

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SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION PREFABRICATED	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE
							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"		TY N TY S
	2-12	R4-7		24" X 30"	X		10 BWG	1	SA	P		
	2-13	R3-7R	RIGHT LANE MUST TURN RIGHT	30" X 30"	X		10 BWG	1	SA	P		
	3-1	M3-4	WEST	24" X 12"	X		10 BWG	1	SA	P		
		M1-4	90	24" X 24"								
	3-2	M3-2	EAST	24" X 12"	X		10 BWG	1	SA	T		
		M1-4	90	24" X 24"								
		M5-3T		21" X 15"								
	3-3	R3-7R	RIGHT LANE MUST TURN RIGHT	30" X 30"	X		10 BWG	1	SA	T		
		R3-5hTP	600 FT	30" X 8"								
	3-4	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY	36" X 24"								
	3-5	R5-1	DO NOT ENTER FRONT	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY									
		R3-2	BACK									
	3-6	R3-8LLS	ONLY ONLY ONLY	48" X 30"	X		10 BWG	1	SA	T		
	3-7	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY	36" X 24"								
	3-8	R5-1	DO NOT ENTER FRONT	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY									
		R3-2	BACK									
	3-10	R3-7R	RIGHT LANE MUST TURN RIGHT	30" X 30"	X		10 BWG	1	SA	P		
	3-11	R3-8SSR	ONLY	48" X 30"	X		10 BWG	1	SA	T		
	3-12	R6-1R	ONE WAY	36" X 12"	X		10 BWG	1	SA	T		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 2 OF 3

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	24	6		
4-16 8-16	DIST	COUNTY		259
	SA	MEDINA		

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
	3-13	M3-2	EAST 90	24" X 12"	X		10 BWG	1	SA	T		
		M1-4		24" X 24"								
		M5-3T		21" X 15"								
	3-14	M3-4	WEST 90	24" X 12"	X		10 BWG	1	SA	P		
		M1-4		24" X 24"								
	4-1	R7-8T	RESERVED PARKING	36" X 12"	X		10 BWG	1	SA	P		
	4-2	R6-1R	ONE WAY	36" X 12"	X		10 BWG	1	SA	T		
	4-3	M3-2	EAST 90	24" X 12"	X		10 BWG	1	SA	P		
		M1-4		24" X 24"								
	4-4	M3-4	WEST 90	24" X 12"	X		10 BWG	1	SA	T		
		M1-4		24" X 24"								
		M5-3T		21" X 15"								
	4-5	R7-8T	RESERVED PARKING	36" X 12"	X		10 BWG	1	SA	P		
	4-7	R5-1	DO NOT ENTER	36" X 36"	X		10 BWG	1	SA	T		
		R5-1a	WRONG WAY	36" X 24"	X		10 BWG	1	SA	T		

Section X, Item d.

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

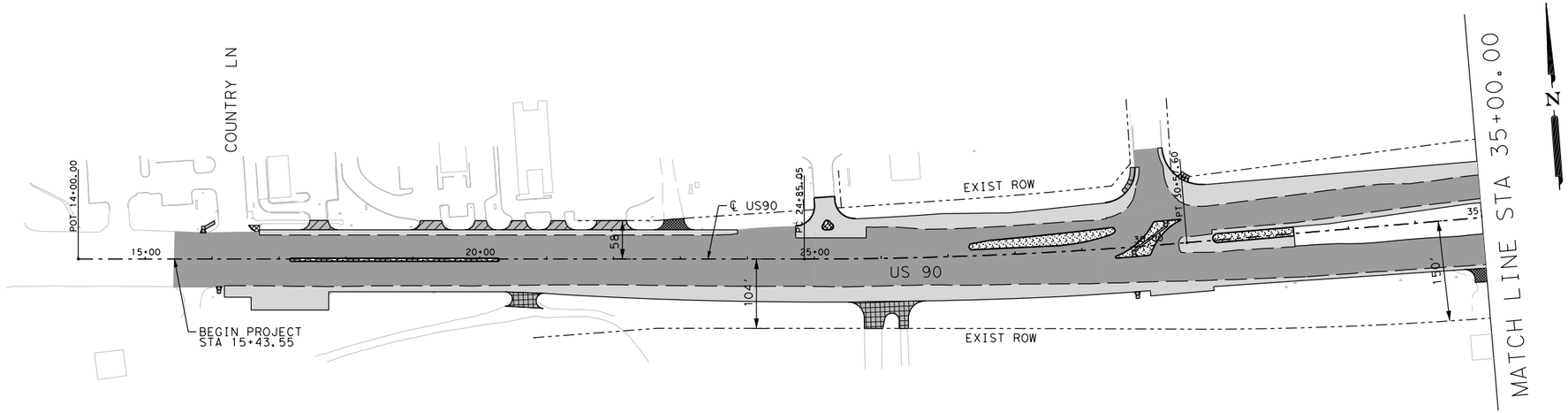
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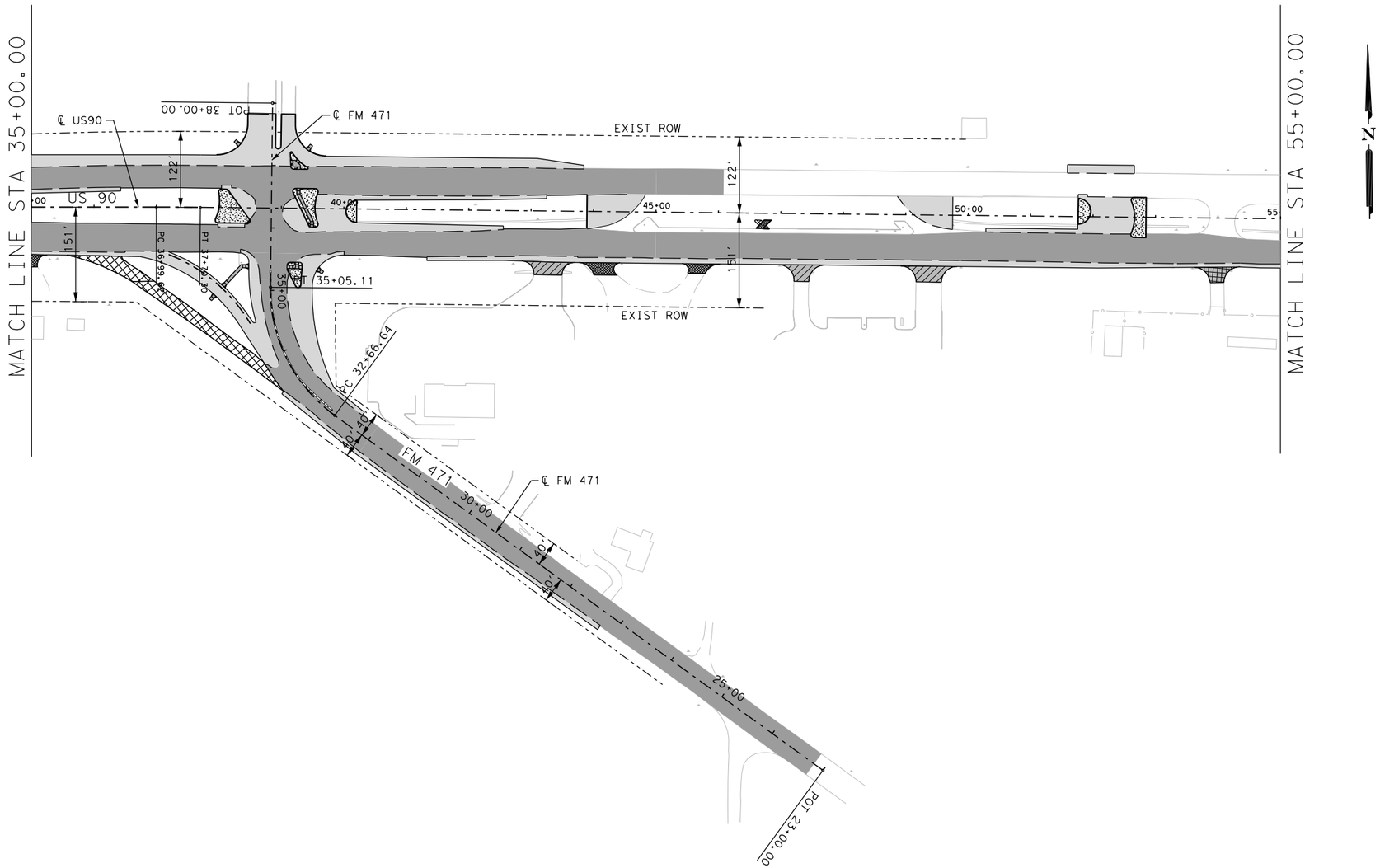
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SHEET 3 OF 3

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		24	6		
4-16		DIST	COUNTY		260
8-16		SA	MEDINA		19

18





LEGEND

- TRAFFIC FLOW ARROW
- PROPOSED FULL DEPTH PAVEMENT
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED BASE DRIVEWAY
- PAVEMENT REMOVAL

NOTES

1. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

0 100 200 300
SCALE: 1"= 200'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation
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US 90 AT ALSATIAN OAKS

PROJECT LAYOUT

BEGIN PROJECT TO STA 55+00.00

SHEET 1 OF 2

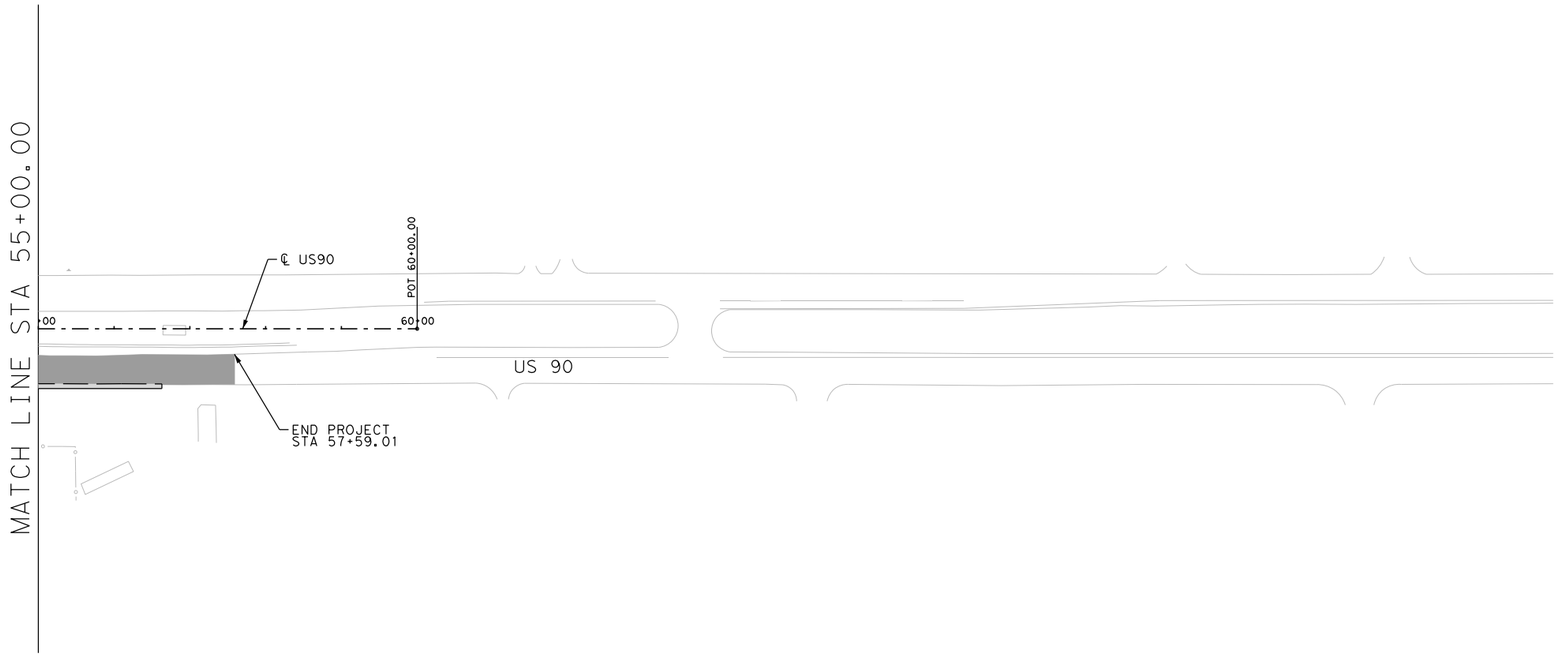
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CHK DGN: BC	6	TEXAS		–		0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		20

261

Plotted on: 2/23/2024

Design Filename: P:\127\36\03\Design\Civil\General\1273603_PRJ01.dgn

Plotted on: 2/23/2024



N

LEGEND

- TRAFFIC FLOW ARROW
- PROPOSED FULL DEPTH PAVEMENT
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED BASE DRIVEWAY
- PAVEMENT REMOVAL

NOTES

1. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

0 100 200 300

SCALE: 1"= 200'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROJECT LAYOUT

STA 55+00.00 TO END PROJECT

SHEET 2 OF 2

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	-			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Design Filename: P:\127\36\03\Design\Civil\General\1273603_PRJ02.dgn

Plotted on: 2/23/2024

℄ US 90

Beginning chain US90_CL description

Point 1 N13,679,201.445097 E 2,012,710.519991 Sta 14+00.00

Course from 1 to PC 2 S 85° 47′ 22" E Dist 1,085.047010

	Curve Data				
Curve 2					
P.I. Station	27+71.50	N	13,679,100.749184	E	2,014,078.318148
Delta =	4° 53′ 20" (LT)				
Degree =	0° 51′ 14"				
Tangent =	286.452704				
Length =	572.557753				
Radius =	6,710.000000				
External =	6.111610				
Long Chord =	572.384068				
Mid. Ord. =	6.106048				
P.C. Station	24+85.05	N	13,679,121.780626	E	2,013,792.638555
P.T. Station	30+57.60	N	13,679,104.141451	E	2,014,364.750765
C.C.		N	13,685,813.670927	E	2,014,285.288732

Back = S 85° 47′ 22" E
Ahead = N 89° 19′ 17" E
Chord Bear = S 88° 14′ 03" E

Course from PT 2 to PC 3 N 89° 19′ 17" E Dist 642.013593

	Curve Data				
Curve 3					
P.I. Station	37+34.96	N	13,679,112.162905	E	2,015,042.057637
Delta =	0° 36′ 13" (RT)				
Degree =	0° 51′ 14"				
Tangent =	35.340778				
Length =	70.680902				
Radius =	6,710.000000				
External =	0.093067				
Long Chord =	70.680575				
Mid. Ord. =	0.093066				
P.C. Station	36+99.62	N	13,679,111.744388	E	2,015,006.719338
P.T. Station	37+70.30	N	13,679,112.209164	E	2,015,077.398385
C.C.		N	13,672,402.214912	E	2,015,086.181370

Back = N 89° 19′ 17" E
Ahead = N 89° 55′ 30" E
Chord Bear = N 89° 37′ 24" E

Course from PT 3 to 4 N 89° 55′ 30" E Dist 2,229.700743

Point 4 N13,679,115.127708 E 2,017,307.097217 Sta 60+00.00

Ending chain US90_CL description

℄ SLIP RAMP

Beginning chain SLIPRAMP description

	Curve Data				
Curve 1					
P.I. Station	50+84.85	N	13,679,006.325373	E	2,015,106.977646
Delta =	35° 53′ 16" (RT)				
Degree =	21° 52′ 07"				
Tangent =	84.845440				
Length =	164.106399				
Radius =	262.000000				
External =	13.395622				
Long Chord =	161.436882				
Mid. Ord. =	12.744041				
P.C. Station	50+00.00	N	13,679,036.034353	E	2,015,027.503593
P.T. Station	51+64.11	N	13,678,935.668473	E	2,015,153.949459
C.C.		N	13,678,790.621022	E	2,014,935.763214

Back = S 69° 30′ 12" E
Ahead = S 33° 36′ 56" E
Chord Bear = S 51° 33′ 34" E

Course from PT 1 to 2 S 33° 36′ 56" E Dist 10.247300

Point 2 N13,678,927.134809 E 2,015,159.622531 Sta 51+74.35

Ending chain SLIPRAMP description

℄ FM 471

Beginning chain FM471_CL description

Point 1 N13,678,222.526655 E 2,016,084.913682 Sta 23+00.00

Course from 1 to PC 2 N 54° 39′ 11" W Dist 966.636636

	Curve Data				
Curve 2					
P.I. Station	33+95.82	N	13,678,856.486977	E	2,015,191.095650
Delta =	54° 39′ 11" (RT)				
Degree =	22° 55′ 06"				
Tangent =	129.181033				
Length =	238.468612				
Radius =	250.000000				
External =	31.403162				
Long Chord =	229.530174				
Mid. Ord. =	27.898728				
P.C. Station	32+66.64	N	13,678,781.752236	E	2,015,296.463851
P.T. Station	35+05.11	N	13,678,985.668010	E	2,015,191.095650
C.C.		N	13,678,985.668010	E	2,015,441.095650

Back = N 54° 39′ 11" W
Ahead = Due North
Chord Bear = N 27° 19′ 35" W

Course from PT 2 to 3 Due North Dist 294.894752

Point 3 N13,679,280.562762 E 2,015,191.095650 Sta 38+00.00

Ending chain FM471_CL description

DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

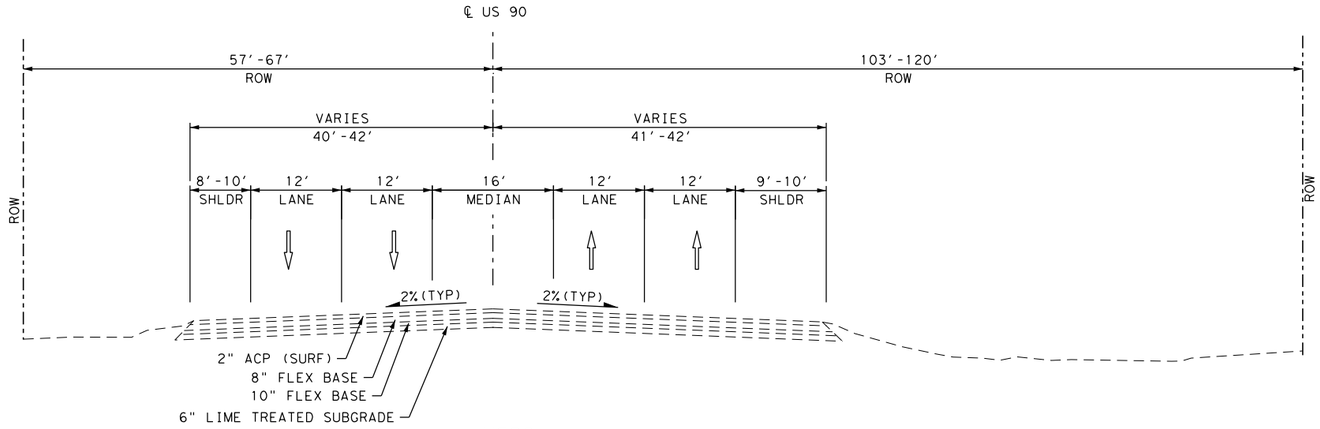
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US 90 AT ALSATIAN OAKS

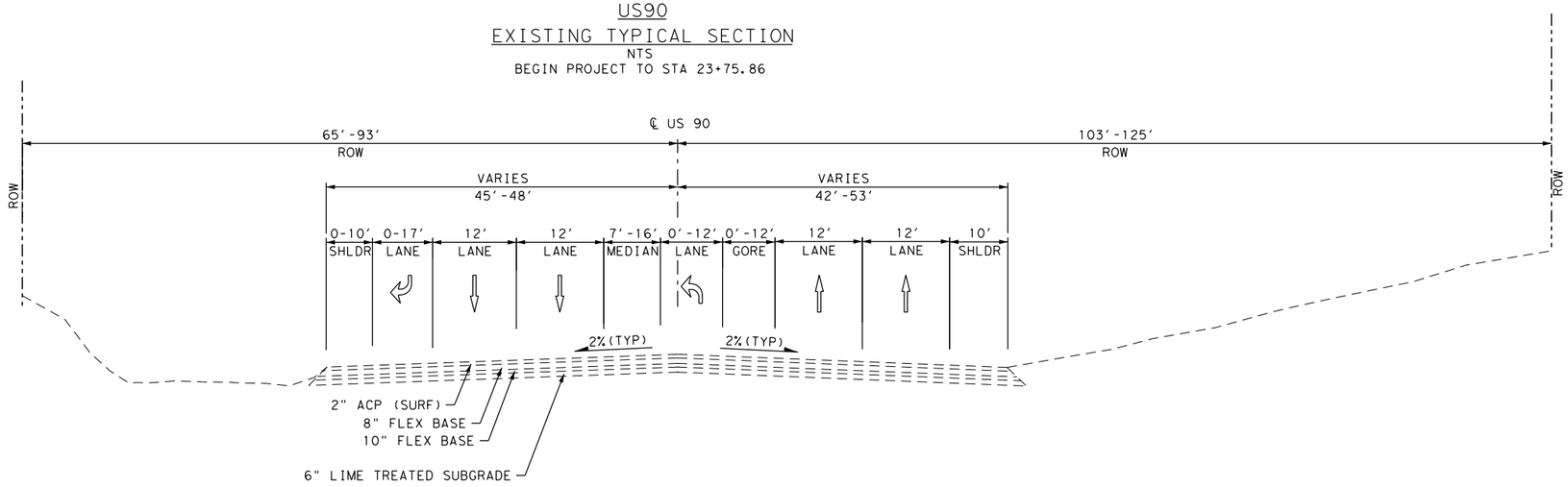
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		22

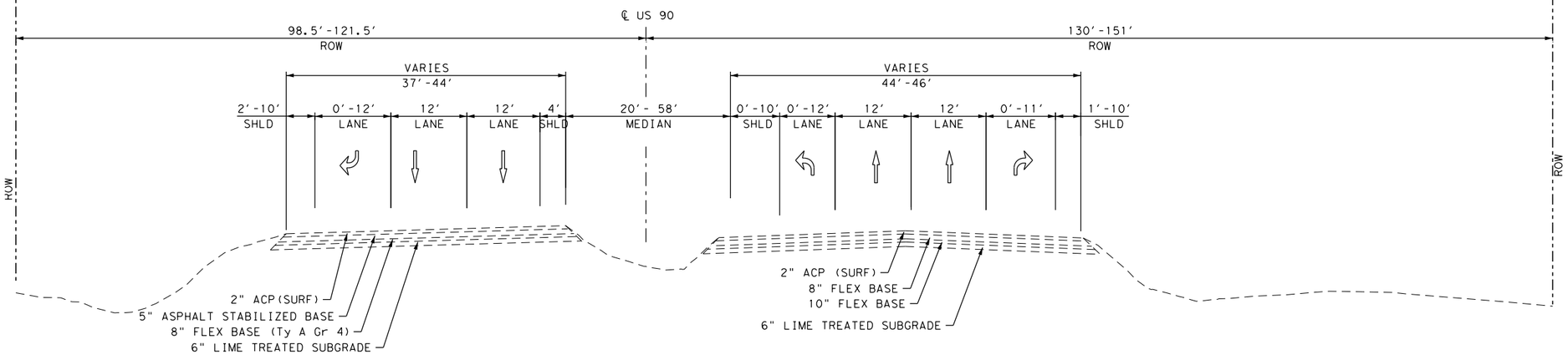
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US90
EXISTING TYPICAL SECTION
NTS
BEGIN PROJECT TO STA 23+75.86



US90
EXISTING TYPICAL SECTION
NTS
STA 23+75.86 TO STA 30+00.00



US90
EXISTING TYPICAL SECTION
NTS
STA 30+00.00 TO STA 39+02.64

LEGEND

EXISTING ROW

EXISTING TRAFFIC FLOW ARROW

NOTES

1. EXISTING PAVEMENT IS ASSUMED FROM AS BUILT PLANS. CONTRACTOR TO VERIFY EXISTING PAVEMENT IN THE FIELD PRIOR TO PAVEMENT SAWCUT AND REMOVAL.

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

EXISTING TYPICAL SECTIONS

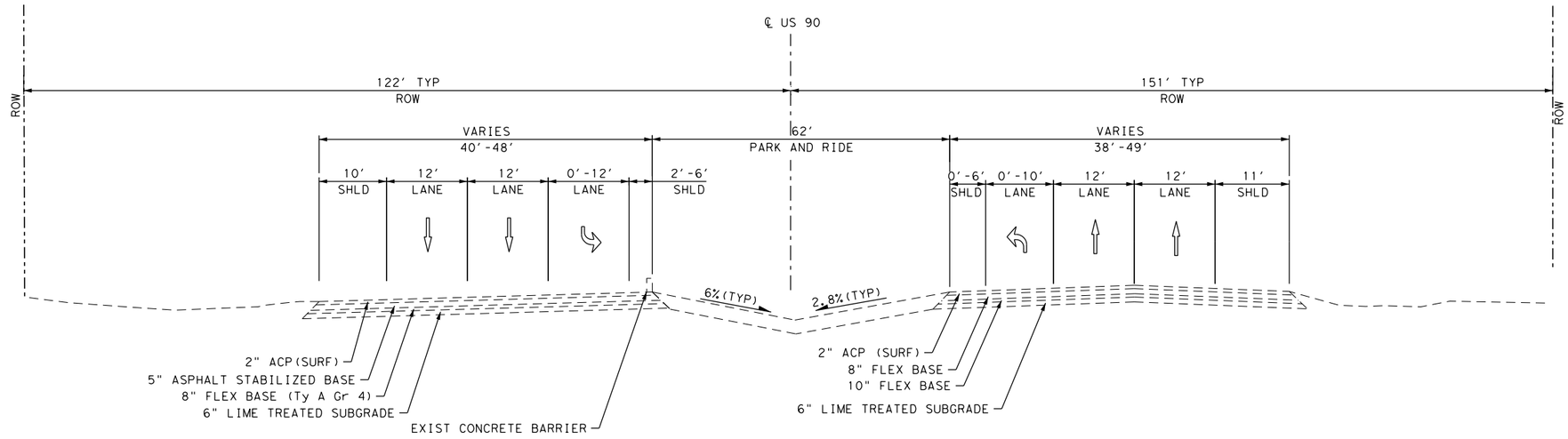
US 90

SHEET 1 OF 3

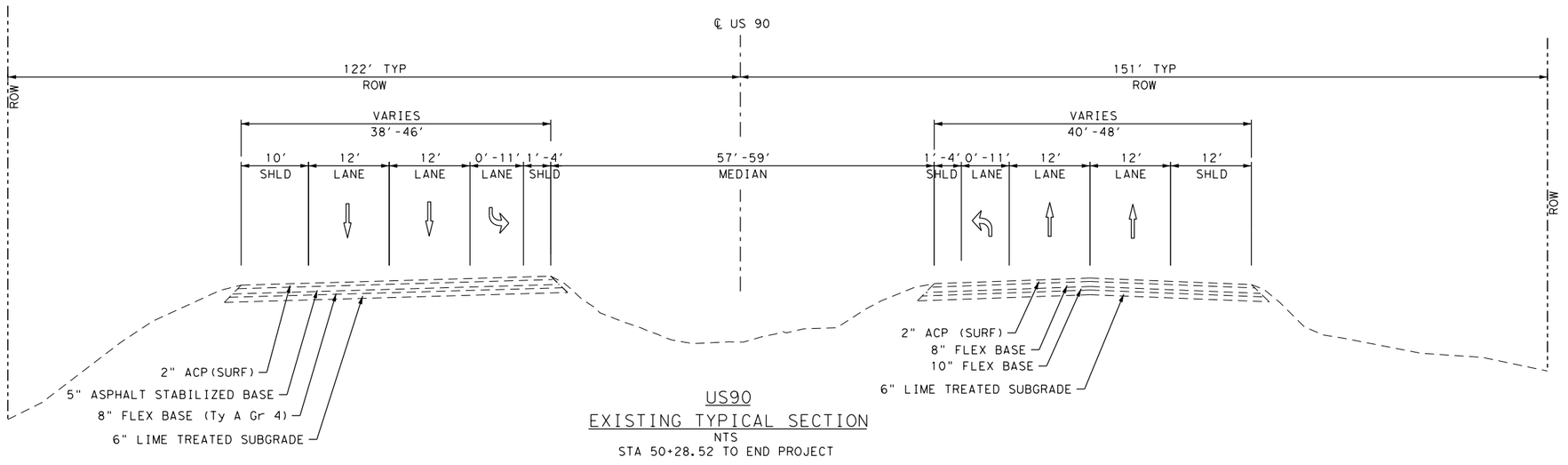
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/23/2024

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US90
EXISTING TYPICAL SECTION
NTS
STA 39+02.64 TO STA 50+28.52



US90
EXISTING TYPICAL SECTION
NTS
STA 50+28.52 TO END PROJECT

LEGEND

EXISTING ROW

EXISTING TRAFFIC FLOW ARROW

NOTES

1. EXISTING PAVEMENT IS ASSUMED FROM AS BUILT PLANS. CONTRACTOR TO VERIFY EXISTING PAVEMENT IN THE FIELD PRIOR TO PAVEMENT SAWCUT AND REMOVAL.

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

EXISTING TYPICAL SECTIONS

US 90

SHEET 2 OF 3

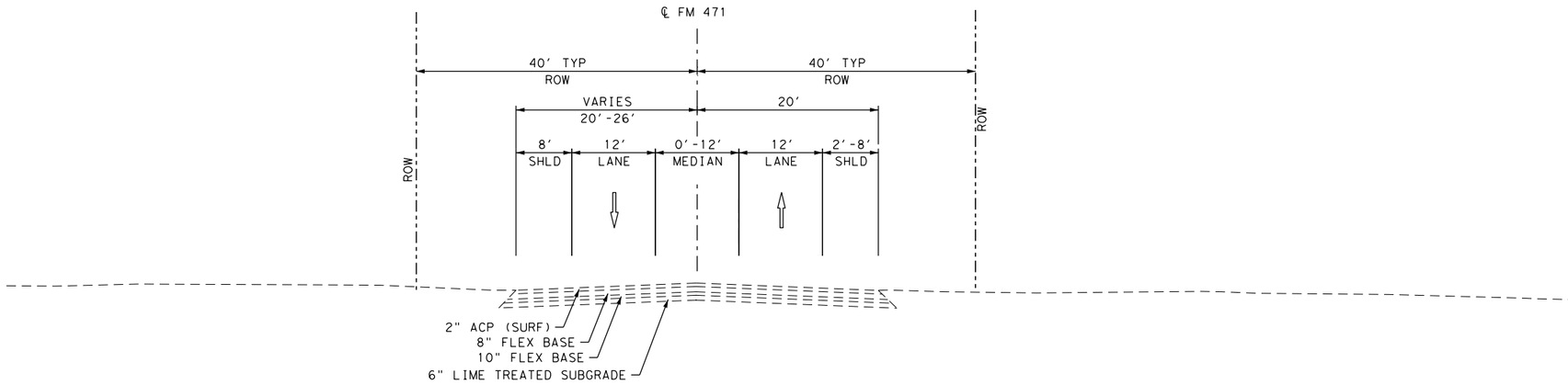
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		24

Plotted on: 2/23/2024

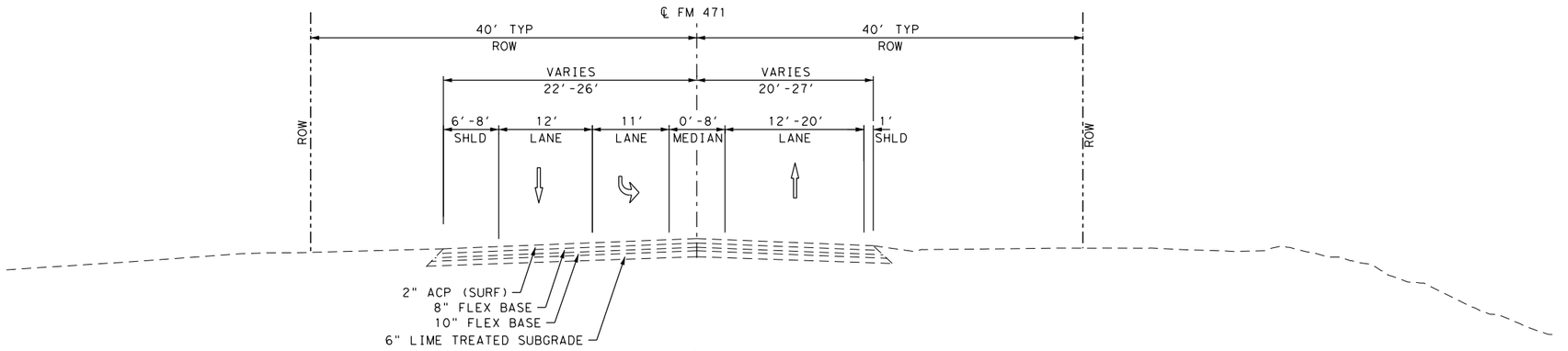
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Plotted on: 2/23/2024

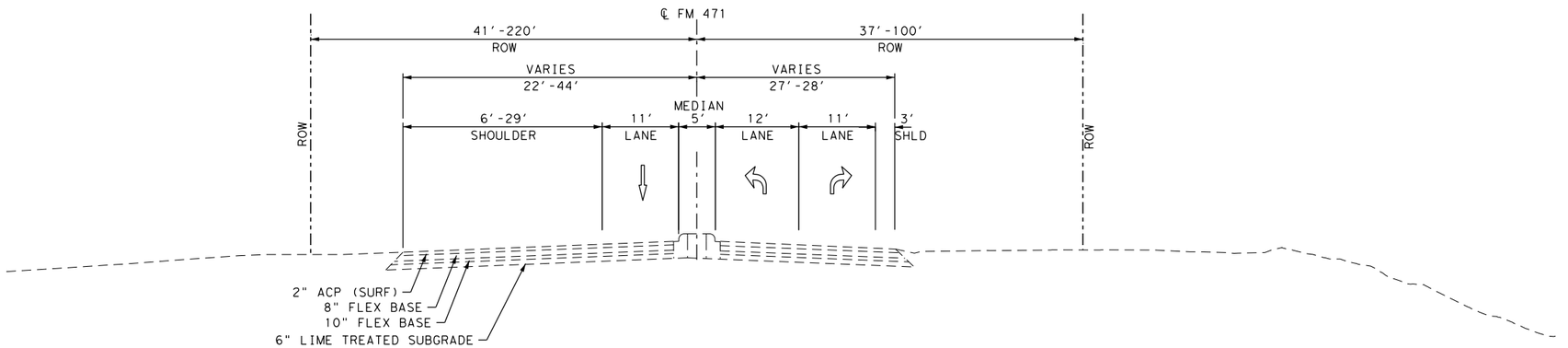
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FM 471
EXISTING TYPICAL SECTION
NTS
BEGIN PROJECT TO STA 29+03.80



FM 471
EXISTING TYPICAL SECTION
NTS
STA 29+03.80 TO STA 32+74.15



FM 471
EXISTING TYPICAL SECTION
NTS
STA 32+74.15 TO STA 36+31.80

LEGEND

EXISTING ROW

EXISTING TRAFFIC FLOW ARROW

NOTES

1. EXISTING PAVEMENT IS ASSUMED FROM AS BUILT PLANS. CONTRACTOR TO VERIFY EXISTING PAVEMENT IN THE FIELD PRIOR TO PAVEMENT SAWCUT AND REMOVAL.

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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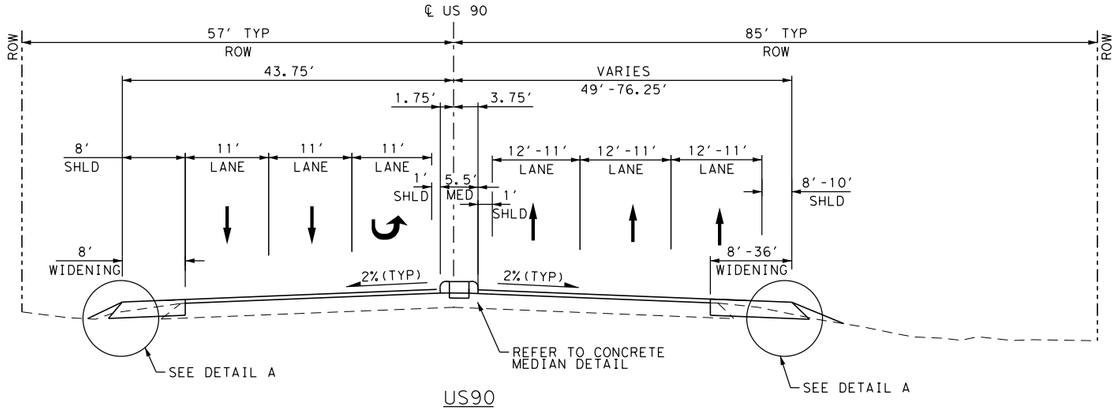
US 90 AT ALSATIAN OAKS

EXISTING TYPICAL SECTIONS

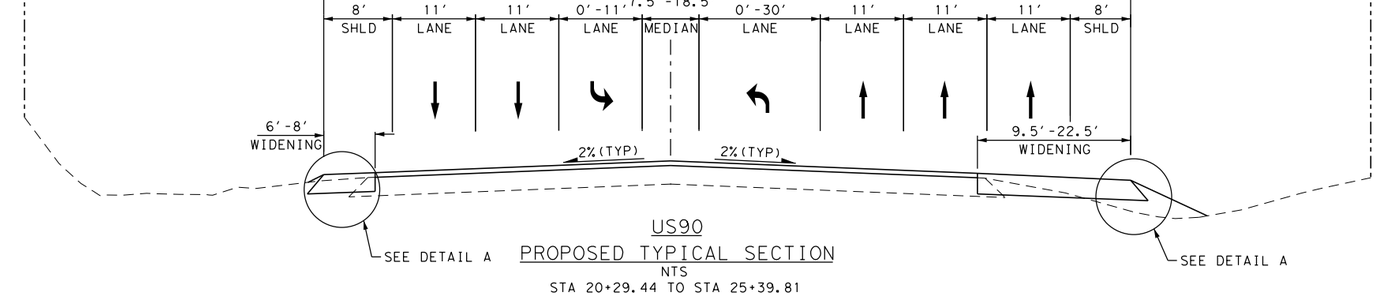
FM 471

SHEET 3 OF 3

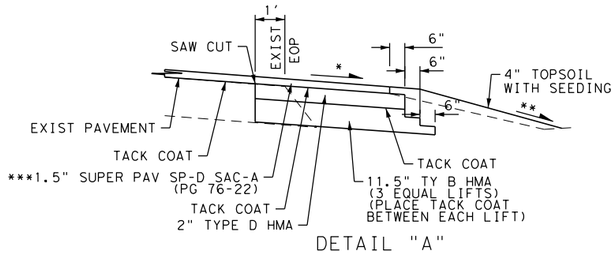
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CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



US90
PROPOSED TYPICAL SECTION
NTS
BEGIN PROJECT TO STA 20+29.44



US90
PROPOSED TYPICAL SECTION
NTS
STA 20+29.44 TO STA 25+39.81



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6′ WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS · BRET CHAPMAN · 127293 · LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

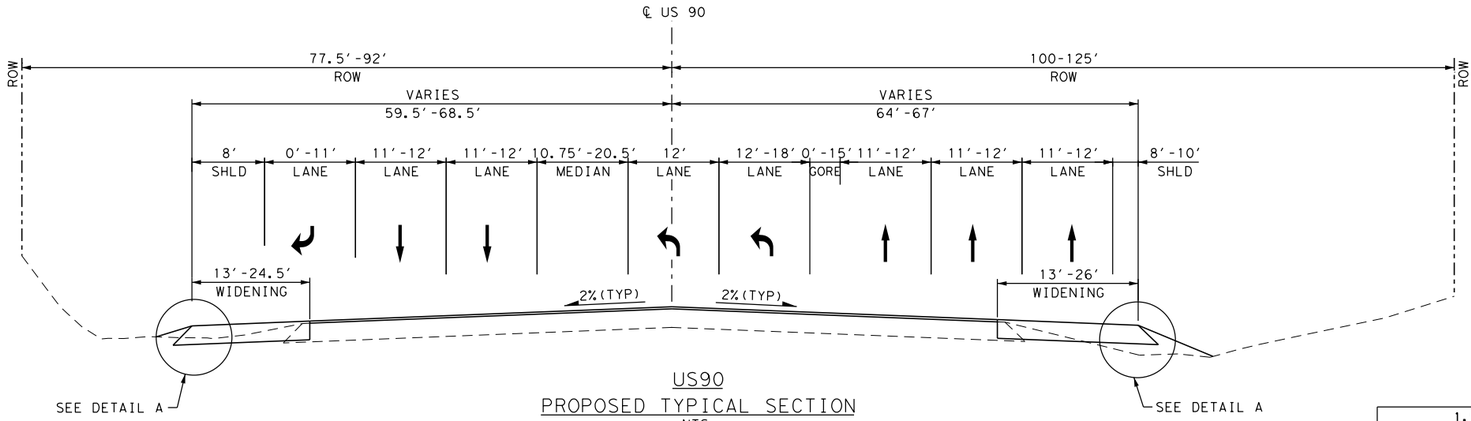
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SHEET 1 OF 7

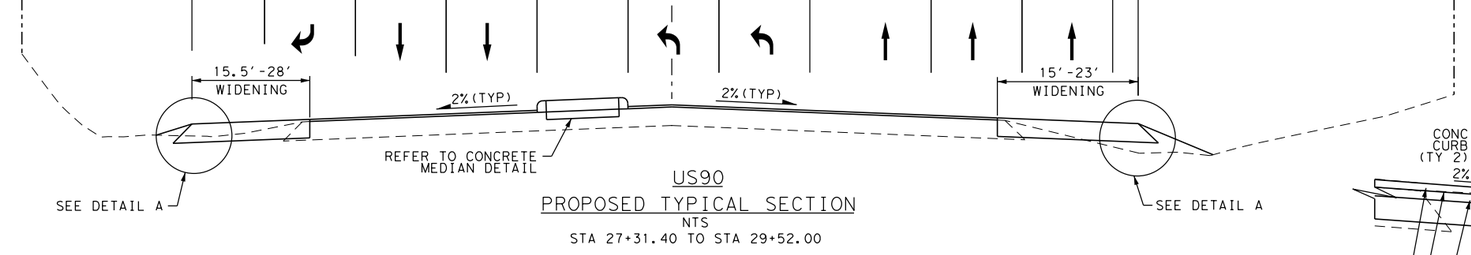
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CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/2/2024

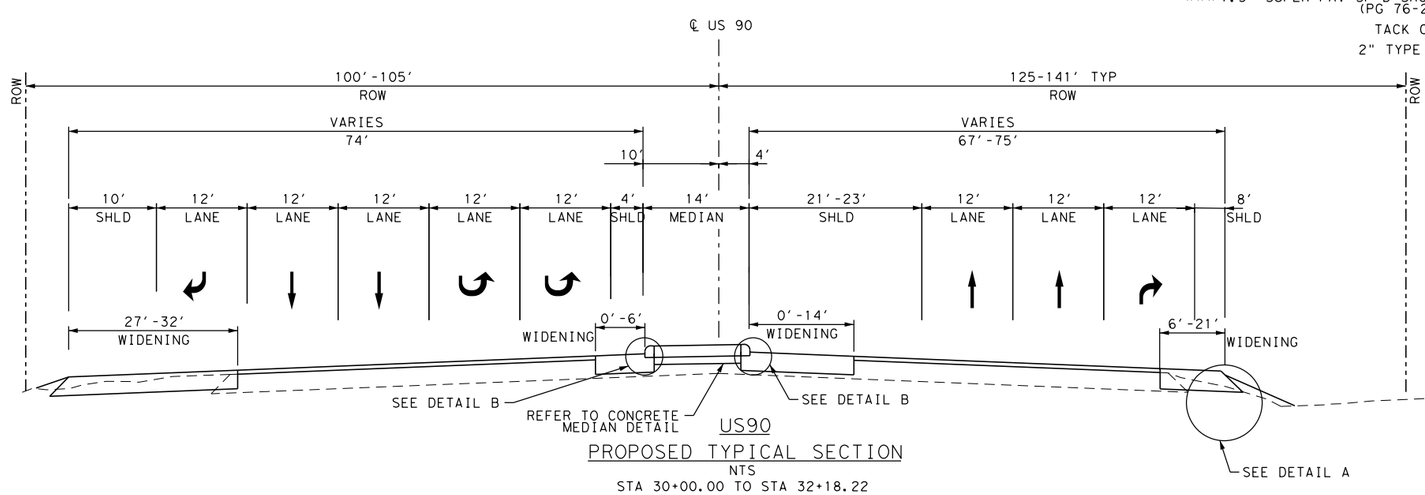
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US90
PROPOSED TYPICAL SECTION
NTS
STA 25+39.81 TO STA 27+31.40
STA 29+52.00 TO STA 30+00.00



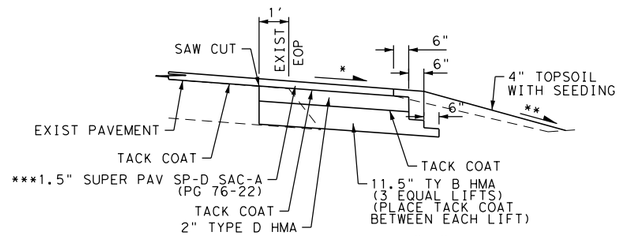
US90
PROPOSED TYPICAL SECTION
NTS
STA 27+31.40 TO STA 29+52.00



US90
PROPOSED TYPICAL SECTION
NTS
STA 30+00.00 TO STA 32+18.22

LEGEND

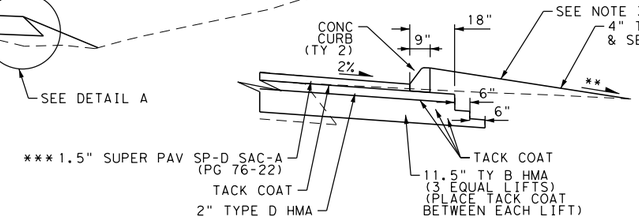
- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH



DETAIL "B"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6' WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

US 90

SHEET 2 OF 7

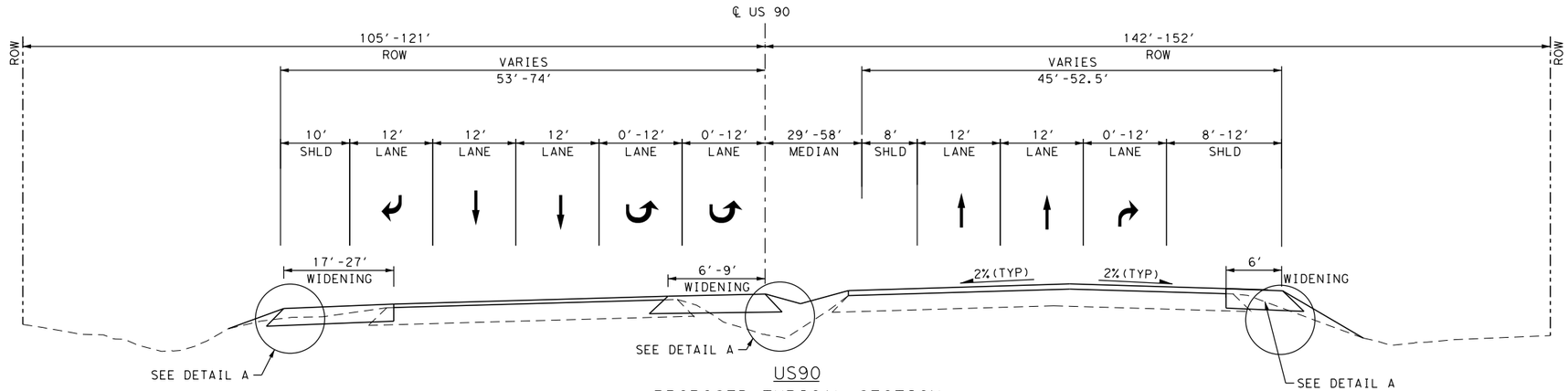
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CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/2/2024

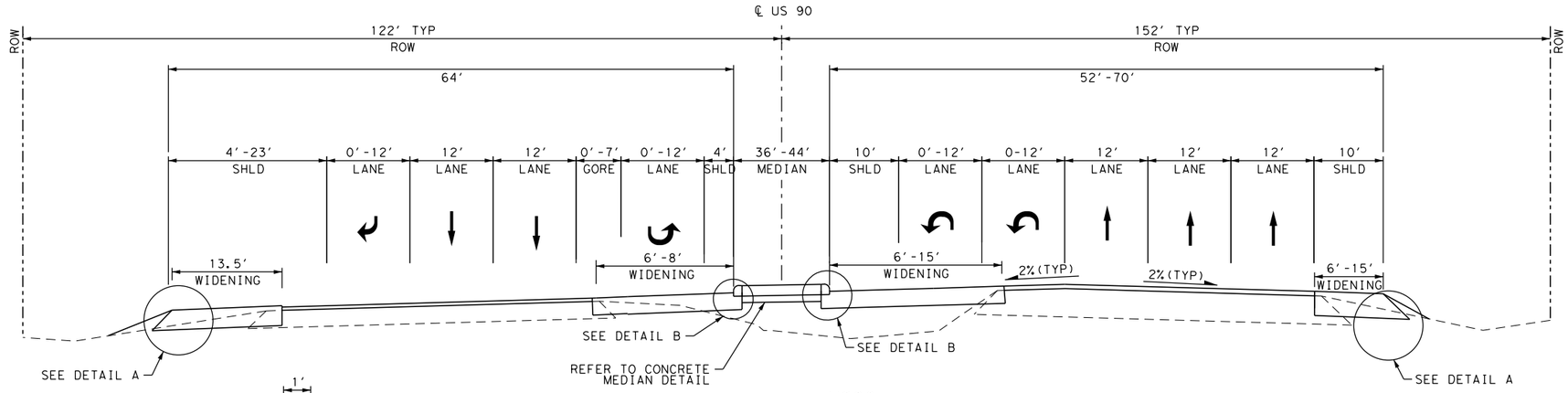
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Plotted on: 4/2/2024

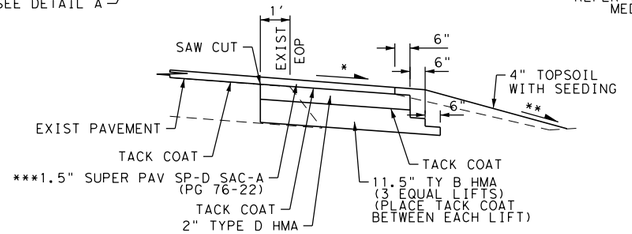
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US90
PROPOSED TYPICAL SECTION
NTS
STA 32+18.22 TO STA 38+84.00

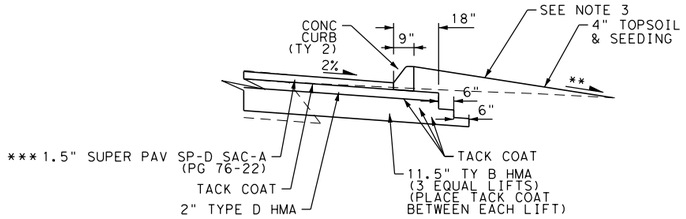


US90
PROPOSED TYPICAL SECTION
NTS
STA 38+84.00 TO STA 40+21.00
STA 51+75.76 TO STA 52+85.32



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS



DETAIL "B"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6′ WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

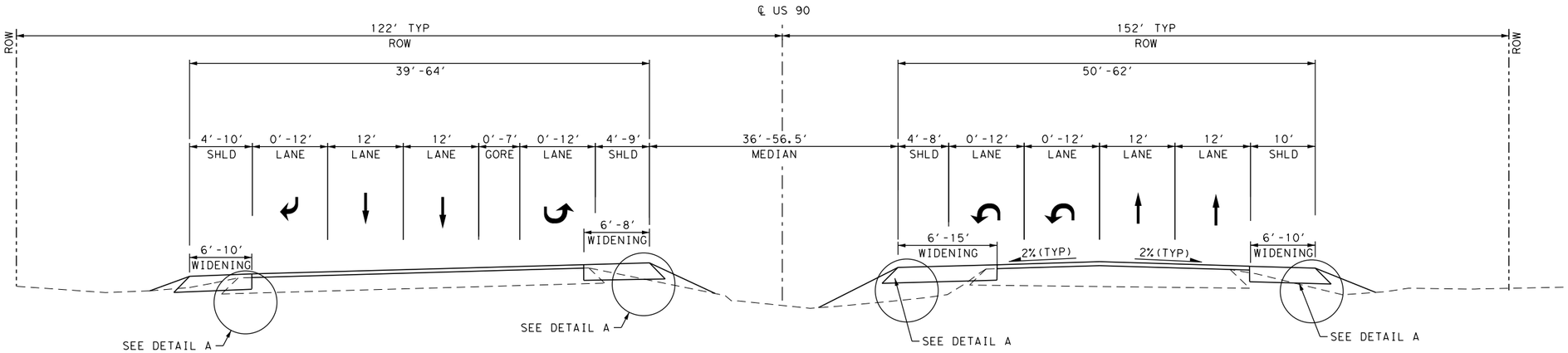
PROPOSED TYPICAL SECTIONS

US 90

SHEET 3 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/2/2024

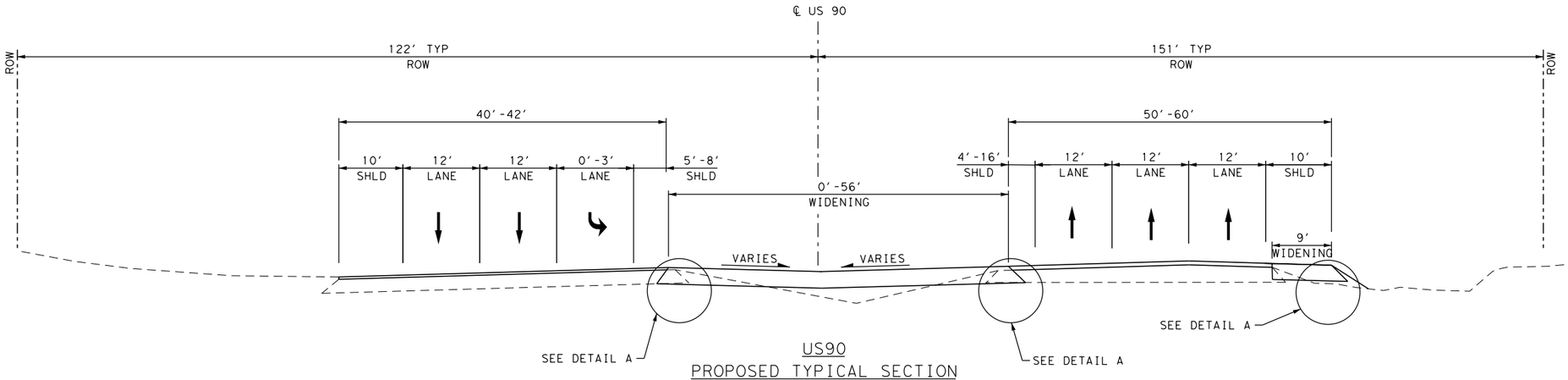


US90

PROPOSED TYPICAL SECTION

NTS

STA 40+21.00 TO STA 43+90.00
STA 49+75.00 TO STA 51+75.76



US90

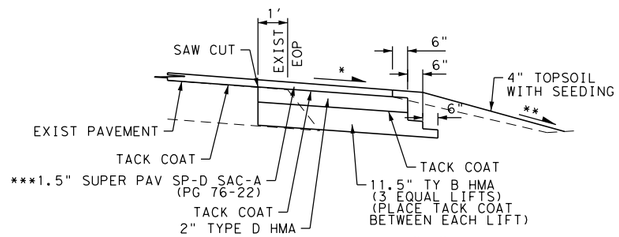
PROPOSED TYPICAL SECTION

NTS

STA 43+90.00 TO STA 44+70.00
STA 49+10.00 TO STA 49+75.00

NOTES:

1. OVERLAY SECTION ON WESTBOUND SIDE ENDS AT STA 47+07.86.
2. THE EXISTING PARK AND RIDE SECTION WILL HAVE A SEAL COAT. THIS IS COVERED UNDER ITEMS 316-6224 AND 316-6413.



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6′ WIDE.
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DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

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911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

US 90

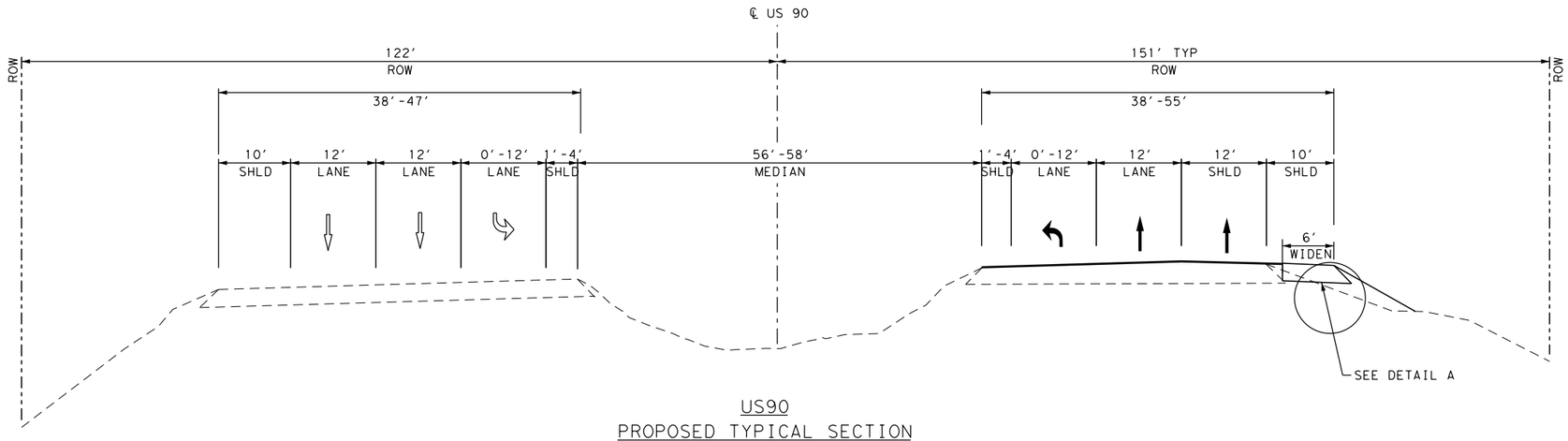
SHEET 4 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		29

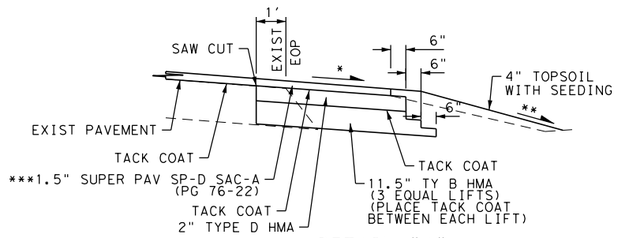
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Plotted on: 4/2/2024

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US90
PROPOSED TYPICAL SECTION
NTS
STA 52+85.32 TO END PROJECT



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6′ WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS · BRET CHAPMAN · 127293 · LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

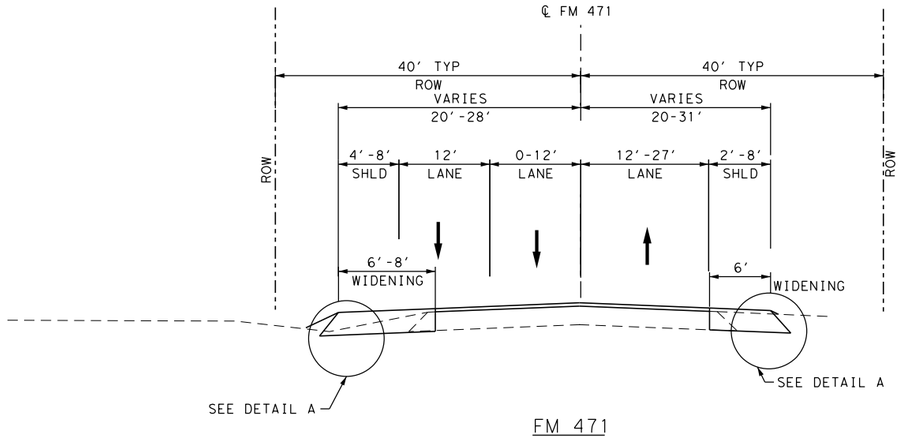
US 90

SHEET 5 OF 7

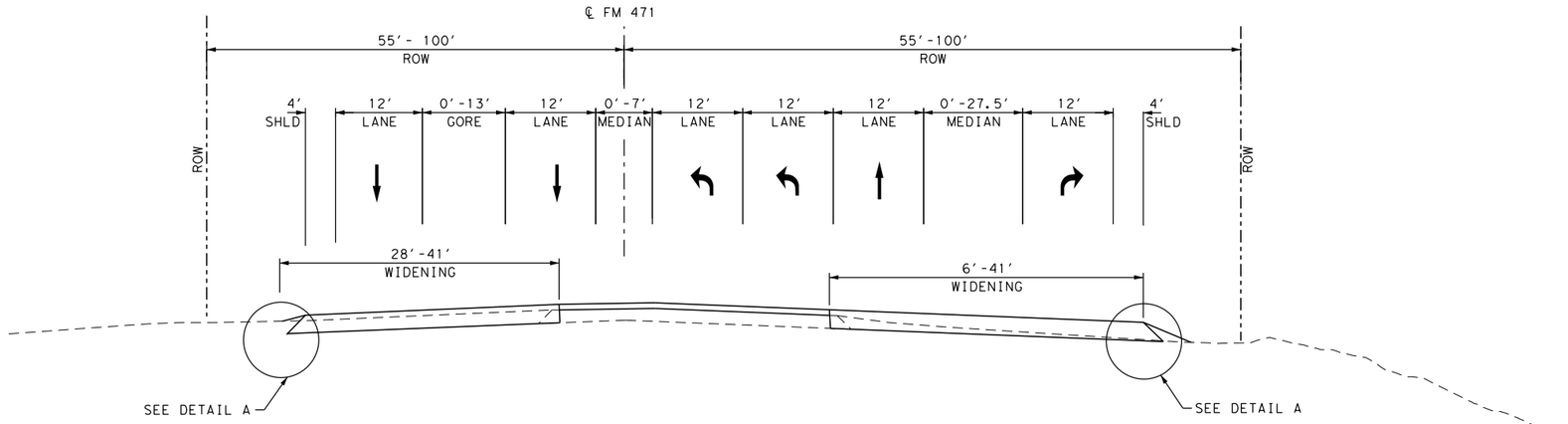
DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		90

Plotted on: 4/2/2024

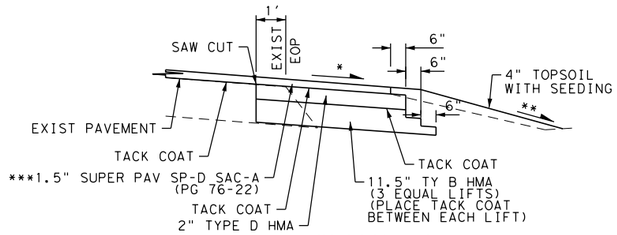
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FM 471
PROPOSED TYPICAL SECTION
NTS
BEGIN PROJECT TO STA 32+97.71



FM 471
PROPOSED TYPICAL SECTION
NTS
STA 32+97.71 TO 36+99.35



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

NOTES

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2. ASPHALT WIDENING WILL BE MINIMUM 6′ WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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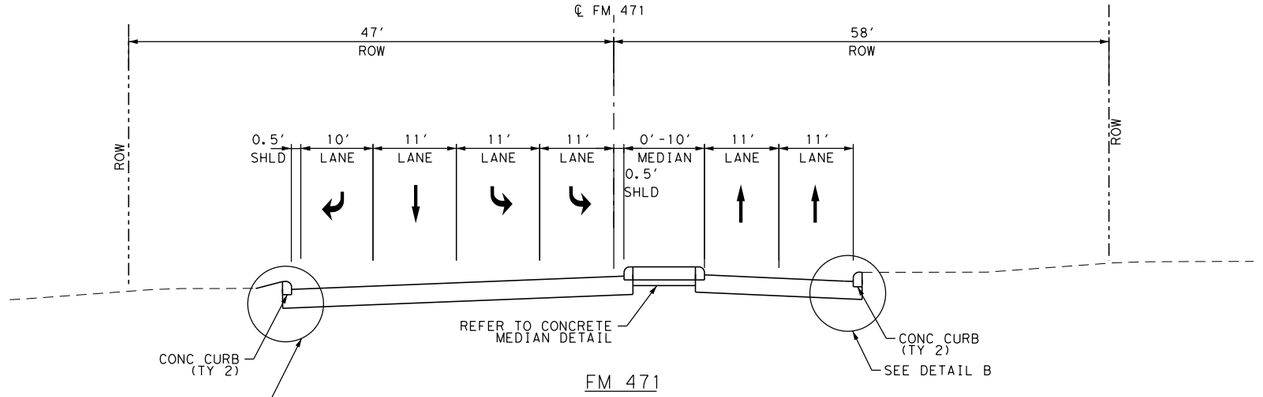
US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

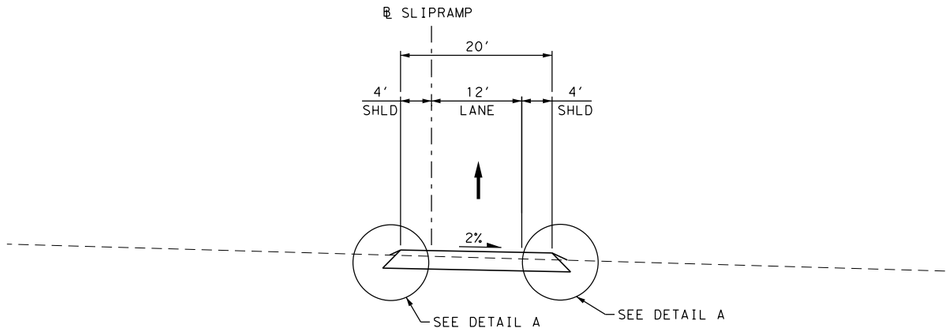
FM 471

SHEET 6 OF 7

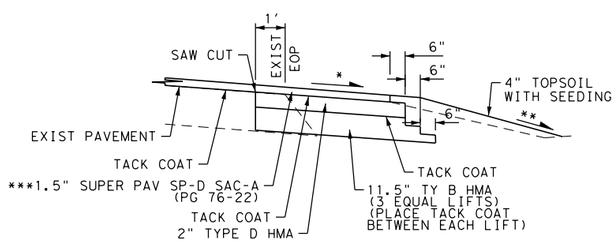
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CHK DGN: BC	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



FM 471
PROPOSED TYPICAL SECTION
NTS
STA 36+99.35 TO STA END PROJECT

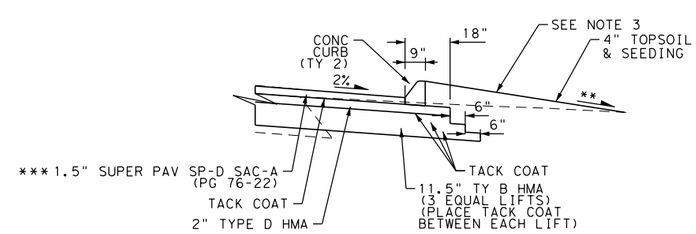


US 90 TO FM 471 SLIP RAMP
PROPOSED TYPICAL SECTION
NTS



DETAIL "A"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS



DETAIL "B"

* = MATCH EXIST CROSS SLOPE
** = 6:1 TYP, 4:1 MAX
*** = SEE TABLE FOR OVERLAY LIMITS

LEGEND

- EXISTING ROW
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW

1.5" SUPER PAV SP-D SAC-A (PG 76-22) OVERLAY LIMITS		
	ROADWAY	DIRECTION
FROM STA 15+43.55 TO STA 46+07.86	US 90	WB
FROM STA 15+43.55 TO STA 57+58.76	US 90	EB
FROM STA 23+18.00 TO STA 36+99.35	FM471	BOTH

NOTES

1. TACK COAT MUST BE APPLIED BETWEEN ALL ASPHALT LIFTS.
2. ASPHALT WIDENING WILL BE MINIMUM 6' WIDE.
3. REFER TO CONCRETE MEDIAN DETAIL FOR MEDIAN/ISLAND MATERIALS. REFER TO INTERSECTION LAYOUT SHEETS FOR SPECIFIC POINT LOCATIONS.

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 4/2/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/2/2024 DATE

NOT TO SCALE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

PROPOSED TYPICAL SECTIONS

FM 471

SHEET 7 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/2/2024

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Plotted on: 4/9/2024

DETOURS, BARRICADES, WARNING SIGNS, SEQUENCE OF WORK, ETC.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC", OF THE STANDARD SPECIFICATIONS. IN ADDITION TO THESE REQUIREMENTS, THE FOLLOWING PROVISIONS SHALL ALSO GOVERN ON THIS CONTRACT:

1. GENERAL

(1) TRAFFIC MUST BE HANDLED THROUGHOUT THE PROJECT DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE AND COMFORTABLE PASSAGE FOR VEHICULAR AND PEDESTRIAN TRAFFIC WITH MINIMAL INCONVENIENCE TO THE PUBLIC, AS SHOWN IN THE PLANS OR AS DIRECTED/APPROVED BY THE ENGINEER.

(2) THE CONTRACTOR MAY PROPOSE/RECOMMEND MODIFICATIONS TO THE SEQUENCE OF WORK FOR CONSIDERATION BY THE ENGINEER. ANY MAJOR RECOMMENDED MODIFICATION BY THE CONTRACTOR SHALL INCLUDE ANY CHANGES TO THE VARIOUS BID ITEMS, IMPACT TO TRAFFIC, EFFECT OF OVERALL PROJECT IN TIME AND COST, ETC. IF THIS PROPOSAL IS IMPLEMENTED, THE CONTRACTOR WILL BE RESPONSIBLE FOR DEVELOPING DETAILED PLAN SHEETS TO BE SEALED BY A LICENSED PROFESSIONAL ENGINEER FOR INCLUSION WITH THE CHANGE ORDER. THE CONTRACTOR CANNOT PROCEED WITH ANY CONSTRUCTION OPERATIONS BASED ON A REVISED PHASE/SEQUENCE UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. IF AT ANY TIME DURING CONSTRUCTION THE CONTRACTOR'S PROPOSED PLAN OF OPERATION FOR HANDLING TRAFFIC DOES NOT PROVIDE FOR SAFE AND COMFORTABLE MOVEMENT, THE CONTRACTOR WILL IMMEDIATELY CHANGE THEIR OPERATION TO CORRECT THE UNSATISFACTORY CONDITION.

(3) DO NOT STORE ANY CONSTRUCTION MATERIAL OR EQUIPMENT AT ANY LOCATION THAT WILL CONSTITUTE A HAZARD AND WILL ENDANGER TRAFFIC.

(4) THE CONTRACTOR WILL PROVIDE ADVANCE NOTIFICATION TO THE ENGINEER OF IMPENDING / UPCOMING LANE CLOSURES FOR ALL TEMPORARY AND / OR PERMANENT LANE, RAMP, CONNECTOR, FRONTAGE, SHOULDER, ETC. CLOSURES OR DETOURS. SEE GENERAL NOTES FOR NOTIFICATION REQUIREMENTS.

(5) ACCESS TO ADJOINING PROPERTY MUST BE MAINTAINED AT ALL TIMES.

(6) TEMPORARY DRAINAGE IS THE RESPONSIBILITY OF THE CONTRACTOR.

(7) AT NO TIME SHALL TWO CONSECUTIVE INTERSECTING ROADWAYS BE CLOSED AT ONE TIME DURING CONSTRUCTION.

(8) AT NO TIME SHALL TWO CONSECUTIVE RAMPS BE CLOSED AT ONE TIME DURING CONSTRUCTION OR OVERLAY OPERATIONS.

(9) UNLESS OTHERWISE NOTED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER, DAILY LANE CLOSURES SHALL BE LIMITED ACCORDING TO THE FOLLOWING RESTRICTIONS:
NIGHTTIME AND WEEKEND LANE CLOSURES TO BE COORDINATED WITH AREA ENGINEER. CONTACT INFORMATION PROVIDED IN SECTION G-17 OF THE GENERAL NOTES.
NO LANE CLOSURES WILL BE PERMITTED FOR THE FOLLOWING DATES AND/OR SPECIAL EVENTS:
BETWEEN DECEMBER 15 AND JANUARY 1.
FIESTA WEEK AND TAX-FREE WEEKEND. (BEXAR COUNTY ONLY)
WEDNESDAY BEFORE THANKSGIVING THRU THE SUNDAY AFTER THANKSGIVING
SATURDAY AND SUNDAY BEFORE MEMORIAL DAY AND LABOR DAY.
SATURDAY OR SUNDAY WHEN JULY 4 FALLS ON A FRIDAY OR MONDAY.
ELECTION DAYS (BEXAR COUNTY ONLY)
DURING MAJOR EVENTS AT THE AT&T CENTER (SPURS HOME GAMES, RODEO, CONCERTS, ETC.), ALAMODOME AND OR CONVENTION CENTER (BEXAR COUNTY ONLY)
APRIL 9, 2023

(10) REMOVAL AND DISPOSAL OF EXISTING ABANDONED UTILITIES (EITHER PREVIOUSLY ABANDONED OR ABANDONED DURING THIS PROJECT) REQUIRED TO SUPPORT THIS PROJECT'S CONSTRUCTION SHALL BE PERFORMED UNDER THE OVERALL PREPARE RIGHT-OF-WAY ITEM (ITEM 100).

(11) COORDINATE WITH ADJACENT PROJECTS.

(12) COVER PERMANENT SIGNS IF NOT USED. THIS IS SUBSIDIARY TO ITEM 502.

(13) COORDINATE WITH TXDOT FOR SIGNAL TIMING REVISIONS, AS NECESSARY.

(14) CONTRACTOR IS NOT PERMITTED TO WORK IN AREAS WITH ONGOING UTILITY RELOCATION OR ROW ACQUISITION.

(15) ALL TRAFFIC SIGNAL MODIFICATIONS TO BE PAID IN ONE PAYMENT

2. SEQUENCE OF WORK

(1) THE PROJECT WILL BE CONSTRUCTED IN (4) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL ADVANCE WARNING SIGNS, TEMPORARY SIGNS AND BARRICADES AS SHOWN ON THE PLANS AND/OR AS DIRECTED/APPROVED BY THE ENGINEER. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS. DROP OFF CONDITIONS OF GREATER THAN 2" MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY, AS WELL AS THROUGHOUT THE PROJECT WHERE ACCESS TO ADJACENT PROPERTIES IS ALLOWED TO DRIVEWAYS AND SIDE STREETS.

(2) PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURING, AS PER THE PHASES NOTED BELOW.

(3) PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC. BEGIN SURFACE CONSTRUCTION ON HIGH SIDE OF ROAD TO AVOID WATER PONDING ISSUES.

(4) A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1

1. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
2. PLACE ADVANCE WARNING SIGNS FOR BEGINNING AND END OF CSJ LIMITS UTILIZING TxDOT BC-21 ONE TIME TO REMAIN FOR ALL PHASES OF CONSTRUCTION.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
5. BEGIN PHASE 1 LONG TERM CONSTRUCTION AS SHOWN IN THE PLANS.
6. CONSTRUCT ROADWAY WIDENING ON OUTSIDE SHOULDER OF WESTBOUND US 90.
7. CONSTRUCT ALSATIAN OAKS PKWY CONNECTION WITHIN ROW ON WESTBOUND US 90 NORTH OF FM 471.
8. INSTALL TEMPORARY BARRICADES ON ALSATIAN OAKS PKWY AS SHOWN IN PLANS TO RESTRICT TRAFFIC AS RIGHT-IN / RIGHT-OUT ONLY. BARRICADES TO REMAIN UNTIL PHASE 3 CONSTRUCTION IS COMPLETED.
9. INSTALL TEMPORARY TRAFFIC SIGNAL POLE NORTH OF US 90 AND CONNECT EXISTING SPAN AS SHOWN IN PLANS.
10. UTILIZE TCP (5-1b) FOR SHORT TERM CONSTRUCTION.
11. BEGIN PHASE 1 SHORT TERM CONSTRUCTION AS SHOWN IN THE PLANS.
12. REMOVE SIGNAL POLE AND GROUND BOX ON THE NORTHEAST CORNER OF US 90 AT TONDRE PKWY INTERSECTION. CONDUCTORS IN GROUND BOX MAY BE ACTIVE IN WHICH CASE REROUTING WOULD BE NECESSARY.
13. CONSTRUCT ROADWAY WIDENING ON US 90 WESTBOUND RIGHT-TURN LANE AT TONDRE PKWY.
14. INSTALL TEMPORARY PAVEMENT AS SHOWN IN THE PLANS ON THE OUTSIDE SHOULDER OF WESTBOUND US 90.
15. LINES 8 & 9 SHALL BE COMPLETED DURING NON WORKING HOURS FROM 9PM TO 6AM.
16. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 2 STEP 1

1. INSTALL TEMPORARY PAVEMENT MARKINGS ON WESTBOUND US 90 BETWEEN ALSATIAN OAKS PKWY AND TONDRE PKWY.
2. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
5. BEGIN PHASE 2 STEP 1 LONG TERM CONSTRUCTION AS SHOWN IN THE PLANS.
6. INSTALL TEMPORARY SIGNAL FOR TONDRE PKWY AND US 90 AS SHOWN IN PLANS.
7. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT ON THE SOUTH SIDE OF FM 471 AND US 90.
8. CONSTRUCT ROADWAY WIDENING EAST OF FM 471 AND SOUTH OF EASTBOUND US 90.
9. POSITION BARRICADES TO ALLOW ACCESS TO PRIVATE DRIVEWAYS ON EASTBOUND US 90.
10. ANY WORK TO DRIVEWAYS SHALL BE COORDINATED WITH OWNERS.
11. REMOVE AND REPLACE TRAFFIC CONTROL DEVICES USING TCP(2-1b) AND TCP(5-1b) AS NOTED.
12. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
13. UTILIZE TCP (5-1b) AND TCP (1-4) TO BEGIN PHASE 2 STEP 1 CONSTRUCTION
14. CONSTRUCT ROADWAY WIDENING ON OUTSIDE SHOULDER OF EASTBOUND US 90.
15. CONSTRUCT FM 471 WIDENING BETWEEN EXISTING EOP AND NEW EOP FROM LINE 5.
16. SHORT TERM WORK SHALL BE COMPLETED DURING 9AM TO 3PM AND 9PM TO 6AM. FM 471 SHALL BE FULLY OPEN DURING PEAK HOURS.
17. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 2 STEP 2

1. INSTALL TEMPORARY PAVEMENT MARKINGS ON FM 471.
2. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
5. BEGIN PHASE 2 STEP 2 CONSTRUCTION AS SHOWN IN THE PLANS.
6. INSTALL PROPOSED PARK AND RIDE PAVEMENT MARKINGS BEFORE BEGINNING RESURFACING AND RESTRIPING IN PHASE 2 STEP 3 CONSTRUCTION.
7. WORK SHALL BE COMPLETED DURING NON WORKING HOURS FROM 9PM TO 6AM. THE PARK AND RIDE SHALL BE CLOSED TO TRAFFIC DURING WORK HOURS, AND OPEN DURING PEAK HOURS.
8. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 2 STEP 3

1. INSTALL TEMPORARY PAVEMENT MARKINGS ON EASTBOUND US 90, EAST OF FM 471.
2. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
5. BEGIN PHASE 2 STEP 3 CONSTRUCTION AS SHOWN IN THE PLANS.
6. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT FOR THE EB TO WB TURNAROUND TRAFFIC SIGNAL.
7. CONSTRUCT ROADWAY WIDENING WITHIN THE MEDIAN OF EASTBOUND US 90.
8. INSTALL TRAFFIC SIGNAL AT US 90 TURNAROUND PER SIGNAL LAYOUT SHEETS.
9. INSTALL PROPOSED U-TURN PAVEMENT MARKINGS BEFORE BEGINNING PHASE 2 STEP 4 CONSTRUCTION.
10. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 2 STEP 4

1. MODIFY TEMPORARY PAVEMENT MARKINGS ON EASTBOUND AND WESTBOUND US 90 AS SHOWN ON PLANS, INSTALL TEMPORARY PAVEMENT MARKINGS FOR TURNAROUND, AND ADD U-TURN ONLY LANE AT TONDRE PKWY.
2. A TEMPORARY SIGNAL HEAD TO BE ADDED FOR THE WESTBOUND APPROACH AT TONDRE PKWY FOR THE U-TURN ONLY LANE. THIS ALLOWS WESTBOUND TRAFFIC ACCESS TO SOUTHBOUND FM 471.
3. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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TCP NARRATIVE

SHEET 1 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		39

274

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Plotted on: 4/9/2024

4. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
5. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
6. BEGIN PHASE 2 STEP 4 CONSTRUCTION AS SHOWN IN THE PLANS.
7. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT ON THE EAST SIDE OF FM 471 AND US 90.
8. CONSTRUCT ROADWAY WIDENING WITHIN THE MEDIAN OF US 90.
9. INSTALL TEMPORARY PAVEMENT MARKINGS ON EASTBOUND US 90 AT ALSATIAN OAKS PKWY TO REMOVE EASTBOUND LEFT-TURN LANE INCLUDING THE REMOVAL OF THE LEFT TURN ARROW AND THE WORD "ONLY" PAVEMENT MARKINGS.
10. INSTALL PROPOSED TRAFFIC SIGNAL AT US 90 AND FM 471 PER SIGNAL LAYOUT SHEETS.
11. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 3

1. INSTALL TEMPORARY PAVEMENT MARKINGS FOR TURNAROUND ON US 90 AT ALSATIAN OAKS PKWY.
2. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
3. REMOVE AND REPLACE TRAFFIC CONTROL DEVICES USING TCP(5-1b).
4. BEGIN PHASE 3 CONSTRUCTION AS SHOWN IN THE PLANS.
5. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT ON THE WEST SIDE OF FM 471 AND US 90.
6. CONSTRUCT ROADWAY WIDENING WITHIN THE MEDIAN OF US 90.
7. CONSTRUCT ROADWAY WIDENING ON FM 471.
8. WORK SHALL BE COMPLETED DURING NON-WORKING HOURS FROM 9PM TO 6AM. FM 471 SHALL BE FULLY OPEN DURING PEAK HOURS.
9. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 4 STEP 1

1. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
2. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
3. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
4. BEGIN PHASE 4 STEP 1 CONSTRUCTION AS SHOWN IN THE PLANS.
5. INSTALL TEMPORARY PAVEMENT MARKINGS ON ALSATIAN OAKS PKWY WITHIN ROW AND REMAINING CROSS WALKS AND CAT TRACKS AT INTERSECTION.
6. REMOVE/INSTALL TEMPORARY PAVEMENT MARKINGS ON FM 471.
7. REMOVE ALL EXISTING AND TEMPORARY SIGNAL EQUPITMENT AT FM 471 AND US 90 AND USE AN OFF-DUTY POLICE OFFICER TO GUIDE TRAFFIC DURING NON-WORKING HOURS TC SWITCH OVER OPERATIONS TO PROPOSED SIGNAL EQUIPTMENT.
8. REMOVE ALSATIAN OAKS PKWY BARRICADES TO ALLOW FULL ALSATIAN OAKS PKWYT INTERSECTION.
9. REMOVE OLD EASTBOUND RIGHT-TURN LANE AT FM 471 AS NOTED IN PLANS.
10. CONSTRUCT ROADWAY WIDENING WITHIN THE MEDIAN OF US 90 AT TONDRE PKWY.
11. REMOVE AND REPLACE TRAFFIC CONTROL DEVICES USING TCP(1-1b) AND TCP(1-4a).
12. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT AT COUNTRY LN AND US 90.
13. MODIFY TRAFFIC SIGNAL ON US 90 AT COUNTRY LANE PER SIGNAL LAYOUT SHEETS.
14. USE AN OFF-DUTY POLICE OFFICER TO GUIDE TRAFFIC DURING NON-WORKING HOURS TO SWITCH OVER OPERATIONS TO PROPOSED SIGNAL EQUIPTMENT AT COUNTRY LANE AND US 90.
15. CONSTRUCT ROADWAY WIDENING ON OUTSIDE SHOULDER OF EASTBOUND US 90.
16. POSITION BARRICADES TO ALLOW ACCESS TO PRIVATE DRIVEWAYS ON EASTBOUND US 90.
17. ANY WORK TO DRIVEWAYS SHALL BE COMPLETED DURING NON-WORKING HOURS FROM 9PM TO 6AM.
18. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 4 STEP 2

1. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
2. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
3. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS.
4. BEGIN PHASE 4 STEP 2 CONSTRUCTION AS SHOWN IN THE PLANS.
5. CONSTRUCT RAISED MEDIAN ON US 90 EAST OF COUNTRY LANE. WORK SHALL BE COMPLETED DURING NON-WORKING HOURS FROM 9PM TO 6AM.
6. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 4 STEP 3

1. INSTALL TEMPORARY PAVEMENT MARKINGS ON WESTBOUND US 90 BETWEEN TONDRE AND COUNTRY LANE AS SHOWN IN PLANS.
2. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES USING TCP(5-1b).
5. BEGIN PHASE 4 STEP 3 SHORT TERM CONSTRUCTION AS SHOWN IN THE PLANS.
6. INSTALL PROPOSED SIGNAL POLE AND RELATED EQUIPTMENT ALONG THE SHOULDERS OF US 90 AT TONDRE PKWY.
7. CONSTRUCT ROADWAY WIDENING ON THE OUTSIDE SHOULDER OF WESTBOUND US 90.
8. CONSTRUCT MEDIAN AT WALMART DRIVEWAY AFTER THE COMPLETETION OF THE ROADWAY WIDENING.
9. WORK SHALL BE COMPLETED DURING NON-WORKING HOURS FROM 9PM TO 6AM. WALMART DRIVEWAY SHALL BE FULLY OPEN DURING PEAK HOURS.
10. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

PHASE 4 STEP 4

1. INSTALL TEMPORARY PAVEMENT MARKINGS ON WESTBOUND US 90 BETWEEN ALSATIAN OAKS PKWY AND WALMART DRIVEWAY AS SHOWN IN PLANS.
2. PLACE ADVANCE WARNING SIGNS ALONG THE PROJECT PER TXDOT BC, TCP, AND WZ STANDARD SHEETS.
3. INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE SW3P LAYOUTS.
4. PLACE TRAFFIC CONTROL DEVICES AND BARRICADES IN ACCORDANCE TO PLANS AND TCP(5-1b).
5. BARRICADE TONDRE INTERSECTION's CENTER MEDIAN AND INSTALL SIGNAL POLE FOUNDATIONS AND CONCRETE MEDIAN.
6. BARRICADE TONDRE INTERSECTION's WEST MEDIAN AND INSTALL AT A LATER STEP.
7. INSTALL ALL REMAINING PROPOSED SIGNAL POLES AND RELATED EQIPTMENT FOR US 90 AND TONDRE PKWY.
8. REMOVE ALL EXISTING AND TEMPORARY SIGNAL EQUPITMENT AND USE AN OFF-DUTY POLICE OFFICER TO GUIDE TRAFFIC DURING NON-WORKING HOURS TO SWITCH OVER OPERATIONS TO PROPOSED SIGNAL EQUIPTMENT AFTER THE INSTALLATION OF THE CENTER MEDIAN AND BEFORE ROADWAY WIDENING OR INSTALLATION OF WEST MEDIAN.
9. CONSTRUCT ROADWAY WIDENING ON THE OUTSIDE SHOULDER OF WESTBOUND US 90.
10. CONSTRUCT PREVIOUSLY BARRICADED WEST CONCRETE MEDIAN
11. A MINIMUM 3:1 (H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL WILL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES.

3. FINAL OVERLAY, SIGNING, AND PAVEMENT MARKING

(1) UTILIZE TCP STANDARDS TO CLOSE EXISTING SINGLE LANES OF TRAFFIC AND COMPLETE MISCELLANEOUS CONSTRUCTION.
(2) MILL SACRIFICIAL LAYERS AND OVERLAY FINAL SURFACE OF MAIN LANES AND UNALTERED TURN LANES WITHIN PROJECT LIMITS USING TCP STANDARDS.
(3) REMAINING EXISTING AND TEMPORARY PAVEMENT MARKINGS SHALL BE ELIMINATED DURING MILL AND OVERLAY.
(4) PLACE FINAL PAVEMENT MARKINGS AND SIGNING IN ACCORDANCE WITH PLANS AND OPEN TO TRAFFIC.
(5) OVERLAY AND PAVEMENT MARKING WORK ON FM 471 SHALL BE COMPLETED BETWEEN THE HOURS OF 9 PM AND 6 AM.

4. SAFETY

(1) THE CONTRACTOR WILL PROVIDE, CONSTRUCT AND MAINTAIN BARRICADES AND SIGNS IN ACCORDANCE WITH STATE STANDARDS. ANY SIGNS REQUIRED THAT ARE NOT DETAILED IN THE STANDARD SHEETS SHALL BE IN CONFORMANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND THE "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS."

(2) BARRICADES AND WARNING SIGNS SHALL BE PLACED AS INDICATED ON THE PLANS. THIS SHALL BE CONSIDERED THE MINIMUM REQUIRED TO PROVIDE FOR THE SAFETY OF TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN OTHER SUCH BARRICADES AND SIGNS DEEMED NECESSARY BY THE ENGINEER OR AS DIRECTED BY FIELD CONDITIONS, TO PROVIDE FOR THE PASSAGE OF TRAFFIC IN SAFETY AT ALL TIMES.

(3) THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FLAGGERS AS DIRECTED/APPROVED BY THE ENGINEER, AT SUCH POINTS, AND FOR SUCH PERIODS OF TIME AS MAY BE REQUIRED, TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC AND THE CONTRACTOR'S PERSONNEL.

(4) THE CONTRACTOR SHALL KEEP THE ROADWAY CLEAN AND FREE OF DIRT OR OTHER MATERIALS DURING HAULING OPERATIONS. IF THE CONTRACTOR DOES NOT MAINTAIN A CLEAN ROADWAY, THEY SHALL CEASE ALL CONSTRUCTION OPERATIONS, WHEN DIRECTED BY THE ENGINEER, TO CLEAN THE ROADWAY TO THE SATISFACTION OF THE ENGINEER.

5. HAULING EQUIPMENT

(1) THE USE OF RUBBER-TIRED EQUIPMENT WILL BE REQUIRED FOR MOVING DIRT OR OTHER MATERIALS ALONG OR ACROSS PAVEMENTED SURFACES. WHERE THE CONTRACTOR DESIRES TO MOVE ANY EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS, ON OR ACROSS PAVEMENT. THEY SHALL PROTECT THE PAVEMENT FROM DAMAGE AS DIRECTED / APPROVED BY THE ENGINEER.

(2) THROUGHOUT CONSTRUCTION OPERATIONS, THE CONTRACTOR WILL BE REQUIRED TO CONDUCT THEIR HAULING OPERATIONS IN A MANNER SUCH THAT VEHICLES WILL NOT HAUL OVER PREVIOUSLY RECOMPACTED SUBGRADE OR COMPACTED BASE MATERIAL, EXCEPT IN SHORT SECTIONS FOR DUMPING MANIPULATIONS.

6. FINAL CLEAN UP

UPON COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE AND FINAL PAYMENT IS MADE, THE CONTRACTOR SHALL CLEAR AND REMOVE FROM THE SITE ALL SURPLUS AND DISCARDED MATERIALS AND DEBRIS OF EVERY KIND AND LEAVE THE ENTIRE PROJECT IN A SMOOTH, NEAT AND SIGHTLY CONDITION.

6. PAYMENT

ALL BARRICADES, SIGNS, AND FLAGGERS SHALL BE SUBSIDIARY TO ITEM 502 BARRICADES, SIGNS AND TRAFFIC HANDLING. ALL EROSION AND SEDIMENT CONTROL DEVICES WILL BE PAID FOR UNDER ITEM 506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS. ALL WORK ZONE PAVEMENT MARKINGS WILL BE PAID FOR UNDER ITEM 662 WORK ZONE PAVEMENT MARKINGS. ALL OTHER WORK AND MATERIALS SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS UNLESS OTHERWISE INDICATED IN THE PLANS.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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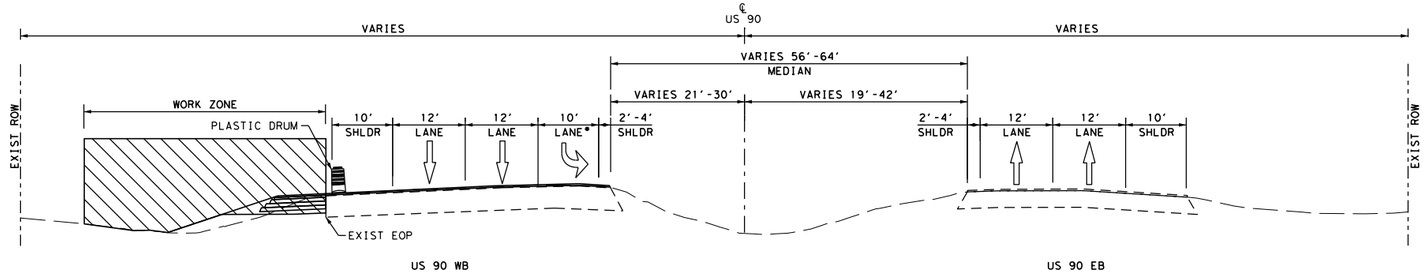
TCP NARRATIVE

SHEET 2 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

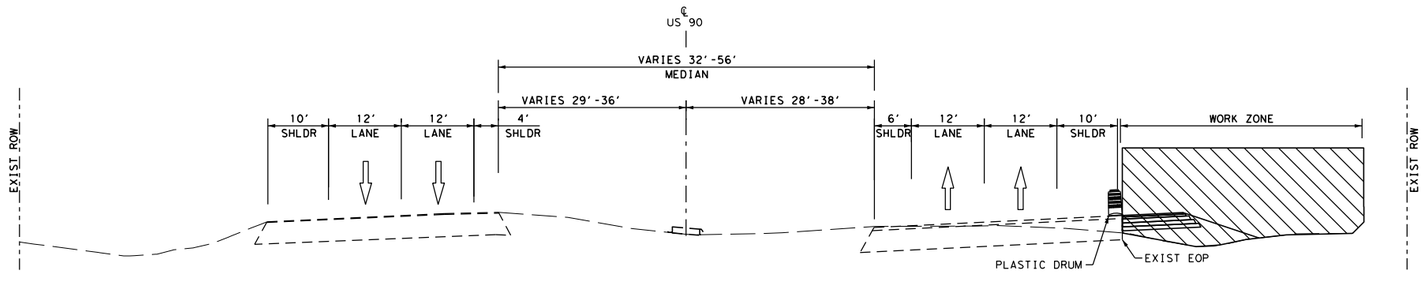
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Plotted on: 2/23/2024



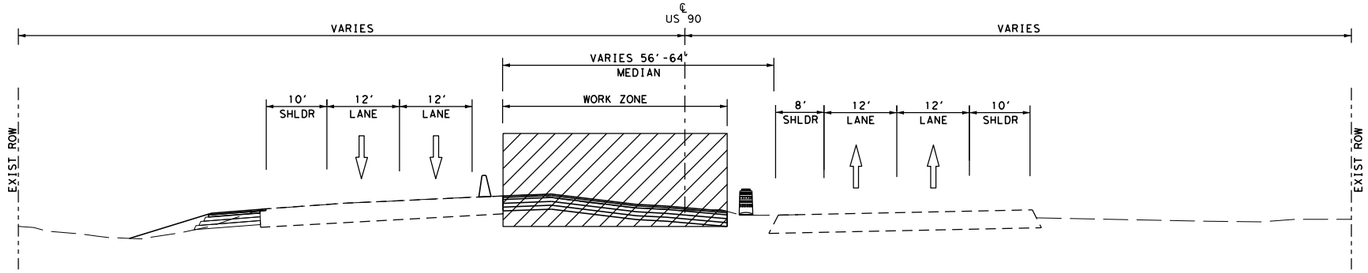
TCP TYPICAL SECTION (PHASE 1)

STA 33+50 TO STA 44+00
N.T.S.
•STA 39+00 TO STA 44+00



TCP TYPICAL SECTION (PHASE 2)(STEP 1)

STA 41+00 TO STA 56+00
N.T.S.



TCP TYPICAL SECTION (PHASE 2)(STEP 2)

STA 43+50 TO STA 49+80
N.T.S.

DESIGN

STATE OF TEXAS
RAYMOND. D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

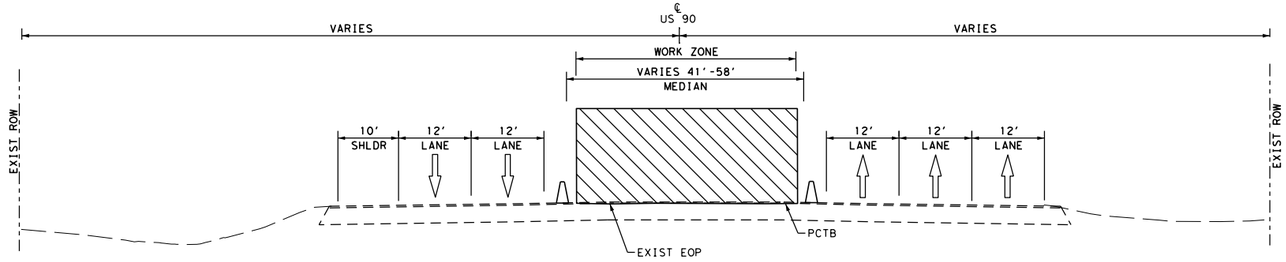
TCP TYPICAL SECTION

SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

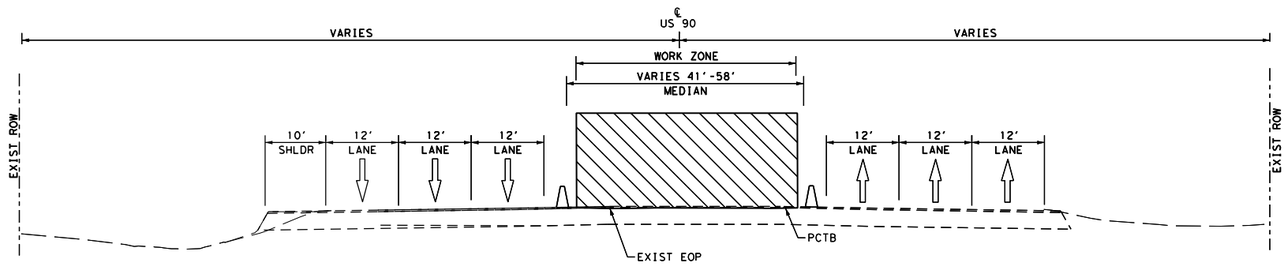
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Plotted on: 2/23/2024



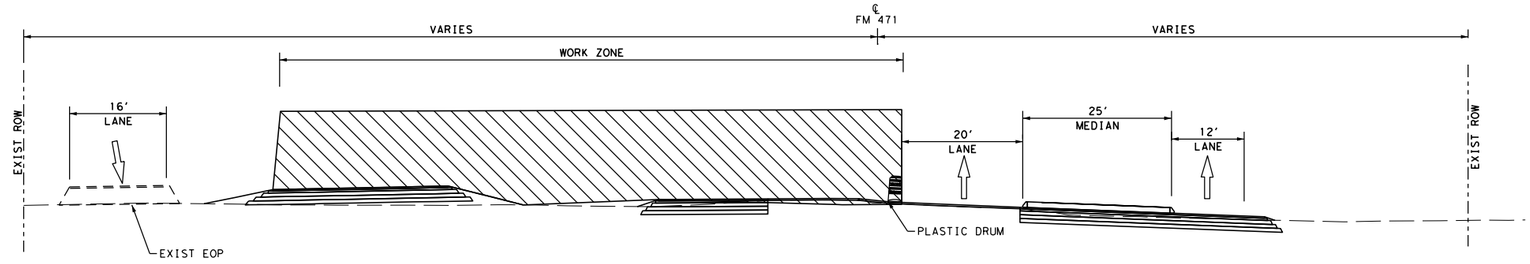
TCP TYPICAL SECTION (PHASE 2 STEP 3)

STA 50+25 TO STA 53+00
N.T.S.



TCP TYPICAL SECTION (PHASE 2 STEP 4)

STA 39+00 TO STA 43+50
N.T.S.



TCP TYPICAL SECTION (PHASE 3) (FM 471)

STA 32+75 TO STA 35+50
N.T.S.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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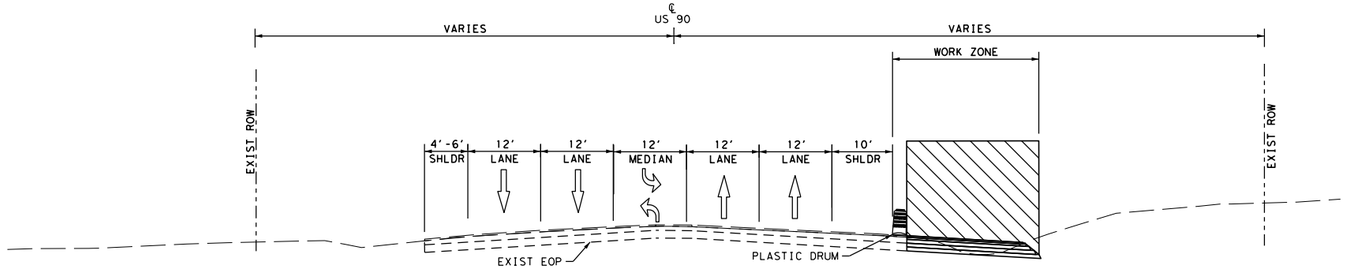
US 90 AT ALSATIAN OAKS

TCP TYPICAL SECTION

SHEET 2 OF 3

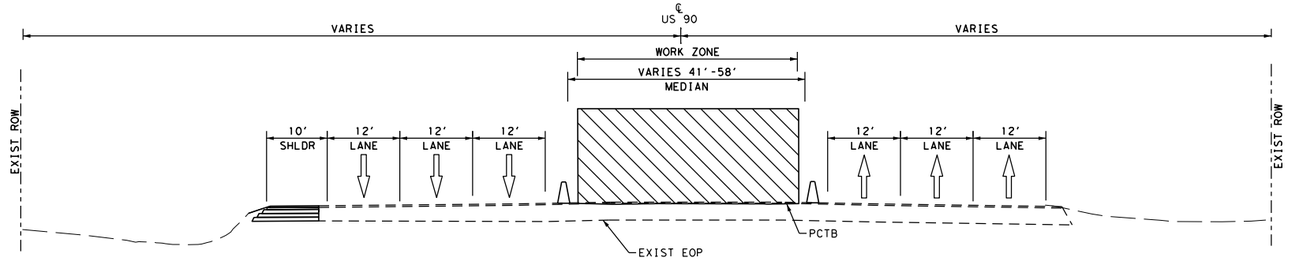
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CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		36

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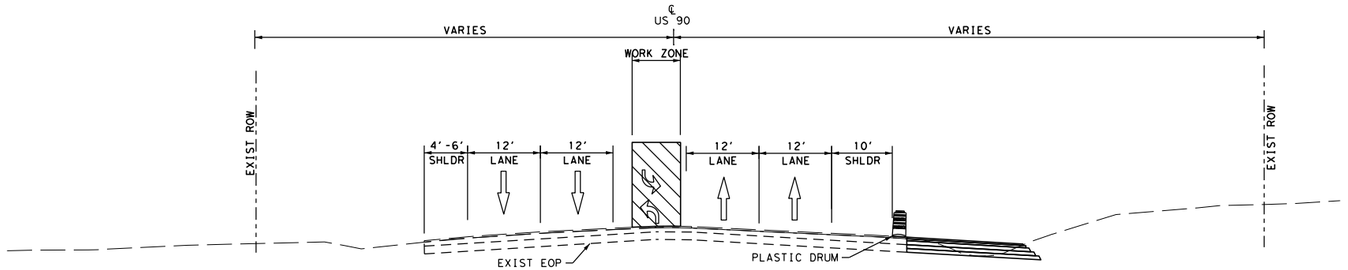
TCP TYPICAL SECTION (PHASE 4 STEP 1)

STA 16+00 TO STA 30+00
N.T.S.



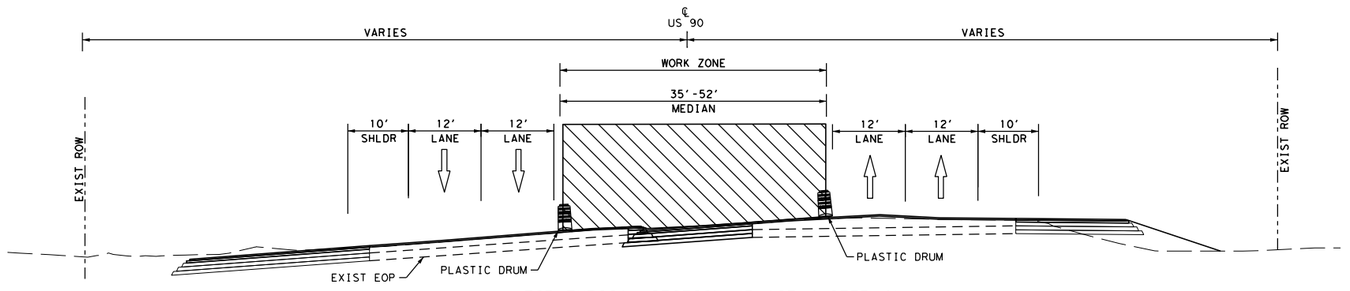
TCP TYPICAL SECTION (PHASE 4 STEP 1)

STA 30+50 TO STA 35+00
N.T.S.



TCP TYPICAL SECTION (PHASE 4 STEP 2)

STA 17+00 TO STA 20+30
N.T.S.
PHASE 4 STEP 3 NOT SHOWN, WORK TO BE DONE IS NOT
CLEARLY REPRESENTED IN THE ROADWAY CROSS SECTIONS



TCP TYPICAL SECTION (PHASE 4 STEP 4)

STA 29+50 TO STA 30+50
N.T.S.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 5/1/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 5/1/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

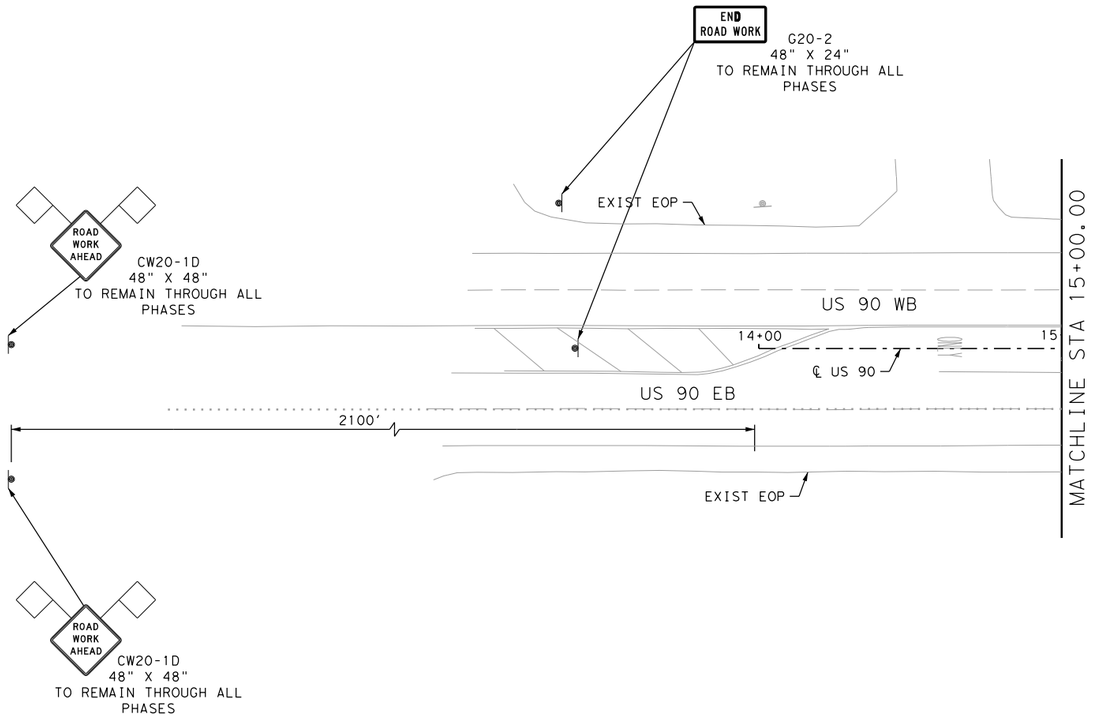
TCP TYPICAL SECTION

SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		ST

Plotted on: 5/1/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\1273603_TCP_TYP_03.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation
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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 1

STA 00+00 TO STA 25+00

SHEET 1 OF 5

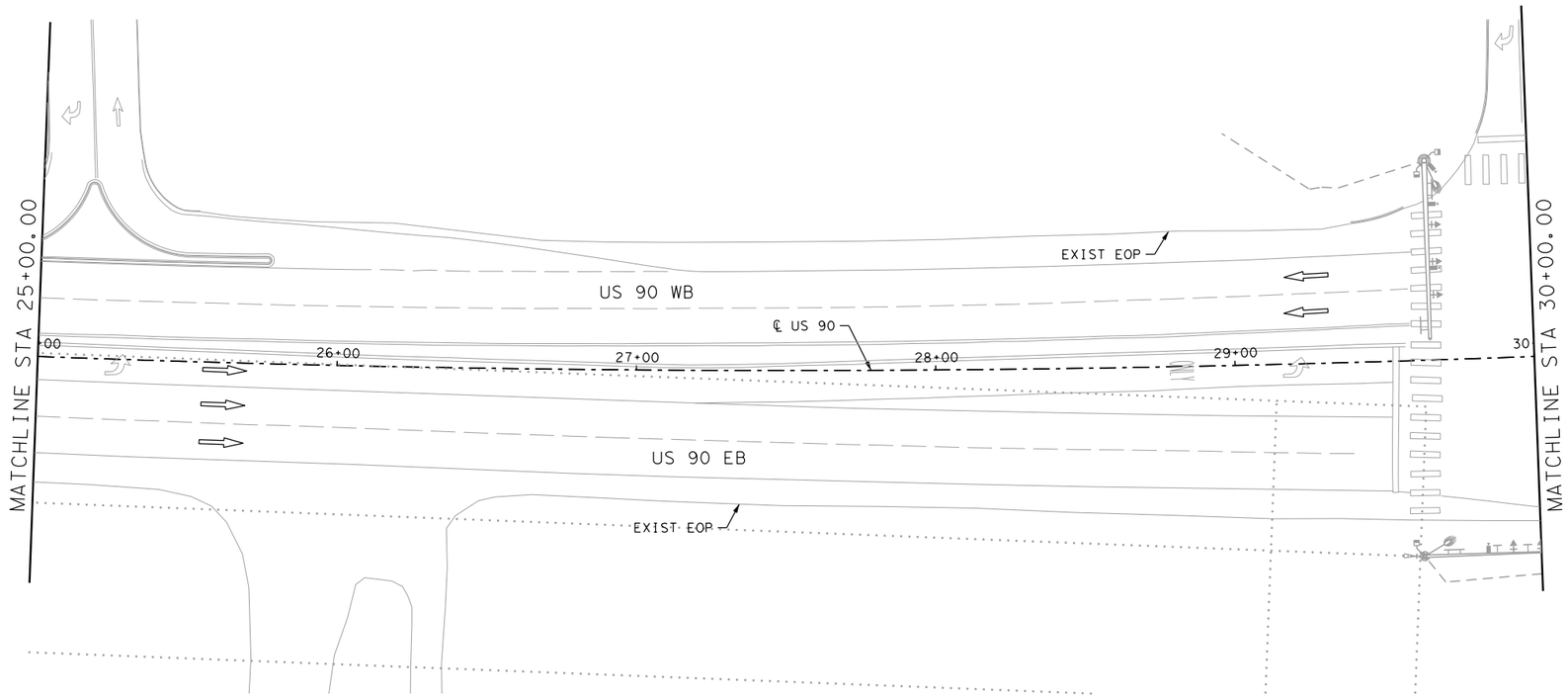
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CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

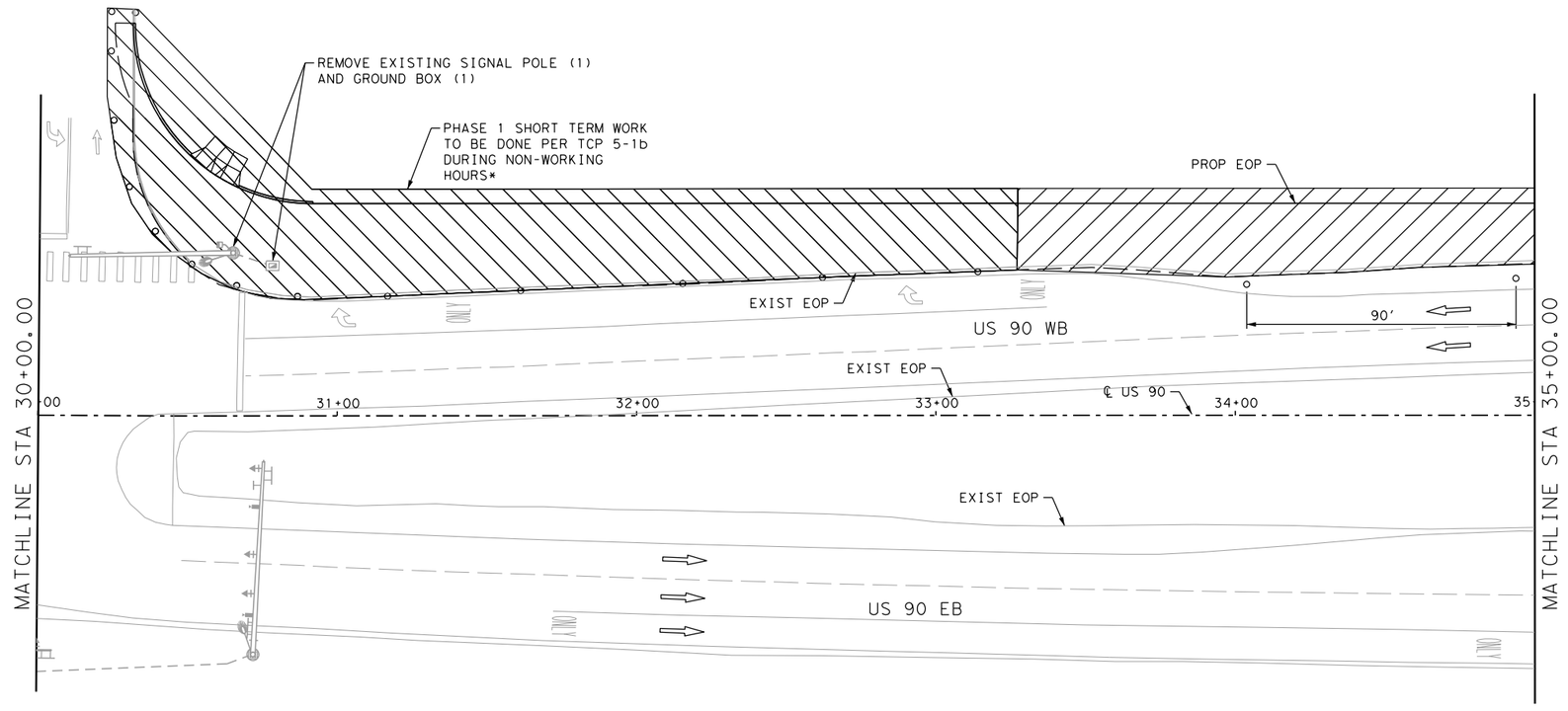
Plotted on: 4/9/2024

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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 1\1273603_PH1S1_01.dgn





N

N

LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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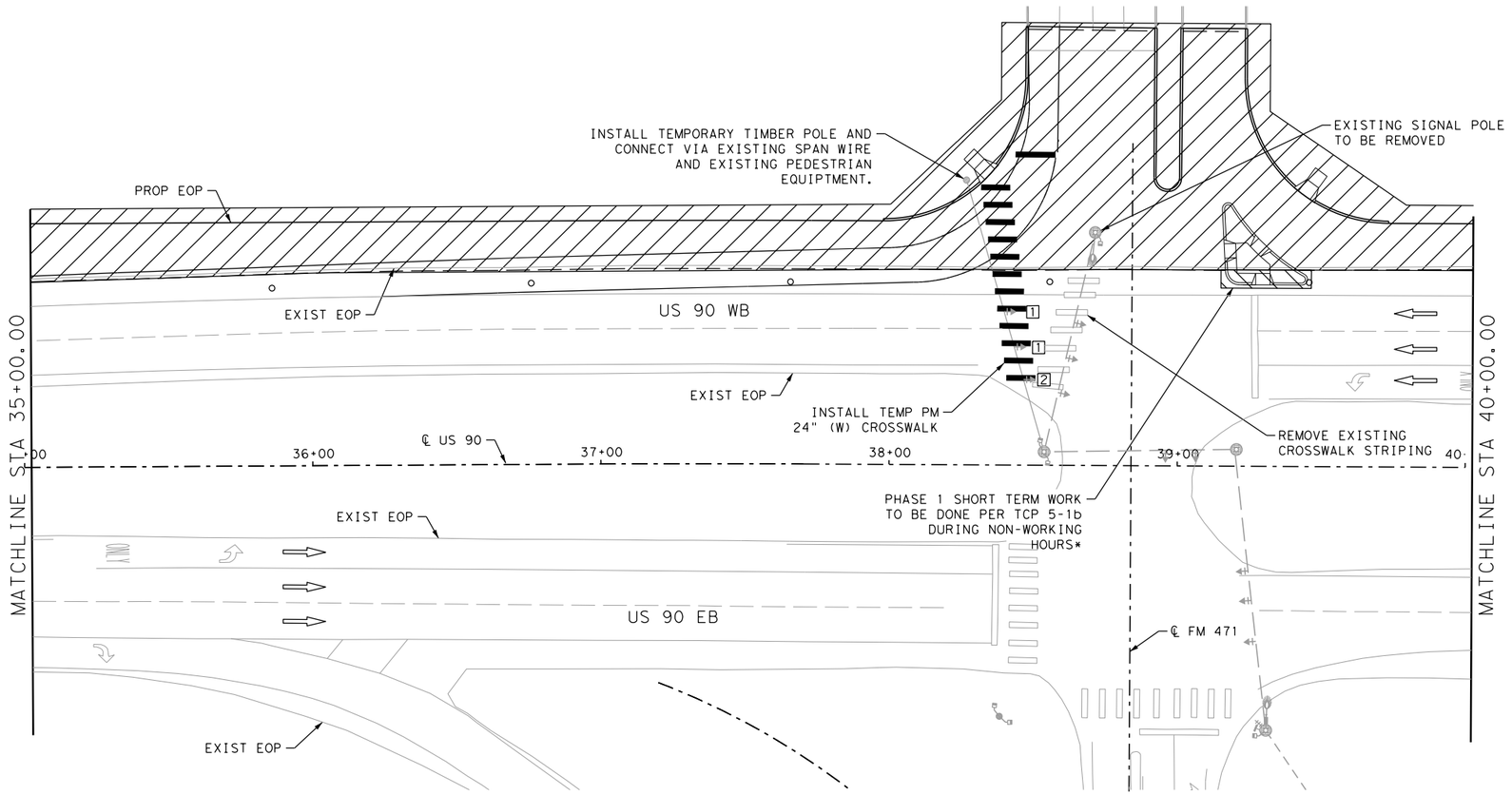
US 90 AT ALSATIAN OAKS

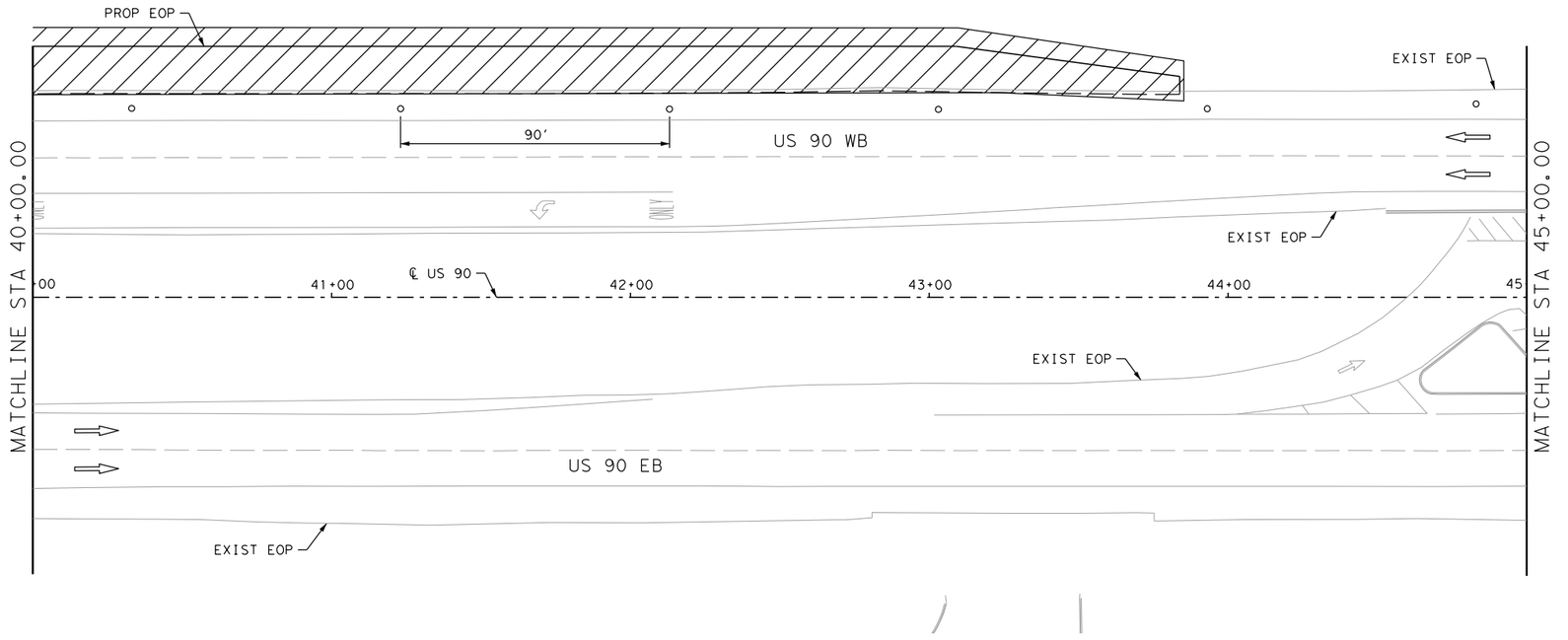
TRAFFIC CONTROL PLAN PHASE 1

STA 25+00 TO STA 35+00

SHEET 2 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		





EXISTING SIGNAL HEADS		
	12" LED SIGNAL SECTIONS	12" LED SIGNAL SECTIONS
SIGNAL FACES	R Y G	← ↑ →
KEY	1	2
QTY	2	1

LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1" = 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 1

STA 35+00 TO STA 45+00

SHEET 3 OF 5

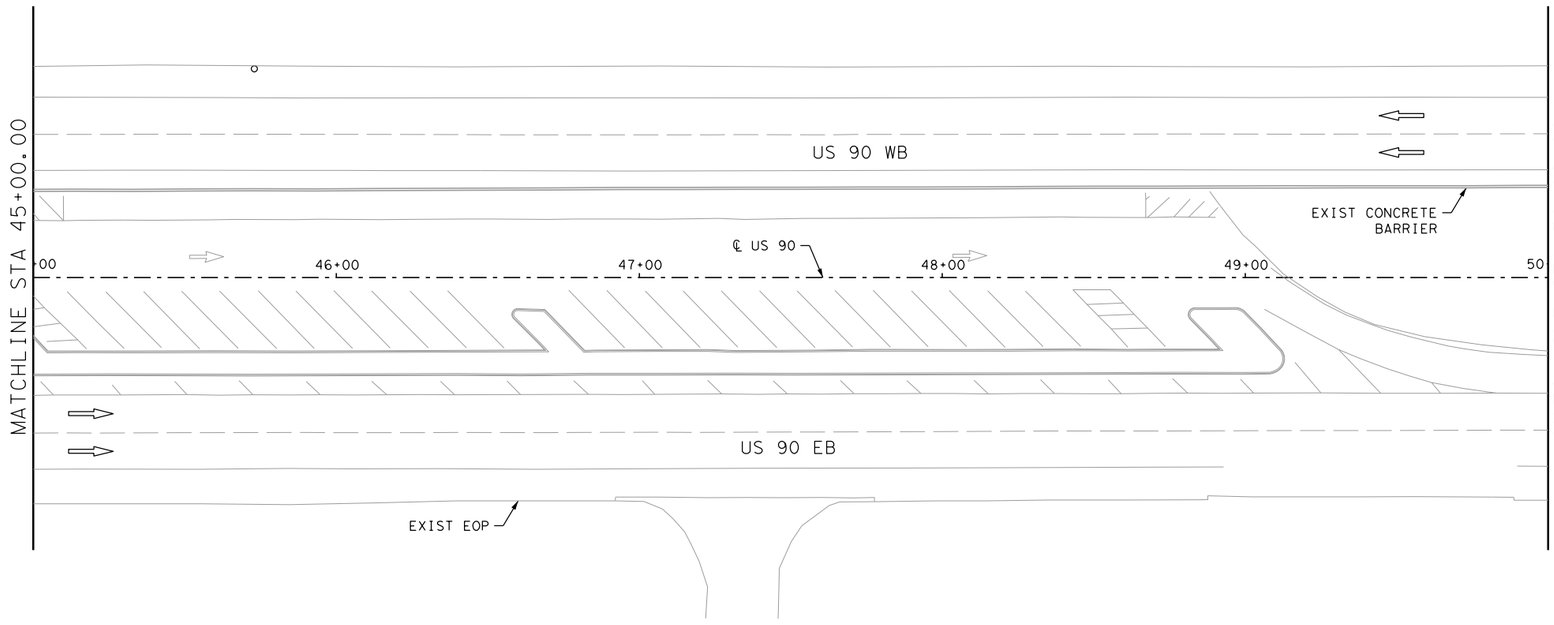
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

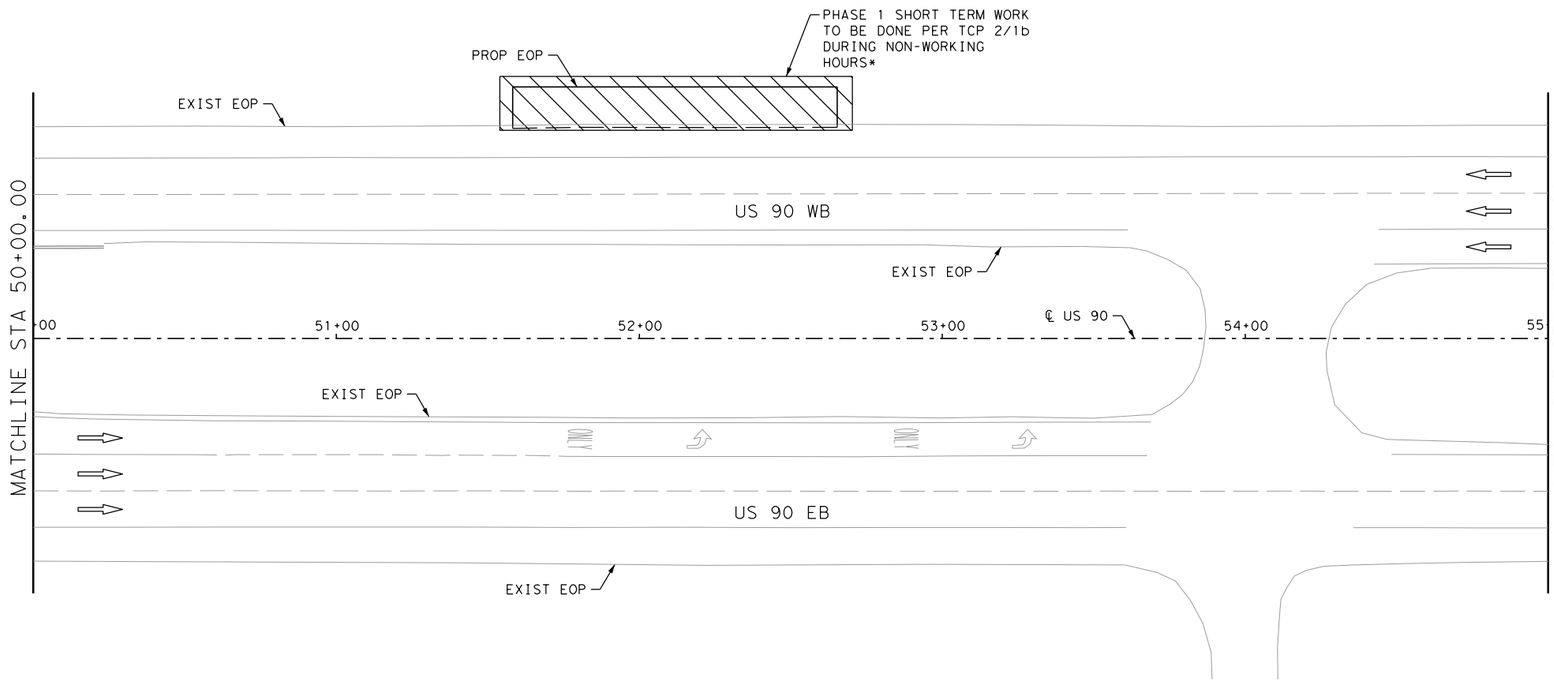
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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 1\1273603_PH1S1_03.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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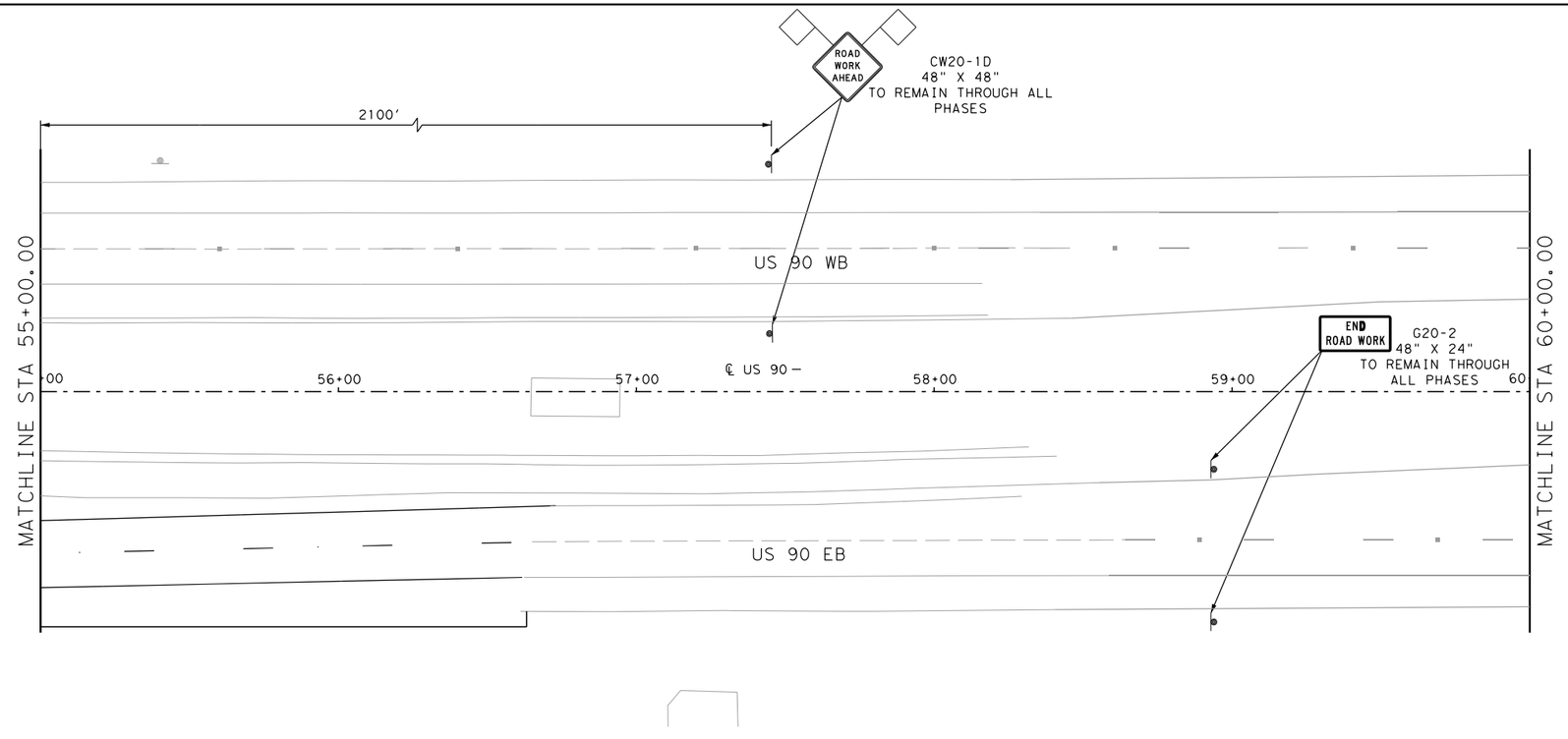
US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 1

STA 45+00 TO STA 55+00

SHEET 4 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 1

STA 55+00 TO STA 60+00

SHEET 5 OF 5

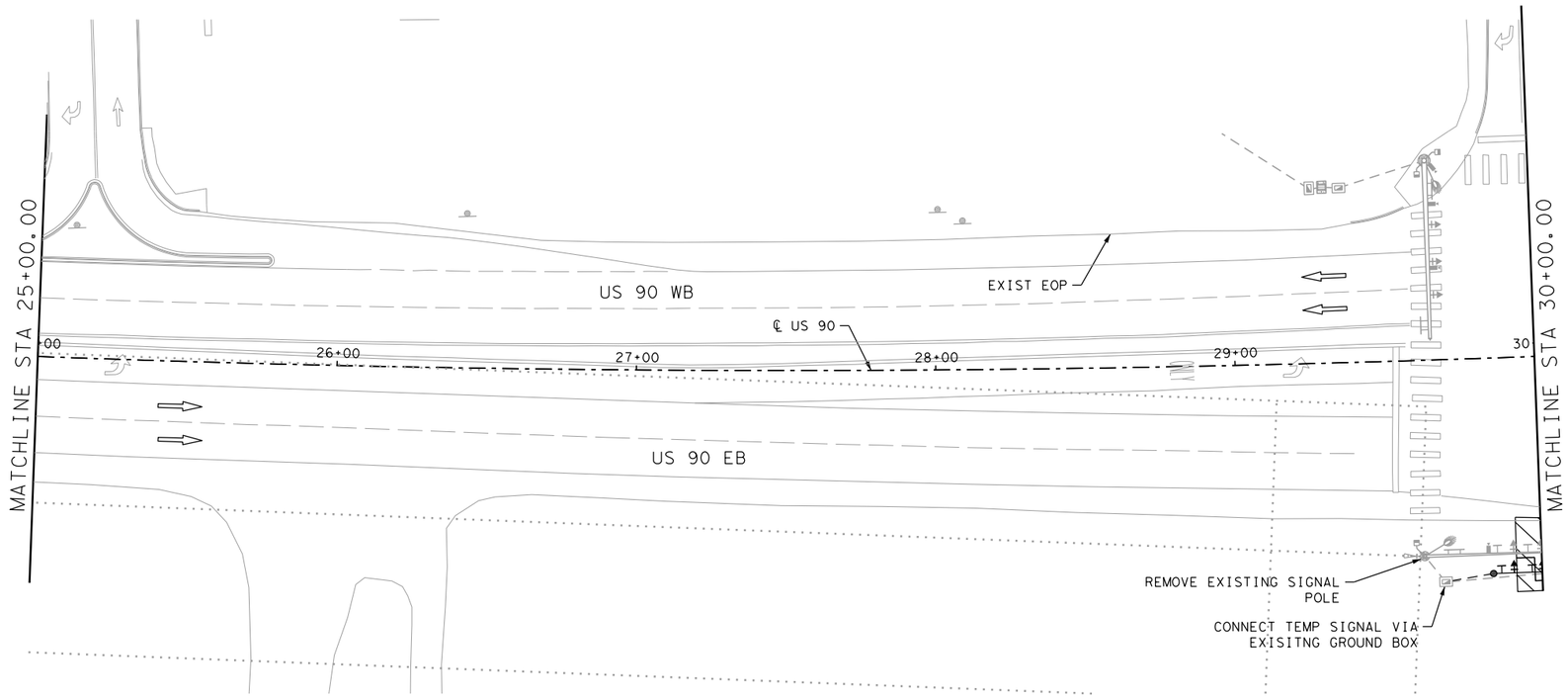
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

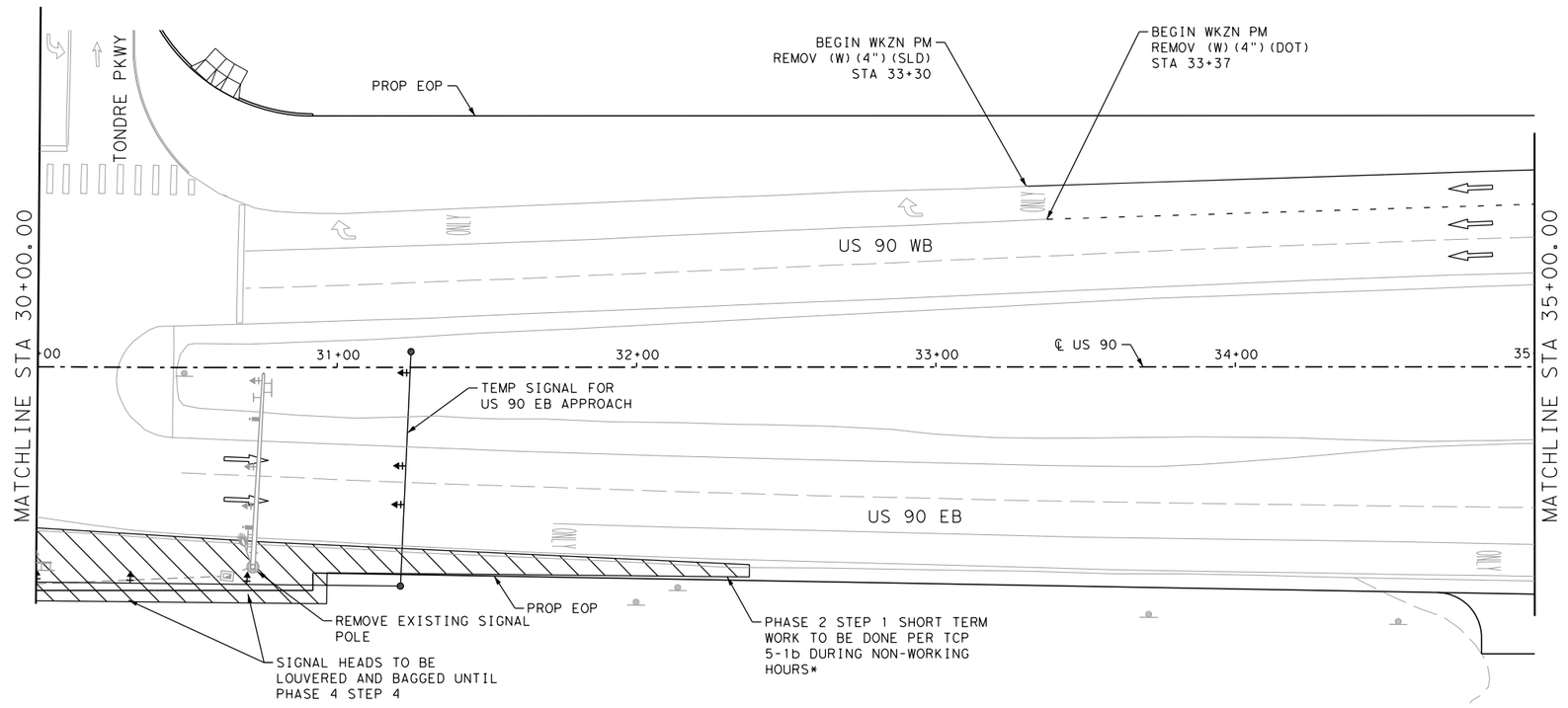
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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S1_01.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

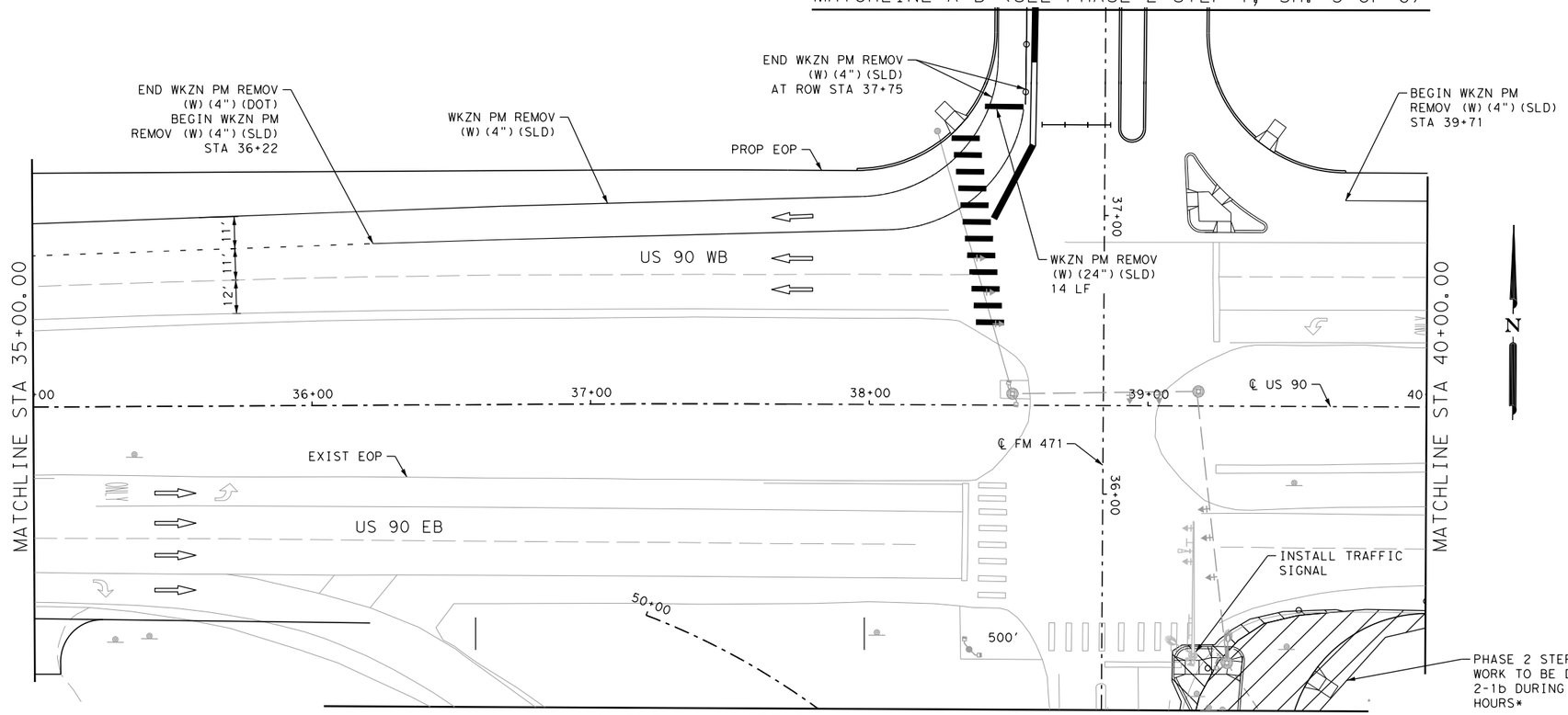
STA 25+00 TO STA 35+00

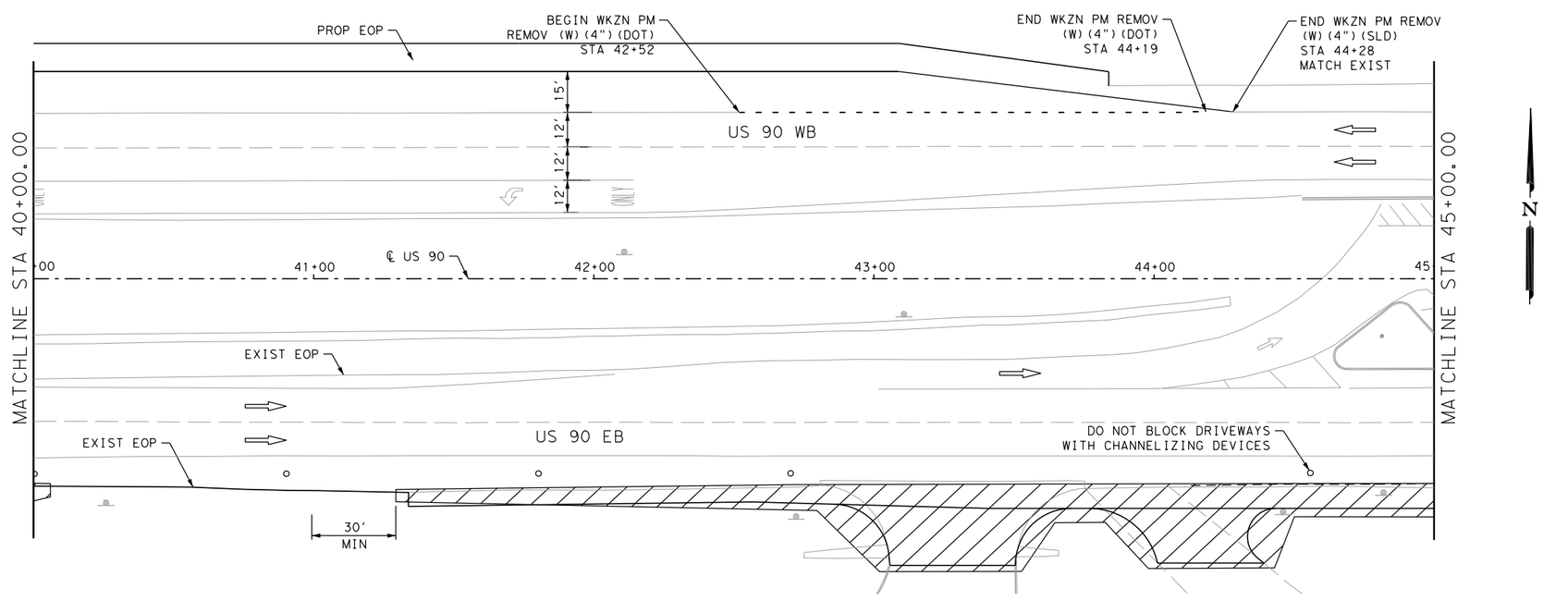
SHEET 1 OF 6

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/30/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S1_02.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/30/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/30/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

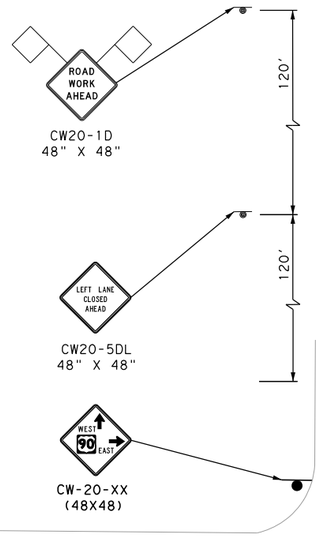
STA 35+00 TO STA 45+00

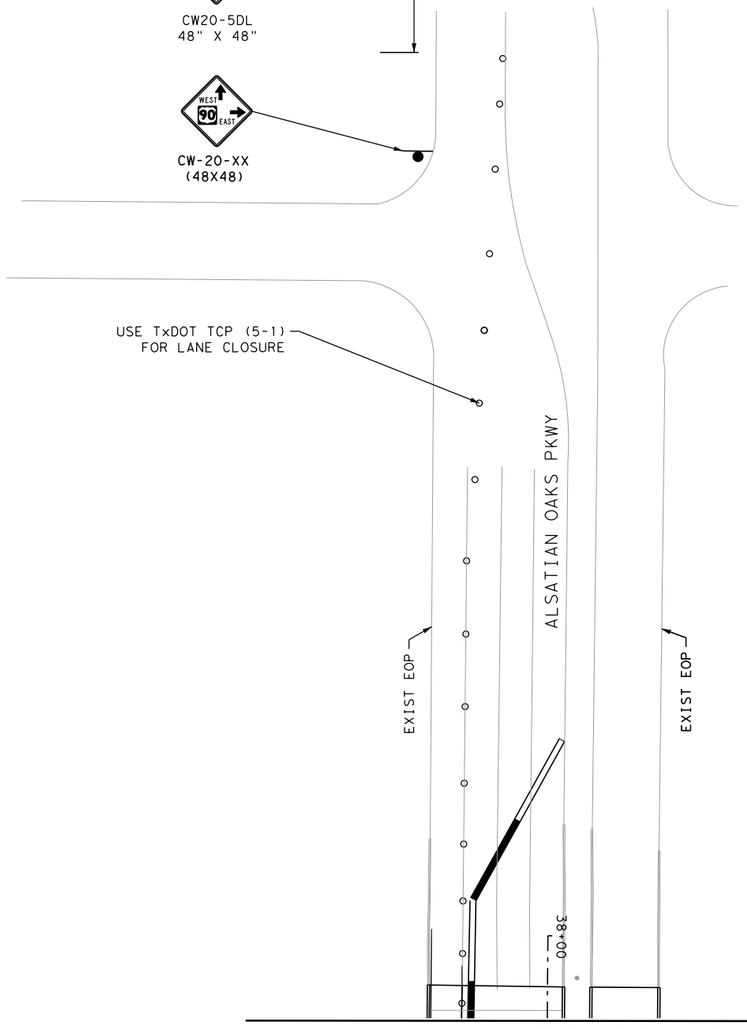
SHEET 2 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

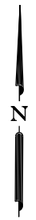
Plotted on: 4/30/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S1_02.1.dgn





MATCHLINE A-B (SEE PHASE 2 STEP 1, SH. 3 OF 6)



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/30/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/30/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

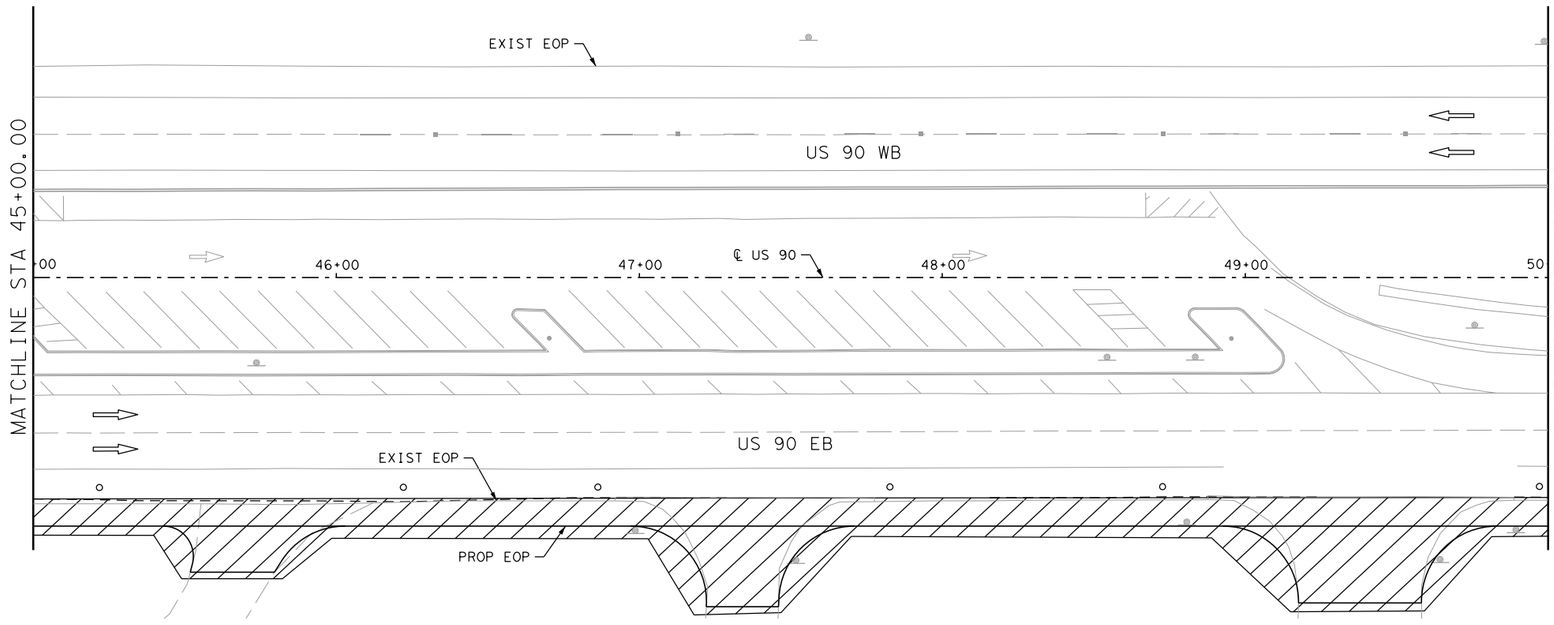
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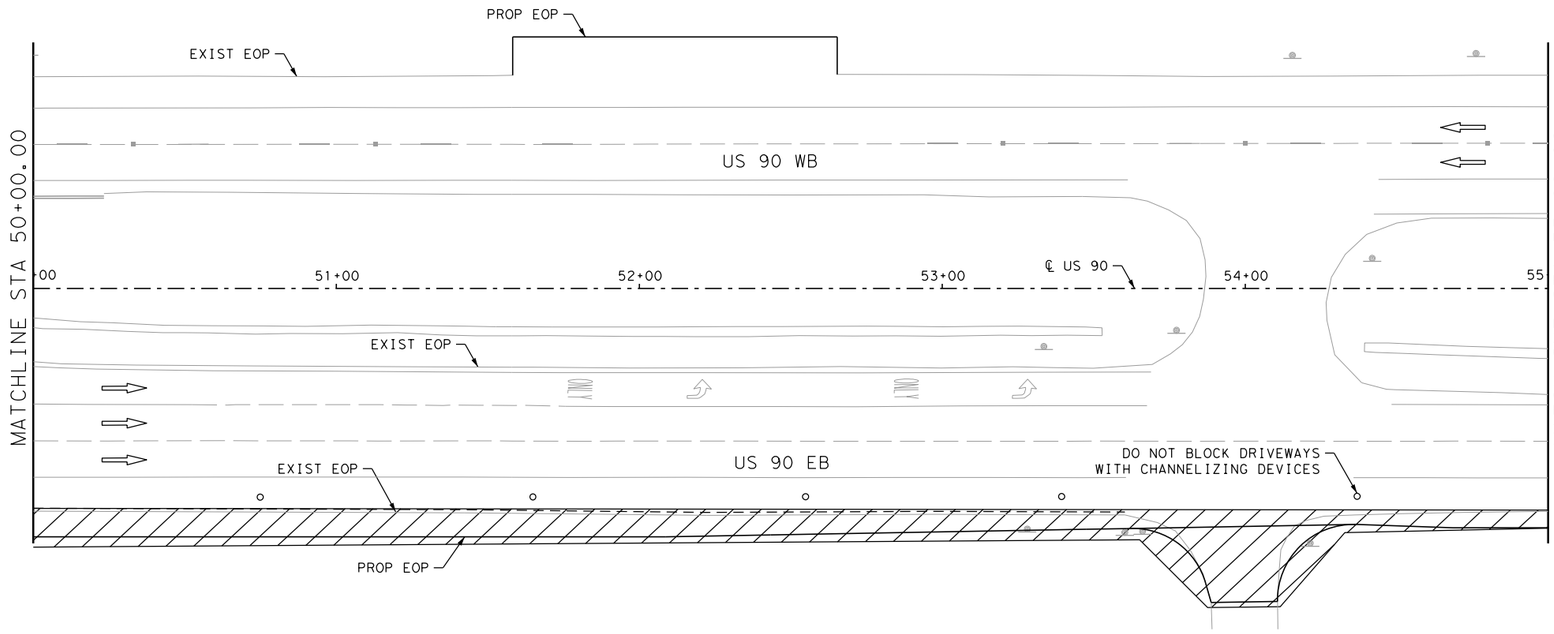
SHEET 3 OF 6

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S1_03.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

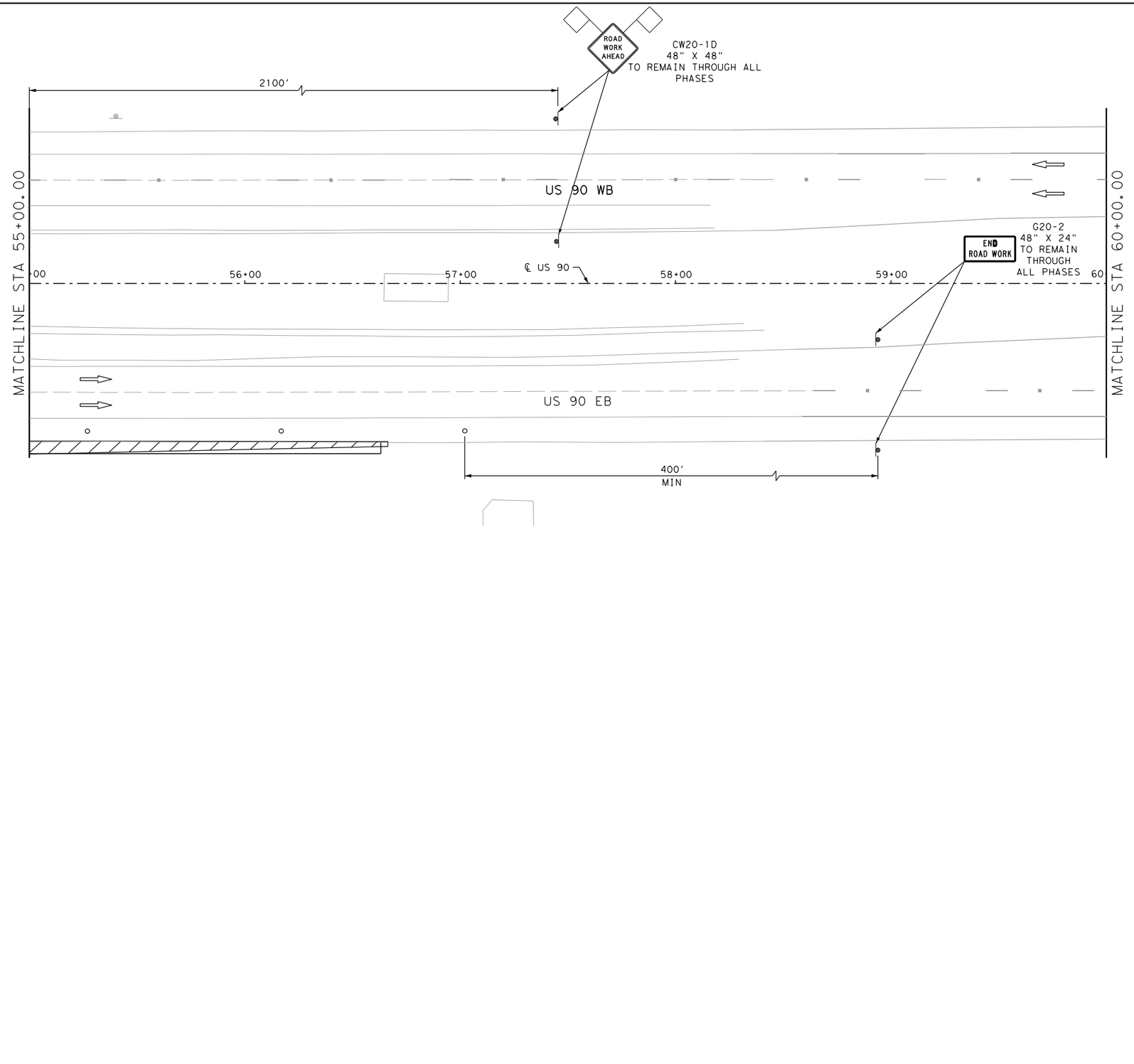
US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

STA 45+00 TO STA 55+00

SHEET 4 OF 6

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

STA 55+00 TO STA 60+00

SHEET 5 OF 6

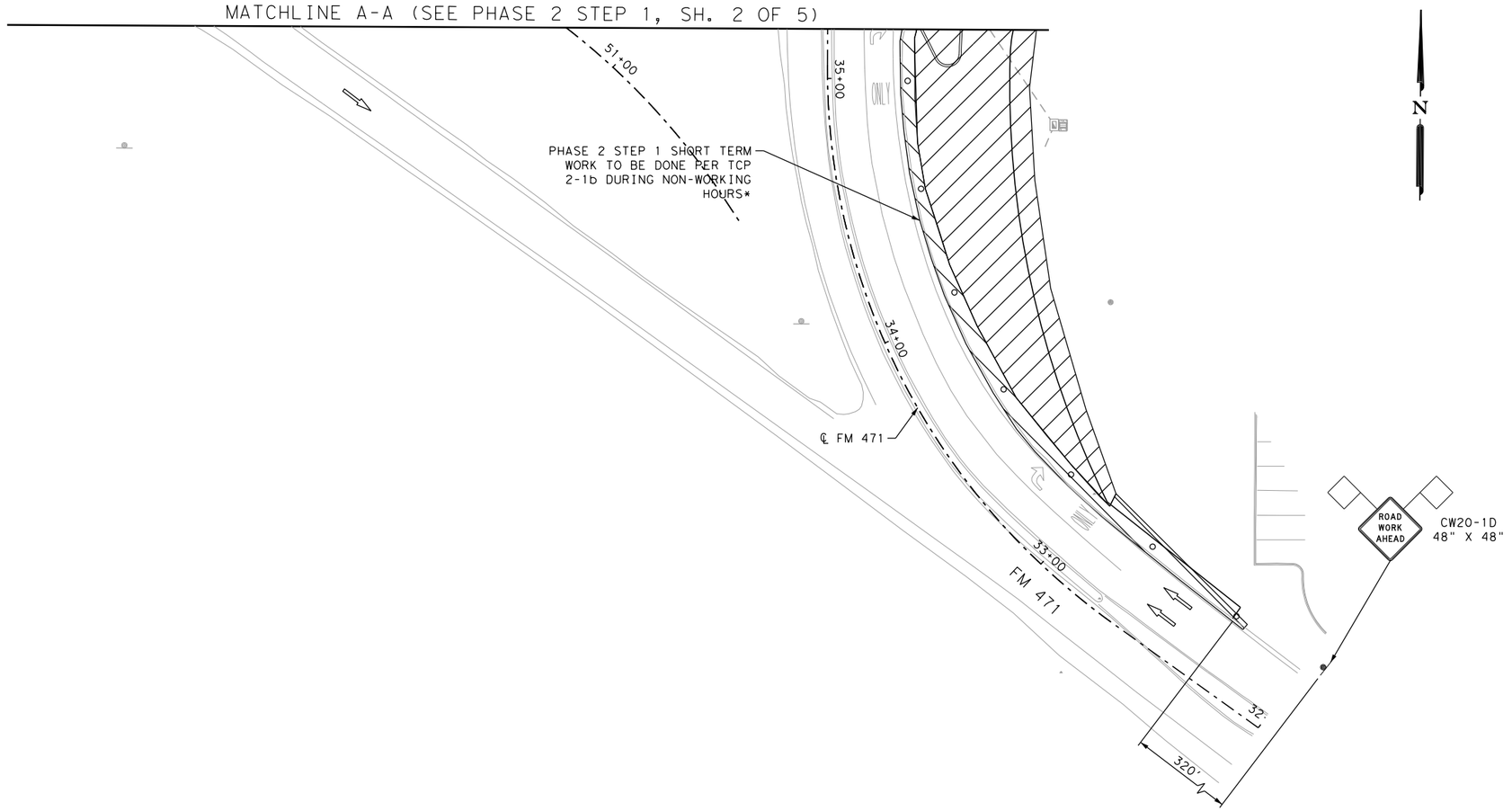
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S1_05.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS — RAYMOND D. GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 1

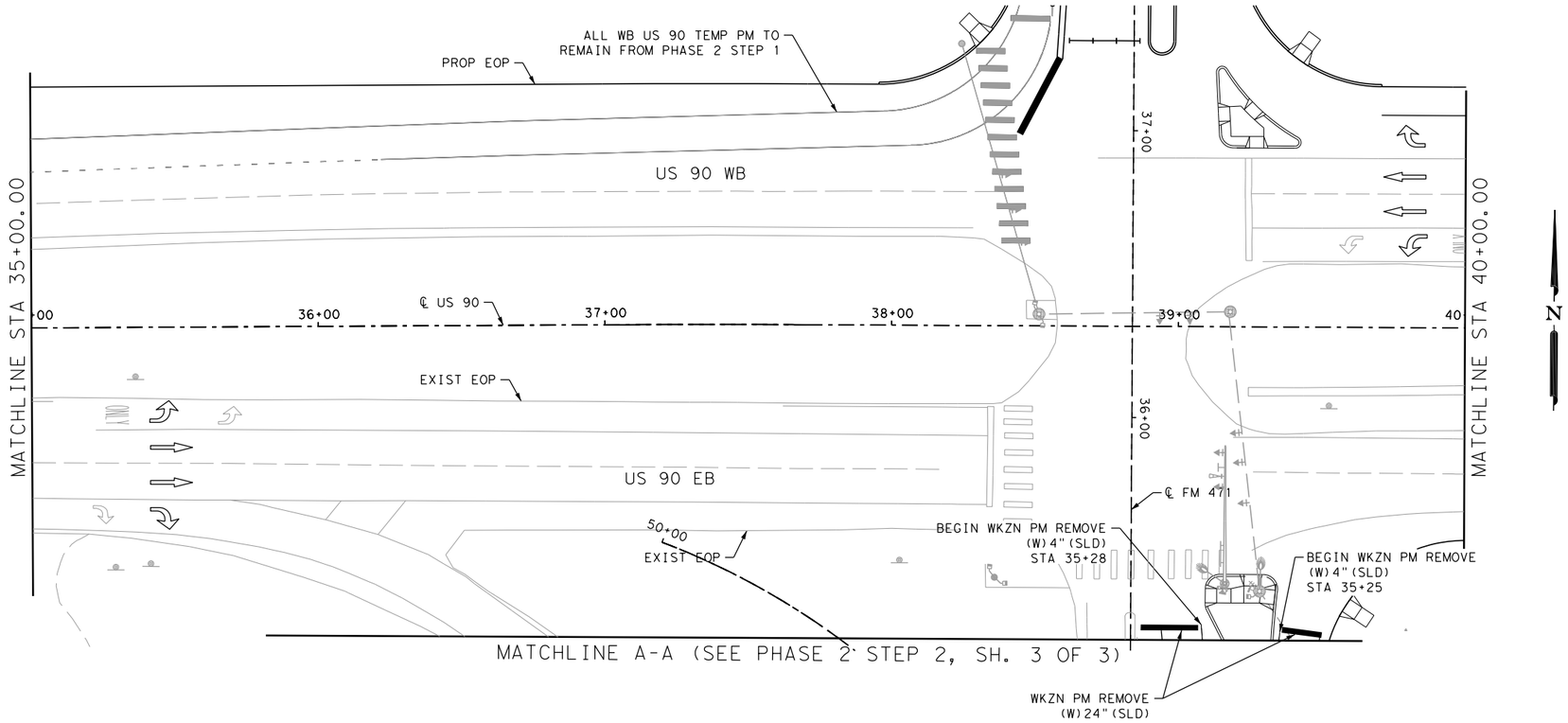
FM 471

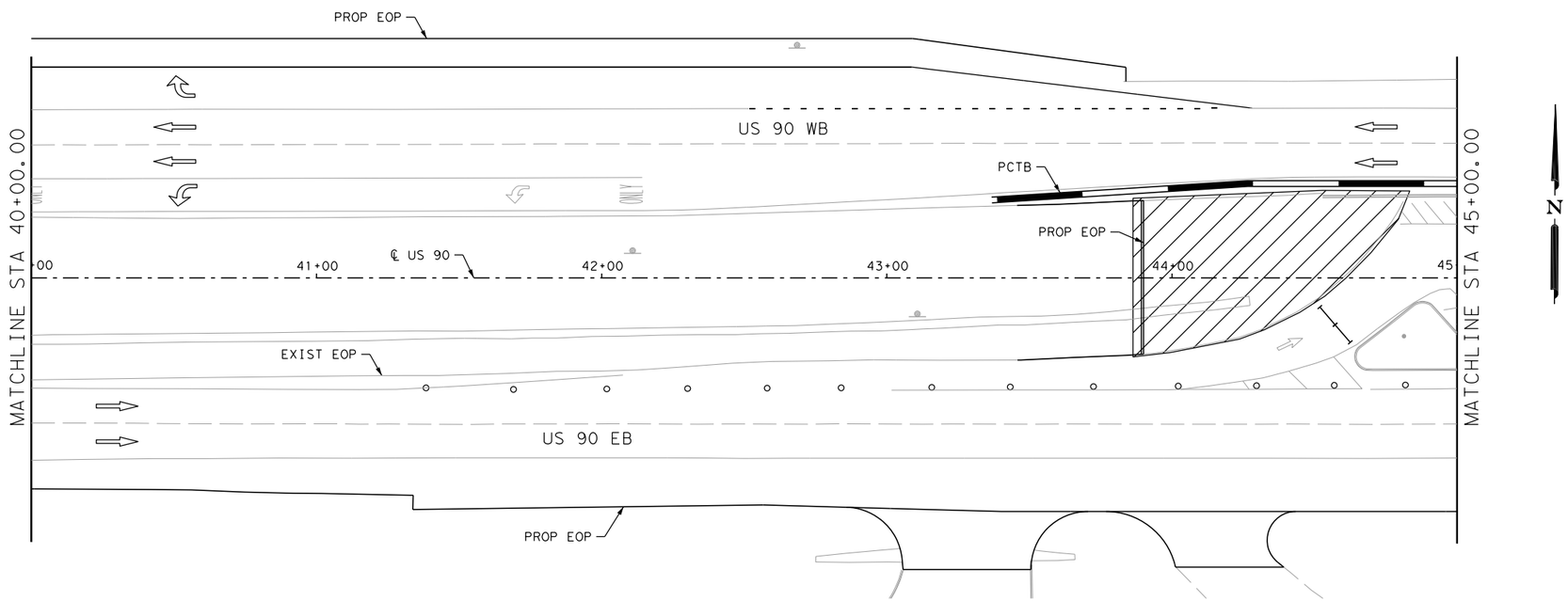
SHEET 6 OF 6

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/25/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S2_01.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/25/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/25/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 2

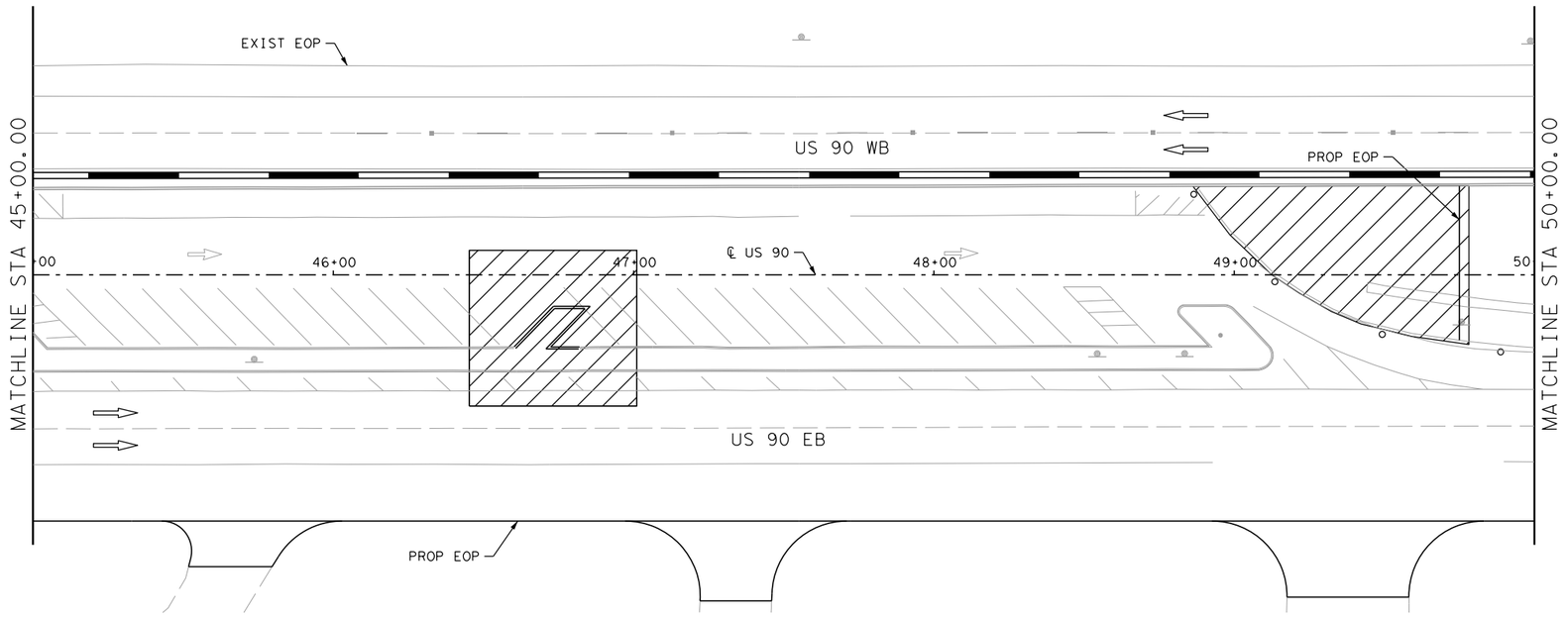
STA 35+00 TO STA 45+00

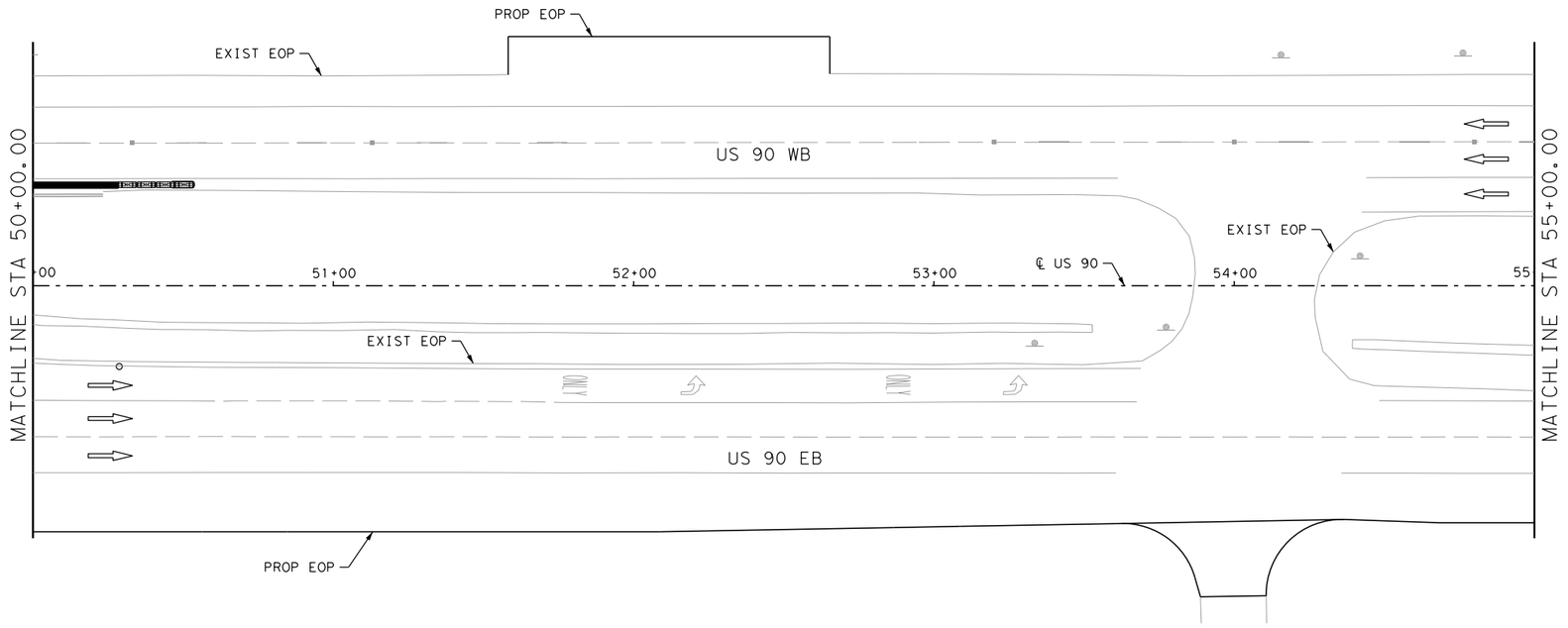
SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S2_02.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 2

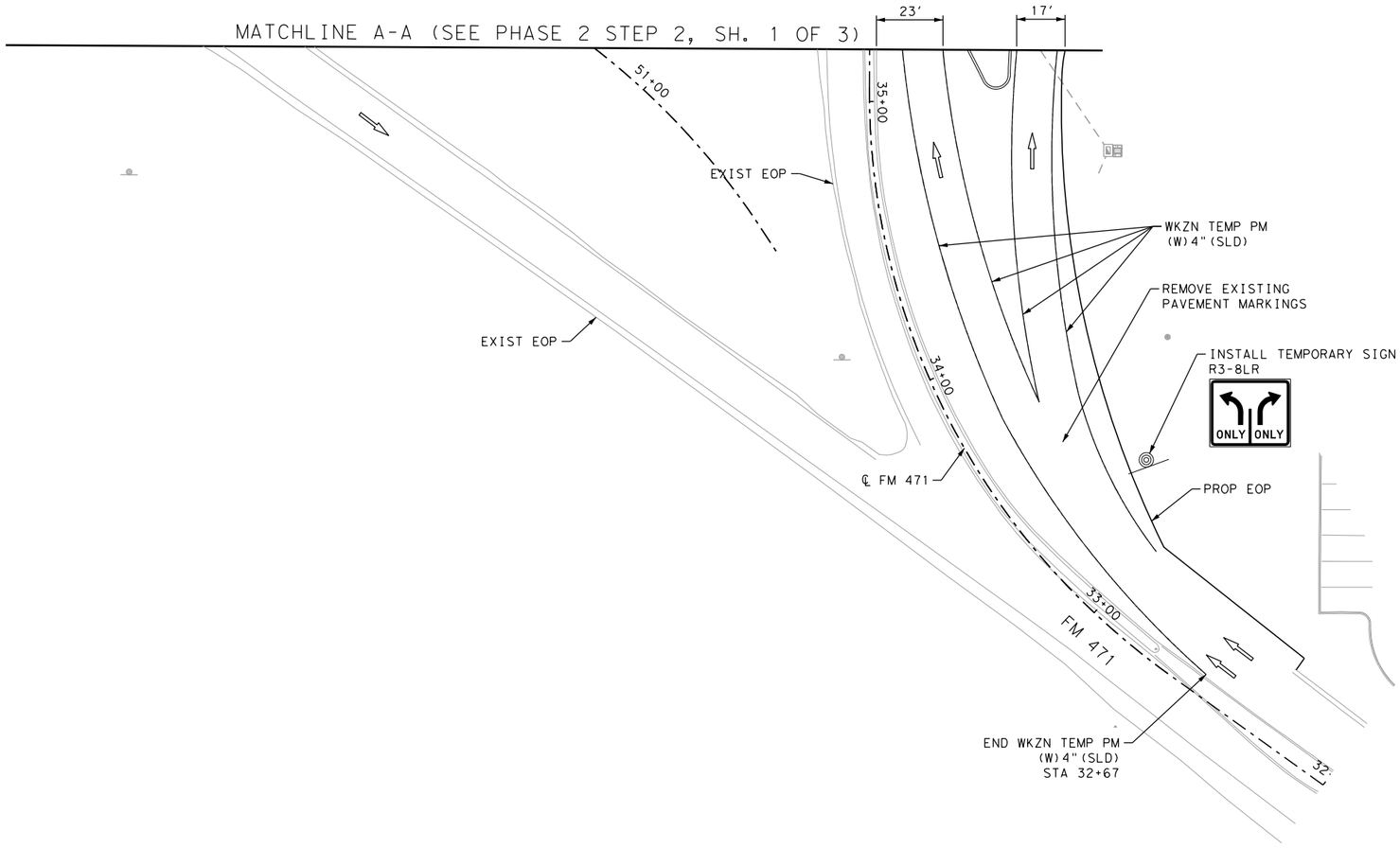
STA 45+00 TO STA 55+00

SHEET 2 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S2_03.dgn



N

LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 2

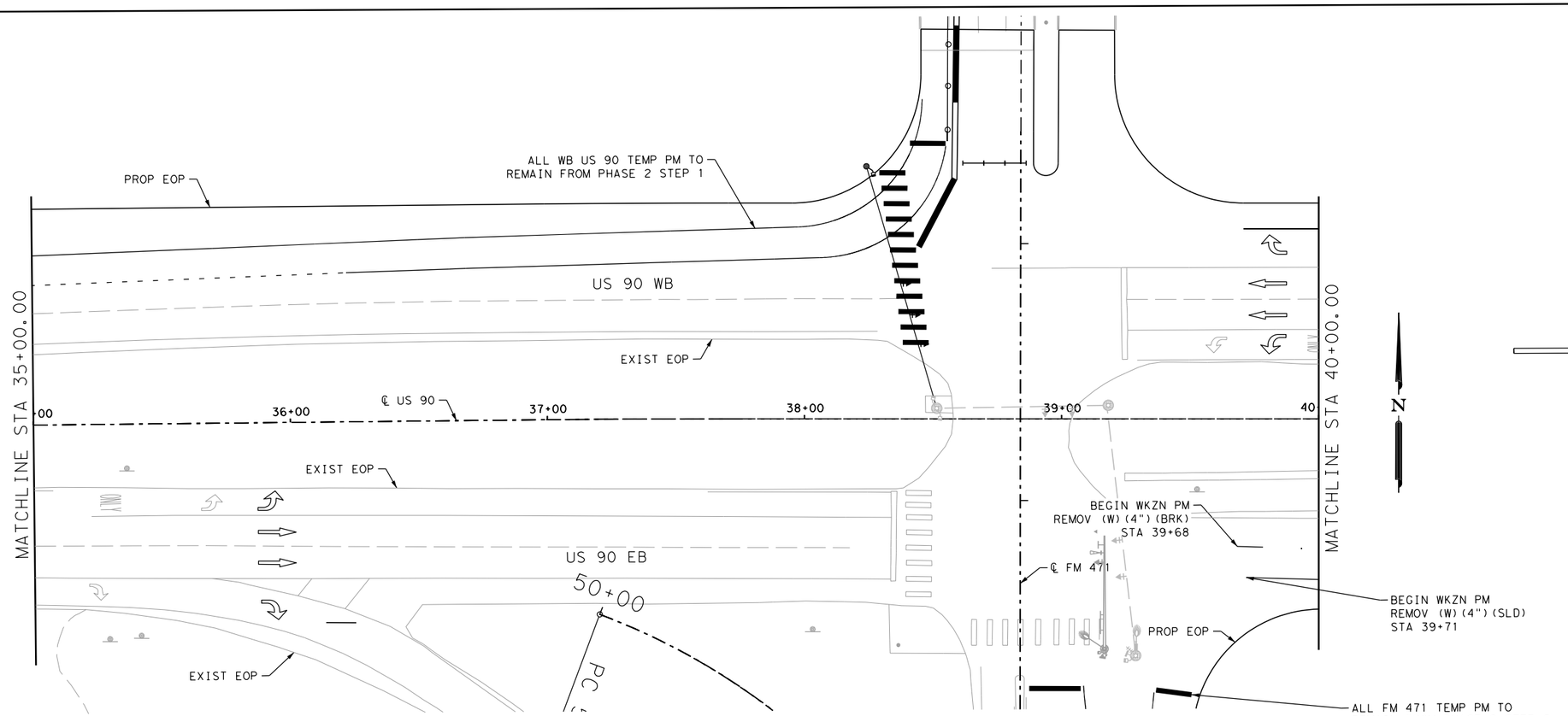
FM 471

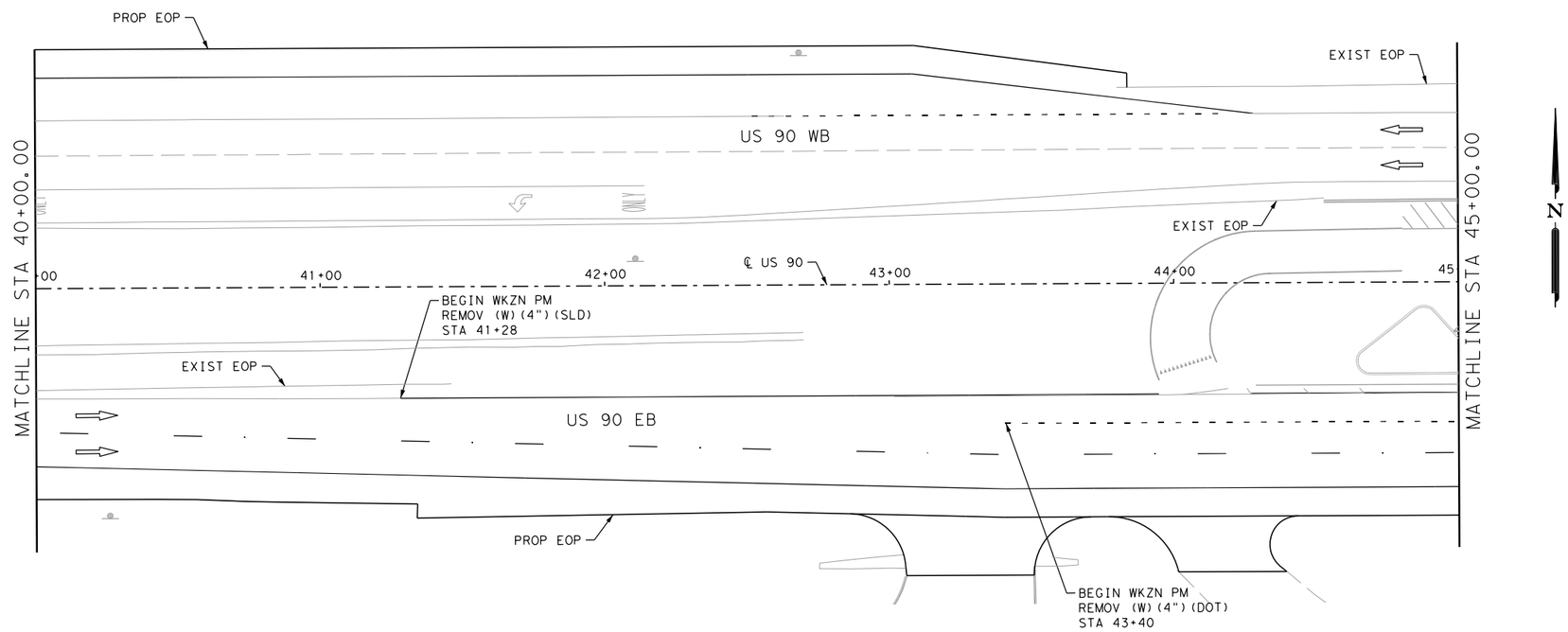
SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/30/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH253_01.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/30/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/30/2024 DATE

0 25 50 75

SCALE: 1" = 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 3

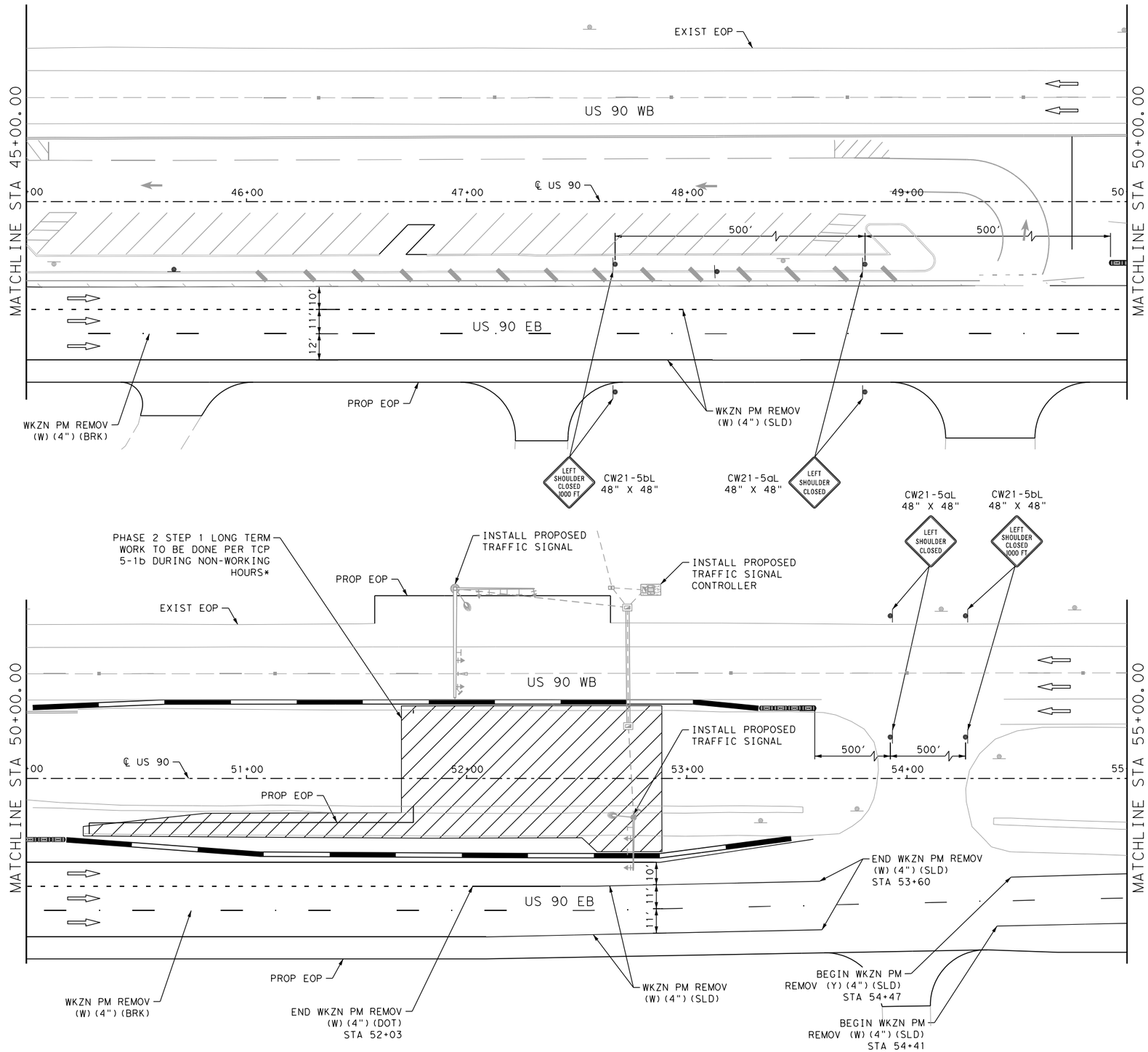
STA 35+00 TO STA 45+00

SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			US 90
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S3_02.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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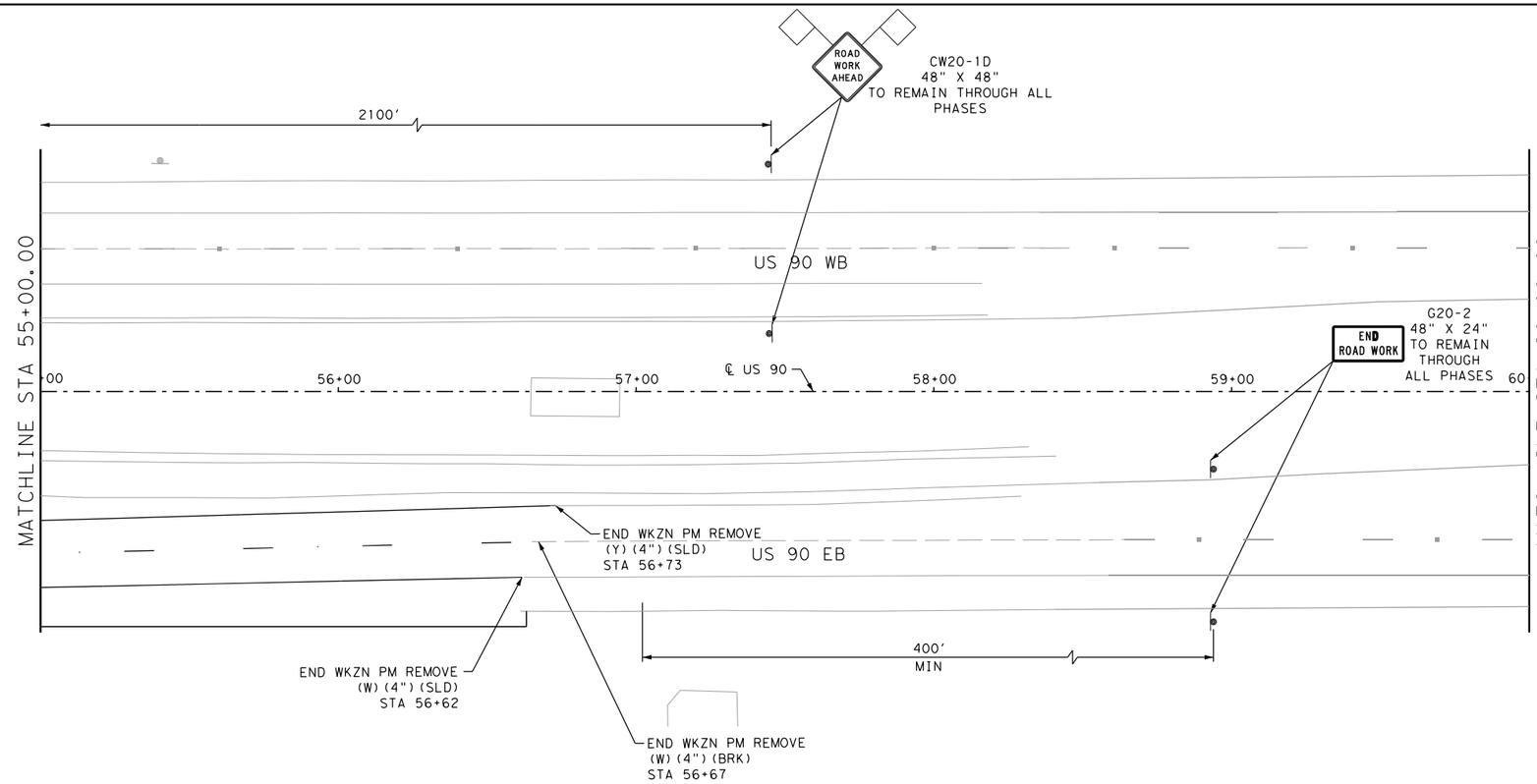
US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 3

STA 45+00 TO STA 55+00

SHEET 2 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 3

STA 55+00 TO STA 60+00

SHEET 3 OF 3

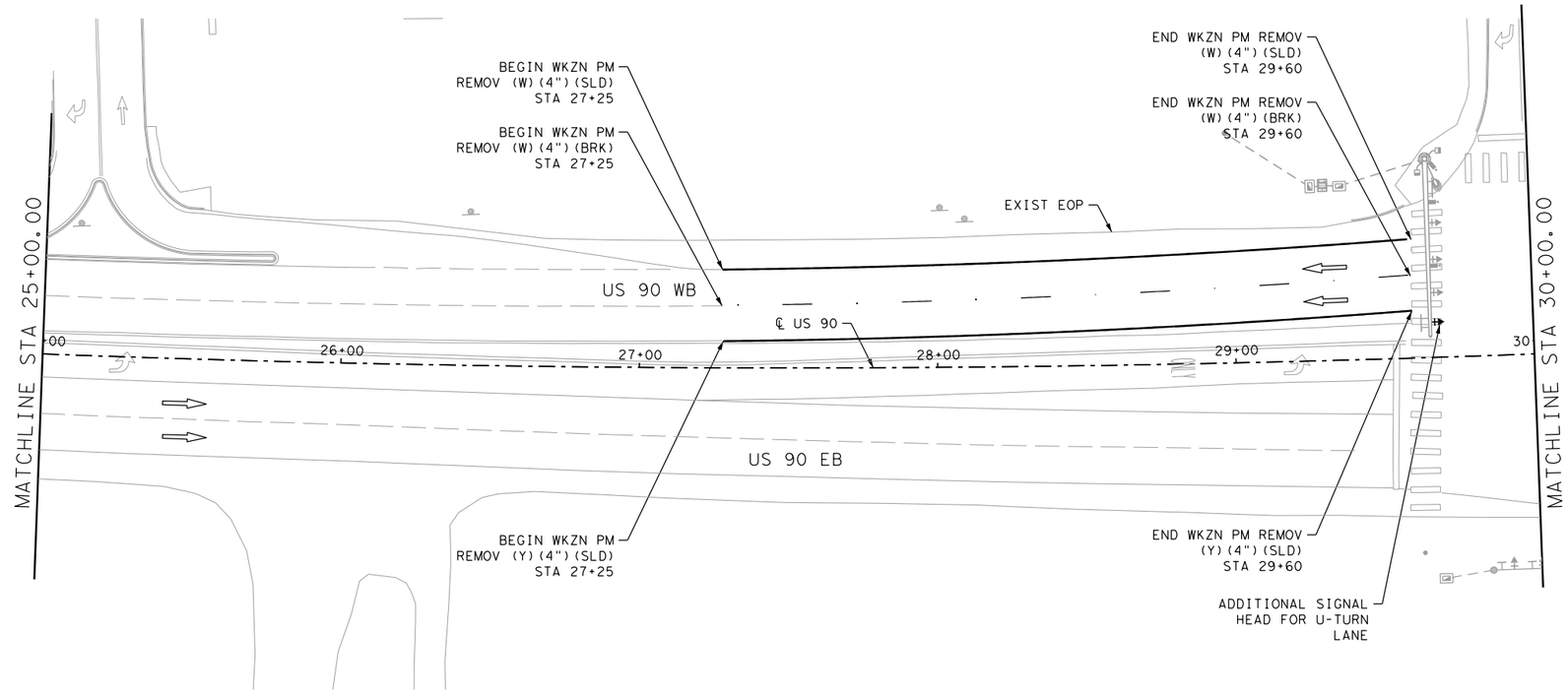
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

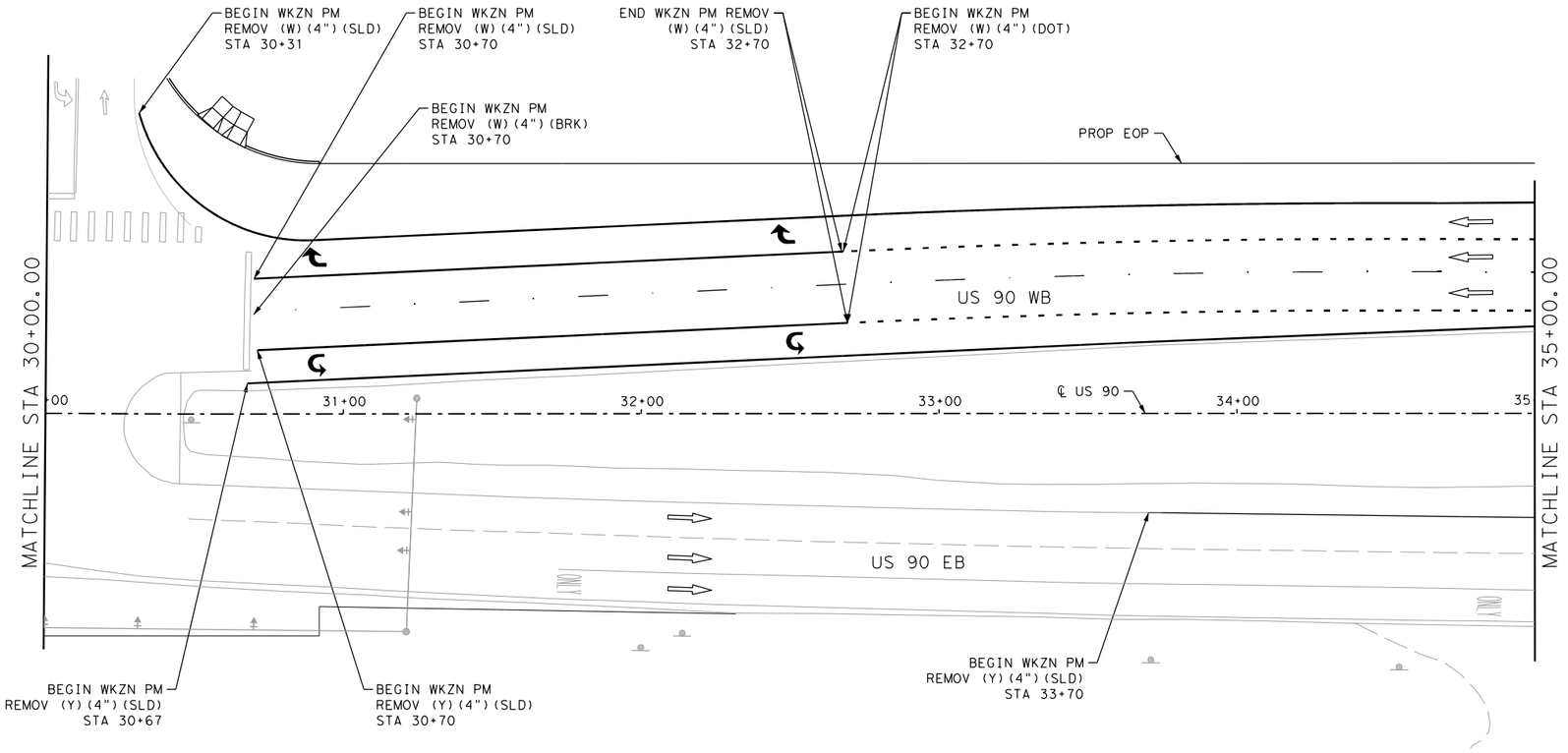
Plotted on: 4/9/2024

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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S4_01.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 4

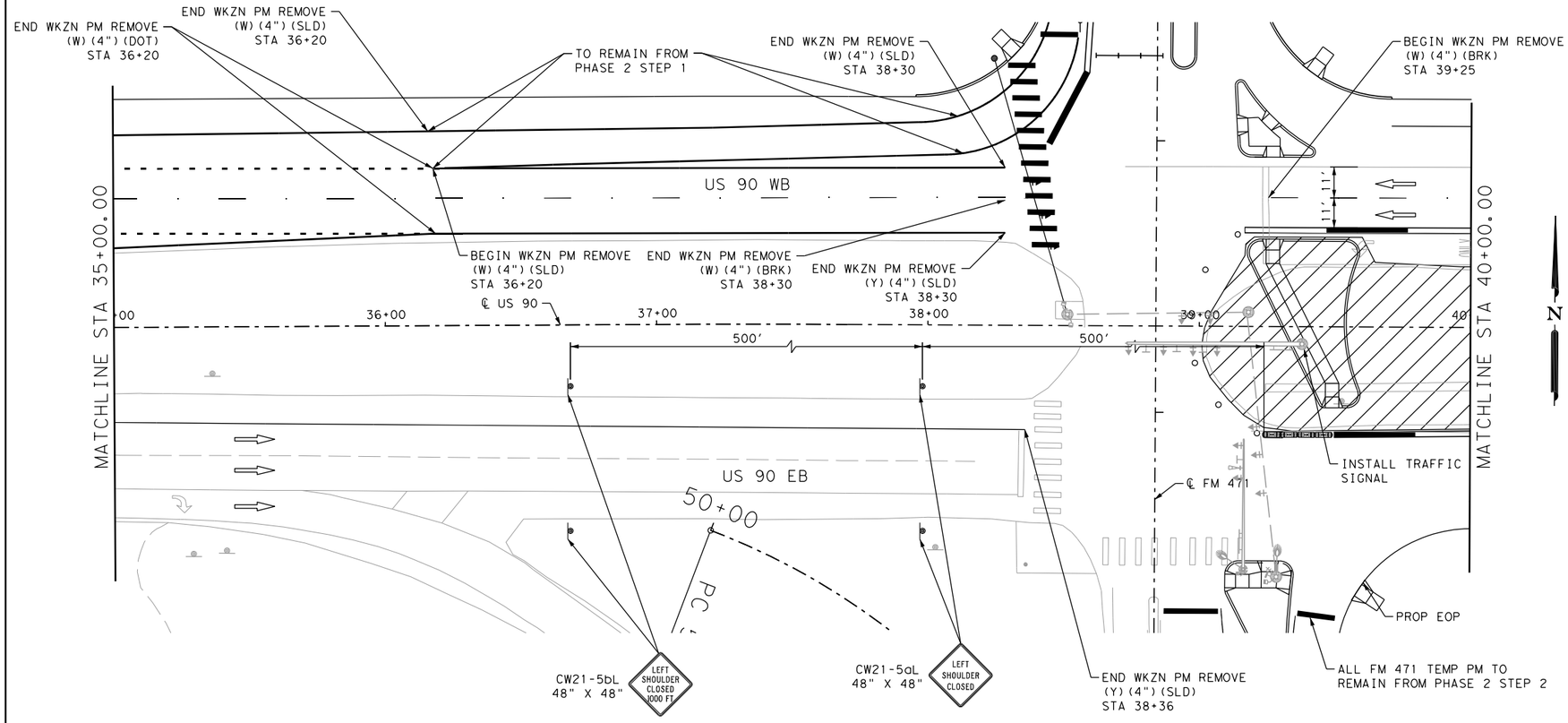
STA 25+00 TO STA 35+00

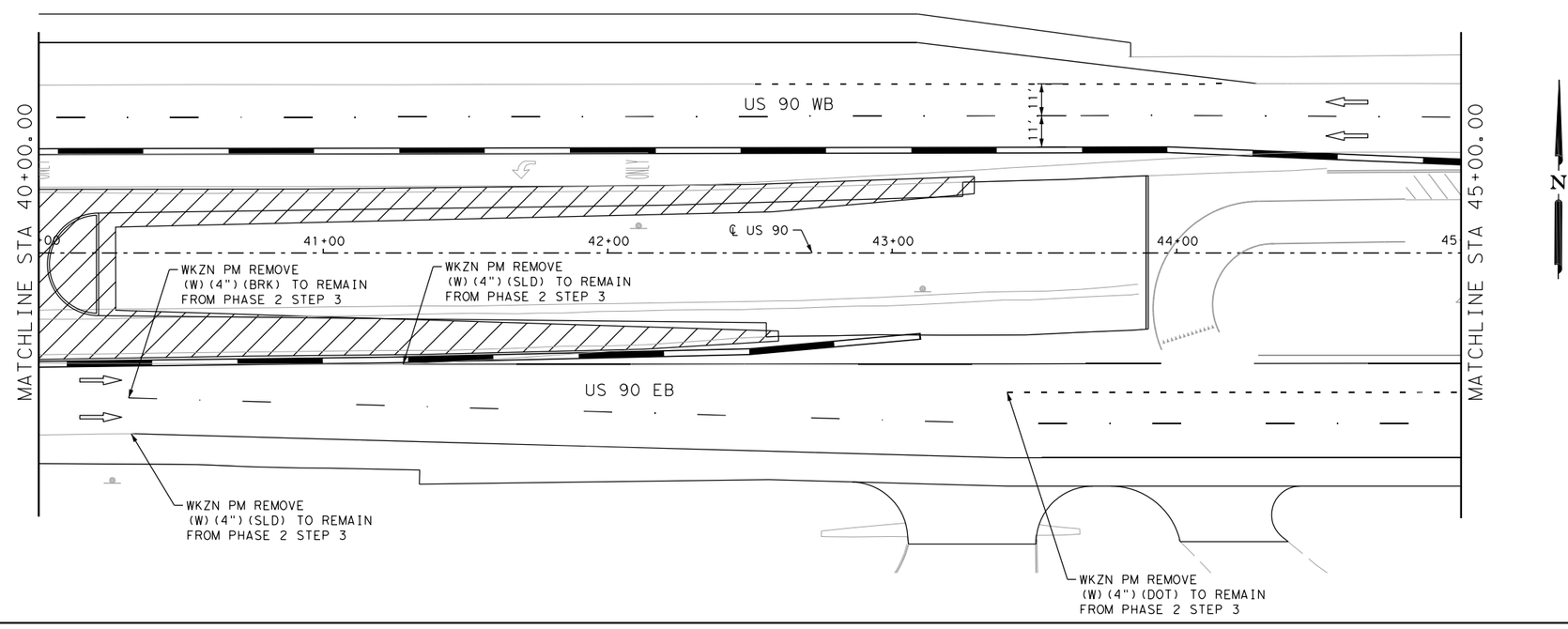
SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/25/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S4_02.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/25/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/25/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 4

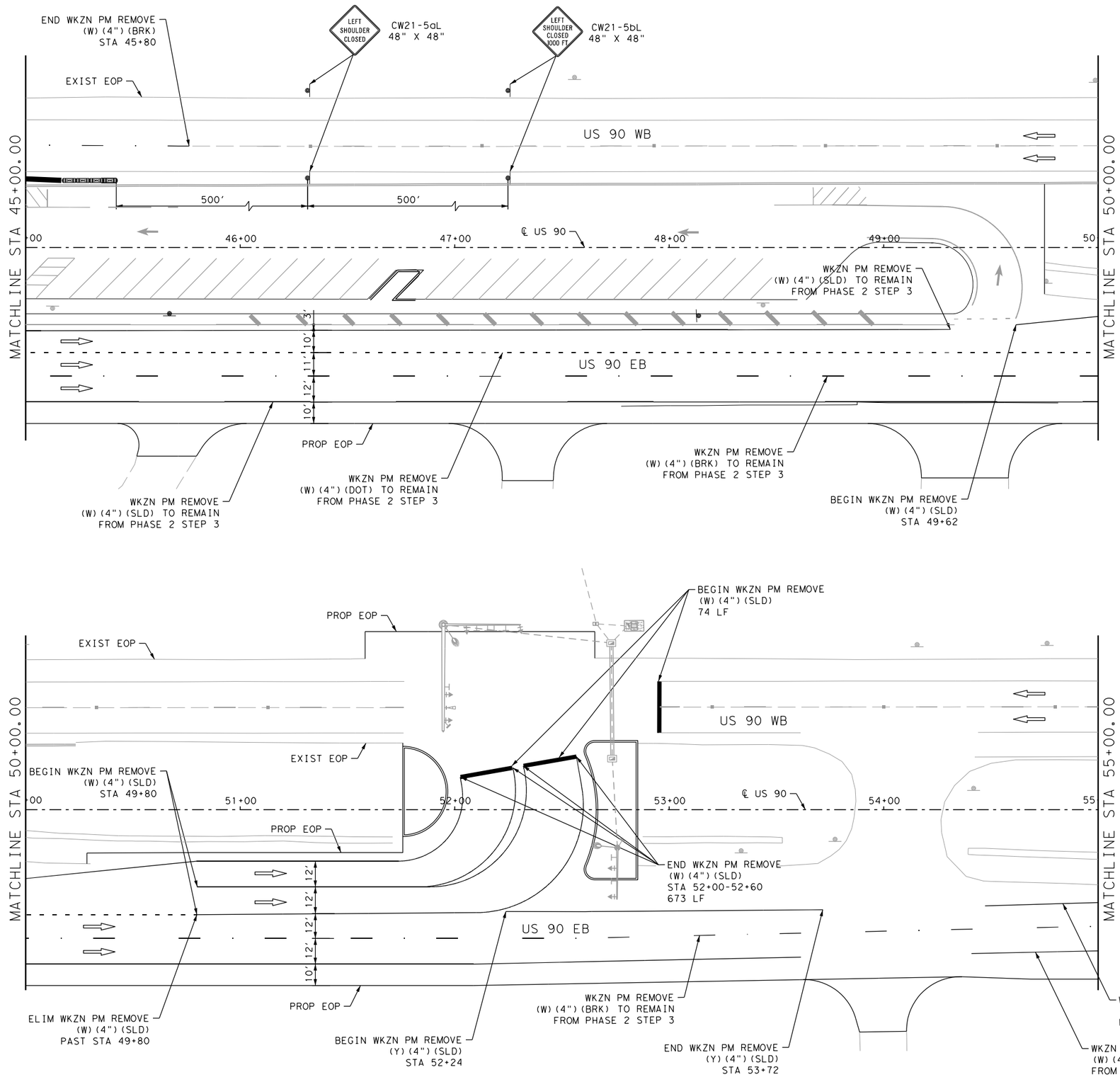
STA 35+00 TO STA 45+00

SHEET 2 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		90

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 2\1273603_PH2S4_03.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 2 STEP 4

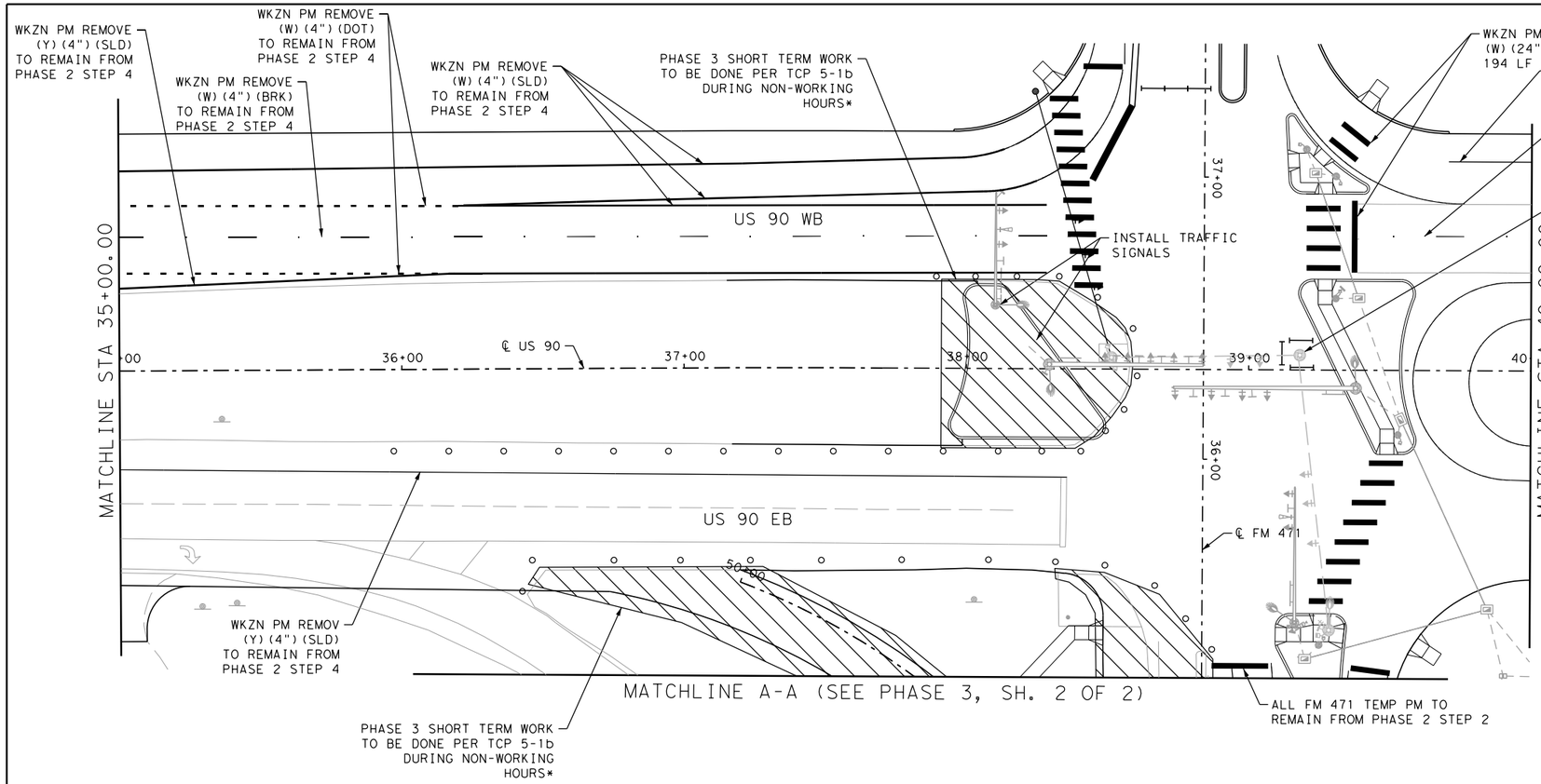
STA 45+00 TO STA 55+00

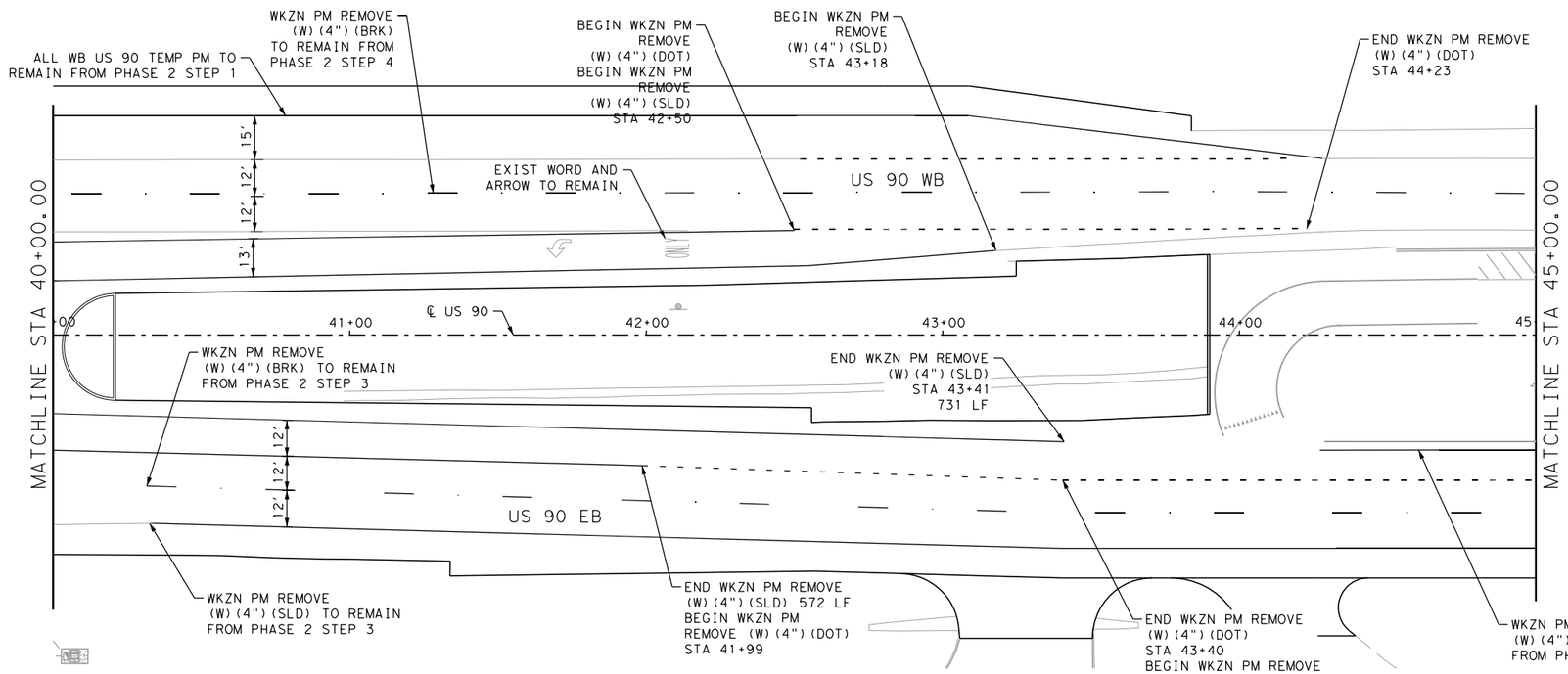
SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/25/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 3\1273603_PH3S1_01.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/25/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/25/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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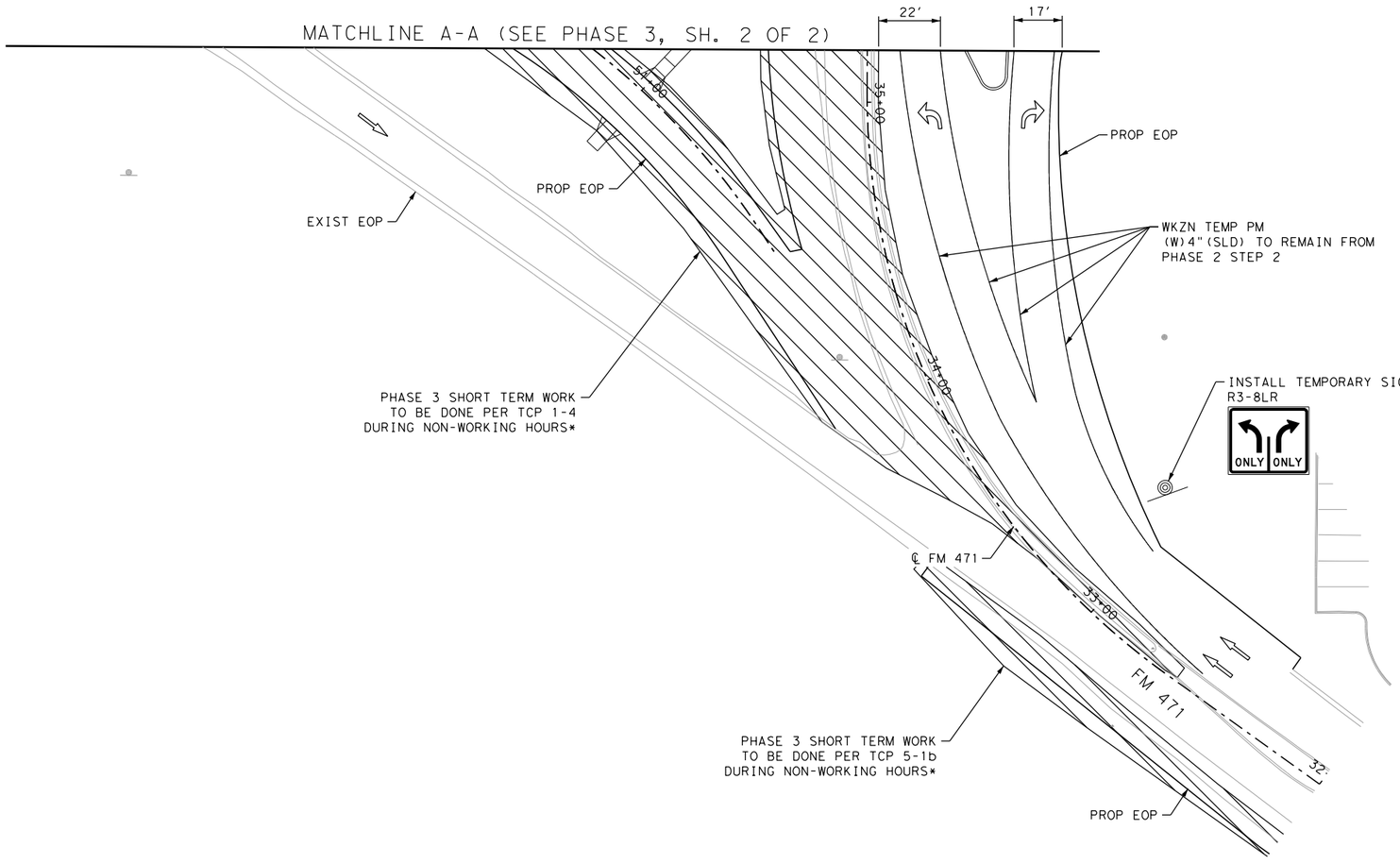
US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 3

STA 35+00 TO STA 45+00

SHEET 1 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS
RAYMOND. D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 3

FM 471

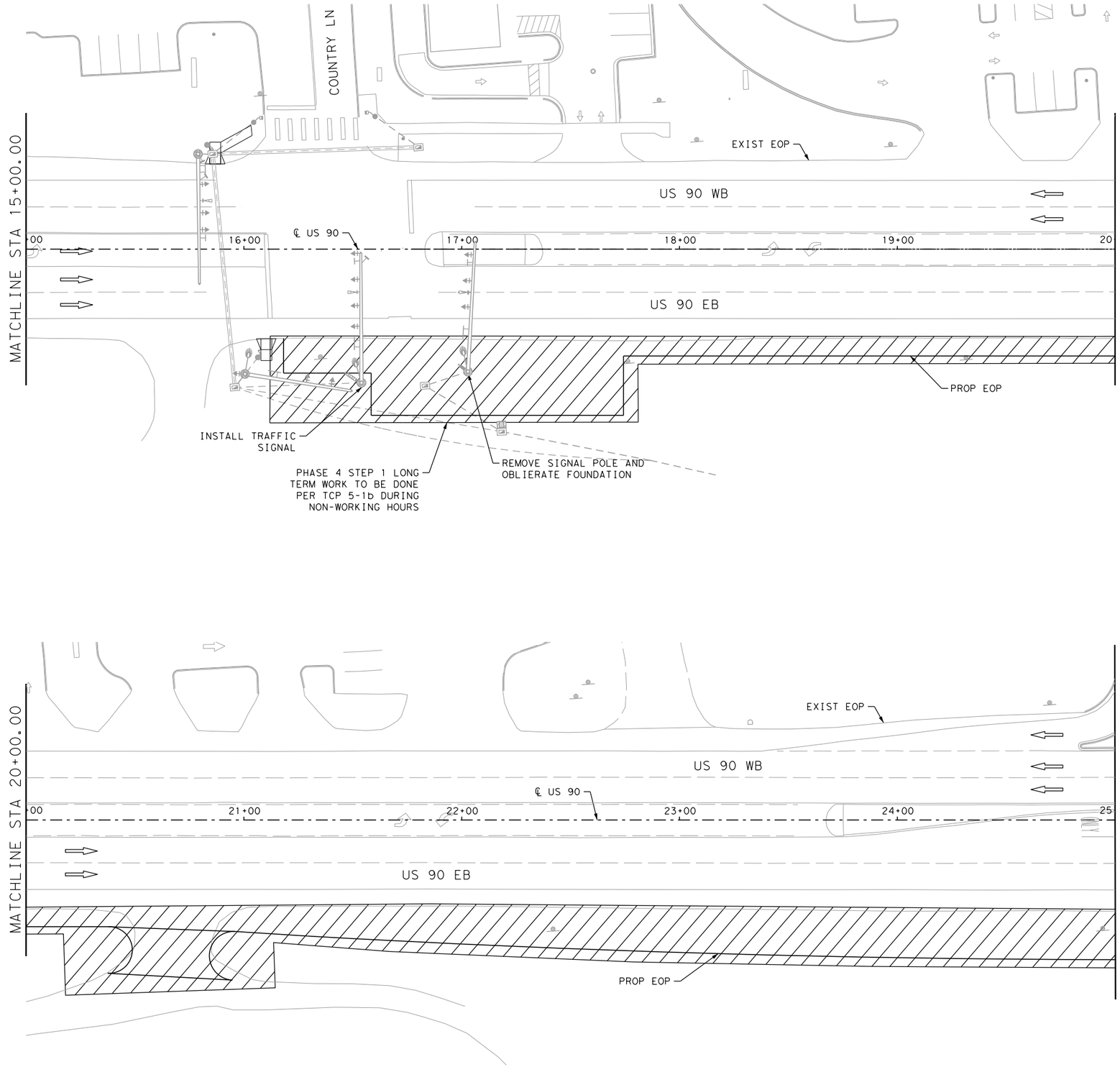
SHEET 2 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS		–		
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

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Plotted on: 4/9/2024



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 1

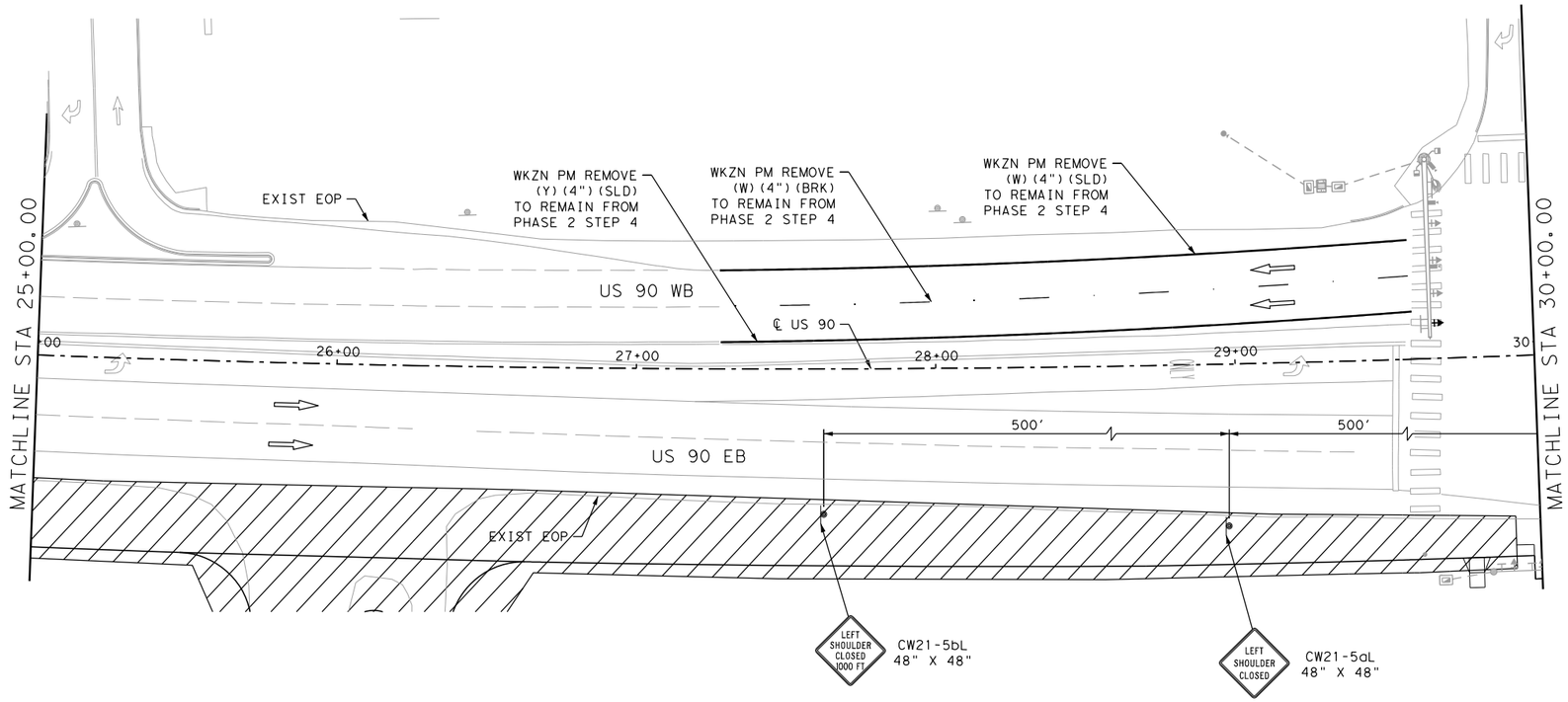
STA 15+00 TO STA 25+00

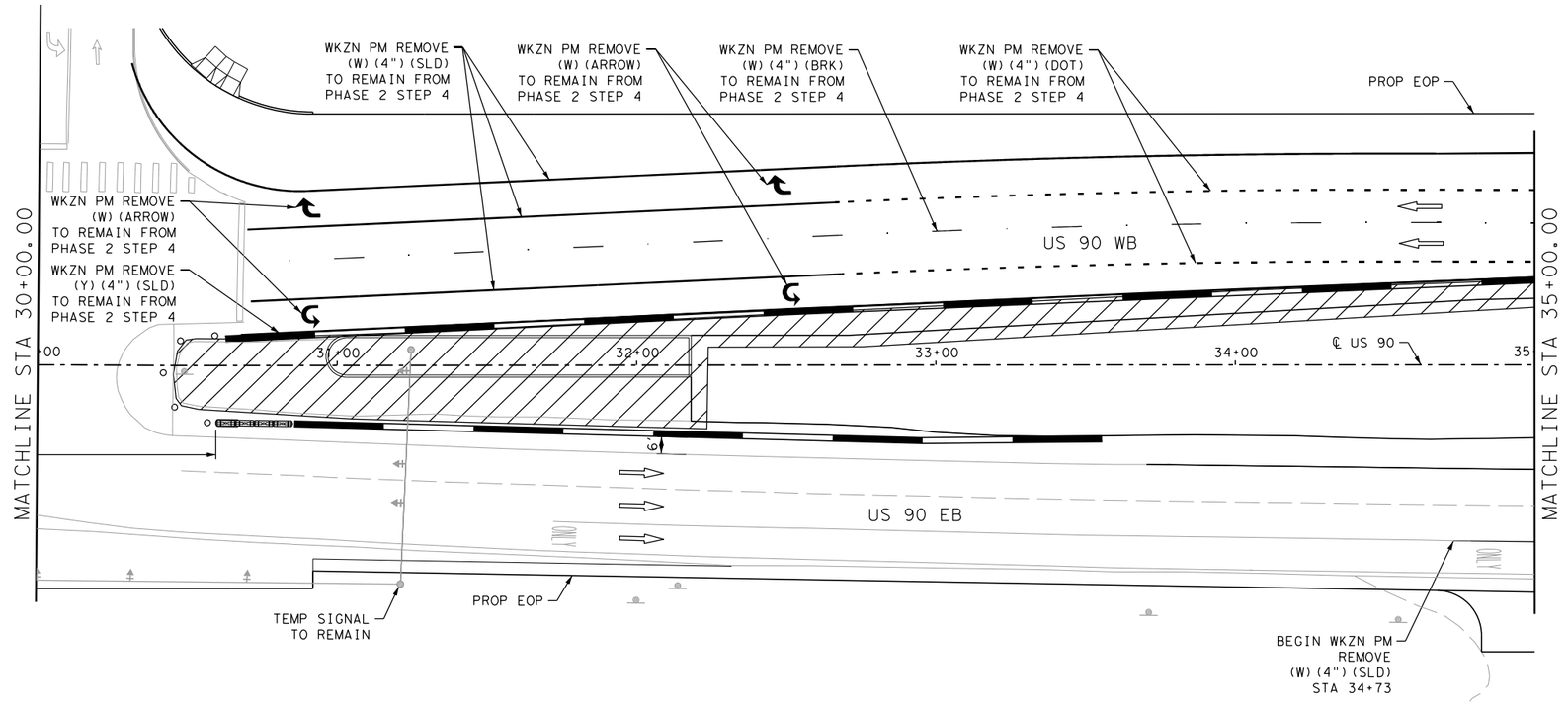
SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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Plotted on: 4/9/2024





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
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- SIGN
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DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 1

STA 25+00 TO STA 35+00

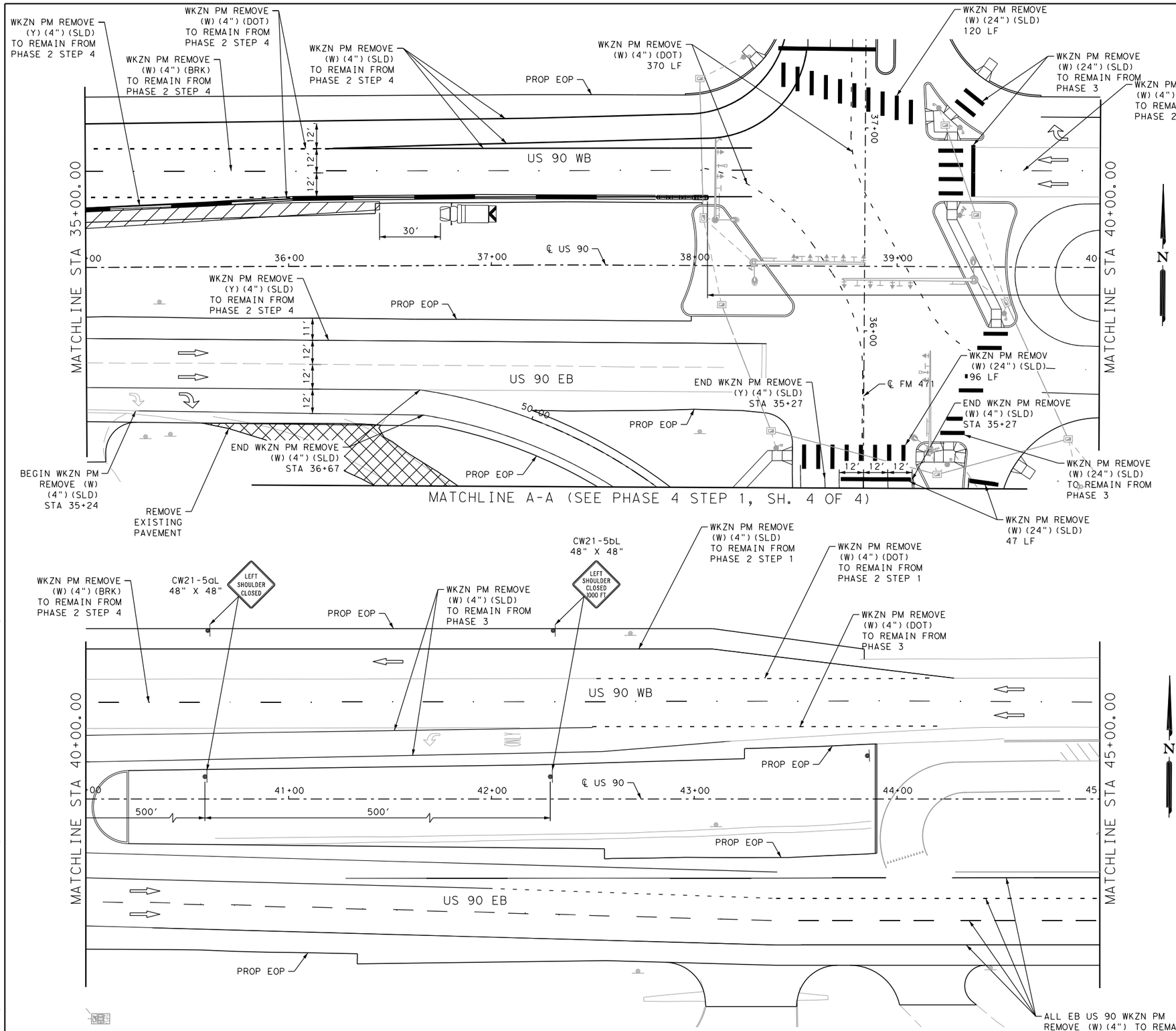
SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 4\1273603_PH4S1_03.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
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DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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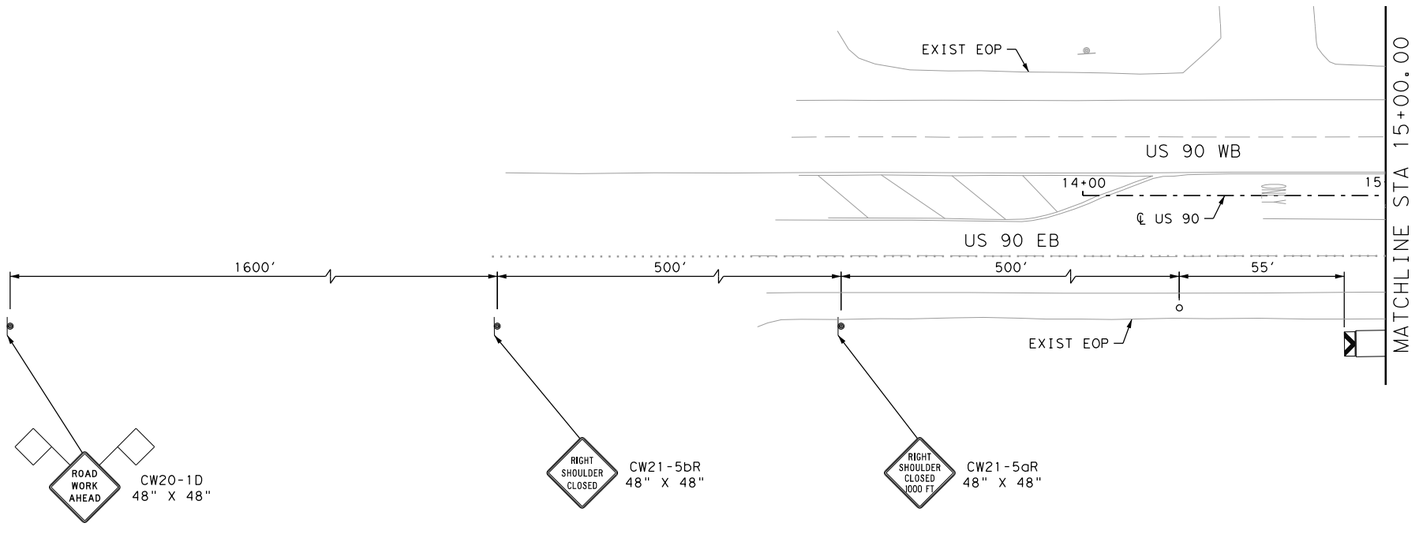
US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 1

STA 35+00 TO STA 45+00

SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 2

STA 00+00 TO STA 25+00

SHEET 1 OF 5

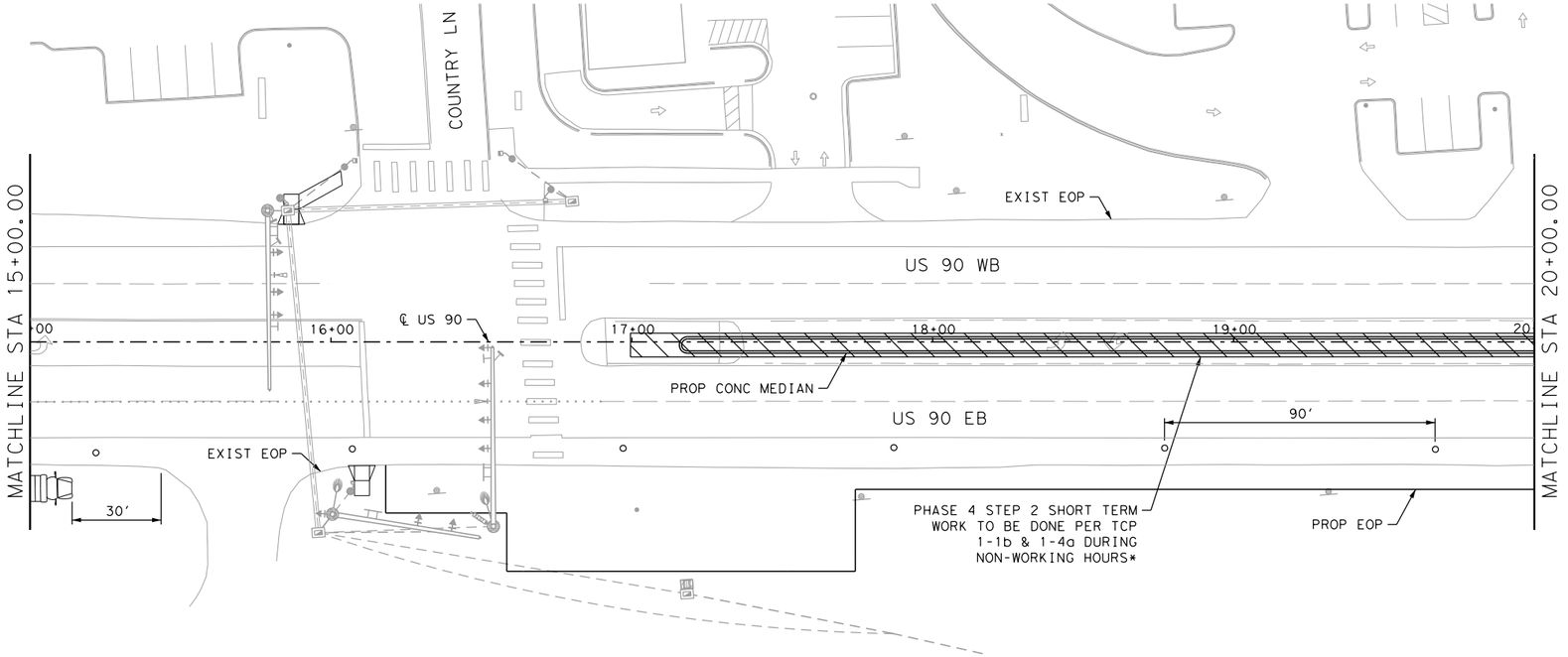
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

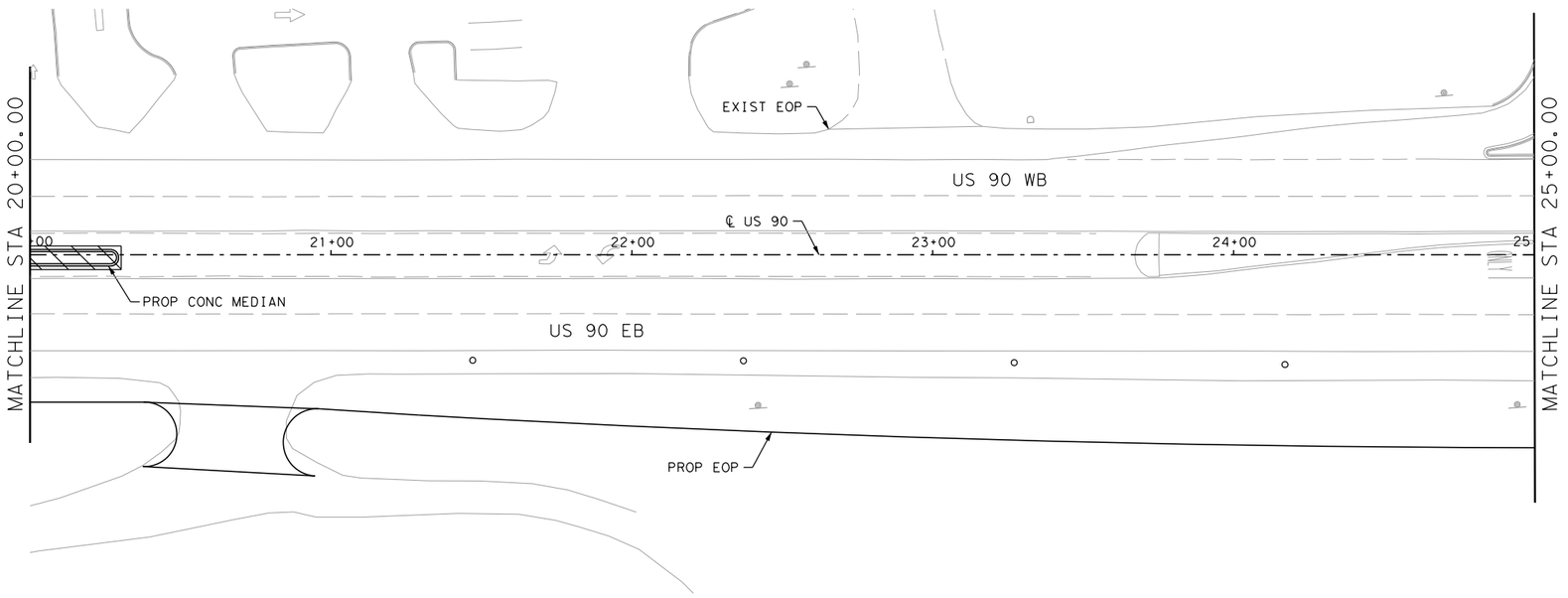
Plotted on: 4/9/2024

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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 4\1273603_PH4S2_02.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
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N

DESIGN

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 2

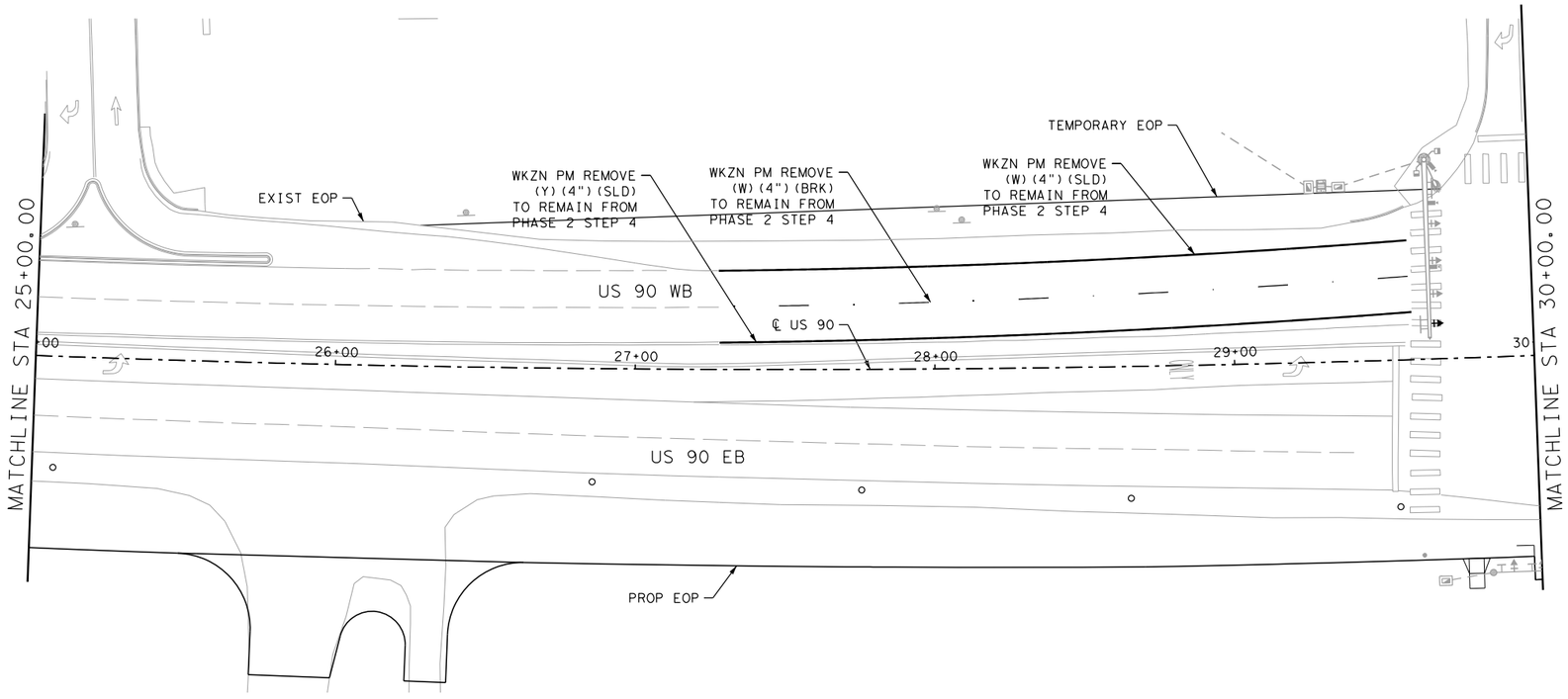
STA 15+00 TO STA 25+00

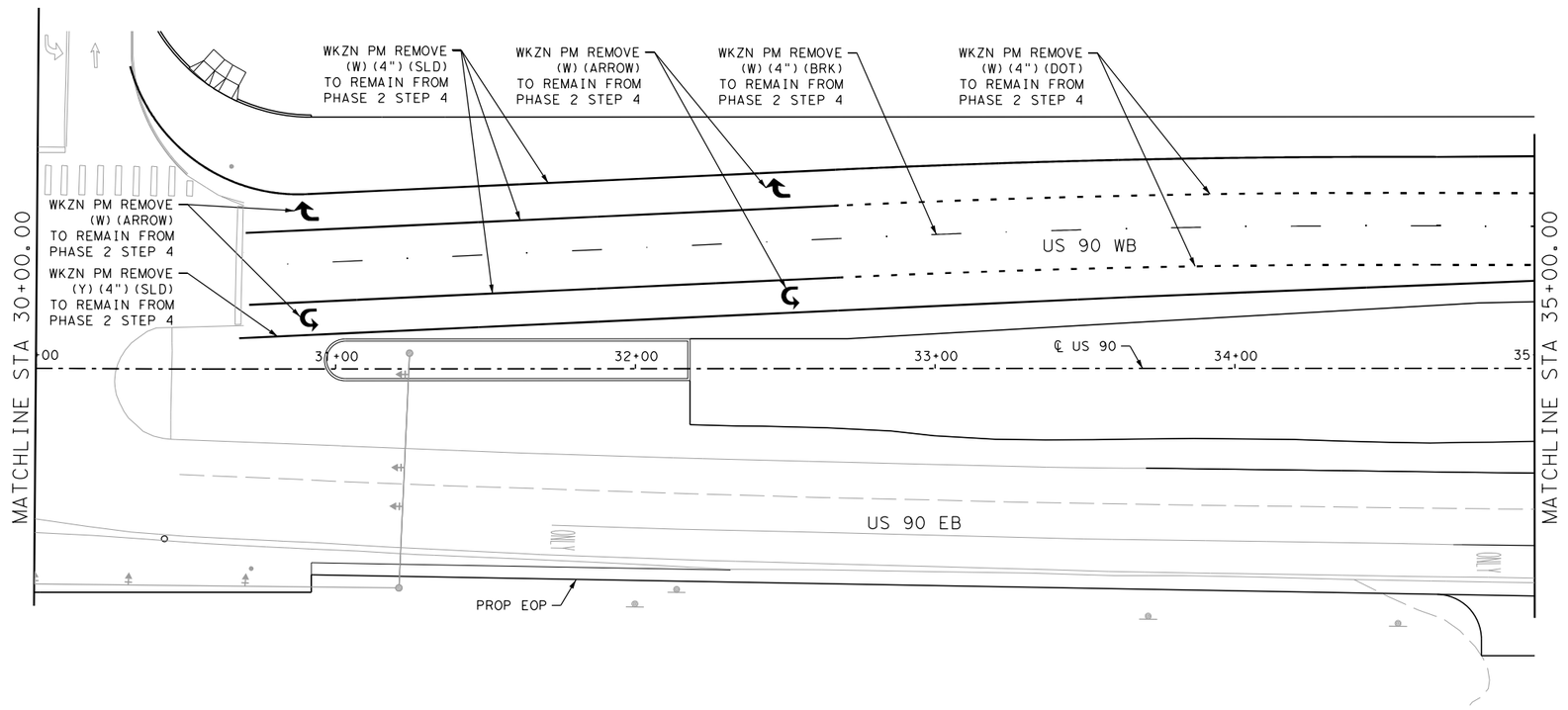
SHEET 2 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 4\1273603_PH4S2_03.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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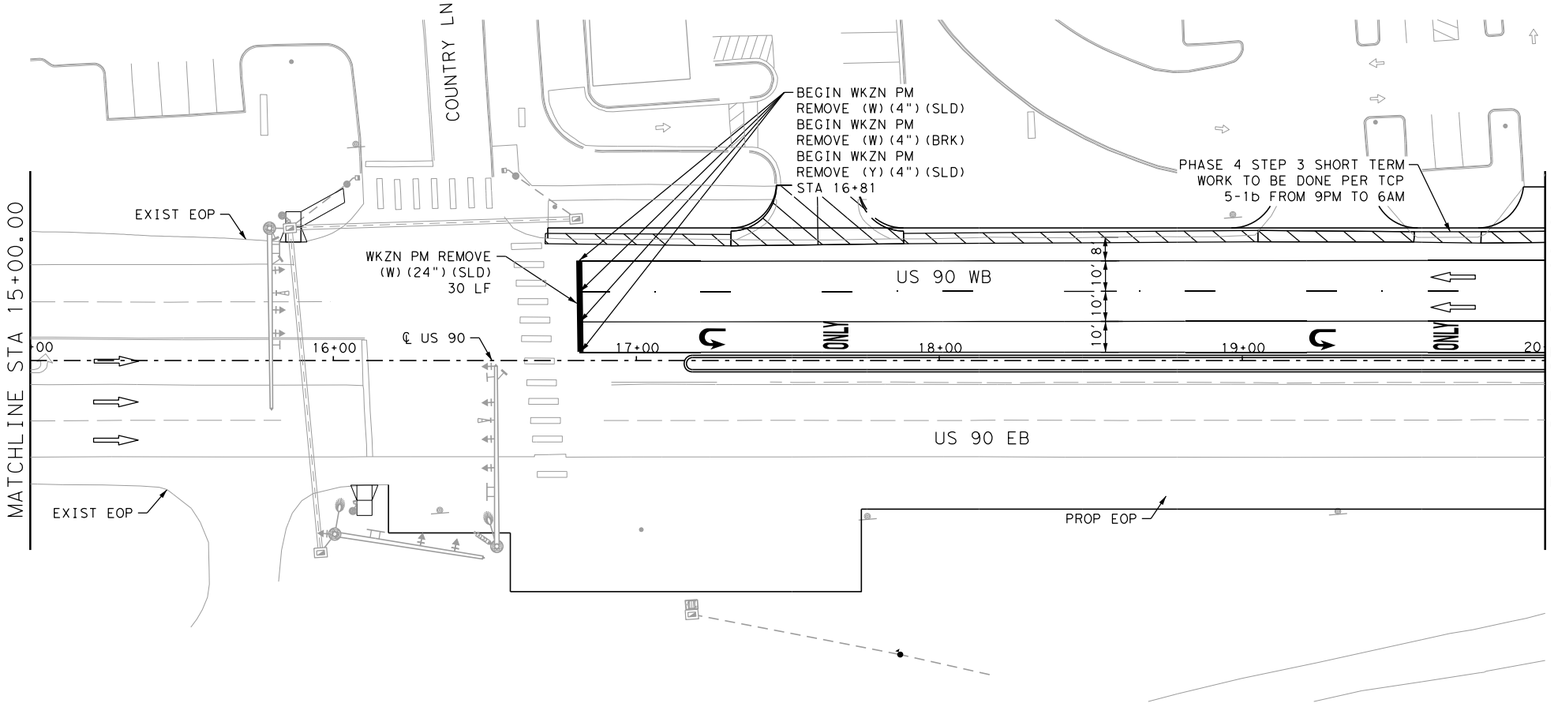
US 90 AT ALSATIAN OAKS

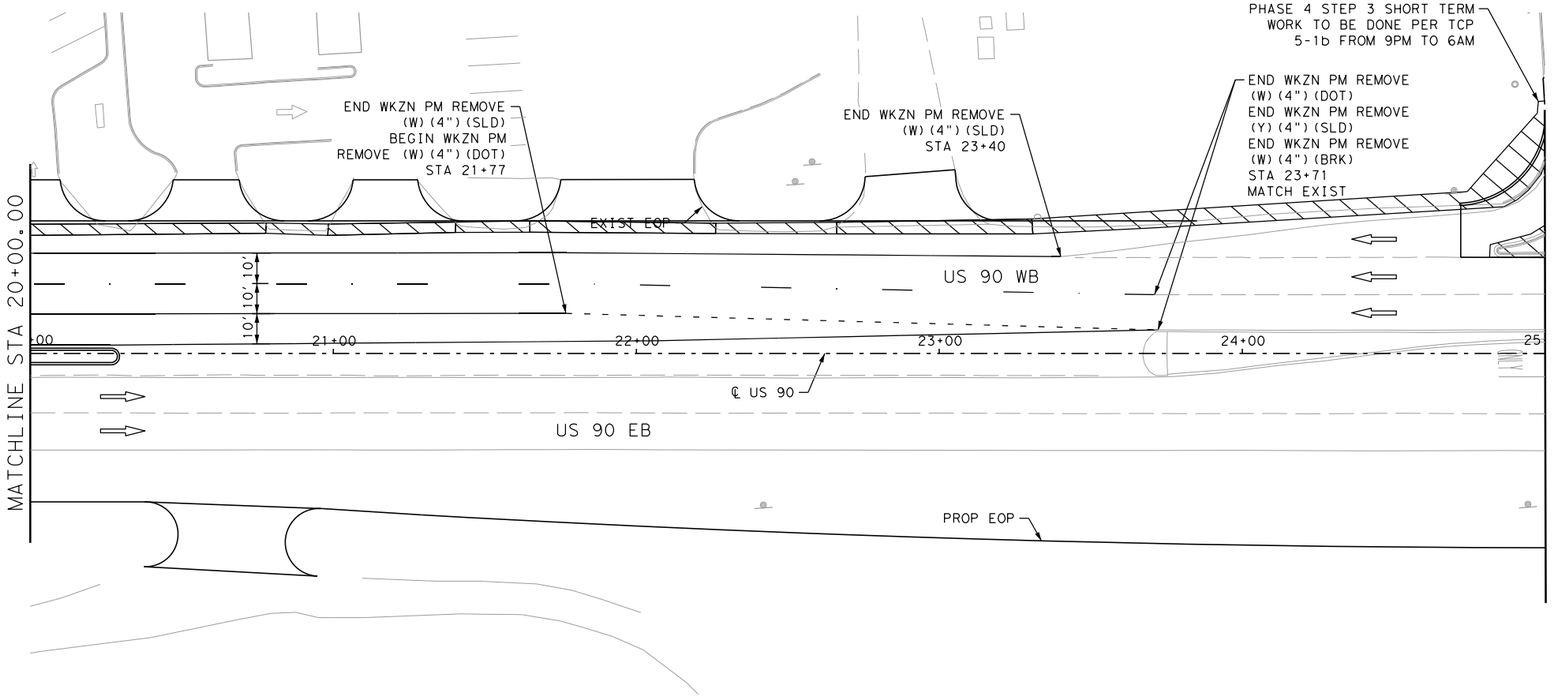
TRAFFIC CONTROL PLAN PHASE 4 STEP 2

STA 25+00 TO STA 35+00

SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
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N

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 3

STA 15+00 TO STA 25+00

SHEET 1 OF 2

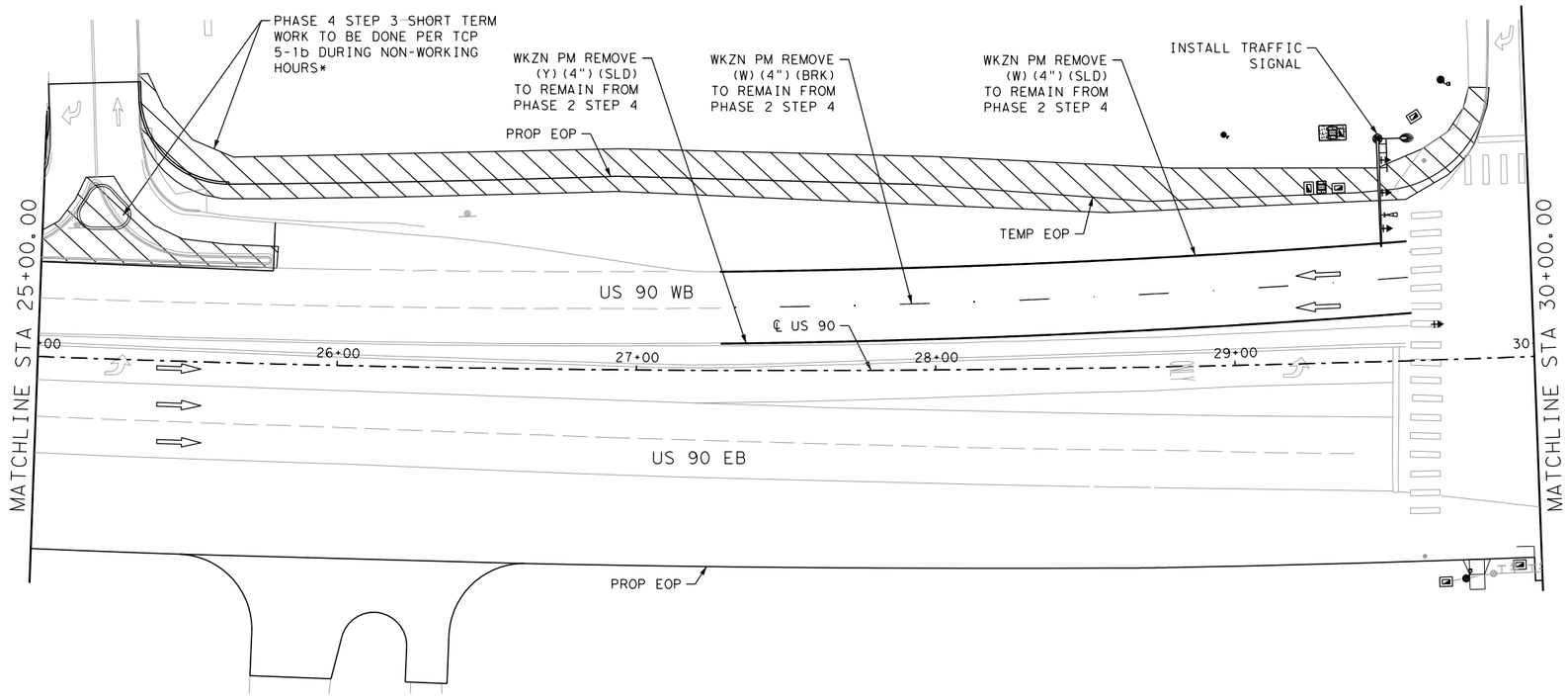
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

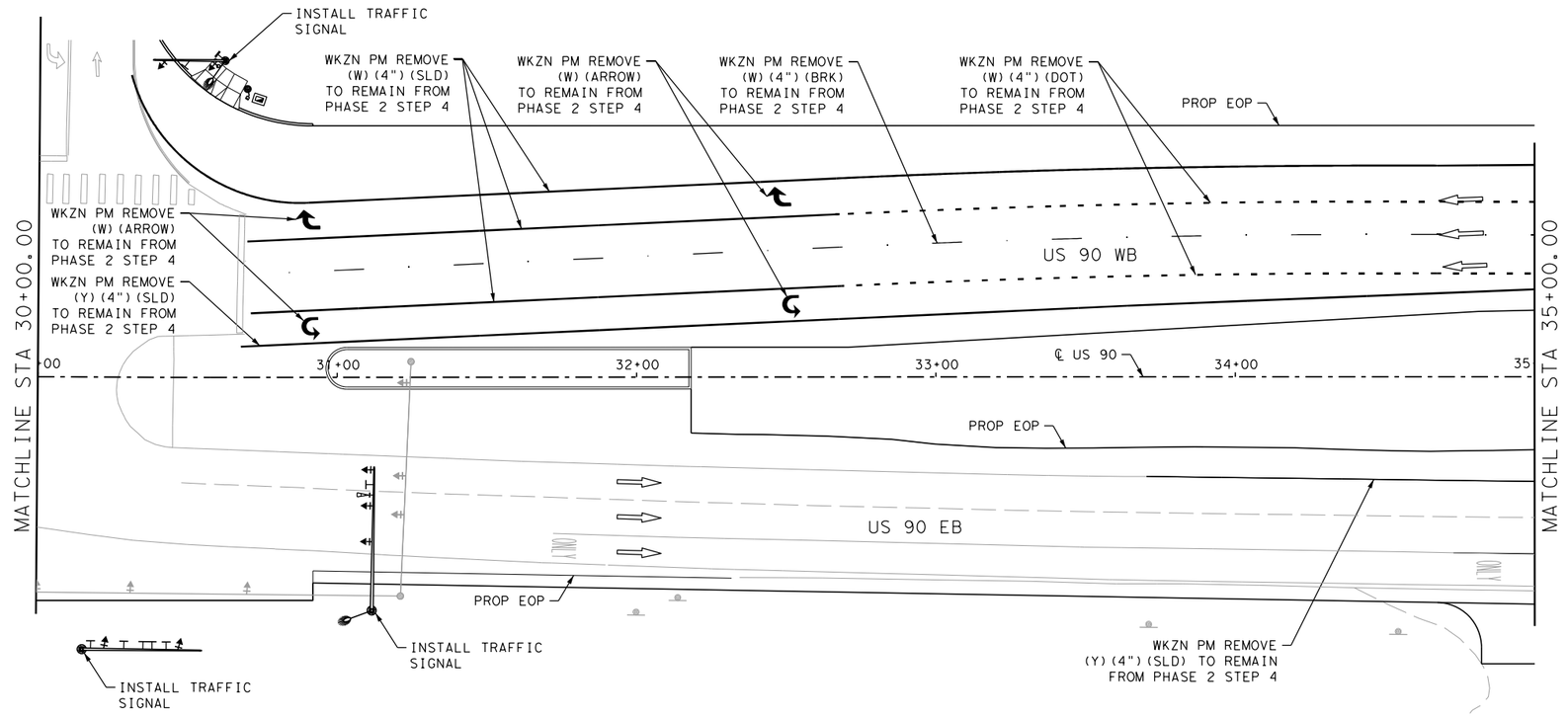
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Plotted on: 4/9/2024

Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 4\1273603_PH4S3_02.dgn





LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

N

N

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 3

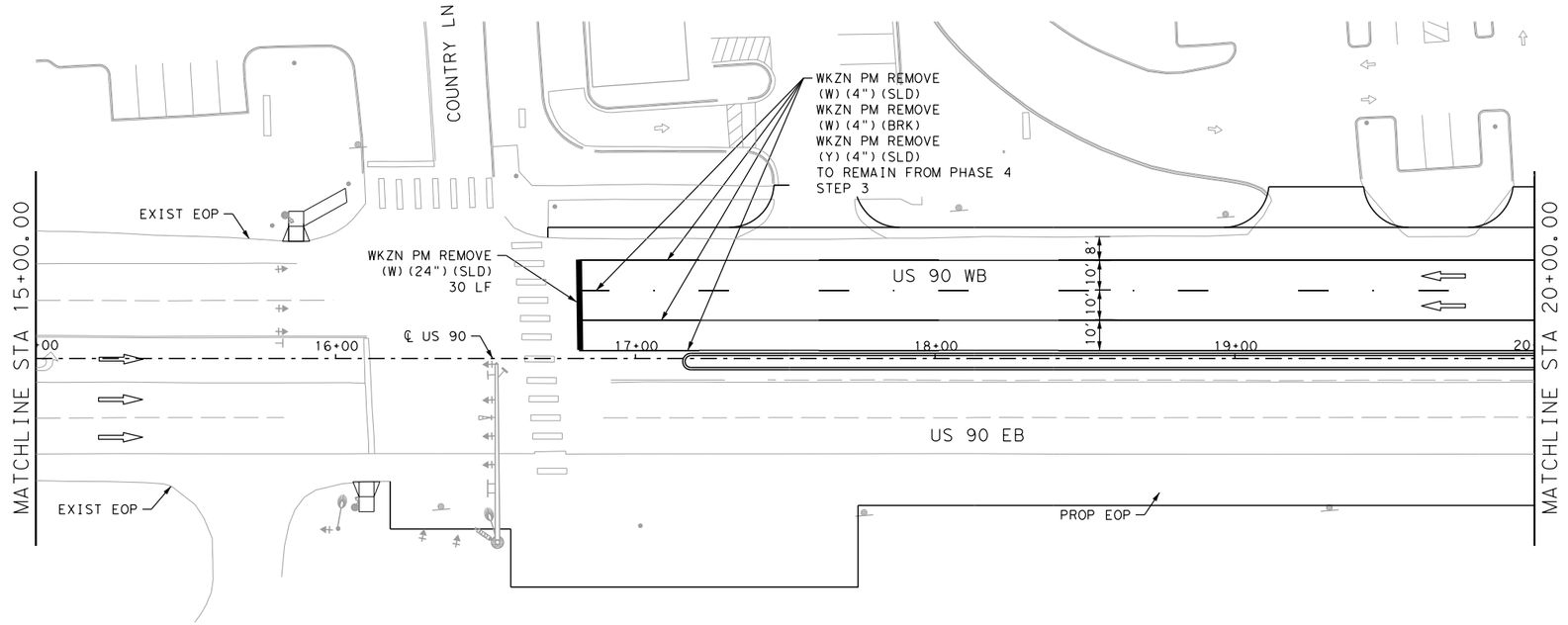
STA 25+00 TO STA 35+00

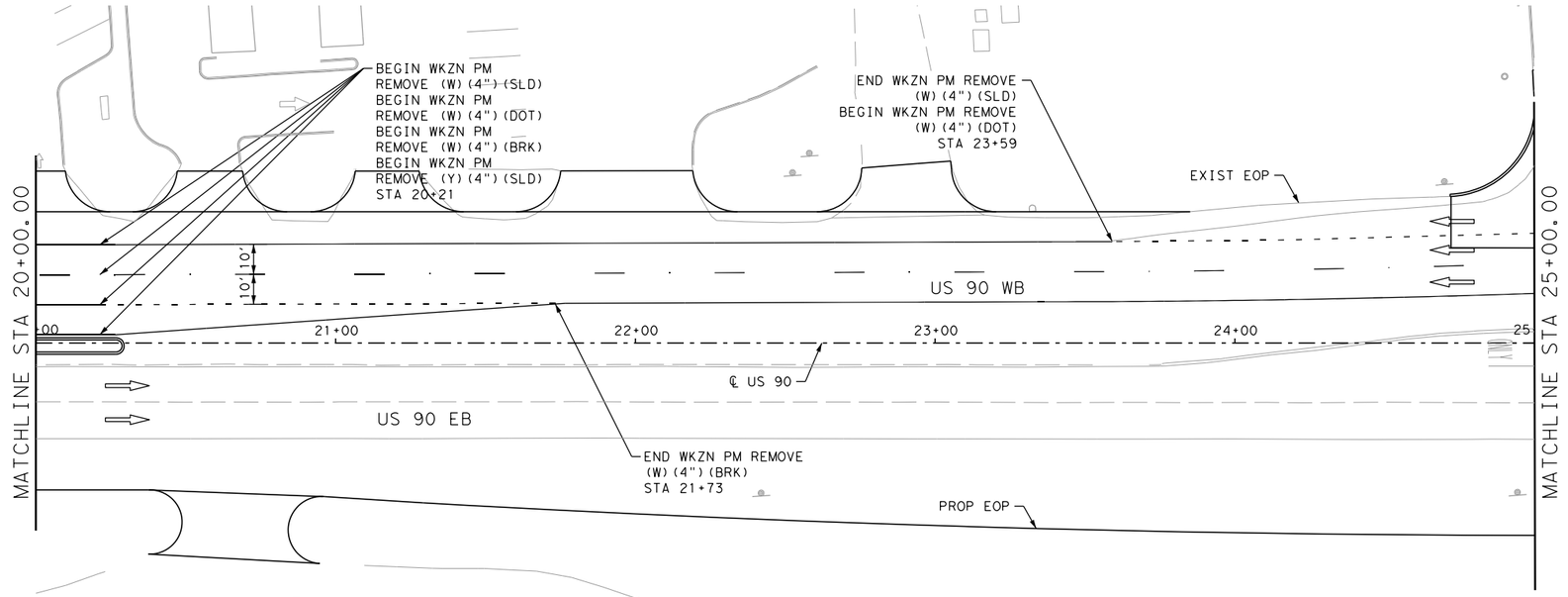
SHEET 2 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024

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N

LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

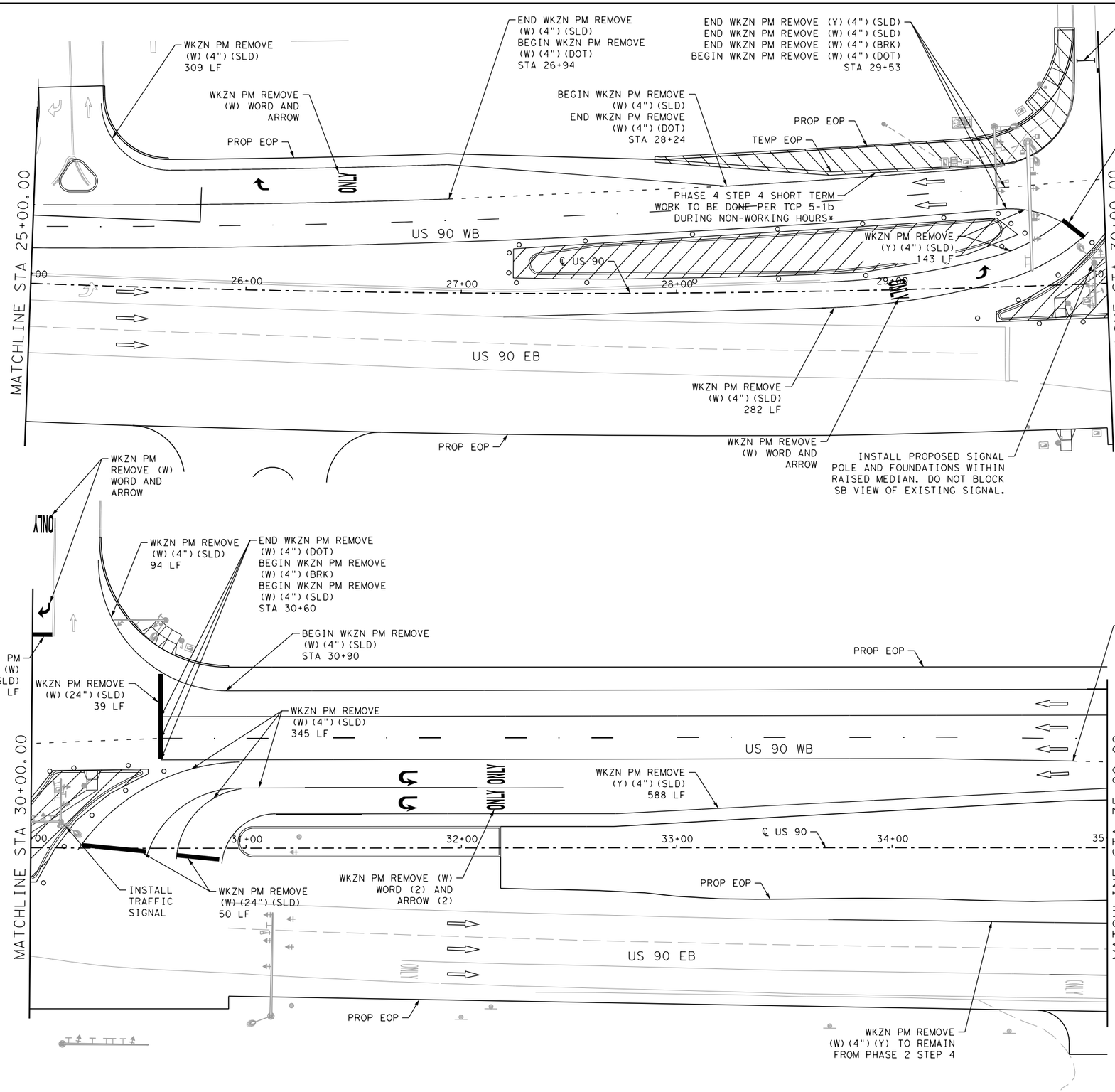
TRAFFIC CONTROL PLAN PHASE 4 STEP 4

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SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/9/2024
Design Filename: P:\127\36\03\Design\Civil\TCP\Phase 4\1273603_PH4S4_02.dgn



LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.

NOTE:
SB TONDRE PKWY:
REMOVE EXIST ARROW (2), WORD (2), AND STOP BAR. WHITE SLD AND YELLOW DBL TO REMAIN. TYP 3 BARRICADE RIGHT LANE TO REDUCE APPROACH TO ONE, RIGHT ONLY LANE.

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation
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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 4

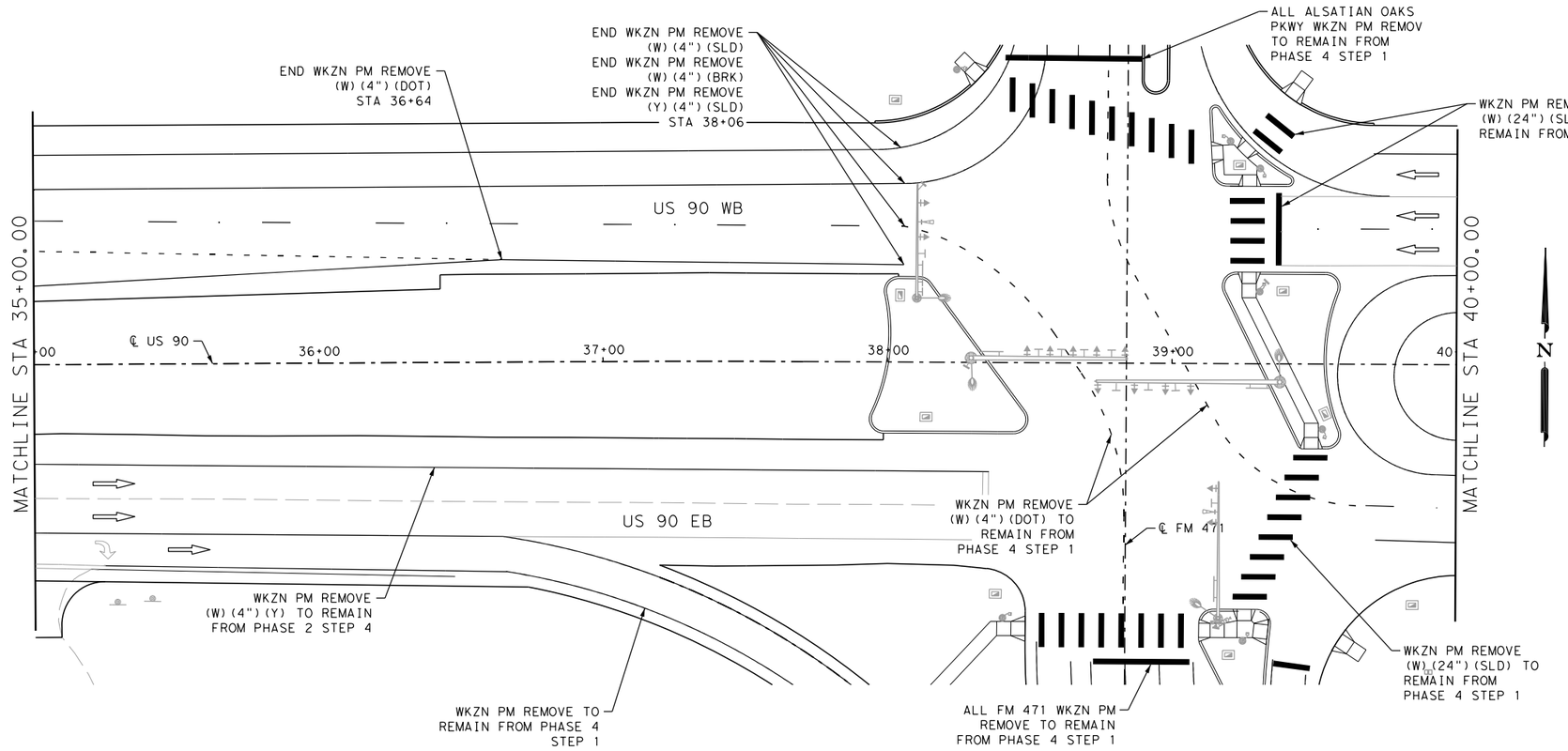
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SHEET 2 OF 3

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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

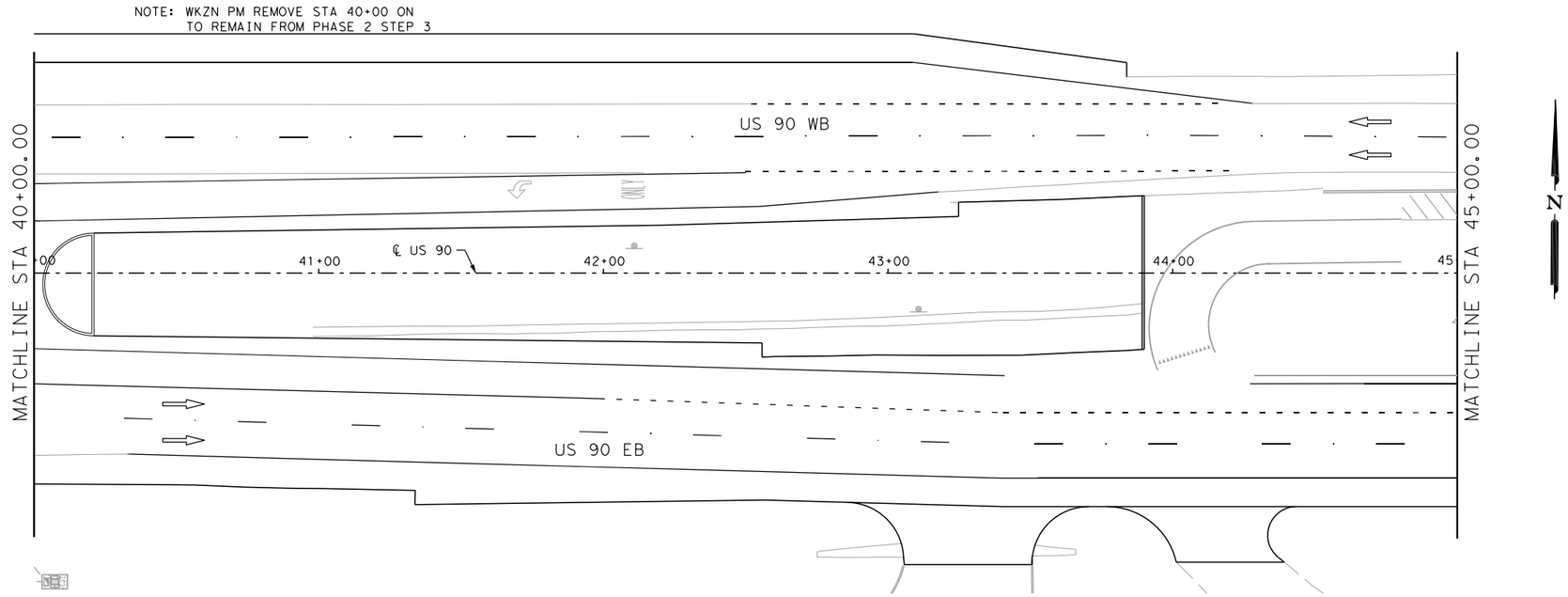
Plotted on: 4/9/2024

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LEGEND

- TRAFFIC FLOW ARROW
- CONSTRUCTION AREA LONG TERM
- CONSTRUCTION AREA SHORT TERM
- TYPE III BARRICADE
- PLASTIC DRUMS
- SIGN
- TRUCK MOUNTED ATTENUATOR (TMA)
- PORTABLE CONCRETE TRAFFIC BARRIER (PCTB)
- CRASH CUSHION
- * NON-WORKING HOURS ARE FROM 9AM TO 3PM AND 9PM TO 6AM.



DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/9/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 4/9/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

TRAFFIC CONTROL PLAN PHASE 4 STEP 4

STA 35+00 TO STA 45+00

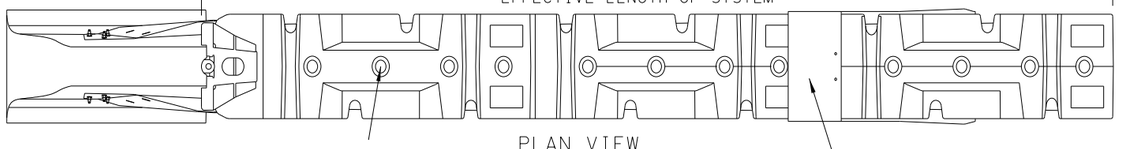
SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

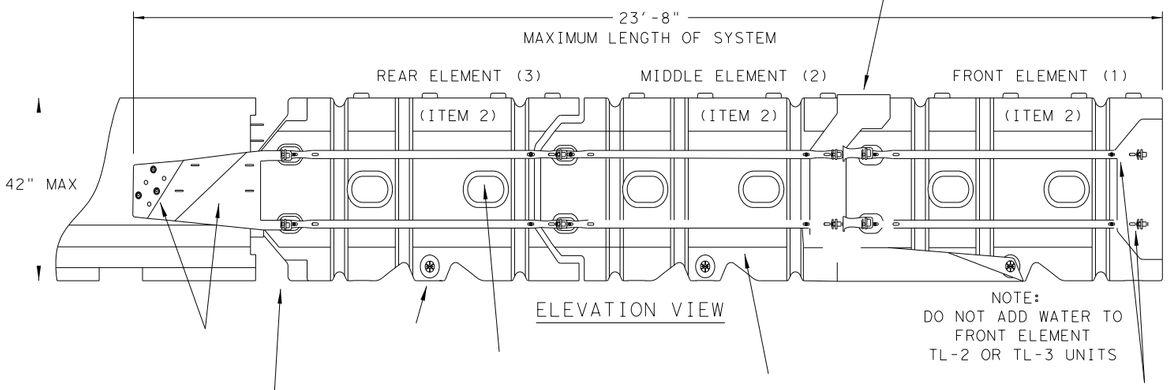
DISCLAIMER:
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DATE: 2/22/2024
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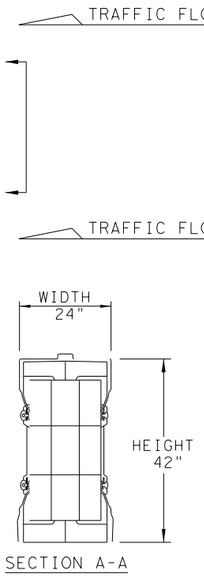
SYSTEM SHOWN - ABSORB-M TL-3



PLAN VIEW



ELEVATION VIEW



SECTION A-A

TEST LEVEL	NUMBER OF ELEMENTS	EFFECTIVE LENGTH	MAXIMUM LENGTH
TL-2	2	14'- 7 3/4"	17'- 4"
TL-3	3	20'- 11 3/4"	23'- 8"

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING THE INSTALLATION AND TECHNICAL GUIDANCE, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800. 180 RIVER ROAD, RIO VISTA, CA 94571
2. THE ABSORB-M SYSTEM IS ONLY APPROVED FOR USE IN (TEMPORARY WORK ZONE) LOCATIONS.
3. THE ABSORB-M IS A WATER FILLED NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO A FOUNDATION AND CAN BE INSTALLED ON TOP OF CONCRETE, ASPHALT, OR ANY SURFACE CAPABLE OF BEARING THE WEIGHT OF THE SYSTEM.
4. MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
5. THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
6. THE ABSORB-M SHOULD BE LOCATED APPROXIMATELY PARALLEL WITH THE BARRIER.
7. THE USE OF THE ABSORB-M IS RESTRICTED TO A BARRIER HEIGHT OF UP TO 42 INCHES.
8. DO NOT ADD WATER TO FRONT ELEMENT (TL-2 OR TL-3 UNIT).

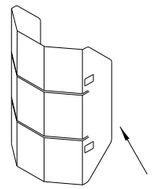
BILL OF MATERIALS (BOM) ABSORB-M TL-3 & TL-2 SYSTEMS			QTY	QTY
ITEM #	PART NUMBER	PART DESCRIPTION	TL-2 SYSTEM	TL-3 SYSTEM
1	BSI-1809036-00	TRANSITION-(GALV)	1	1
* 2	BSI-1808002-00	PRE-ASSEMBLED ABSORBING (ELEMENTS)	2	3
* 3	BSI-4004598	FILL CAPS	8	12
* 4	BSI-4004599	DRAIN PLUGS	2	3
* 5	BSI-1809053-00	TENSION STRAP-(GALV)	8	12
* 6	BSI-2001998	C-SCR FH 3/8-16 X 1 1/2 GR5 PLT	8	12
* 7	BSI-2001999	C-SCR FH 3/8-16 X 1 GR5 PLT	8	12
8	BSI-1809035-00	MIDNOSE-(GALV)	1	1
9	BSI-1808014-00	NOSE PLATE	1	1
10	BSI-1809037-00	TRANSITION STRAP (LEFT-HAND)-(GALV)	1	1
11	BSI-1809038-00	TRANSITION STRAP (RIGHT-HAND)-(GALV)	1	1
12	BSI-1808005-00	PIN ASSEMBLY	8	10
13	BSI-2002001	ANC MECH 5/8-11X5 (GALV)	6	6
14	ABSORB-M	INSTALLATION AND INSTRUCTIONS MANUAL	1	1

* COMPONENTS PRE-ASSEMBLED WITH ELEMENT ASSEMBLY

DELINEATION DECAL PLACEMENT GUIDE



TRAFFIC FLOW LEFT-SIDE BARRIER | TRAFFIC FLOW BOTH-SIDE BARRIER | TRAFFIC FLOW RIGHT-SIDE BARRIER



NOSE PLATE

** NOTE: (PROVIDED BY OTHERS)
ENGINEER OR CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR THE CORRECT DECAL PER TRAFFIC FLOW, LEFT, RIGHT OR BOTH-SIDES.

NOTE:
APPLY A HIGH REFLECTIVE DECAL TO THE NOSE PLATE. DELINEATION DECAL ORIENTATION IS SHOWN ON THE CONSTRUCTION PLAN SET AND SHALL BE IN ACCORDANCE WITH THE TEXAS MUTCD FOR (TRAFFIC CONTROL DEVICES). DECALS ARE AVAILABLE FOR TRAFFIC FLOW ON THE LEFT-SIDE, BOTH -SIDES AND RIGHT-SIDE.

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE ABSORB-M, IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL

Texas Department of Transportation — Design Division Standard

LINDSAY TRANSPORTATION SOLUTIONS
CRASH CUSHION
(MASH TL-3 & TL-2)
TEMPORARY - WORK ZONE
ABSORB(M)-19

FILE: absorbm19	DN: TxDOT	CK: KM	DW: VP	CK:
© TxDOT: JULY 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
	DIST	COUNTY		
	SA	MEDINA		

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

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

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

WORKER SAFETY NOTES:

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

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

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SHEET 1 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

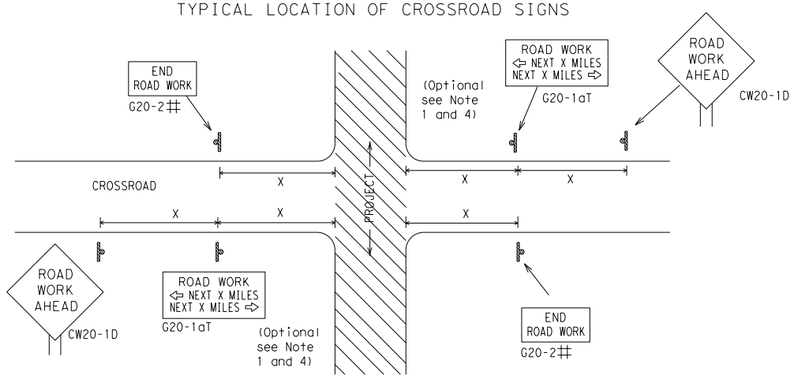
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

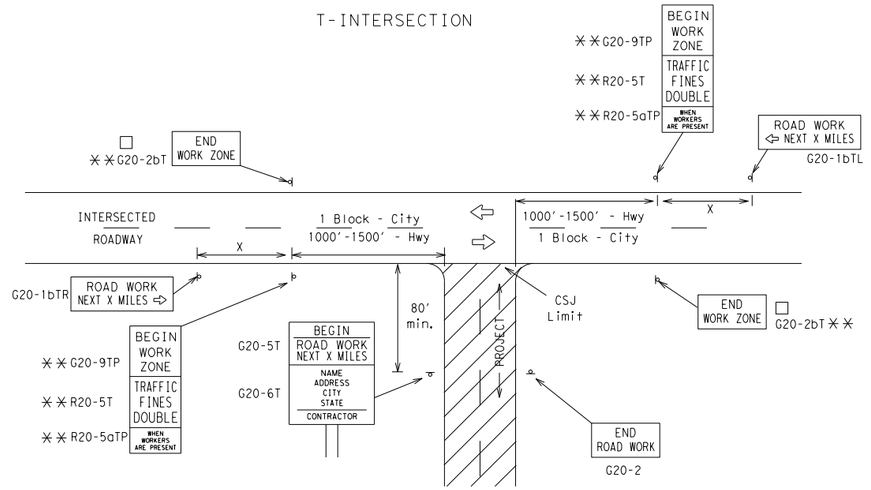
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13	24	6		313
9-07 8-14	DIST	COUNTY		
5-10 5-21	SA	MEDINA		72

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TYPICAL LOCATION OF CROSSROAD SIGNS



T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.

2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

SIZE

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

SPACING

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

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

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

GENERAL NOTES

1. Special or larger size signs may be used as necessary.

2. Distance between signs should be increased as required to have 1500 feet advance warning.

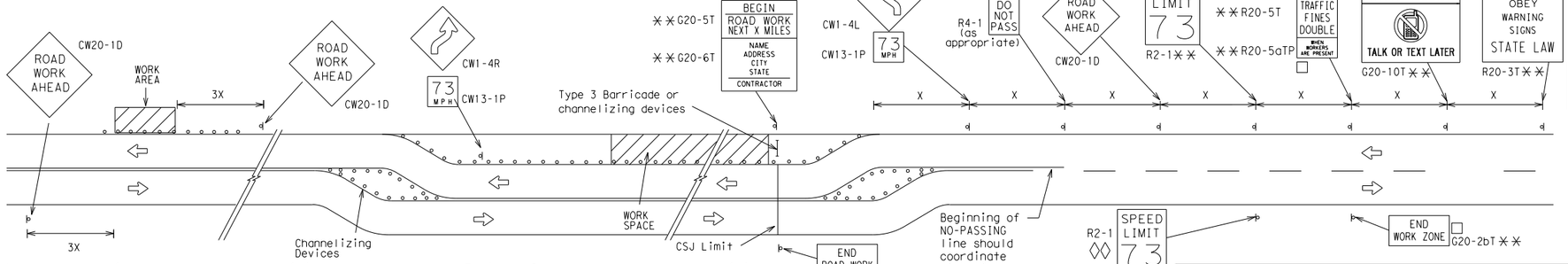
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.

4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".

5. Only diamond shaped warning sign sizes are indicated.

6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

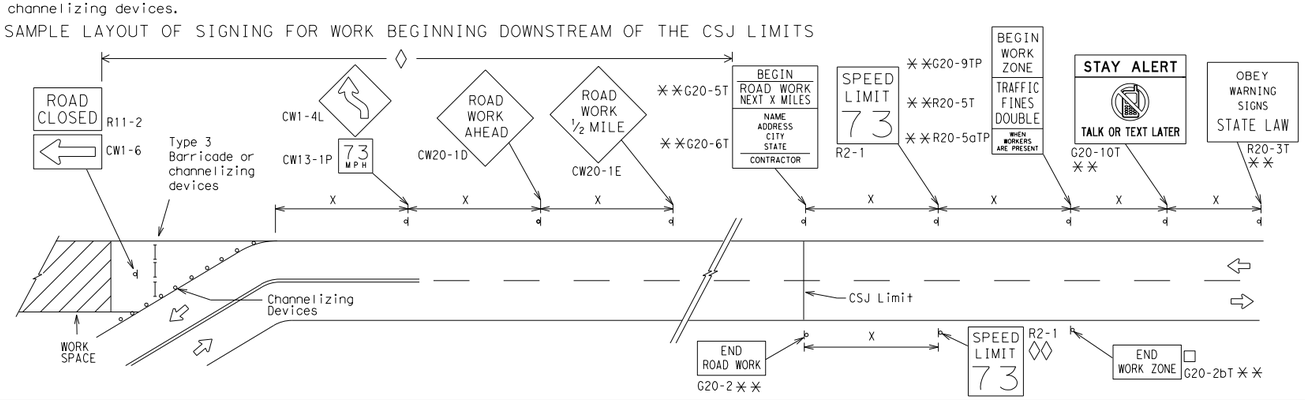
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

✳✳ CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ 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.

SHEET 2 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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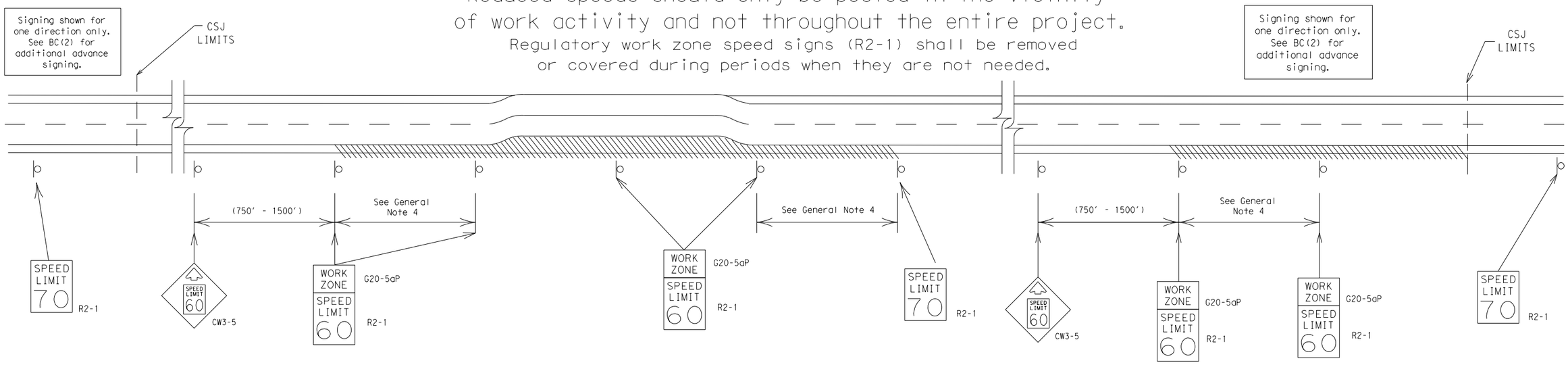
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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:

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

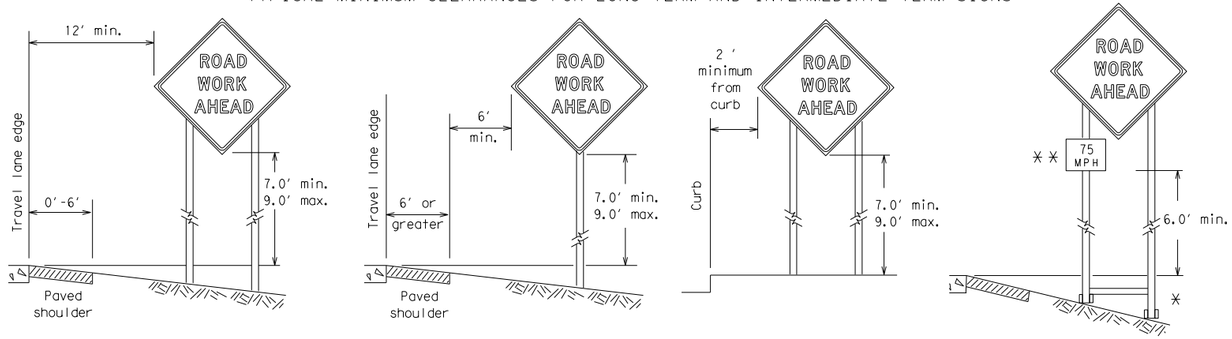
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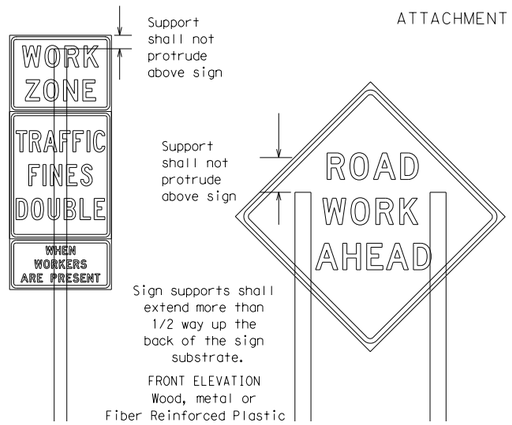
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



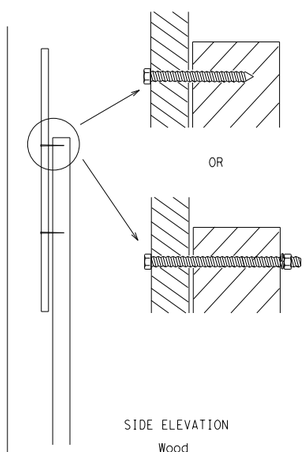
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

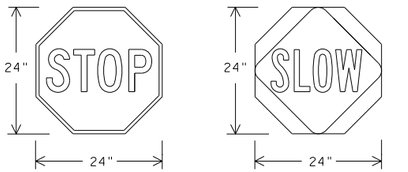
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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

STOP/SLOW PADDLES

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



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

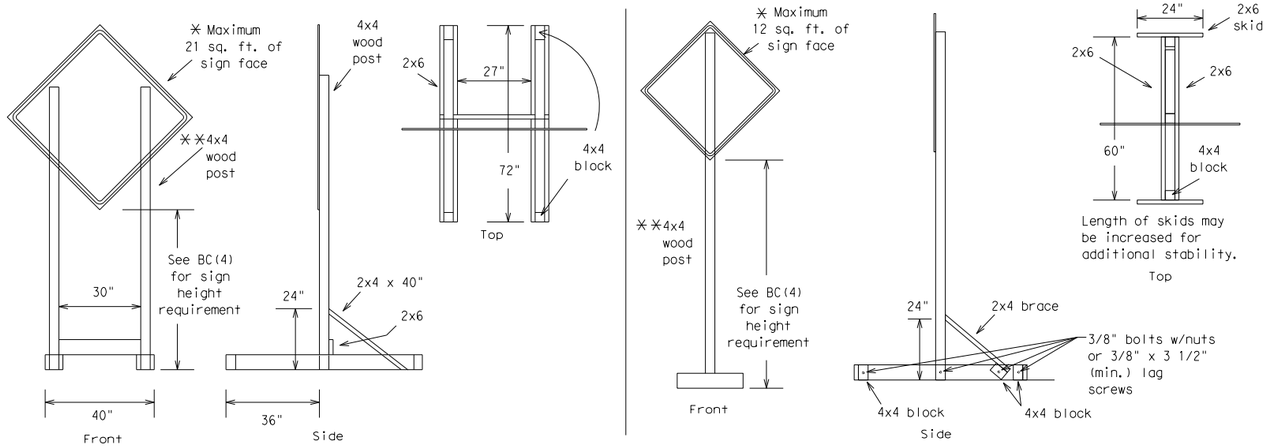
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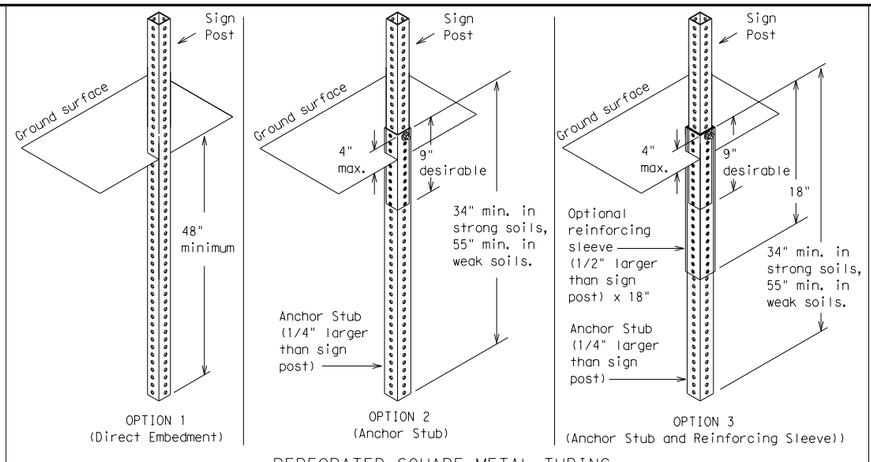
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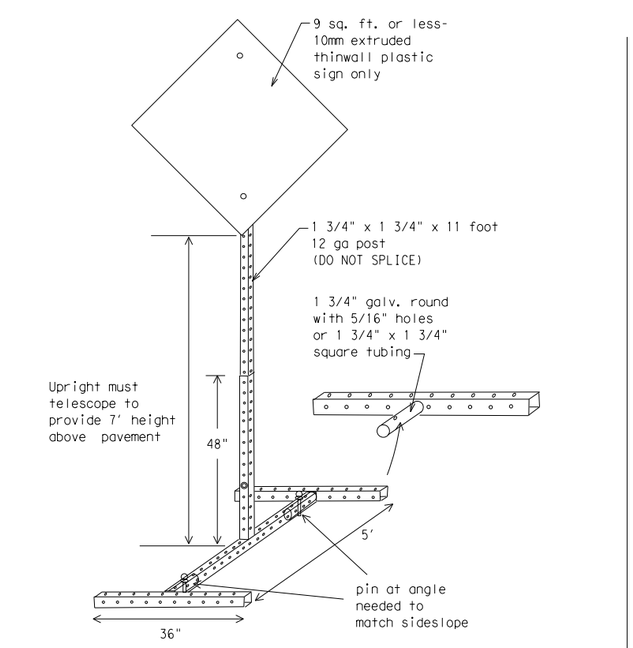
SKID MOUNTED WOOD SIGN SUPPORTS

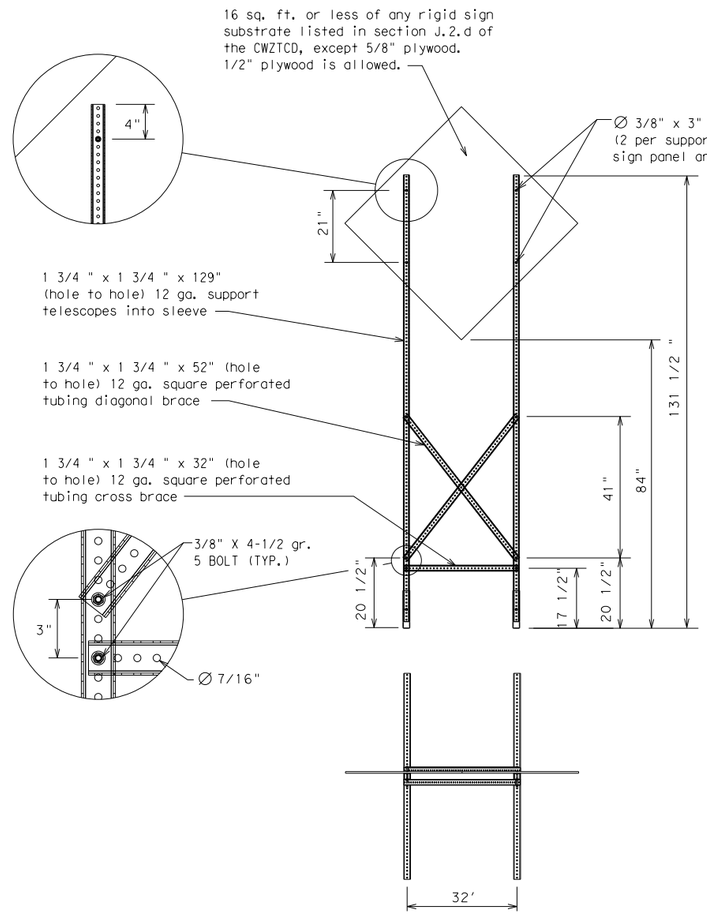
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

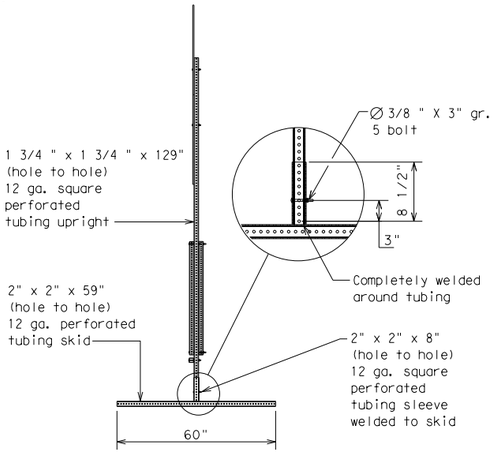


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Section X, Item d.

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

⁂⁂ Advance Notice List

TUE-FRI XX AM- X PM
APR XX-77 X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

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

⁂⁂ See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

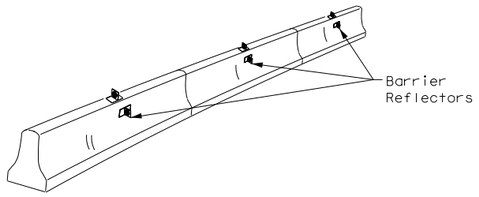
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©TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS		24	6		
9-07	8-14	DIST	COUNTY		318
7-13	5-21	SA	MEDINA		77

100

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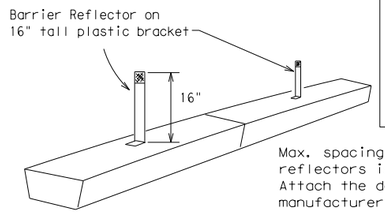
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1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

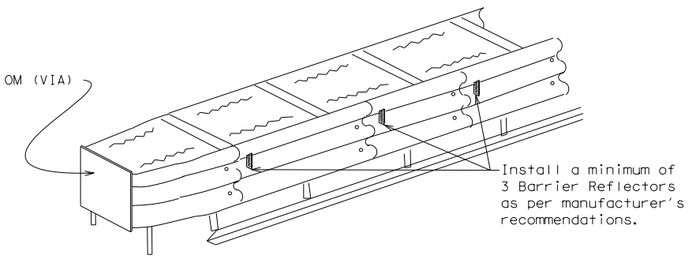


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

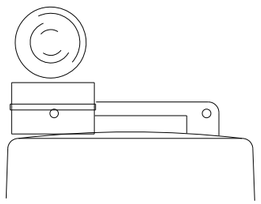


DELINEATION OF END TREATMENTS

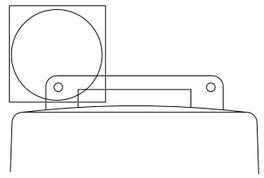
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

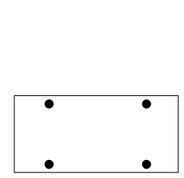
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

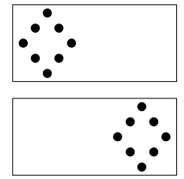
Arrow Boards may be located behind channelizing devices in place for a shou taper or merging taper, otherwise they shall be delineated with four (4) ch devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:

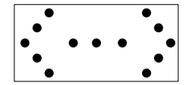


4 CORNER CAUTION

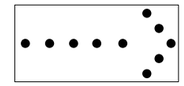
OR



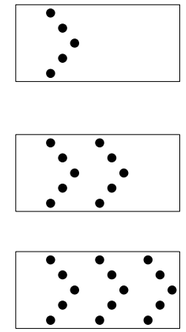
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



RIGHT/LEFT ARROW
(right arrow shown; left is similar)



RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
9-07 8-14	DIST	COUNTY		319
7-13 5-21	SA	MEDINA		78

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

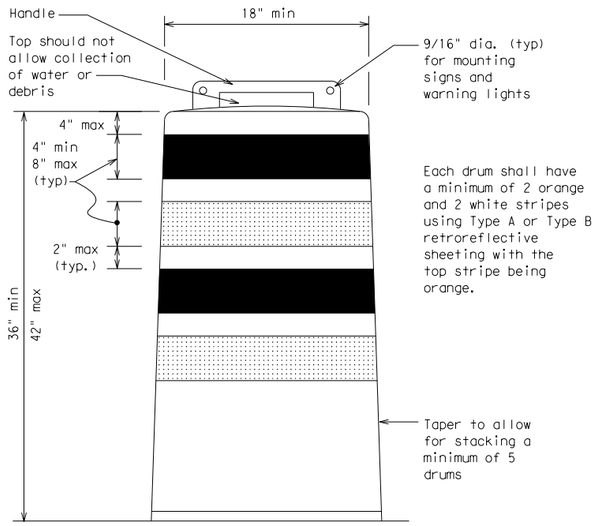
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

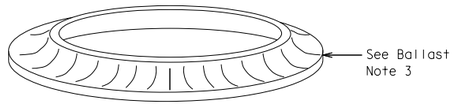
RETROREFLECTIVE SHEETING

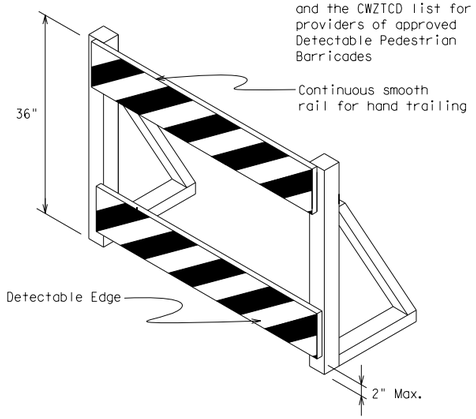
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

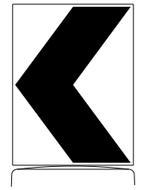




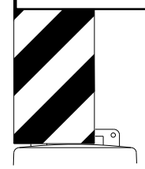


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{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.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

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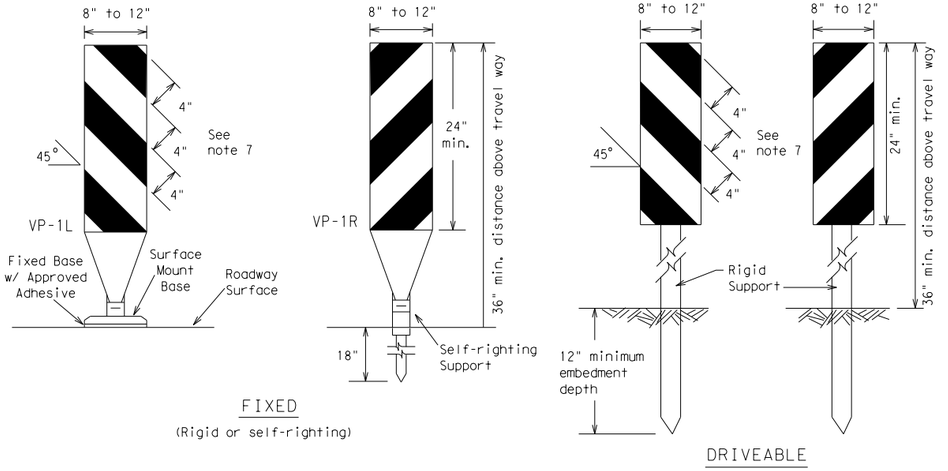
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

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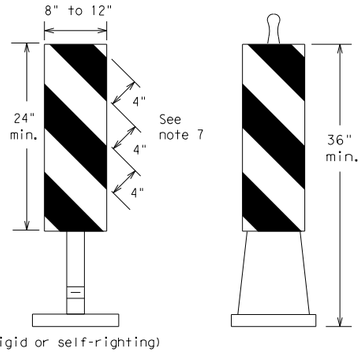
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FIXED

(Rigid or self-righting)

DRIVEABLE

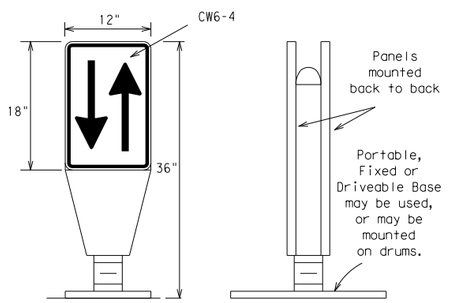


(Rigid or self-righting)

PORTABLE

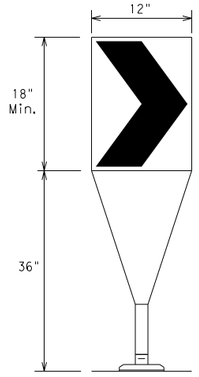
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



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

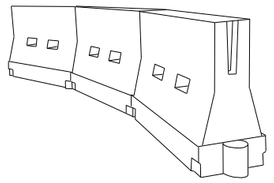
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



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

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

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	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′
35		205′	225′	245′	35′	70′
40		265′	295′	320′	40′	80′
45	L = WS	450′	495′	540′	45′	90′
50		500′	550′	600′	50′	100′
55		550′	605′	660′	55′	110′
60		600′	660′	720′	60′	120′
65		650′	715′	780′	65′	130′
70		700′	770′	840′	70′	140′
75		750′	825′	900′	75′	150′
80		800′	880′	960′	80′	160′

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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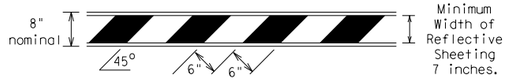
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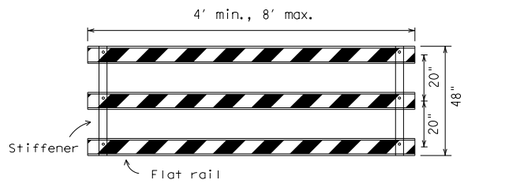
TYPE 3 BARRICADES

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 or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



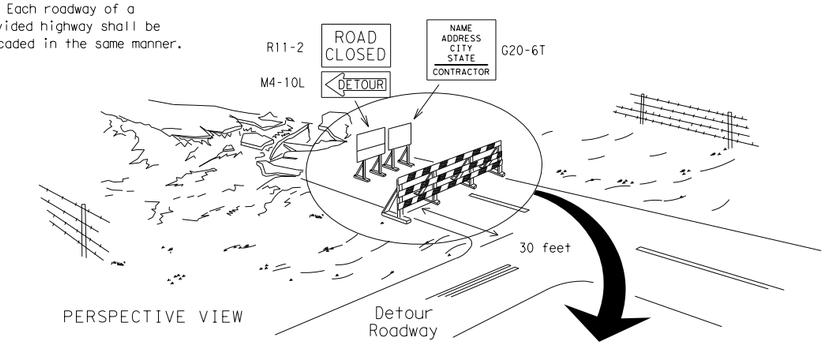
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

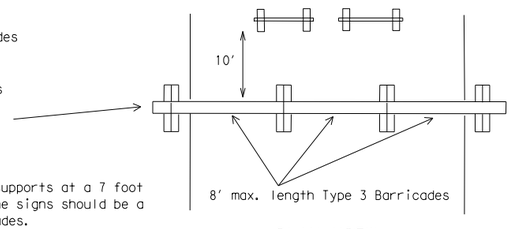
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

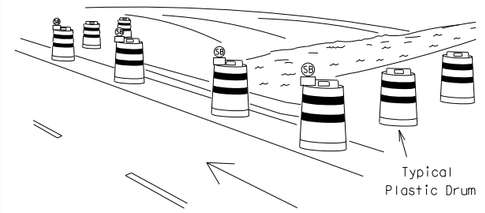
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

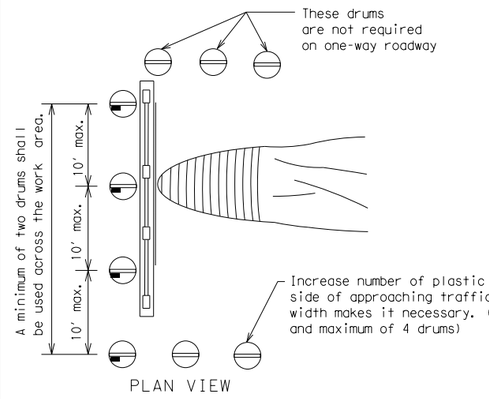
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

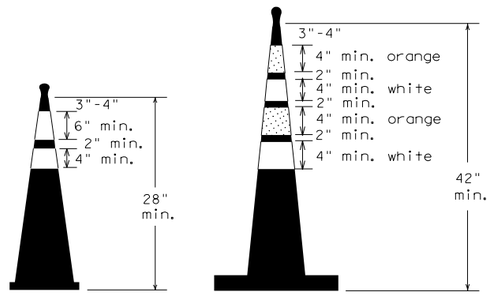
1. Where positive [illegible] capability is [illegible] may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



PLAN VIEW

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

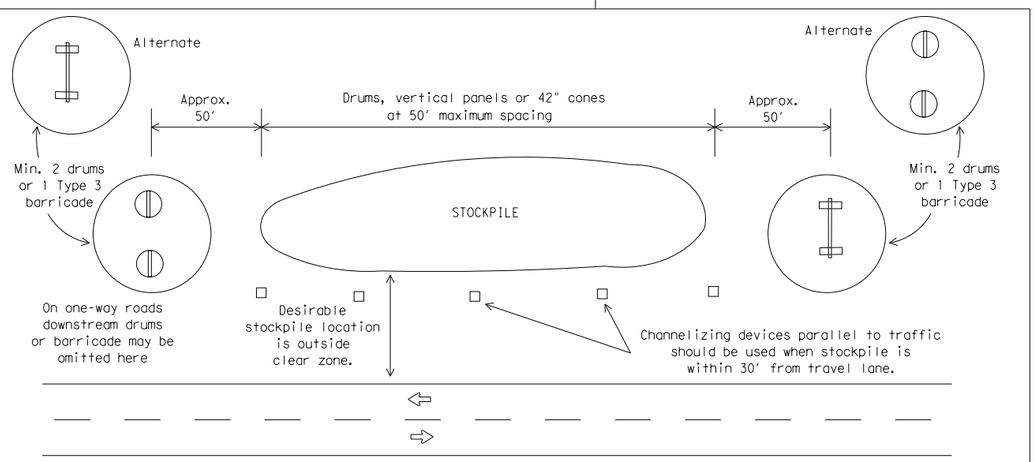
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers 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 or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

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

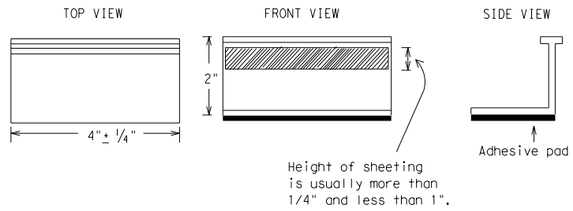
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECI	
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).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

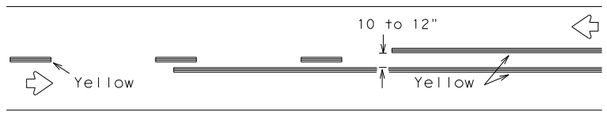
BC(11)-21

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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	SA	MEDINA		82

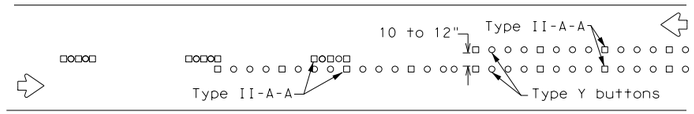
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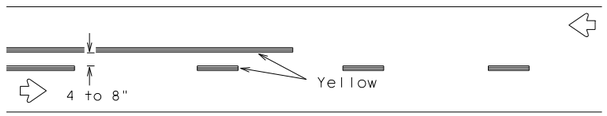
PAVEMENT MARKING PATTERNS



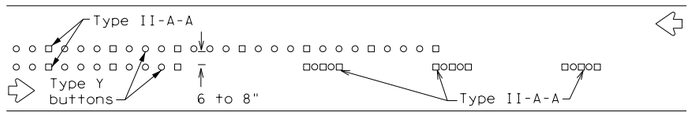
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



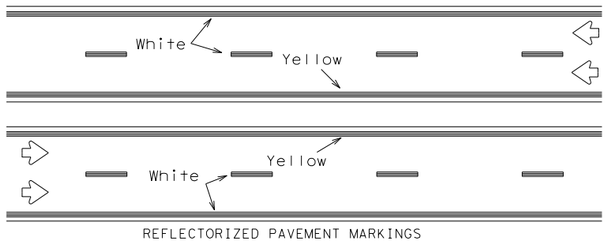
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



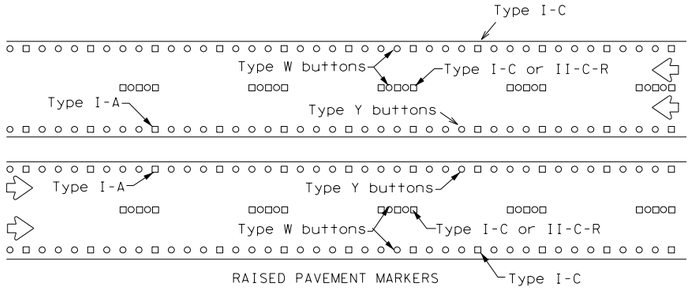
RAISED PAVEMENT MARKERS - PATTERN B

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

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



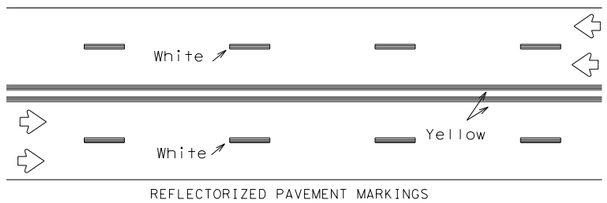
REFLECTORIZED PAVEMENT MARKINGS



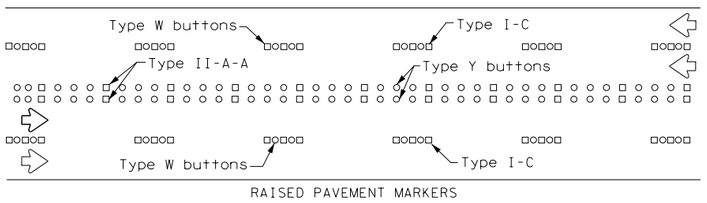
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



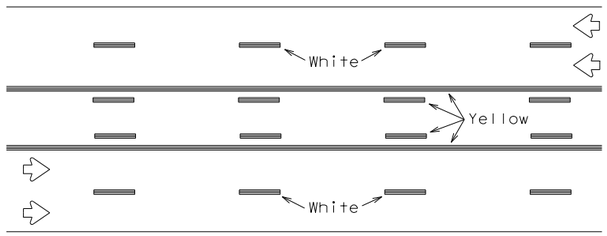
REFLECTORIZED PAVEMENT MARKINGS



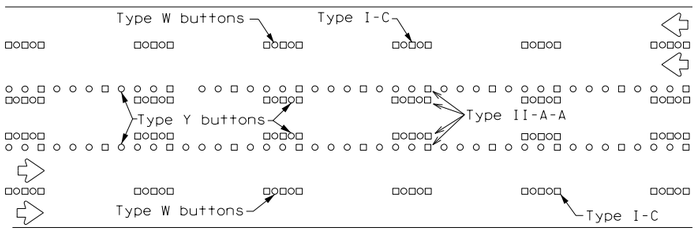
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

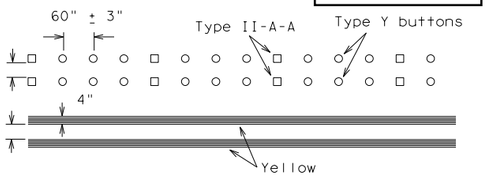
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

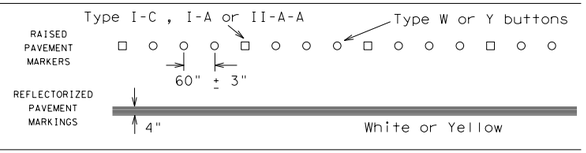
STANDARD WORK ZONE PAVEMENT MARKINGS DET

SOLID LINES

DOUBLE NO-PASSING LINE

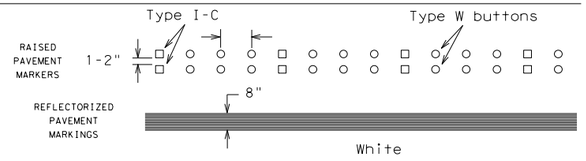


EDGE LINE OR SINGLE NO-PASSING LINE



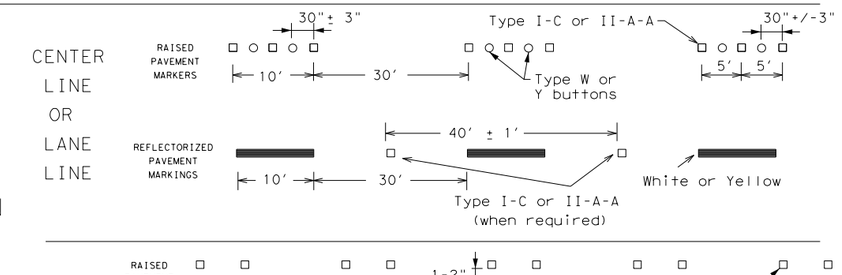
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

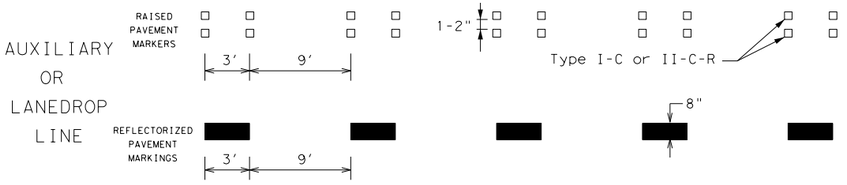


BROKEN LINES

CENTER LINE OR LANE LINE

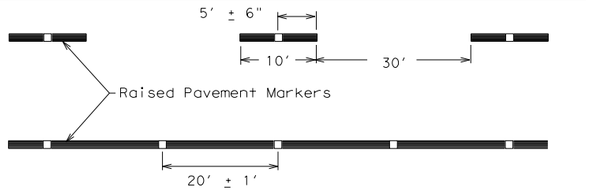


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

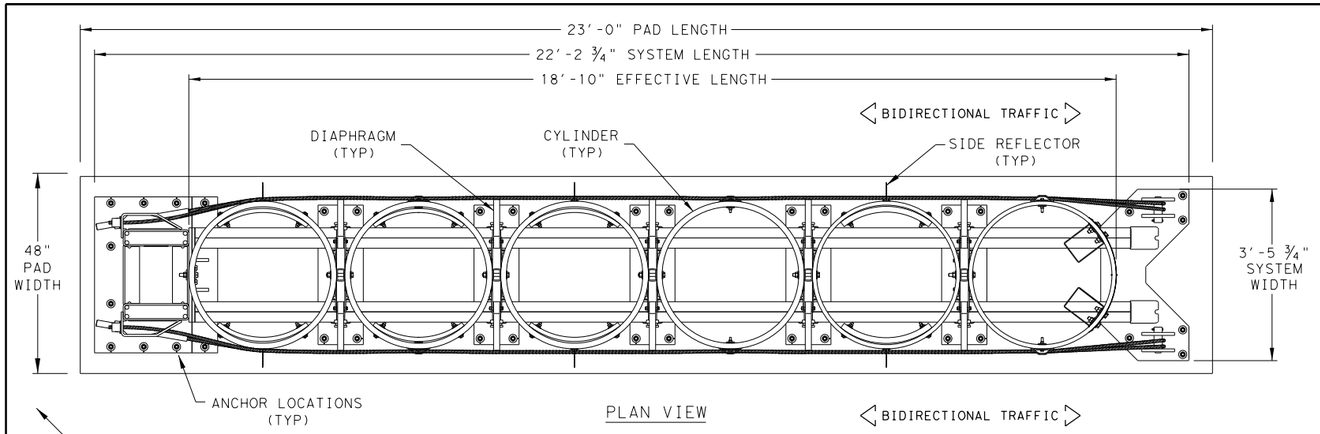
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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		
	SA	MEDINA		83

106

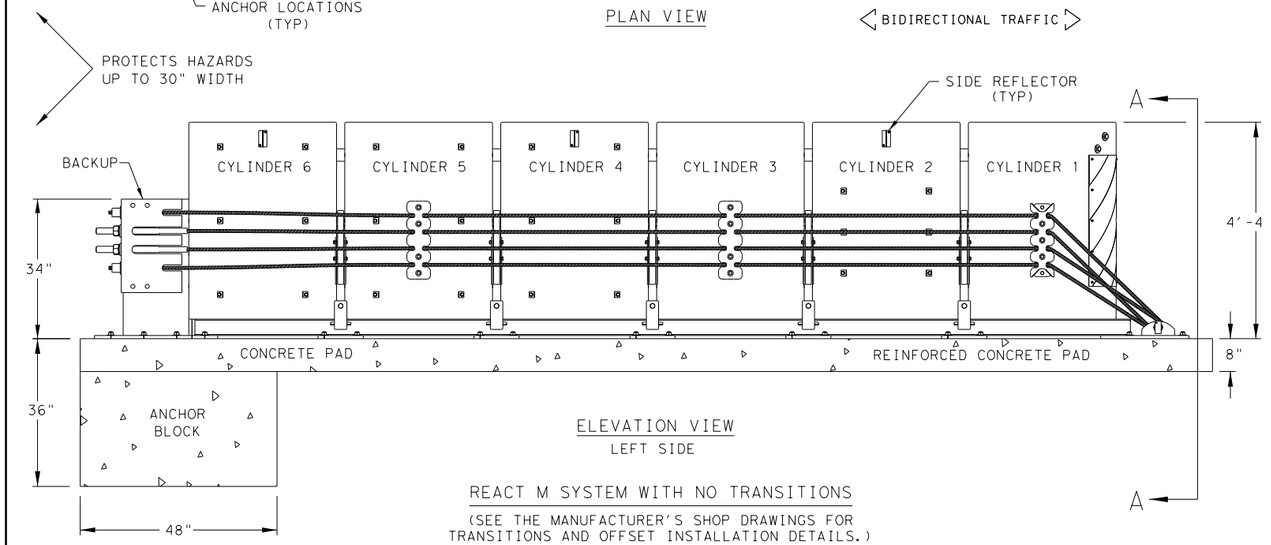
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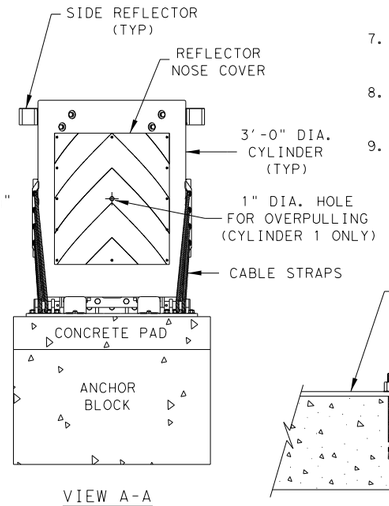
PLAN VIEW



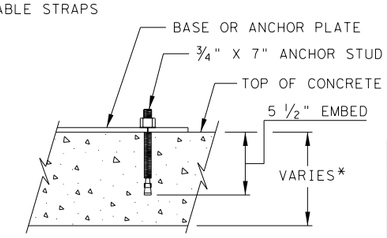
ELEVATION VIEW
LEFT SIDE

REACT M SYSTEM WITH NO TRANSITIONS

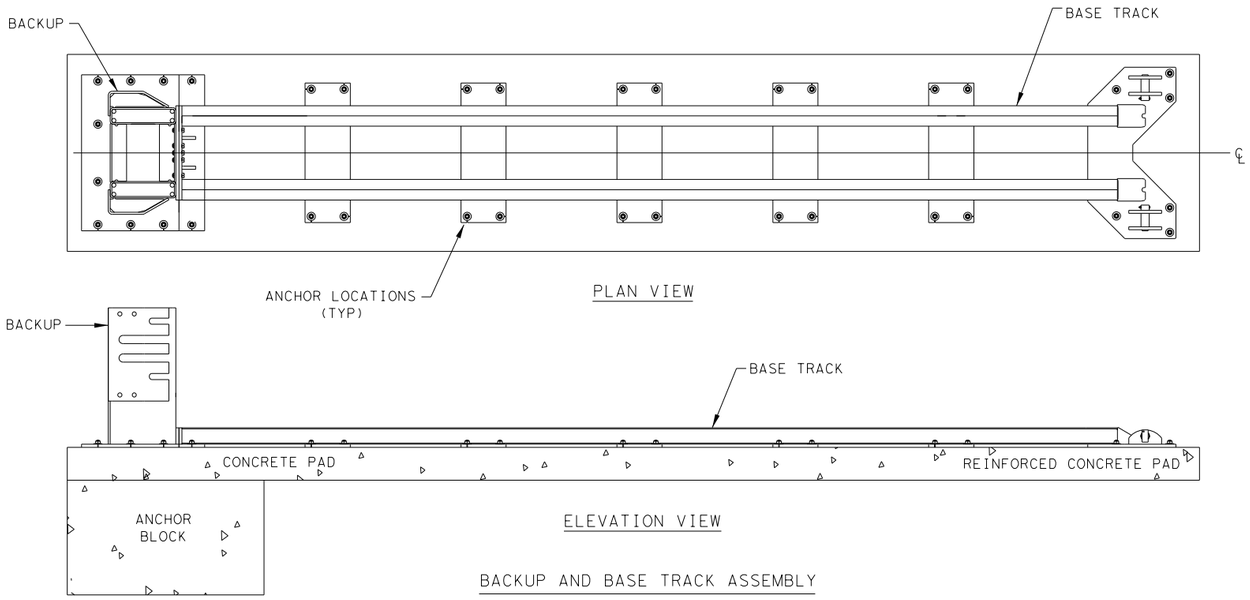
(SEE THE MANUFACTURER'S SHOP DRAWINGS FOR TRANSITIONS AND OFFSET INSTALLATION DETAILS.)



VIEW A-A



ANCHORING DETAIL
*SEE FOUNDATION TYPES TABLE



PLAN VIEW

ELEVATION VIEW

BACKUP AND BASE TRACK ASSEMBLY

(SEE THE MANUFACTURER'S SHOP DRAWINGS FOR TRANSITIONS, OFFSETS, BIDIRECTIONAL AND UNIDIRECTIONAL INSTALLATION DETAILS.)

GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TEC GUIDANCE OF THE SYSTEM, CONTACT: TRINITY HIGHWAY - ENER AT 1(888)323-6374 OR WEBSITE: www.trinityhighway.com.
2. THE NOSE OF THE REACT M SHALL BE CLAD WITH A PLASTIC WRAP WITH STANDARD DELINEATION ADHERED TO THE WRAP AND SHALL HAVE A SERIES OF SIDE MARKER REFLECTORS ON BOTH SIDES OF THE UNIT. SEE SITE PLAN VIEWS FOR MARKER AND PLASTIC WRAP COLOR ORIENTATION.
3. FOR BI-DIRECTIONAL TRAFFIC, APPROPRIATE TRANSITION DETAILS WILL BE AS SHOWN ON THE MANUFACTURER'S SHOP DRAWINGS.
4. DETAILS OF COMPONENTS FOR THE REACT M, BACKUPS AND REINFORCING DETAILS WILL BE SHOWN ON THE MANUFACTURER'S SHOP DRAWINGS FURNISHED TO THE ENGINEER.
5. IF THE CROSS-SLOPE VARIES MORE THAN 2% OVER THE LENGTH OF THE SYSTEM, THE CONCRETE PAD WILL REQUIRE LEVELING. MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
6. THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
7. THE REACT M SYSTEM SHOULD BE APPROXIMATELY PARALLEL WITH THE BARRIER OR CENTERLINE OF MERGING BARRIERS.
8. ALL STEEL COMPONENTS TO BE HOT DIPPED GALVANIZED EXCEPT STAKES, DRIVE SPIKES, THREADED BOLTS IN BACKUP UNIT, AND WEDGE FITTINGS ON CABLES.
9. THIS DRAWING REPRESENTS THE REACT M TL-3 SYSTEM, RE-DIRECTIVE, NON-GATING CRASH CUSHION THAT CAN PROTECT HAZARDS UP TO 30-INCHES IN WIDTH.

DESIGN DATA TABLE FOR REACT M

TEST NUMBER	TEST LEVEL	OVERALL LENGTH	TRANSITION LENGTH	SYSTEM WIDTH
3-30 TO 3-36	TL-3	22'-2 ¾"	-	3'-5 ¾"
3-37A	TL-3	22'-2 ¾"	9'-10 ¾"	3'-5 ¾"
3-38	TL-3	22'-2 ¾"	-	3'-5 ¾"

ANCHOR SYSTEM TYPE

APPROVED ADHESIVE, 7" STUDS, 5.5" EMBEDMENT

FOUNDATION TYPES

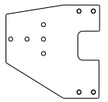
MINIMUM 8" REINFORCED PORTLAND CEMENT CONCRETE PAD (REQUIRED REINFORCING STEEL FOR CONCRETE PAD SHALL BE SHOWN ON THE MANUFACTURER'S SHOP DRAWINGS.

MINIMUM 8" NON-REINFORCED PORTLAND CEMENT CONCRETE ROADWAY MEASURING AT LEAST 12' WIDE BY 50' LONG)

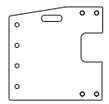
MINIMUM 7" CONCRETE DECK STRUCTURE, OR MINIMUM 6" REINFORCED CONCRETE ROADWAY

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE REACT M SYSTEM AND IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

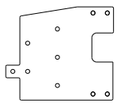
BACKUP ASSEMBLY TYPES FOR SYSTEM TRANSITIONS



SAFETY SHAPE BARRIER TRANSITION (ADAPTER)
TRANSITION PLATE(S)(OPTIONAL)
REQUIRED W/BI-DIRECTIONAL TRAFFIC FLOWS ONLY.



VERTICAL WALL BARRIER TRANSITION (ADAPTER)
TRANSITION PLATE(S)(OPTIONAL)
REQUIRED W/UNIDIRECTIONAL TRAFFIC FLOWS ONLY.



VERTICAL WALL BARRIER TRANSITION (ADAPTER)
TRANSITION PLATE(S)(OPTIONAL)
REQUIRED W/BI-DIRECTIONAL TRAFFIC FLOWS ONLY.

NOTES:
CONTACT THE MANUFACTURER WITH SITE SPECIFIC DATA (SSD) FOR THE CORRECT BACKUP ASSEMBLY AND TRANSITION PANELS OR SIDE PANELS USED FOR STANDARD AND BI-DIRECTIONAL INSTALLATIONS: AT DIVIDED-HIGHWAY MEDIANS OR UNDIVIDED ROADWAYS WHERE THE SYSTEM IS EXPOSED TO IMPACTS FROM ONE OR TWO DIFFERENT DIRECTIONS OF TRAFFIC FLOW.

LOW MAINTENANCE

Texas Department of Transportation — Design Division Standard

TRINITY HIGHWAY ENERGY ABSORPTION CRASH CUSHION REACT M (NARROW) (MASH TL-3)

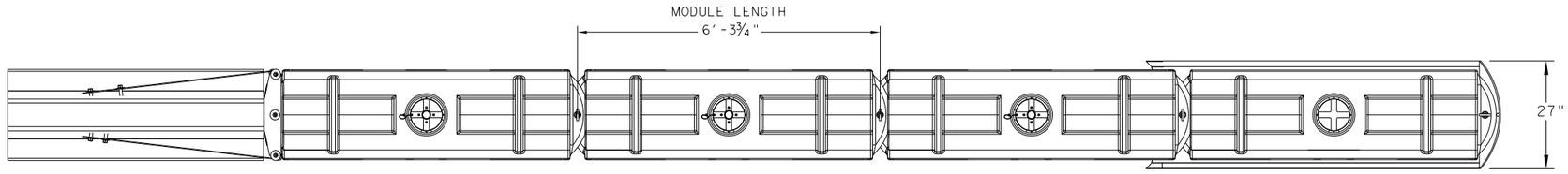
REACT(M)-21

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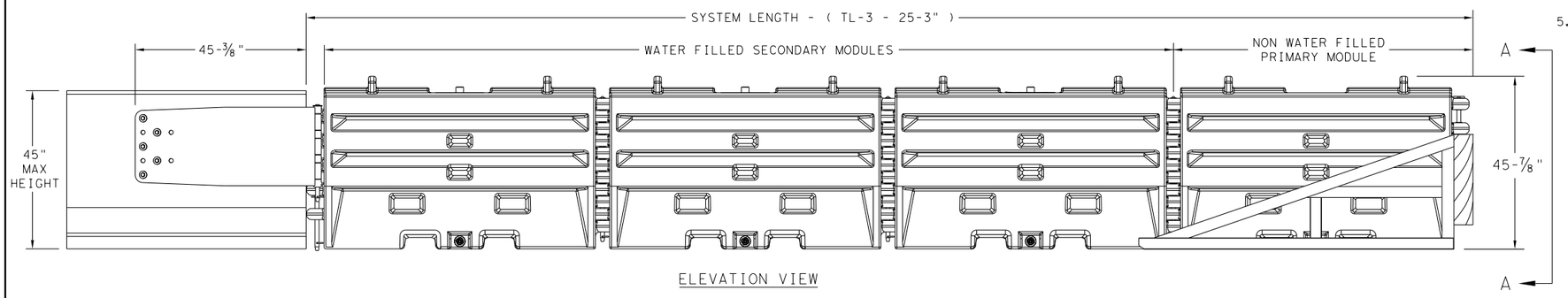
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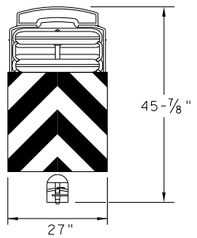
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PLAN VIEW



ELEVATION VIEW

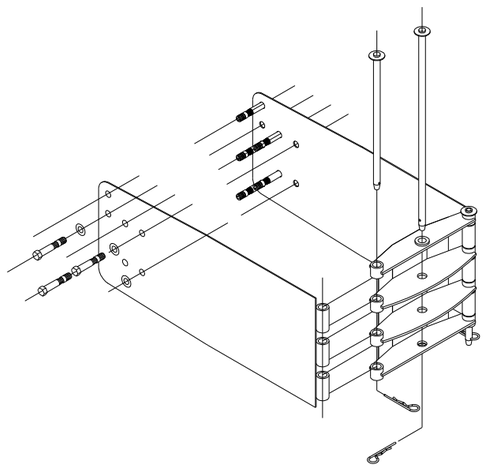


SECTION A-A



NOSE SHEETING PANEL DELINEATION

NOTE:
SEE INSTALLATION MANUAL FOR CUSTOMIZED DELINEATION NOSE SHEETING FOR DECAL PLACEMENT.



SLED TRANSITION COMPONENTS FOR ATTACHMENT TO CMB

NOTE:
SEE MANUFACTURER'S INSTALLATION MANUAL FOR FURTHER DETAILS.

TEST LEVEL	NUMBER OF SECONDARY MODULES	SYSTEM LENGTH
TL-3	3	25′ 3"

TRANSITION OPTIONS
SLED TRANSITION TO CONCRETE TRAFFIC BARRIER (TEMPORARY OR PERMANENT)
SLED TRANSITION TO STEEL TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO PLASTIC TRAFFIC BARRIER (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO W-BEAM OR THRIE BEAM GUARD RAIL (CONTACT MFGR FOR PROPER TRANSITION)
SLED TRANSITION TO CONCRETE BRIDGE ABUTMENT

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE SLED, IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL

GENERAL NOTES

1. REFER TO THE INSTALLATION MANUAL FOR SPECIFIC [illegible] AND MODULE ORIENTATION. FOR ADDITIONAL INFORMATION, CONTACT TRAFFIX, INC. AT (949) 361-5663.
2. THE SLED SYSTEM IS A MASH APPROVED TEST LEVEL 3 (TL-3) CRASH CUSHION APPROVED FOR USE IN TEMPORARY WORK ZONES. THE SLED SYSTEM IS A NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO THE GROUND AND CAN BE INSTALLED ON CONCRETE, ASPHALT, GRAVEL OR COMPACTED SOIL.
3. MAXIMUM PERMISSIBLE CROSS SLOPE IS 8° (DEGREES) (14%).
4. THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
5. THE SLED SYSTEM CAN BE ATTACHED TO:

- CONCRETE BARRIER, TEMPORARY OR PERMANENT, 45" MAXIMUM HEIGHT
- STEEL BARRIER
- PLASTIC BARRIER
- CONCRETE BRIDGE ABUTMENTS
- W-BEAM GUARD RAIL
- THRIE BEAM GUARD RAIL

BILL OF MATERIAL

PART NUMBER	DESCRIPTION	QTY: TL-3
45131	TRANSITION FRAME, GALVANIZED	1
45150	TRANSITION PANEL, GALVANIZED	2
45147-CP	TRANSITION SHORT DROP PIN W/ KEEPER PIN, GALVANIZED	2
45148-CP	TRANSITION LONG DROP PIN W/ KEEPER PIN, GALVANIZED	1
45050	ANCHOR BOLTS	9
12060	WASHER, 3/4" ID X 2" OD	9
45044-Y	SLED YELLOW WATER FILLED MODULE	3
45044-YH	SLED YELLOW "NO FILL" MODULE	1
45044-S	CIS (CONTAINMENT IMPACT SLED), GALVANIZED	1
45043-CP	T-PIN W/ KEEPER PIN	4
18009-B-I	FILL CAP W/ "DRIVE BY" FLOAT INDICATOR	3
45033-RC-B	DRAIN PLUG	3
45032-DPT	DRAIN PLUG REMOVAL TOOL	1

Texas Department of Transportation

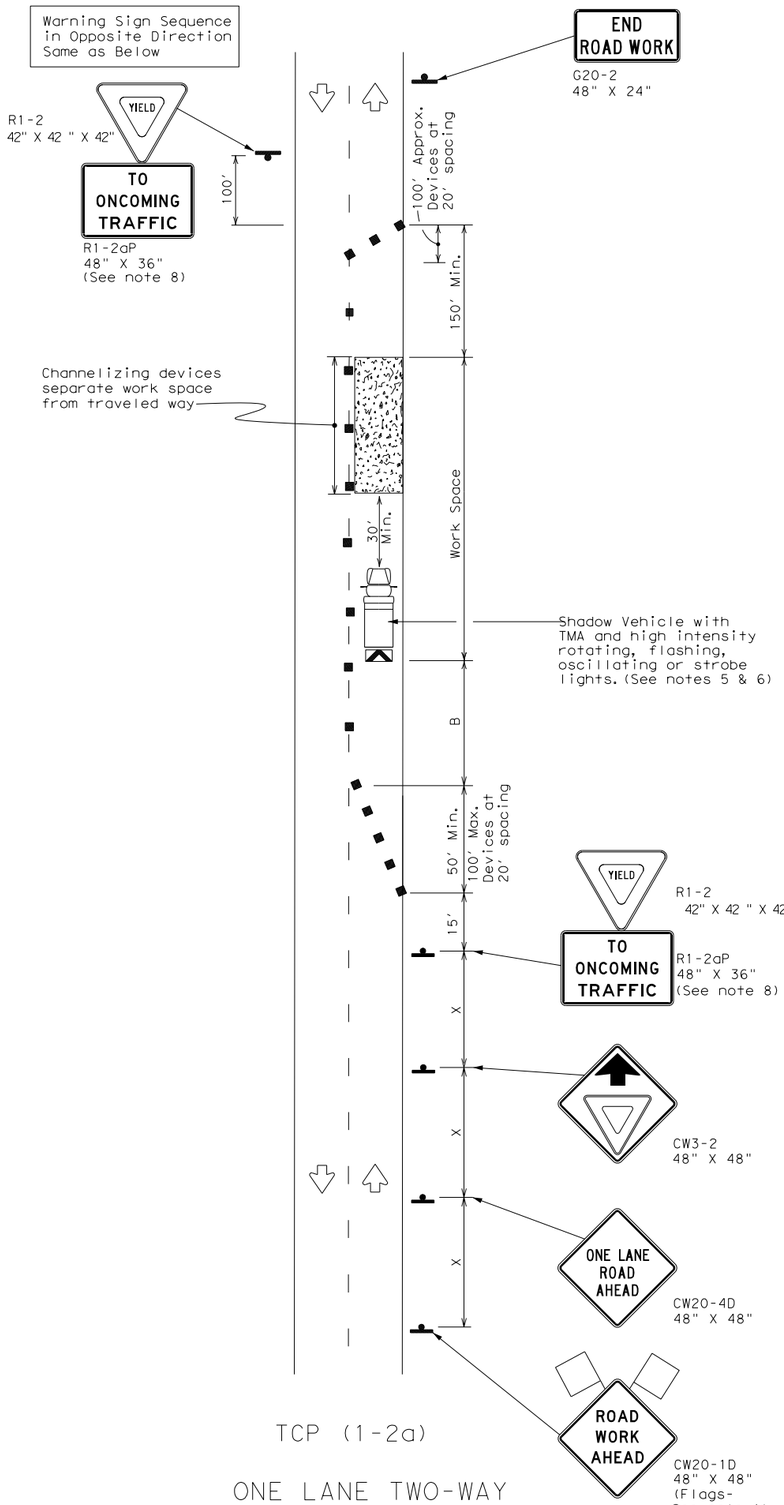
Design Division Standard

SLED
CRASH CUSHION
TL-3 MASH COMPLIANT
(TEMPORARY, WORK ZONE)
SLED-19

FILE: sled19.dgn	DN: TxDOT	CK: KM	DW: VP	CK:
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	SA	MEDINA		85

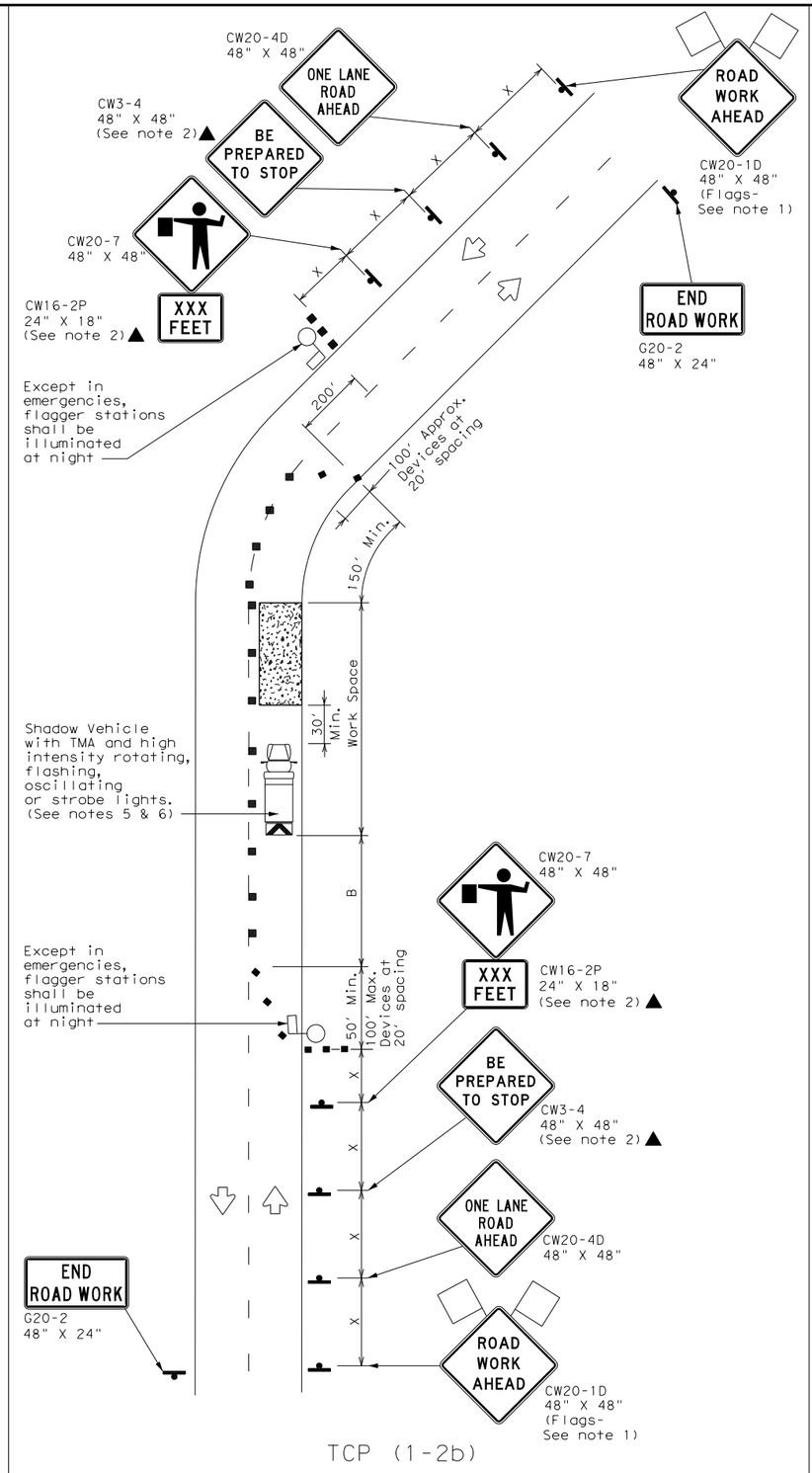
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TCP (1-2a)

ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND			
	Type 3 Barricade		Channelizing D
	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 ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

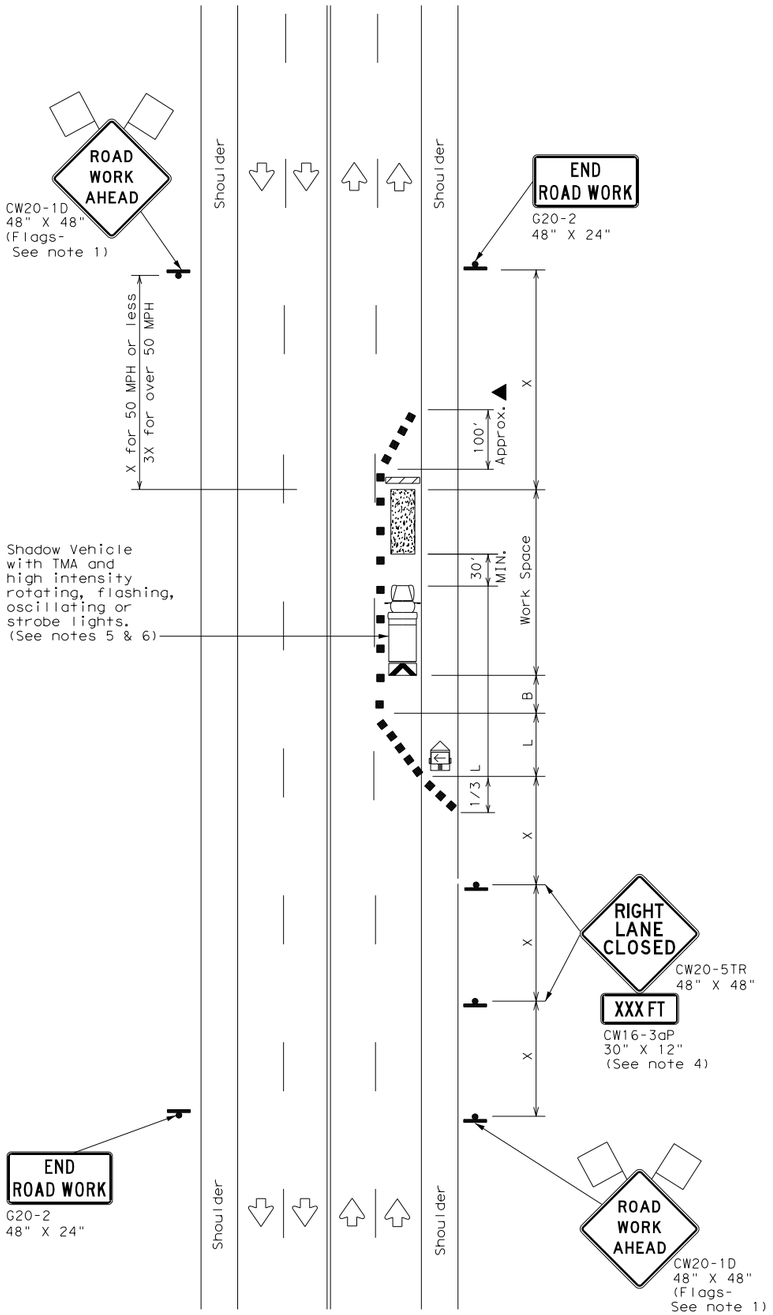
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

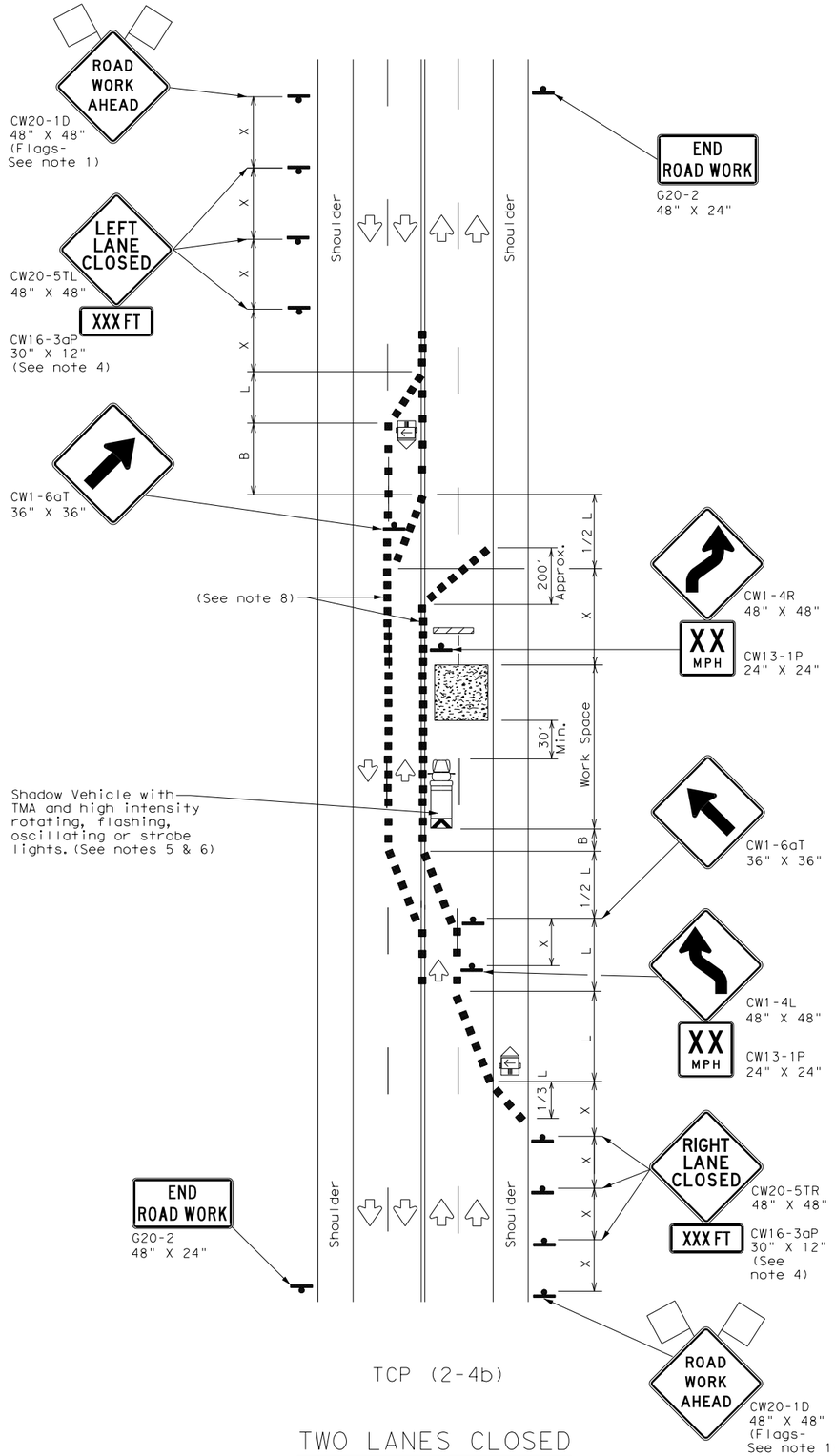
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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98 2-94 2-12 1-97 2-18	24	6		
	DIST	COUNTY		
	SA	MEDINA		86

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TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

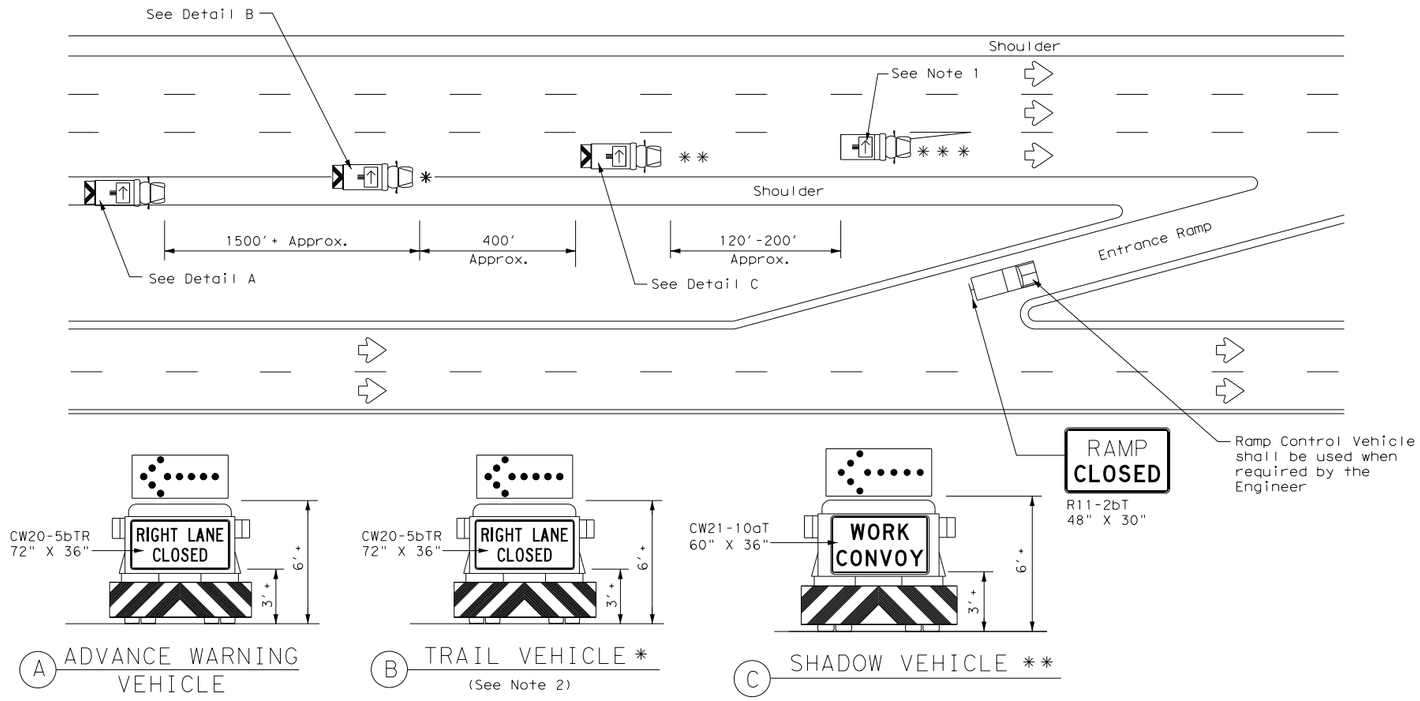
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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	24	6		328
1-97 2-12	DIST	COUNTY		
4-98 2-18	SA	MEDINA		87

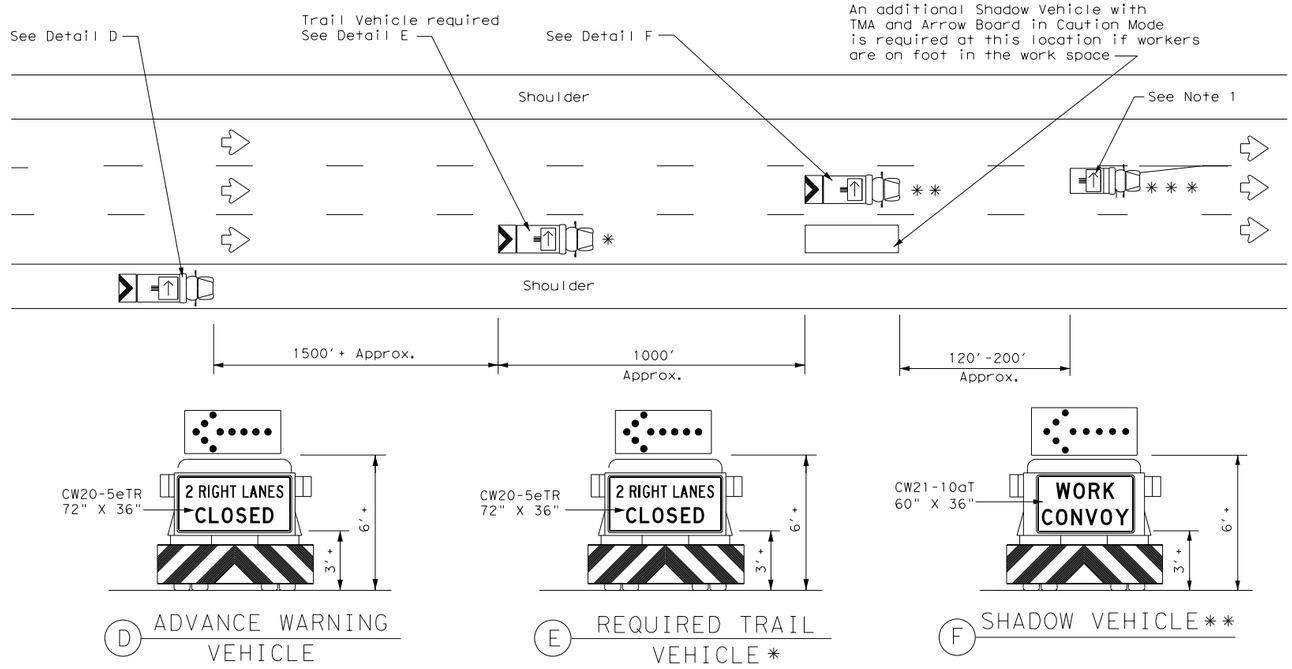
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DATE: 2/22/2024 11:26:53 AM
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RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



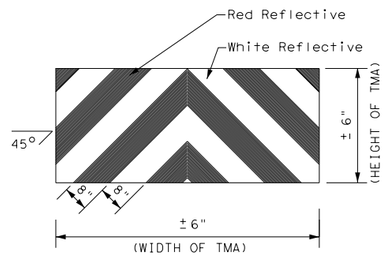
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

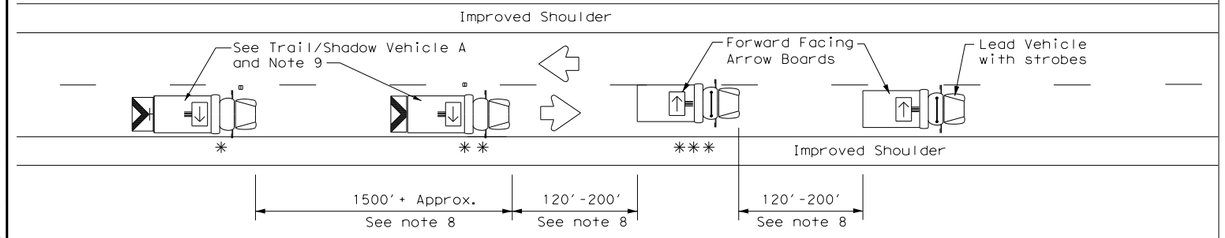
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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	24	6		329
	DIST	COUNTY		
	SA	MEDINA		88

176

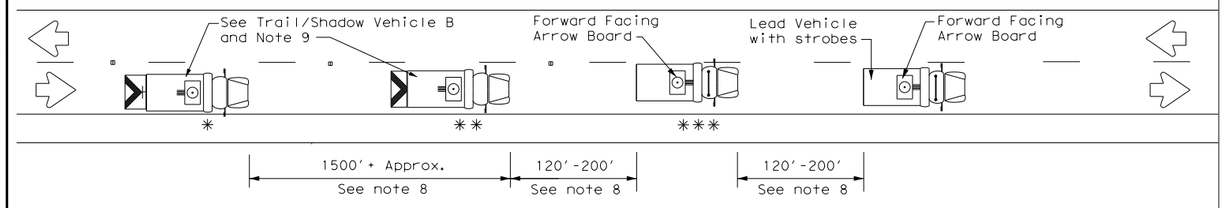
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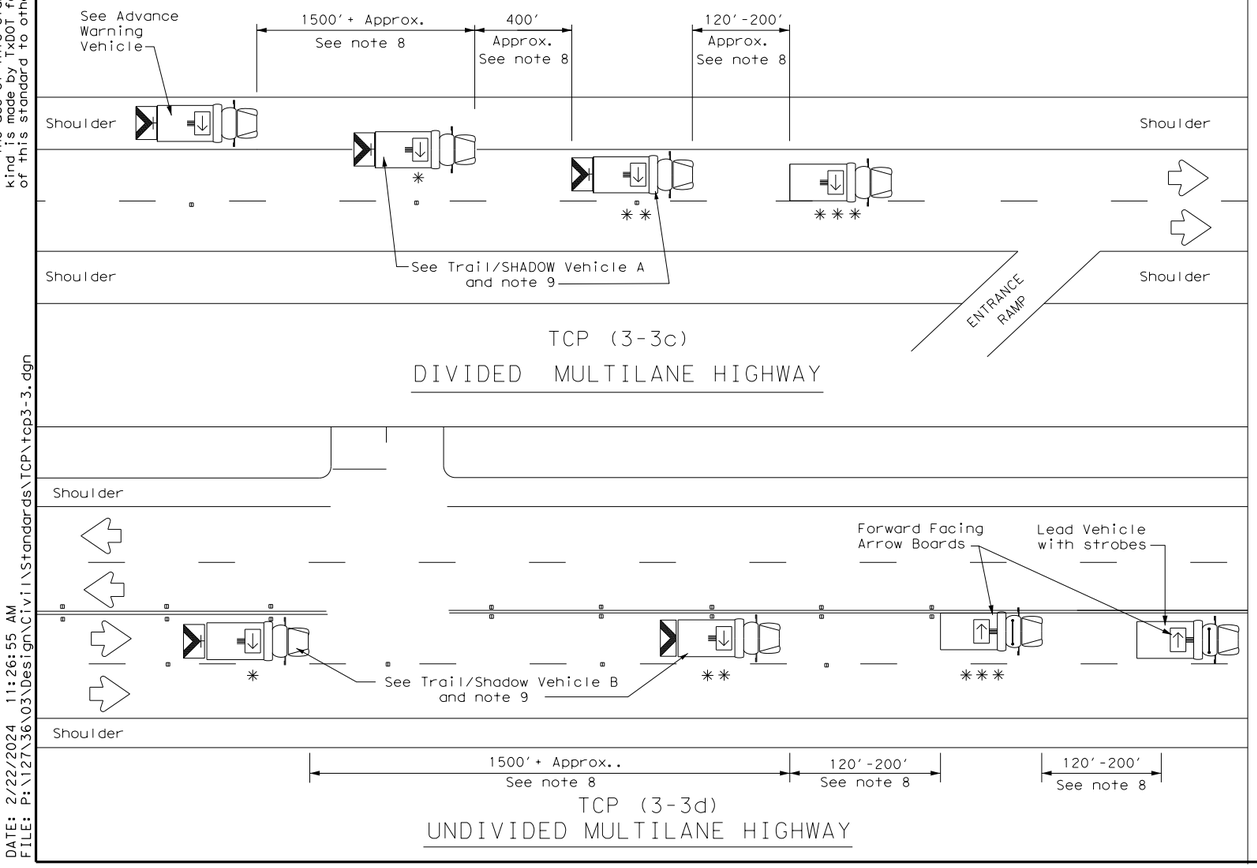
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS (WORK ON TRAVEL LANE)



TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS (WORK ON TRAVEL LANE)

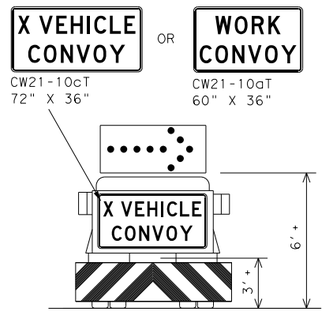


TCP (3-3c)

DIVIDED MULTILANE HIGHWAY

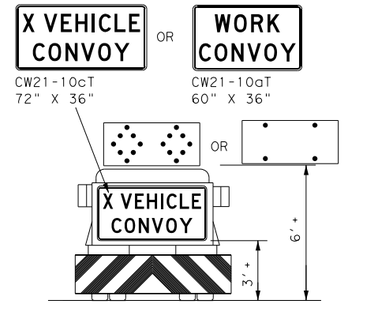
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



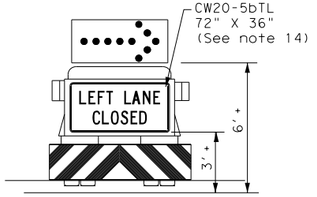
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

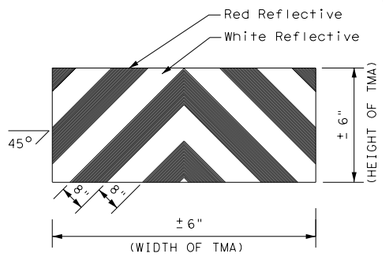


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

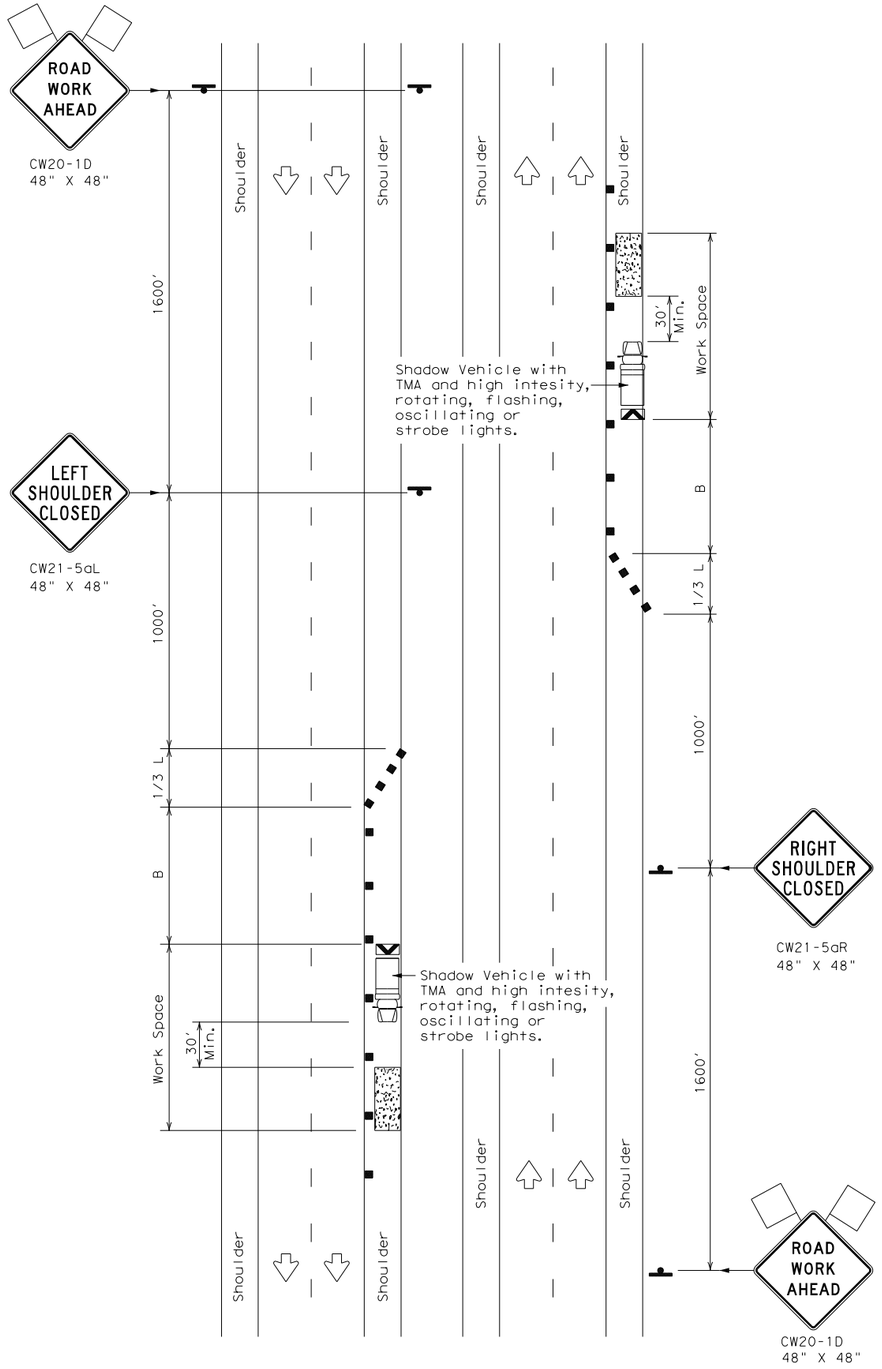
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©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		330
2-94 4-98	DIST	COUNTY		
8-95 7-13	SA	MEDINA		89
1-97 7-14				

177

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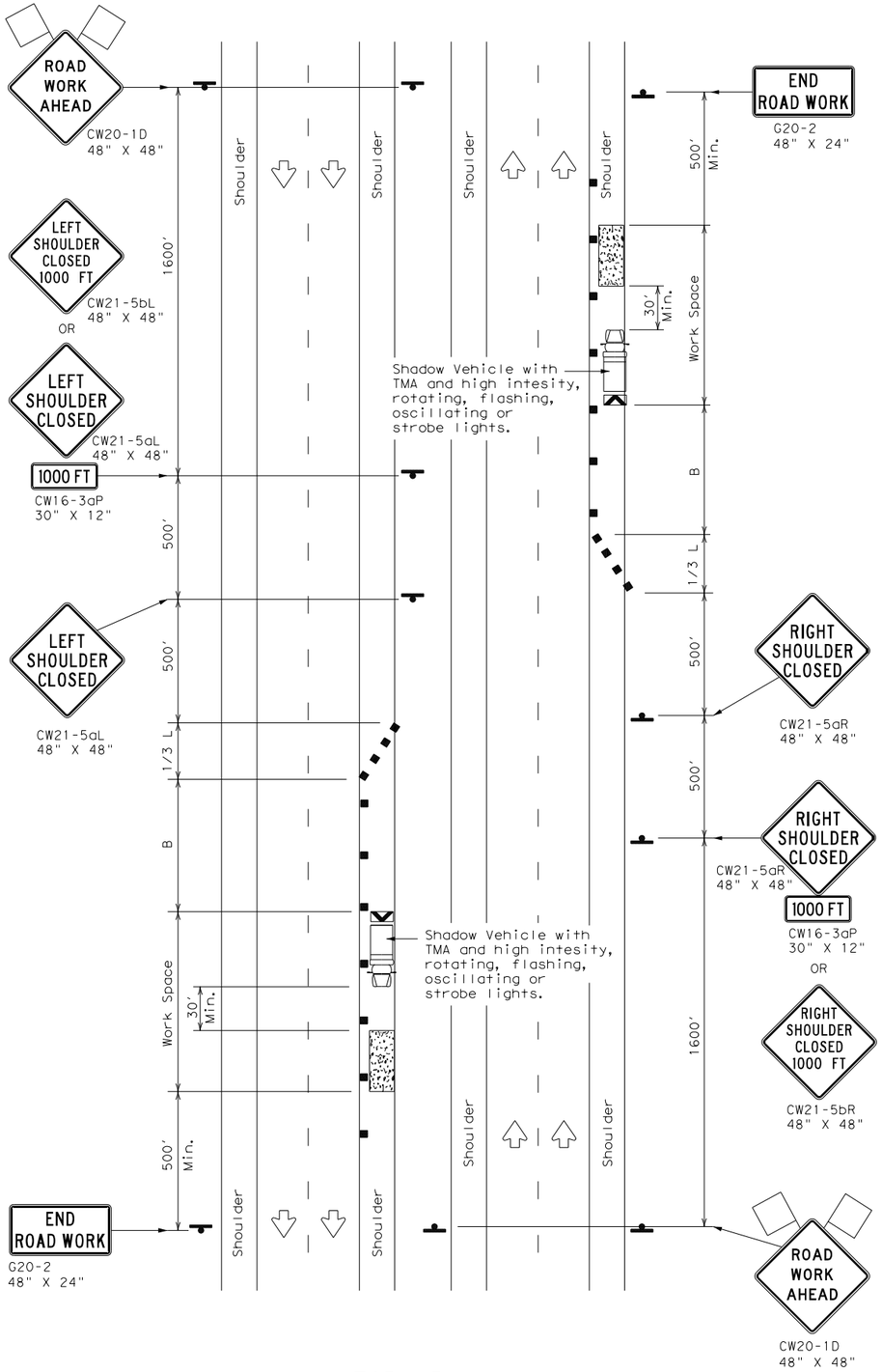
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FILE: P:\127136\03\Design\Civil\Standards\TCP\tcp5-1-18.dgn



TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

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 ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

* Conventional Roads Only

** Taper lengths have been rounded off.

L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

1. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30' to 100' in advance of the area of crew exposure without adversely effecting the performance or quality of the work. Type 3 barricades or drums may be substituted when workers on foot are no longer present when approved by the Engineer.
2. 28" tall or taller one-piece cones will be allowed only for Short Duration or Short Term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate Term stationary work areas should use Drums, Vertical Panels or 42" tall two-piece cones.

Texas Department of Transportation

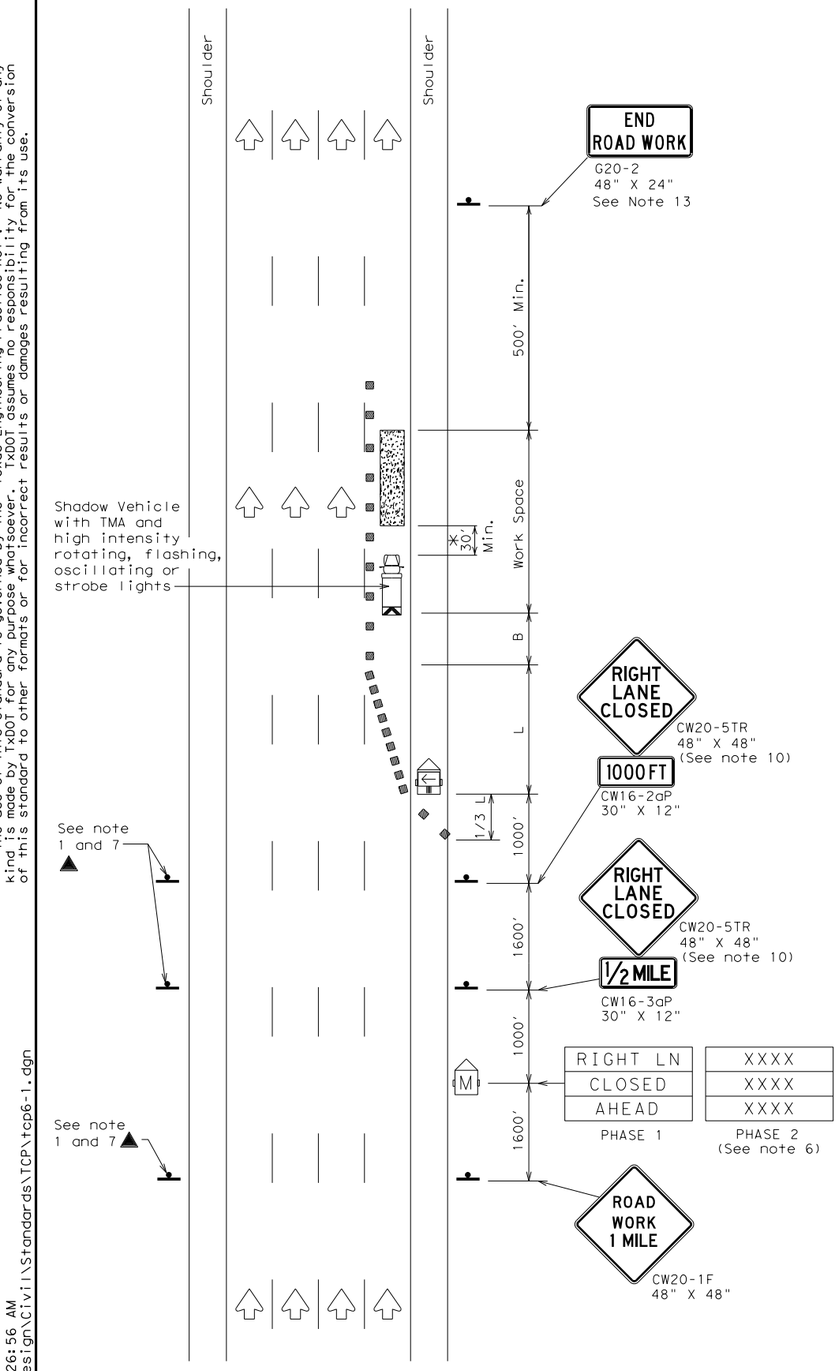
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

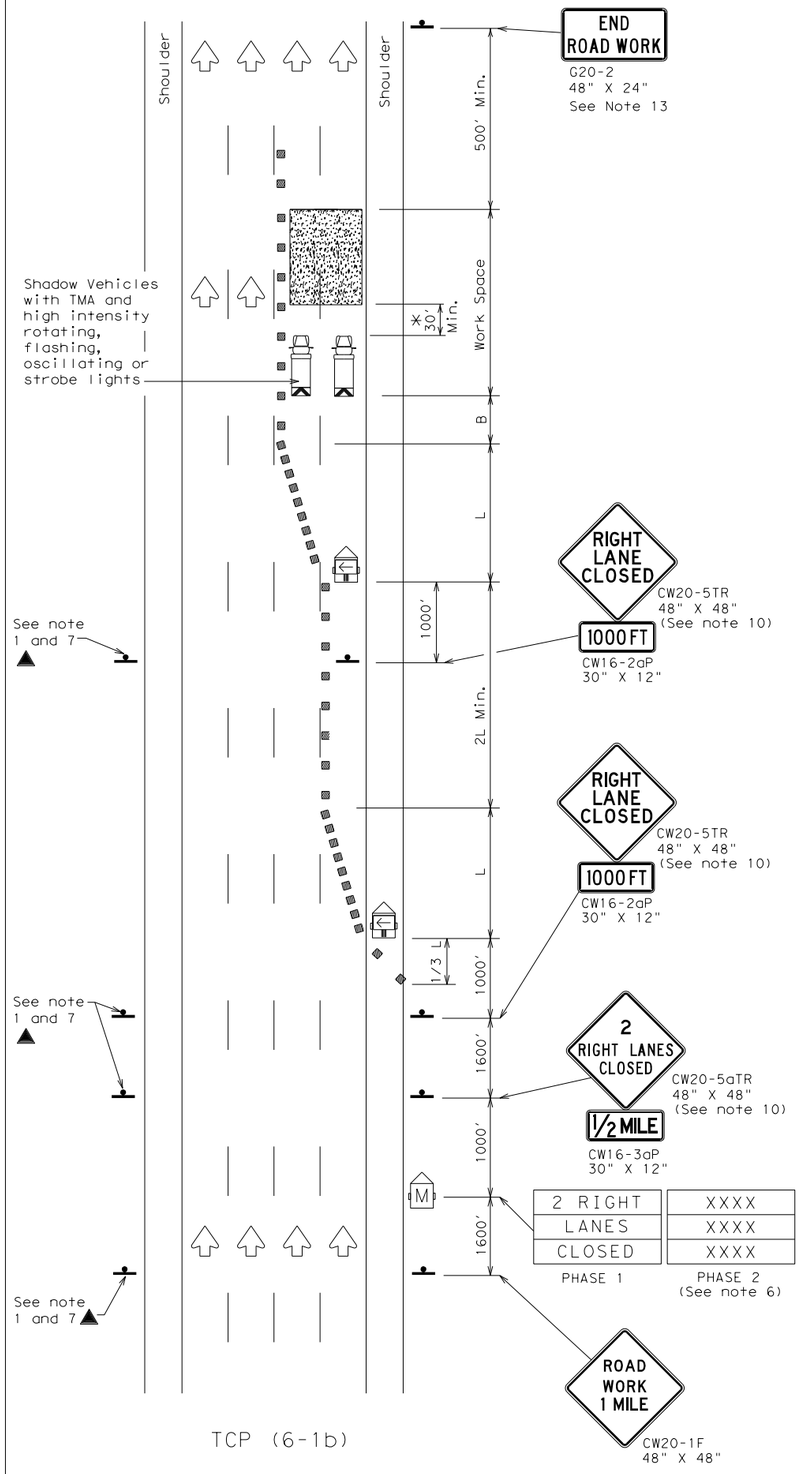
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©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		
	SA	MEDINA		

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TCP (6-1a)

TYPICAL FREEWAY
ONE LANE CLOSURE



TCP (6-1b)

TYPICAL FREEWAY
TWO LANE CLOSURE

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450′	495′	540′	45′	90′	195′
50		500′	550′	600′	50′	100′	240′
55		550′	605′	660′	55′	110′	295′
60		600′	660′	720′	60′	120′	350′
65		650′	715′	780′	65′	130′	410′
70		700′	770′	840′	70′	140′	475′
75		750′	825′	900′	75′	150′	540′
80		800′	880′	960′	80′	160′	615′

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. Drums or 42"cones are the typical channelizing devices. For Intermediate Term Stationary work, drums shall be used on tapers with drums or 42" cones used on tangent sections. Other channelizing devices may be used as directed by the Engineer.
3. All construction signs and barricades placed during any phase of work shall remain in place until removal is approved by the Engineer.
4. The Engineer may direct the Contractor to furnish additional signs and barricades as required to maintain traffic flow, detours and motorist safety during construction.
5. Static message boards or changeable message signs stating the date and duration of ramp or freeway lane closures shall be placed a minimum of seven (7) calendar days in advance of the actual closure.
6. Phase 2 of the PCMS message should include appropriate information formatted as shown on BC(6), such as "MERGE LEFT," recommended advisory speed, delay information, or other specific warnings.
7. Duplicate construction warning signs should be erected on the medians side of freeways where median width will permit and traffic volume justifies the signing.
8. The number of closed lanes may be increased provided the spacing of traffic control devices, taper lengths and tangent lengths meet the requirements of the TMUTCD.
9. Warning signs for intermediate term stationary work should be mounted at 7′ to the bottom of the sign.
10. Warning signs shown shall be appropriately altered for left lane closures. When signs are mounted at 1′ height for short term stationary or short duration work, sign versions shown in the SHSD for Texas with distances on the sign face rather than mounted on a plaque below the sign may be used.
11. When possible, PCMS units should be located in advance of the last available exit ramp prior to the lane closure to allow motorists an alternate route. They may also be relocated to improve advance warning in case of unanticipated queuing or congestion.
12. For Intermediate Term Stationary work at night, floodlights should be used to illuminate the work area and equipment crossings. Floodlights shall not produce a disabling glare condition for road users or workers.
13. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

✳ A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30′ to 100′ in advance of the area of crew exposure without adversely affecting the work performance.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
FREEWAY LANE CLOSURES

TCP(6-1)-12

FILE: tcp6-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-12	24	6		
	DIST	COUNTY		
	SA	MEDINA		91

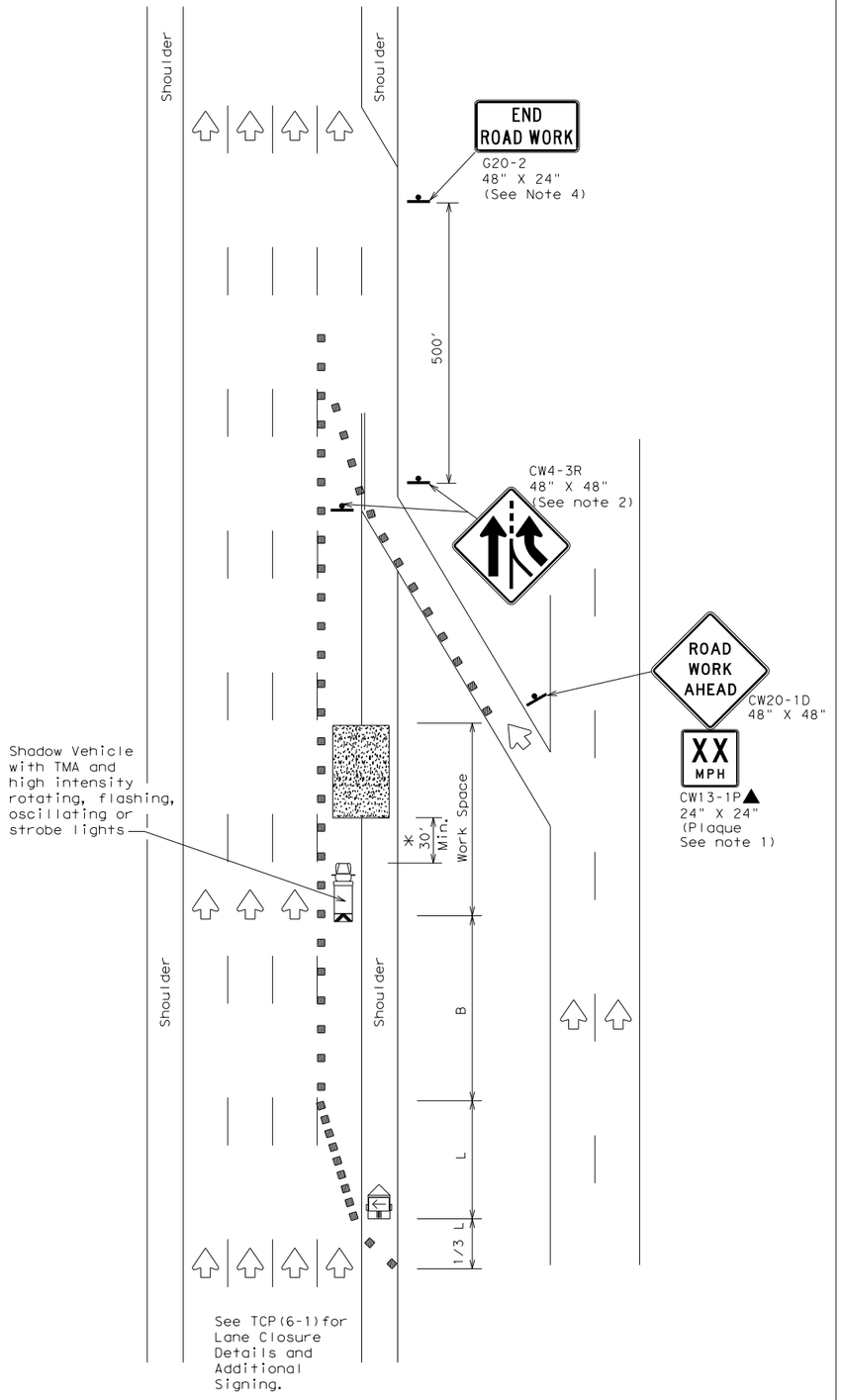
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201

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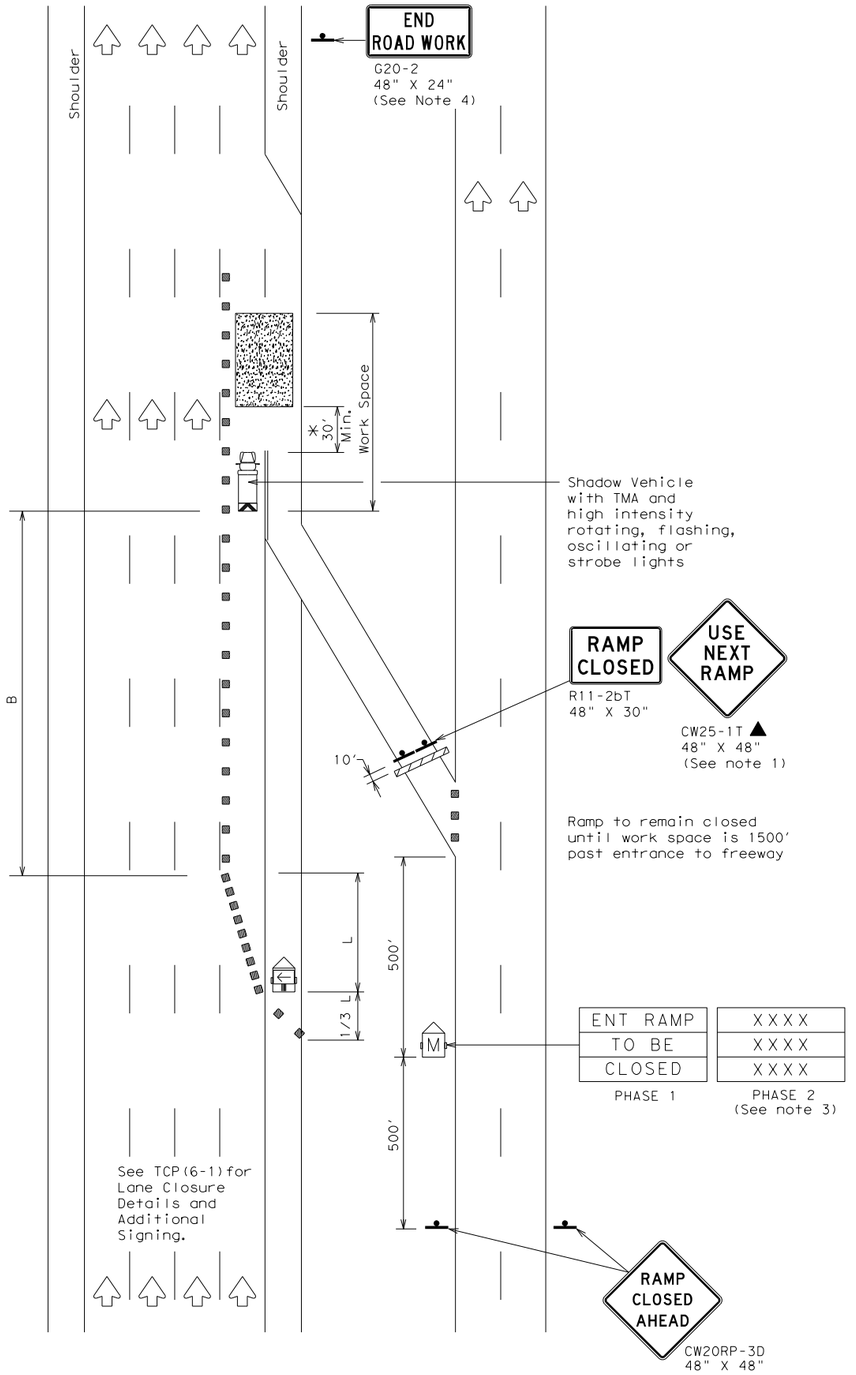
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FILE: P:\127\36\03\Design\Civil\Standards\TCP\tcp6-2.dgn



TCP (6-2a)

ENTRANCE RAMP OPEN
WORK WITHIN 500' OF RAMP



TCP (6-2b)

ENTRANCE RAMP CLOSED

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. ADDED LANE Symbol (CW4-3) sign may be omitted when sign between ramp and mainlane can be seen from both roadways.
3. See "Advance Notice List" on BC(6) for recommended date and time formatting options for PCMS Phase 2 message.
4. The END ROAD WORK (G20-2) sign may be omitted when it conflicts with G20-2 signs already in place on the project.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

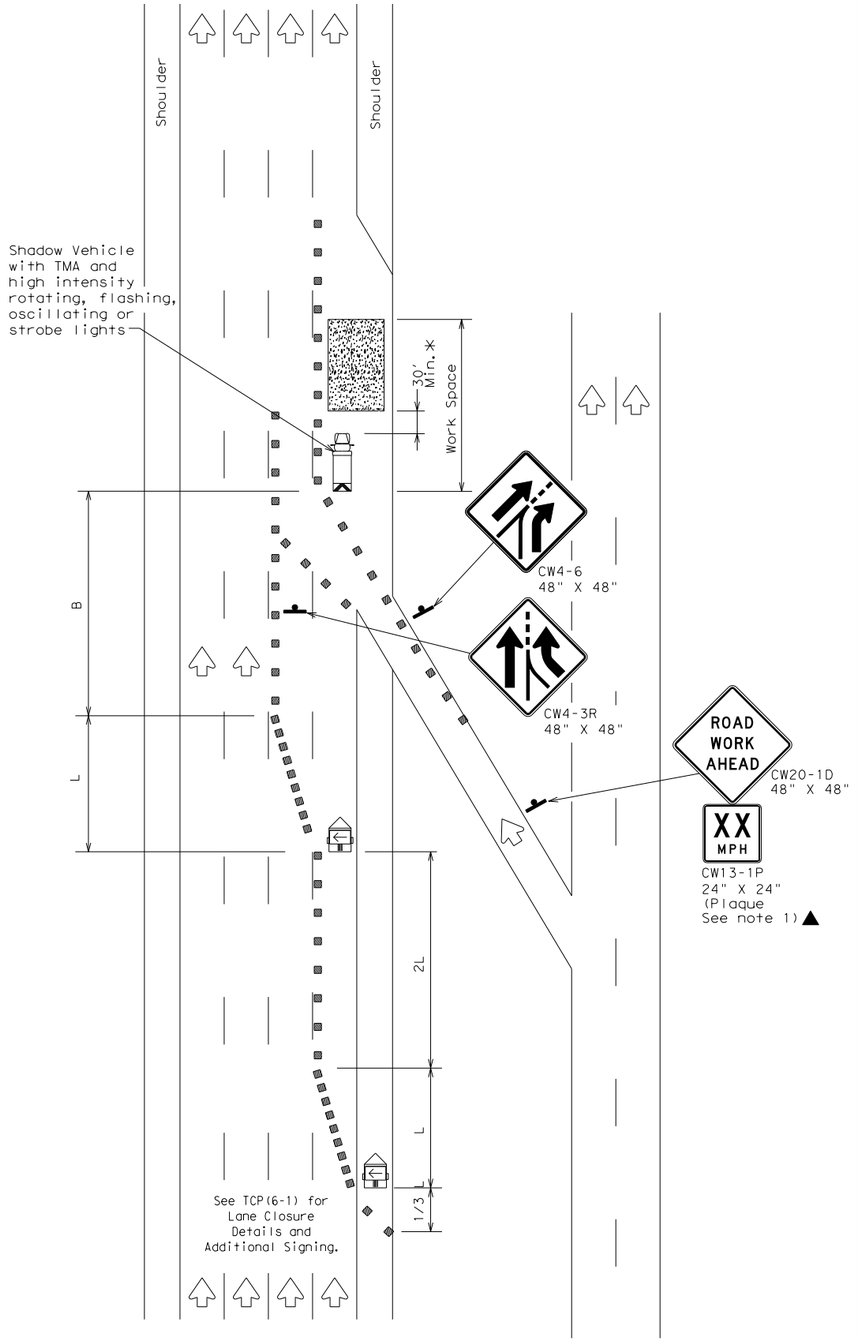
TRAFFIC CONTROL PLAN
WORK AREA NEAR RAMP

TCP(6-2)-12

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©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
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1-97 8-98	DIST	COUNTY		
4-98 8-12	SA	MEDINA		92

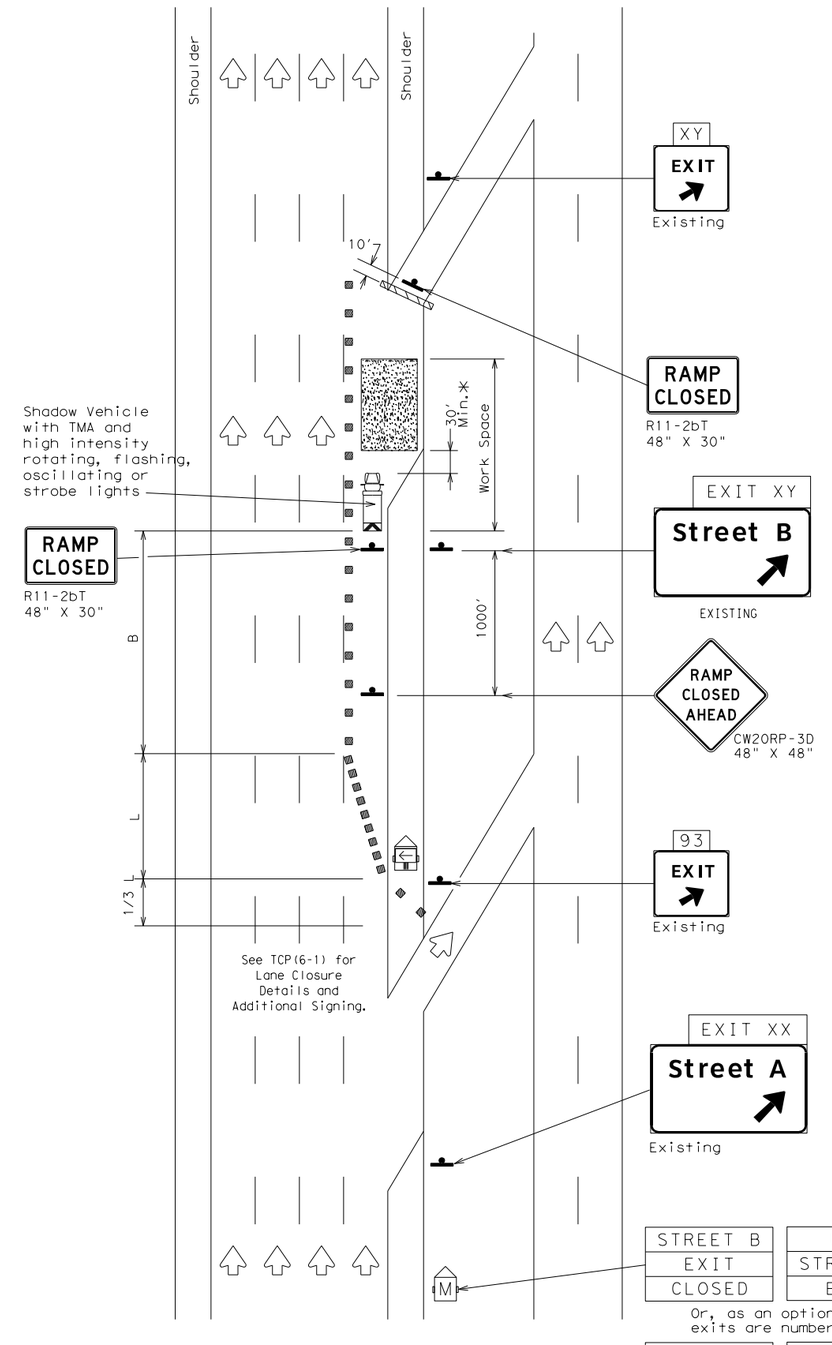
202

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TCP (6-3a)

ENTRANCE RAMP OPEN



TCP (6-3b)

EXIT RAMP CLOSED

TRAFFIC EXITS PRIOR TO CLOSED RAMP

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ✳✳			Suggested Maximum Spacing of Channelizing Devices		Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES:

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.

✳A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND RAMP

TCP(6-3)-12

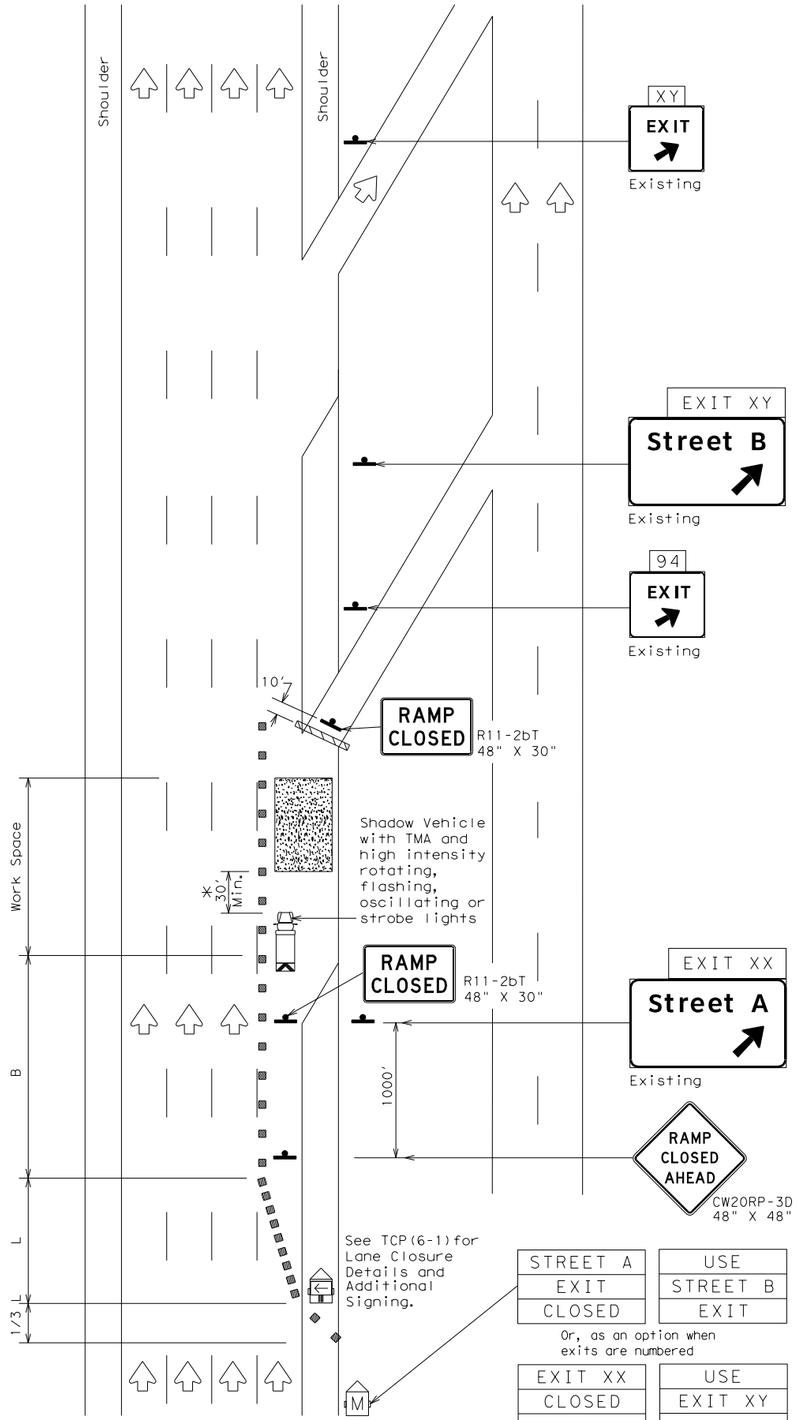
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©TxDOT February 1994	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
1-97 8-98	DIST	COUNTY		
4-98 8-12	SA	MEDINA		93

334

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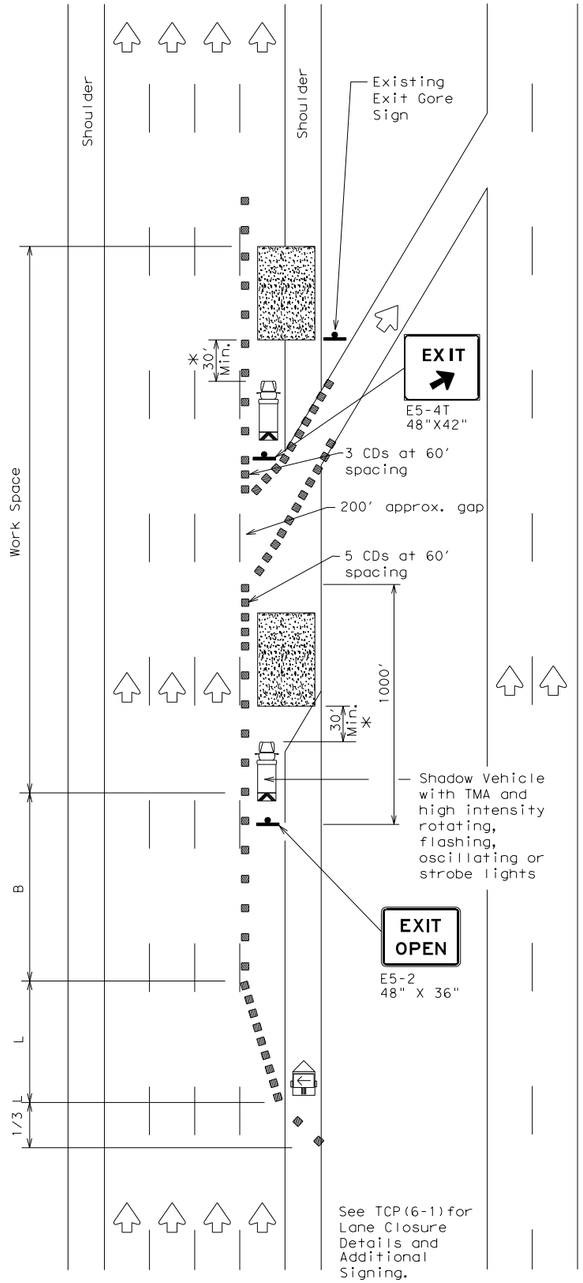
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TCP (6-4a)

EXIT RAMP CLOSED

TRAFFIC EXITS PAST CLOSED RAMP



TCP (6-4b)

EXIT RAMP OPEN

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

Posted Speed	Formula	Minimum Desirable Taper Lengths "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC Standards for sign details.

*A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA AT EXIT RAMP

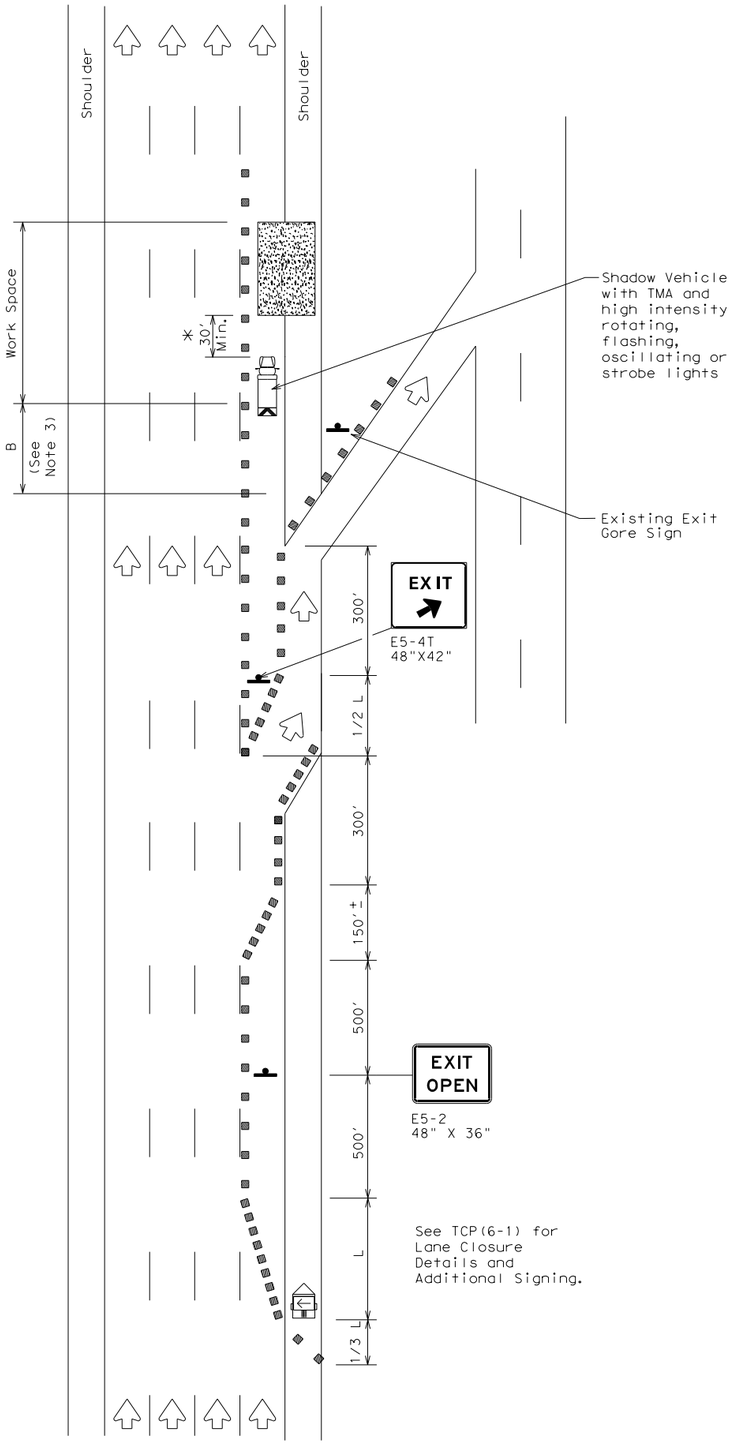
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1-97 8-98	DIST	COUNTY		
4-98 8-12	SA	MEDINA		94

204

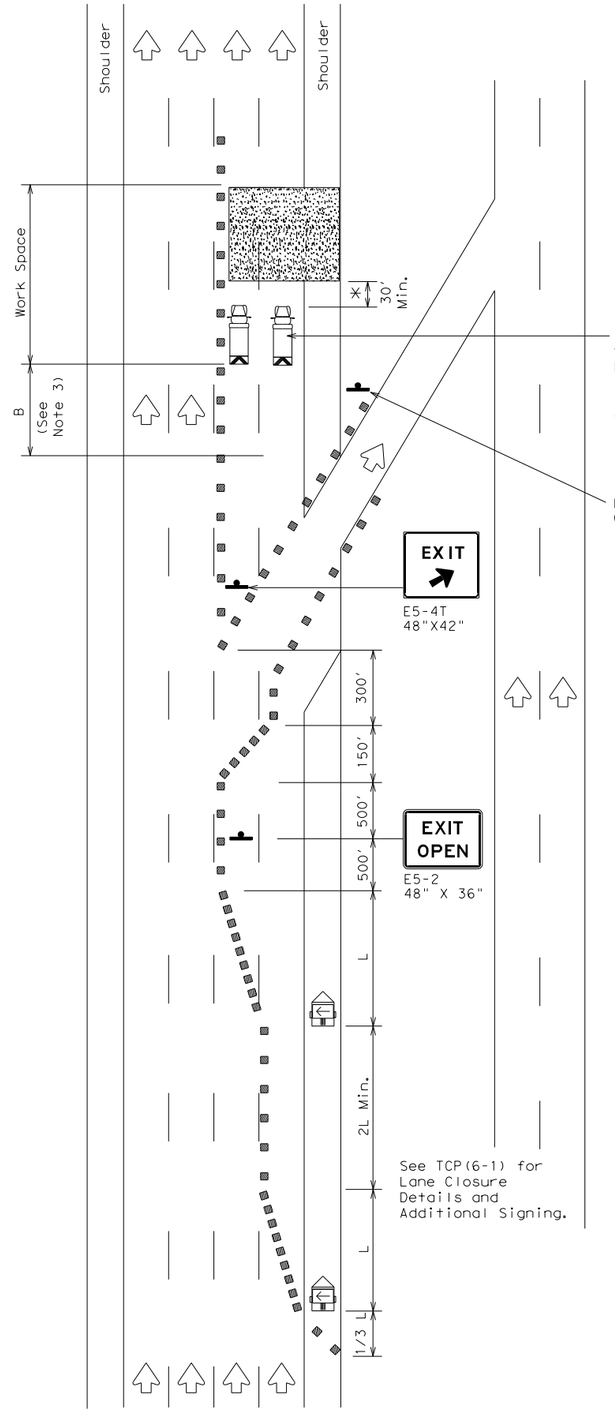
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TCP (6-5a)

EXIT RAMP OPEN



TCP (6-5b)

EXIT RAMP OPEN
TWO LANE CLOSURE WITHIN
1500' PAST EXIT RAMP

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 "L" ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

GENERAL NOTES

1. All traffic control devices illustrated are REQUIRED. Devices denoted with the triangle symbol may be omitted when stated elsewhere in the plans.
2. See BC standards for sign details.
3. If adequate longitudinal buffer length "B" does not exist between the work space and the exit ramp, consideration should be given to closing the ramp.

* A shadow vehicle equipped with a Truck Mounted Attenuator is typically required. A shadow vehicle equipped with a TMA shall be used if it can be positioned 30' to 100' in advance of the area of crew exposure without adversely affecting the work performance.

Additional requirements for lane closures and advance signing shall be as shown on TCP (6-1) or as directed by the Engineer.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
WORK AREA BEYOND EXIT RAMP

TCP(6-5)-12

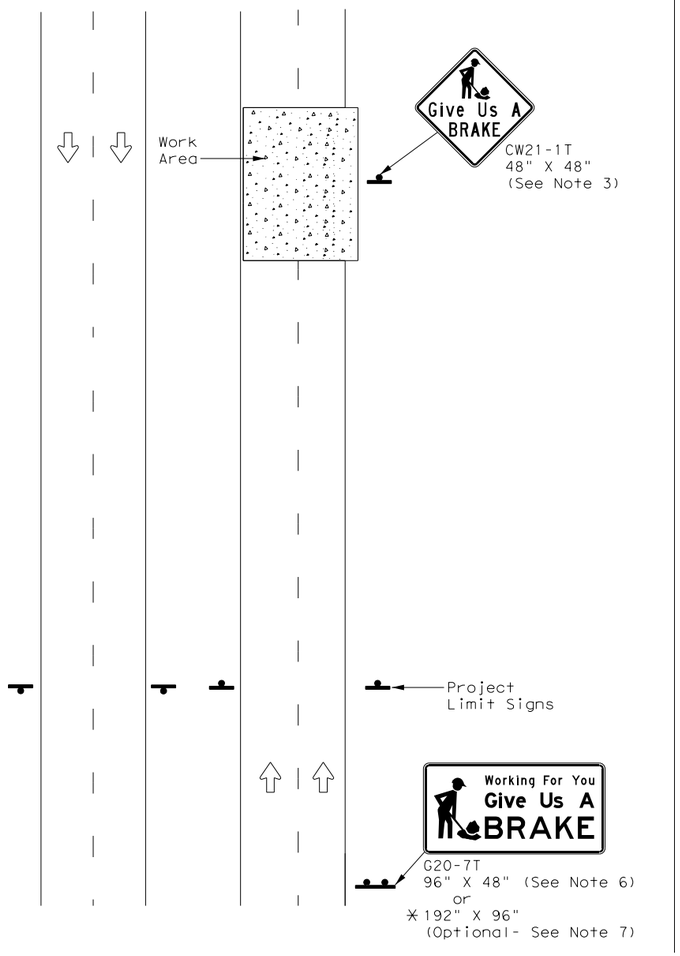
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©TxDOT Feburary 1998	CONT	SECT	JOB	HIGHWAY
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1-97 8-98	DIST	COUNTY		
4-98 8-12	SA	MEDINA		95

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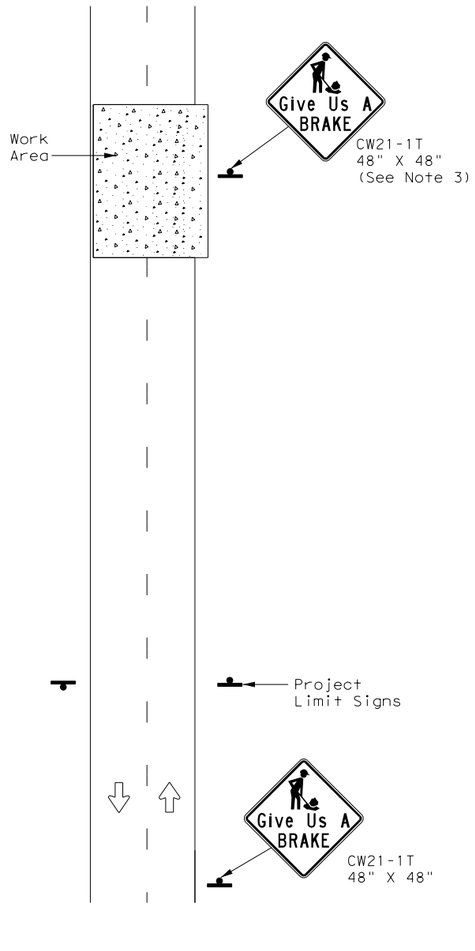
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FILE: P:\127\36\03\Design\Civil\Standards\TCP\wzbrk-13.dgn



DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

✳ When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND

	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS

PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation | Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

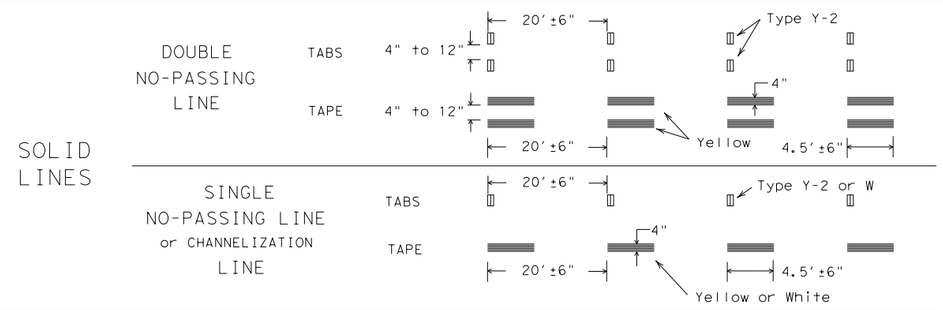
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©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
6-96 5-98 7-13	DIST	COUNTY		
8-96 3-03	SA	MEDINA		96

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DATE: 2/22/2024 11:27:03 AM
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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



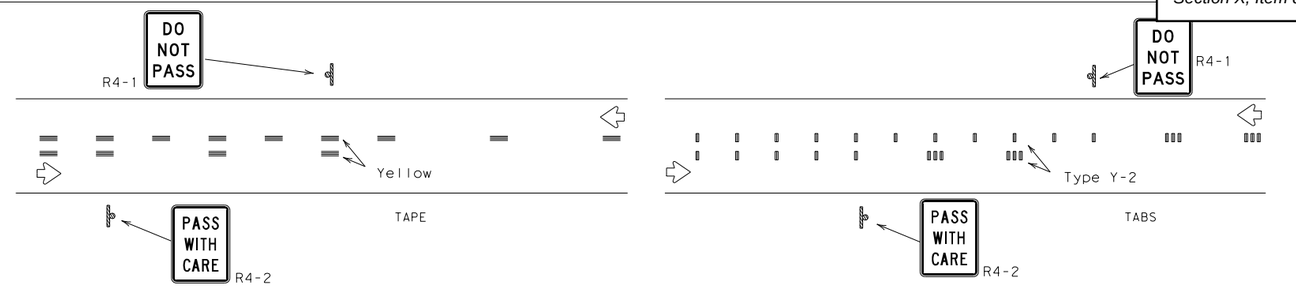
NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible-reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

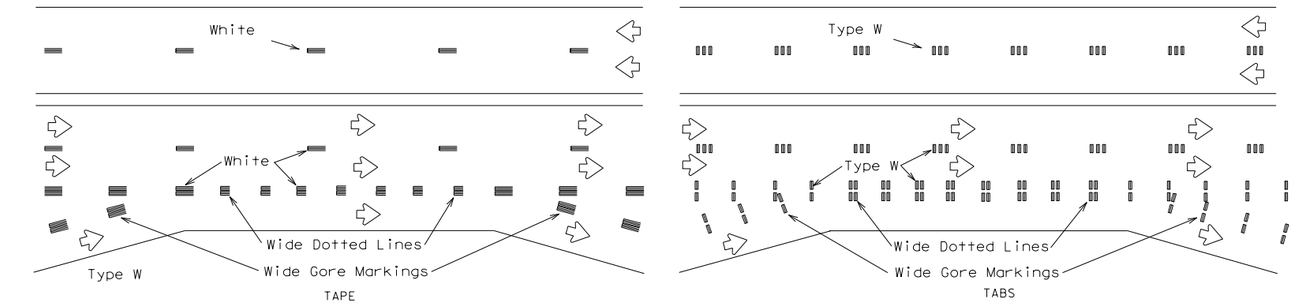
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

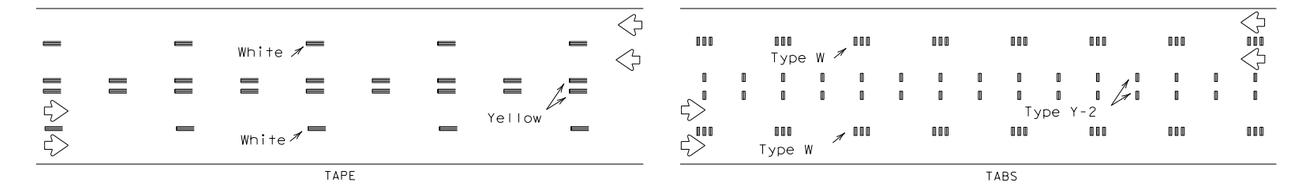
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



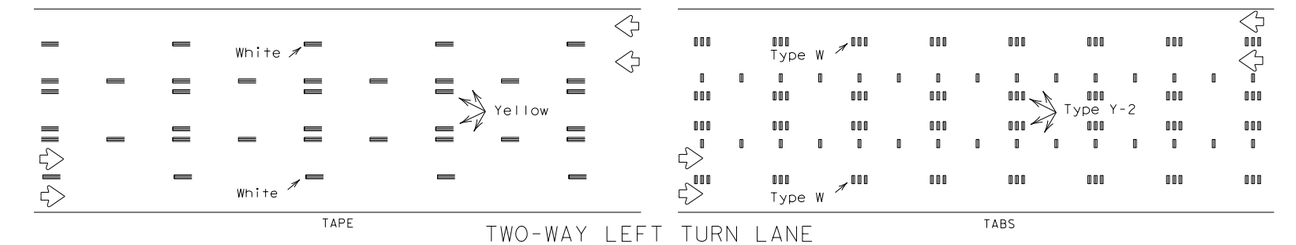
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



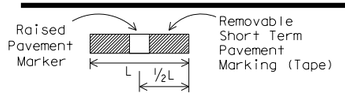
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
   http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

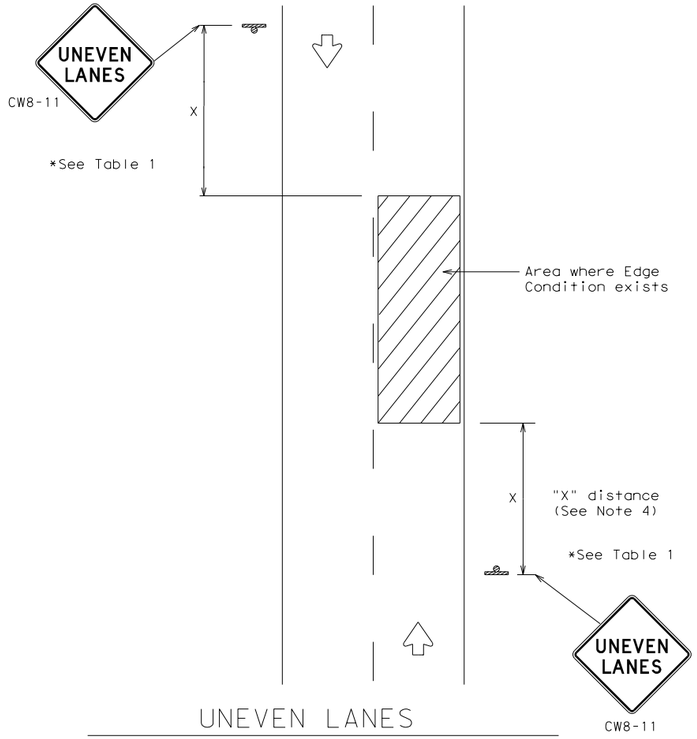
WZ(STPM)-13

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©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
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1-97		DIST	COUNTY		338
3-03		SA	MEDINA		97
7-13					

111

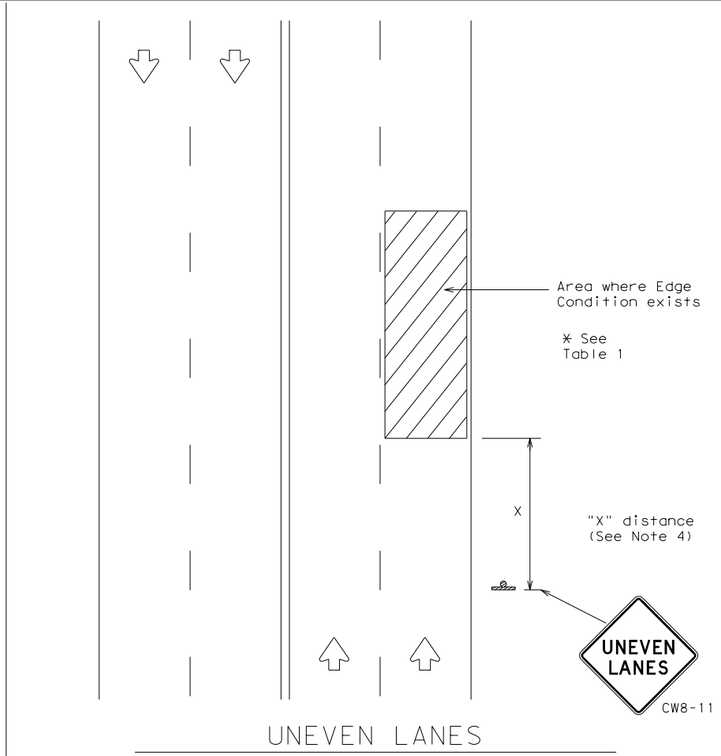
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: 2/22/2024 11:27:04 AM
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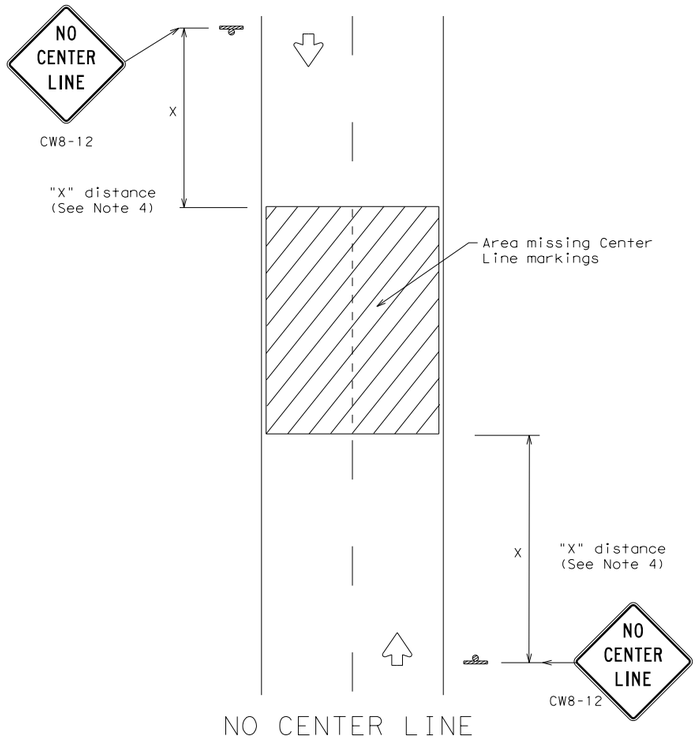
UNEVEN LANES

TWO LANE CONVENTIONAL ROAD



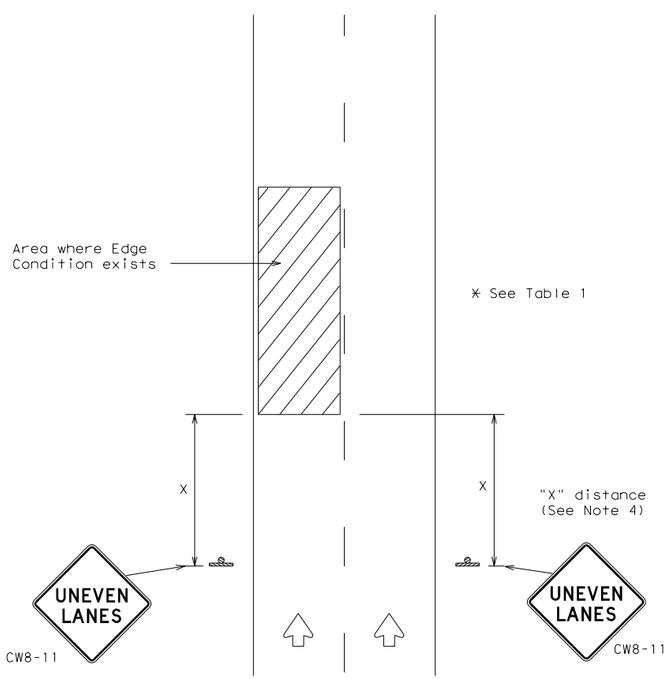
UNEVEN LANES

FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE

TWO LANE CONVENTIONAL ROAD



UNEVEN LANES

DIVIDED ROADWAY

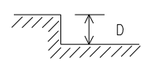
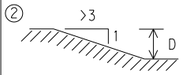
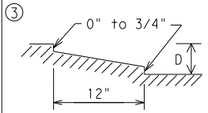
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-82[illegible]
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

GENERAL NOTES

1. If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
2. UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
3. NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① 	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"

Texas Department of Transportation

Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

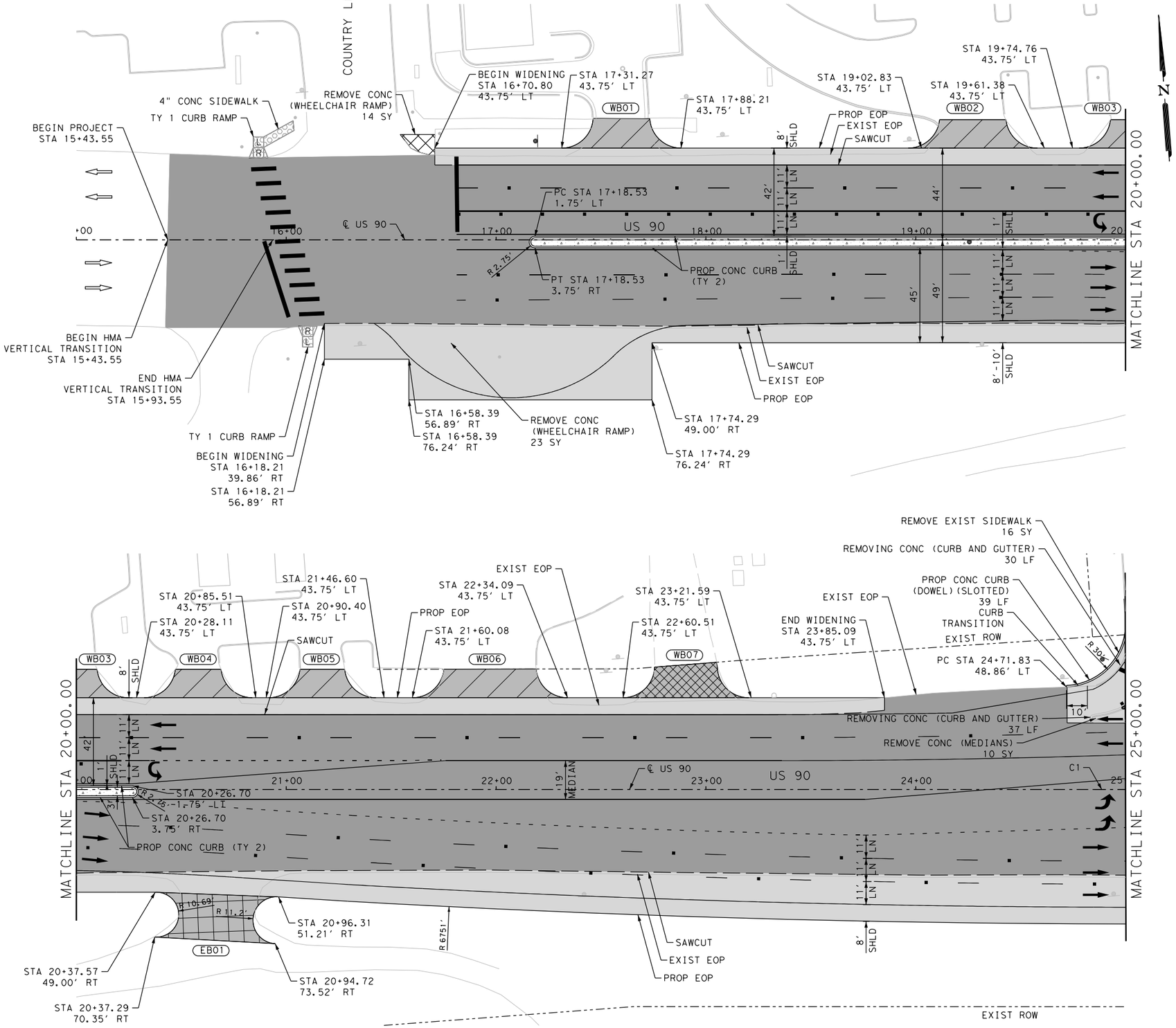
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©TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		24	6		
8-95 2-98 7-13		DIST	COUNTY		339
1-97 3-03		SA	MEDINA		98

112

Section X, Item d.

Plotted on: 3/28/2024

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LEGEND

- PROPOSED FULL
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED BASE DRIVEWAY
- PAVEMENT REMOVAL
- PROPOSED SIDEWALK & ADA RAMPS
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW
- R — RAMP
- L — LANDING
- CX — CURVE NUMBER
- (XXX) — DRIVEWAY NUMBER

NOTES

1. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR HORIZONTAL ALIGNMENT DATA.
2. SEE INTERSECTION LAYOUT SHEETS FOR ADDITIONAL POINT INFORMATION FOR CONCRETE ISLANDS.
3. PAVEMENT MARKINGS SHOWN ON THE ROADWAY LAYOUT SHEETS ARE FOR REFERENCE ONLY. FOR DETAILED INFORMATION FOR PAVEMENT MARKINGS AND TRAFFIC FLOW REFER TO THE SIGNING AND PAVEMENT MARKINGS SHEETS.
4. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/28/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

BEGIN PROJECT TO STA 25+00
US 90

SHEET 1 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			340
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 3/28/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\1273603_RDWY_02.dgn

POINT NAME	STATION C/L US 90	OFFSET
1	25+16.67	43.10' LT
2	25+12.30	50.87' LT
3	25+14.96	55.44' LT
4	25+23.25	56.54' LT
5	25+27.72	52.12' LT
6	25+24.56	43.37' LT

CURVE DATA TABLE

CURVE NO.	ALIGNMENT	RADIUS FT	DELTA	LENGTH FT	CHORD FT	e FT	CENTER OF RADIUS NORTHING	CENTER OF RADIUS EASTING
A	US 90	5.00	125° 39' 33.0" RT	10.97	8.90	5.95	13,679,174.46	2,013,823.50
B	US 90	41.00	7° 23' 13.0" LT	5.29	5.28	0.09	13,679,144.33	2,013,855.23
C	US 90	5.00	112° 10' 35.0" RT	9.79	8.30	3.96	13,679,186.49	2,013,831.00
D	US 90	50.00	7° 10' 59.0" RT	6.27	6.26	0.10	13,679,182.13	2,013,837.28
E	US 90	5.00	136° 44' 3.0" LT	11.93	9.30	8.56	13,679,173.54	2,013,840.06

LEGEND

- PROPOSED FULL
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
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- PROPOSED ASPHALT DRIVEWAY
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DESIGN

BRET CHAPMAN, 127293, LICENSED PROFESSIONAL ENGINEER, STATE OF TEXAS

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

DAN THOMA, 98622, LICENSED PROFESSIONAL ENGINEER, STATE OF TEXAS

DAN THOMA, P.E. — 3/28/2024 DATE

0 25 50 75

SCALE: 1" = 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

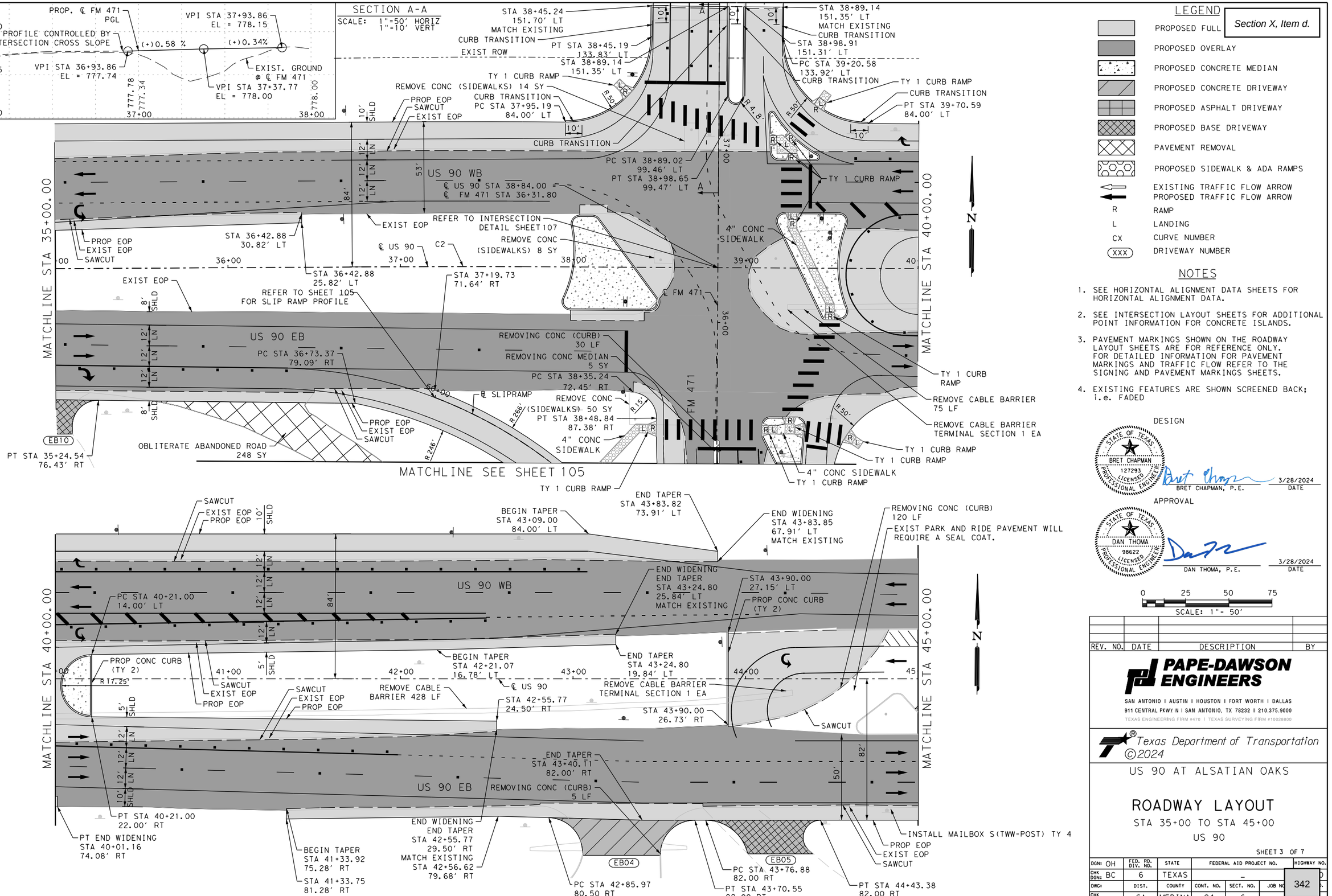
ROADWAY LAYOUT

STA 25+00 TO STA 35+00
US 90

SHEET 2 OF 7

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CHK DGN: BC	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	341
CHK DWG:	SA	MEDINA	24	6		

SECTION A-A
SCALE: 1"=50' HORIZ
1"=10' VERT



LEGEND

- PROPOSED FULL
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STATE OF TEXAS · BRET CHAPMAN · 127293 · LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/28/2024 DATE

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

STA 35+00 TO STA 45+00
US 90

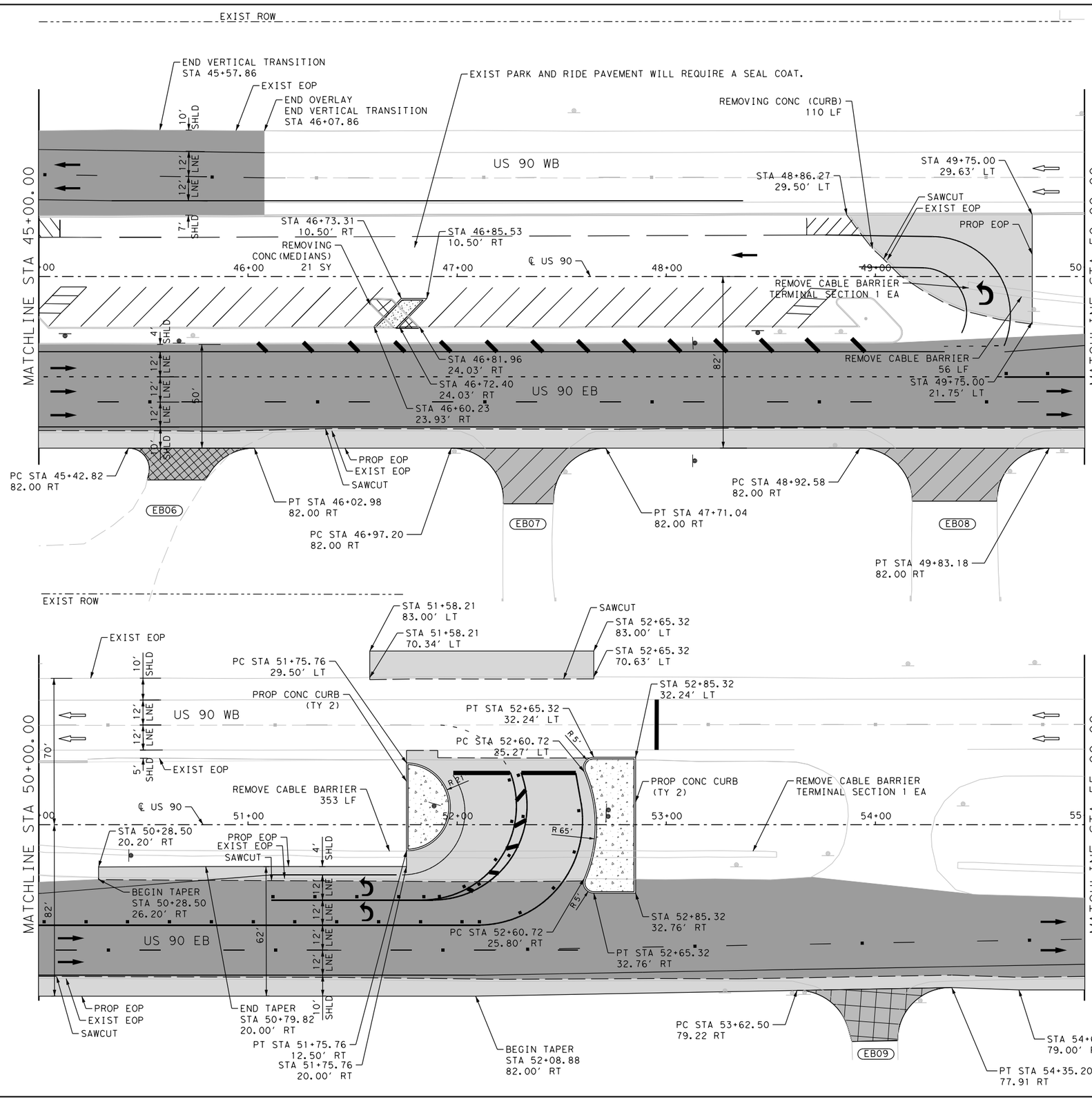
SHEET 3 OF 7

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CHK DGN: BC	6	TEXAS				
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

342

Plotted on: 3/28/2024

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LEGEND

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BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

STA 45+00 TO STA 55+00

US 90

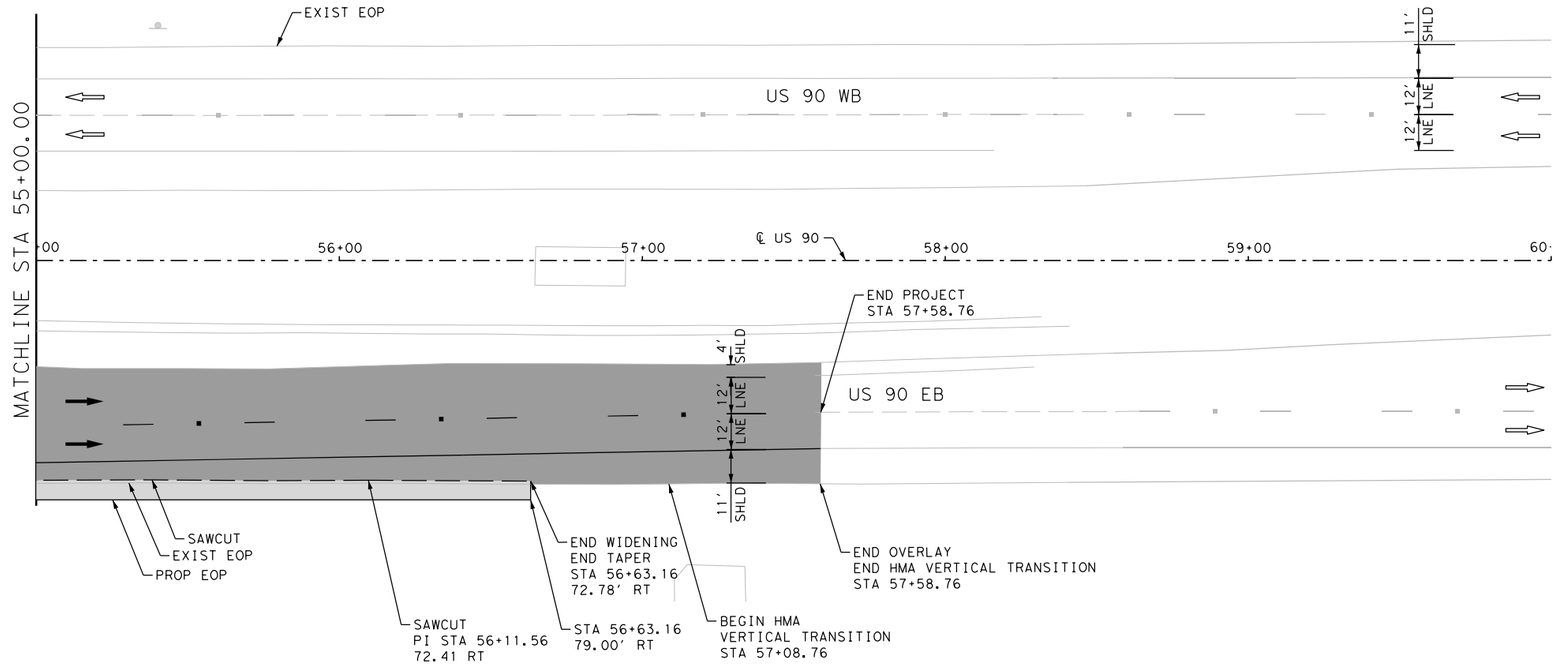
SHEET 4 OF 7

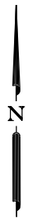
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

343

Plotted on: 3/28/2024

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LEGEND

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STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/28/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

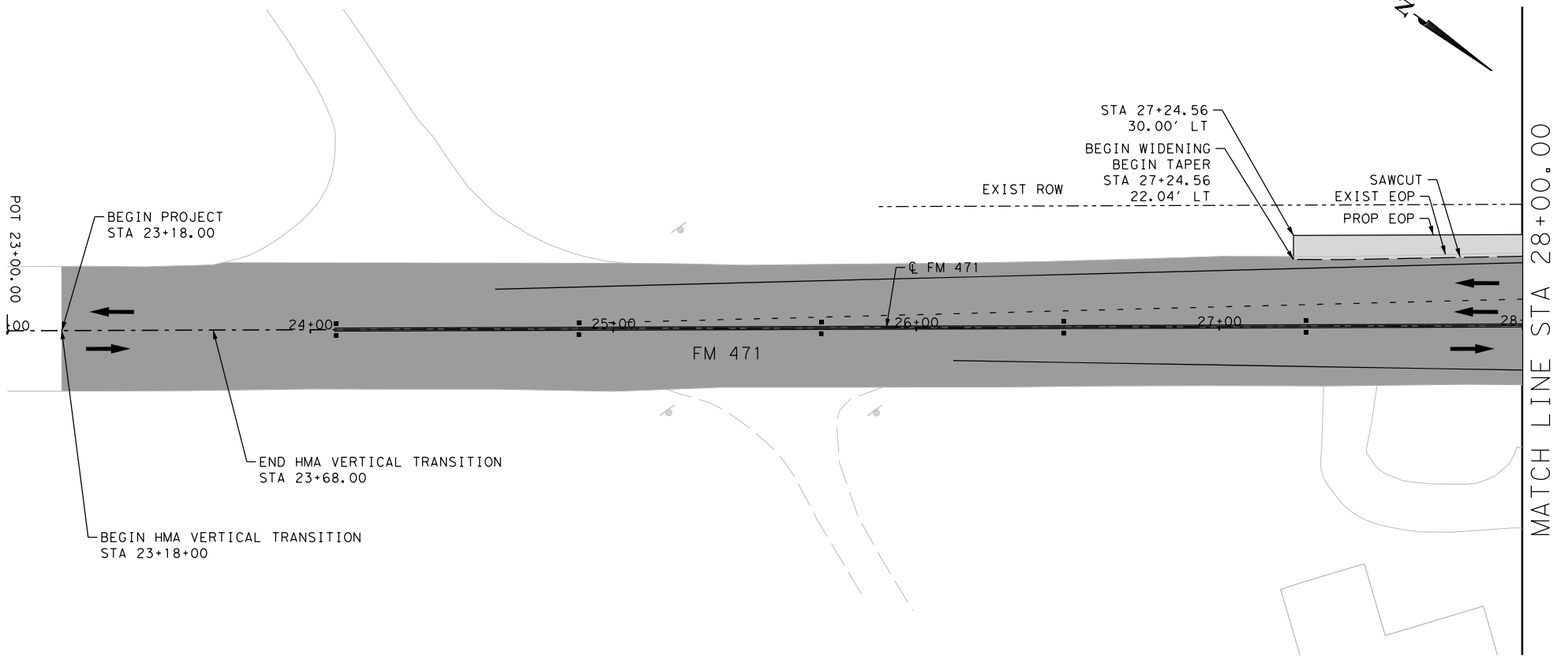
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US 90

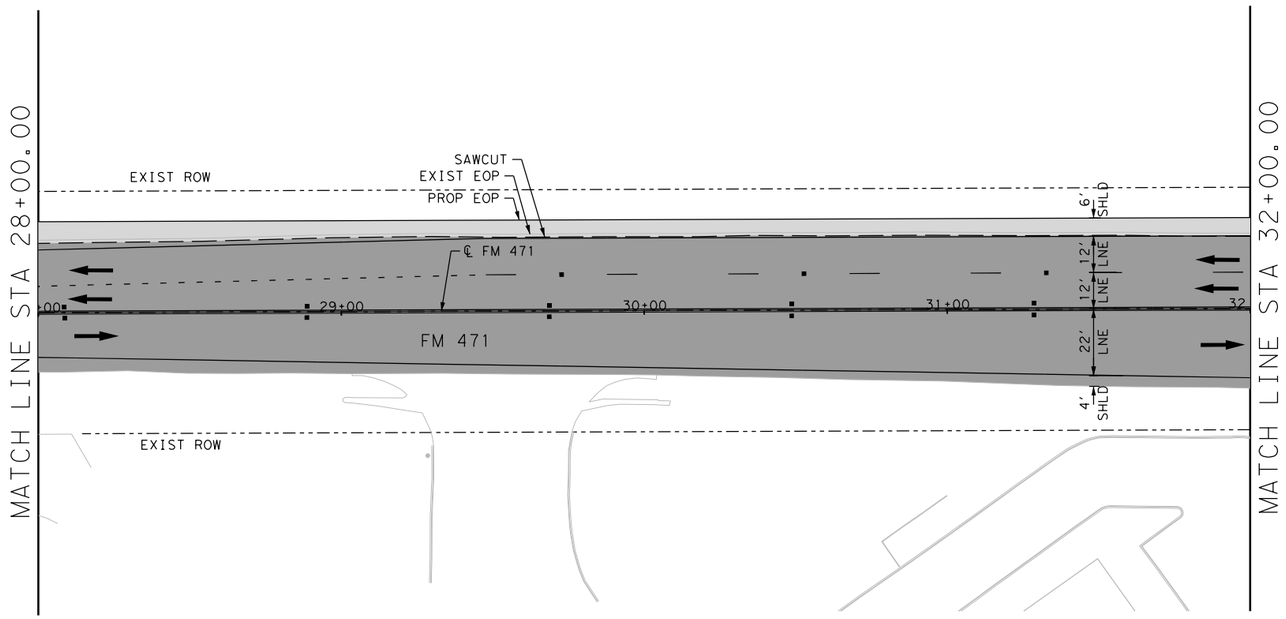
SHEET 5 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 3/28/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\1273603_RDWY_05.dgn





LEGEND

- PROPOSED FULL
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED BASE DRIVEWAY
- PAVEMENT REMOVAL
- PROPOSED SIDEWALK & ADA RAMPS
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW
- R — RAMP
- L — LANDING
- CX — CURVE NUMBER
- (XXX) — DRIVEWAY NUMBER

NOTES

1. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR HORIZONTAL ALIGNMENT DATA.
2. SEE INTERSECTION LAYOUT SHEETS FOR ADDITIONAL POINT INFORMATION FOR CONCRETE ISLANDS.
3. PAVEMENT MARKINGS SHOWN ON THE ROADWAY LAYOUT SHEETS ARE FOR REFERENCE ONLY. FOR DETAILED INFORMATION FOR PAVEMENT MARKINGS AND TRAFFIC FLOW REFER TO THE SIGNING AND PAVEMENT MARKINGS SHEETS.
4. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/28/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

BEGIN PROJECT TO STA 32+00.00

FM 471

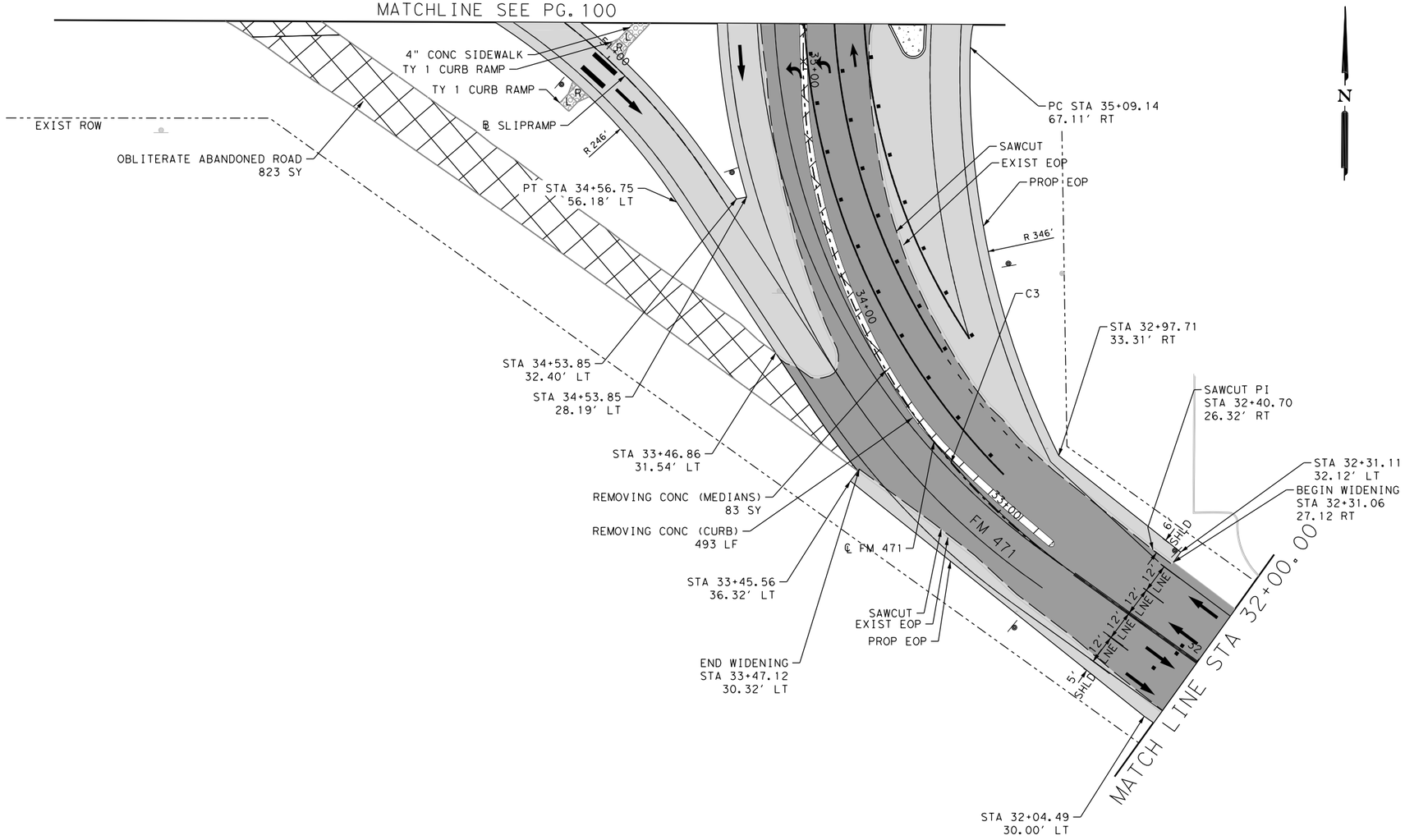
SHEET 6 OF 7

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

345

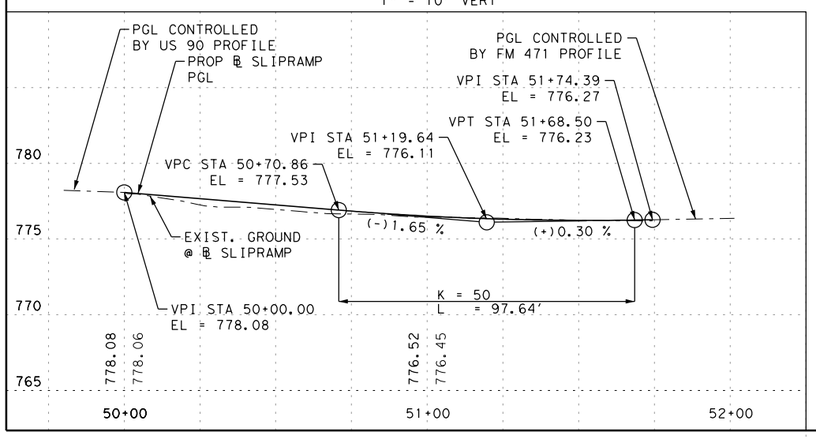
Plotted on: 3/28/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\1273603_RDWY_06.dgn



US 90 TO FM 471 SLIP RAMP PROFILE

SCALE: 1" = 50' HORIZ
1" = 10' VERT



LEGEND

- PROPOSED FULL
- PROPOSED OVERLAY
- PROPOSED CONCRETE MEDIAN
- PROPOSED CONCRETE DRIVEWAY
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED BASE DRIVEWAY
- PAVEMENT REMOVAL
- PROPOSED SIDEWALK & ADA RAMPS
- EXISTING TRAFFIC FLOW ARROW
- PROPOSED TRAFFIC FLOW ARROW
- R — RAMP
- L — LANDING
- CX — CURVE NUMBER
- (XXX) — DRIVEWAY NUMBER

NOTES

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DESIGN

STATE OF TEXAS — BRET CHAPMAN — 127293 — LICENSED PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 3/28/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 3/28/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

ROADWAY LAYOUT

STA 32+00.00 TO END PROJECT
FM 471

SHEET 7 OF 7

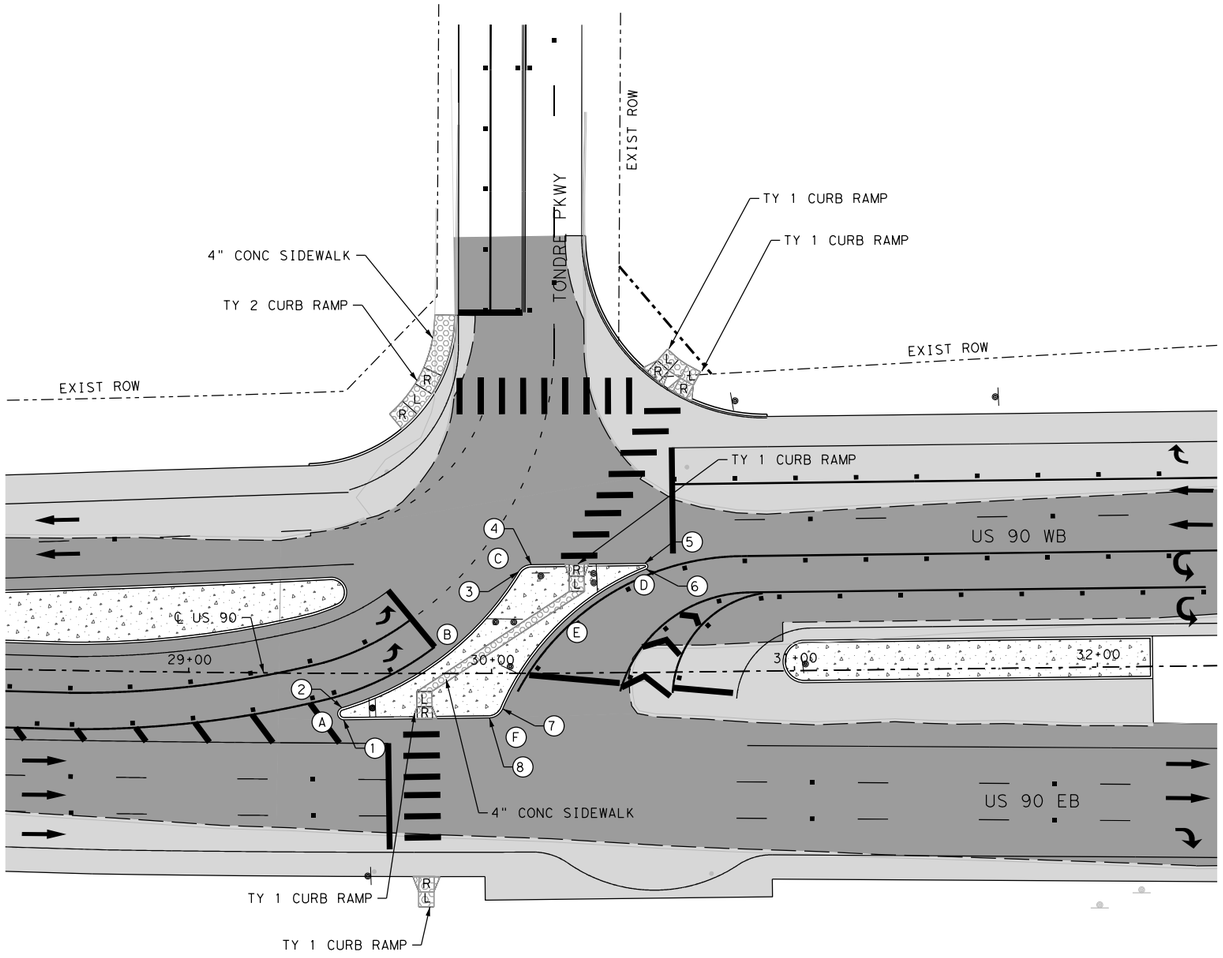
DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

346

Plotted on: 3/28/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\1273603_RDWY_07.dgn

POINT NAME	STATION C/L US 90	OFFSET
1	29+51.26	15.27' RT
2	29+50.67	11.36' RT
3	30+09.05	33.49' LT
4	30+13.28	35.85' LT
5	30+50.95	36.00' LT
6	30+51.31	34.07' LT
7	30+03.60	11.69' RT
8	29+99.07	14.68' RT



CURVE DATA TABLE							
CURVE NO.	RADIUS FT	DELTA	LENGTH FT	CHORD FT	e FT	CENTER OF RADIUS NORTHING	CENTER OF RADIUS EASTING
A	2.00	163°23'54.0" RT	5.70	3.96	11.85	13,679,090.45	2,014,258.34
B	103.00	41°49'50.6" RT	75.2	73.54	7.27	13,679,191.04	2,014,228.21
C	5.00	57°49'43.9" RT	5.05	4.84	0.71	13,679,134.62	2,014,320.30
D	1.00	158°43'12.1" RT	2.77	1.97	4.42	13,679,139.06	2,014,357.71
E	87.00	44°37'00.1" LT	67.75	66.05	7.04	13,679,057.44	2,014,390.62
F	5.00	65°53'48.0" RT	5.75	5.44	0.96	13,679,094.02	2,014,306.20

LEGEND

(1) POINT NAME

(A) CURVE NO.

N

NOTES

1. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR HORIZONTAL ALIGNMENT DATA.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

INTERSECTION LAYOUT

US 90 & TONDRE PKWY

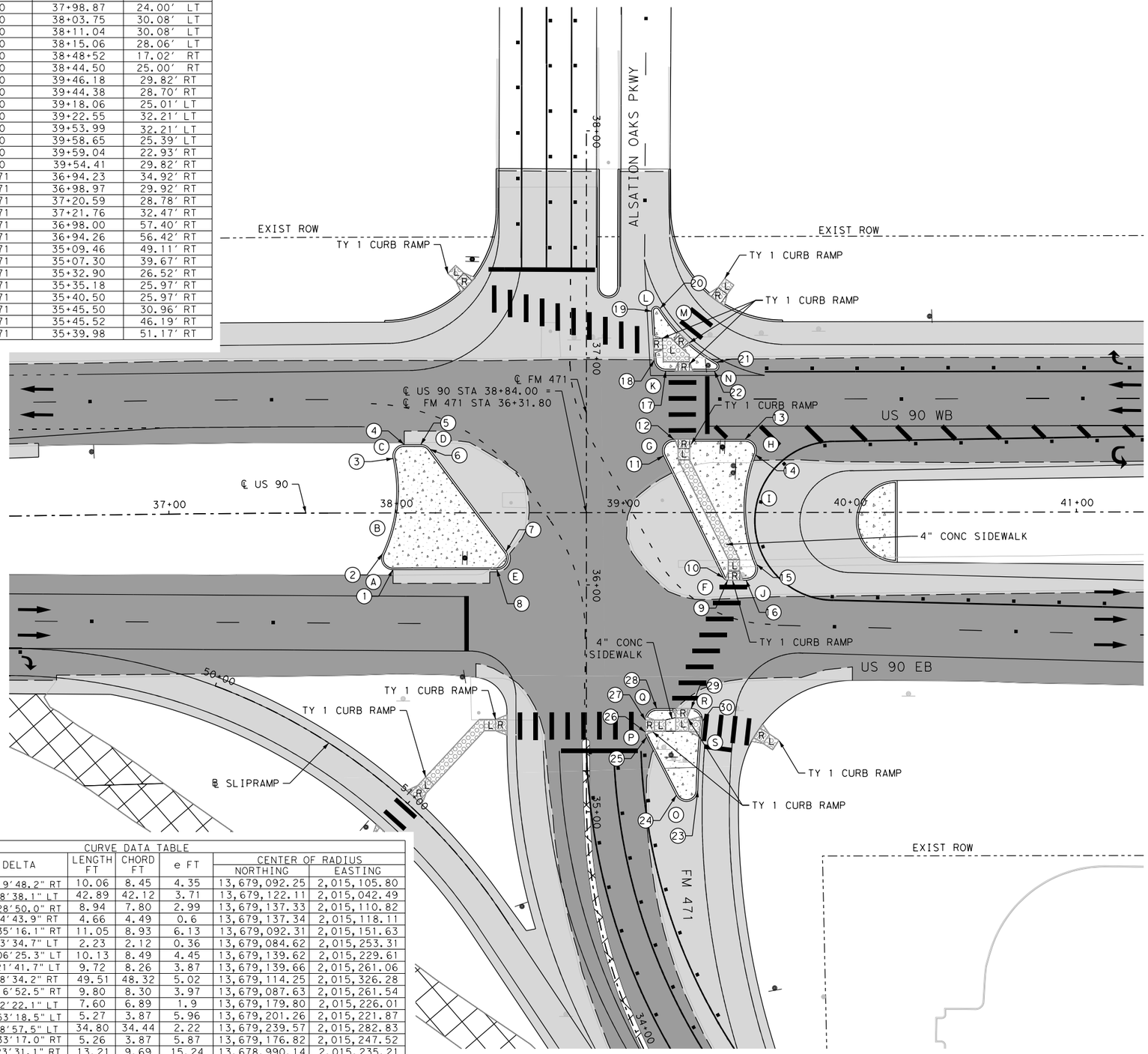
SHEET 1 OF 2

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		TOC

Plotted on: 2/23/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\1273603_RDWY_08.dgn

POINT NAME	ALIGNMENT	STATION	OFFSET
1	US 90	37+98.67	25.00' RT
2	US 90	37+94.15	17.86' RT
3	US 90	37+98.87	24.00' LT
4	US 90	38+03.75	30.08' LT
5	US 90	38+11.04	30.08' LT
6	US 90	38+15.06	28.06' LT
7	US 90	38+48+52	17.02' RT
8	US 90	38+44.50	25.00' RT
9	US 90	39+46.18	29.82' RT
10	US 90	39+44.38	28.70' RT
11	US 90	39+18.06	25.01' LT
12	US 90	39+22.55	32.21' LT
13	US 90	39+53.99	32.21' LT
14	US 90	39+58.65	25.39' LT
15	US 90	39+59.04	22.93' RT
16	US 90	39+54.41	29.82' RT
17	FM 471	36+94.23	34.92' RT
18	FM 471	36+98.97	29.92' RT
19	FM 471	37+20.59	28.78' RT
20	FM 471	37+21.76	32.47' RT
21	FM 471	36+98.00	57.40' RT
22	FM 471	36+94.26	56.42' RT
23	FM 471	35+09.46	49.11' RT
24	FM 471	35+07.30	39.67' RT
25	FM 471	35+32.90	26.52' RT
26	FM 471	35+35.18	25.97' RT
27	FM 471	35+40.50	25.97' RT
28	FM 471	35+45.50	30.96' RT
29	FM 471	35+45.52	46.19' RT
30	FM 471	35+39.98	51.17' RT



CURVE DATA TABLE							
CURVE NO.	RADIUS FT	DELTA	LENGTH FT	CHORD FT	e FT	CENTER OF RADIUS NORTHING	CENTER OF RADIUS EASTING
A	5.00	115°19'48.2" RT	10.06	8.45	4.35	13,679,092.25	2,015,105.80
B	65.00	37°48'38.1" LT	42.89	42.12	3.71	13,679,122.11	2,015,042.49
C	5.00	102°28'50.0" RT	8.94	7.80	2.99	13,679,137.33	2,015,110.82
D	5.00	53°24'43.9" RT	4.66	4.49	0.6	13,679,137.34	2,015,118.11
E	5.00	126°35'16.1" RT	11.05	8.93	6.13	13,679,092.31	2,015,151.63
F	2.00	63°53'34.7" LT	2.23	2.12	0.36	13,679,084.62	2,015,253.31
G	5.00	116°06'25.3" LT	10.13	8.49	4.45	13,679,139.62	2,015,229.61
H	5.00	11°21'41.7" LT	9.72	8.26	3.87	13,679,139.66	2,015,261.06
I	65.00	43°38'34.2" RT	49.51	48.32	5.02	13,679,114.25	2,015,326.28
J	5.00	112°16'52.5" RT	9.80	8.30	3.97	13,679,087.63	2,015,261.54
K	5.00	87°02'22.1" LT	7.60	6.89	1.9	13,679,179.80	2,015,226.01
L	2.00	150°53'18.5" LT	5.27	3.87	5.96	13,679,201.26	2,015,221.87
M	70.00	28°28'57.5" LT	34.80	34.44	2.22	13,679,239.57	2,015,282.83
N	2.00	150°33'17.0" RT	5.26	3.87	5.87	13,679,176.82	2,015,247.52
O	5.00	151°23'31.1" RT	13.21	9.69	15.24	13,678,990.14	2,015,235.21
P	5.00	27°05'51.2" RT	2.37	2.34	0.14	13,679,015.75	2,015,222.07
Q	5.00	90°00'00.0" RT	7.85	7.07	2.07	13,679,021.07	2,015,222.06
R	5.00	96°19'38.8" RT	8.41	7.45	2.5	13,679,021.09	2,015,237.29
S	364.00	4°49'01.0" LT	30.60	30.59	0.32	13,678,980.90	2,015,604.10

LEGEND

(1) POINT NAME

(A) CURVE NO.

N

NOTES

1. SEE HORIZONTAL ALIGNMENT DATA SHEETS FOR HORIZONTAL ALIGNMENT DATA.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

INTERSECTION LAYOUT

US 90 & FM 471

SHEET 2 OF 2

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	–			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

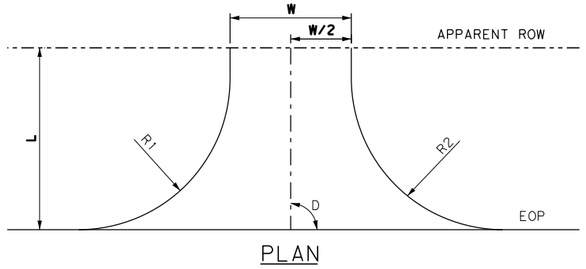
Plotted on: 2/23/2024

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PLAN SHEET No.	DRWY No.	ROAD NAME	DRWY C/L STA.	OFFSET	PROFILE TYPE	MATERIAL	WIDTH (W)	LENGTH (L)		PROP SLOPE (S)		EXIST SLOPE (S)		RADIUS (R)		DEFLECTION ANGLE (D)
								L1	L2	S1	S2	S1	S2	R1	R2	
							FT	FT	FT	%	%	%	%	FT	FT	°
99	WB01	US 90	17+59.74	43.75' LT	2	CONC	26.9	8.0	6.2	-1.13	0.14	-1.76	0.00	15	15	90
99	WB02	US 90	19+32.11	43.75' LT	2	CONC	31.7	6.4	7.1	-3.00	0.85	-2.70	0.70	15	15	90
99	WB03	US 90	20+01.44	43.75' LT	2	CONC	17.0	6.0	7.5	-2.96	-0.22	-3.00	-0.30	15	15	90
99	WB04	US 90	20+57.23	43.75' LT	2	CONC	21.7	7.7	5.8	-5.70	2.20	-4.68	1.70	15	15	90
99	WB05	US 90	21+18.50	43.75' LT	2	CONC	21.3	8.9	4.9	-3.61	4.44	-5.10	5.00	15	15	90
99	WB06	US 90	21+97.09	43.75' LT	2	CONC	44.0	8.0	5.6	-4.00	2.89	-4.80	9.60	15	15	90
99	WB07	US 90	22+91.05	43.75' LT	2	BASE	29.8	8.0	7.7	-5.00	0.91	-4.50	1.20	15	15	86
99	EB01	US 90	20+67.32	51.32' RT	1	ASPH	57.3	21.9	N/A	6.00	N/A	4.99	N/A	10.7	11.2	90
100	EB02	US 90	25+86.92	65.01' RT	1	ASPH	27.1	40.1	N/A	9.39	N/A	6.18	N/A	25	11	90
100	EB03	US 90	26+31.57	66.06' RT	2	ASPH	14.0	5.0	35.7	8.00	0.78	2.63	1.07	11	25	90
101	EB04	US 90	43+28.69	81.86' RT	1	CONC	44.9	20.7	N/A	-3.18	N/A	-2.17	N/A	20	20	88
101	EB05	US 90	44+15.04	82.02' RT	1	BASE	37.9	20.2	N/A	-0.74	N/A	-0.15	N/A	25	10	75
102	EB06	US 90	45+67.94	82.05' RT	1	BASE	27.8	15.8	N/A	-0.49	N/A	0.41	N/A	10	25	75
102	EB07	US 90	47+34.25	82.00' RT	1	CONC	23.8	26.6	N/A	-3.60	N/A	-2.87	N/A	25	25	90
102	EB08	US 90	49+37.92	82.00' RT	1	CONC	40.6	25.4	N/A	-3.17	N/A	-1.88	N/A	25	25	90
102	EB09	US 90	53+98.85	78.58' RT	1	ASPH	21.9	24.9	N/A	-8.90	N/A	-7.28	N/A	25	25	88
100	EB10	US 90	34+96.01	75.92' RT	1	BASE	27.0	20.0	N/A	-12.00	N/A	-12.60	N/A	15	15	90

DRIVEWAY DETAIL A

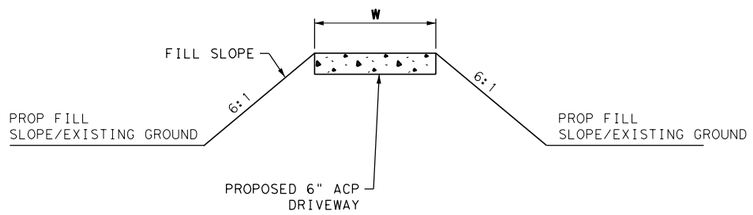
NTS



PLAN

DRIVEWAY PROFILE DETAIL A

NTS

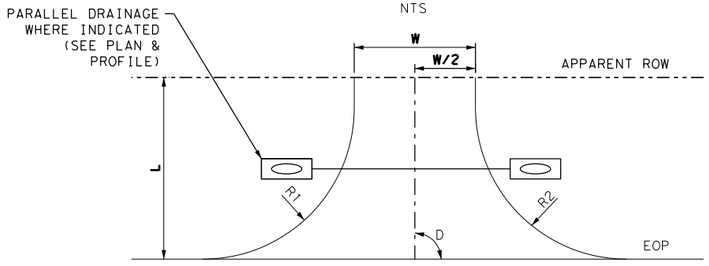


NOTES

1. CONTRACTOR TO ENSURE NO DROP-OFF BETWEEN ROADWAY AND DRIVEWAYS AT ALL TIMES.
2. CONTRACTOR TO MATCH EXISTING LIMITS OF DRIVEWAYS, UNLESS OTHERWISE NOTED ON PLANS
3. REFER TO PLAN SHEETS FOR GEOMETRIC DESIGN DETAILS.
4. WHERE SIDEWALK IS PRESENT, SLOPE AND LENGTH OF CURB TRANSITION SHOULD MATCH THE SIDEWALK AND MEET ADA REQUIREMENTS.

DRIVEWAY DETAIL B

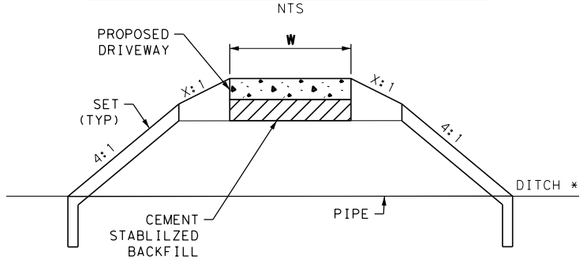
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PLAN

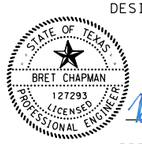
DRIVEWAY PROFILE DETAIL B

NTS



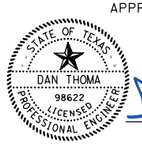
SECTION

DESIGN

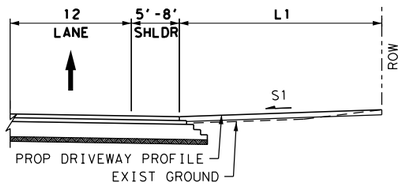


BRET CHAPMAN, P.E. — 2/23/2024 DATE

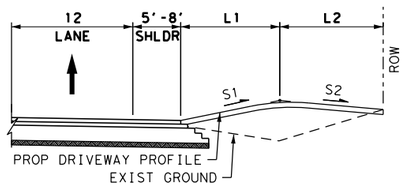
APPROVAL



DAN THOMA, P.E. — 2/23/2024 DATE

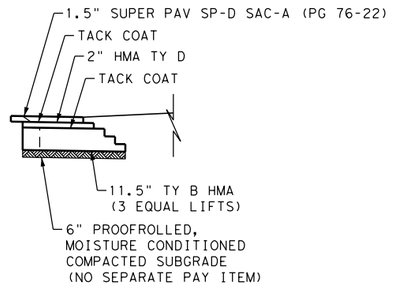


DRIVEWAY PROFILE TYPE 1



DRIVEWAY PROFILE TYPE 2

TYPICAL ACP DRIVEWAY



STREET CONNECTION PAVEMENT SECTION

NTS

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

DRIVEWAY SUMMARY SHEET

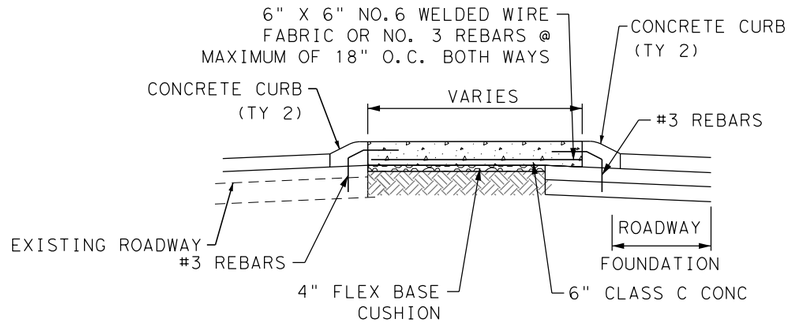
SHEET 1 OF 1

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/23/2024
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Plotted on: 2/23/2024

Design Filename: P:\127\36\03\Design\Civil\Roadway\Driveways\127603_MISC01.dgn



CONCRETE MEDIAN DETAIL

NTS

6" CLASS C CONC, & FLEX BASE
SUBSIDARY TO CONC MEDIAN (ITEM 0536-6002),
(NSPI)

NOTES:
1. LEFT SIDE REPRESENTS CONC MEDIAN TIED INTO EXISTING PAVEMENT. RIGHT SIDE REPRESENTS CONC MEDIAN TIED INTO PROPOSED PAVEMENT.
2. ANY WHERE CONCRETE MEDIAN OVERLAPS WITH EXISTING PAVEMENT THERE WILL BE PLANING THIS IS COVERED UNDER ITEM 0354 6021 PLANE ASPH CONC PAV (0" TO 2")

DESIGN

STATE OF TEXAS
BRET CHAPMAN
127293
LICENSED
PROFESSIONAL ENGINEER

BRET CHAPMAN, P.E. — 2/23/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

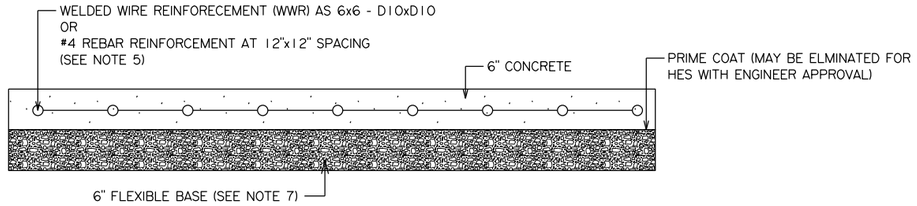
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US 90 AT ALSATIAN OAKS

ROADWAY MISCELLANEOUS SHEET

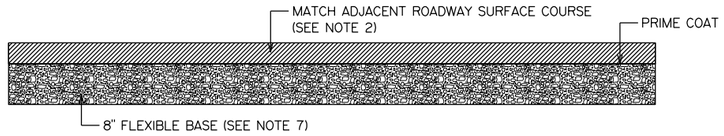
SHEET 1 OF 1

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



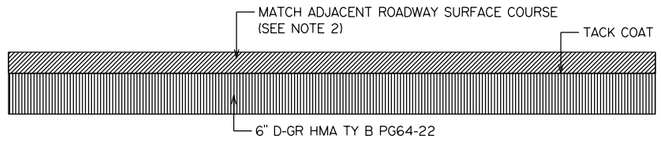
TYPICAL CONCRETE DRIVEWAY

* NOTE: STEEL SHALL BE CENTERED VERTICALLY IN CONCRETE.
PAID AS 'DRIVEWAYS CONC (HES)' OR 'DRIVEWAYS (CONC)'



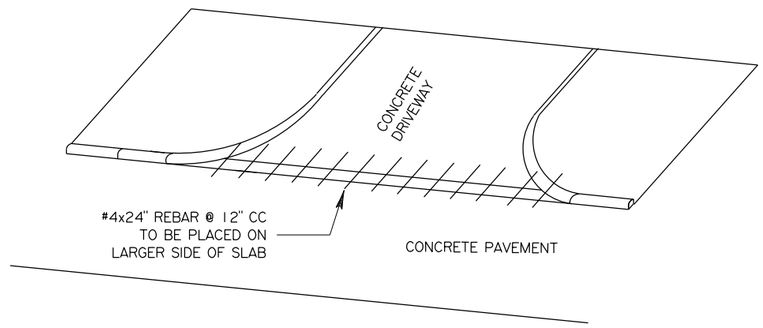
TYPICAL ROADWAY DRIVEWAY (TYPE 1)

PAID AS DRIVEWAYS ACP (TYPE 1)

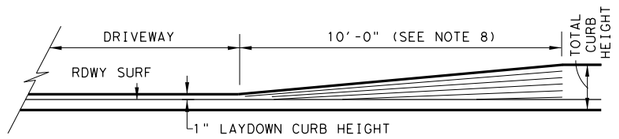


TYPICAL ROADWAY DRIVEWAY (TYPE 2)

PAID AS DRIVEWAYS ACP (TYPE 2)



TIE BAR PLACEMENT WITH CRCP



LAYDOWN CURB AT DRIVEWAYS DETAIL

NOTES:

1. USE CLASS A CONCRETE UNLESS OTHERWISE NOTED.
2. DENSE GRADED HMA MAY BE USED WHEN APPROVED BY THE ENGINEER IF THE ROADWAY SURFACE COURSE IS A PERFORMANCE MIX.
3. REFER TO PLAN SHEETS FOR GEOMETRIC DESIGN DETAILS.
4. FOR CONCRETE DRIVEWAYS, PROVIDE EXPANSION JOINT 20 FT C-C FOR WIDTH OR LENGTH OVER 25 FT.
5. FIBER REINFORCEMNT IS NOT ALLOWED.
6. MACHINE LAID HMA IS REQUIRED UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. FURNISH BASE MEETING THE REQUIREMENTS FOR ANY TYPE OF GRADE IN ACCORDANCE WITH ITEM 247. FLEXIBLE BASE COMPRESSIVE STRENGTHS ARE WAIVED. BASE IS SUBSIDIARY TO THE ITEM.
8. WHERE SIDEWALK IS PRESENT, SLOPE AND LENGTH OF CURB TRANSITION SHOULD MATCH THE SIDEWALK AND MEET ADA REQUIREMENTS.
9. IF ROOTS ARE ENCOUNTERED VERIFY WITH THE ENGINEER PRIOR TO ACCOMODATING OR REMOVING 2 IN. DIAMETER OR LARGER ROOTS. ROOT REMOVAL MUST BE IN ACCORDANCE WITH ITEM 752.4.2. ROOTS MAY REMAIN IN THE BASE. FOR IMPROVEMENTS WITHIN 6 IN. OF A ROOT, THE CONCRETE THICKNESS MAY BE REDUCED BY 1 IN. AND THE BASE INCREASED BY 1 IN. TO MINIMIZE THE IMPACT TO THE ROOTS. ADJUST BASE AND SURFACE PROFILE TO PROVIDE A 1 IN. BASE CUSHION AROUND THE ROOTS. THE SURFACE PROFILE MAY BE ADJUSTED TO THE EXTENT ALLOWED BY ADA. THIS WORK IS SUBSIDIARY.

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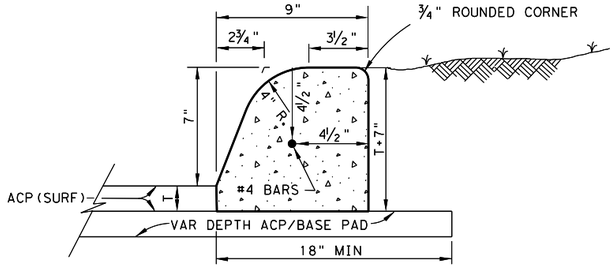
Texas Department of Transportation
San Antonio District

DRIVEWAY DETAILS

San Antonio District Standard
Sheet (1 of 1)

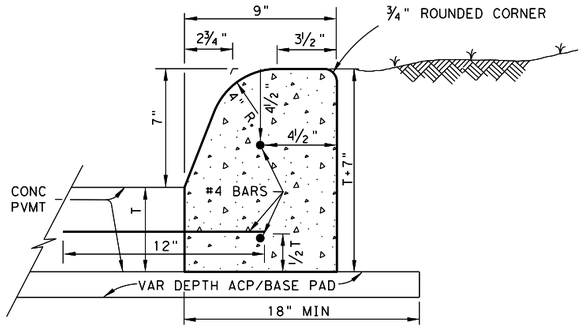
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REVISIONS	SA	6	–			A
	COUNTY		CONTROL	SECTION		351
	MEDINA		24	6		US 90

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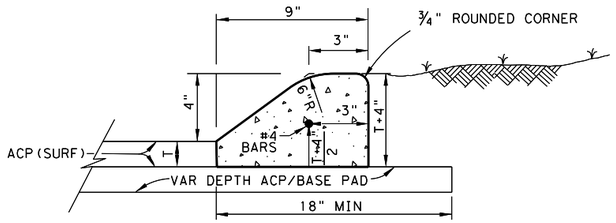
CONCRETE CURB (TYPE 1)

W/ ACP



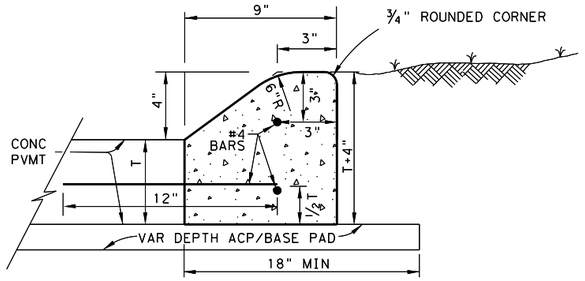
CONCRETE CURB (TYPE 1)

W/ CONC PAVEMENT



CONCRETE CURB (TYPE 2)

W/ ACP

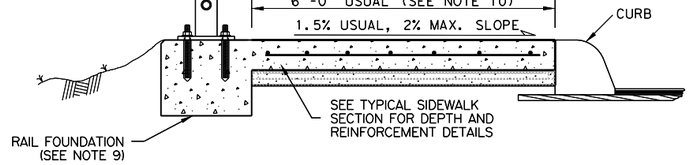


CONCRETE CURB (TYPE 2)

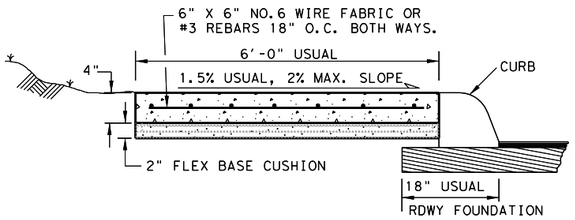
W/ CONC PAVEMENT

GENERAL NOTES:

1. CONCRETE CURB TYPE 1 AND 2 SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "A" CONCRETE PER ITEM 529 AND 421.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. WHERE CONCRETE CURB IS PLACED ON EXISTING CONCRETE PAVEMENT, THE PAVEMENT SHALL BE DRILLED AND THE REINFORCING BARS GROUTED IN PLACE.
4. 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.
5. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
6. ONE-HALF INCH EXPANSION JOINT MATERIAL SHALL BE PROVIDED WHERE CURB OR CURB AND GUTTER IS ADJACENT TO SIDEWALK OR RIPRAP. THIS IS SUBSIDIARY TO THE CURB, ITEM 529.
7. LAYDOWN CURB AT DRIVEWAYS WILL BE PAID AS SUBSIDIARY TO ITEM 530.
8. FOR SIDEWALK DETAILS AT DRIVEWAYS, SEE SAN ANTONIO DISTRICT STANDARD "DRIVEWAY DETAILS".
9. SEE PEDESTRIAN HANDRAIL DETAILS STANDARD "PRD" FOR MORE INFORMATION. CONCRETE RAIL FOUNDATION TO BE POURED WITH THE SIDEWALK BUT PAYMENT IS SUBSIDIARY TO ITEM 450 "RAILING".
10. CLEAR SIDEWALK WIDTH EXCLUDING THE PEDESTRIAN RAIL FOUNDATION SHALL BE 6' UNLESS OTHERWISE SPECIFIED IN THE PLANS

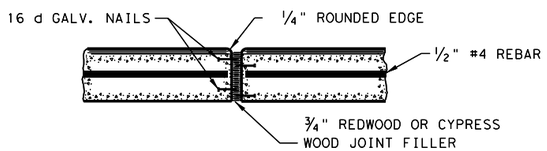


TYPICAL SIDEWALK SECTION
WITH PEDESTRIAN RAIL



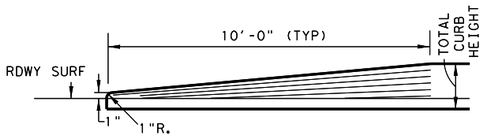
TYPICAL SIDEWALK SECTION

GROOVED JOINTS IN THE SIDE WALK SHALL BE AT A MAX. SPACING OF 10 FT. AND SHALL HAVE ¾" EXPANSION JOINTS AT A MAX. SPACING OF 60' AND TO COINSIDE WITH THE CURB EXP. JOINTS.



TYPICAL CURB EXPANSION JOINT DETAIL

EXPANSION JOINTS TO BE PLACED AT BEGINNING AND END OF CURVES, DRIVEWAYS WHEELCHAIR RAMPS, INLETS, ILLUMINATION/ SIGNAL FOUNDATIONS AND OTHER FIXED OBJECTS.



TRANSITION FOR CONCRETE CURB ENDS

SEE CURB DETAIL FOR REINFORCEMENT

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Texas Department of Transportation
San Antonio District

MISCELLANEOUS CURB AND SIDEWALK DETAILS

San Antonio District Standard
Sheet (1 of 2)

T:Engdata/Standards/MiscCurbdetails.dgn

ORIGINAL DRAWING DATE:

REVISIONS
09-01-08
10-10-17 sidewalk width equals 6' usual
07-22-20 9" curb + curb w/ conc pvmt det.
- -

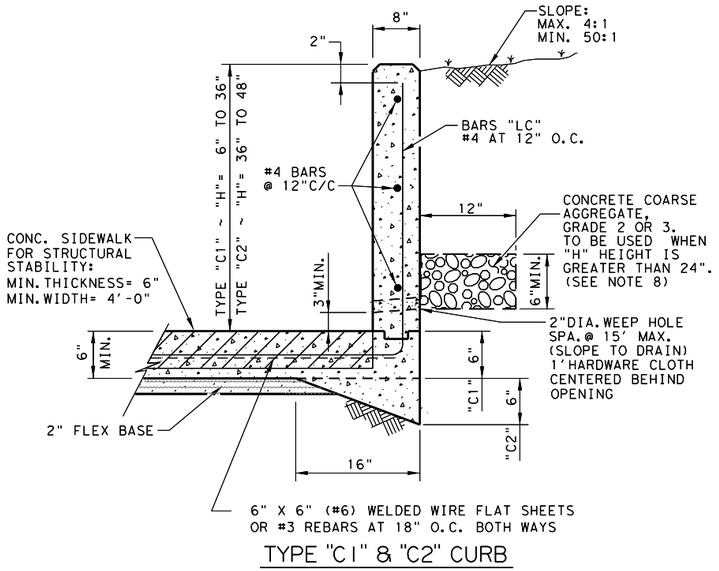
PREPARED BY AND FOR USE OF TxDoT.

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET
SAT	6		352

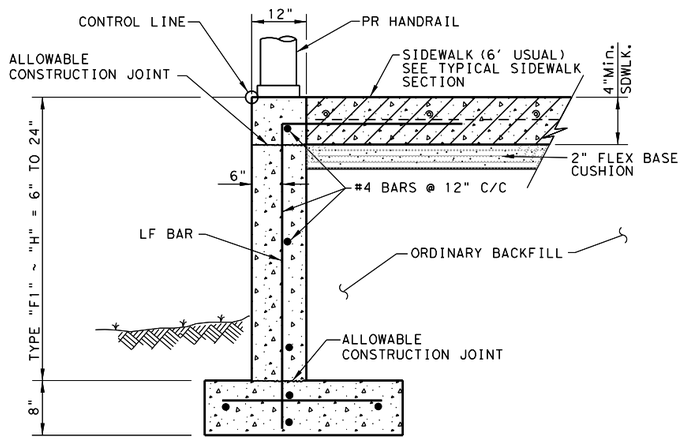
COUNTY	CONTROL	SECTION	
BEXAR			US90

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TYPE "C1" & "C2" CURB



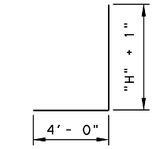
TYPE "F1" CURB

GENERAL NOTES:

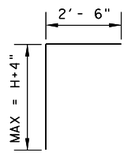
1. CONCRETE FOR CURB TYPE F AND C SHOWN SHALL MEET THE MINIMUM SPECIFICATION REQUIREMENTS OF CLASS "C" CONCRETE PER ITEM 421
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. EXPANSION AND CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH PAVEMENT JOINITS IN ALL CURBS AND CURB AND GUTTER ADJACENT TO JOINTED 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.
4. VERTICAL AND HORIZONTAL DOWEL BARS AND TRANSVERSE REINFORCING BARS SHALL BE PLACED AT 4 FEET C-C, UNLESS OTHERWISE SHOWN.
5. UNTIL THE SIDEWALK IS COMPLETE, LATERAL SUPPORT FOR THE "F" CURBS WILL BE REQUIRED.
6. IF AGGREGATE IS REQUIRED PER THE DETAIL, IT IS PAID AS SUBSIDIARY TO THE CURB, ITEM 529.

TYPE "F2" & "F3" CURB

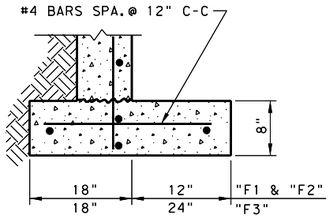
DESIGN SOIL PARAMETERS:
Soil Unit Wt. = 120 pcf
Phi = 30 Degrees
Cohesion = 50 psf
Min. PI = 15
Max. PI = 30
SURCHARGE:
TYPE F CURB q = 2' Adjacent to sidewalk
Max. slope behind TYPE C Curb = 4:1
Min. Factor of Safety against sliding is 1.5.
Designed in accordance with current AASHTO Standards and Interim Specifications.



BAR "LC"



BAR "LF"



FOOTING DETAIL

CLASS C CONCRETE PAID UNDER ITEM 531, SIDEWALK. (NOTE. ADDITIONAL CONCRETE TO MEET THE THICKENED SECTIONS REQUIRED BY THESE DETAILS IS SUBSIDIARY TO ITEM 531, CURB.)

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Texas Department of Transportation
San Antonio District

MISCELLANEOUS CURB AND SIDEWALK DETAILS

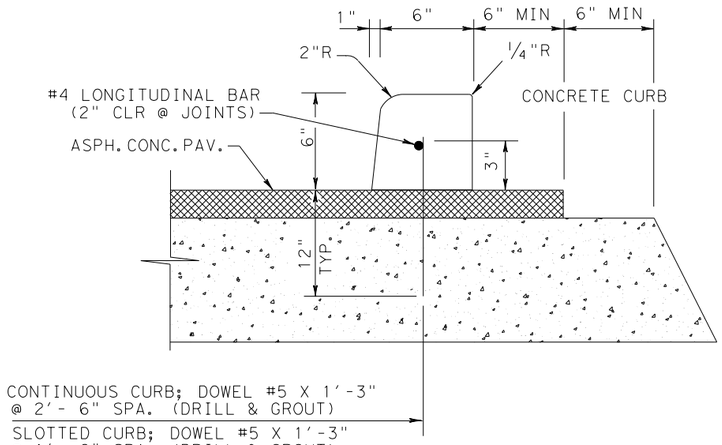
San Antonio District Standard
Sheet (2 of 2)

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REVISIONS	SAT	6				
09-01-08	COUNTY		CONTROL	SECTION	JOB	
10-10-17 sidewalk width equals 6' usual	BEXAR					US90
07-22-20 9" curb + curb w/ conc pvmt det.						
- -						

353

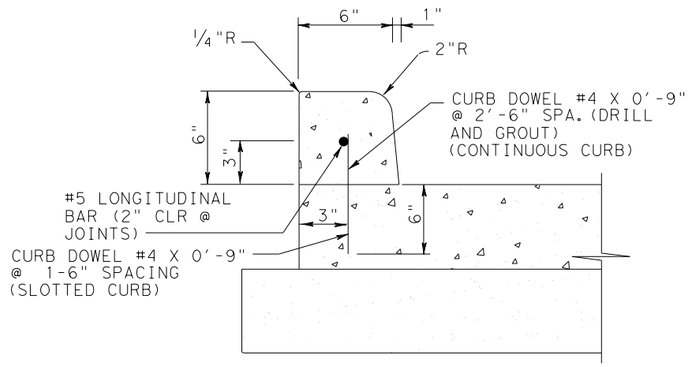
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SHOWN ON EXISTING OR PROPOSED ACP PAVEMENT

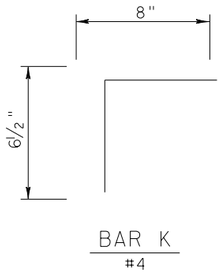
(PAY ITEM 529-6011) - FOR CONTINUOUS



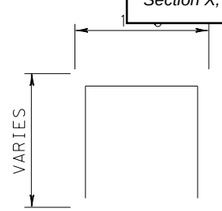
SHOWN ON EXISTING OR PROPOSED
CONCRETE PAVEMENT

(PAY ITEM 529-6011) - FOR CONTINUOUS

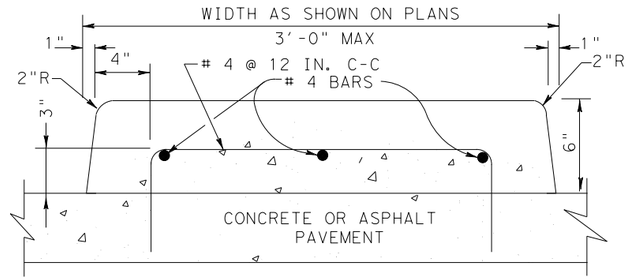
CONCRETE CURB (DOWEL) (6 IN.)



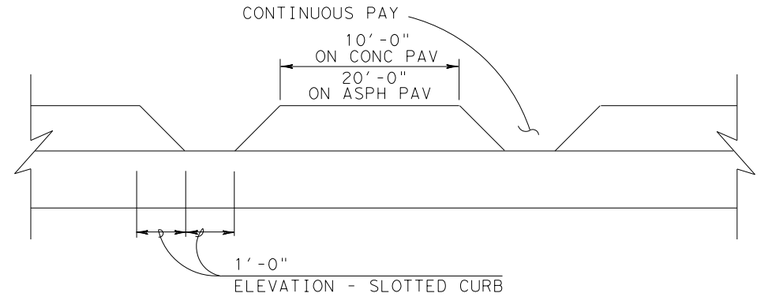
BAR K
#4



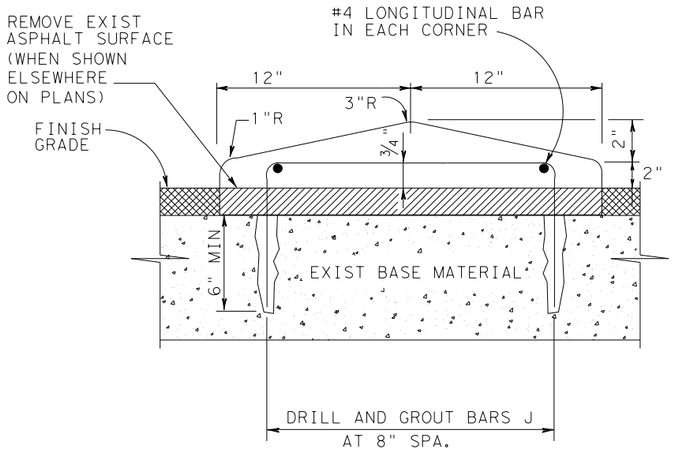
BAR J
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ITEM 536-6001 CONCRETE MEDIAN
SEE NOTE 2

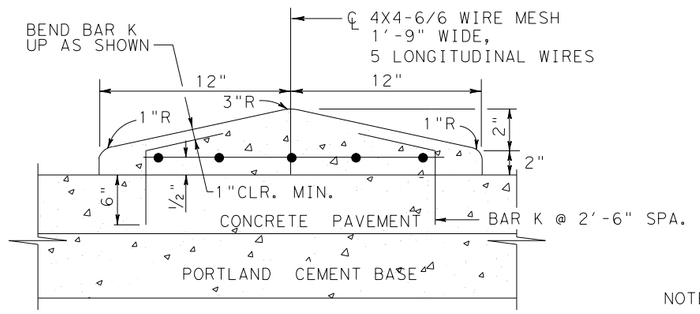


ITEM 529-6012 CONCRETE CURB (SLOTTED) - ON CONC.
ITEM 529-6009 CONC CURB (DOWEL)(SLOTTED) - ON ASPH.



SHOWN ON EXISTING ACP PAVEMENT

SEE NOTE 2 - ITEM 536-6003 CONC DIRECTIONAL ISLAND



SHOWN ON EXISTING OR PROPOSED
CONCRETE PAVEMENT

SEE NOTE 2 - ITEM 536-6003 CONC DIRECTIONAL ISLAND

CONCRETE DIRECTIONAL ISLAND

NOTES:

1. DRILL AND GROUT BARS SHOWN AS PER ITEM 420.4.7.10, 6" EMBEDMENT, MINIMUM ON CONC.
2. INSTALL A 2 INCH DRAINAGE OPENING AT 10 FT C-C WHEN CURB/ISLAND IS NOT ON TOP OF CROSS SECTION. (LOCATED ON A 2 OR 3 PERCENT TRANSVERSE GRADE, OR SUPERELEVATION.)

Texas Department of Transportation
Houston District

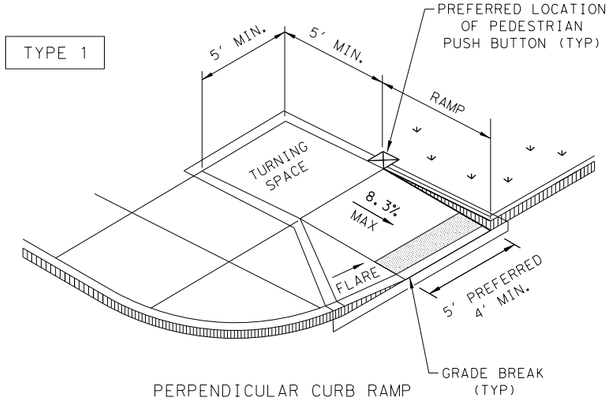
CONCRETE CURB AND DIRECTIONAL ISLAND DETAILS CC & DID

FILE: STDB-9.dgn	DN:	CK:	DW:	CK:
©TxDOT 2014	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	SA	6		112
	COUNTY	CONTROL	SECT	JOB
	MEDINA	24	6	

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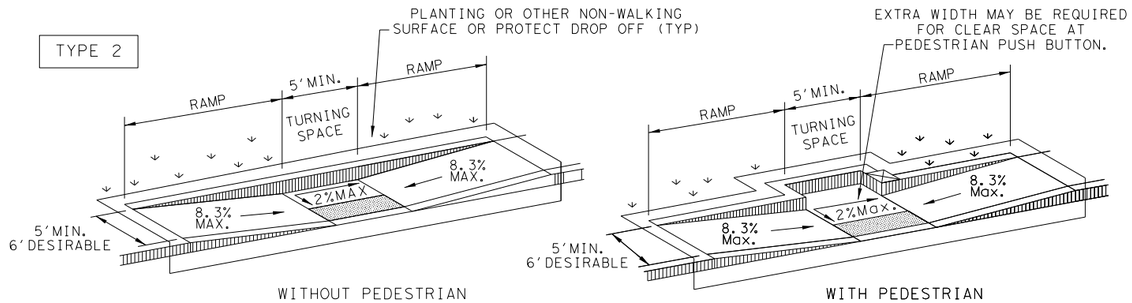
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TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

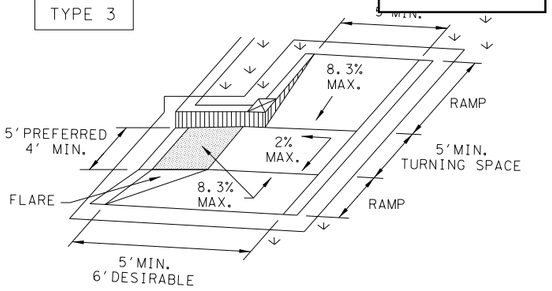


WITHOUT PEDESTRIAN PUSH BUTTON

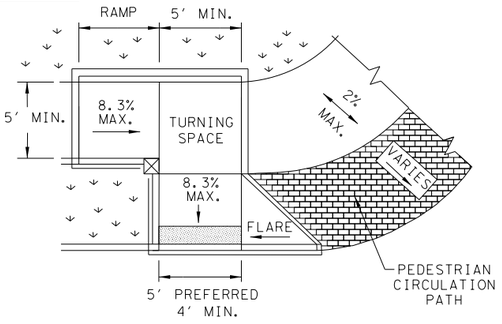
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

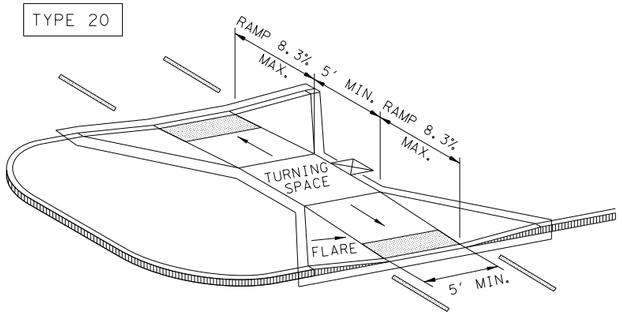


TYPE 6



COMBINATION CURB RAMPS

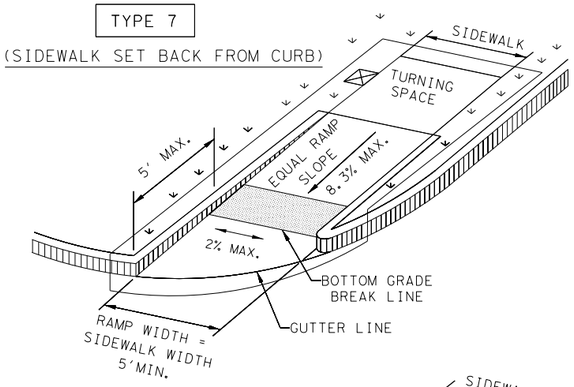
TYPE 20



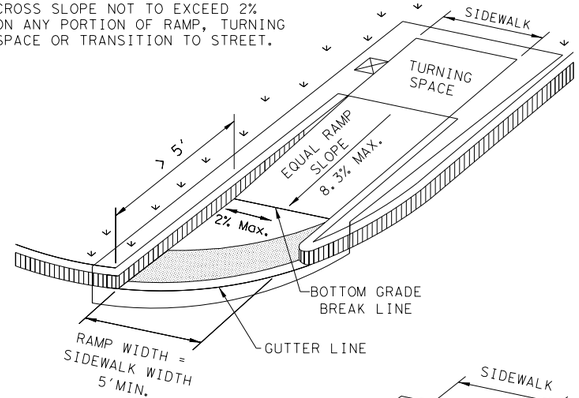
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

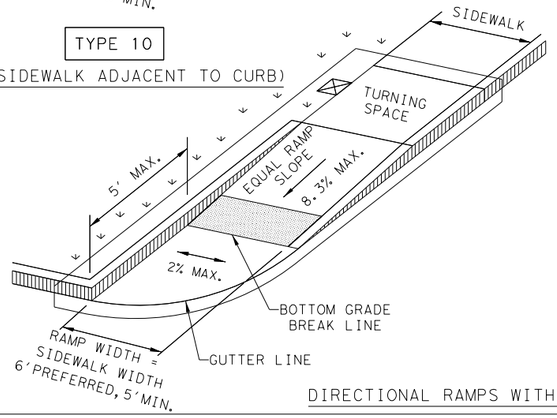


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

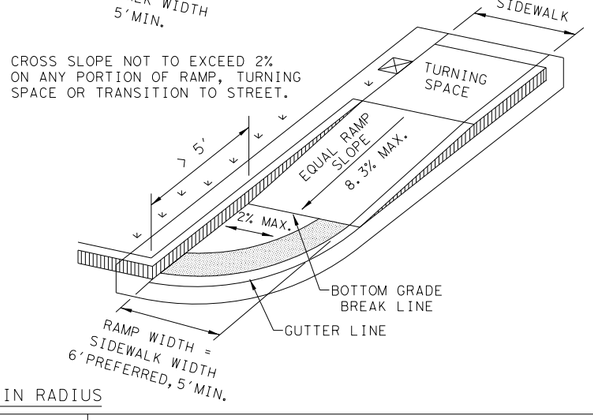


TYPE 10

(SIDEWALK ADJACENT TO CURB)

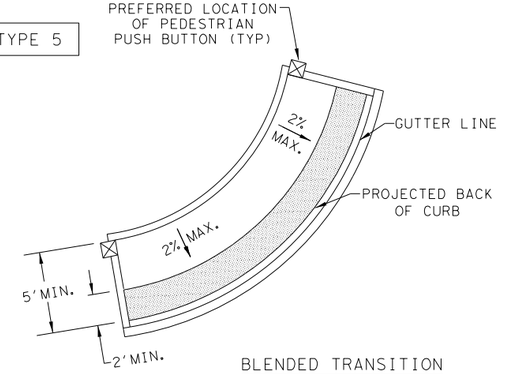


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

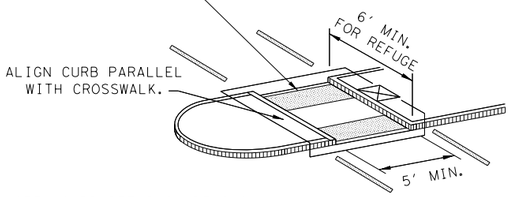
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

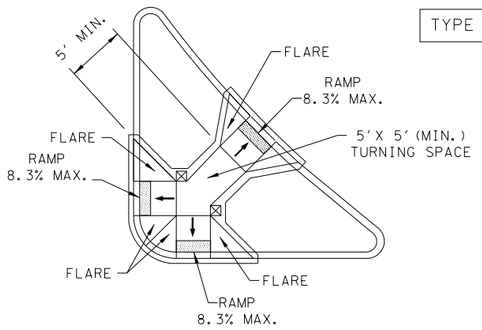
TYPE 21

INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.



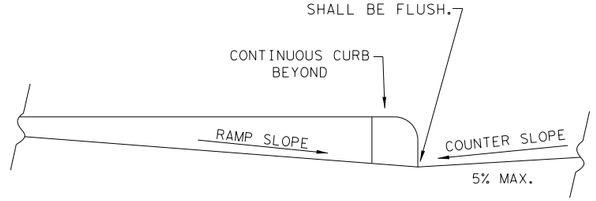
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

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.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation

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	24	6		
REVISED 08,2005	DIST	COUNTY		355
REVISED 06,2012	SA	MEDINA		
REVISED 01,2018				113

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DATE: 2/22/2024
FILE: P:\127\36\03\Design\Civil\Standards\Roadway\ped18.dgn

GENERAL NOTES

CURB RAMPS

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 applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

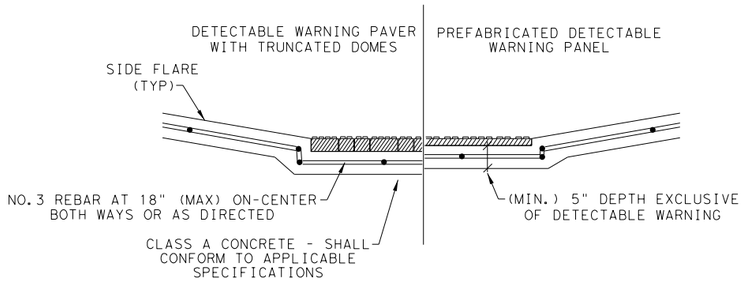
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material 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

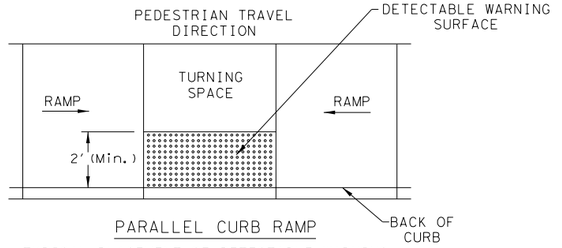
27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items 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

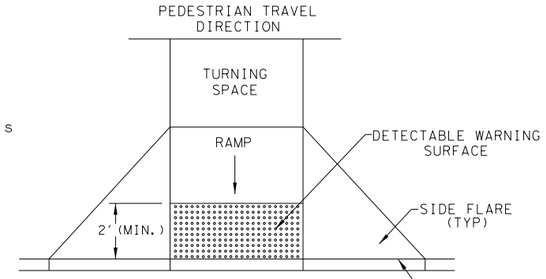
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



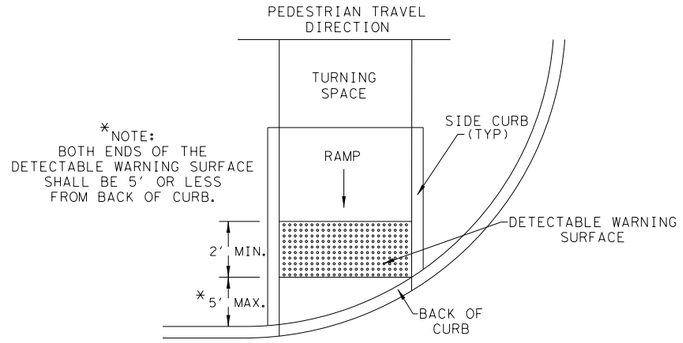
PARALLEL CURB RAMP

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



PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

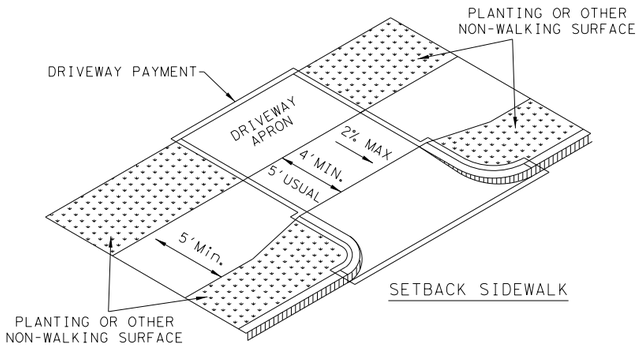
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
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REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			356
	SA	MEDINA			114

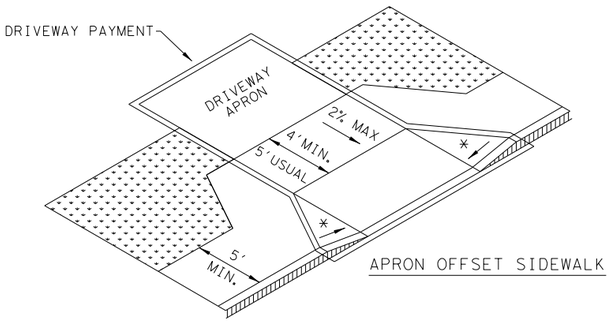
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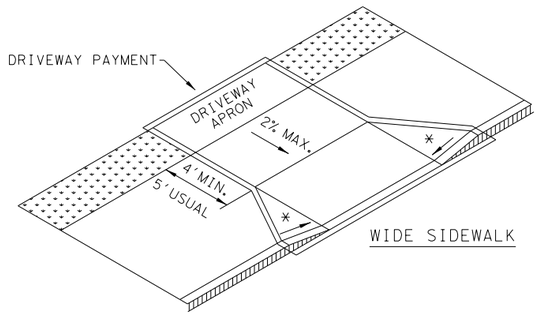
SIDEWALK TREATMENT AT DRIVEWAYS



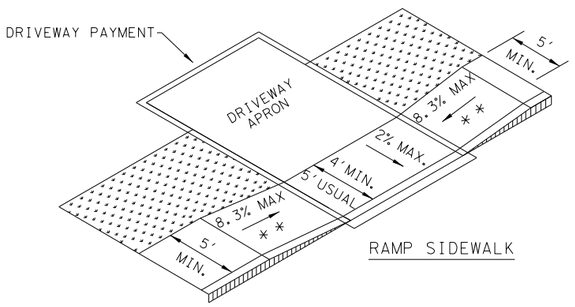
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

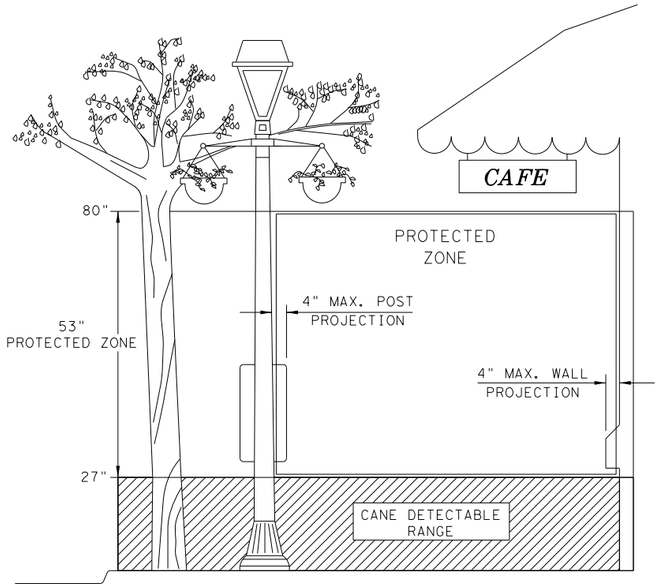


RAMP SIDEWALK

NOTES:

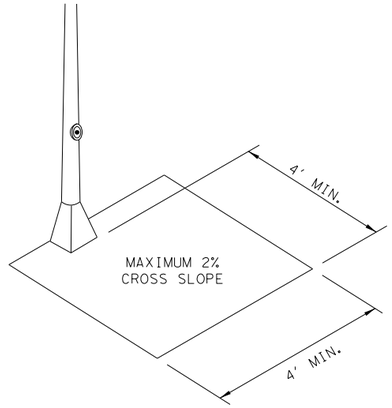
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

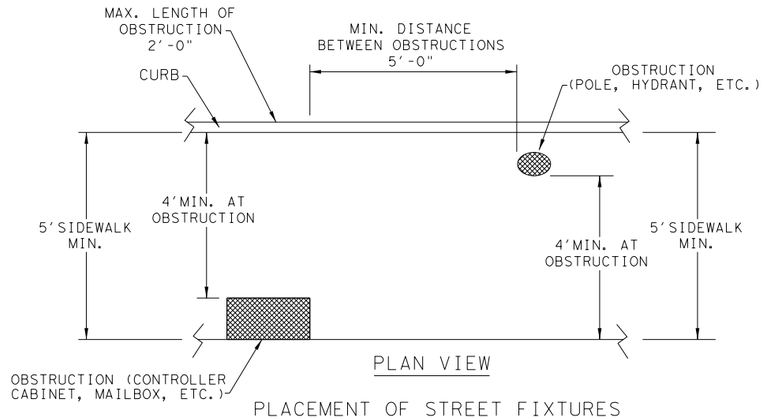


PROTECTED ZONE

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



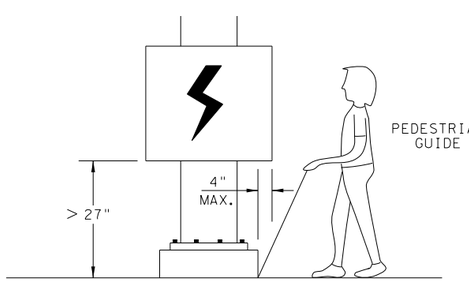
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



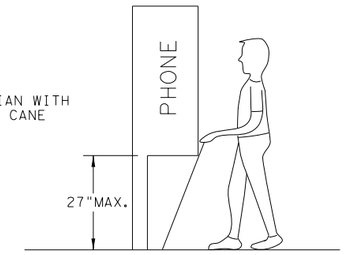
PLAN VIEW

PLACEMENT OF STREET FIXTURES

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



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

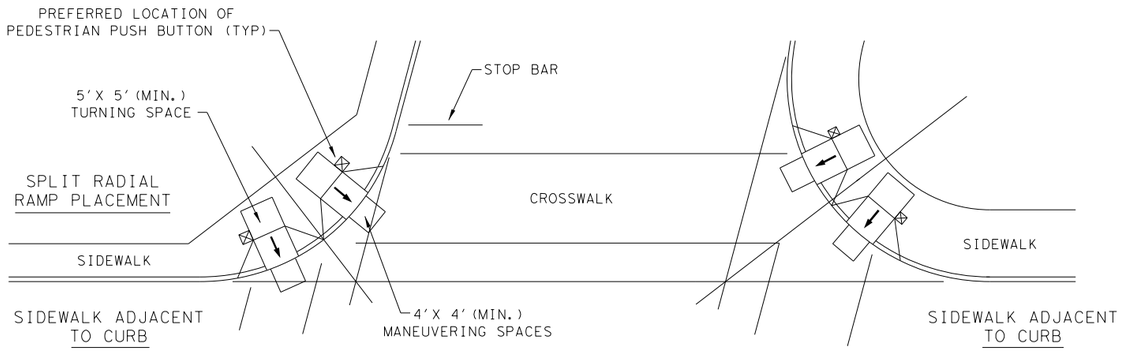
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REVISIONS	24	6			
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			357
	SA	MEDINA			115

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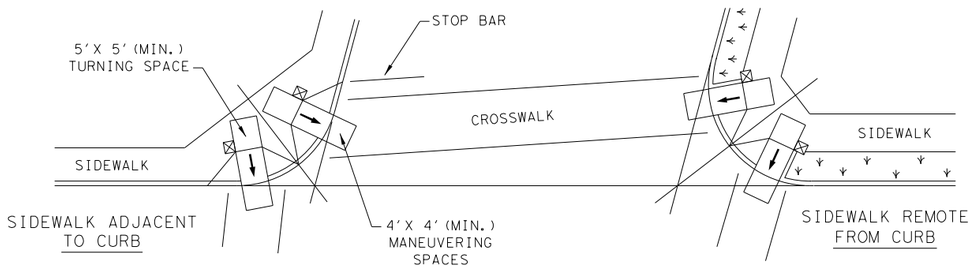
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TYPICAL CROSSING LAYOUTS

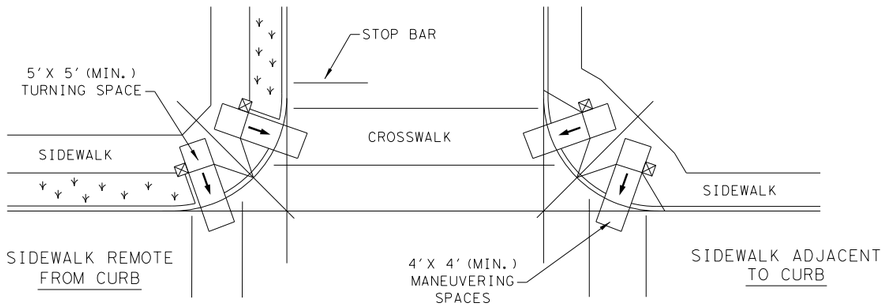
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



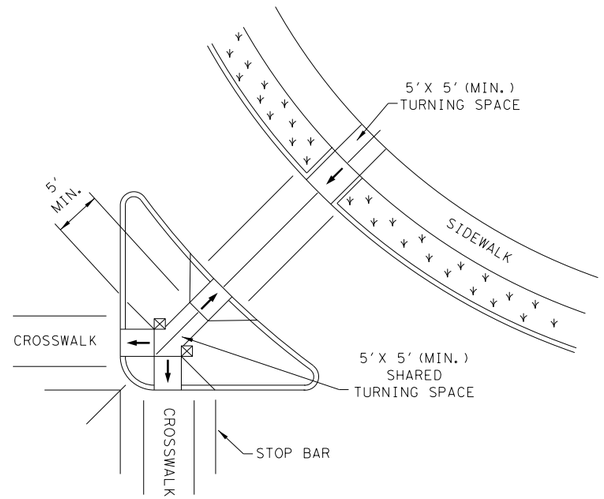
SKEWED INTERSECTION WITH "LARGE" RADIUS



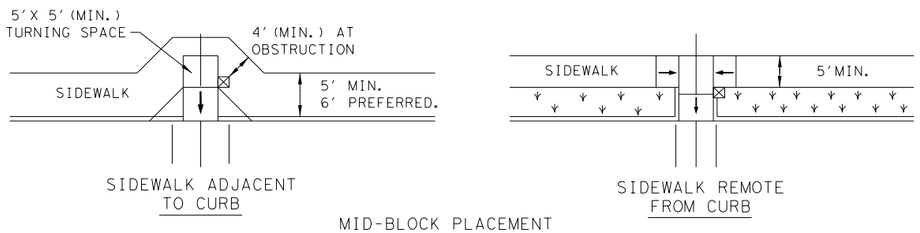
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

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

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

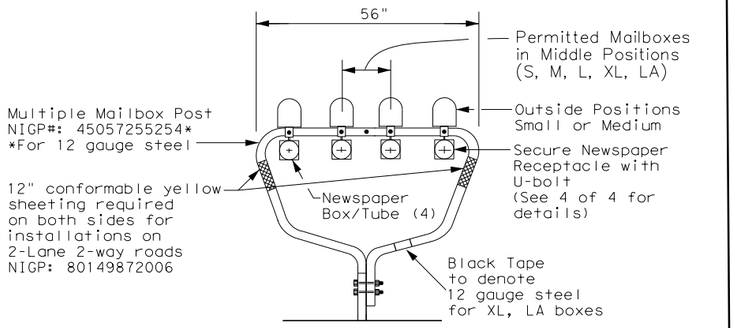
PED-18

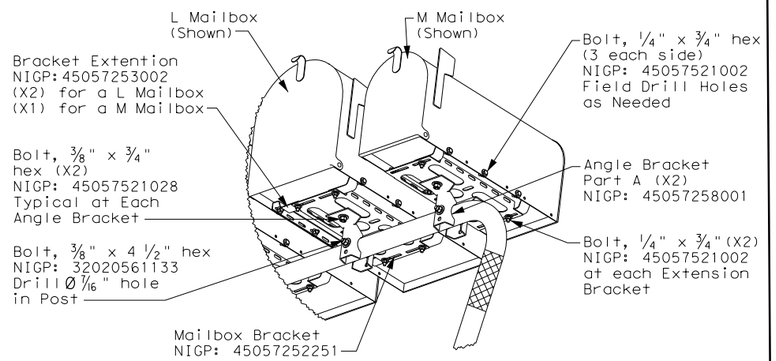
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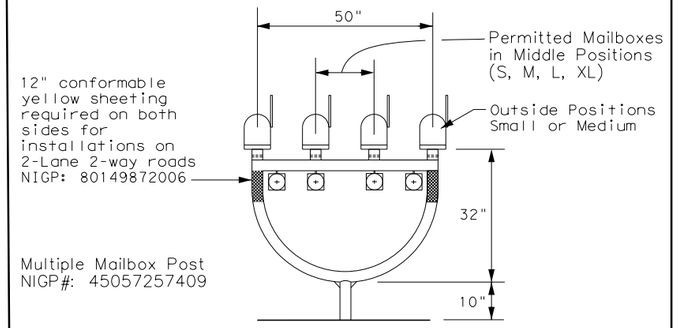
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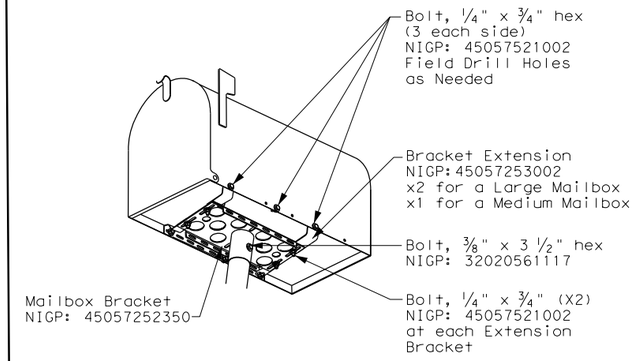
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

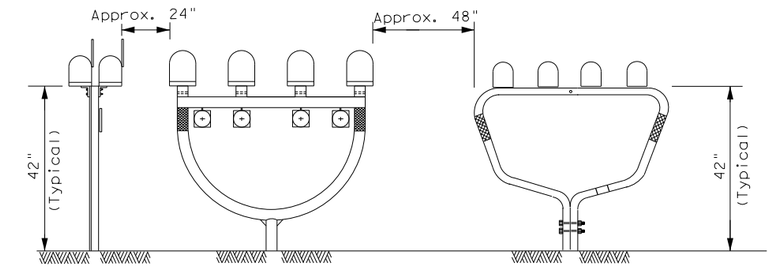
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

GENERAL NOTES:

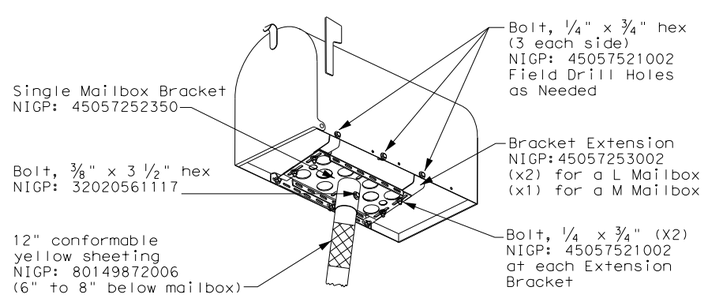
1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

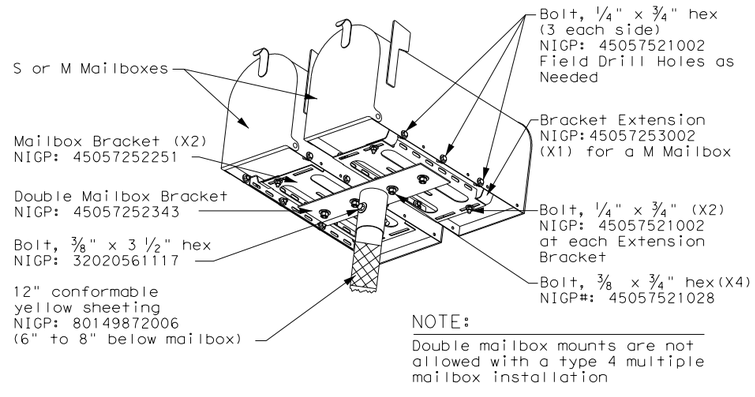
TYPICAL INSTALLATION MEASUREMENTS



NOTE:
Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

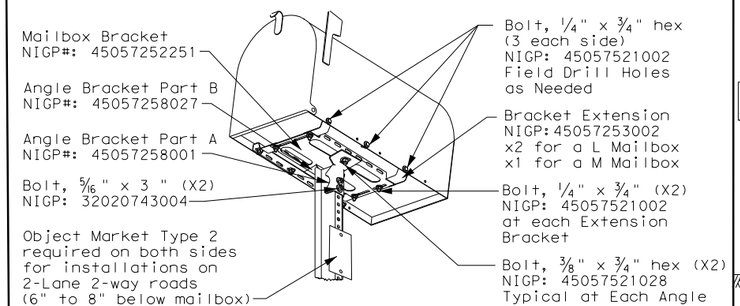
TYPE 2 and 4 - SINGLE/DOUBLE

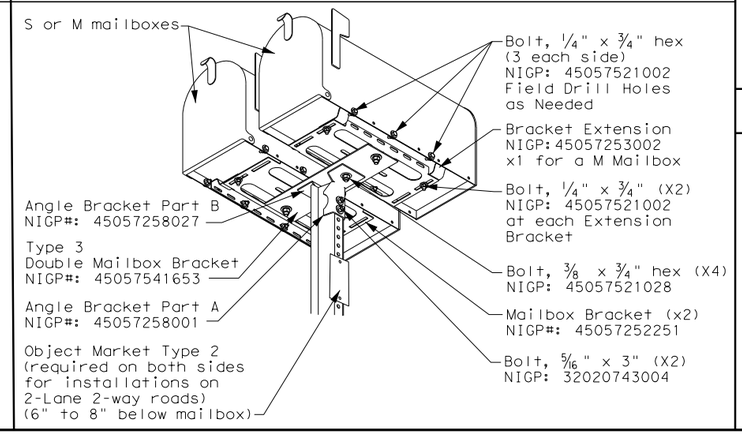




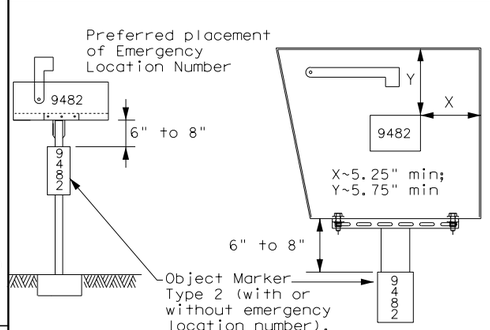
NOTE:
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

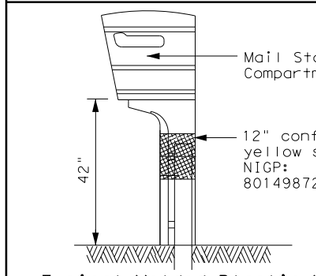


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation
Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

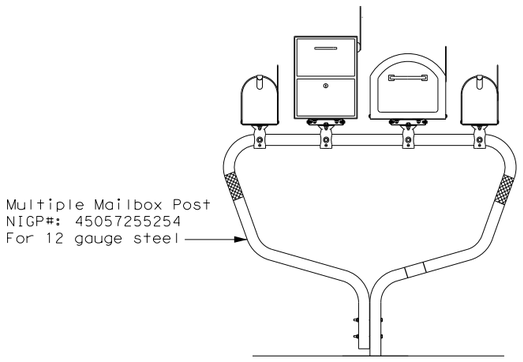
MB(1)-21

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©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	24	6		359
	DIST	COUNTY		
	SA	MEDINA		

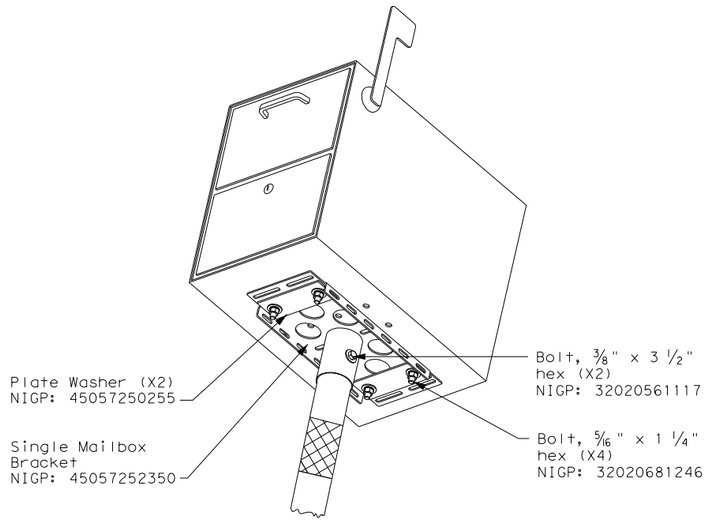
DISCLAIMER:
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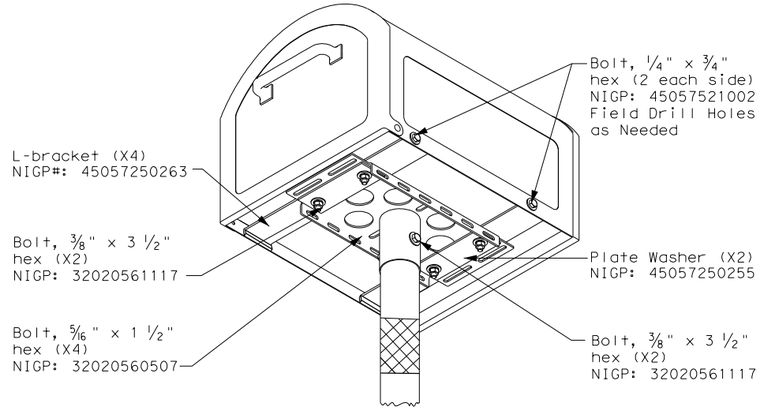
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

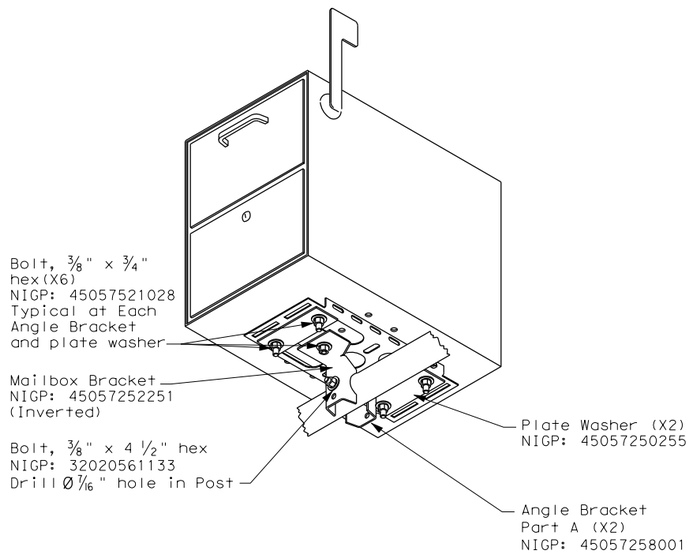


TYPE 2/4 - SINGLE XL MAILBOX

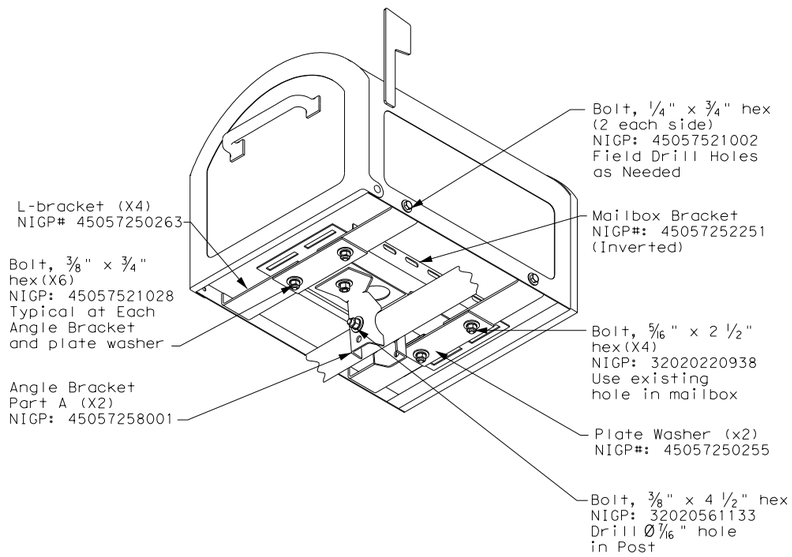


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

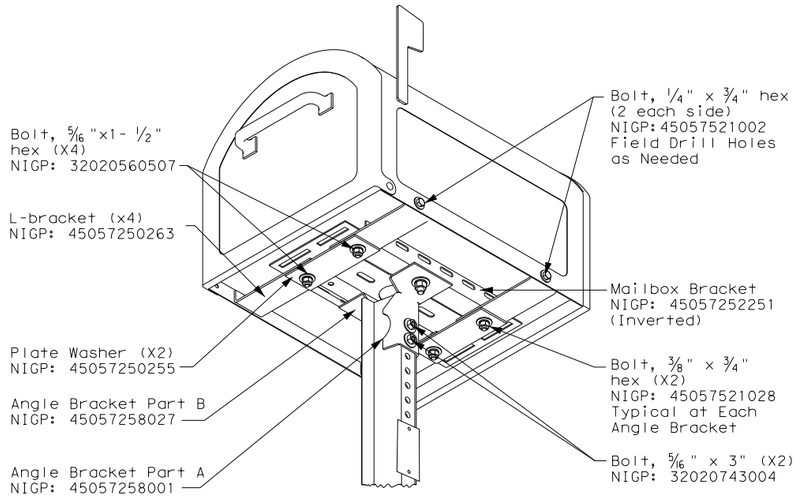
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation — Maintenance Division Standard

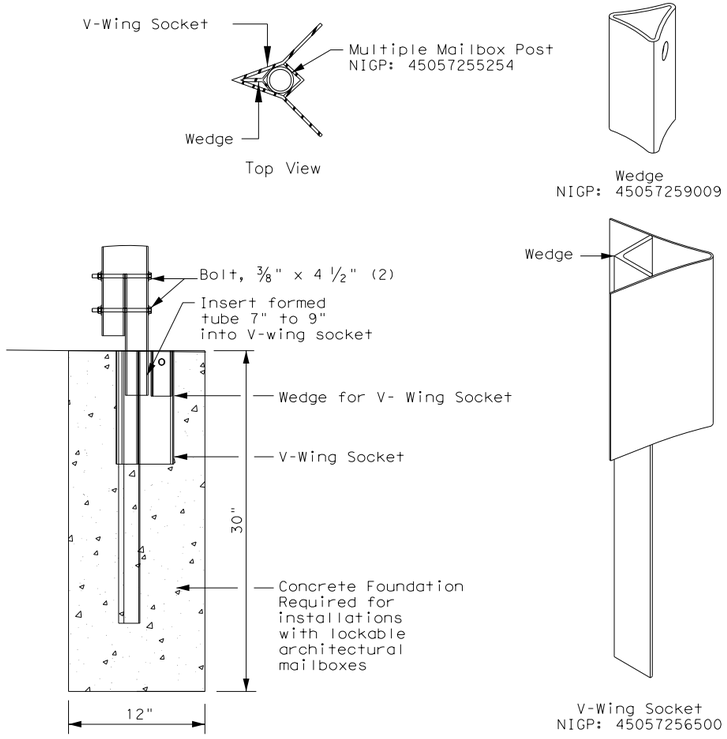
XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

MB(2)-21

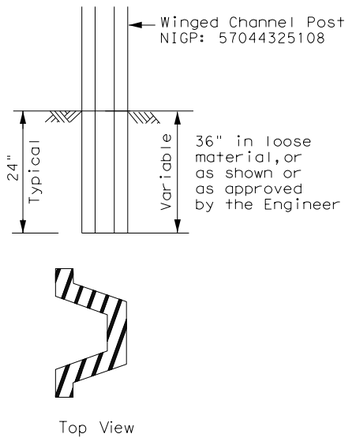
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© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	24	6		
	DIST	COUNTY		
	SA	MEDINA		

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TYPE 1 - SUPPORT/FOUNDATION
Thin Wall Tube w/ V-LOC Anchorage

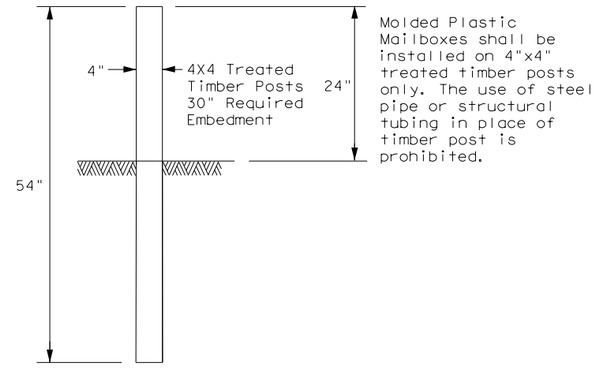


TYPE 3 - SUPPORT/FOUNDATION

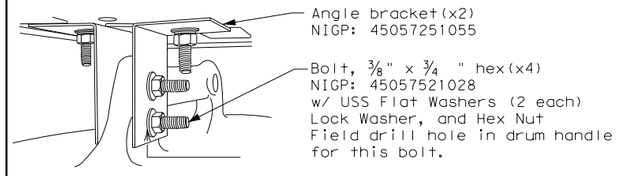


NOTES:
1. Attach Object Marker(OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT

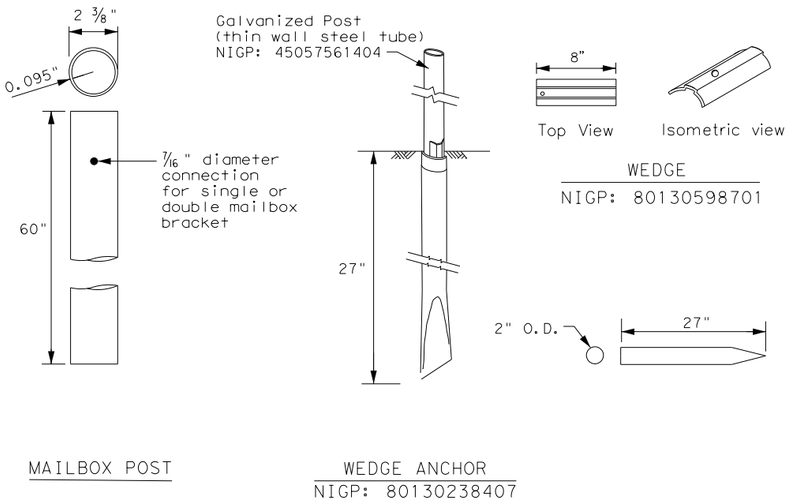


Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

NOTES:
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:
1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. 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, only on Type 1, Type 2, and Type 4

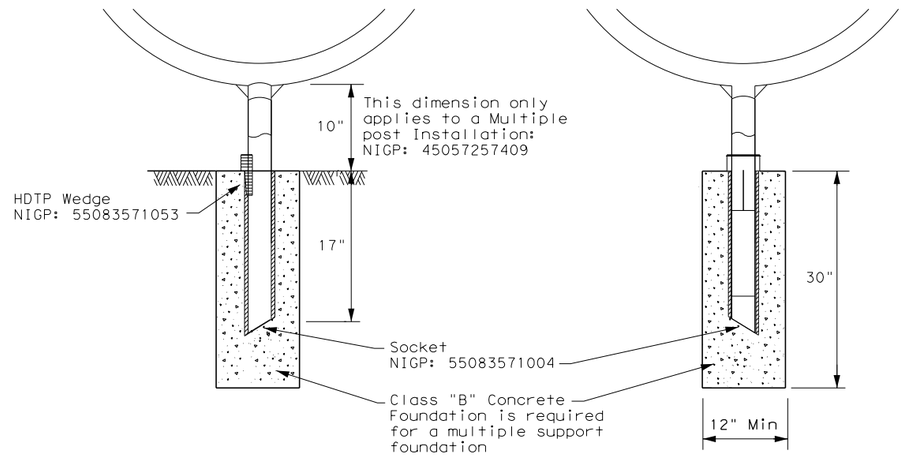
TYPE 2 - SUPPORT/FOUNDATION
Thin Wall Steel Tube w/Wedge Anchor System



MAILBOX POST

WEDGE ANCHOR
NIGP: 80130238407

TYPE 4 - SUPPORT/FOUNDATION
Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation | Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

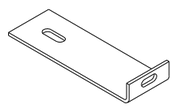
MB(3)-21

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	DIST	COUNTY		
	SA	MEDINA		

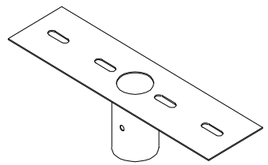
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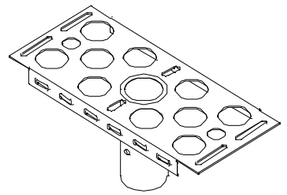
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Molded Plastic	S, or M
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL		
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



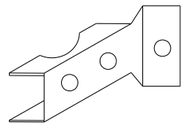
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



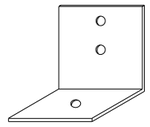
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



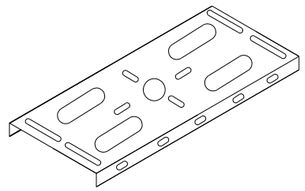
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



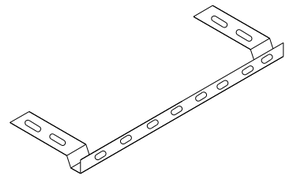
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



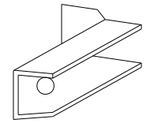
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



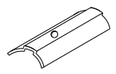
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



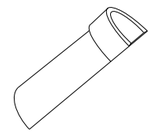
NIGP: 80130598701
Wedge for Type 2



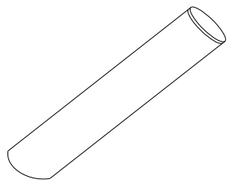
NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes



NIGP: 45057541653
Type 3 double mailbox bracket



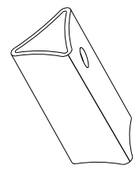
NIGP: 55083571053
Type 4 Mailbox Wedge



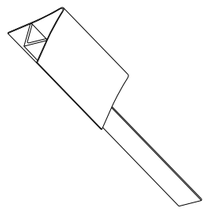
NIGP: 55083571004
Type 4 Mailbox Socket



NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded 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

Texas Department of Transportation — Maintenance Division Standard

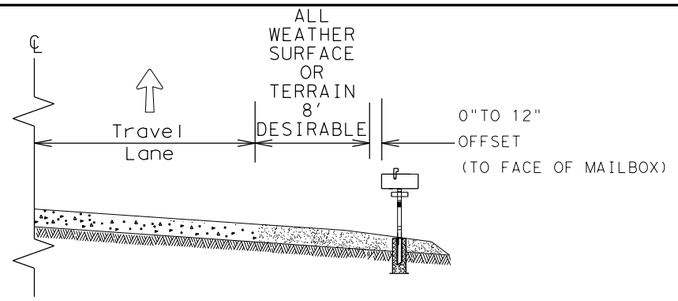
NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

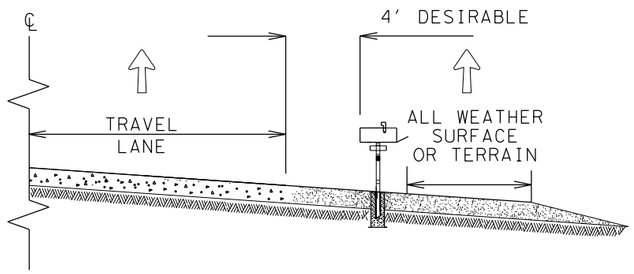
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© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	24	6		
	DIST	COUNTY		
	SA	MEDINA		

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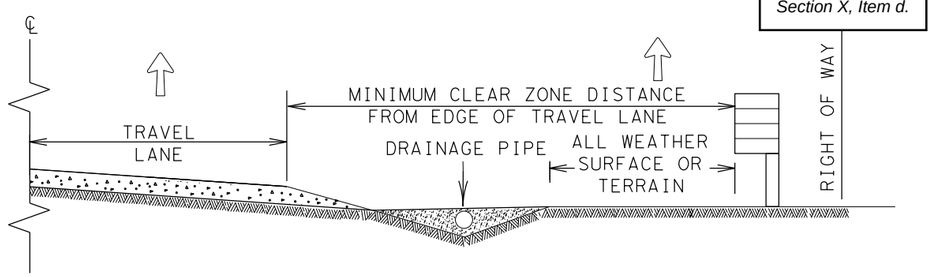
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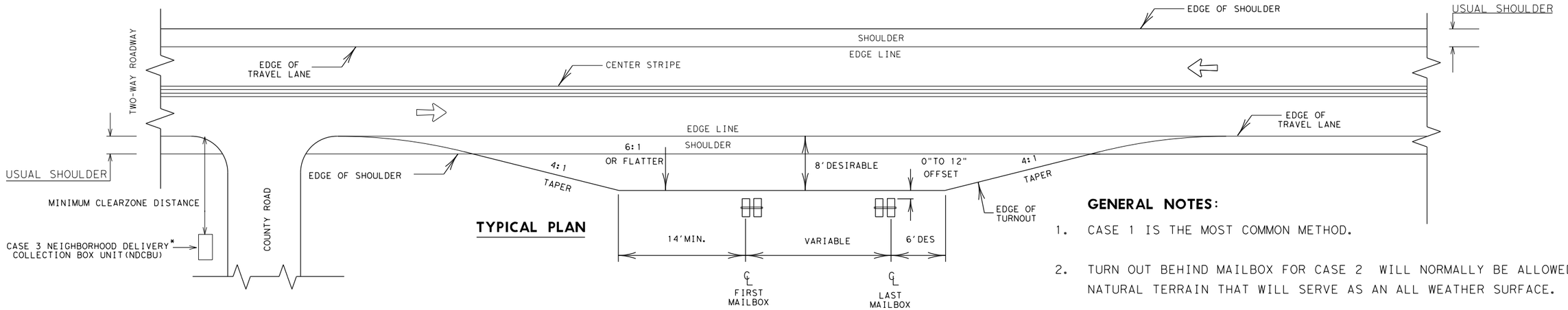
CASE 1. OFF TRAVEL WAY DELIVERY



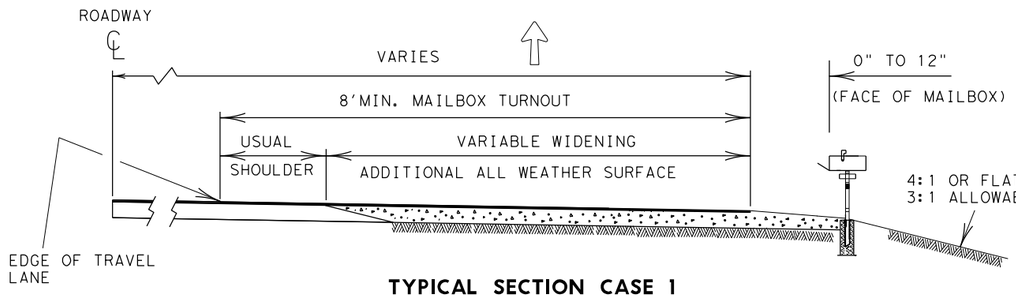
CASE 2. BACK SIDE DELIVERY



CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



TYPICAL PLAN



TYPICAL SECTION 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. WHEN 3 OR MORE MULTI-RACKS ARE ANTICIPATED, THE USE OF AN NDCBU IS RECOMMENDED. ONLY RURAL PATRONS LOCATED ON STATE MAINTAINED HIGHWAYS MAY HAVE A MAILBOX OR NDCBU SLOT ON TXDOT RIGHT OF WAY.

* NDCBU MAY BE INSTALLED ON COUNTY ROAD ROW WITH APPROVAL OF COUNTY.

MAIL DELIVERY VEHICLE TRAVEL DIRECTION

Texas Department of Transportation | Maintenance Division Standard

Guideline

MAILBOX SIDE ROAD PLACEMENT AND TURNOUTS

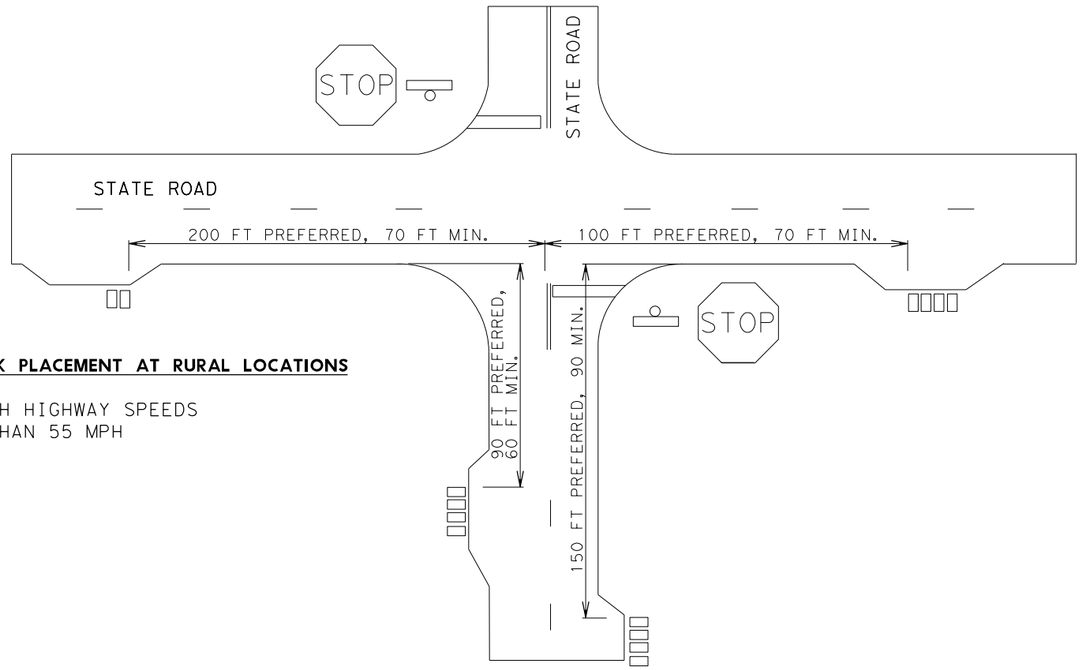
MBP(1)-22

FILE: MBP-22.DGN	DN: VS	CK:	DW: VS	CK:
© TxDOT OCTOBER 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 12/2012 5/2014	24	6		
	DIST	COUNTY		
	SA	MEDINA		

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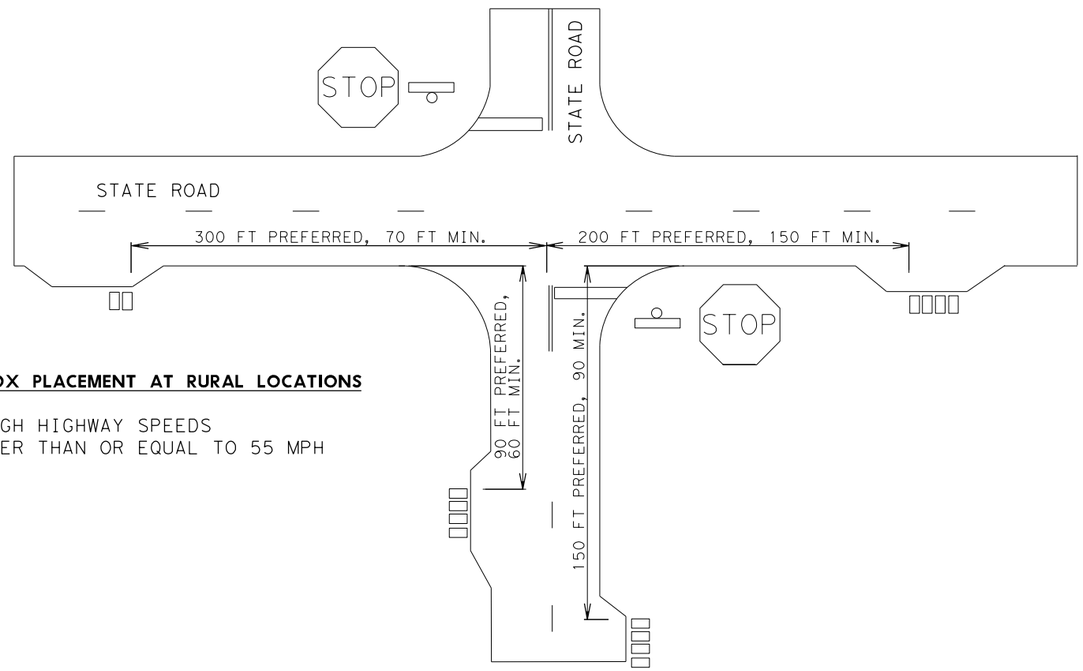
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MAILBOX PLACEMENT AT RURAL LOCATIONS

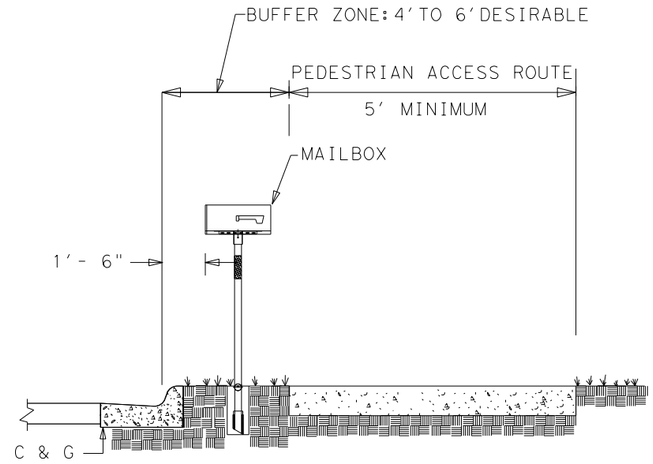
THROUGH HIGHWAY SPEEDS
LESS THAN 55 MPH



MAILBOX PLACEMENT AT RURAL LOCATIONS

THROUGH HIGHWAY SPEEDS
GREATER THAN OR EQUAL TO 55 MPH

CURB AND GUTTER MAILBOX INSTALLATION



NOTES:
1. A NON-TRAVERSABLE SURFACE MUST BE INSTALLED NEAR THE MAILBOX (NATURAL VEGETATION OR OTHER) IN THE BUFFER ZONE. ALTERNATIVELY, A BASE WITH A MINIMUM HEIGHT OF 2.5 INCHES MAY BE INSTALLED SO THAT THE EDGE OF THE MAILBOX DOES NOT EXTEND OUT MORE THAN 4 INCHES HORIZONTALLY BEYOND THE BASE.

2. THE SIDEWALK WIDTH MAY BE REDUCED TO 4 FOOT FOR SHORT DISTANCES AROUND THE MAILBOX IF NEEDED.

3. MAINTAIN A MINIMUM OF 5 FEET BETWEEN OBSTRUCTIONS IN THE PEDESTRIAN ACCESS ROUTE.

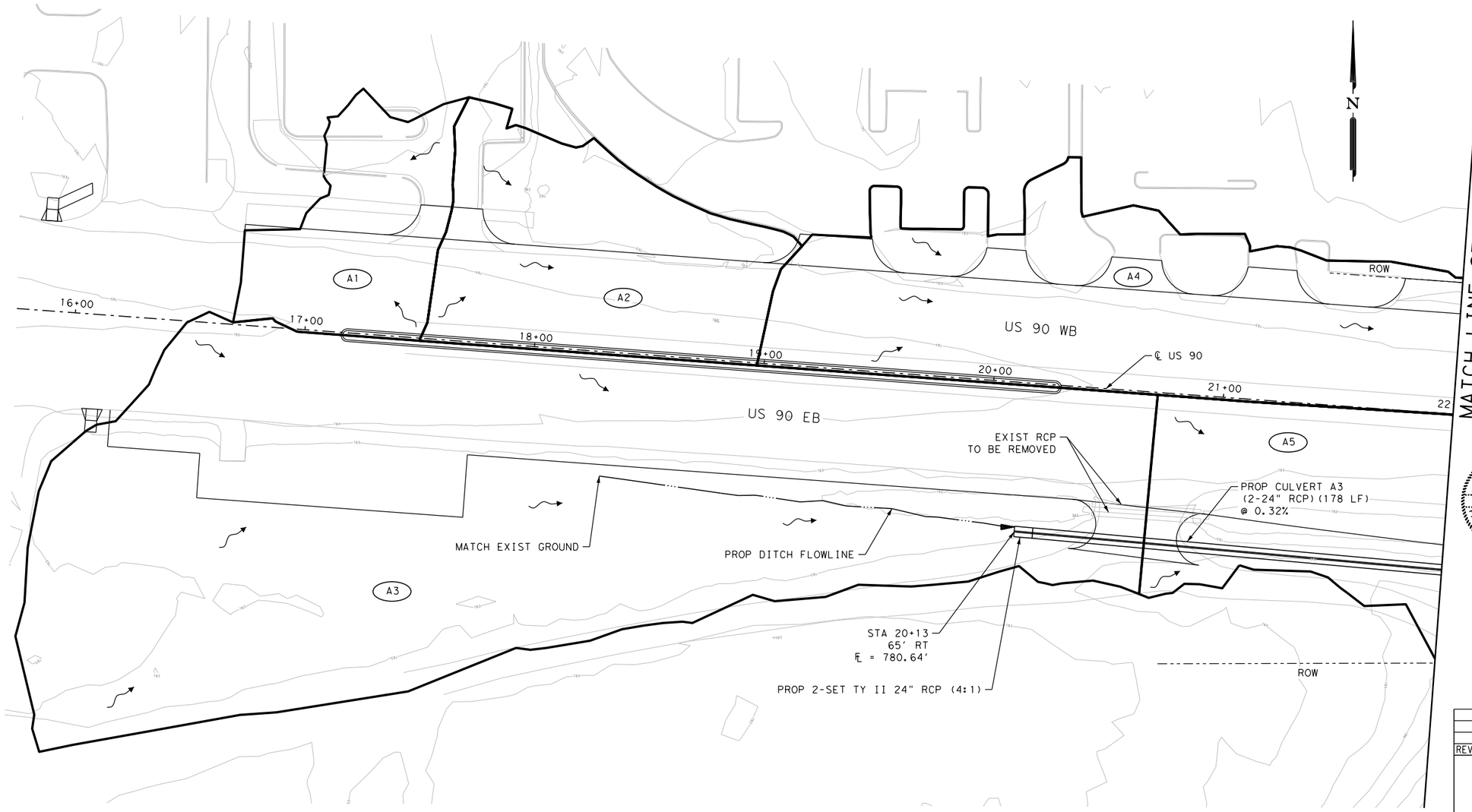
Texas Department of Transportation | Maintenance Division Standard

MAILBOX PLACEMENT
CURBS & INTERSECTIONS

MBP(2)-22

FILE: MBP-22.DGN	DN: VS	CK:	DW: VS	CK:
© TxDOT OCTOBER 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 12/2012 5/2014	24	6		
	DIST	COUNTY		
	SA	MEDINA		

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0464-6018	RC PIPE (CL IV)(24 IN)		
0467-6391	SET (TY II) (24 IN) (RCP) (4:1) (P)	EA	2
0496-6004	REMOV STR (SET)	EA	4
0496-6007	REMOV STR (PIPE)	LF	96



LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 16+00 TO STA 22+00

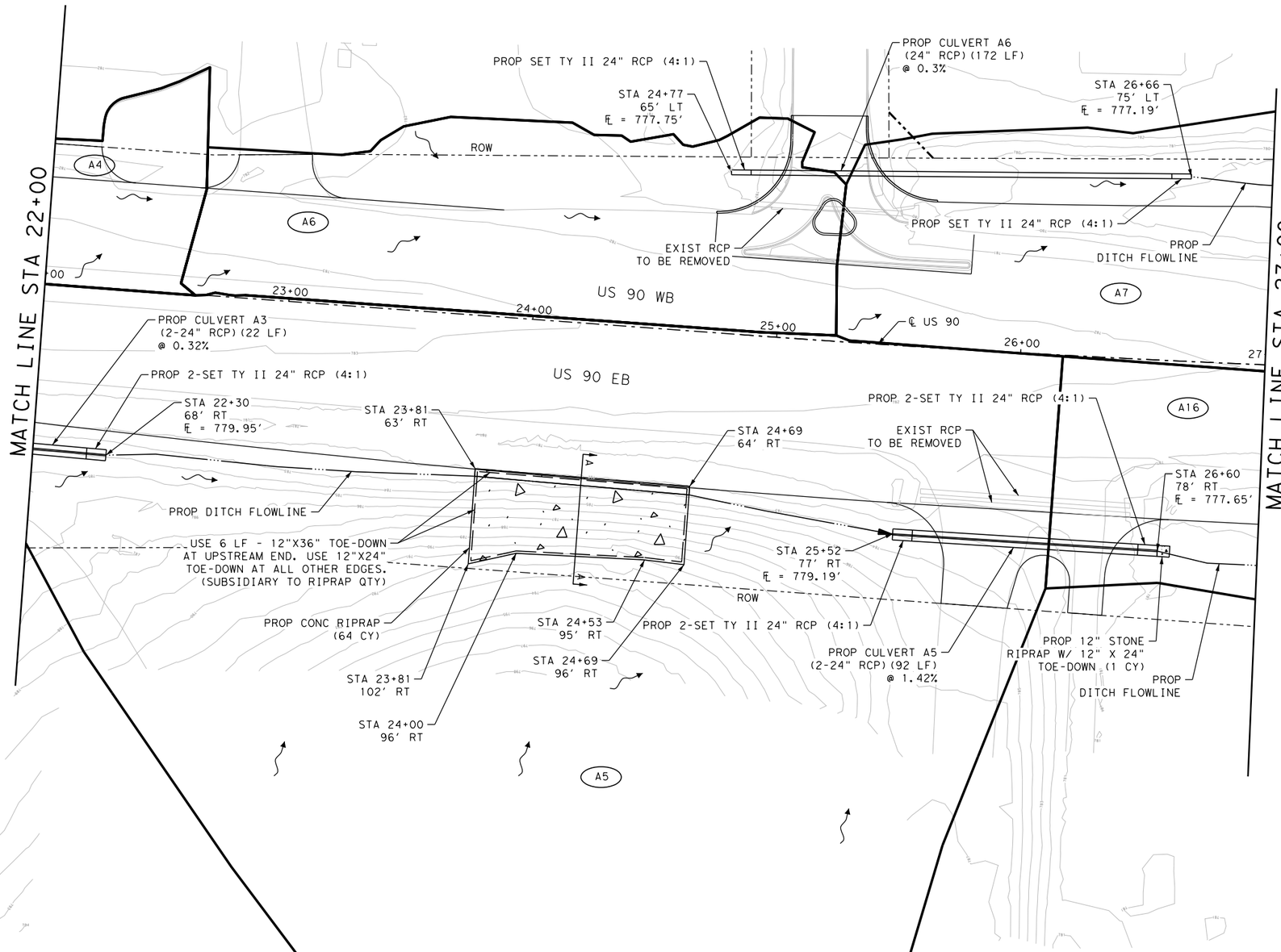
SHEET 1 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

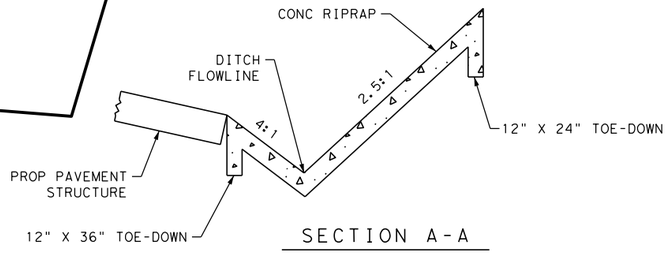
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ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	1.0
0432-6002	RIPRAP (CONC)(5 IN)	CY	1.0
0432-6031	RIPRAP (STONE PROTECTION)(12 IN)	CY	1.0
0464-6018	RC PIPE (CL IV)(24 IN)	LF	401
0467-6391	SET (TY II) (24 IN) (RCP) (4:1) (P)	EA	8
0496-6004	REMOV STR (SET)	EA	6
0496-6007	REMOV STR (PIPE)	LF	234



LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- X-X INTERIOR DRAINAGE AREA



SECTION A-A

DITCH CROSS-SECTION
W/ RIPRAP

NTS

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 22+00 TO STA 27+00

SHEET 2 OF 8

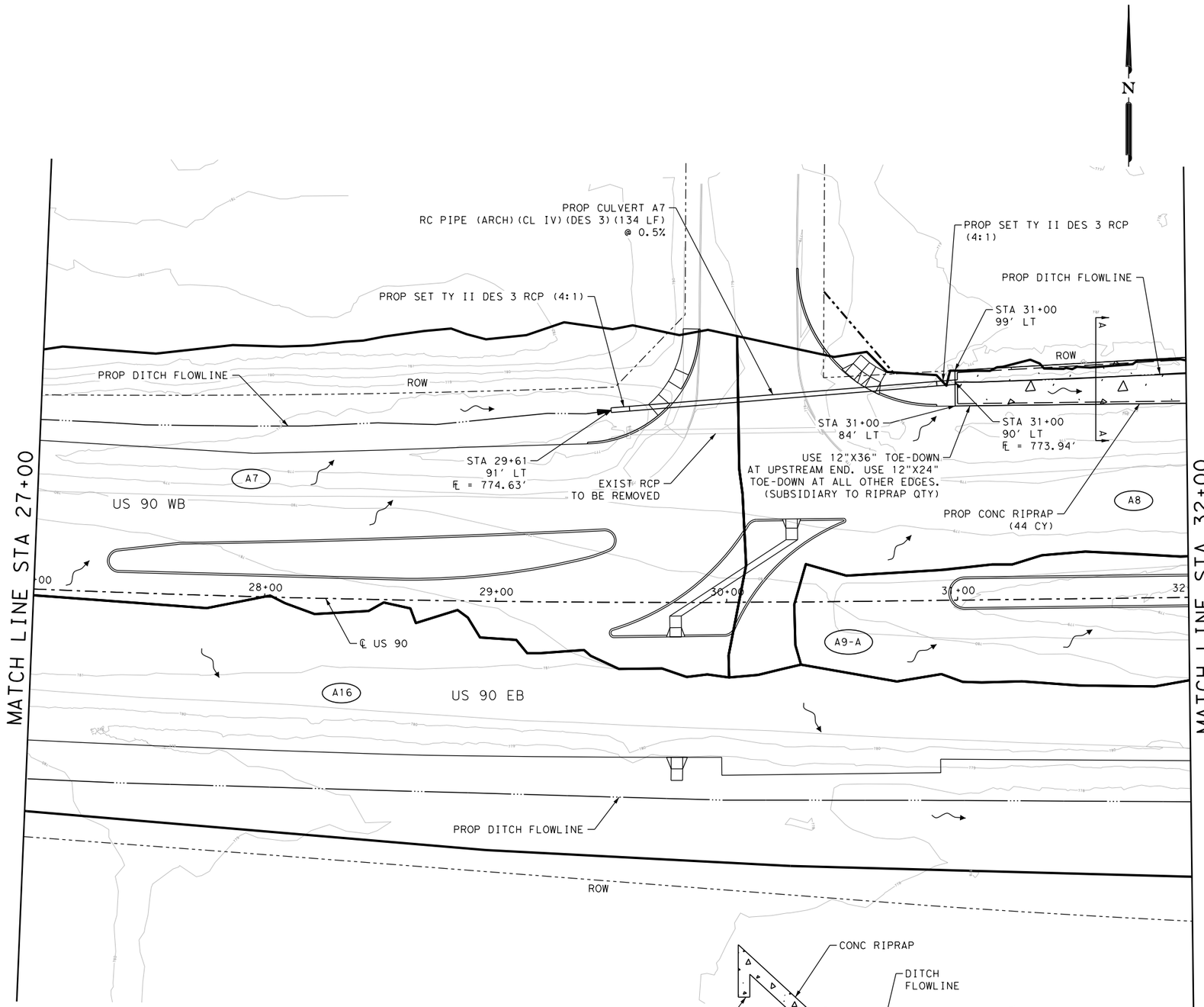
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CHK DGN:	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

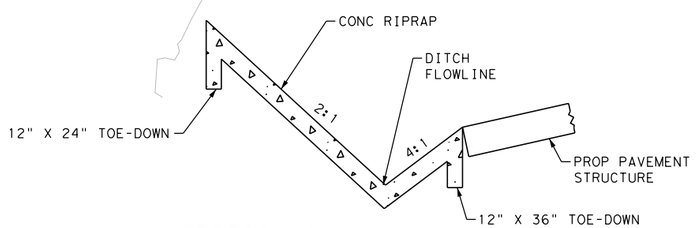
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Plotted on: 2/22/2024

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ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0432-6002	RIPRAP (CONC)(5 IN)		
0464-6046	RC PIPE (ARCH)(CL IV)(DES 3)	LF	134
0467-6543	SET (TY II) (DES 3) (RCP) (4:1) (P)	EA	2
0496-6004	REMOV STR (SET)	EA	2
0496-6007	REMOV STR (PIPE)	LF	108





SECTION A-A
DITCH CROSS-SECTION
W/ RIPRAP
NTS

LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 27+00 TO STA 32+00

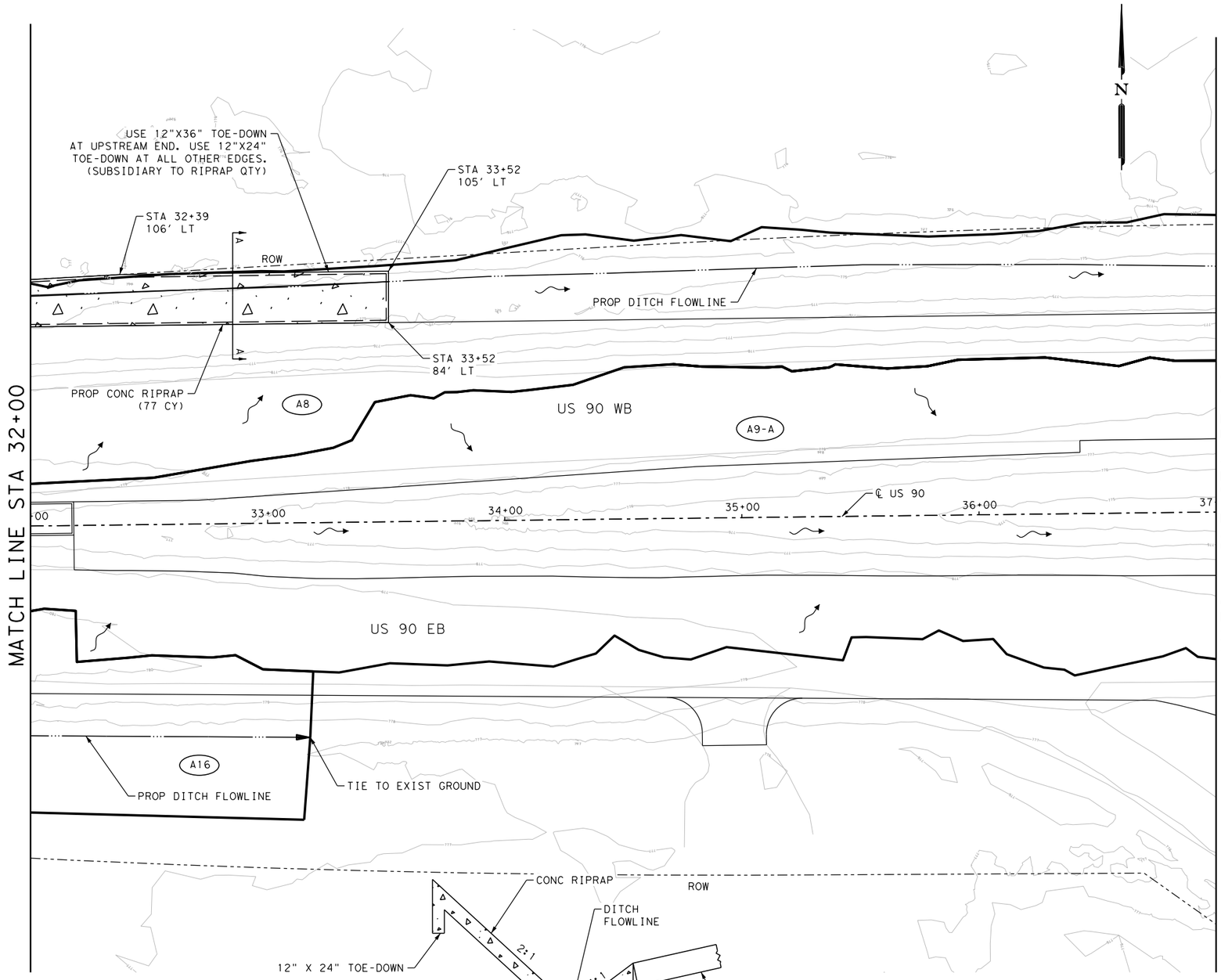
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CHK DGN:	6	TEXAS	–			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_DAM03.dgn

ITEM	DESCRIPTION	UNIT	QTY
0432-6002	RIPRAP (CONC)(5 IN)		



SECTION A-A
DITCH CROSS-SECTION W/ RIPRAP
NTS

LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 32+00 TO STA 37+00

SHEET 4 OF 8

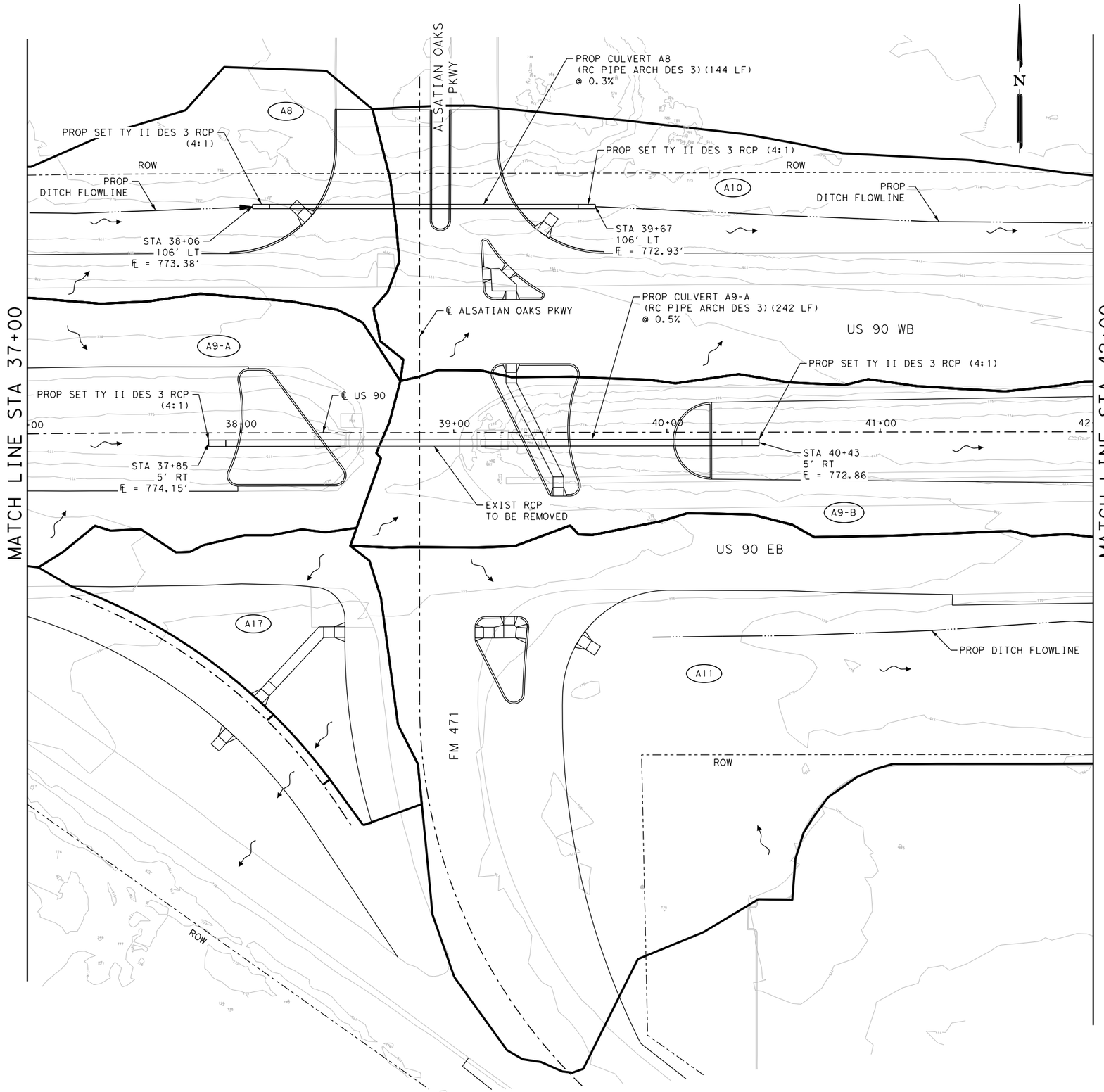
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		FED.

368

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_DAM04.dgn

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0464-6046	RC PIPE (ARCH)(CL IV)(DES 3)		
0467-6543	SET (TY II) (DES 3) (RCP) (4:1) (P)	EA	4
0496-6004	REMOV STR (SET)	EA	2
0496-6007	REMOV STR (PIPE)	LF	66



LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS — JACOB J. POWELL — 108825 — LICENSED PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 37+00 TO STA 42+00

SHEET 5 OF 8

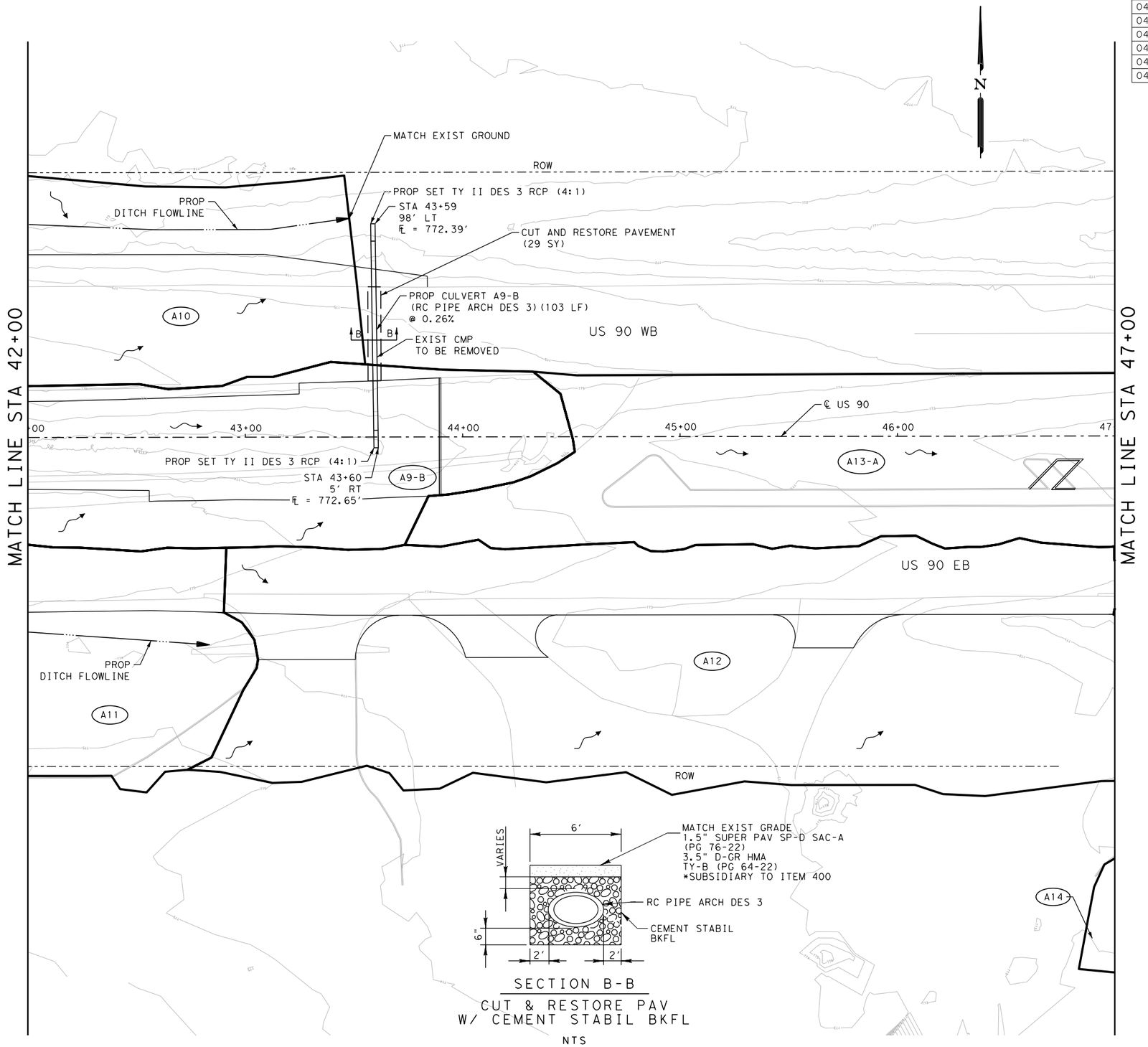
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CHK DGN:	6	TEXAS		–		
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

369

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_DAM05.dgn

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0400-6006	CUT & RESTORING PAV		
0464-6046	RC PIPE (ARCH)(CL IV)(DES 3)	LF	87
0467-6542	SET (TY II) (DES 3) (RCP) (4:1) (C)	EA	2
0496-6004	REMOV STR (SET)	EA	2
0496-6007	REMOV STR (PIPE)	LF	70



SECTION B-B
CUT & RESTORE PAV
W/ CEMENT STABIL BKFL
NTS

LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 42+00 TO STA 47+00

SHEET 6 OF 8

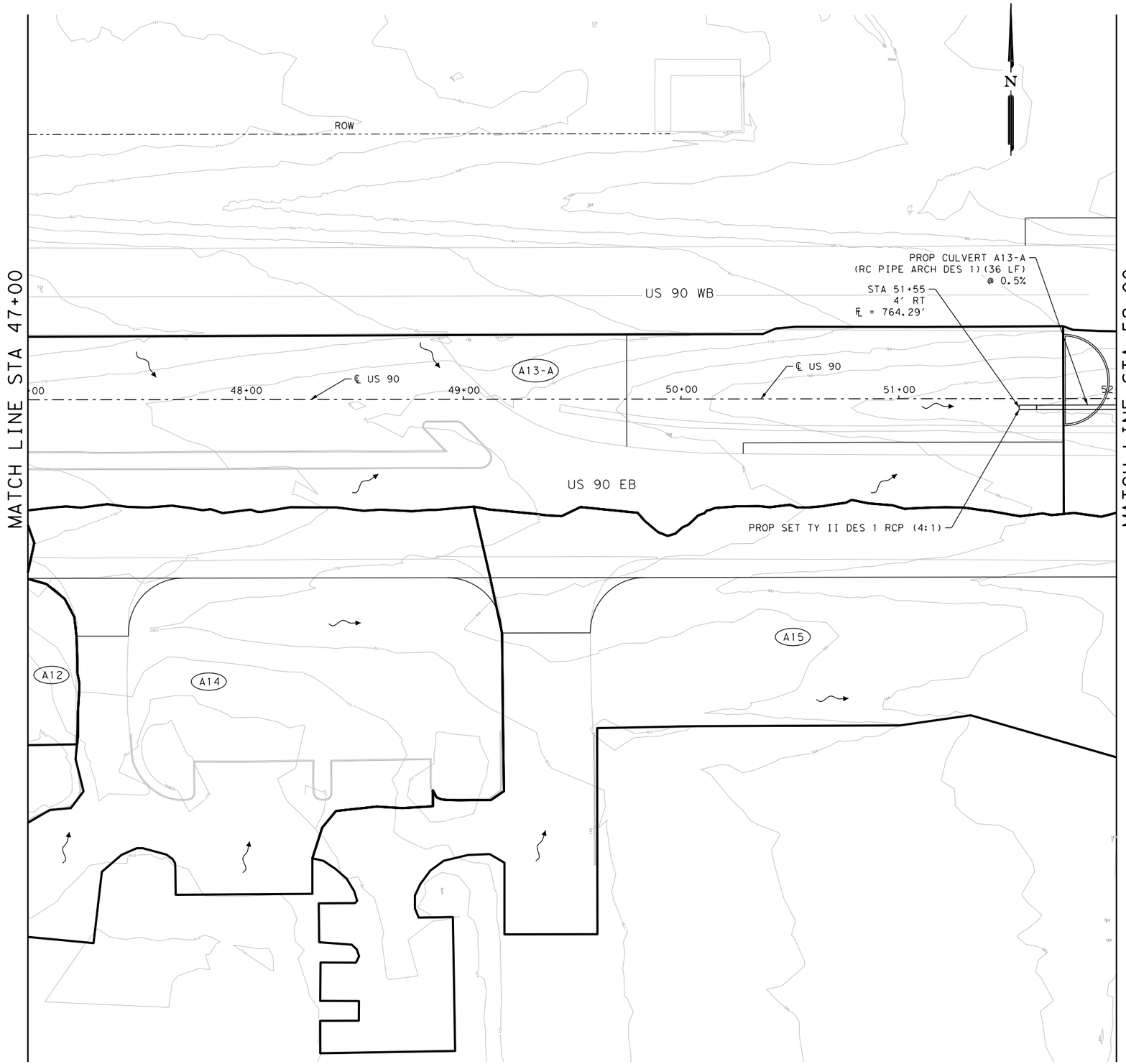
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

370

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_DAM06.dgn

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0464-6084	RC PIPE (ARCH)(CL IV)(DES 1)		
0467-6517	SET (TY II) (DES 1) (RCP) (4:1) (P)	EA	1



LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 47+00 TO STA 52+00

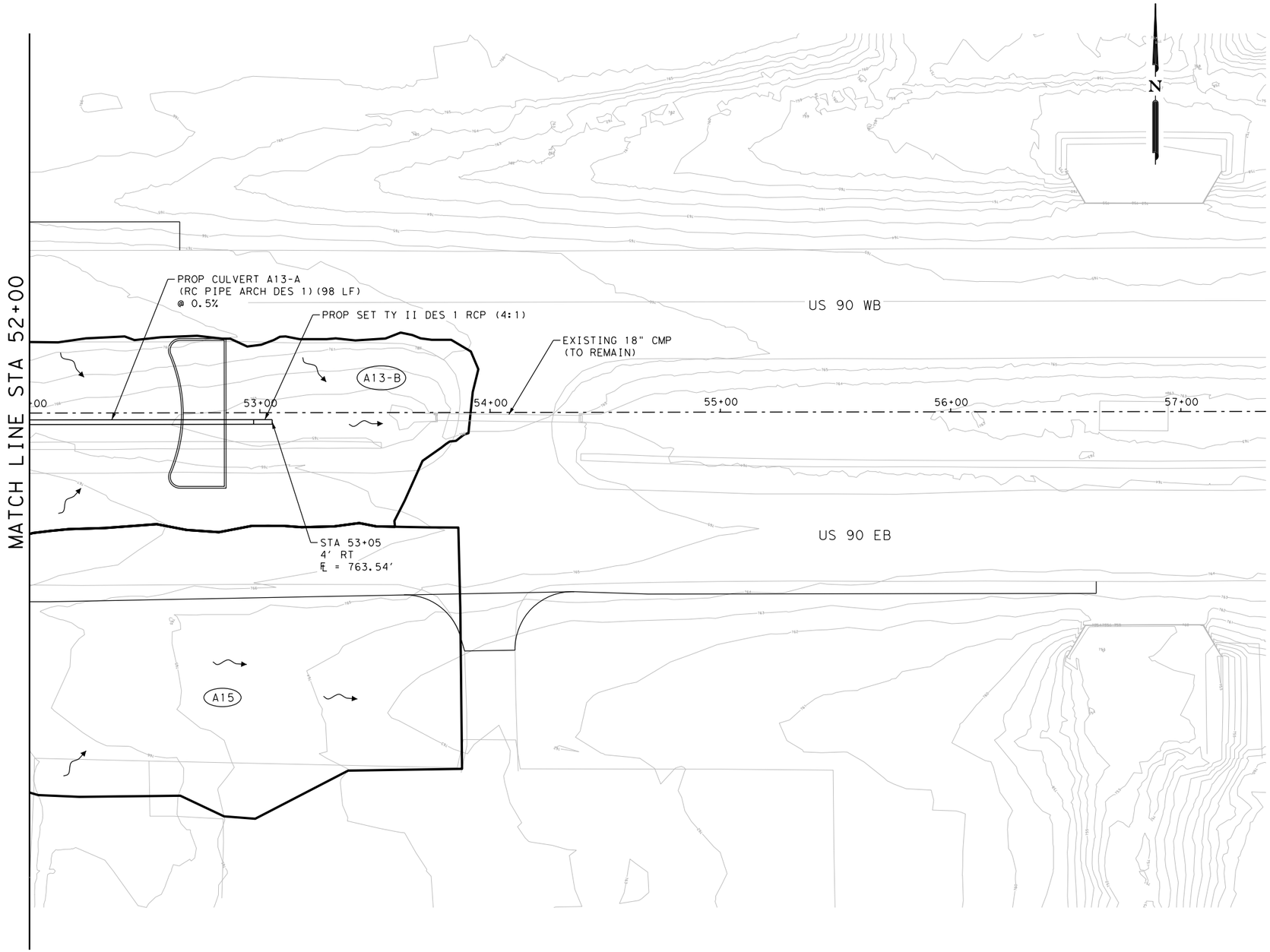
SHEET 7 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS		_		
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_DAM07.dgn

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL		
0464-6084	RC PIPE (ARCH)(CL IV)(DES 1)		
0467-6517	SET (TY II) (DES 1) (RCP) (4:1) (P)	EA	1



LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1" = 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

DRAINAGE AREA MAPS AND LAYOUT

STA 52+00 TO STA 57+00

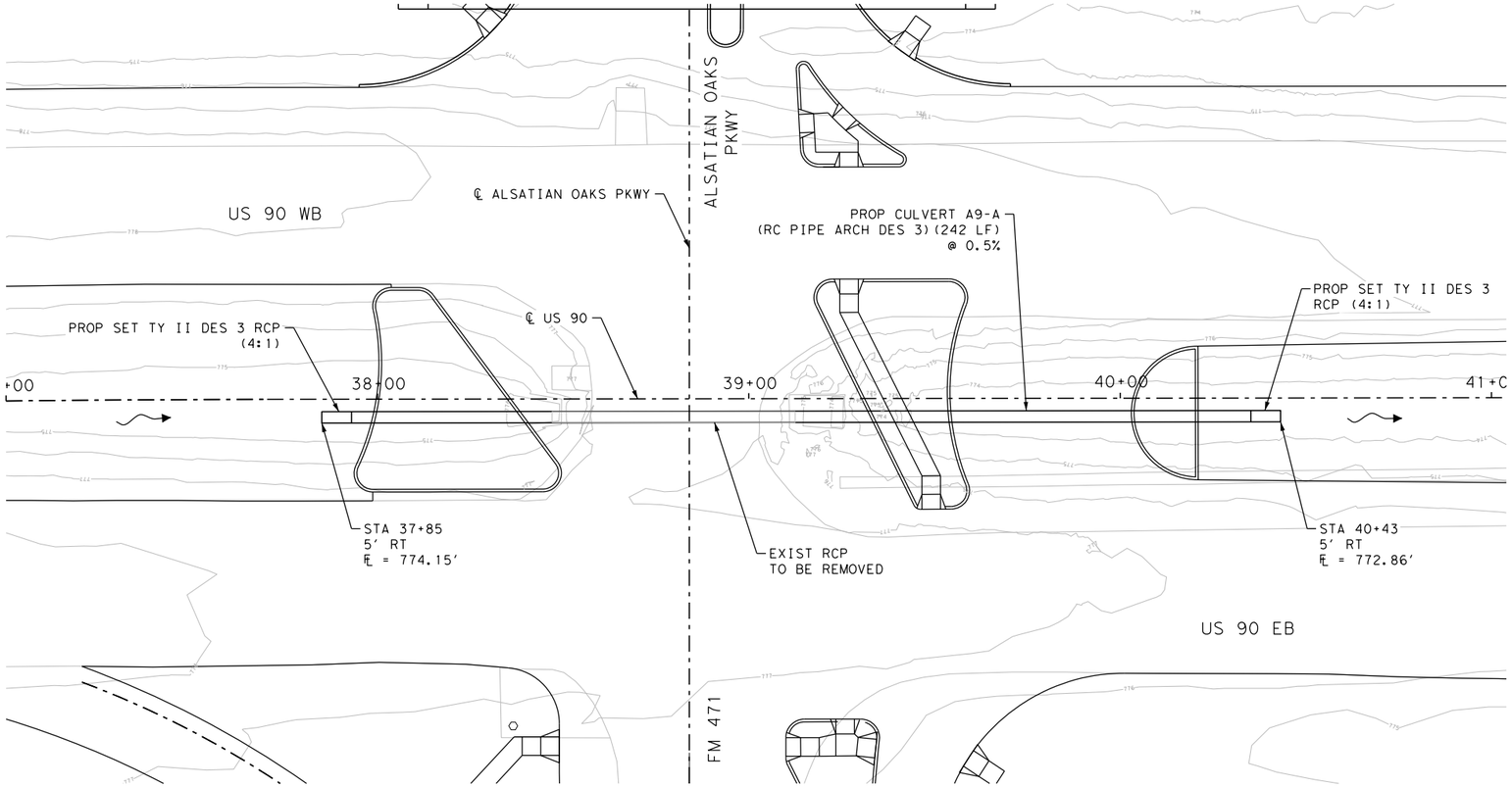
SHEET 8 OF 8

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

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Plotted on: 2/22/2024



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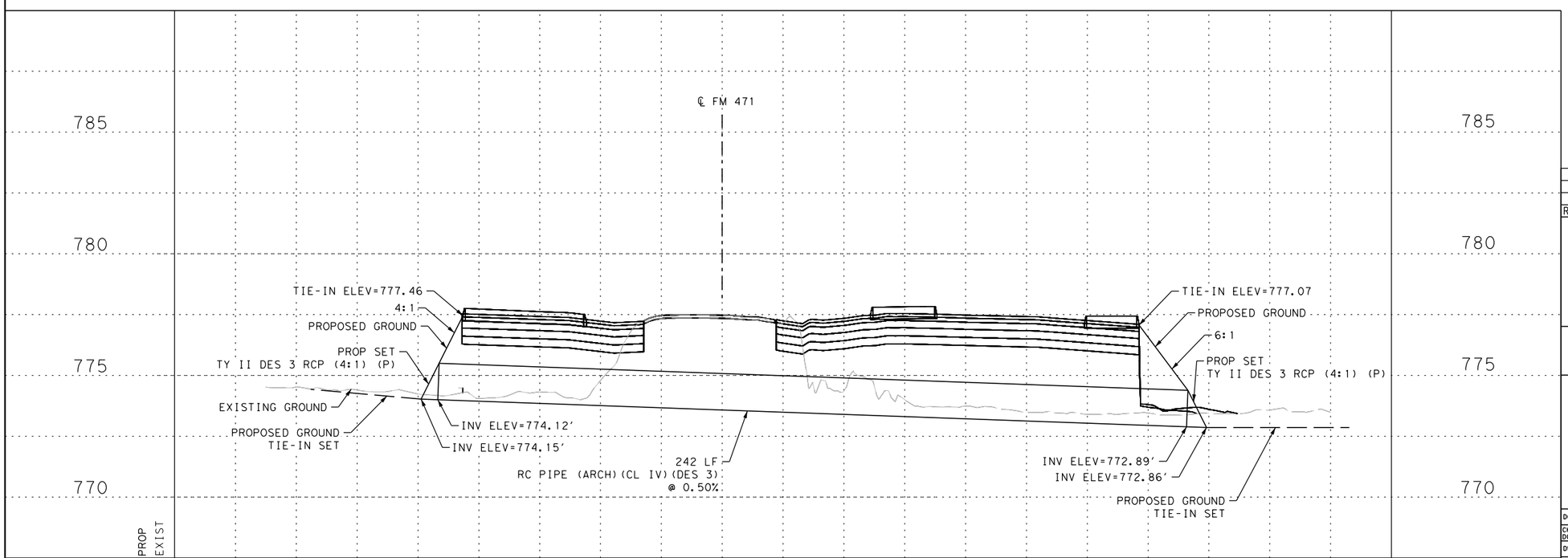
LEGEND

- R.O.W.
- DRAINAGE AREA BOUNDARY
- 850 EXISTING CONTOUR
- FLOW ARROW
- (X-X) INTERIOR DRAINAGE AREA

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE



0 20 40

SCALE: PLAN 1"= 40′ PROFILE 1"= 10′

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation
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US 90 AT ALSATIAN OAKS

CULVERT LAYOUT

CULVERT A9-A

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

373

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273603_CULV01.dgn

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Drainage\1273606_DRNCOMP01.dgn

PROPOSED HYDROLOGY - RATIONAL METHOD								
AREA ID	AREA (AC)	C	Tc (min)	INTENSITIES		COMPUTED FLOW (cfs)		
				I5	I100	Q5	Q10	Q100
A1	0.15	0.83	10	6.2	11.0	0.8	1.0	1.5
A2	0.28	0.69	10	6.2	11.0	1.2	1.4	2.1
A3	1.37	0.59	20	4.6	8.5	3.8	4.5	6.9
A4	0.59	0.77	10	6.2	11.0	2.8	3.3	5.0
A5	2.60	0.53	10	6.2	11.0	8.6	10.1	15.2
A6	0.44	0.73	10	6.2	11.0	2.0	2.4	3.6
A7	1.24	0.74	10	6.2	11.0	5.7	6.7	10.1
A8	1.51	0.68	10	6.2	11.0	6.4	7.6	11.4
A9-A	1.86	0.72	19	4.8	8.7	6.4	7.6	11.7
A-9B	0.95	0.68	10	6.2	11.0	4.1	4.8	7.2
A-9A + A-9B	2.81	0.71	21	4.5	8.3	9.0	10.7	16.5
A10	1.18	0.68	10	6.2	11.0	5.0	5.9	8.9
A11	1.47	0.60	10	6.2	11.0	5.5	6.5	9.7
A12	1.05	0.65	10	6.2	11.0	4.3	5.1	7.6
A13-A	1.38	0.78	15	5.3	9.6	5.8	6.9	10.4
A13-A + A13-B	1.77	0.77	15	5.2	9.4	7.1	8.5	12.9
A14	0.76	0.65	10	6.2	11.0	3.1	3.6	5.5
A15	1.39	0.62	10	6.2	11.0	5.4	6.3	9.5
A11+A12	2.52	0.62	10	6.2	11.0	9.7	11.5	17.3
A11+A12+A14	3.28	0.63	10	6.2	11.0	12.9	15.2	22.8
A11+A12+A14+A15	4.67	0.63	11	6.0	10.6	17.6	20.7	31.3
A6+A7	1.68	0.74	10	6.2	11.0	7.7	9.1	13.7
A6+A7+A8	3.06	0.72	20	4.6	8.5	10.3	12.2	18.8
A6+A7+A8+A10	4.25	0.71	13	5.7	10.2	17.1	20.3	30.7
A3+A5	3.97	0.55	11	6.0	10.7	13.1	15.4	23.3
A16	1.39	0.65	13	5.6	10.0	5.1	6.0	9.1
A3+A5+A16	5.36	0.58	22	4.4	8.1	13.7	16.3	25.2
A17	0.26	0.66	10	6.2	11.0	1.1	1.3	1.9

PONDED DEPTH CONDITIONS							
AREA A1			AREA A2			AREA A4	
CL OF DITCH TO EOP (FT)	7.07		CL OF DITCH TO EOP (FT)	11.58		CL OF DITCH TO EOP (FT)	3.50
SHOULDER WIDTH (FT)	8.00		SHOULDER WIDTH (FT)	8.00		SHOULDER WIDTH (FT)	8.00
LANE WIDTH (FT)	11.00		LANE WIDTH (FT)	11.00		LANE WIDTH (FT)	11.00
ALLOWABLE PONDED WIDTH FROM DITCH CL (FT)	26.07		ALLOWABLE PONDED WIDTH FROM DITCH CL (FT)	30.58		ALLOWABLE PONDED WIDTH FROM DITCH CL (FT)	22.50
CALCULATED PONDING WIDTH FROM DITCH CL (FT)	10.92		CALCULATED PONDING WIDTH FROM DITCH CL (FT)	6.39		CALCULATED PONDING WIDTH FROM DITCH CL (FT)	11.48
EXISTING DITCH DEPTH (FT)	0.47		EXISTING DITCH DEPTH (FT)	1.07		EXISTING DITCH DEPTH (FT)	0.35
PROPOSED DITCH DEPTH (FT)	0.35		PROPOSED DITCH DEPTH (FT)	0.97		PROPOSED DITCH DEPTH (FT)	0.23
CALCULATED DEPTH OF PONDING (FT)	0.38		CALCULATED DEPTH OF PONDING (FT)	0.44		CALCULATED DEPTH OF PONDING (FT)	0.58
RESULT : PONDING WIDTH WITHIN ALLOWABLE LIMITS			RESULT: FLOW CONTAINED WITHIN DITCH			RESULT : PONDING WIDTH WITHIN ALLOWABLE LIMITS	

NOTES

1. DESIGN STORM FOR DITCH AND CULVERT ANALYSIS WAS 5-YEAR STORM, PER TXDOT HDM.

PIPE COMPUTATIONS										
CULVERT	COMPUTED FLOW (cfs)		PIPE SLOPE (%)	N-VALUE	# BOXES/ PIPES	TYPE	LINE SIZE	LENGTH	DOWNSTREAM VELOCITY (ft/s)		CAPACITY (cfs)
	Q5	Q10						(LF)	V5	V10	Q Max
CULVERT A3	3.8	4.5	0.32%	0.013	2	RCP	24"	200	2.3	2.5	24.0
CULVERT A5	13.1	15.4	1.42%	0.013	2	RCP	24"	92	7.1	7.4	54.0
CULVERT A6	2.0	2.4	0.30%	0.013	1	RCP	24"	188	3.4	3.5	16.0
CULVERT A7	7.7	9.1	0.50%	0.013	1	RCP	ARCH DES 3	138	5.2	5.4	16.0
CULVERT A8	10.3	12.2	0.30%	0.013	1	RCP	ARCH DES 3	150	5.5	5.9	16.0
CULVERT A9-A	6.4	7.6	0.50%	0.013	1	RCP	ARCH DES 3	258	4.6	4.9	47.2
CULVERT A9-B	9.0	10.7	0.26%	0.013	1	RCP	ARCH DES 3	103	3.4	3.9	16.0
CULVERT A13-A	5.8	6.9	0.50%	0.013	1	RCP	ARCH DES 1	150	5.0	5.2	16.0
EX CULVERT A13-B	7.1	8.5	0.50%	0.013	1	CMP	18"	64	4.9	5.2	16.0

DITCH COMPUTATIONS - RATIONAL METHOD													
STA	OFFSET	DRN AREA	COMPUTED FLOW (CFS)	LONG. SLOPE (%)	DITCH DEPTH (FT)	N-VALUE	BOTTOM WIDTH (FT)	FRONT SLOPE (H:1)	BACK SLOPE (H:1)	DITCH VEL. (FT/S)	DITCH FLOW DEPTH (FT)	ALLOWABLE PONDED WIDTH (FT)	CALCULATED PONDED WIDTH (FT)
			Q5							V5	D5		
19+00	57' RT	A3	3.8	0.87%	1.39	0.035	0	6	4	1.25	0.36	N/A	N/A
24+50	67' RT	A3+A5	13.1	0.10%	0.74	0.035	0	4	2.5	1.22	1.82	31.08	22.58
30+00	83' RT	A3+A5+A16	13.7	0.10%	2.46	0.035	0	6	4	1.12	1.56	N/A	N/A
27+50	73' LT	A6+A7	7.7	0.90%	2.55	0.035	0	4	3	2.40	0.96	N/A	N/A
37+00	104' LT	A6+A7+A8	10.3	0.08%	2.34	0.035	0	4	3	1.04	1.68	N/A	N/A
41+50	98' LT	A6+A7+A8+A10	17.1	0.14%	1.65	0.035	0	6	10	0.98	1.48	N/A	N/A
35+50	2' RT	A9-A	6.4	0.68%	2.76	0.035	0	15	9	1.54	0.59	N/A	N/A
43+00	3' RT	A9-A + A9-B	9.0	0.07%	2.21	0.035	0	13	12	0.71	1.01	N/A	N/A
51+00	3' RT	A13-A	5.8	1.43%	1.53	0.035	0	15	13	1.92	0.46	N/A	N/A
53+50	3' RT	A13-A + A13-B	7.1	0.26%	1.31	0.035	0	20	17	0.99	0.62	N/A	N/A
42+00	90' RT	A11	5.5	0.30%	1.09	0.035	0	6	4	1.35	0.90	N/A	N/A
45+00	90' RT	A11+A12	9.7	0.75%	0.73	0.035	0	6	30	1.61	0.58	N/A	N/A
48+00	100' RT	A11+A12+A14	12.9	0.39%	2.81	0.035	0	16.5	15	1.40	0.77	N/A	N/A
50+50	83' RT	A11+A12+A14+A15	17.6	0.64%	0.65	0.035	0	6	10	2.15	1.01	35.72	18.15

DESIGN & APPROVAL

STATE OF TEXAS
JACOB J. POWELL
108825
LICENSED
PROFESSIONAL ENGINEER

JACOB J. POWELL, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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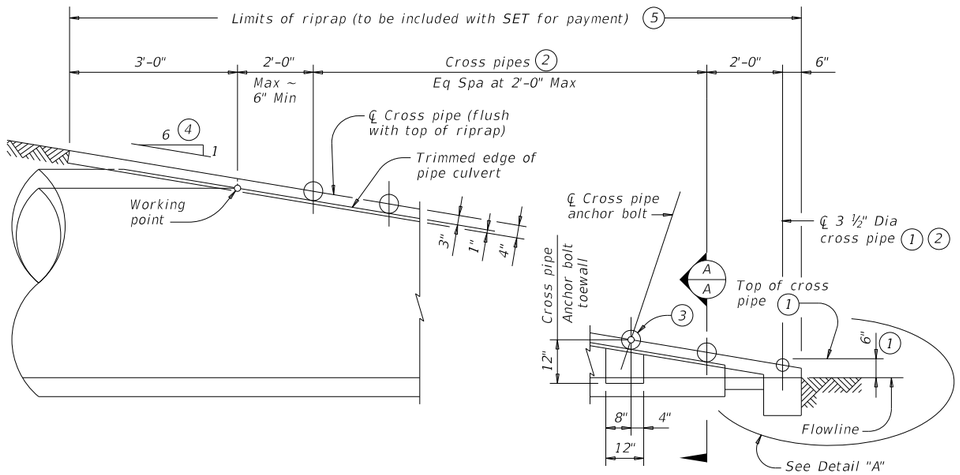
DRAINAGE COMPUTATIONS

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. pipe runners not shown for clarity.)

CROSS PIPE LENGTHS AND REQUIRED PIPE SIZES 2

Section X, Item d.

Corrugated Metal Pipe (CMP) Culverts

Design	Conc Riprap (CY) 6	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
1	0.6	17"	13"	1' – 0"	N/A	2' – 8"	2' – 5"	3 or more pipe culverts	3" Std (3.500" O.D.)
2	0.7	21"	15"	1' – 2"	N/A	3' – 1"	2' – 11"		
3	0.9	28"	20"	1' – 5"	N/A	3' – 9"	3' – 9"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
4	1.0	35"	24"	1' – 8"	4' – 4"	4' – 6"	4' – 7"	All pipe culverts	4" Std (4.500" O.D.)
5	1.2	42"	29"	1' – 11"	4' – 11"	5' – 2"	5' – 5"		
6	1.4	49"	33"	2' – 2"	5' – 6"	5' – 11"	6' – 3"	All pipe culverts	5" Std (5.563" O.D.)
7	1.6	57"	38"	2' – 5"	6' – 2"	6' – 8"	7' – 2"		
8	1.8	64"	43"	2' – 10"	6' – 9"	7' – 6"	8' – 2"		
9	1.9	71"	47"	3' – 2"	7' – 4"	8' – 3"	9' – 1"		

Reinforced Concrete Pipe (RCP) Culverts

Design	Conc Riprap (CY) 6	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
1	0.6	22"	13 ½"	1' – 0"	N/A	3' – 1"	2' – 10"	3 or more pipe culverts	3" Std (3.500" O.D.)
2	0.7	26"	15 ½"	1' – 2"	N/A	3' – 6"	3' – 4"		
3	0.9	28 ½"	18"	1' – 5"	N/A	3' – 10"	3' – 9 ½"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
4	1.0	36 ¼"	22 ½"	1' – 8"	4' – 5"	4' – 7"	4' – 8 ¼"	All pipe culverts	4" Std (4.500" O.D.)
5	1.2	43 ¾"	26 5/8"	1' – 11"	5' – 1"	5' – 4"	5' – 6 ¾"		
6	1.4	51 ½"	31 5/16"	2' – 2"	5' – 8"	6' – 1"	6' – 5 ¼"	All pipe culverts	5" Std (5.563" O.D.)
7	1.6	58 ½"	36"	2' – 5"	6' – 4"	6' – 10"	7' – 3 ½"		
8	1.8	65"	40"	2' – 10"	6' – 10"	7' – 7"	8' – 3"		
9	1.9	73"	45"	3' – 2"	7' – 6"	8' – 5"	9' – 3"		

1. The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.
2. Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.
3. Install the third Cross Pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.
4. Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.
5. Riprap placed beyond the limits shown will be paid as concrete riprap in accordance with Item 432, "Riprap".
6. Quantities shown are for one end of one pipe culvert. For multiple Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

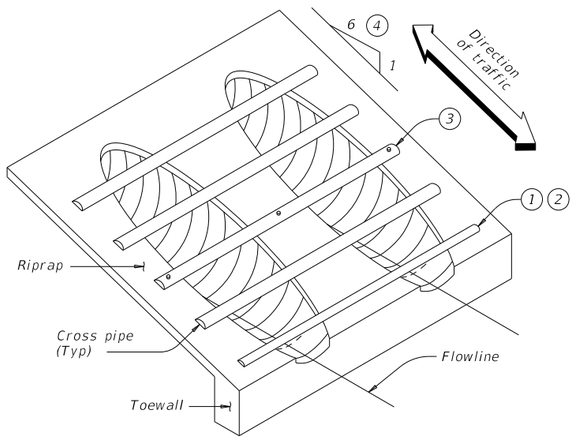
GENERAL NOTES:

Pipe runners are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

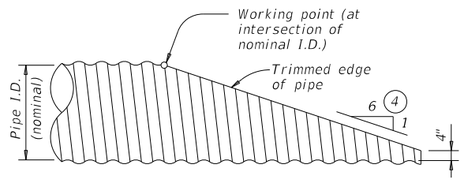
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the price bid for each safety end treatment.



ISOMETRIC VIEW OF TYPICAL INSTALLATION



NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details at reinforced concrete cipe (RCP) culvert are similar.)

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

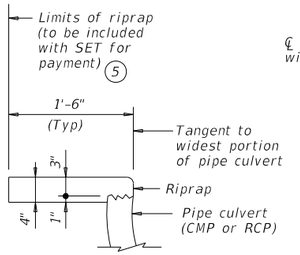
SAFETY END TREATMENT

FOR DESIGN 1 TO 9
ARCH PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

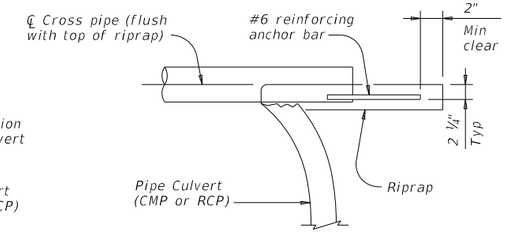
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	SA	MEDINA		133

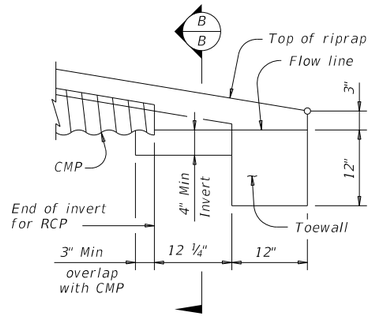
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SHOWING TYPICAL PIPE CULVERT AND RIPRAP

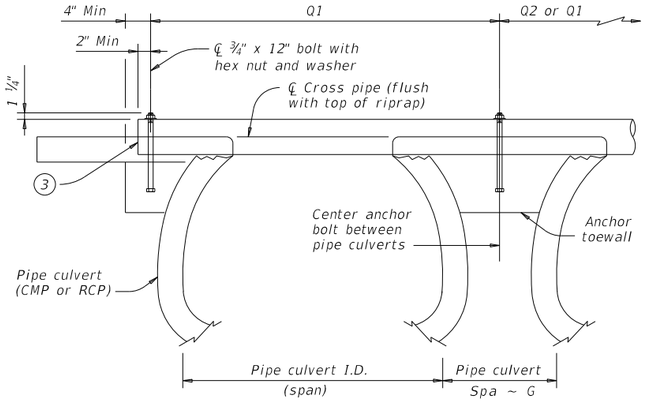


SHOWING CROSS PIPE WITH ANCHOR BAR



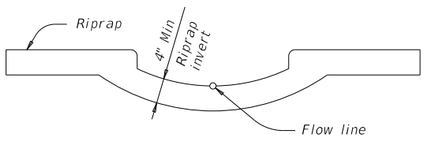
DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



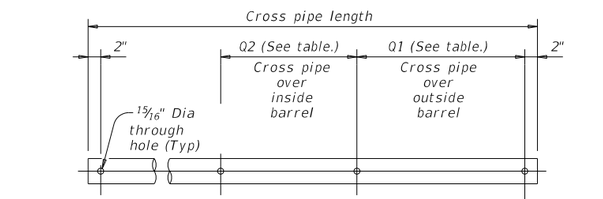
SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

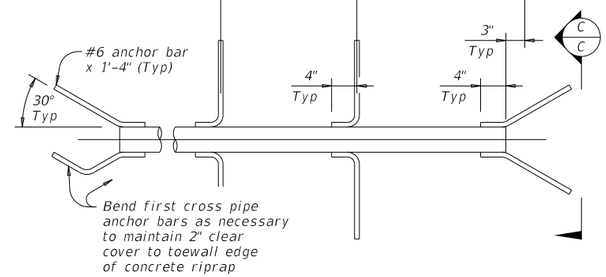


SECTION B-B

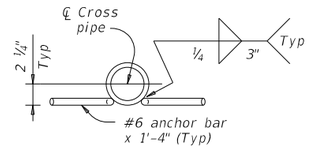
(Cross pipes not shown for clarity.)



PIPE WITH BOLTED ANCHOR



PIPE WITH ANCHOR BARS



SECTION C-C

CROSS PIPE DETAILS

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR DESIGN 1 TO 9
ARCH PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

SETP-PD-A

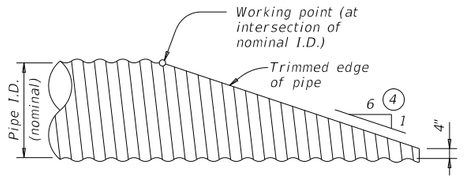
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©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
	DIST	COUNTY		
	SA	MEDINA		134

376

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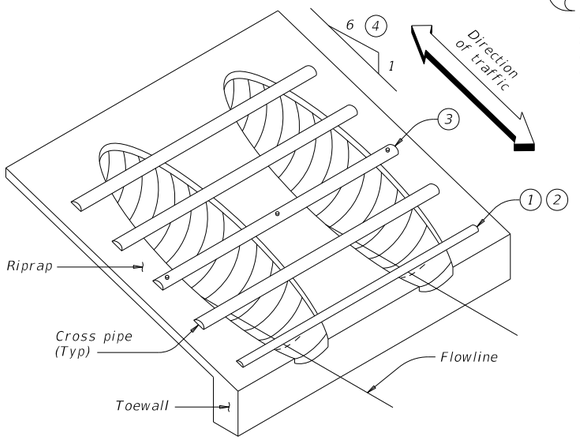
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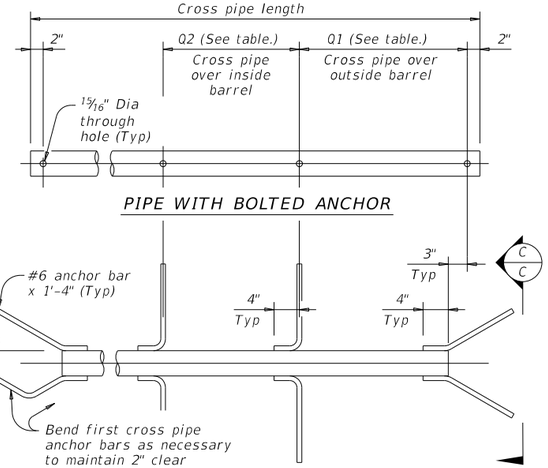
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)

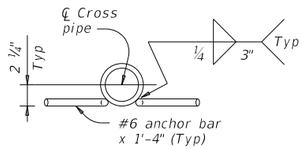


ISOMETRIC VIEW OF TYPICAL INSTALLATION



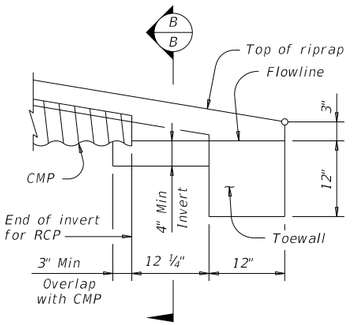
PIPE WITH BOLTED ANCHOR

PIPE WITH ANCHOR BARS



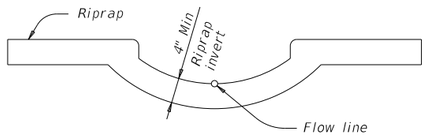
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



SECTION B-B

(Cross pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

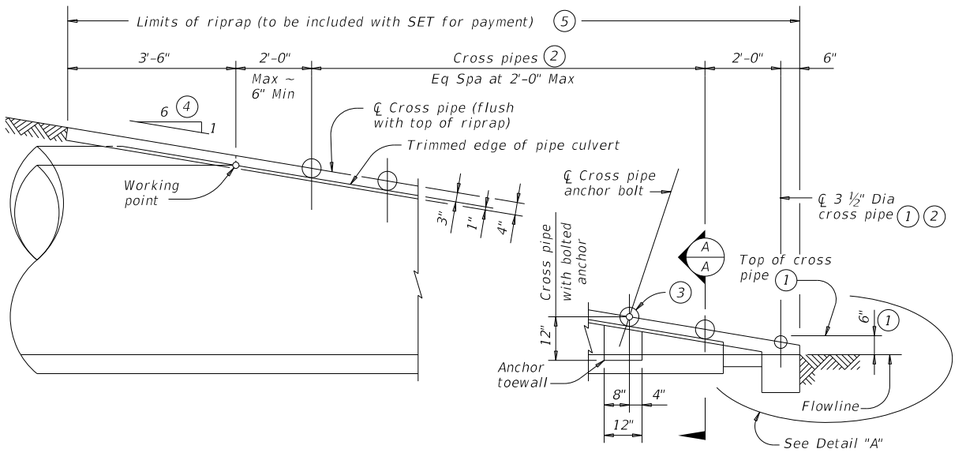
GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

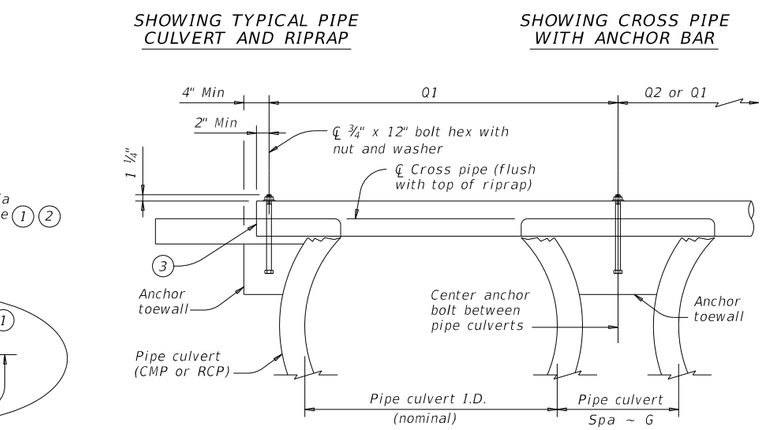
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.



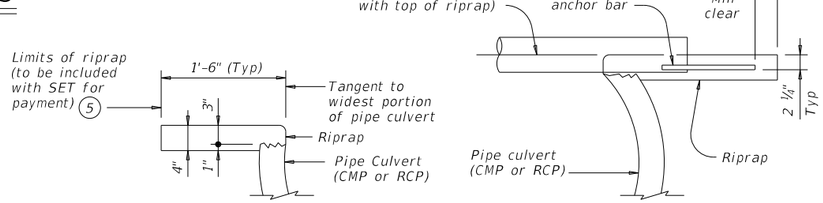
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A



SHOWING CROSS PIPE WITH ANCHOR BAR

SHOWING TYPICAL PIPE CULVERT AND RIPRAP

Texas Department of Transportation

Bridge Division Standard

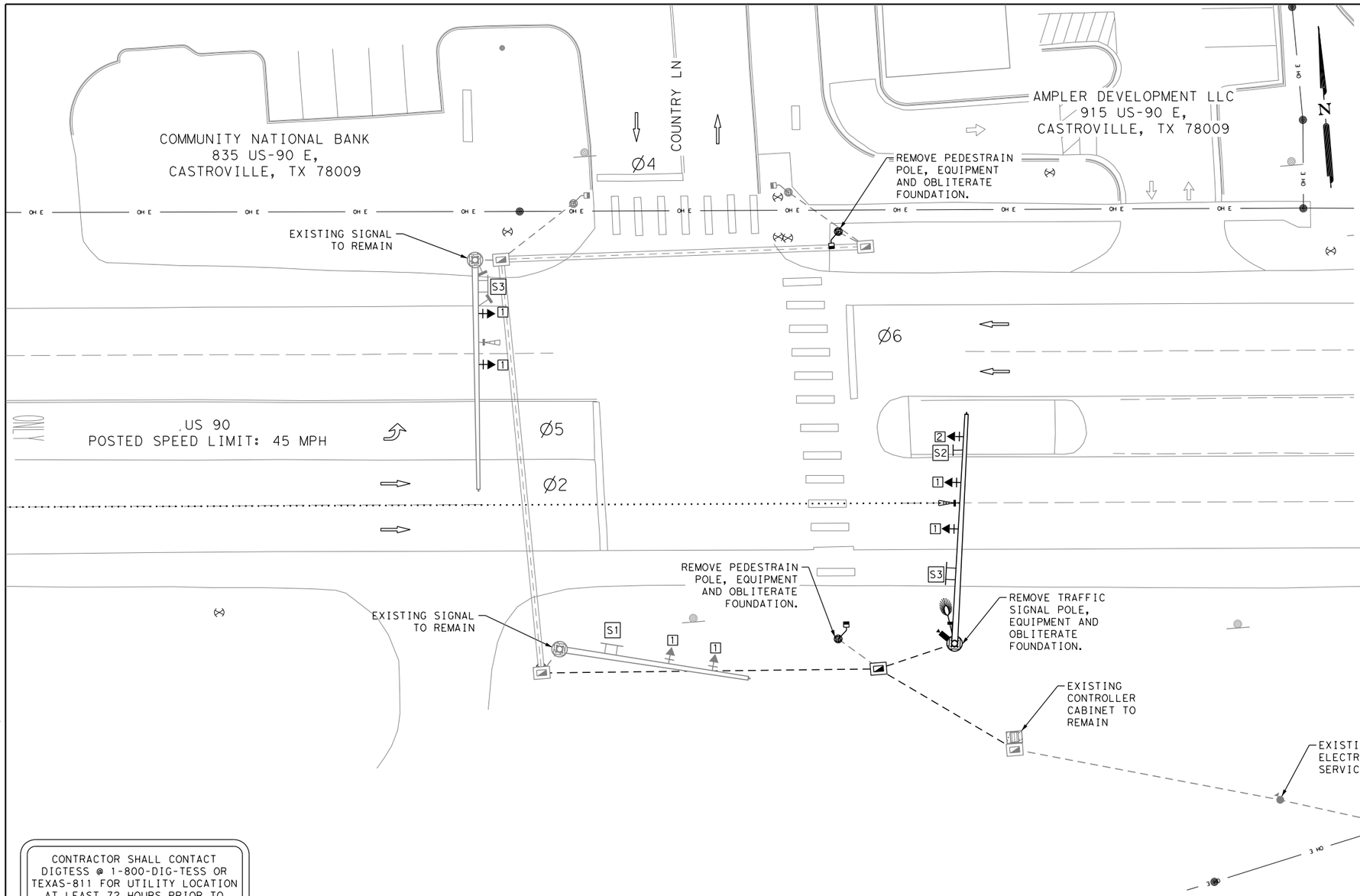
SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
	DIST	COUNTY		
	SA	MEDINA		135

Plotted on: 2/22/2024



LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- CCTV
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

0 15 30 45

SCALE: 1" = 30'

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

NOTES:
1. ALL DIMENSIONS SHOWN ARE IN FEET UNLESS SPECIFIED OTHERWISE. (ALL EXISTING FEATURES ARE SHOWN SCREENED BACK i.e. FADED).
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
6. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
7. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
8. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.
9. REMOVE ABANDONED CONCRETE FOUNDATIONS TO A POINT 2 FT. BELOW FINAL GRADE. BACKFILL HOLE WITH MATERIAL EQUAL IN COMPOSITION AND DENSITY TO THE SURROUNDING AREA.

EXISTING TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION
US 90	D3-1G, (EXISTING)	S1
LEFT TURN YIELD ON FLASHING YELLOW ARROW	R10-17T, (EXISTING)	S2
Country LN	D3-1G, (EXISTING)	S3

EXISTING SIGNAL HEADS

12" LED VEHICLE SIGNAL SECTIONS WITH REFLECTIVE BACKPLATES

SIGNAL FACES	R Y G	R Y Y G
KEY	1	2
QTY	6	1

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

PHASE DIAGRAM

NOT USED Ø1	Ø2	NOT USED Ø3	Ø4
Ø5	Ø6	NOT USED Ø7	NOT USED Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2,6 RED 4,5

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT COUNTRY LANE

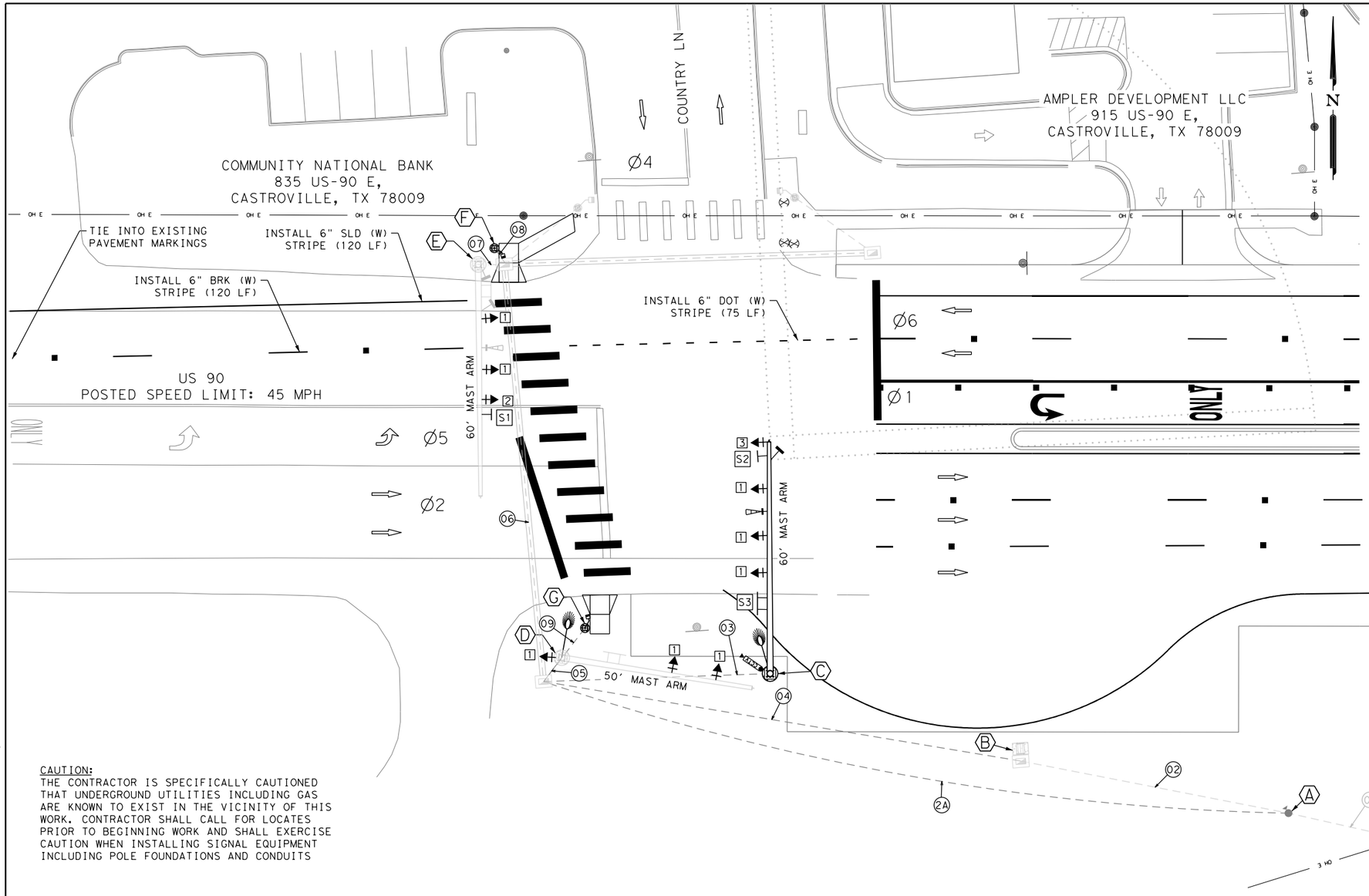
EXISTING CONDITIONS

SHEET 1 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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Plotted on: 2/22/2024



LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN
- CCTV

DESIGN

STATE OF TEXAS — RAYMOND D. GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

0 15 30 45

SCALE: 1" = 30'

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

NOTES:
1. CONTRACTOR SHALL POTHOLE SIGNAL POLE FOUNDATION LOCATIONS NEAR UNDERGROUND UTILITIES PRIOR TO INSTALLING POLE FOUNDATION.
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL CONNECT FIELD WIRING TO CONTROLLER.
5. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
7. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 2' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ADDRESS IN PERMANENT NUMBERS AND LETTERS TO THE STREET SIDE OF THE SERVICE ENCLOSURE. SAID ADDRESS SHALL ALSO BE RECORDED AND GIVEN TO THE TXDOT INSPECTOR FOR THEIR RECORDS.
10. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
11. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.

PROPOSED TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION
TURN ON GREEN ARROW ONLY	R10-5, (48" x 60")	S1
LEFT TURN YIELD ON FLASHING YELLOW ARROW	R10-17T, (30" x 30")	S2
Country™	D3-1G, (SEE DETAIL)	S3

PROPOSED SIGNAL HEADS

12" LED VEHICLE SIGNAL SECTIONS WITH ALUMINIUM REFLECTIVE BACKPLATES

SIGNAL FACES	R Y G	R Y G	R Y Y G
KEY	1	2	3
QTY	8	1	1

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

PHASE DIAGRAM

Ø1	Ø2	NOT USED Ø3	PED Ø4
Ø5	PED Ø6	NOT USED Ø7	NOT USED Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2,6 RED 1,4,5,7

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT COUNTRY LANE

PROPOSED SIGNAL LAYOUT

SHEET 2 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	HIGHWAY NO.
CHK DGN:	6	TEXAS	-	379
DWG:	DIST.	COUNTY	CONT. NO. / SECT. NO. / JOB NO.	
CHK DWG:	SA	MEDINA	24 / 6	

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Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_CCS_01.dgn

CONDUIT AND CONDUCTOR SCHEDULE

RUN NUMBER				01	2A	02	03		04	05	06	07	08	09
CONDUIT SIZE (INCHES)				3	2	3	3	2	3	3	3	3	2	2
NUMBER OF CONDUITS				1	1	1	1	1	1	1	1	1	1	1
LENGTH OF RUN (FT)				70	200	70	60	60	125	5	110	5	5	20
TRENCH(T)/BORE(B)/EXISTING(E)/AERIAL(A)/RIGID METAL(RM)				E	T	E	T	T	T	T	E	E	T	T
CABLE	CIRCUIT			NUMBER OF CONDUCTORS										
#6 XHHW	120/240V HOT & COMMON			CABLES PULLED BY ELECTRIC CO.										
#6 BARE	GROUND (ELECTRIC SERVICE)				1	1	1	1	1	1			1	1
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø	1						1		1	1		
		Ø	2+5				2		3	1				
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE	F						1		1		1	
		POLE	G						1					1
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE	F						1		1		1	
		POLE	G						1					1
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	C		1			1						
		POLE	D		1					1				
ETHERNET	CCTV (PTZ) CAMERA	POLE	C			1	1							
6 COND. POWER & DATA	RADD	POLE	C			1	1							
6 COND. POWER & DATA	RPDD	POLE	C			1	1							

POLE SCHEDULE

POLE				C	D	E	F	G
POLE TYPE (SMA/LMA/DMA/PED)				LMA	LMA	LMA	PED	PED
POLE HEIGHT (FEET)				30	24	24	10	10
MAST ARM LENGTH (FEET)				60	50	60	N/A	N/A
LUMINAIRE (YES/NO)				YES	NO	NO	NO	NO
ILSN (YES/NO)				NO	NO	NO	N/A	N/A
ILSN ARM LENGTH (FEET)				N/A	N/A	N/A	N/A	N/A
FOUNDATION TYPE				48-A	N/A	N/A	24-A	24-A
FOUNDATION DEPTH (FEET)				21.9	E	E	6	6
CABLE	CIRCUIT			NUMBER OF CONDUCTORS				
#6 BARE	BARE BOND GROUND							
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø	1+6			3		
		Ø	2+5	4	1			
		Ø	4+7		2			
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE	F				1	
		POLE	G					1
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE	F				1	
		POLE	G					1
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	C	1				
		POLE	D		1			
ETHERNET	CCTV (PTZ) CAMERA	POLE	C	1				
6 COND. POWER & DATA	RADD	POLE	C	1				
6 COND. POWER & DATA	RPDD	POLE	C	1				

* SEE PEDESTRIAN POLE SPECIAL FOUNDATION FOR DETAILS

POLE & EQUIPMENT INFORMATION

ID	DESCRIPTION/ATTACHMENTS	NORTHING	EASTING	FND. ELEV
A	EXISTING CPS ENERGY TIMBER POLE AND METER WITH TXDOT TYPE D SERVICE	EXIST	EXIST	EXIST
B	EXISTING TxDOT TRAFFIC SIGNAL CONTROLLER AND CABINET ON CONCRETE FOUNDATION WITH TXDOT COMMUNICATIONS PACKAGE.	EXIST	EXIST	EXIST
C	INSTALL 30 FT LMA ON 21.9 FT DRILLED SHAFT FND. (48-A) WITH 60 FT MAST ARM, ONE LUMINARE (LED), ONE RADD, ONE CCTV, ONE RPDD, ONE D3-1G SIGN, ONE R10-17T, FOUR VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679121.6	2012959.3	LEVEL WITH ROADWAY CROWN
D	REMOVE EXISTING TWO VEHICLE SIGNAL HEADS AND INSTALL THREE VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES ON EXISTING LMA WITH 50 FT MAST ARM AS INDICATED ON LAYOUT.	EXIST	EXIST	EXIST
E	REMOVE EXISTING THREE VEHICLE SIGNAL HEADS AND INSTALL THREE VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AND ONE LUMINAIRE ON EXISTING LMA WITH 60 FT MAST ARM AS INDICATED ON LAYOUT.	EXIST	EXIST	EXIST
F	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679235.7	2012896.6	FLUSH WITH LANDING
G	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679136.7	2012912.7	FLUSH WITH LANDING

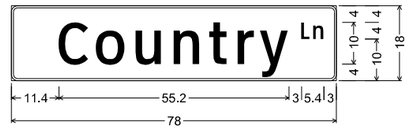
SIGNS SHALL BE ATTACHED TO POLES AND MAST ARMS AS SHOWN ON PLANS.

ELECTRICAL SERVICE DATA

Elec. Service ID	Electrical Service Description (see ED (5) - 14)	Service Conduit Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole / Amp	Two - Pole Conta	Panelbd/ Load center Amp Rating	Circuit No.	Branch Bkr. Pole / Amps	Circuit Amps	Load
TL-1	ELEC SERV TY D (120/240)070(NS)AL(E)TP(O)	3"	3/#6	N/A	2P/70	30	100	A(SIGNAL)	1P/50	40	6.4
								B(LUM)	1P/20	8	

ITEM	DESCRIPTION	UNIT	QTY
0416-6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	22
0618-6046	CONDT (PVC) (SCH 80) (2")	LF	315
0618-6053	CONDT (PVC) (SCH 80) (3")	LF	210
0620-6009	ELEC CONDR (NO.6) BARE	LF	595
0621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	610
0680-6004	REMOVING TRAFFIC SIGNALS	EA	1
0680-6011	INSTALL HWY TRF SIG (UPGRADE)	EA	1
0682-6001	VEH SIG SEC (12")LED(GRN)	EA	8
0682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
0682-6003	VEH SIG SEC (12")LED(YEL)	EA	8
0682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
0682-6005	VEH SIG SEC (12")LED(RED)	EA	8
0682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
0682-6007	VEH SIG SEC (12")LED(GRN U-TURN ARW)	EA	1
0682-6008	VEH SIG SEC (12")LED(YEL U-TURN ARW)	EA	1
0682-6009	VEH SIG SEC (12")LED(RED U-TURN ARW)	EA	1
0682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	2
0682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	9
0682-6055	BACKPLATE W/REF BRDR(4 SEC)(VENT)ALUM	EA	1
0684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	450
0684-6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1255
0684-6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	435
0686-6003	INS TRF SIG PL ARM (S) LUM ARM (8')	EA	1
0686-6063	INS TRF SIG PL AM(S)1 ARM(60')LUM	EA	1
0687-6001	PED POLE ASSEMBLY	EA	2
0688-6001	PED DETECT PUSH BUTTON (APS)	EA	2
6000-6128	INSTALL LUMINAIRE (LED)	EA	1
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	45
6004-6031	ITS COM CBL (ETHERNET)	LF	180
6010-6010	CCTV FIELD EQUIP (ANALOG) (INSTALL ONLY)	EA	1
6027-6003	CONDUIT (PREPARE)	LF	110
6027-6008	GROUND BOX (PREPARE)	EA	2
6185-6002	TMA STATIONARY	DAY	15
6292-6001	RVDS(PRESENCE DETECTION ONLY)	EA	1

SIGN TO BE RELOCATED



D3-1G(6) 10in;
1.5" Radius, 0.5" Border, White on Green;
"Country", ClearviewHwy-3-W 101% spacing;
"Ln", ClearviewHwy-3-W 95% spacing;

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT COUNTRY LN

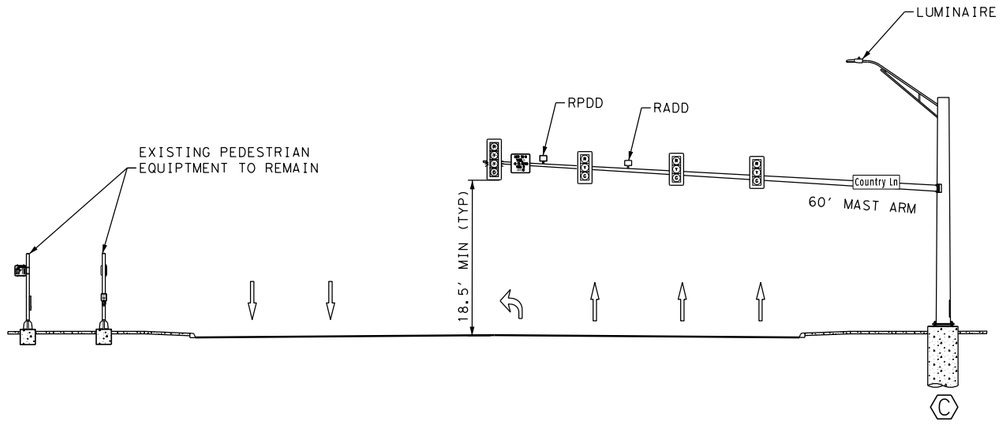
CONDUIT CONDUCTOR SCHEDULE

SHEET 3 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

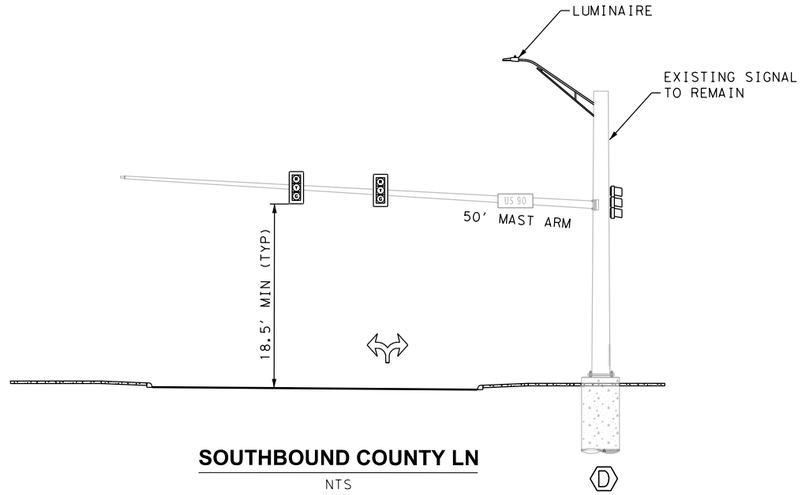
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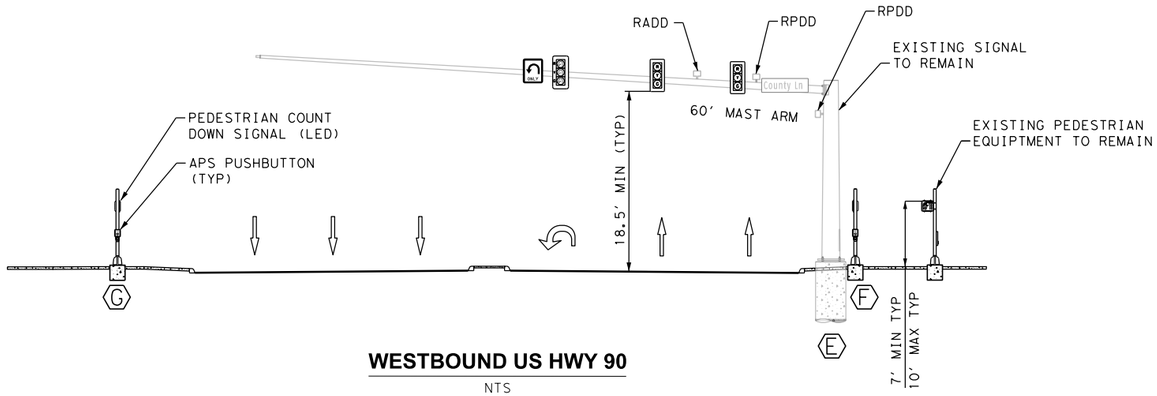
EASTBOUND US HWY 90

NTS



SOUTHBOUND COUNTY LN

NTS



WESTBOUND US HWY 90

NTS

DESIGN

STATE OF TEXAS
RAYMOND D. GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

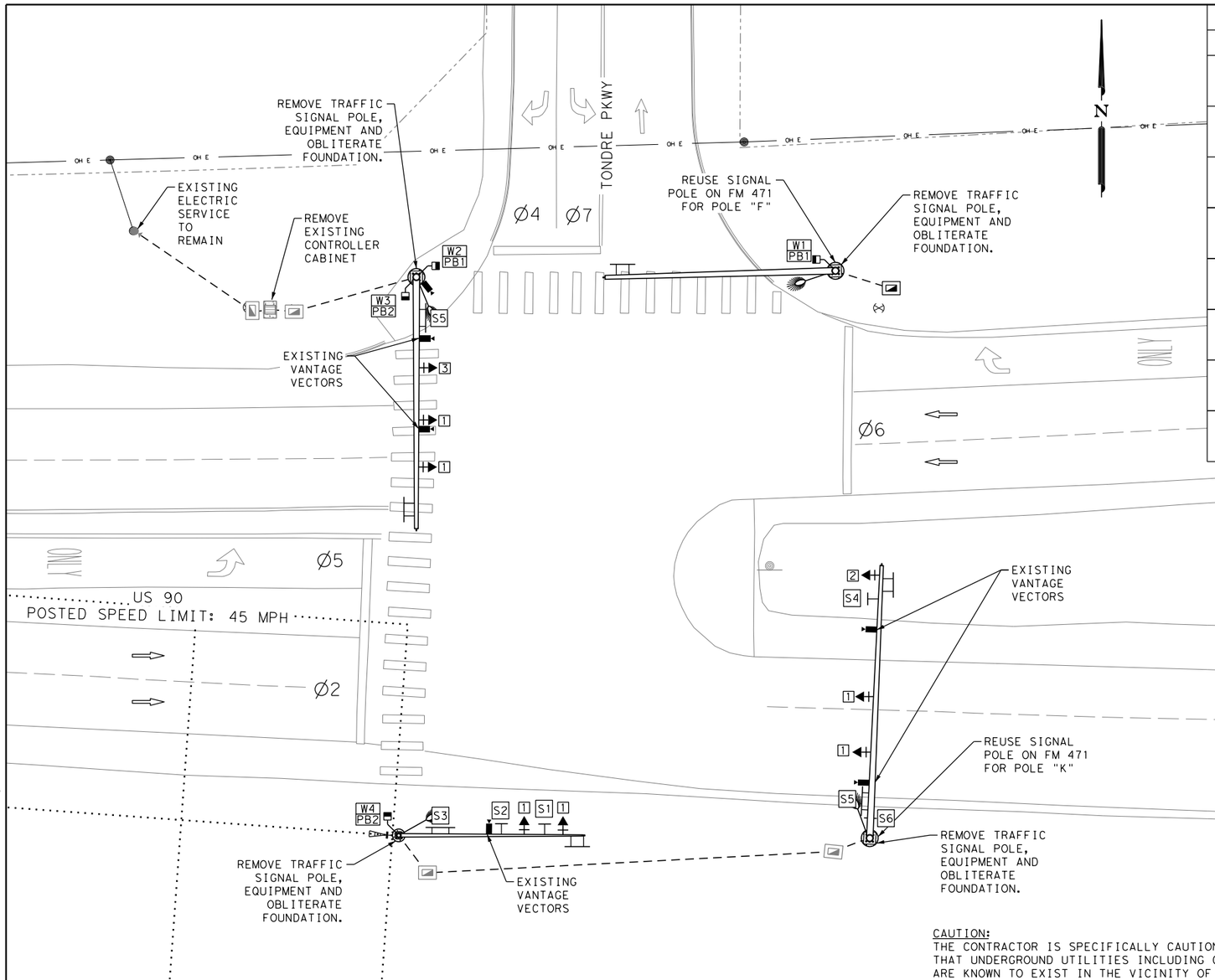
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US 90 AT COUNTY LN

ELEVATION VIEWS

SHEET 4 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



EXISTING TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION
	R3-4 (EXISTING)	S1
ONLY ONLY	R3-8 (EXISTING)	S2
US 90	D3-1G, (EXISTING)	S3
LOT TURN YIELD ON FLASHING YELLOW ARROW	R10-17T (EXISTING)	S4
Tondre PKWY	D3-1G, (EXISTING)	S5
	R9-3, (EXISTING)	S6
	R10-3E L, (EXISTING)	PB1
	R10-3E R, (EXISTING)	PB2

LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- CCTV
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

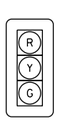
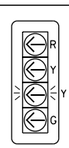
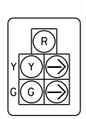
0 15 30 45

SCALE: 1" = 30'

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

NOTES:
1. ALL DIMENSIONS SHOWN ARE IN FEET UNLESS SPECIFIED OTHERWISE. (ALL EXISTING FEATURES ARE SHOWN SCREENED BACK i.e. FADED).
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
6. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
7. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
8. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.
9. REMOVE ABANDONED CONCRETE FOUNDATIONS TO A POINT 2 FT. BELOW FINAL GRADE. BACKFILL HOLE WITH MATERIAL EQUAL IN COMPOSITION AND DENSITY TO THE SURROUNDING AREA.

EXISTING SIGNAL HEADS

	12" LED VEHICLE SIGNAL SECTIONS WITH REFLECTIVE BACKPLATES			12" SIGNAL FACE PEDESTRAINS HEADS LED COUNTDOWN
SIGNAL FACES				
KEY	1	2	3	W1 THRU W6
QTY	4	1	1	6

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

PHASE DIAGRAM

NOT USED Ø1	Ø2	NOT USED Ø3	Ø4
Ø5	Ø6	Ø7	NOT USED Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2,6 RED 4,5,7

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT TONDRE PKWY

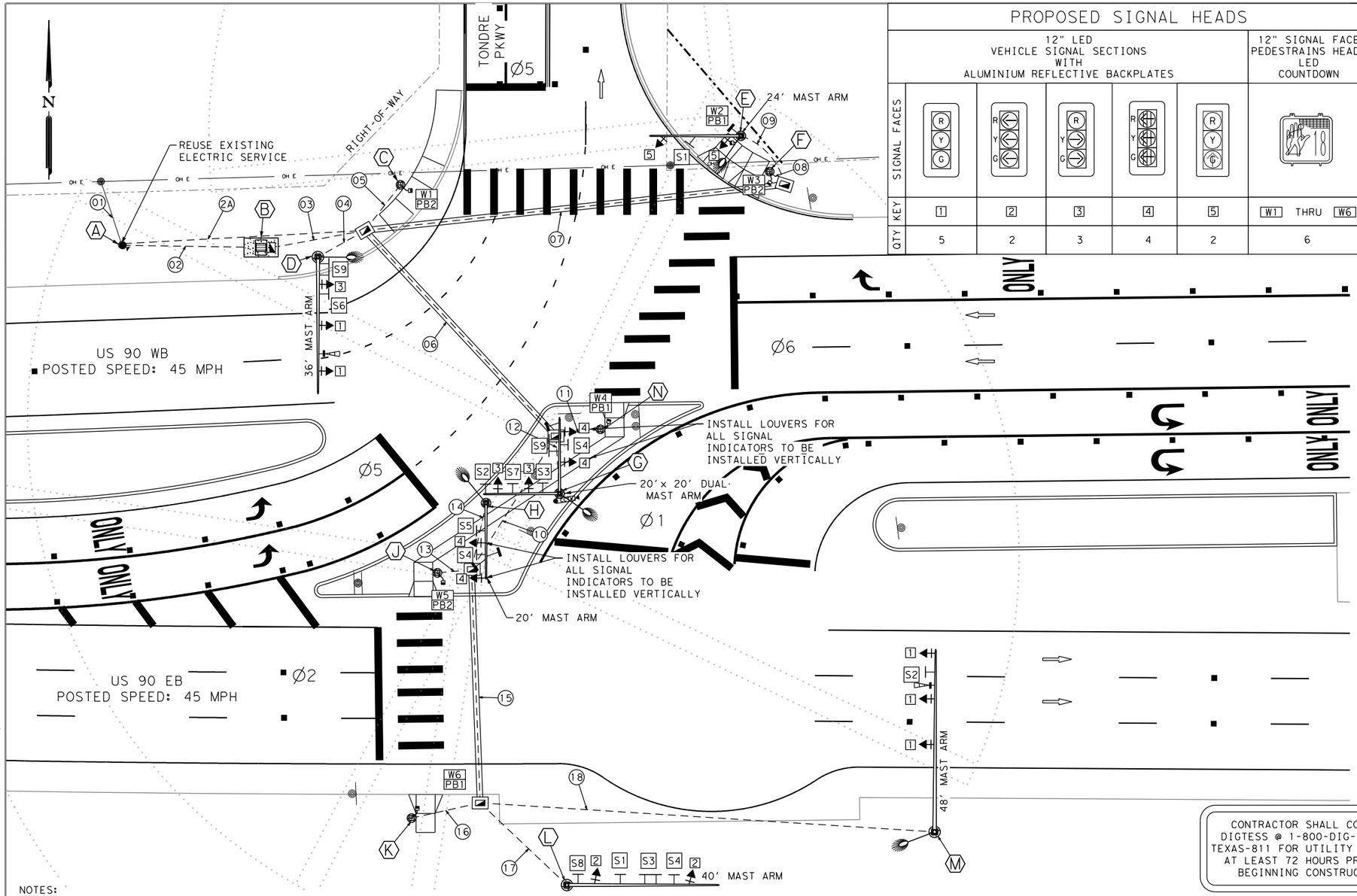
EXISTING CONDITIONS

SHEET 5 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_EX_TSIG_02.dgn



PROPOSED SIGNAL HEADS

	12" LED VEHICLE SIGNAL SECTIONS WITH ALUMINIUM REFLECTIVE BACKPLATES					12" SIGNAL FACE PEDESTRAINS HEADS LED COUNTDOWN
SIGNAL FACES	R Y G	R Y G	R Y G	R Y G	R Y ↻	18
KEY	1	2	3	4	5	W1 THRU W6
QTY	5	2	3	4	2	6

LEGEND

(A)	EQUIPMENT ID
(01)	CABLE/CONDUIT RUN
	TRAFFIC FLOW
	TRAFFIC SIGNAL HEAD
	MAST ARM MOUNTED SIGN
	RADAR PRESENCE DETECTION DEVICE (RPDD)
	RADAR ADVANCED DETECTOR DEVICE (RADD)
	LUMINAIRE
	TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
	CONTROLLER CABINET
	ELECTRIC SERVICE
	RIGHT-OF-WAY
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	GROUND BOX TYPE D W/ APRON
	GOUND MOUNTED SIGN
CCTV	CCTV

NOTES:
1. CONTRACTOR SHALL POTHOLE SIGNAL POLE FOUNDATION LOCATIONS NEAR UNDERGROUND UTILITIES PRIOR TO INSTALLING POLE FOUNDATION.
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL CONNECT FIELD WIRING TO CONTROLLER.
5. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
7. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 2' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ADDRESS IN PERMANENT NUMBERS AND LETTERS TO THE STREET SIDE OF THE SERVICE ENCLOSURE. SAID ADDRESS SHALL ALSO BE RECORDED AND GIVEN TO THE TXDOT INSPECTOR FOR THEIR RECORDS.
10. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
11. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.

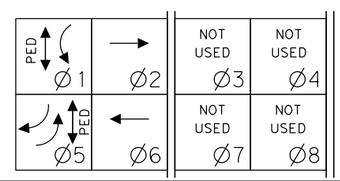
PROPOSED TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION	SIGN	DESCRIPTION	DESIGNATION
	R3-1, (36" x 36")	S1	NO TURN ON RED	R10-11b, (36" x 36")	S7
	R3-2, (36" x 36")	S2	US 90	D3-1G, (SEE SIGN DETAILS)	S8
ONE WAY / ONE WAY	R6-1L/R, (54" x 18")	S3	Tondre PKWY	D3-1G, (SEE SIGN DETAILS)	S9
LEFT ON GREEN ARROW ONLY	R10-5L, (48" x 60")	S4		R10-3E L, (9" x 15")	PB1
	R3-4, (36" x 36")	S5		R10-3E R, (9" x 15")	PB2
ONLY	R3-5R, (30" x 36")	S6			

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

PHASE DIAGRAM



CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2,6 RED 1,4,5

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/5/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 4/5/2024 DATE

0 15 30 45
SCALE: 1" = 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT TONDRE PKWY

PROPOSED SIGNAL LAYOUT

SHEET 6 OF 17

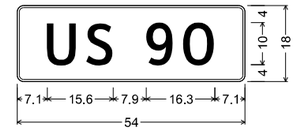
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CHK DGN:	6	TEXAS	_			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	383
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 4/5/2024
Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_TSIG_02.dgn

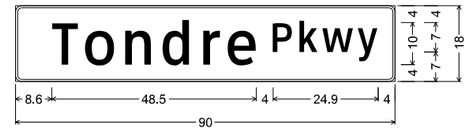
CONDUIT AND CONDUCTOR SCHEDULE

			RUN NUMBER	01	02	2A	03		04		05	06		07		08	09		10		11	12		13	14		15		16	17	18
			CONDUIT SIZE (INCHES)	3	3	3	3	2	3	2	2	3	2	3	2	2	3	2	3	2	2	3	2	2	3	2	3	2	2	3	3
			NUMBER OF CONDUITS	1	1	1	3	1	2	1	1	2	1	2	1	1	1	1	2	1	1	2	1	1	2	1	2	1	1	1	2
			LENGTH OF RUN (FT)	100	30	55	25	25	15	15	15	75	75	115	115	10	20	20	45	45	15	15	15	10	20	20	65	65	10	35	120
			TRENCH(T)/BORE(B)/EXISTING(E)/AERIAL(A)/RIGID METAL(RM)	T	T	T	T	T	T	T	T	B	B	B	B	T	T	T	T	T	T	T	T	T	T	T	B	B	T	T	T
CABLE	CIRCUIT			NUMBER OF CONDUCTORS																											
#6 XHHW	120/240V HOT & COMMON		1																												
#6 BARE	BARE BOND GROUND		1	1	3	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø 1			2					2								1			1					1			1	
		Ø 2			1					1								1								1				1
		Ø 5			3					2		1			1			1			1			1						
		Ø 6			1		1																							
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE C			1			1																						
		POLE E			1							1			1															
		POLE F			1							1		1																
		POLE G			1					1											1									
		POLE J			1					1								1					1							
		POLE K			1					1								1								1		1		
		POLE N			1					1										1										
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE C			1																									
		POLE E			1							1			1															
		POLE F			1							1		1																
		POLE G			1					1											1									
		POLE J			1					1								1					1							
		POLE K			1					1								1								1		1		
		POLE N			1					1										1										
4 COND. #12 AWG TRAY	LUMINAIRES	POLE D		1				1																						
		POLE E		1										1			1													
		POLE G		1									1									1								
		POLE H		1									1						1						1					
		POLE M		1									1						1									1		
ETHERNET	CCTV (PTZ) CAMERA	POLE G			1					1								1						1						
6 COND. POWER & DATA	RADD	POLE D			1		1																							
		POLE M			1					1								1								1				1
6 COND. POWER & DATA	RPDD	POLE E			1								1			1														
		POLE G			1					1												1								
		POLE H			2					2								2						2						

CABLES PULLED BY ELECTRIC COMPANY



D3-1G(1) 6in;
1.5" Radius, 0.5" Border, White on Green;
"US 90", ClearviewHwy-3-W;



D3-1G(6) 10in;
1.5" Radius, 0.5" Border, White on Green;
"Tondre", ClearviewHwy-3-W; "Pkwy", ClearviewHwy-3-W;

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED
PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

ELECTRICAL SERVICE DATA

Elec. Service ID	Electrical Service Description (see ED (5) - 14)	Service Conduit Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole / Amp	Two - Pole Contactor Amps	Panelbd/ Load center Amp Rating	Circuit No.	Branch Ckt. Bkr. Pole / Amps	Branch Circuit Amps	KVA Load
TL-1	ELEC SERV TY D (120/240)070(NS)AL(E)PS(U)	3"	3/#6	N/A	2P/70	30	100	A(SIGNAL) B(LUM)	1P/50 1P/20	40 8	6.4

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT TONDRE PKWY

CONDUIT CONDUCTOR SCHEDULE

SHEET 7 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

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Plotted on: 4/5/2024

POLE SCHEDULE

				Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ		Ⓗ	Ⓙ	Ⓚ	Ⓛ	Ⓜ	Ⓝ
POLE TYPE (SMA/LMA/DMA/PED)				PED	SMA	SMA	PED	DMA		SMA	PED	PED	SMA	SMA	PED
POLE HEIGHT (FEET)				10	30	30	10	30		30	10	10	19	30	10
MAST ARM LENGTH (FEET)				N/A	36	24	N/A	20	20	20	N/A	N/A	40	48	N/A
LUMINAIRE (YES/NO)				N/A	YES	YES	NO	YES		YES	N/A	N/A	NO	YES	N/A
ILSN (YES/NO)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ILSN ARM LENGTH (FEET)				N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FOUNDATION TYPE				24-A	36-A	30-A	24-A	30-A		30-A	24-A	24-A	36-A	36-A	24-A
FOUNDATION DEPTH (FEET)				6	13	11	6	11		11	6	6	13	13	6
CABLE	CIRCUIT			NUMBER OF CONDUCTORS											
#6 BARE	BARE BOND GROUND			1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø	1						2				2		
		Ø	2											3	
		Ø	4					2							
		Ø	5			2				2					
		Ø	6		3										
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE	C	1											
		POLE	E			1									
		POLE	F				1								
		POLE	G					1							
		POLE	J								1				
		POLE	K									1			
		POLE	N												1
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE	C	1											
		POLE	E			1									
		POLE	F				1								
		POLE	G					1							
		POLE	J								1				
		POLE	K									1			
		POLE	N												1
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	D		1										
		POLE	E			1									
		POLE	G					1							
		POLE	H							1					
		POLE	M											1	
ETHERNET	CCTV (PTZ) CAMERA	POLE	H							1					
6 COND. POWER & DATA	RADD	POLE	D		1										
		POLE	M											1	
6 COND. POWER & DATA	RPDD	POLE	E			1									
		POLE	G					1							
		POLE	H							2					

* SEE PEDESTRIAN POLE SPECIAL FOUNDATION FOR DETAILS

ITEM	DESCRIPTION	UNIT	QTY
0416-6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	33
0416-6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	39
0618-6046	CONDT (PVC) (SCH 80) (2")	LF	340
0618-6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	285
0618-6053	CONDT (PVC) (SCH 80) (3")	LF	820
0618-6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	565
0620-6009	ELEC CONDR (NO.6) BARE	LF	1685
0621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	1225
0624-6010	GROUND BOX TY D (162922)W/APRON	EA	5
0680-6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
0680-6004	REMOVING TRAFFIC SIGNALS	EA	1
0680-XX01	TS2 TYPE 2 SIGNAL CONTROLLER CABINET ASSEMBLY	EA	1
0680-XX02	**TRAFFIC SIGNAL CONTROLLER (ECONOLITE COBALT)	EA	1
0680-XX03	**MALFUNCTION MONITOR UNIT	EA	1
0680-XX04	**COMMUNICATION PACKAGE	EA	1
0682-6001	VEH SIG SEC (12")LED(GRN)	EA	5
0682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	11
0682-6003	VEH SIG SEC (12")LED(YEL)	EA	7
0682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	9
0682-6005	VEH SIG SEC (12")LED(RED)	EA	10
0682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	6
0682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
0682-6047	LOUVER (12") (ADJUSTABLE)	EA	12
0682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	16
0684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	990
0684-6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	2210
0684-6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	945
0686-6023	INS TRF SIG PL AM (S)1 ARM(20')LUM	EA	1
0686-6027	INS TRF SIG PL AM(S)1 ARM(24')LUM	EA	1
0686-6039	INS TRF SIG PL AM(S)1 ARM(36')LUM	EA	1
0686-6041	INS TRF SIG PL AM(S)1 ARM(40')	EA	1
0686-6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA	1
0686-6071	INS TRF SIG PL AM(S)2 ARM(20-20')LUM	EA	1
0687-6001	PED POLE ASSEMBLY	EA	5
0688-6001	PED DETECT PUSH BUTTON (APS)	EA	6
0688-6003	PED DETECTOR CONTROLLER UNIT	EA	1
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	45
6004-6031	ITS COM CBL (ETHERNET)	LF	215
6010-6010	CCTV FIELD EQUIP (ANALOG) (INSTALL ONLY)	EA	1
6185-6002	TMA STATIONARY	DAY	30
6292-6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
6292-6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
6292-XX01	**RVDS(PRESENCE DETECTION ONLY) COMM CABLE	LF	850
6292-XX02	**RVDS(ADVANCE DETECTION ONLY) COMM CABLE	LF	545

POLE & EQUIPMENT INFORMATION

ID	DESCRIPTION/ATTACHMENTS	NORTHING	EASTING	FND. ELEV
Ⓐ	EXISTING CPS ENERGY ELECTRIC SERVICE AND METER TO REMAIN	N/A	N/A	N/A
Ⓑ	INSTALL TxDOT TRAFFIC SIGNAL CONTROLLER AND CABINET ON CONCRETE FOUNDATION WITH TXDOT COMMUNICATIONS PACKAGE AS DETAILED IN GENERAL NOTES	N/A	N/A	N/A
Ⓒ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679197.1	2014279.0	FLUSH WITH LANDING
Ⓓ	INSTALL 30 FT SMA-80 ON 13.2 FT DRILLED SHAFT FND. (36-A) WITH 36 FT MAST ARM, ONE LUMINARE (LED), ONE RADD, ONE D3-1G SIGN, ONE R3-5R SIGN, THREE VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679178.1	2014257.3	LEVEL WITH ROADWAY CROWN
Ⓔ	INSTALL 30 FT SMA-80 ON 11 FT DRILLED SHAFT FND. (30-A) WITH 24 FT MAST ARM, ONE LUIMAIRE,ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON, ONE R3-1 SIGN, ONE R10-3e(L OR R) SIGN, ONE RPDD AND TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679210.0	2014368.5	LEVEL WITH ROADWAY CROWN
Ⓕ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679200.6	2014376.1	LEVEL WITH ROADWAY CROWN
Ⓖ	INSTALL 30 FT DMA ON 11 FT DRILLED SHAFT FND. (30-A) WITH 20 FT MAST ARM AND 20 FT MAST ARM, ONE LUMINARE (LED), ONE CCTV, ONE RPDD, ONE D3-1G SIGN, ONE R10-5L SIGN, R6-1R SIGN, ONE R20-11b SIGN, ONE R2-2 SIGN AND FOUR VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679115.9	2014320.8	LEVEL WITH ROADWAY CROWN
Ⓗ	INSTALL 30 FT SMA-80 ON 11 FT DRILLED SHAFT FND. (30-A) WITH 20 FT MAST ARM, TWO RPDDs, ONE R10-5L SIGN, TWO R3-4 SIGNS AND TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679113.3	2014301.5	LEVEL WITH ROADWAY CROWN
Ⓙ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679095.0	2014288.7	FLUSH WITH LANDING
Ⓚ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679030.4	2014281.9	FLUSH WITH LANDING
Ⓛ	INSTALL 19 FT SMA-80 ON 13.2 FT DRILLED SHAFT FND. (36-A) WITH 40 FT MAST ARM, ONE R3-1 SIGN, ONE R10-5L, ONE R6-1L SIGN, ONE D3-1G SIGN AND TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679012.8	2014322.8	LEVEL WITH ROADWAY CROWN
Ⓜ	INSTALL 30 FT SMA-80 ON 13.2 FT DRILLED SHAFT FND. (36-A) WITH 48 FT MAST ARM, ONE LUMINARE (LED), ONE RADD, ONE R3-2 SIGN, THREE VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679026.8	2014419.6	LEVEL WITH ROADWAY CROWN
Ⓝ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679132.7	2014331.6	FLUSH WITH LANDING

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 4/5/2024 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 4/5/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT TONDRE PKWY

CONDUIT CONDUCTOR SCHEDULE

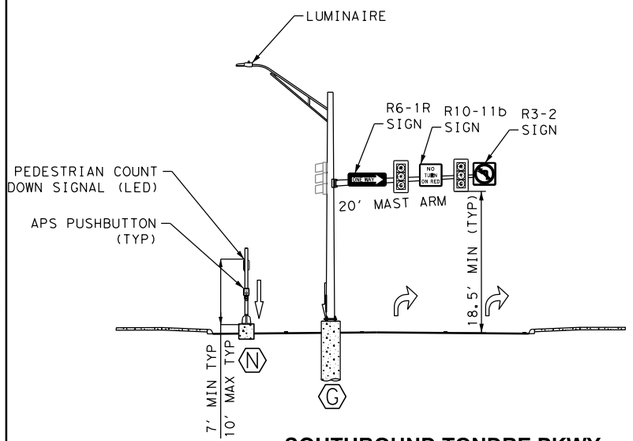
SHEET 8 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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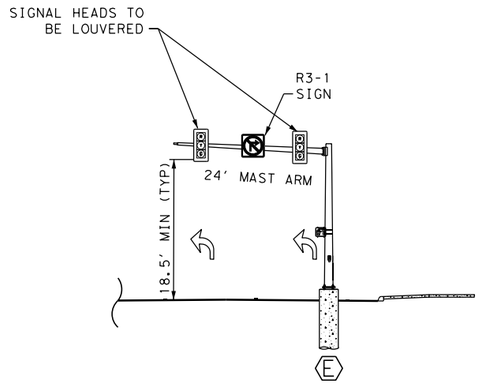
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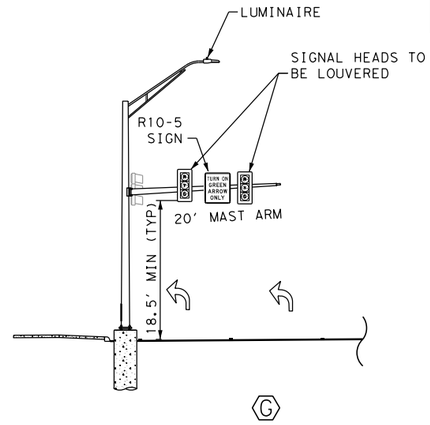
SOUTHBOUND TONDRE PKWY

NTS



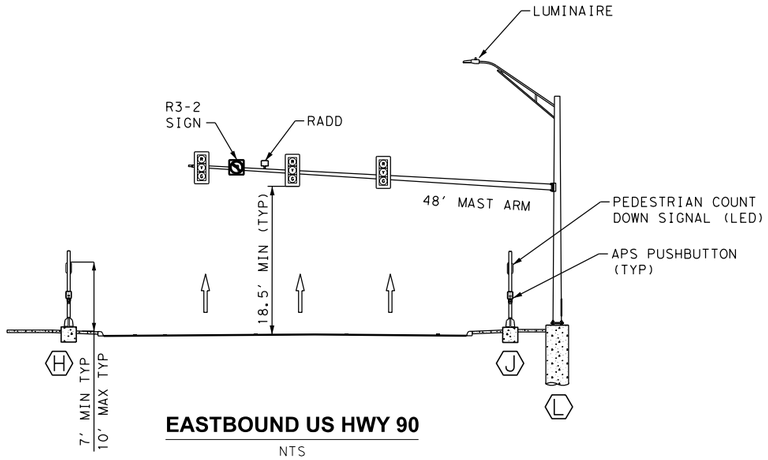
EASTBOUND US HWY 90 LEFT TURN

NTS



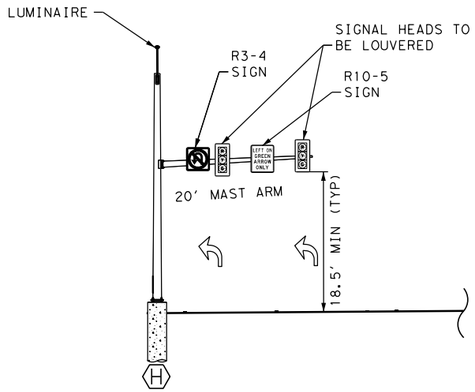
WB TO EB US HWY 90 TURNAROUND APPROACH

NTS



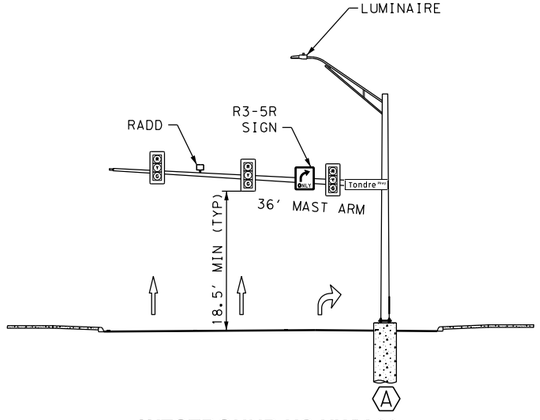
EASTBOUND US HWY 90

NTS



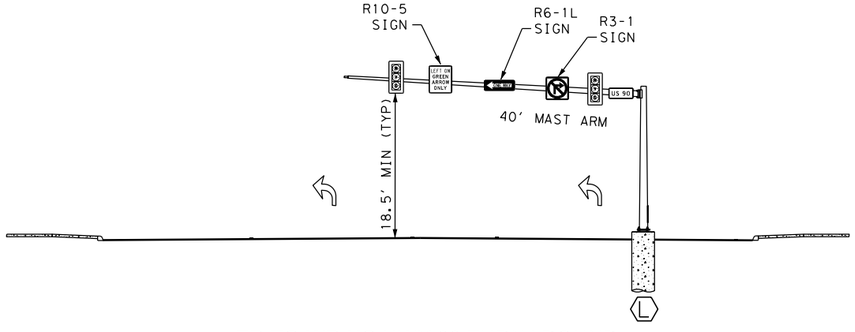
EASTBOUND US HWY 90 LEFT TURN APPROACH

NTS



WESTBOUND US HWY 90

NTS



EB TO WB US HWY 90 TURNAROUND

NTS

DESIGN

STATE OF TEXAS
RAYMOND D. GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

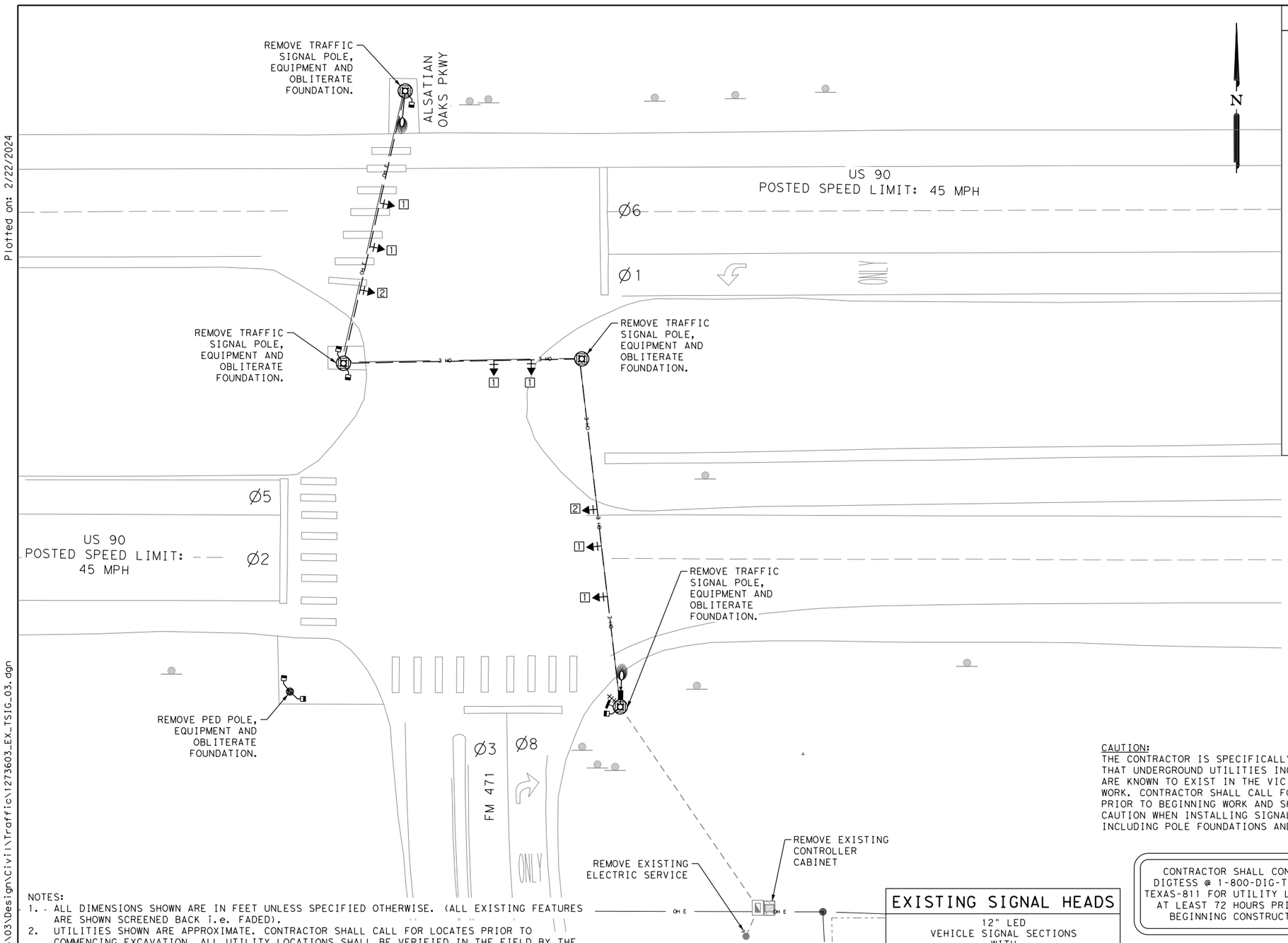
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US 90 AT TONDRE PKWY

ELEVATION VIEWS

SHEET 9 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- CCTV
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN

NOTES:
1. ALL DIMENSIONS SHOWN ARE IN FEET UNLESS SPECIFIED OTHERWISE. (ALL EXISTING FEATURES ARE SHOWN SCREENED BACK i.e. FADED).
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
6. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
7. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
8. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.
9. REMOVE ABANDONED CONCRETE FOUNDATIONS TO A POINT 2 FT. BELOW FINAL GRADE. BACKFILL HOLE WITH MATERIAL EQUAL IN COMPOSITION AND DENSITY TO THE SURROUNDING AREA.

EXISTING SIGNAL HEADS

12" LED VEHICLE SIGNAL SECTIONS WITH REFLECTIVE BACKPLATES

SIGNAL FACES	R Y G	R Y G
KEY	1	2
QTY	6	2

PHASE DIAGRAM

Ø1	Ø2	Ø3 NOT USED	Ø4
Ø5	Ø6	Ø7 NOT USED	Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2, RED 3

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

0 15 30 45
SCALE: 1" = 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS PKWY

EXISTING CONDITIONS

SHEET 10 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

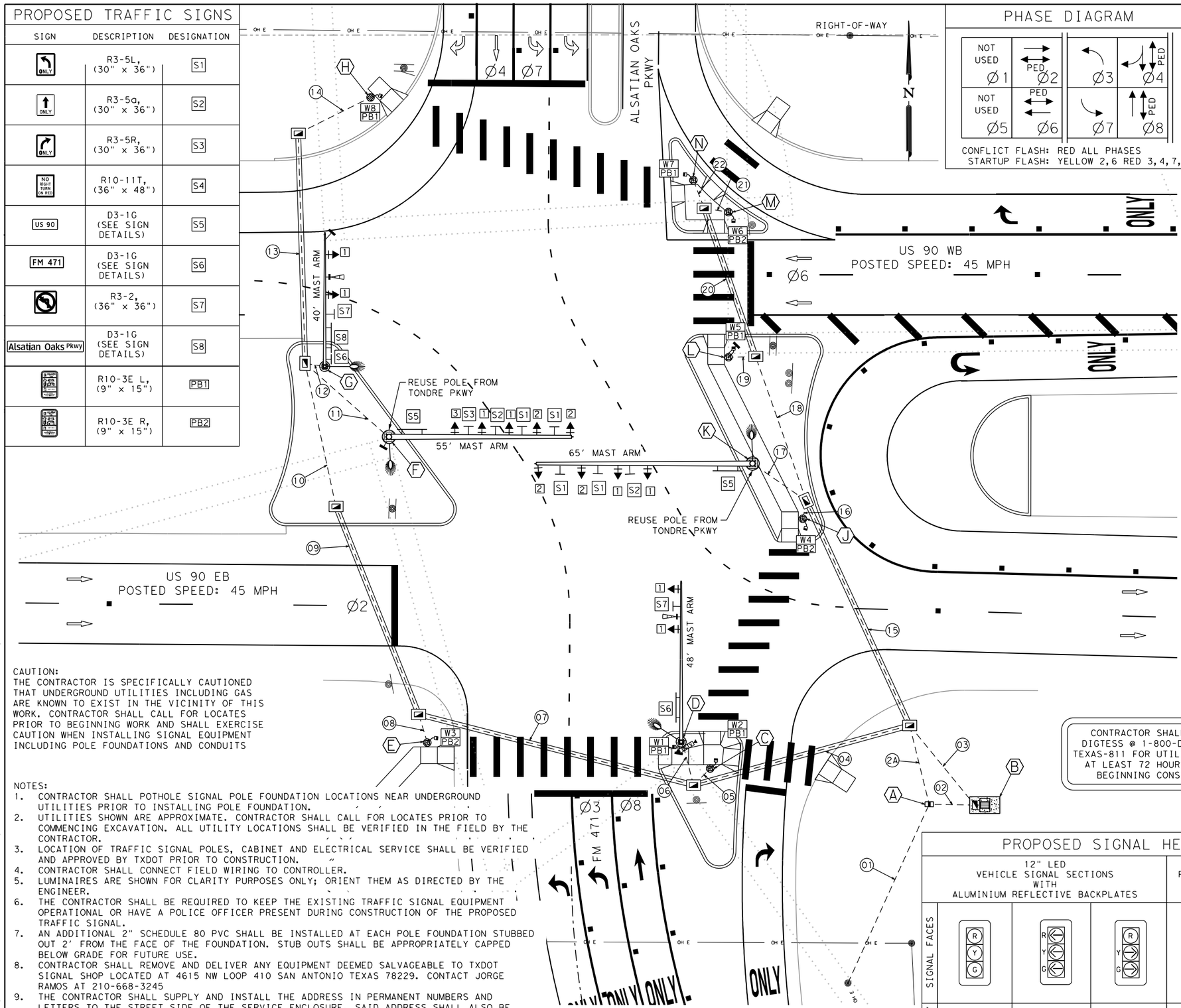
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Plotted on: 2/22/2024

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PROPOSED TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION
ONLY	R3-5L, (30" x 36")	S1
ONLY	R3-5a, (30" x 36")	S2
ONLY	R3-5R, (30" x 36")	S3
NO RIGHT TURN ON RED	R10-11T, (36" x 48")	S4
US 90	D3-1G (SEE SIGN DETAILS)	S5
FM 471	D3-1G (SEE SIGN DETAILS)	S6
	R3-2, (36" x 36")	S7
Alsatian Oaks Pkwy	D3-1G (SEE SIGN DETAILS)	S8
	R10-3E L, (9" x 15")	PB1
	R10-3E R, (9" x 15")	PB2



PHASE DIAGRAM

NOT USED Ø1	PED Ø2	Ø3	PED Ø4
NOT USED Ø5	PED Ø6	Ø7	PED Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 2,6 RED 3,4,7,8

LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN
- CCTV

CAUTION:
THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT UNDERGROUND UTILITIES INCLUDING GAS ARE KNOWN TO EXIST IN THE VICINITY OF THIS WORK. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO BEGINNING WORK AND SHALL EXERCISE CAUTION WHEN INSTALLING SIGNAL EQUIPMENT INCLUDING POLE FOUNDATIONS AND CONDUITS

NOTES:
1. CONTRACTOR SHALL POTHOLE SIGNAL POLE FOUNDATION LOCATIONS NEAR UNDERGROUND UTILITIES PRIOR TO INSTALLING POLE FOUNDATION.
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL CONNECT FIELD WIRING TO CONTROLLER.
5. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
7. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 2' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ADDRESS IN PERMANENT NUMBERS AND LETTERS TO THE STREET SIDE OF THE SERVICE ENCLOSURE. SAID ADDRESS SHALL ALSO BE RECORDED AND GIVEN TO THE TXDOT INSPECTOR FOR THEIR RECORDS.
10. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
11. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.

CONTRACTOR SHALL CONTACT DIGTESS @ 1-800-DIG-TESS OR TEXAS-811 FOR UTILITY LOCATION AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

PROPOSED SIGNAL HEADS

	12" LED VEHICLE SIGNAL SECTIONS WITH ALUMINIUM REFLECTIVE BACKPLATES			12" SIGNAL FACE PEDESTRAINS HEADS LED COUNTDOWN
SIGNAL FACES	R Y G	R Y G	R Y G	18
KEY	1	2	3	W1 THRU W8
QTY	8	4	1	8

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

0 15 30 45
SCALE: 1" = 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT FM 471

PROPOSED SIGNAL LAYOUT

SHEET 11 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

CONDUIT AND CONDUCTOR SCHEDULE

				RUN NUMBER	01	02	2A	03	04		05	06		07		08	09		10		11		12		13	14	15		16	17		18	19	20	21	22
				CONDUIT SIZE (INCHES)	3	3	2	3	3	2	2	3	2	3	2	2	3	2	3	2	3	2	3	2	3	2	3	2	2	3	2	3	2	3	2	2
				NUMBER OF CONDUITS	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				LENGTH OF RUN (FT)	60	15	25	30	70	70	10	15	15	85	85	10	65	65	45	45	25	25	10	10	70	25	75	75	10	20	20	45	10	45	10	10	
				TRENCH(T)/BORE(B)/EXISTING(E)/AERIAL(A)/RIGID METAL(RM)	T	T	T	T	B	B	T	T	T	B	B	T	B	B	T	T	T	T	T	T	B	T	B	B	T	T	T	T	T	B	T	T	
CABLE	CIRCUIT				NUMBER OF CONDUCTORS																															
#6 XHHW	120/240V HOT & COMMON					1																														
#6 BARE	BARE BOND GROUND				1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø	2				1	1			1																									
		Ø	6				1	1					1				1		1				1													
		Ø	3+8				1																				1			1					
		Ø	4+7				1	1					1				1		1		1															
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE	C				1	1		1																										
		POLE	D				1	1			1																									
		POLE	E				1	1					1			1																				
		POLE	H				1	1					1				1		1						1	1										
		POLE	J				1																				1		1							
		POLE	L				1																				1				1	1				
		POLE	M				1																				1				1		1	1		
		POLE	N				1																				1				1		1		1	
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE	C				1	1		1																										
		POLE	D				1	1			1																									
		POLE	E				1	1					1			1																				
		POLE	H				1	1					1				1		1						1	1										
		POLE	J				1																				1		1							
		POLE	L				1																				1				1	1				
		POLE	M				1																				1				1		1	1		
		POLE	N				1																				1				1		1		1	
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	D			1			1			1																								
		POLE	F			1			1					1			1		1		1															
		POLE	G			1			1					1			1		1				1													
		POLE	K			1																							1			1				
ETHERNET	CCTV (PTZ) CAMERA	POLE	F				1	1			1																									
6 COND. POWER & DATA	RADD	POLE	D				1	1			1																									
		POLE	G				1	1					1			1			1				1													
6 COND. POWER & DATA	RPDD	POLE	D				1	1			1																									
		POLE	F				1	1					1			1			1		1															
		POLE	G				1	1					1			1			1				1													
		POLE	L				1																				1				1	1				

CABLES PULLED BY ELECTRIC COMPANY

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_CCS_03.1.dgn

ELECTRICAL SERVICE DATA

Elec. Service ID	Electrical Service Description (see ED (5) - 14)	Service Conduit Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole / Amp	Two - Pole Contactor Amps	Panelbd/ Load center Amp Rating	Circuit No.	Branch Ckt. Bkr. Pole / Amps	Branch Circuit Amps	KVA Load
TL-1	ELEC SERV TY D (120/240)070(NS)AL(E)TP(O)PS(U)	3"	3/#4	N/A	2P/70	N/A	100	A (SIGNAL) B (LUM)	1P/50 1P/15	40 8	6.3

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APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

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US 90 AT FM 471

CONDUIT CONDUCTOR SCHEDULE

SHEET 12 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS		_		D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

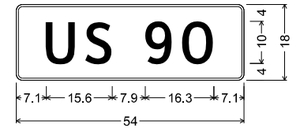
Plotted on: 2/22/2024

POLE SCHEDULE

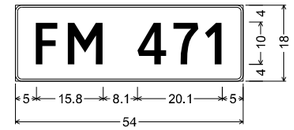
				POLE	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓙ	Ⓚ	Ⓛ	Ⓜ	Ⓝ
				POLE TYPE (SMA/LMA/DMA/PED)	PED	SMA	PED	LMA	SMA	PED	PED	LMA	PED	PED	PED
				POLE HEIGHT (FEET)	10	30	10	30	30	10	10	30	20	10	10
				MAST ARM LENGTH (FEET)	N/A	48	N/A	55	40	N/A	N/A	65	N/A	N/A	N/A
				LUMINAIRE (YES/NO)	N/A	YES	N/A	YES	YES	N/A	N/A	YES	N/A	N/A	N/A
				ILSN (YES/NO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				ILSN ARM LENGTH (FEET)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				FOUNDATION TYPE	24-A	36-A	24-A	48-A	36-A	24-A	24-A	48-A	24-A	24-A	24-A
				FOUNDATION DEPTH (FEET)	6	13	6	22	13	6	6	22	6	6	6
CABLE	CIRCUIT														
#6 BARE	BARE BOND GROUND				1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø	2			2									
		Ø	6						2						
		Ø	3+8									4			
		Ø	4+7					4							
4 COND. #12 AWG TYPE "A"	PEDESTRIAN SIGNALS	POLE	C		1										
		POLE	D			1									
		POLE	E				1								
		POLE	H							1					
		POLE	J								1				
		POLE	L										1		
		POLE	M											1	
		POLE	N												1
2 COND. #14 AWG TYPE "C"	PEDESTRIAN APS PUSHBUTTONS	POLE	C		1										
		POLE	D			1									
		POLE	E				1								
		POLE	H							1					
		POLE	J								1				
		POLE	L										1		
		POLE	M											1	
		POLE	N												1
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	D			1									
		POLE	F					1							
		POLE	G						1						
		POLE	K									1			
ETHERNET	CCTV (PTZ) CAMERA	POLE	F					1							
6 COND. POWER & DATA	RADD	POLE	D			1									
		POLE	G						1						
6 COND. POWER & DATA	RPDD	POLE	D			1									
		POLE	F					1							
		POLE	G						1						
		POLE	L										1		

* SEE PEDESTRIAN POLE SPECIAL FOUNDATION FOR DETAILS

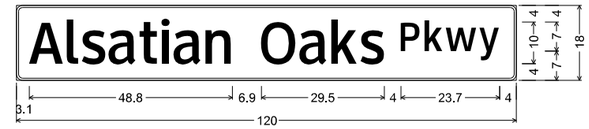
ITEM	DESCRIPTION	UNIT	QTY
0416-6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	26
0416-6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	44
0618-6046	CONDT (PVC) (SCH 80) (2")	LF	280
0618-6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	325
0618-6053	CONDT (PVC) (SCH 80) (3")	LF	355
0618-6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	530
0620-6009	ELEC CONDR (NO.6) BARE	LF	1610
0621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	1130
0624-6010	GROUND BOX TY D (162922)W/APRON	EA	9
0628-6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1
0680-6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
0680-6004	REMOVING TRAFFIC SIGNALS	EA	1
0680-XX01	TS2 TYPE 2 SIGNAL CONTROLLER CABINET ASSEMBLY	EA	1
0680-XX02	**TRAFFIC SIGNAL CONTROLLER (ECONOLITE COBALT)	EA	1
0680-XX03	**MALFUNCTION MONITOR UNIT	EA	1
0680-XX04	**COMMUNICATION PACKAGE	EA	1
0682-6001	VEH SIG SEC (12")LED(GRN)	EA	8
0682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	5
0682-6003	VEH SIG SEC (12")LED(YEL)	EA	8
0682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	5
0682-6005	VEH SIG SEC (12")LED(RED)	EA	9
0682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	4
0682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
0682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	13
0684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1735
0684-6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	2020
0684-6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	1690
0686-6003	INS TRF SIG PL ARM (S) LUM ARM (8')	EA	2
0686-6043	INS TRF SIG PL AM(S)1 ARM(40')LUM	EA	1
0686-6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA	1
0686-XXXX	RELOCATE POLES FROM TONDRE	EA	2
0687-6001	PED POLE ASSEMBLY	EA	7
0688-6001	PED DETECT PUSH BUTTON (APS)	EA	8
0688-6003	PED DETECTOR CONTROLLER UNIT	EA	1
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	45
6004-6031	ITS COM CBL (ETHERNET)	LF	160
6010-6010	CCTV FIELD EQUIP (ANALOG) (INSTALL ONLY)	EA	1
6185-6002	TMA STATIONARY	DAY	30
6292-6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
6292-6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
6292-XX01	**RVDS(PRESENCE DETECTION ONLY) COMM CABLE	LF	1315
6292-XX02	**RVDS(ADVANCE DETECTION ONLY) COMM CABLE	LF	550



D3-1G(1) 6in;
1.5" Radius, 0.5" Border, White on Green;
"US 90", ClearviewHwy-3-W;



D3-1G(6) 10in;
1.5" Radius, 0.5" Border, White on Green;
"FM 471", ClearviewHwy-3-W;



D3-1G(6) 10in;
1.5" Radius, 0.5" Border, White on Green;
"Alsatian Oaks", ClearviewHwy-3-W 39% spacing;
"Pkwy", ClearviewHwy-3-W 66% spacing;

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

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APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

POLE & EQUIPMENT INFORMATION

ID	DESCRIPTION/ATTACHMENTS	NORTHING	EASTING	FND. ELEV
Ⓐ	' INSTALL CPS ENERGY TIMBER POLE AND METER WITH TXDOT TYPE D SERVICE	N/A	N/A	N/A
Ⓑ	INSTALL TxDOT TRAFFIC SIGNAL CONTROLLER AND CABINET ON CONCRETE FOUNDATION WITH TXDOT COMMUNICATIONS PACKAGE AS DETAILED IN GENERAL NOTES	N/A	NA/	N/A
Ⓒ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679014.9	2015232.4	FLUSH WITH LANDING
Ⓓ	INSTALL 30 FT SMA-80 ON 13.2 FT DRILLED SHAFT FND. (36-A) WITH 48 FT MAST ARM, ONE LUMINARE (LED), ONE RADD, ONE CCTV, ONE D3-1G SIGN, ONE R3-2 SIGN, TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679022.9	2015223.8	LEVEL WITH ROADWAY CROWN
Ⓔ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679022.5	2015148.0	FLUSH WITH LANDING
Ⓕ	INSTALL EXISTING 30 FT LMA FROM TONDRE PKWY ON 21.9 FT DRILLED SHAFT FND. (48-A) WITH 55 FT MAST ARM, ONE D3-1G SIGN, TWO R3-5L SIGNS, ONE R3-5g SIGN, ONE R3-5R SIGN, ONE RPDD, ONE LUMINAIRE (LED), AND FIVE VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679113.8	2015136.4	LEVEL WITH ROADWAY CROWN
Ⓖ	INSTALL 30 FT SMA-80 ON 13.2 FT DRILLED SHAFT FND. (36-A) WITH 40 FT MAST ARM, ONE LUMINARE (LED), ONE RPDD, ONE RADD, ONE D3-1G SIGN, ONE R3-2 SIGN, TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679134.8	2015117.2	LEVEL WITH ROADWAY CROWN
Ⓗ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679215.2	2015130.8	FLUSH WITH LANDING
Ⓙ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679089.5	2015260.0	FLUSH WITH LANDING
Ⓚ	INSTALL EXISTING 30 FT LMA FROM TONDRE PKWY ON 21.9 FT DRILLED SHAFT FND. (48-A) WITH 65 FT MAST ARM, ONE D3-1G SIGN, ONE R3-5g SIGN, TWO R3-5L SIGNS, ONE LUMINAIRE AND FOUR VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679106.0	2015245.0	LEVEL WITH ROADWAY CROWN
Ⓛ	INSTALL 20 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE RPDD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679137.7	2015237.8	FLUSH WITH LANDING
Ⓜ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND ONE R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679181.1	2015237.7	FLUSH WITH LANDING
Ⓝ	INSTALL 10 FT PEDESTAL POLE ON 6 FT DRILLED SHAFT FND. (24-A) WITH ONE LED COUNTDOWN PEDESTRAIN SIGNAL HEAD, ONE APS PUSH BUTTON AND TWO R10-3e(L OR R) SIGN AS INDICATED ON LAYOUT.	13679190.6	2015227.2	FLUSH WITH LANDING

SIGNS SHALL BE ATTACHED TO POLES AND MAST ARMS AS SHOWN ON PLANS.

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US 90 AT FM 471

CONDUIT CONDUCTOR SCHEDULE

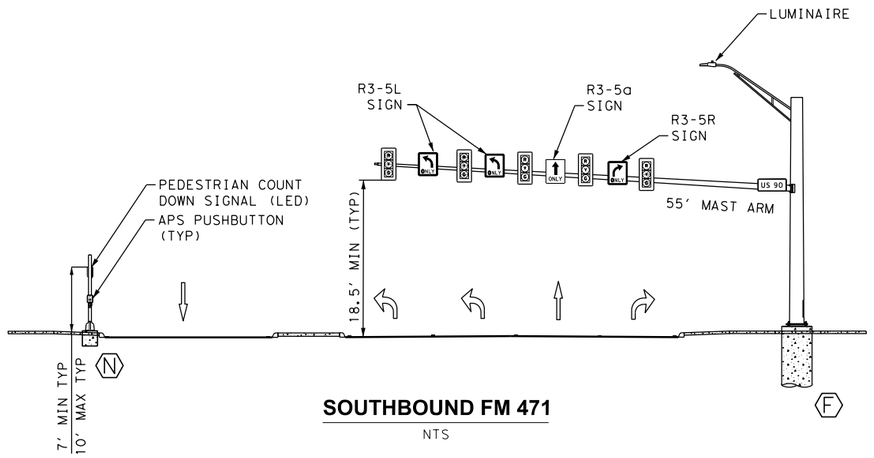
SHEET 13 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	–			390
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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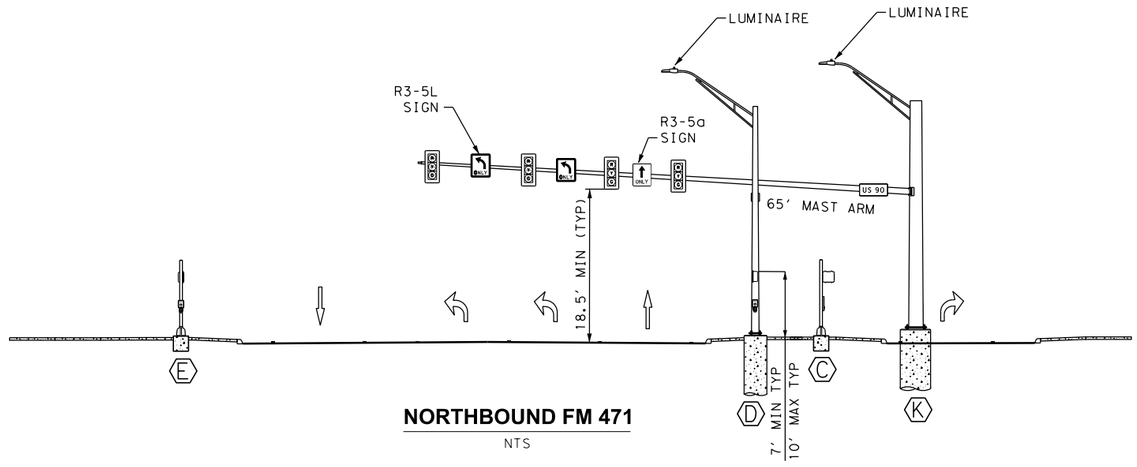
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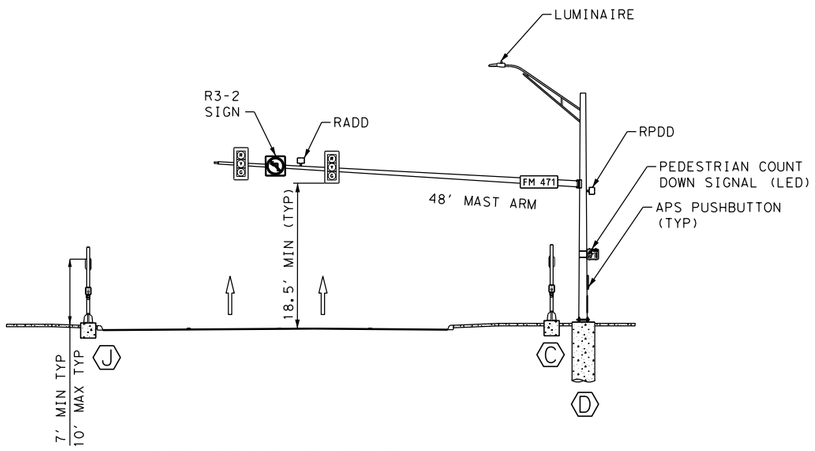
SOUTHBOUND FM 471

NTS



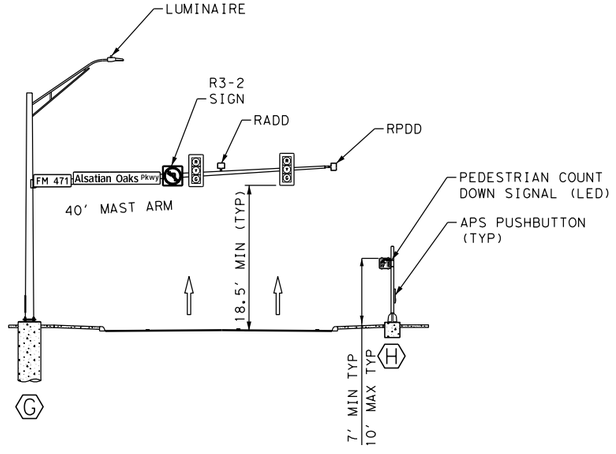
NORTHBOUND FM 471

NTS



EASTBOUND US HWY 90

NTS



WESTBOUND US HWY 90

NTS

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

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118715
LICENSED PROFESSIONAL ENGINEER

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US 90 AT FM 471

ELEVATION VIEWS

SHEET 14 OF 17

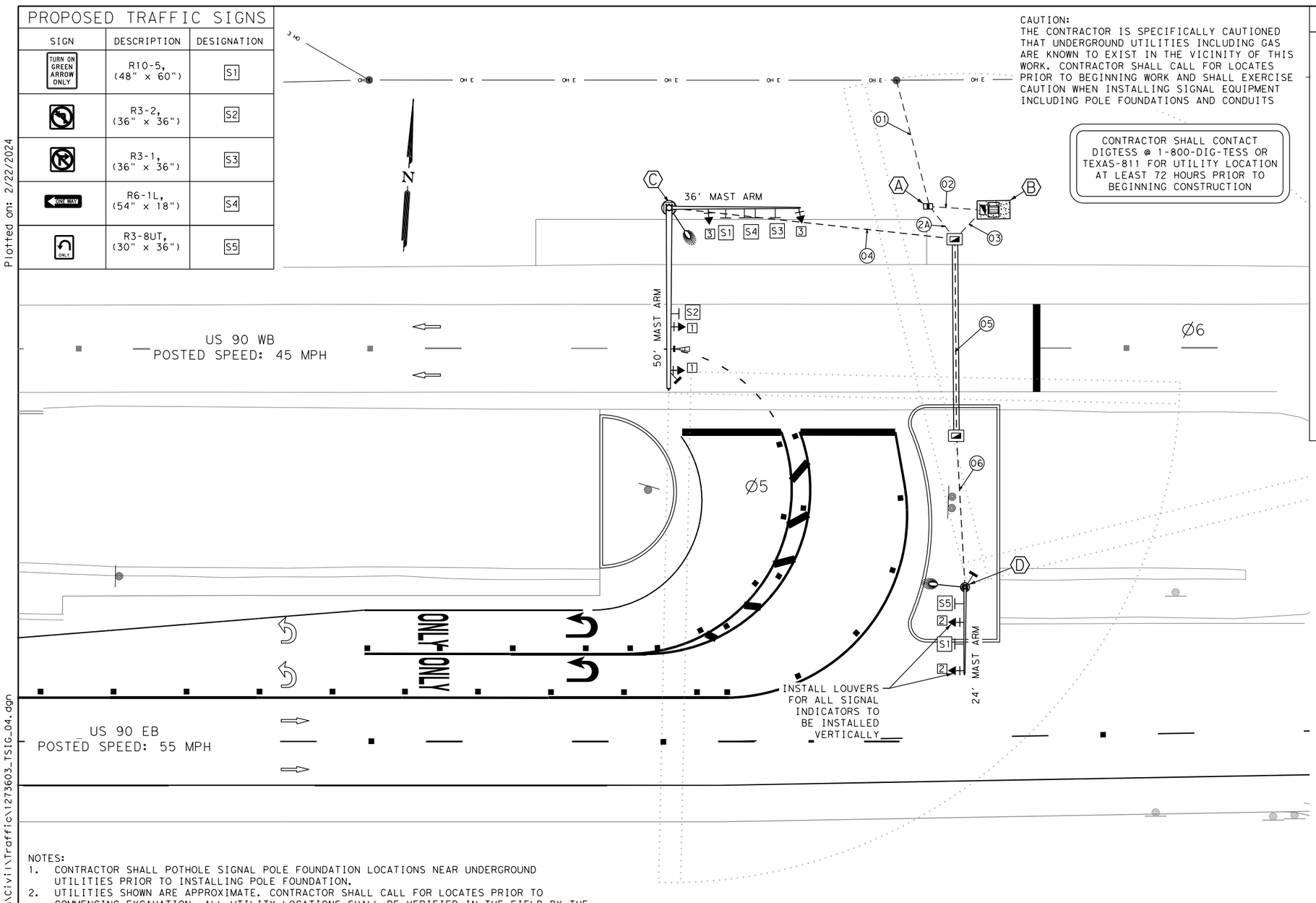
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CHK DGN:	6	TEXAS	-			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		143

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_TSIG_04.dgn

PROPOSED TRAFFIC SIGNS

SIGN	DESCRIPTION	DESIGNATION
TURN ON GREEN ARROW ONLY	R10-5, (48" x 60")	S1
	R3-2, (36" x 36")	S2
	R3-1, (36" x 36")	S3
ONE WAY	R6-1L, (54" x 18")	S4
ONLY	R3-8UT, (30" x 36")	S5



LEGEND

- EQUIPMENT ID
- CABLE/CONDUIT RUN
- TRAFFIC FLOW
- TRAFFIC SIGNAL HEAD
- MAST ARM MOUNTED SIGN
- RADAR PRESENCE DETECTION DEVICE (RPDD)
- RADAR ADVANCED DETECTOR DEVICE (RADD)
- LUMINAIRE
- TRAFFIC SIGNAL POLE, ARM, AND FOUNDATION
- CONTROLLER CABINET
- ELECTRIC SERVICE
- RIGHT-OF-WAY
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- GROUND BOX TYPE D W/ APRON
- GOUND MOUNTED SIGN

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

0 15 30 45

SCALE: 1" = 30'

NOTES:
1. CONTRACTOR SHALL POTHOLE SIGNAL POLE FOUNDATION LOCATIONS NEAR UNDERGROUND UTILITIES PRIOR TO INSTALLING POLE FOUNDATION.
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LOCATION OF TRAFFIC SIGNAL POLES, CABINET AND ELECTRICAL SERVICE SHALL BE VERIFIED AND APPROVED BY TXDOT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL CONNECT FIELD WIRING TO CONTROLLER.
5. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE EXISTING TRAFFIC SIGNAL EQUIPMENT OPERATIONAL OR HAVE A POLICE OFFICER PRESENT DURING CONSTRUCTION OF THE PROPOSED TRAFFIC SIGNAL.
7. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 2' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410 SAN ANTONIO TEXAS 78229. CONTACT JORGE RAMOS AT 210-668-3245
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ADDRESS IN PERMANENT NUMBERS AND LETTERS TO THE STREET SIDE OF THE SERVICE ENCLOSURE. SAID ADDRESS SHALL ALSO BE RECORDED AND GIVEN TO THE TXDOT INSPECTOR FOR THEIR RECORDS.
10. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.
11. SIGNAL OPERATION WILL BE MONITORED AFTER CONSTRUCTION AND MODIFIED AS NECESSARY.

PHASE DIAGRAM

NOT USED Ø1	NOT USED Ø2	NOT USED Ø3	NOT USED Ø4
Ø5	Ø6	NOT USED Ø7	NOT USED Ø8

CONFLICT FLASH: RED ALL PHASES
STARTUP FLASH: YELLOW 6, RED 5

PROPOSED SIGNAL HEADS

12" LED
VEHICLE SIGNAL SECTIONS
WITH
ALUMINIUM REFLECTIVE BACKPLATES

SIGNAL FACES	R Y G	R Y G	R Y G
KEY	1	2	3
QTY	2	2	2

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 AT WB TURNAROUND

PROPOSED SIGNAL LAYOUT

SHEET 15 OF 17

DGN: OH	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN: BC	6	TEXAS				
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

CONDUIT AND CONDUCTOR SCHEDULE

RUN NUMBER				(01)	(02)	(2A)	(03)	(04)		(05)		(06)	
CONDUIT SIZE (INCHES)				3	3	2	3	3	2	3	2	3	2
NUMBER OF CONDUITS				1	1	2	1	2	1	2	1	2	1
LENGTH OF RUN (FT)				35	15	10	10	80	80	55	55	40	40
TRENCH(T)/BORE(B)/EXISTING(E)/AERIAL(A)/RIGID METAL(RM)				T	T	T	T	T	T	B	B	T	T
CABLE	CIRCUIT			NUMBER OF CONDUCTORS									
#8 BARE	BARE BOND GROUND					1	1	1	1	1	1	1	1
7 COND #12 AWG TYPE A	VEHICLE SIGNALS	Ø	5				1			1		1	
		Ø	6				1	1					
4 COND. #12 AWG TRAY	LUMINAIRES	POLE	C		1				1				
		POLE	D		1						1		1
6 COND. POWER & DATA	RADD	POLE	C				1	1					
6 COND. POWER & DATA	RPDD	POLE	C				1	1					

POLE SCHEDULE

POLE			Ⓒ	Ⓓ
POLE TYPE (SMA/LMA/DMA/PED)			LMA	SMA
POLE HEIGHT (FEET)			30	30
MAST ARM LENGTH (FEET)			50/36	24
LUMINAIRE (YES/NO)			YES	YES
ILSN (YES/NO)			NO	NO
ILSN ARM LENGTH (FEET)			N/A	N/A
FOUNDATION TYPE			48-A	30-A
FOUNDATION DEPTH (FEET)			21.9	11.3
CABLE	CIRCUIT		NUMBER OF CONDUCTORS	
#8 BARE	BARE BOND GROUND		1	1
7 COND #12 AWG TYPE "A"	VEHICLE SIGNALS	Ø 5	2	2
		Ø 6	2	
4 COND. #12 AWG TRAY	LUMINAIRES	POLE C	1	
		POLE D		1
6 COND. POWER & DATA	RADD	POLE C	1	
6 COND. POWER & DATA	RPDD	POLE C	1	

* SEE PEDESTRIAN POLE SPECIAL FOUNDATION FOR DETAILS

ELECTRICAL SERVICE DATA

Elec. Service ID	Electrical Service Description (see ED (5) - 14)	Service Conduit Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole / Amp	Two - Pole Contactor Amps	Panelbd/ Load center Amp Rating	Circuit No.	Branch Ckt. Bkr. Pole / Amps	Branch Circuit Amps	KVA Load
TL-1	ELEC SERV TY D (120/240)070(NS)AL(E)PS(U)	3"	3/#6	N/A	2P/70	30	100	A(SIGNAL) B(LUM)	1P/50 1P/20	40	6.4

POLE & EQUIPMENT INFORMATION

ID	DESCRIPTION/ATTACHMENTS	NORTHING	EASTING	FND. ELEV
Ⓐ	'INSTALL CPS ENERGY UNDERGROUND ELECTRIC SERVICE AND METER WITH TXDOT TYPE D SERVICE	N/A	N/A	N/A
Ⓑ	INSTALL TxDOT TRAFFIC SIGNAL CONTROLLER AND CABINET ON CONCRETE FOUNDATION WITH TXDOT COMMUNICATIONS PACKAGE AS DETAILED IN GENERAL NOTES	N/A	N/A	N/A
Ⓒ	INSTALL 30 FT LMA ON 21.9 FT DRILLED SHAFT FND.(48-A) WITH FIXED MOUNT 50 FT MAST ARM AND 36 FT CLAMP-ON MAST ARM, ONE LUMINARE (LED), ONE RPDD, ONE RADD, ONE R3-2 SIGN, ONE R10-5 SIGN, ONE R6-1L SIGN, ONE R3-1 SIGN AND FOUR VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679200.3	2016501.7	LEVEL WITH ROADWAY CROWN
Ⓓ	INSTALL 30 FT SMA-80 ON 11.3 FT DRILLED SHAFT FND.(30-A) WITH 24 FT MAST ARM, ONE LUMINARE (LED), ONE R3-8UT SIGN, ONE R10-5 SIGN AND TWO VEHICLE SIGNAL HEADS WITH ALUMINIUM REFLECTIVE BACKPLATES AS INDICATED ON LAYOUT.	13679096.5	2016583.0	LEVEL WITH ROADWAY CROWN

SIGNS SHALL BE ATTACHED TO POLES AND MAST ARMS AS SHOWN ON PLANS.

ITEM	DESCRIPTION	UNIT	QTY
0416-6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	11
0416-6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	22
0618-6046	CONDT (PVC) (SCH 80) (2")	LF	155
0618-6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	65
0618-6053	CONDT (PVC) (SCH 80) (3")	LF	330
0618-6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	125
0620-6009	ELEC CONDR (NO.6) BARE	LF	475
0621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	300
0624-6010	GROUND BOX TY D (162922)W/APRON	EA	2
0628-6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1
0680-6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
0680-XX01	**TS2 TYPE 2 SIGNAL CONTROLLER CABINET ASSEMBLY	EA	1
0680-XX02	**TRAFFIC SIGNAL CONTROLLER (ECONOLITE COBALT)	EA	1
0680-XX03	**MALFUNCTION MONITOR UNIT	EA	1
0680-XX04	**COMMUNICATION PACKAGE	EA	1
0682-6001	VEH SIG SEC (12")LED(GRN)	EA	2
0682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	4
0682-6003	VEH SIG SEC (12")LED(YEL)	EA	2
0682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
0682-6005	VEH SIG SEC (12")LED(RED)	EA	2
0682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	4
0682-6047	LOUVER (12") (ADJUSTABLE)	EA	6
0682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM	EA	6
0684-6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	620
0686-6027	INS TRF SIG PL AM(S)1 ARM(24')LUM	EA	1
0686-6187	INS TRF SIG PL AM(S)2 ARM(50-36')LUM	EA	1
6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	30
6185-6002	TMA STATIONARY	DAY	15
6292-6001	RVDS(PRESENCE DETECTION ONLY)	EA	2
6292-6002	RVDS(ADVANCE DETECTION ONLY)	EA	1
6292-XX01	**RVDS(PRESENCE DETECTION ONLY) COMM CABLE	LF	180
6292-XX02	**RVDS(ADVANCE DETECTION ONLY) COMM CABLE	LF	190

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 EB TO WB TURNAROUND

CONDUIT CONDUCTOR SCHEDULE

SHEET 16 OF 17

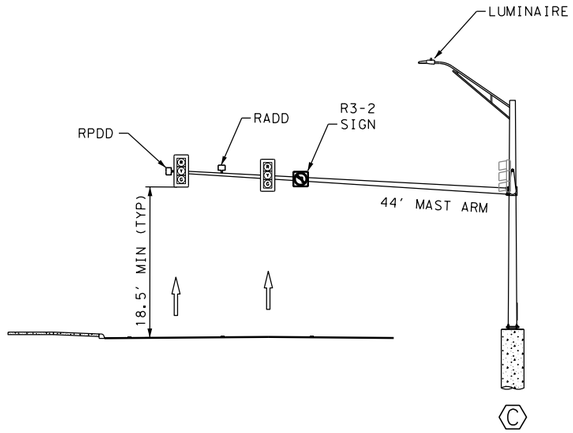
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CHK DGN:	6	TEXAS	–			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	393
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

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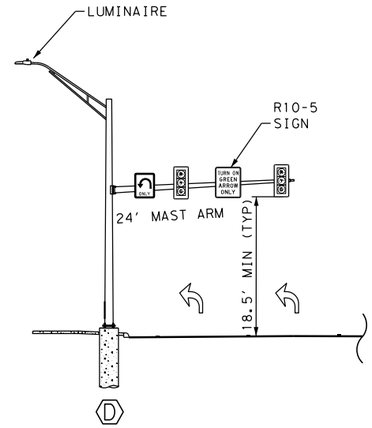
Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603_ELEV_04.dgn



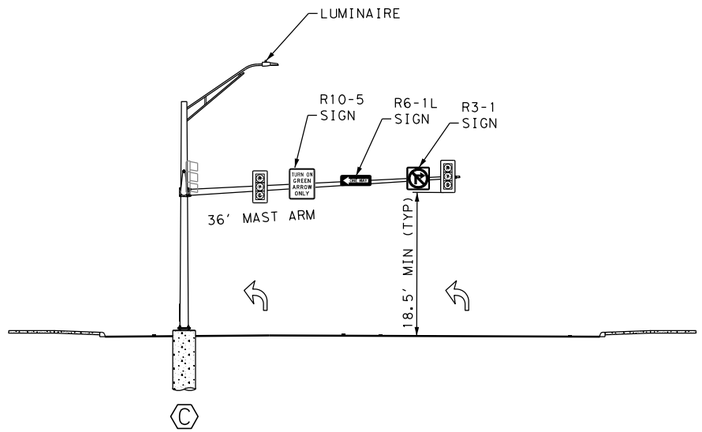
WESTBOUND US 90

NTS



EASTBOUND US 90

NTS



EASTBOUND TO WESTBOUND US 90 CROSSOVER

NTS

DESIGN

STATE OF TEXAS
RAYMOND D. GUERRA
136215
LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

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US 90 EB TO WB TURNAROUND

ELEVATION VIEWS

SHEET 17 OF 17

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			0
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	394
CHK DWG:	SA	MEDINA	24	6		

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GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

FILE:	ed1-14.dgn	DN:	CK:	DW:	CK:
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		24	6		
		DIST	COUNTY		
		SA	MEDINA		

395

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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
6. Support conductors in illumination poles with a J-hook at the top of the pole.
7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.
12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.
4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

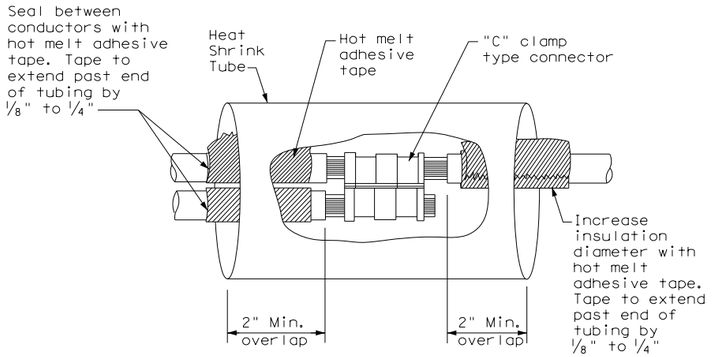
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

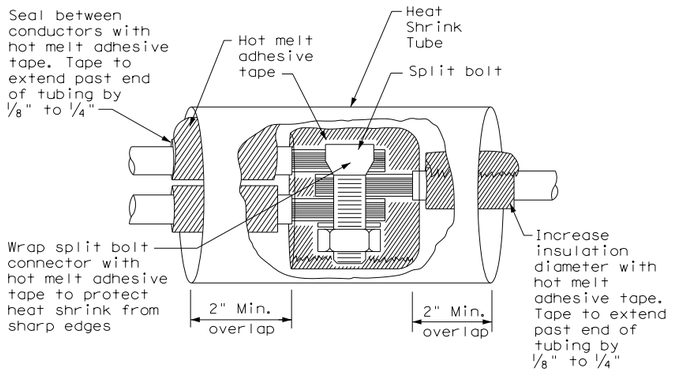
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

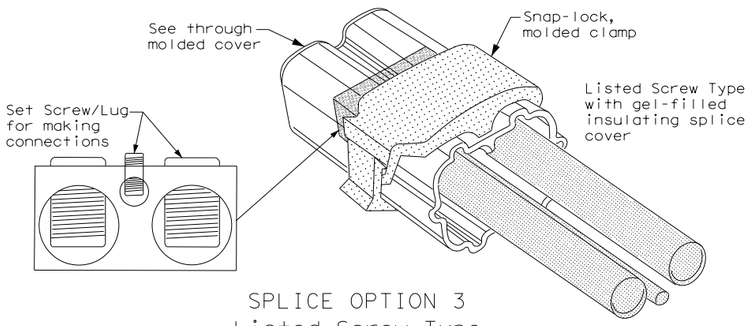
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
2. Do not place ground rods in the same drilled hole as a timber pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

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ELECTRICAL DETAILS CONDUCTORS

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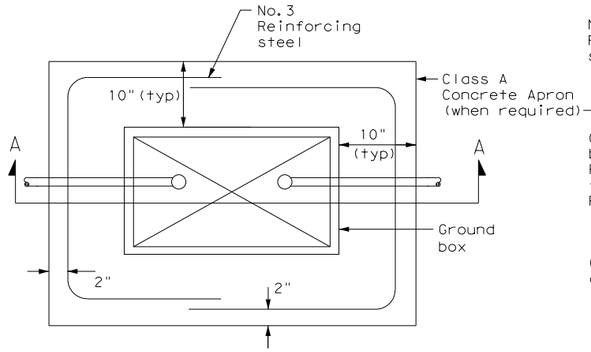
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		SA	MEDINA		

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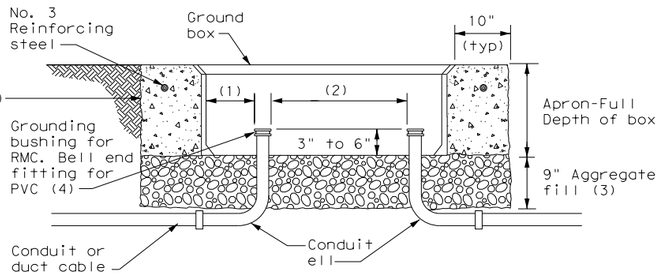
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PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

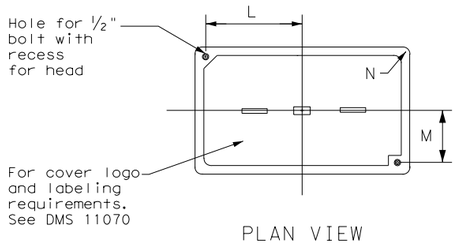
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

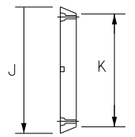
(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

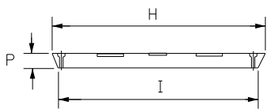
GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



END



SIDE

GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."

2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.

3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.

4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.

5. Temporarily seal all conduits in the ground box until conductors are installed.

6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.

7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.

10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
GROUND BOXES

ED(4)-14

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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

* ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

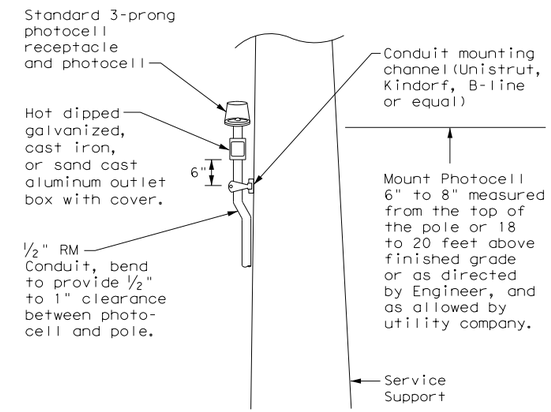
* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National ELectrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

- Schematic Type
- Service Voltage V / V
- Disconnect Amp Rating
  000 indicates main lug only/
  Typically Type T
- (SS)= Safety Switch Ahead of Meter-Check with Utility
  (NS)= No safety Switch Ahead of Meter-Check with Utility
- Enclosure Type
  GS= Galvanized steel("off the shelf")
  SS= Stainless steel(Custom Enclosure)See MPL
  AL= Aluminum (Custom Enclosure)See MPL
- Photocell Mounting Location
  (E)= Inside Service/Enclosure Mounted
  (T)= Top of pole
  (L)= Luminaire mounted
  (N)= None/No Photocell or Lighting Contactor Required
- Service Support Type
  GC= Granite concrete
  OC= Other concrete
  TP= Timber pole
  SP= Steel pole
  SF= Steel frame
  OT= Pole by others or paid for separately
  EX= Existing pole
  TS= Service on traffic signal pole
  PS= Pedestal Service
- O= Overhead Service Feed from Utility
  U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

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Traffic Operations Division Standard

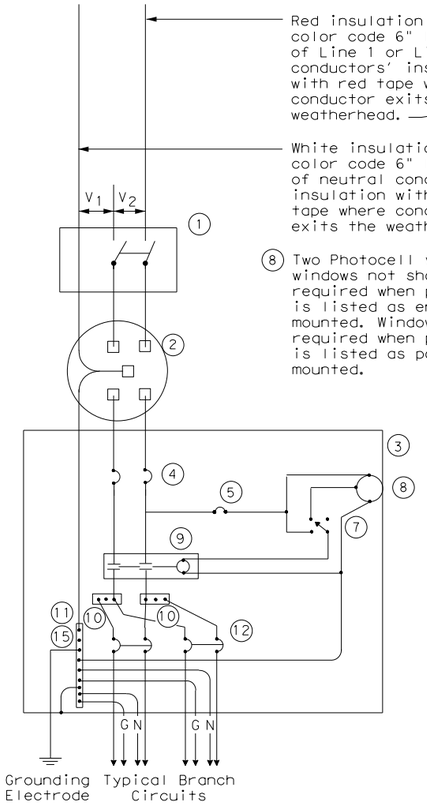
ELECTRICAL DETAILS SERVICE NOTES & DATA

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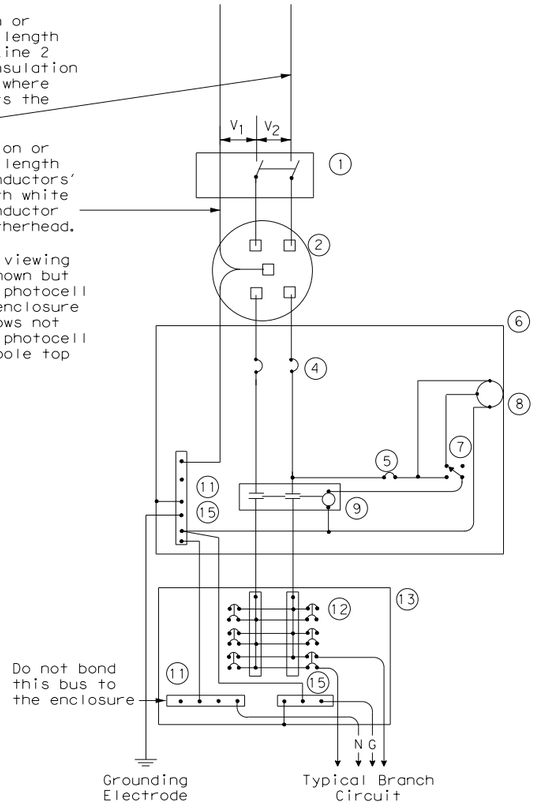
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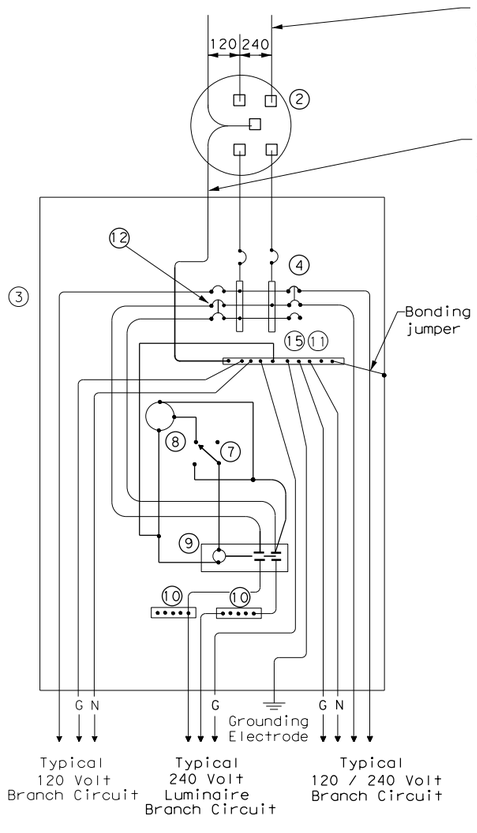
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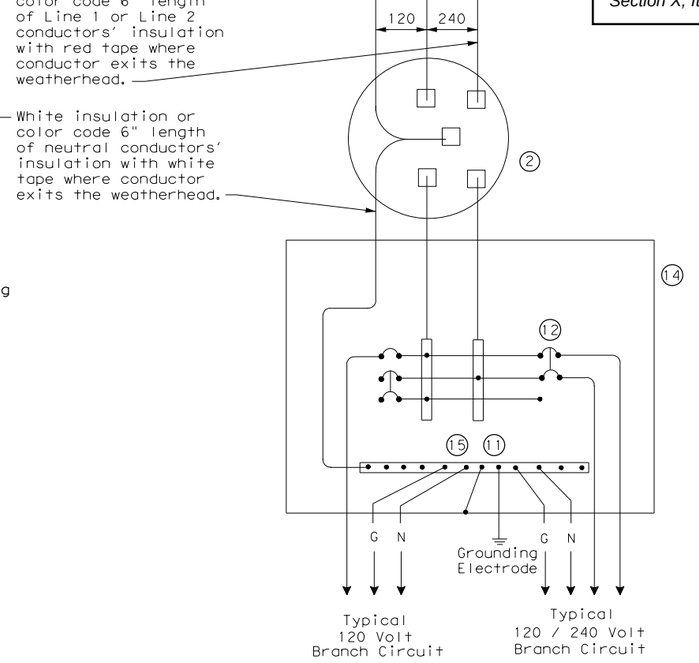
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE

Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
———	Power Wiring
———	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

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Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES

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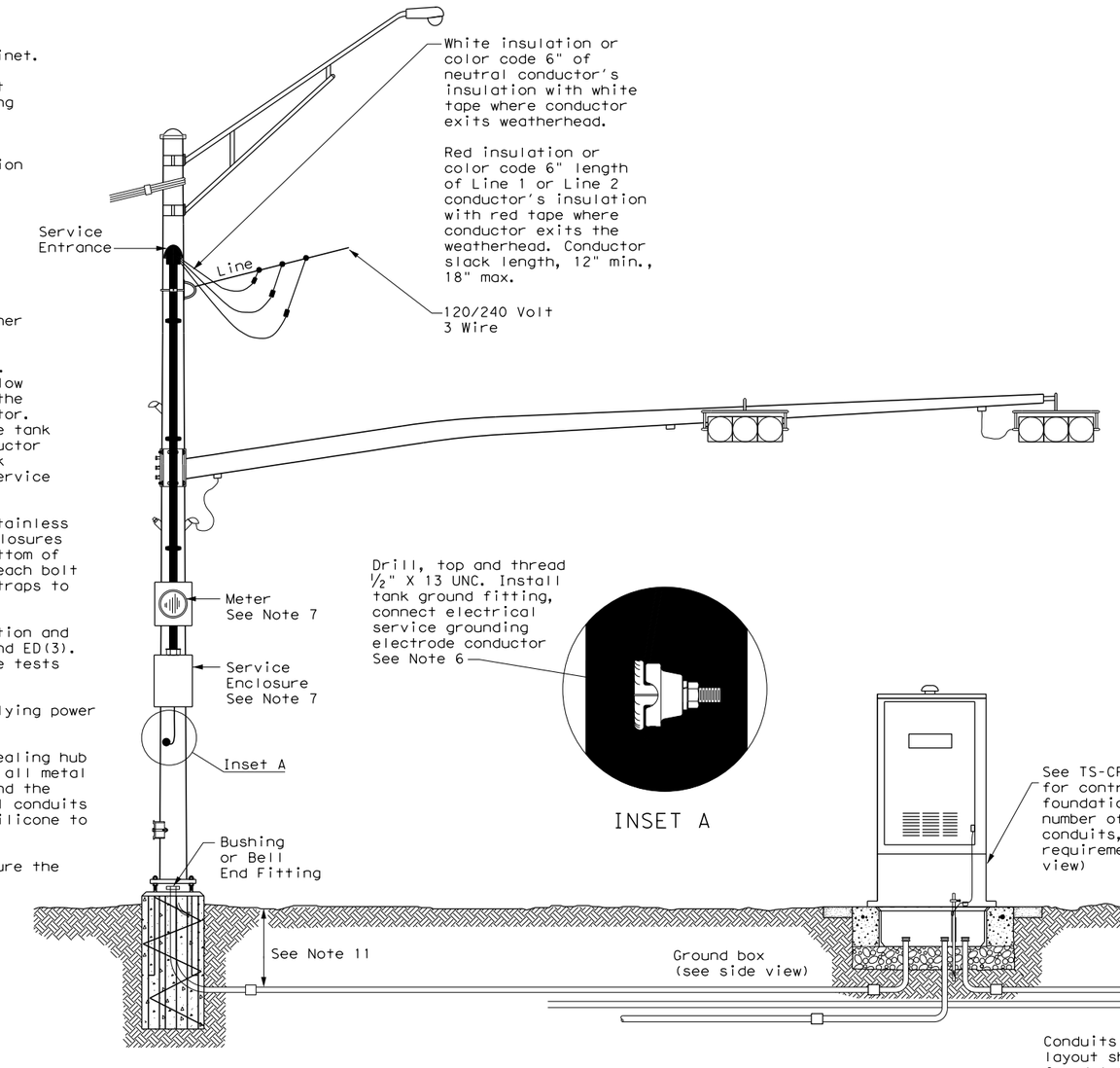
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TRAFFIC SIGNAL NOTES

1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".

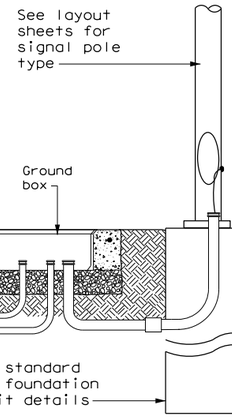


SIGNAL POLE WITH SERVICE

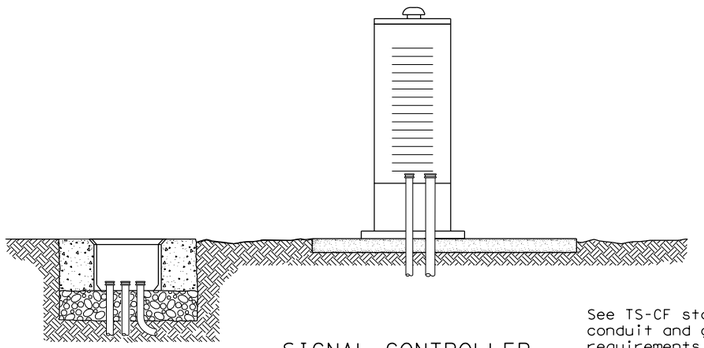
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

INSET A

SIGNAL CONTROLLER FRONT VIEW



SIGNAL POLE



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.

Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

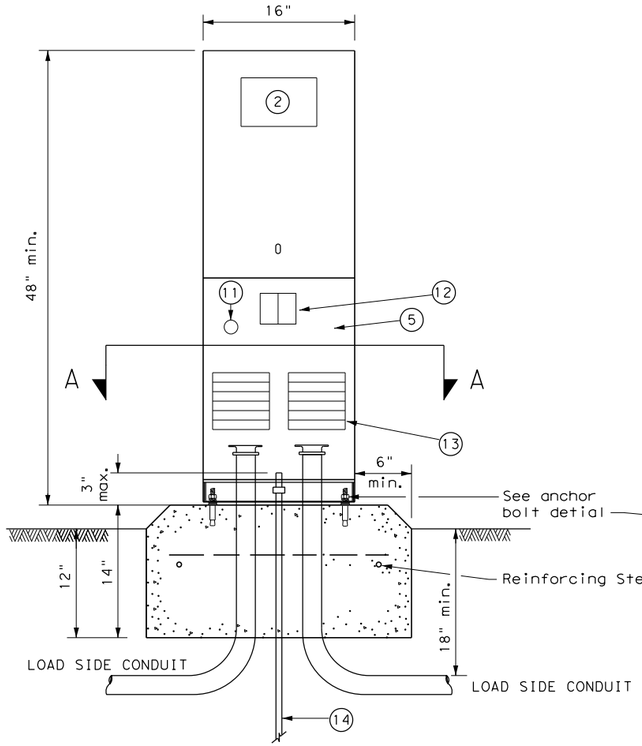
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install ½ in. X 2 ⁷⁄₁₆ in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

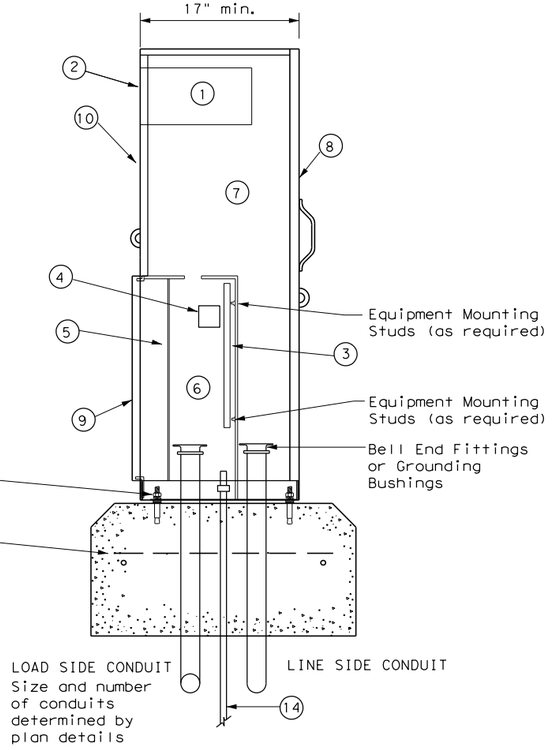
6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than ⅛ in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the department.

7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

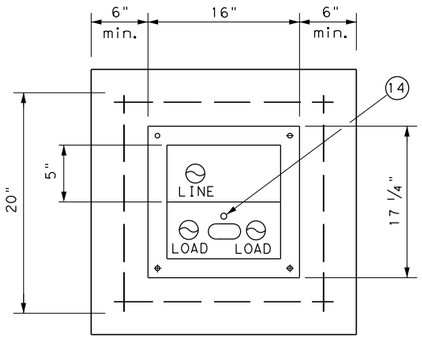


FRONT VIEW

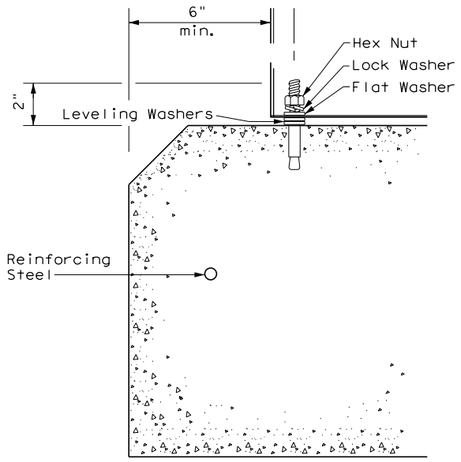


SIDE VIEW

TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS

ED(9)-14

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TIMBER POLE (TP) SERVICE SUPPORT NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627 "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Conduit and electrical conductors attached to the electrical service pole and underground within 12 in. of service pole are not paid for directly but are subsidiary to the electrial service.
3. Install pole-top mounted photocell (T) on north side of pole, or in service enclosure (E) as required. See Electrical Service Data chart in plan set.
4. Gain pole as required to provide flat surface for each channel. Gain timber pole to 5/8 in. max. depth and 1 7/8 in. max. height. Gain pole in a neat and workmanlike manner.
5. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 3/4 in. maximum depth, and 1½ in. to 1⅝ in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or SS lag bolts, ¼ in. minimum diameter by 1½ in. minimum length. Use a galvanized or SS flat washer on each lag bolt. Do not stack channel.
6. When excess length must be trimmed from poles, trim from the top end only.

(1) Class 5 pole, height as required

(2) Service drop from utility company (attached below weatherhead)

(3) Service conduit (RMC) and service entrance conductors - One Red, One Black, One White (See Electrical Service Data)

(4) Safety switch (when required)

(5) Meter (when required)

(6) Service enclosure

(7) 6 AWG bare grounding electrode conductor in ½ in. PVC to ground rod - extend ½ in. PVC 6 in. underground.

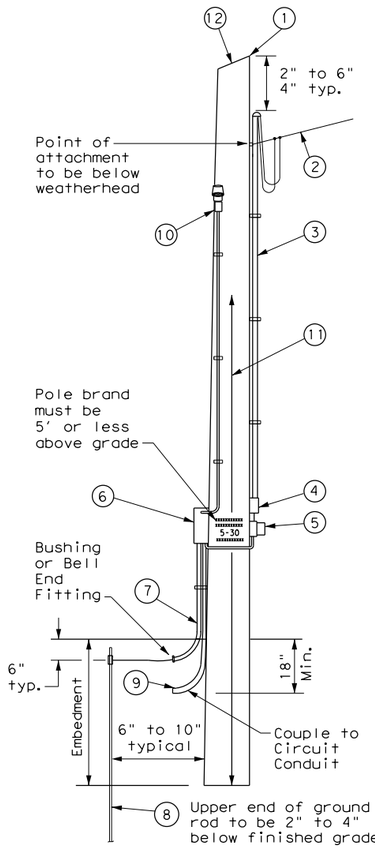
(8) 5/8 in. x 8 ft. Copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.

(9) RMC same size as branch circuit conduit.

(10) See pole-top mounted photocell detail on ED(5).

(11) When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.

(12) When required by utility, cut top of pole at an angle to enhance rain run off.

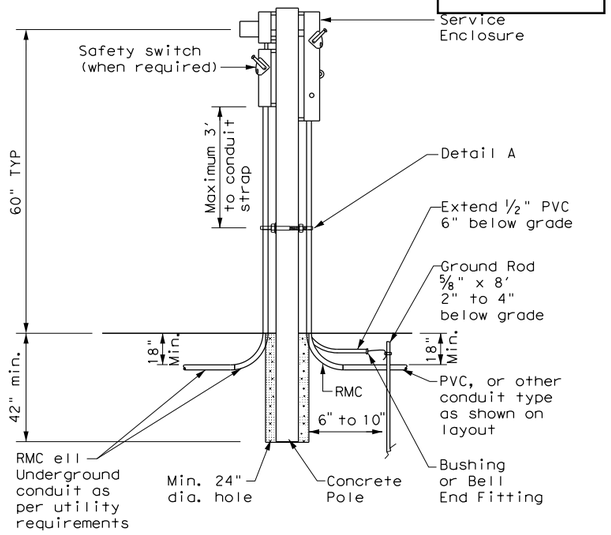


SERVICE SUPPORT TYPE TP (O)

GRANITE CONCRETE (GC) & OTHER CONCRETE (OC) NOTES

Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the following requirements.

1. Provide GC and OC poles that meet the requirements of DMS 11080 "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS 11080. Location of marking should be approximately 4' above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Ensure all installation details of services are in accordance with utility company specifications.
6. Install a one point rack or eye bolt bracket 6 inches to 12 inches below the weatherhead as an overhead service drop anchoring point for the electric utility.
7. Furnish and install galvanized or stainless steel channel strut 1 ½ in. or 1 ⅝ in. wide by 1 in. up to 3 ¾ in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1" depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.
8. Backfill the holes thoroughly by tamping in 6 in. lifts. After tamping to grade, place additional backfill material in a 6 inch high cone around the pole to allow for settling. Use material equal in composition and density to the surrounding area. Backfilling will not be paid for directly but is subsidiary to various bid items.

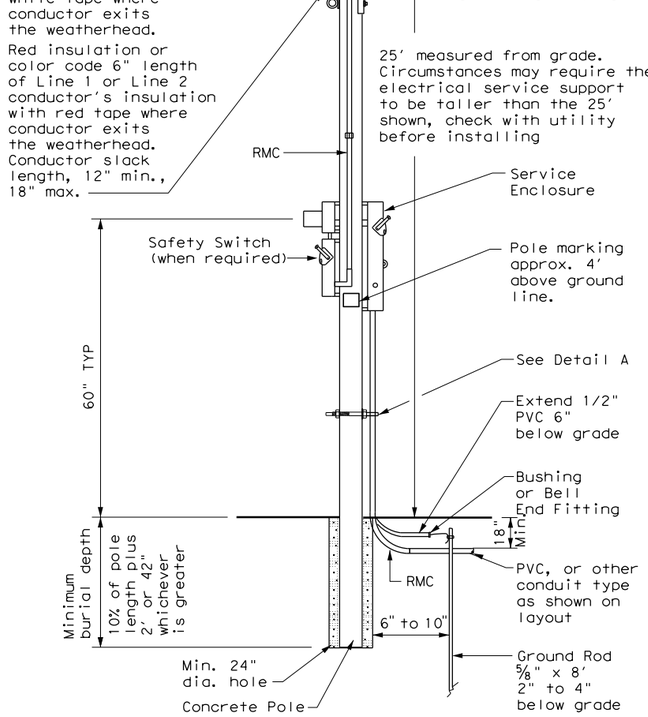


CONCRETE SERVICE SUPPORT

Underground (U)

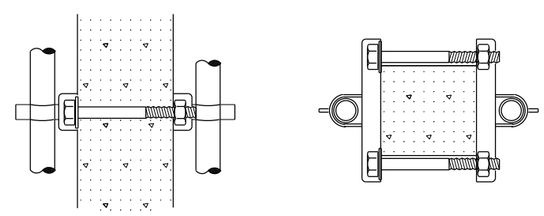
White Insulation or color code 6" length neutral conductor's insulation with white tape where conductor exits the weatherhead.

Red insulation or color code 6" length of Line 1 or Line 2 conductor's insulation with red tape where conductor exits the weatherhead. Conductor slack length, 12" min., 18" max.



CONCRETE SERVICE SUPPORT

Overhead (O)



DETAIL A

See Note 7. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP

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DUCT CABLE & HDPE CONDUIT NOTES

1. Provide duct cable in accordance with Departmental Material Specification (DMS) 11060 "Duct Cable" and Item 622 "Duct Cable." Provide duct cable as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 622.

2. Provide High-Density Polyethylene (HDPE) conduit in accordance with DMS 11060 and Item 618, "Conduit." Provide HDPE as listed on the MPL on the Department web site under "Roadway Illumination and Electrical Supplies," Item 618.

3. Supply duct cable with a minimum 2 in. diameter, unless otherwise shown in the plans. Provide duct cable and HDPE conduit as shown by descriptive code or on the plans. Bend duct cable and HDPE conduit as recommended by the manufacturer, with a minimum bending radius of 26 in. for 2 in. duct. Follow manufacturers' recommendations when handling duct cable and HDPE conduit reels and during installation of duct cable and HDPE conduit.

4. Do not splice conductors within duct cable or HDPE conduit. Couple duct cable and HDPE entering a ground box or foundation to a PVC elbow. When galvanized steel RMC elbows are called for in the plans and any portion of the RMC elbow is buried less than 18" from possible contact, ground the RMC elbow.

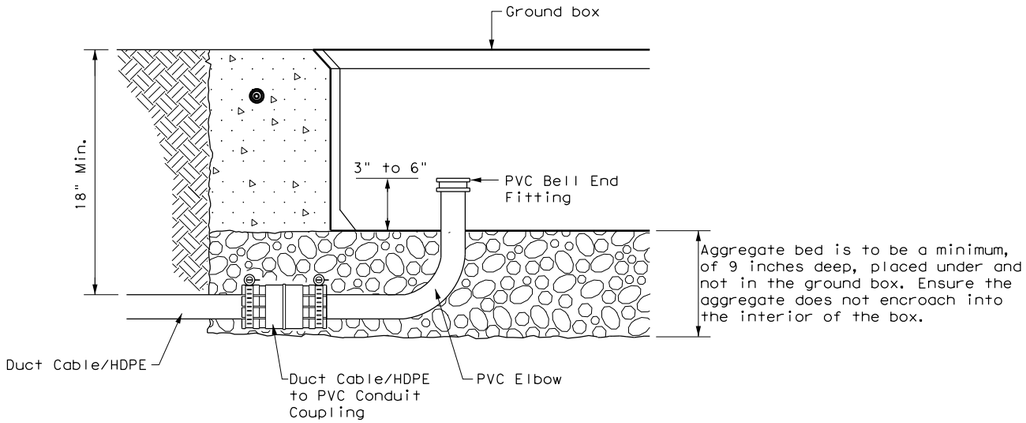
5. Furnish and install duct cable with factory installed conductors, sized as shown in the plans and as required by the National Electrical Code (NEC). The NEC contains specific requirements for duct cable in Article, "Nonmetallic Underground Conduit with Conductors: Type NUCC."

6. When conduit casing is called for in the plans, extend duct cable or HDPE conduit through the conduit casing in one continuous length without connection to the casing.

7. Seal the ends of duct cable or HDPE conduit with duct seal, expandable foam, or other approved method after completing the pull tests required by Item 622.

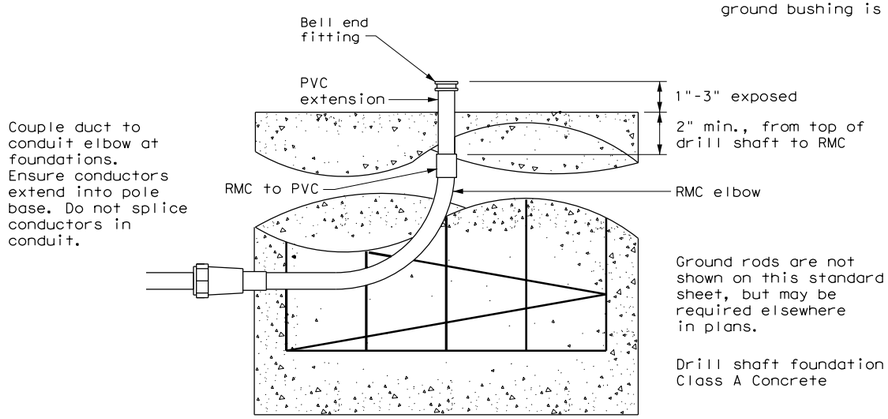
8. Provide minimum cover of 24 in. under roadways, 18 in. in other locations, or as shown on the plans.

9. Furnish and install listed fittings to couple duct cable or HDPE conduit to other types of conduit. Duct cable and HDPE conduit may be field-threaded and spliced with PVC or RMC threaded couplings; connected with listed tie-wrap fittings; connected using listed coupling made of HDPE with stainless steel external banding clamps and locking rings; connected with approved electrofusion conduit couplings; or connected using an approved chemical fusion method using an epoxy or adhesive specifically designed for HDPE couplings and connectors all installed in accordance with their manufacturer's instructions. Do not use PVC glue on HDPE. Do not use water pipe fittings, or connect conduit with heat shrink tubing.

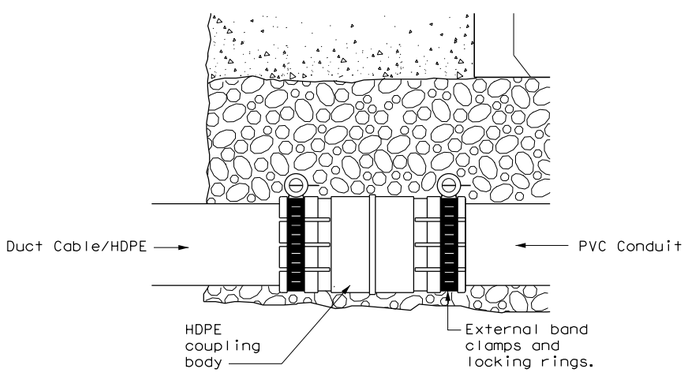


DUCT CABLE/HDPE AT GROUND BOX

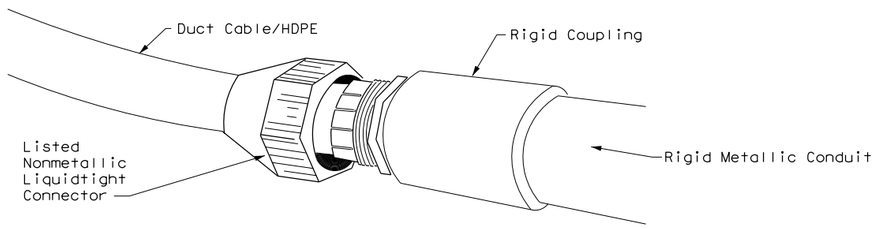
When the upper end of an RMC Ell does not enter the ground box, it may be extended with a SCH-40 PVC conduit nipple and bell end, provided there is a minimum of 18" of cover over all parts of the elbow. If not, a rigid extension and ground bushing is required.



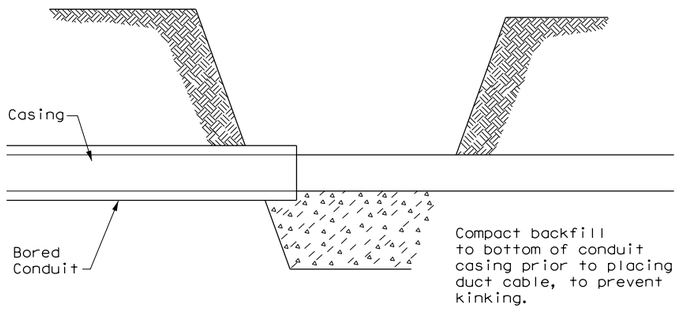
DUCT CABLE / HDPE AT FOUNDATION



DUCT CABLE/HDPE TO PVC



DUCT CABLE/HDPE TO RMC



BORE PIT DETAIL

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
DUCT CABLE/ HDPE CONDUIT

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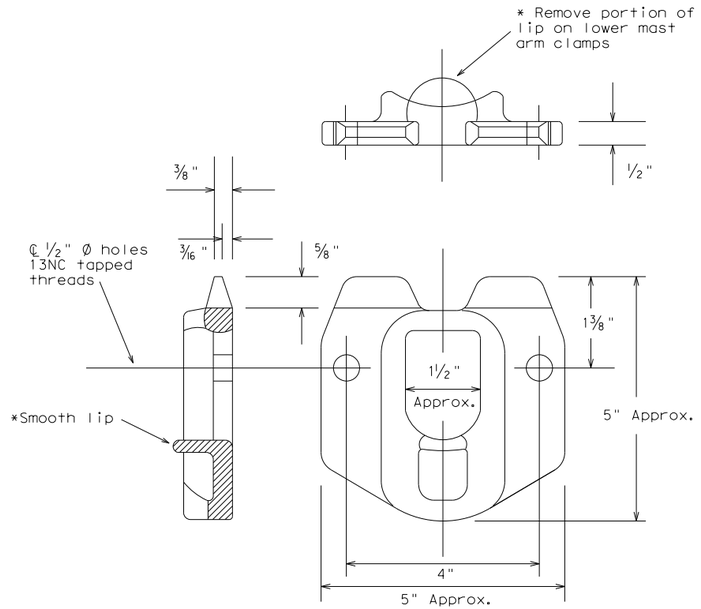
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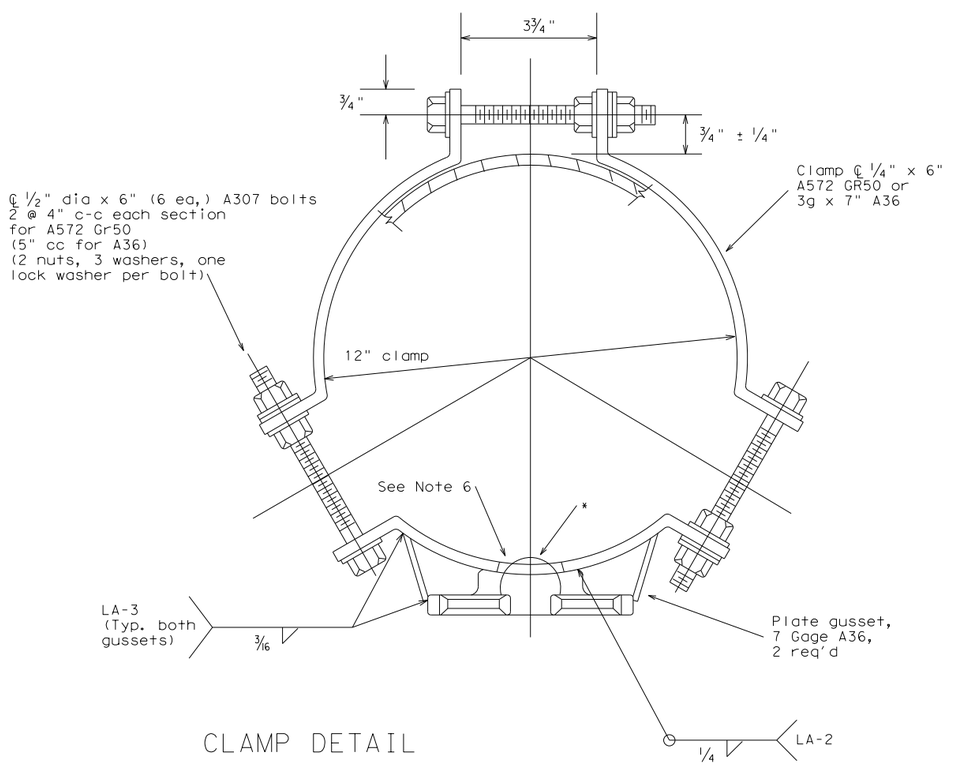
POLE SIMPLEX DETAILS

OTHER MATERIALS:

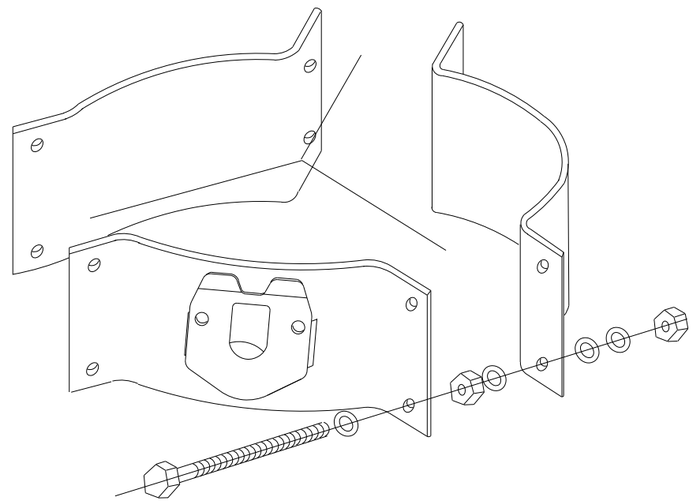
1. Pole simplex shall be ASTM A27 GR65-35 or A148 GR80-50 or A576 GR1021. ASTM A576 must be suitable for forging and also meet minimum tensile of 65ksi, minimum yield of 35ksi, and a minimum elongation of 22 percent in 2 inches.
2. Welded tabs and backplates shall be ASTM A-36 steel or better.
3. Nylon insert locknuts shall conform to ASTM A563.

GENERAL NOTES:

1. Materials and fabrication shall be in accordance with Standard Sheet "MA-C" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absence of specified fabrication tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.
2. All parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing". The throat of the Simplex shall be made free of all rough or sharp edges resulting from the galvanizing process.
3. Each simplex fitting shall be supplied with 2 ASTM A325 bolts, 1/2in. X 1 1/2in. and 2 lock washers. The bolts and lock washers shall be secured to the clamp with the other hardware items. The Fabricator shall ship clamp assembly together in a single package, including all bolts, nuts, and washers required for the clamp and simplex fitting.
4. Design conforms to 1994 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interim revisions thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Clamps are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq.ft.,12 ft. maximum arm length.
5. Each assembly shall consist of one upper piece simplex fitting having a smooth lip and one lower piece simplex fitting with the lip removed.
6. Approximately 2 in. diameter hole in upper mast arm clamp.



CLAMP DETAIL



PROJECTION

For 8.9 - 12 inch diameter Signal Poles
(Two req'd for each mast arm)

Texas Department of Transportation
Traffic Operations Division

CLAMP ON FITTING ASSEMBLY FOR LUMINAIRE MAST ARM

CFA-12

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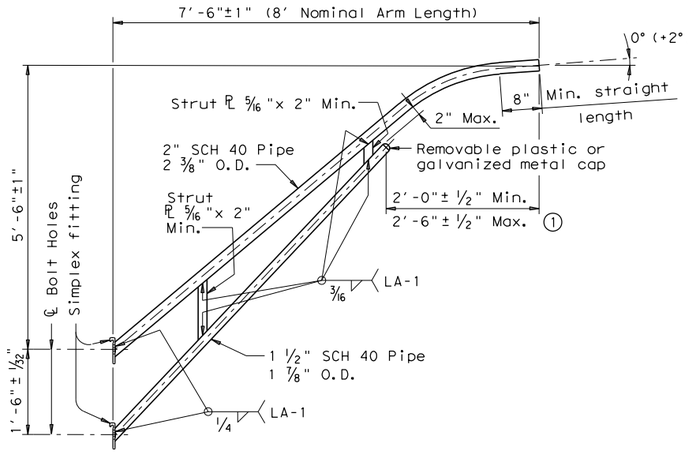
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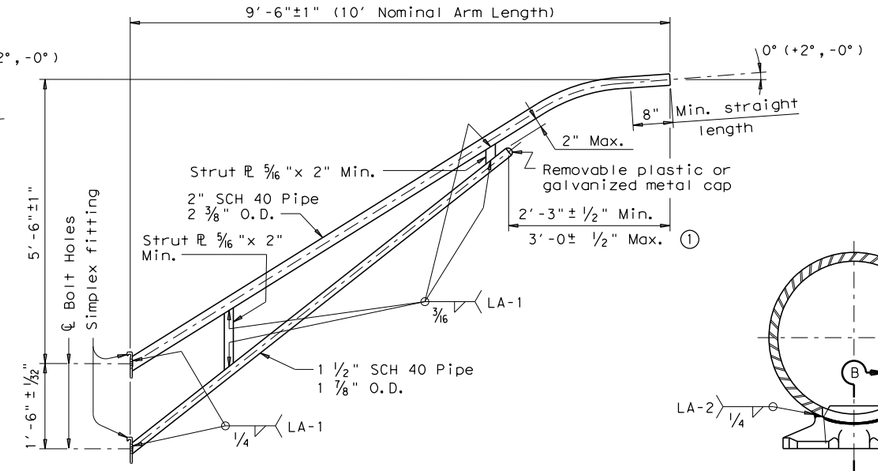
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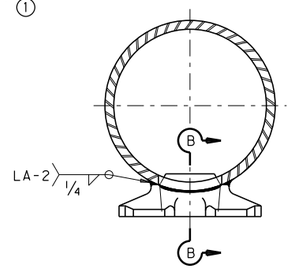
MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr.65-35 or A148 Gr. 80-50, A576 Gr.1021 ③, or A36 (Arm
Arm Pipes	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50 ④, or A1011 HSLAS-F Gr.50 ④
Arm Strut Plates ②	ASTM A36, A572 Gr.50 ④, or A588
Misc.	ASTM designations as noted



8-FOOT LUMINAIRE ARM



10-FOOT LUMINAIRE ARM



DIRECT ATTACHMENT DETAIL

① Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified tolerances.

② Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

③ A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

④ ASTM A572, A1008 HSLAS-F, and A1011 HSLAS-F may have higher yield strengths but shall not have less elongation than the grade indicated.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 90 mph plus a 1.3 gust factor. Arms are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq. ft.

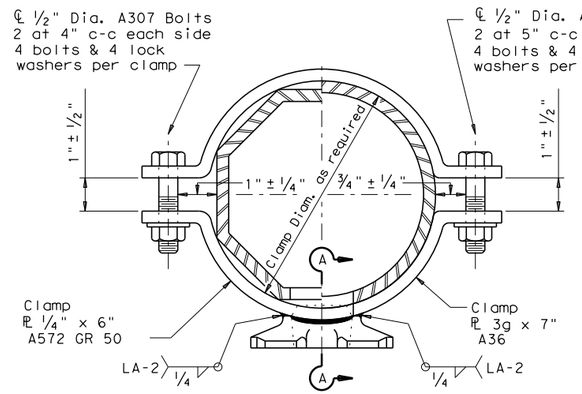
Materials and fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. In the absense of specified Fabricaton tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.

Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

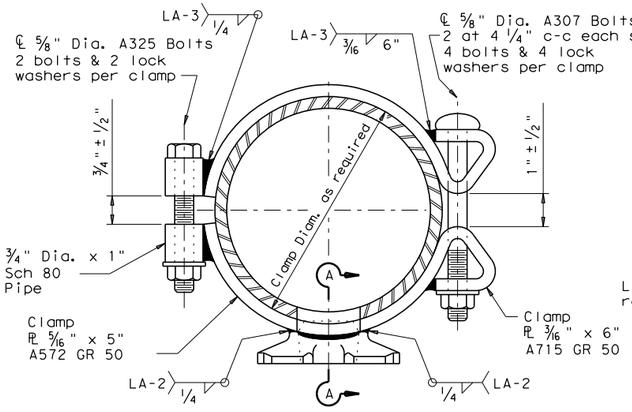
Each pole simplex fitting shall be supplied with 2 ASTM A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans.

If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



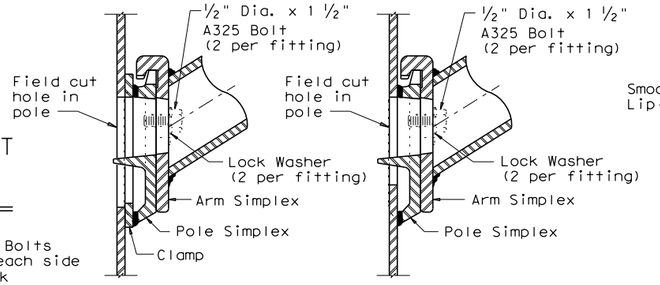
CLAMP ATTACHMENT DETAIL NO. 1 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO. 2 (HALF SECTION)



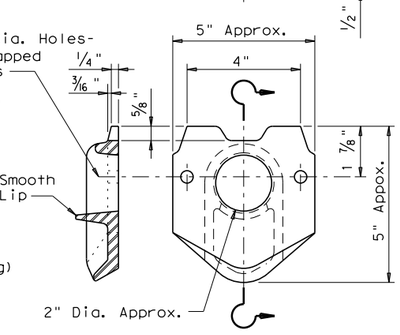
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CLAMP ATTACHMENT DETAIL NO. 4 (HALF SECTION)

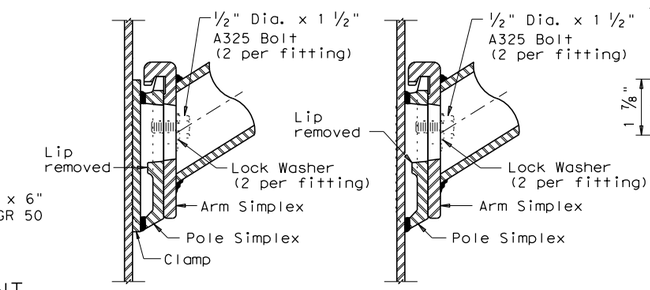


UPPER SIMPLEX FITTING

UPPER SIMPLEX FITTING



POLE SIMPLEX DETAIL

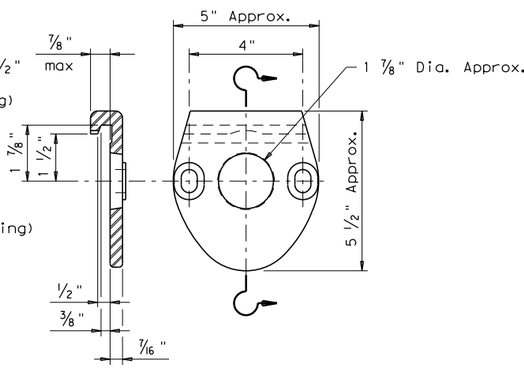


LOWER SIMPLEX FITTING

LOWER SIMPLEX FITTING

SECTON A-A

SECTON B-B



ARM SIMPLEX DETAIL

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY DRAWINGS FOR LUMINAIRE SUPPORT STRUCTURES

ARM DETAILS

LUM-A-12

© TxDOT August 1995

DN: LEH	CK: JSY	DW: LTT	CK: TEB

REVISIONS
5-96
1-99
1-12

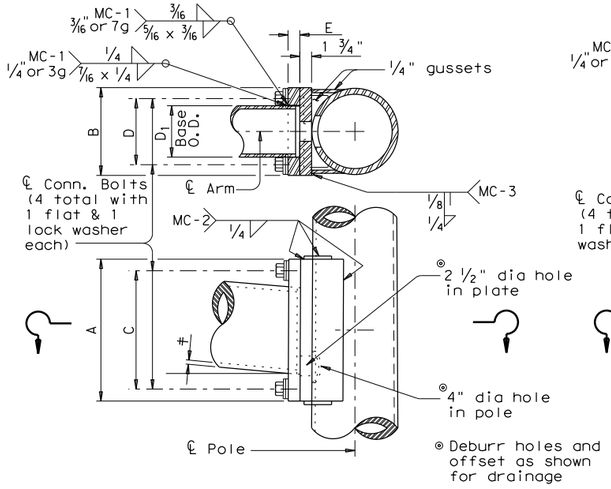
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DIST	COUNTY		
SA	MEDINA		165

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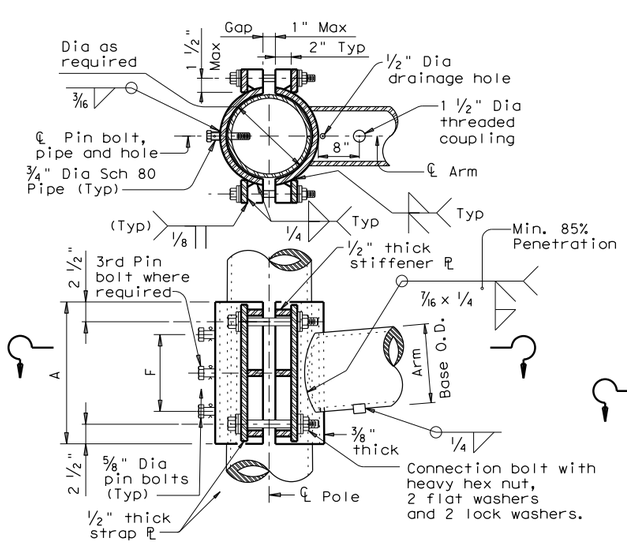
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ARM SIZE D_1 in.	ARM SIZE ǂ in.	A in.	B in.	C in.	D in.	E in.	CONN BOLT DIA in.
6.5	.179	12	9	9	6	1 ¾	1
7.5	.179	13	9	10	6	1 ¾	1
8.0	.179	14	10	11	7	2	1 ¼
9.0	.179	16	11	13	8	2	1 ¼
9.5	.179	17	12	14	9	2	1 ¼
9.5	.239	18	12	15	9	2	1 ¼
10.0	.239	18	12	15	9	2	1 ¼
10.5	.239	18	13	15	10	3	1 ½
11.0	.239	18	13	15	10	3	1 ½



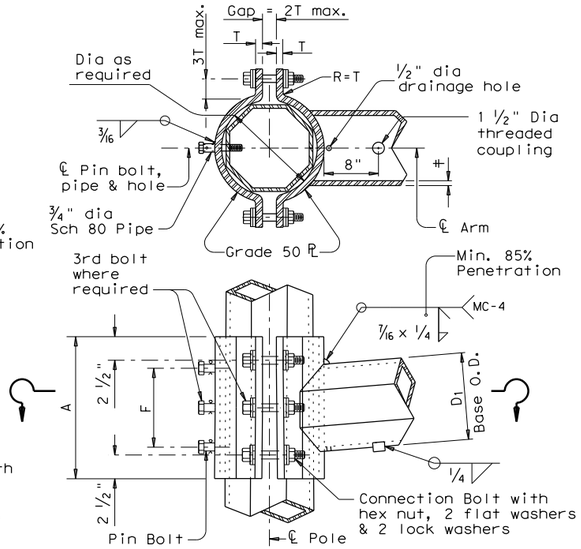
FIXED MOUNT DETAIL 1

ARM SIZE D_1 in.	ARM SIZE ǂ in.	A in.	F in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
6.5	.179	12	6	4	1	2	5/8
7.5	.179	14	8	4	1	2	5/8
8.0	.179	14	8	4	1	2	5/8
9.0	.179	16	10	4	1	2	5/8
9.5	.179	18	12	4	1 ¼	3	5/8
9.5	.239	18	12	4	1 ¼	3	5/8
10.0	.239	18	12	4	1 ¼	3	5/8



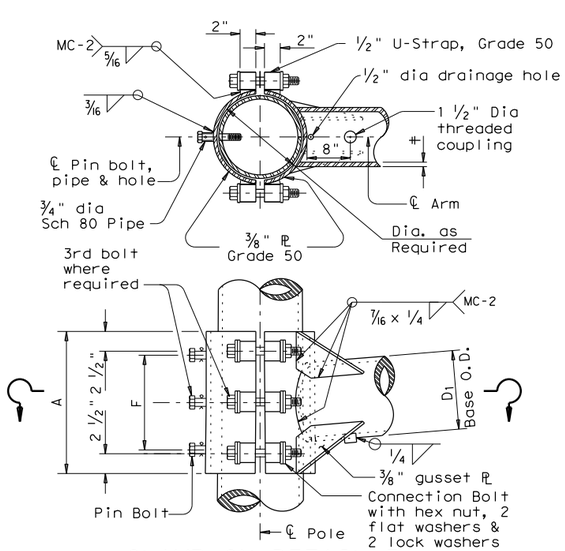
CLAMP-ON DETAIL 1

ARM SIZE D_1 in.	ARM SIZE ǂ in.	A in.	F in.	T in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
7.0	.179	12	6	¾	4	¾	2	5/8
7.5	.179	14	8	¾	4	¾	2	5/8
8.0	.179	14	8	¾	4	¾	2	5/8
9.0	.179	16	10	⅞	4	1	2	5/8
10.0	.179	18	10	⅞	4	1	2	5/8
9.5	.239	18	10	1	6	1	3	5/8
10.0	.239	18	10	1	6	1	3	5/8

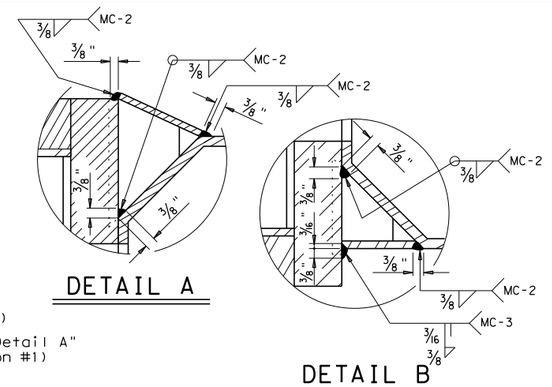


CLAMP-ON DETAIL 2

ARM SIZE D_1 in.	ARM SIZE ǂ in.	A in.	F in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
6.5	.179	12	6	4	1	2	5/8
7.5	.179	14	8	4	1	2	5/8
8.0	.179	14	8	4	1	2	5/8
9.0	.179	16	10	4	1	2	5/8
9.5	.179	18	12	6	1	3	5/8
9.5	.239	18	12	6	1	3	5/8
10.0	.239	18	12	6	1	3	5/8

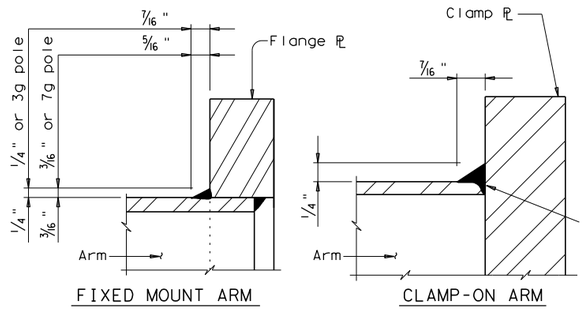


CLAMP-ON DETAIL 3



DETAIL A

DETAIL B



FIXED MOUNT ARM

CLAMP-ON ARM

ARM BASE WELD DETAILS

ARM SIZE D_1 in.	ARM SIZE ǂ in.	A in.	F in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
6.5	.179	12	6	4	1	2	5/8
7.5	.179	14	8	4	1	2	5/8
8.0	.179	14	8	4	1	2	5/8
9.0	.179	16	10	4	1	2	5/8
9.5	.179	18	12	6	1	3	5/8
9.5	.239	18	12	6	1	3	5/8
10.0	.239	18	12	6	1	3	5/8

MATERIALS

Round Shafts or Polygonal Shafts ①	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, or A1011 SS Gr.50 ②
Plates ①	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325 or A449, except where noted
Pin Bolts	ASTM A325
Pipe ①	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

① ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

② ASTM A1011 SS Gr.50 material shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies. A Maximum 1 ½" wide vertical slotted hole shall be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1"

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and ¾" dia pipe shall have 5/16" dia holes for a 1/8" dia galvanized cotter pin. Back clamp plate shall be furnished with a ¾" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST ARM CONNECTIONS

MA-C-12

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DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS: 5-96, 5-09, 1-12

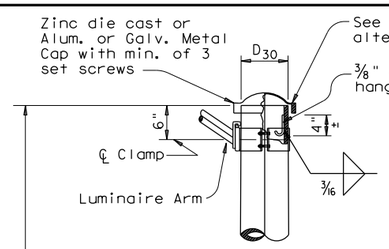
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24	6		
DIST	COUNTY		
SA	MEDINA		

406

164

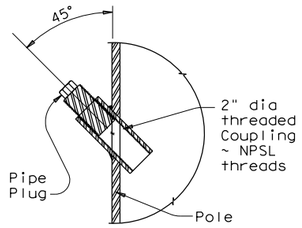
126A

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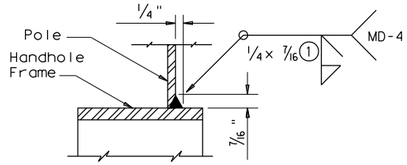


DETAIL A

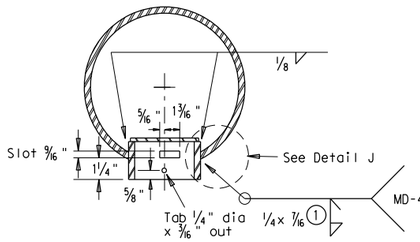
(for pole with luminaire)



POLE COUPLING DETAIL

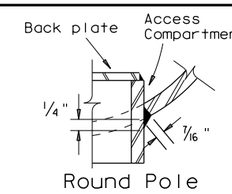


DETAIL G

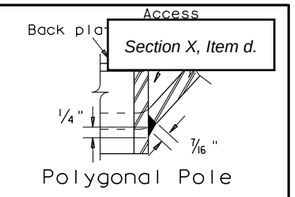


SECTION X-X

Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.

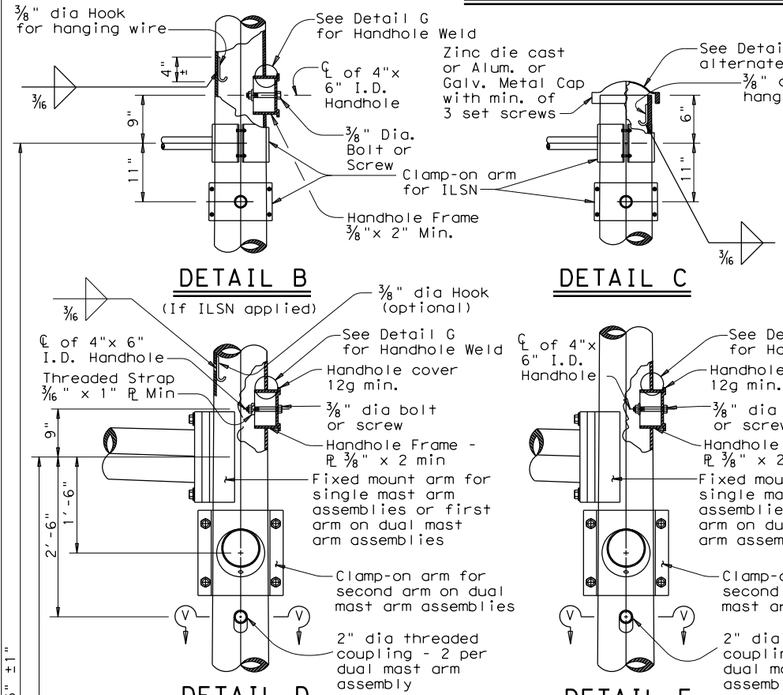


Round Pole



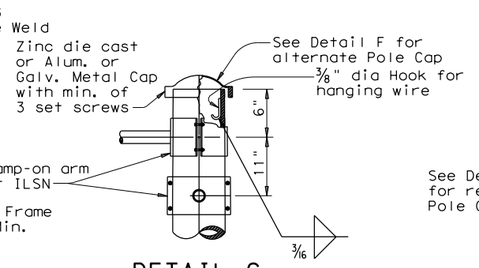
Polygonal Pole

DETAIL J

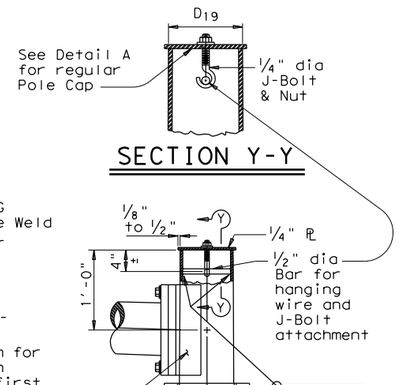


DETAIL B

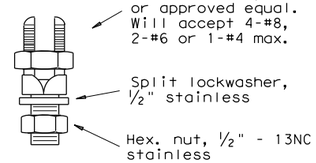
(If ILSN applied)



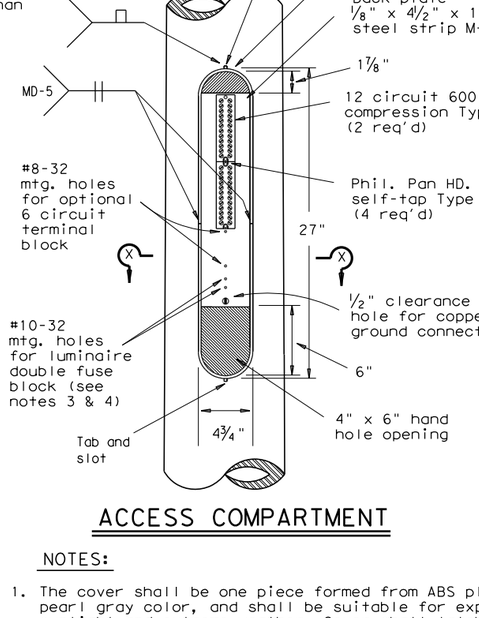
DETAIL C



SECTION Y-Y



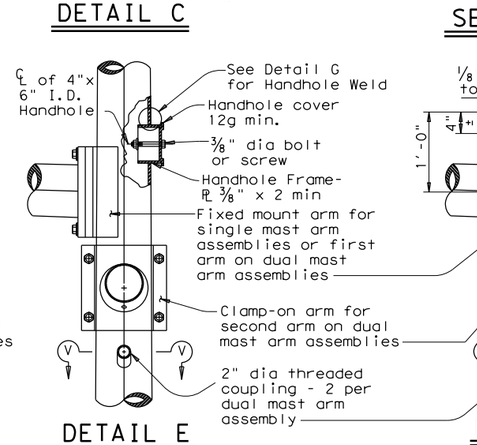
COPPER GROUND CONNECTOR



ACCESS COMPARTMENT

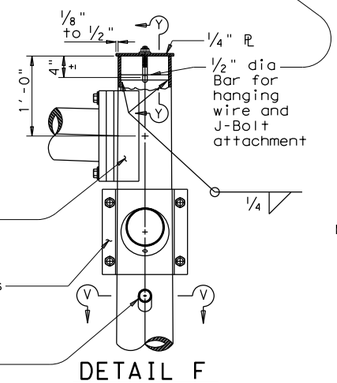
DETAIL D

(for 30' pole with luminaire and ILSN sign)



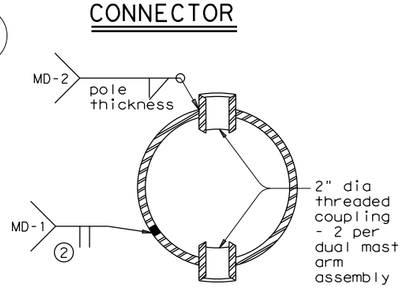
DETAIL E

(for 24' pole with ILSN sign and no luminaire)

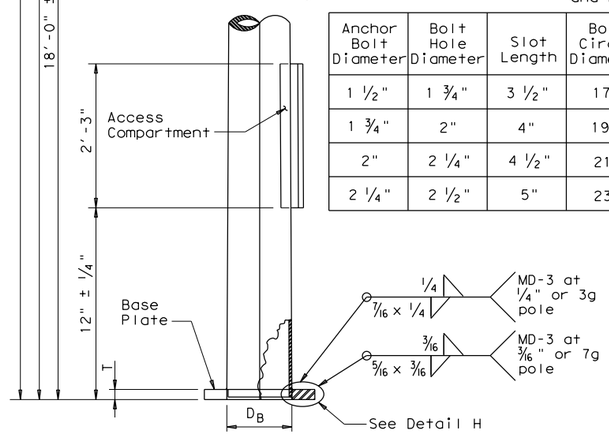


DETAIL F

(for 19' pole with no ILSN sign and no luminaire)

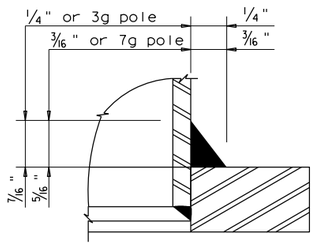


SECTION V-V

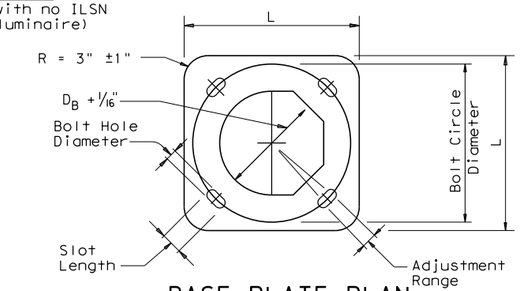


POLE ELEVATION

Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base ℞ Dim. L x T	Adjust. Range
1 1/2"	1 3/4"	3 1/2"	17"	18" x 1 1/2"	13.4°
1 3/4"	2"	4"	19"	20" x 1 3/4"	13.5°
2"	2 1/4"	4 1/2"	21"	22" x 2"	13.6°
2 1/4"	2 1/2"	5"	23"	24" x 2 1/4"	13.7°



DETAIL H



BASE PLATE PLAN

(1) 85% Min. penetration

(2) 60% Min. penetration 100% pemetration within 6" of circumferential base welds.

NOTES:

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

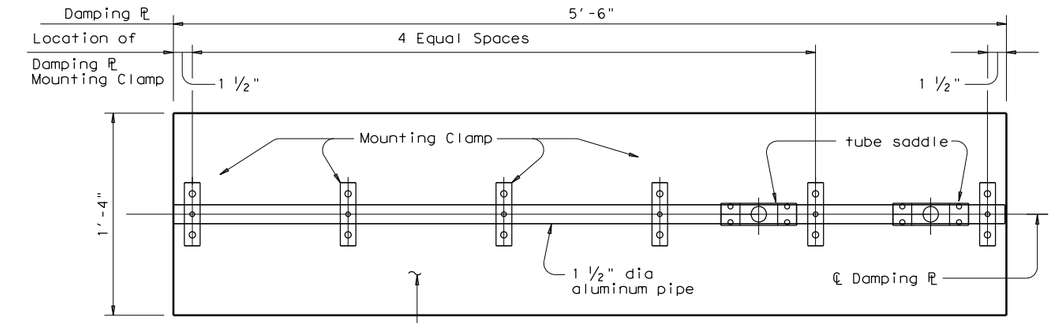
MA-D-12

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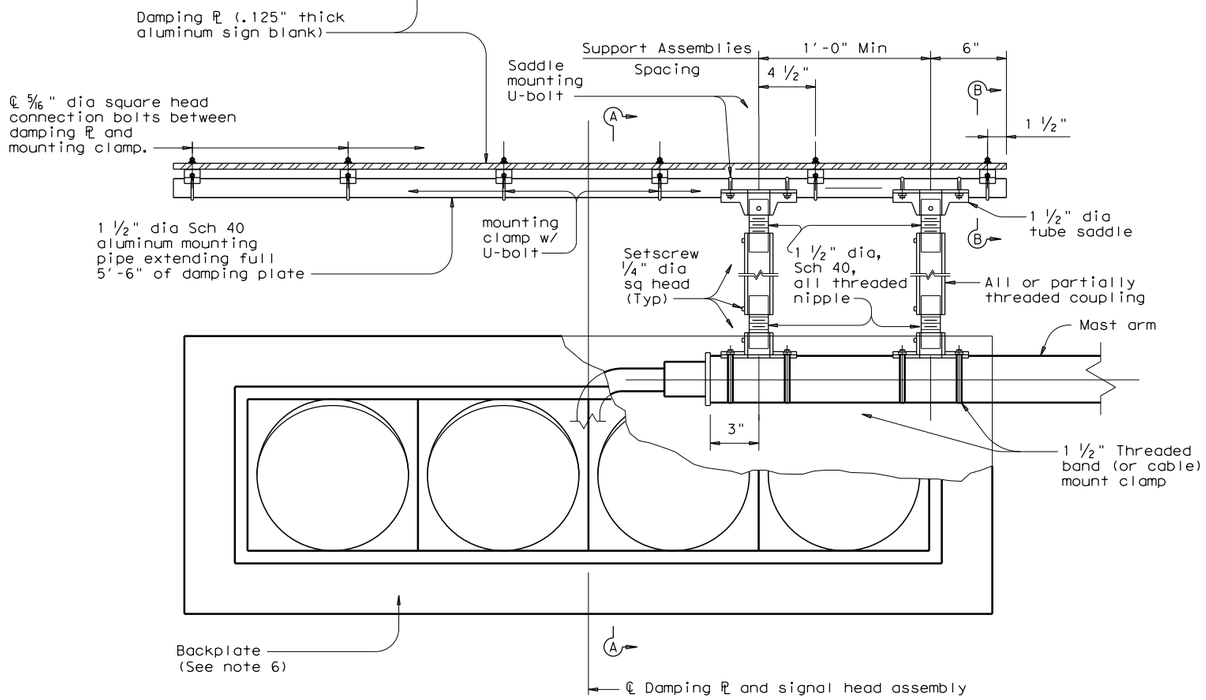
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	24	6		407
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	SA	MEDINA		165

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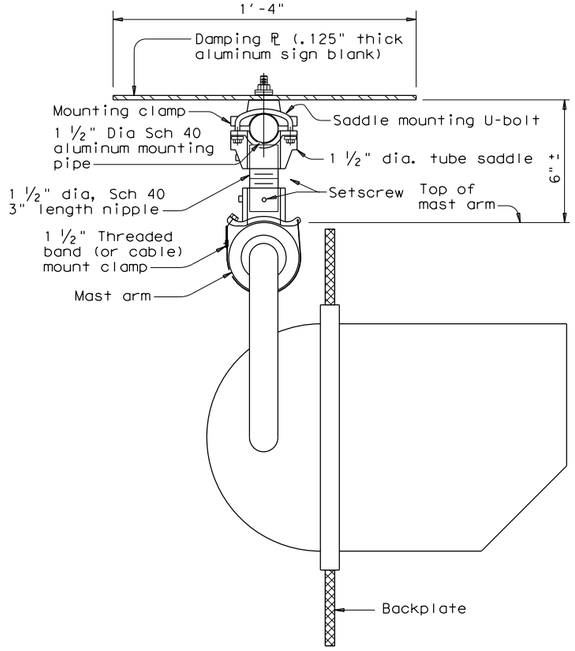
PLAN



ELEVATION

DAMPING PLATE MOUNTING DETAILS

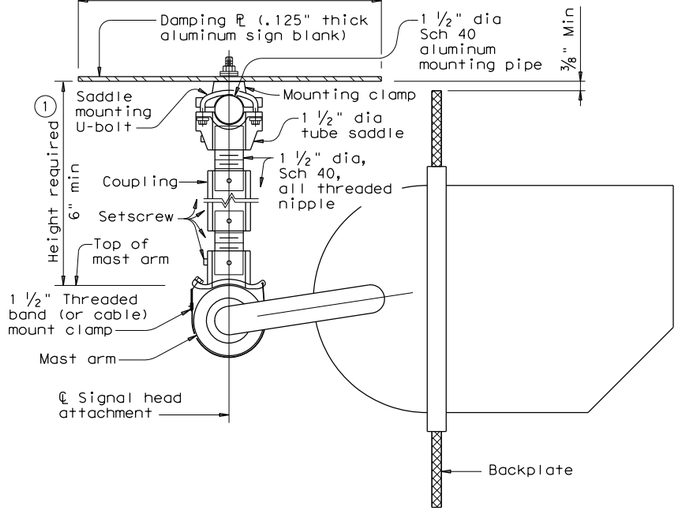
(Showing alternate placement of signal head)



SECTION A-A

(Showing standard placement of signal head)

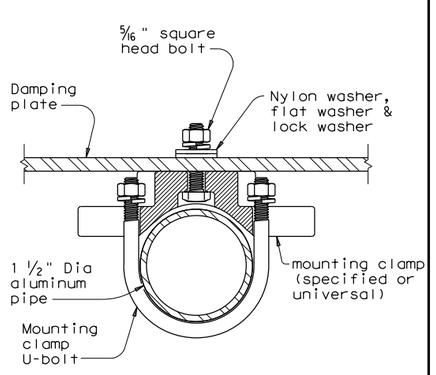
(Mounting clamp U-bolt is not shown for clarity)



SECTION A-A

(Showing alternate placement of signal head)

(Mounting clamp U-bolt is not shown for clarity)



SECTION B-B

(Showing damping plate attachment)

① Recommended supporting assemblies to achieve required height for horizontal section heads			
Height required	One nipple each length	Two nipples each length plus	One coupling each length
6"-6 ¾"	3"	-	-
7"-8 ½"	4"	-	-
9"-10 ½"	6"	-	-
11"-15 ½"	-	4"	5"
16"-24"	-	6"	10"

GENERAL NOTES:

1. In accordance with the findings of TxDOT research, the installation of a damping plate in accordance with the details shown here at the end of signal mast arms of SMA and DMA standard structures reduces excessive harmonic vertical vibration, and thus fatigue damage. Any deviation from these details may reduce the effectiveness of this damping device.
2. Aluminum sign blank for damping plate will conform to Departmental Material Specifications DMS-7110. Materials for mast arm mounting clamp and tube saddle will be aluminum castings or aluminum alloys as in accordance with manufacturers' stipulations. Mounting pipe, pipe nipple and coupling will be aluminum alloy 6061-T6 or 6063-T6. Damping plate mounting clamp and u-bolt assemblies will conform to Standard sheet SMD(GEN). U-bolts for saddle mounting will have a minimum yield strength of 36 ksi.
3. Damping plate will be mounted horizontally. Position centerline of damping plate to align with centerline of mast arm or horizontal signal head assembly. Vertical clearance between signal head (with or without backing plate)and bottom of damping plate will be maintained as shown. The attachments shown here are examples only, other supporting details which meet both alignment and vertical clearance requirements are also acceptable.
4. Unless stipulated by the manufacturers, all steel parts will be galvanized finish in accordance with Standard Specification Item 445, "Galvanizing".
5. Contractor will verify applicable field dimensions before the installation.
6. Backplates are optional for traffic signals. When backplates are used, Backplates will have a 2-inch fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 "Sign Face Materials." See Sheet TS-BP-20 for backplate details.

Texas Department of Transportation

Traffic Safety Division Standard

MAST ARM DAMPING PLATE DETAILS

MA-DPD-20

FILE: ma-dpd-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
6-20	DIST	COUNTY		
	SA	MEDINA		

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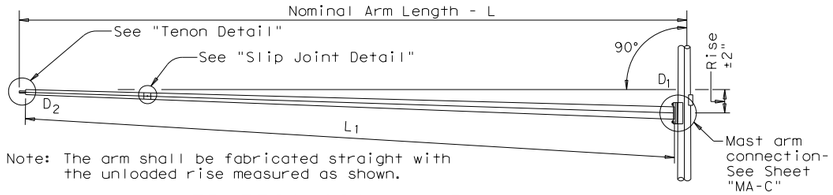
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"
48	47.0	10.5	4.1	.239	3′-4"	47.0	11.0	3.5	.239	2′-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

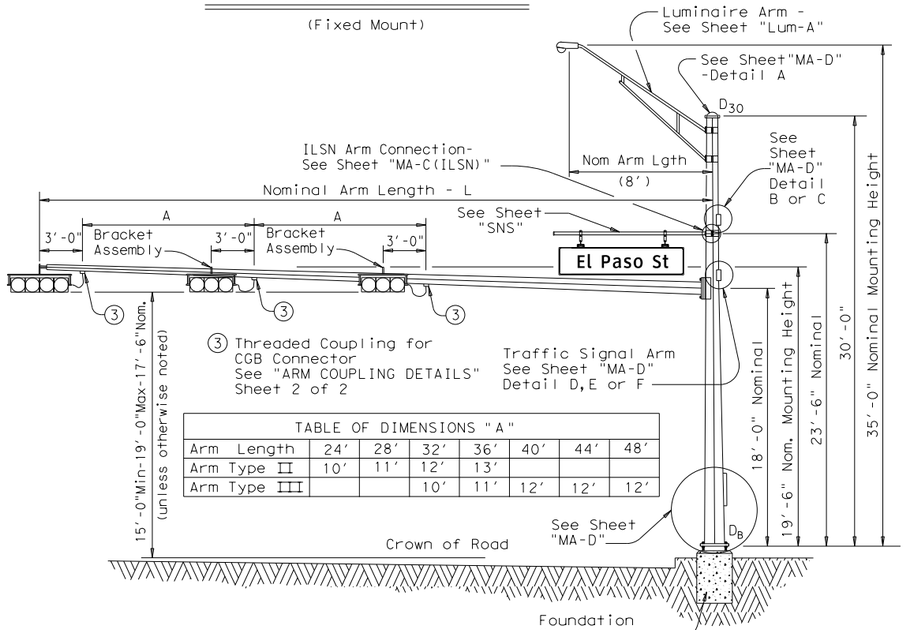


TABLE OF DIMENSIONS "A"							
Arm Length	24′	28′	32′	36′	40′	44′	48′
Arm Type II	10′	11′	12′	13′			
Arm Type III			10′	11′	12′	12′	12′

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Section X, Item d.

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80	1	20S-80		20-80	
24	24L-80	2	24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80	1	36S-80		36-80	
40	40L-80	1	40S-80		40-80	1
44	44L-80		44S-80		44-80	
48	48L-80	2	48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80	1				
24	24I-80		24II-80	2		
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	1
40					40III-80	2
44					44III-80	
48					48III-80	2

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	7

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	3
1 ¾"	3′-10"	5

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

SHEET 1 OF 2

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

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DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

409

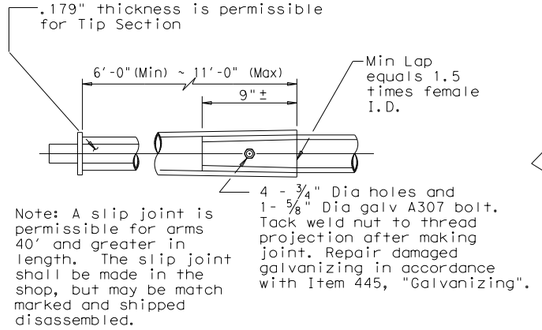
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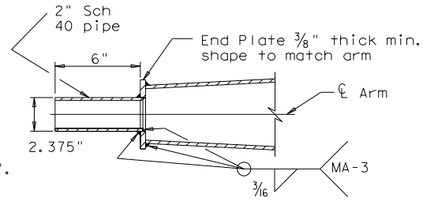
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SLIP JOINT DETAIL



TENON DETAIL

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

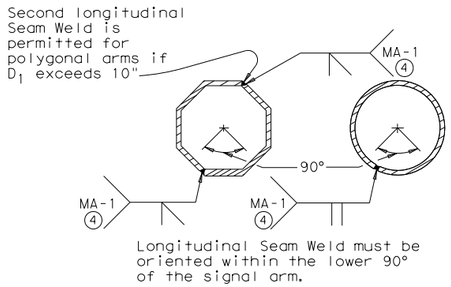
If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

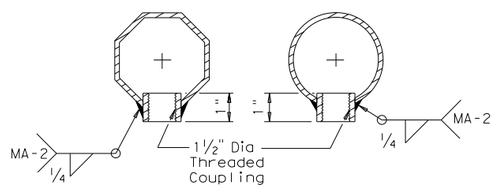
Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

④ 60% Min. penetration 100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(2)-12

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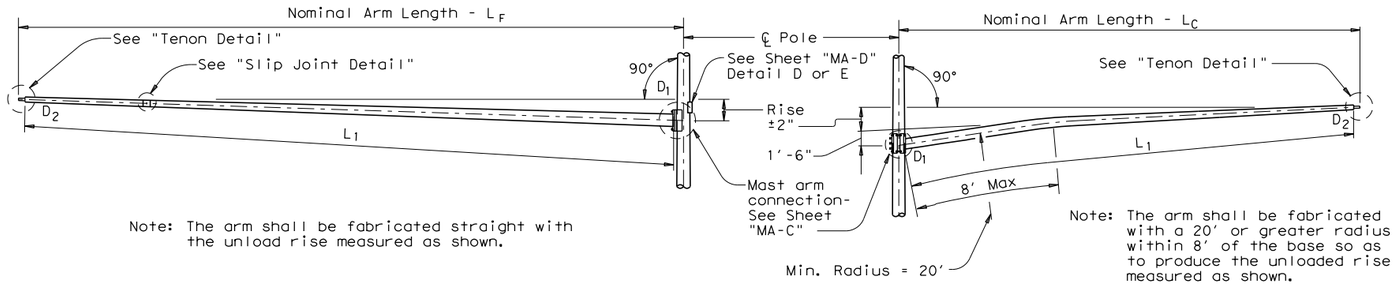
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REVISIONS
5-96
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CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

122B

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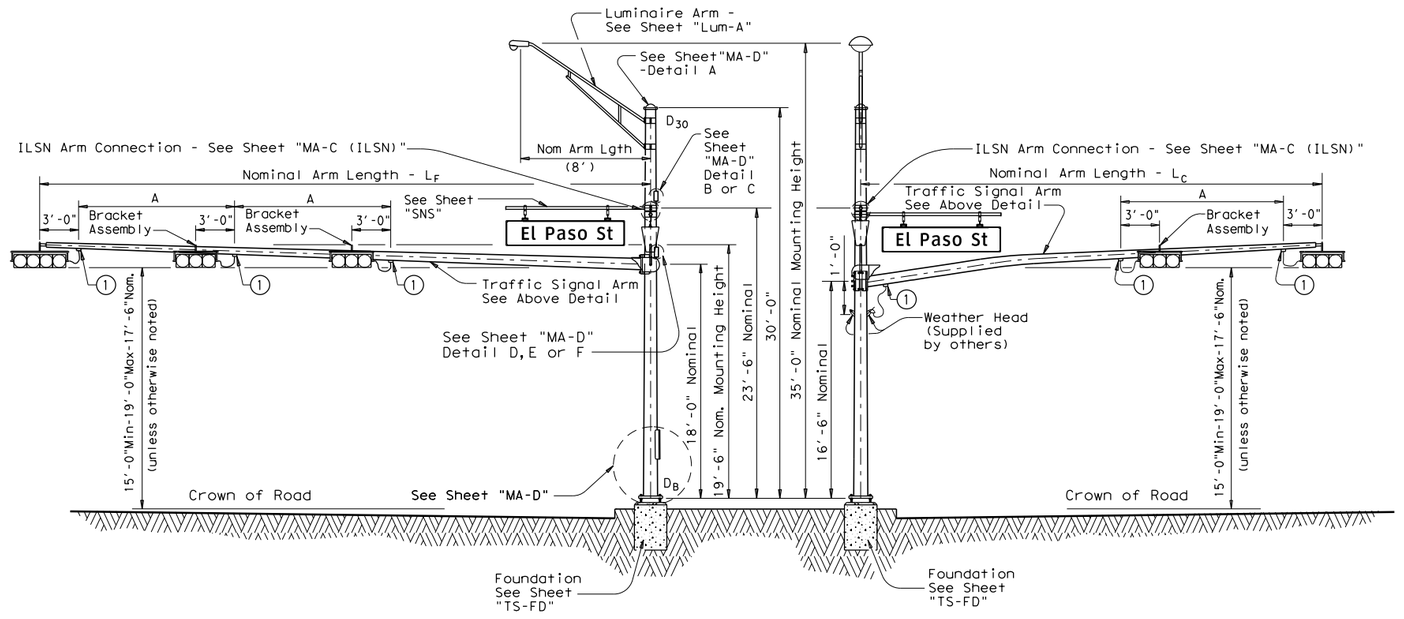


Note: The arm shall be fabricated straight with the unload rise measured as shown.

Note: The arm shall be fabricated with a 20' or greater radius within 8' of the base so as to produce the unloaded rise measured as shown.

FIXED MOUNT TRAFFIC SIGNAL ARM

CLAMP-ON TRAFFIC SIGNAL ARM



ELEVATION

(Showing fixed mount arm)

STRUCTURE ASSEMBLY

(1) Threaded Coupling for CGB Connector See "ARM COUPLING DETAILS" Sheet 2 of 3

ELEVATION

(Showing clamp mount arm)

TABLE OF DIMENSIONS "A"						
Arm Length	24'	28'	32'	36'	40'	44'
Arm Type II	10'	11'	12'	13'		
Arm Type III			10'	11'	12'	12'

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8'-0" luminaire arm, two 9'-0" internally lighted street name signs and two traffic signal arms with length combinations as tabulated. The specified luminaire load applied at the end of luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign applied 4'-6" from the centerline of the pole equals 85 lbs vertical dead load plus the horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (1)-12

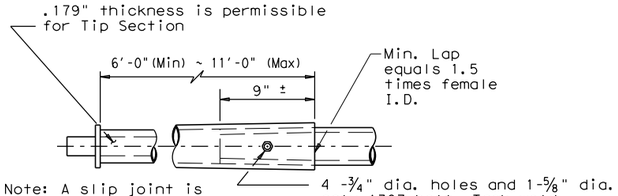
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	D			169

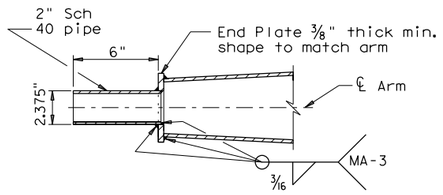
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SLIP JOINT DETAIL



TENON DETAIL

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY

VIBRATION WARNING

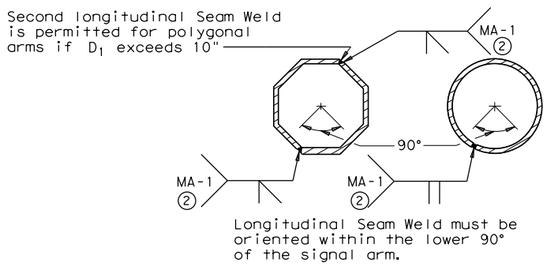
Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

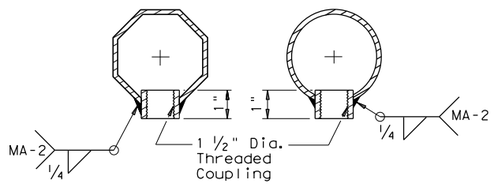
The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.



ARM WELD DETAIL

(2) 60% Min. penetration
100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (2)-12

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DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
D			

412

DATE:
FILE:

124B

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DATE:
FILE:

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length		30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With no Luminaire and no ILSN	
		See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		See note above plus one small hand hole		See note above	
LF	Lc						
ft.	ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20	2020L-80	1	2020S-80		2020-80	
24	20	2420L-80		2420S-80		2420-80	
	24	2424L-80		2424S-80		2424-80	
28	20	2820L-80		2820S-80		2820-80	
	24	2824L-80		2824S-80		2824-80	
	28	2828L-80		2828S-80		2828-80	
32	20	3220L-80		3220S-80		3220-80	
	24	3224L-80		3224S-80		3224-80	
	28	3228L-80		3228S-80		3228-80	
	32	3232L-80		3232S-80		3232-80	
36	20	3620L-80		3620S-80		3620-80	
	24	3624L-80		3624S-80		3624-80	
	28	3628L-80		3628S-80		3628-80	
	32	3632L-80		3632S-80		3632-80	
	36	3636L-80		3636S-80		3636-80	
40	20	4020L-80		4020S-80		4020-80	
	24	4024L-80		4024S-80		4024-80	
	28	4028L-80		4028S-80		4028-80	
	32	4032L-80		4032S-80		4032-80	
	36	4036L-80		4036S-80		4036-80	
44	20	4420L-80		4420S-80		4420-80	
	24	4424L-80		4424S-80		4424-80	
	28	4428L-80		4428S-80		4428-80	
	32	4432L-80		4432S-80		4432-80	
	36	4436L-80		4436S-80		4436-80	

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80	1				
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	2 CGB connector and 1 clamp w/bolts and washers		1 Bracket Assembly, 3 CGB Connectors, and 1 clamp w/bolts and washers		2 Bracket Assemblies, 4 CGB Connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80	1				
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	1

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3′-4"	1
1 3/4"	3′-10"	
2"	4′-3"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

ARMS		ROUND POLES					POLYGONAL POLES					
LF	Lc	D_B	D_{19}	D_{24}	D_{30}	③ thk	D_B	D_{19}	D_{24}	D_{30}	③ thk	
ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	20	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
24	20	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.179	30-A
	24	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.239	30-A
28	20	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	24	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	28	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
32	20	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	24	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	28	12.0	9.3	8.6	7.8	.239	13.0	10.0	9.2	8.3	.239	30-A
	32	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
36	20	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	24	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	28	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	32	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	36	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
40	20	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	24	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	28	13.0	10.3	9.6	8.8	.239	14.0	11.0	10.2	9.3	.239	36-A
	32	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A
	36	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
44	20	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	24	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	28	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	32	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B
	36	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B

Arm L_F or L_C	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	③ thk	Rise	L_1	D_1	④ D_2	③ thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire

D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length
L_C = Clamp-on Arm Length (36′ Max)

③ Thickness shown are minimums, thicker materials may be used.

④ D_2 may be increased by up to 1.0" for polygonal arms.

Section X, Item d.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (3)-12

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REVISIONS
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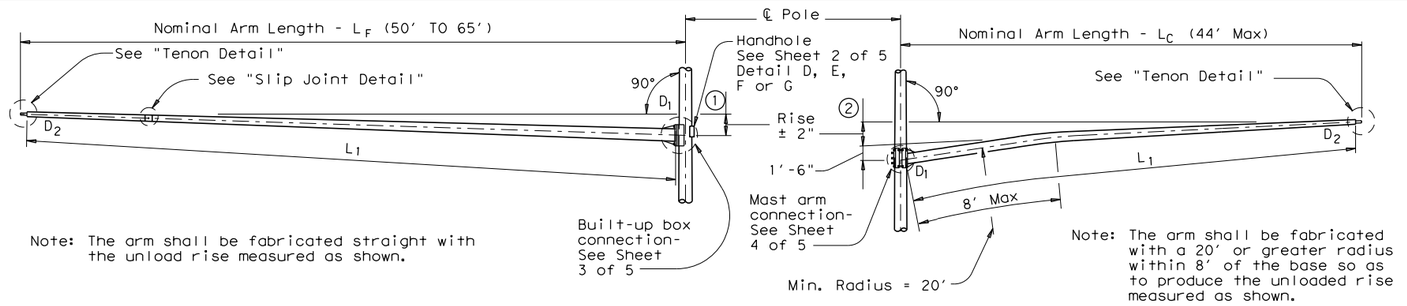
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24	6		
DIST	COUNTY		
D			171

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124C

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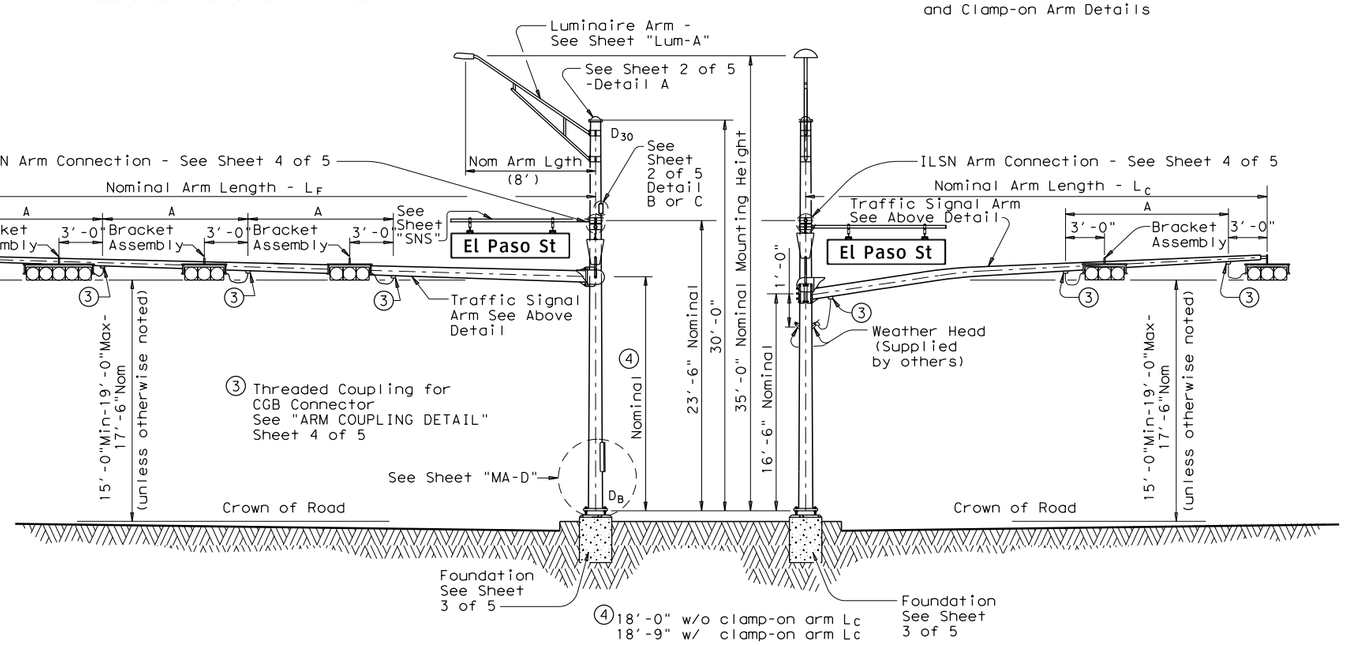


FIXED MOUNT TRAFFIC SIGNAL ARM

① See Sheet 3 of 5 for Arm Rise

CLAMP-ON TRAFFIC SIGNAL ARM (IF REQUIRED)

② See Sheet 4 of 5 for Arm Rise and Clamp-on Arm Details

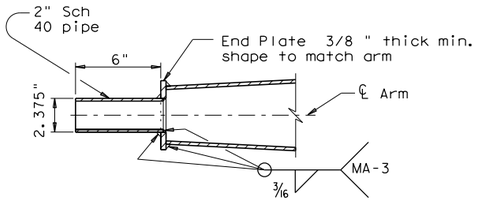


ELEVATION
(Showing fixed mount arm)

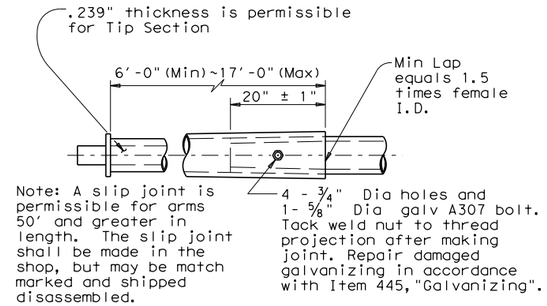
STRUCTURE ASSEMBLY

ELEVATION
(Showing clamp-on arm)

TABLE OF DIMENSIONS "A"										
Arm Length	24'	28'	32'	36'	40'	44'	50'	55'	60'	65'
Arm Type II	10'	11'	12'	13'						
Arm Type III			10'	11'	12'	12'				
Arm Type IV							12'	12'	12'	12'



TENON DETAIL



Note: A slip joint is permissible for arms 50' and greater in length. The slip joint shall be made in the shop, but may be match marked and shipped disassembled.

SLIP JOINT DETAIL (FIXED MOUNT ARM)

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Highway Signs, Luminaires, and Traffic Signals and Interim Specifications. Design Wind Speed can be either 100 mph or 80 mph plus a 1.3 gust factor. If clamp-on traffic signal is required, designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8'-0" luminaire arm, two 9'-0" internally lighted street name (ILSN) signs and two traffic signal arms with limited length combinations.

Each arm with its related attachment is shown below

Arm	Equivalent DL ⑤	WL EPA ⑤⑥
8' Luminaire Arm	Luminaire 60 lbs	1.6 sq ft
9' ILSN Arm	Sign 85 lbs	11.5 sq ft
50' to 65' Fixed Mount Arm	Signal Loads 310 lbs	52 sq ft
Up to 44' Clamp-on Arm	Signal Loads 180 lbs	32.4 sq ft

⑤ Equivalent dead load plus horizontal wind load applied at the end of arm except ILSN arm, which applied 4.5' from the centerline of the pole.

⑥ Effective projected area (actual area times drag coefficient) for the application of horizontal wind load.

Except as noted in Sheet 1 thru 5 of 5, other details not covered shall refer to Standard Sheet "MA-D" for pole details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Material, fabrication tolerances, and shipping practices shall also meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing" after fabrication.

Deviations from the details and dimensions shown herein require submission of shop drawings in accordance with the Item 441, "Steel Structures". Alternate designs are not acceptable.

Installation of damping plate for the long mast arm is not recommended.

Provision of the bracket assembly used to support the traffic signal heads shall be under the direction of the Engineer for approval.

Design also conforms to NCHRP Report 412 for fatigue resistance except that there are no stiffeners at the base plate. TxDOT is conducting tests to determine if stiffeners at the base plate will or will not result in optimal performance; depending upon the results of the tests, poles may need a retrofit to ensure optimal fatigue performance.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

LMA(1)-12

Sheet 1 of 5

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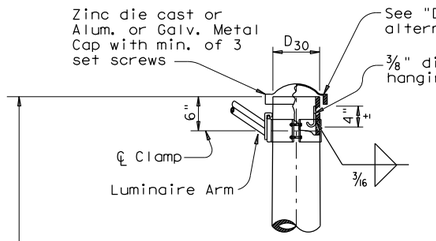
REVISIONS
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CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		
SA	MEDINA		172

414

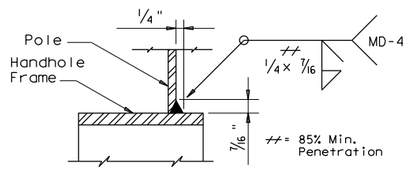
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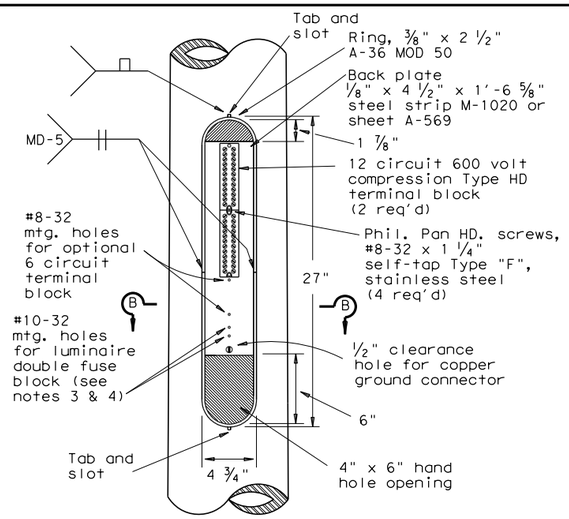


DETAIL A

(for pole with luminaire)



DETAIL H

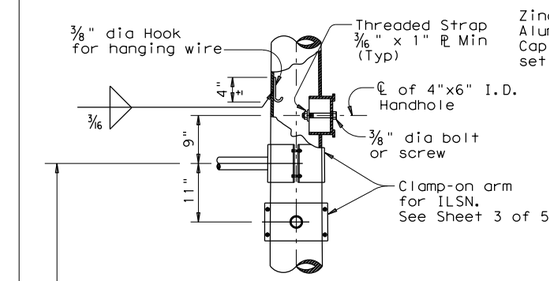


ACCESS COMPARTMENT

MATERIALS	
Round Shafts or Polygonal Shafts (7)	ASTM A595 Gr.A, A588, A1008 HSLA, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 (8)
Plates (7)	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325, or A449 except where noted
Pin Bolts	ASTM A325
Pipe (7)	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

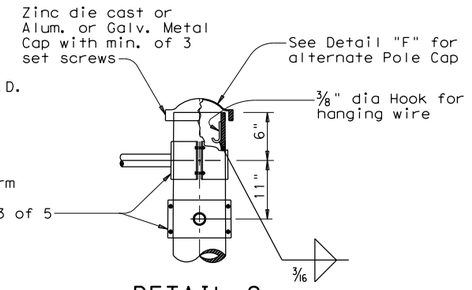
(7) ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F, or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

(8) ASTM A1011 SS Gr.50 shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

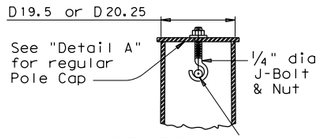


DETAIL B

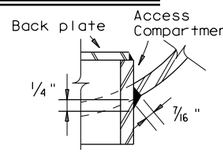
(If ILSN applied)



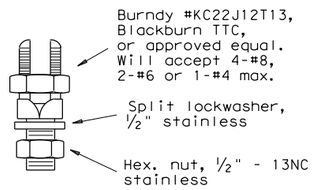
DETAIL C



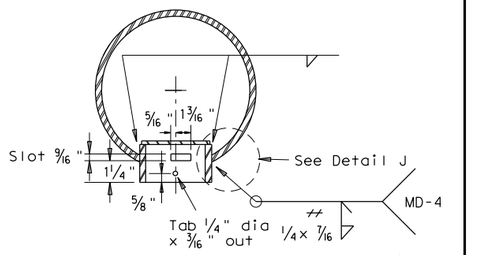
SECTION Y-Y



DETAIL J



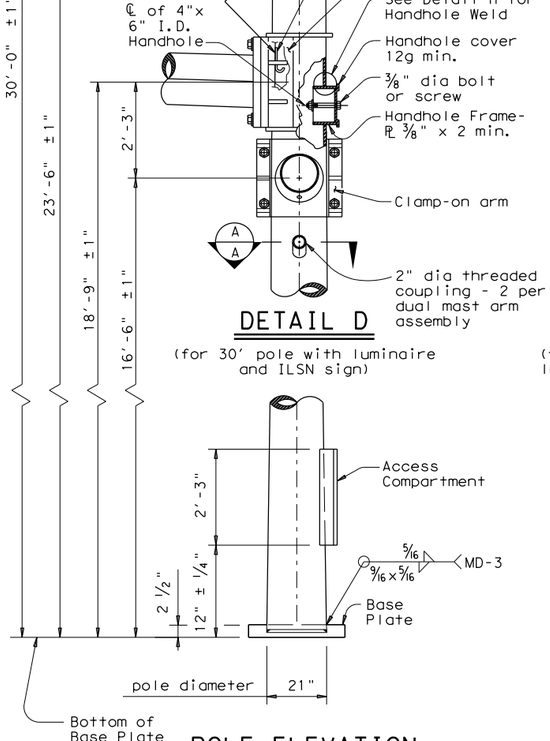
COPPER GROUND CONNECTOR



SECTION B-B

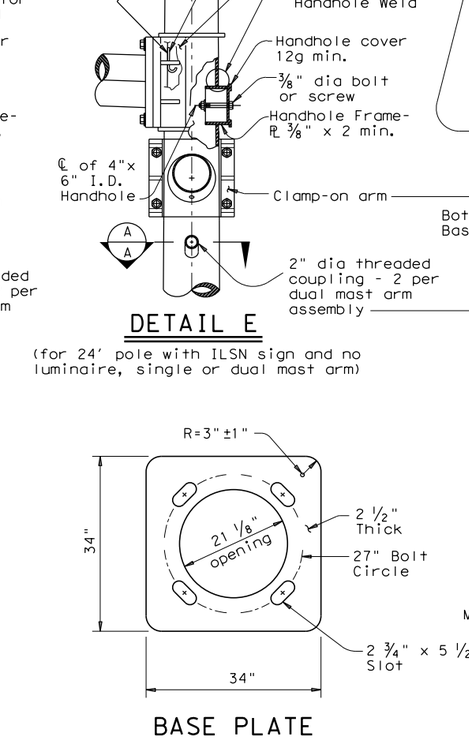
// = 85% Min. Penetration

Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.



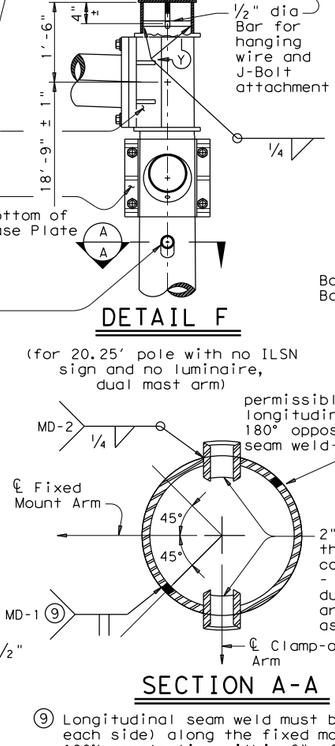
DETAIL D

(for 30' pole with luminaire and ILSN sign)



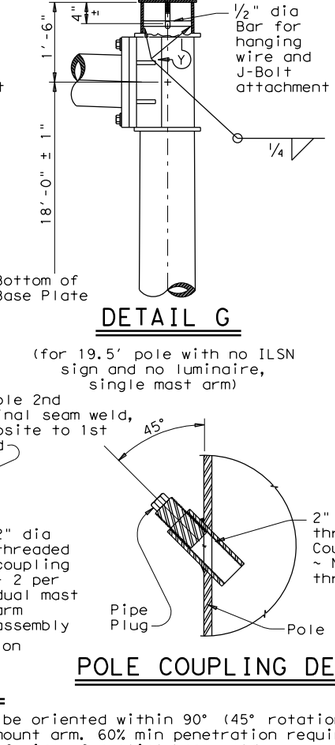
DETAIL E

(for 24' pole with ILSN sign and no luminaire, single or dual mast arm)



DETAIL F

(for 20.25' pole with no ILSN sign and no luminaire, dual mast arm)



DETAIL G

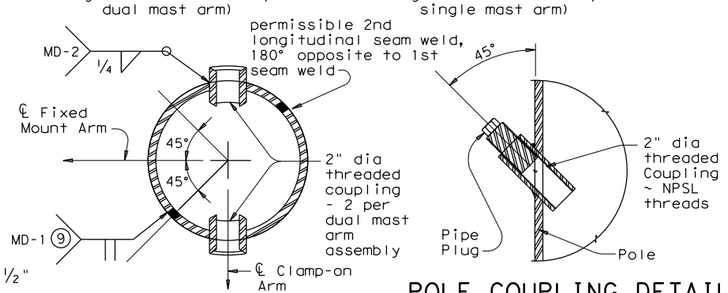
(for 19.5' pole with no ILSN sign and no luminaire, single mast arm)

ACCESS COMPARTMENT NOTES:

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

POLE ELEVATION

BASE PLATE



SECTION A-A

POLE COUPLING DETAIL

(9) Longitudinal seam weld must be oriented within 90° (45° rotation each side) along the fixed mount arm. 60% min penetration required, 100% penetration within 6" of circumferential base weld.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

Sheet 2 of 5

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CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

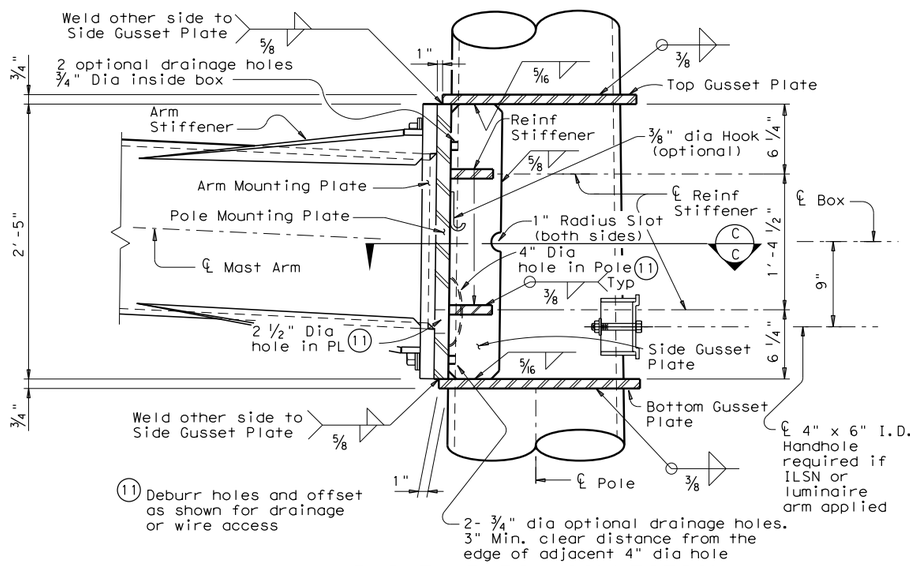
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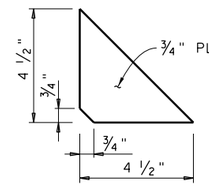
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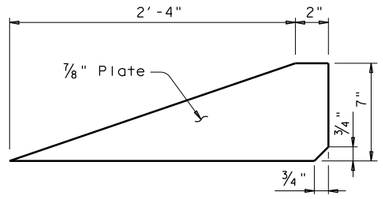
(11) Deburr holes and offset as shown for drainage or wire access

2- 3/4" dia optional drainage holes. 3" Min. clear distance from the edge of adjacent 4" dia hole

BUILT-UP BOX CONNECTION

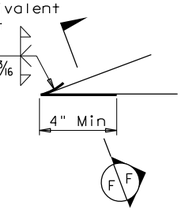


REINFORCING STIFFENER



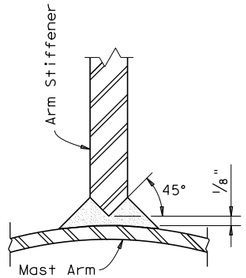
ARM STIFFENER
(Cut to match arm inclination and taper)

Provide Detail shown in SECTION F-F or equivalent 100% complete joint penetration weld from both sides.



Only 4" length at tip of Arm Stiffener requires a complete joint penetration weld. Smooth weld radius to connect Stiffener. Only a fillet weld is required for the remaining weld length.

DETAIL "K"



SECTION F-F

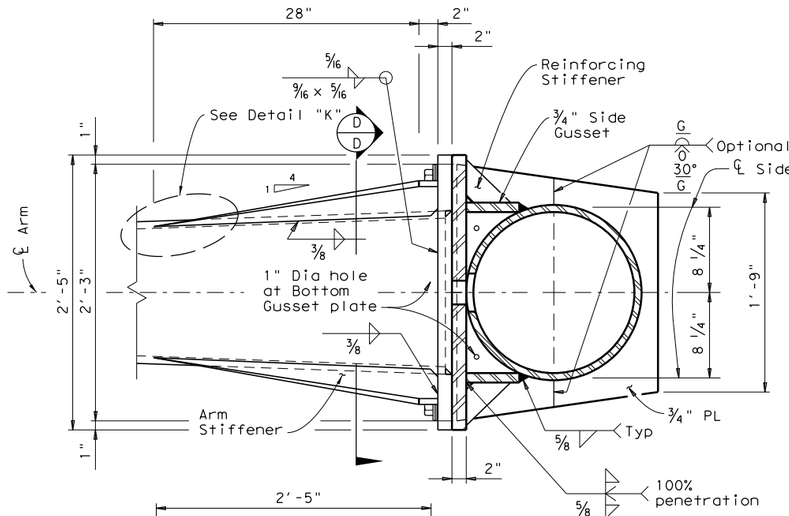
Fixed Mount Arm L_F	ROUND POLES (13)					
	D_B	$D_{19.5}$ or $D_{20.25}$	D_{24}	D_{30}		
ft.	in.	in.	in.	in.	in.	
50', 55' 60', 65'	21.0	18.2	17.6	16.8	.3125	48-A

Fixed Mount Arm L_F	ROUND ARMS (13)				
	L_1	D_1	D_2	(12) thk	Rise
ft.	ft.	in.	in.	in.	
50	49	18.5	11.7	.3125	3'- 3"
55	54	18.5	11.0	.3125	3'- 7"
60	59	18.5	10.3	.3125	3'-11"
65	64	18.5	9.6	.3125	4'- 4"

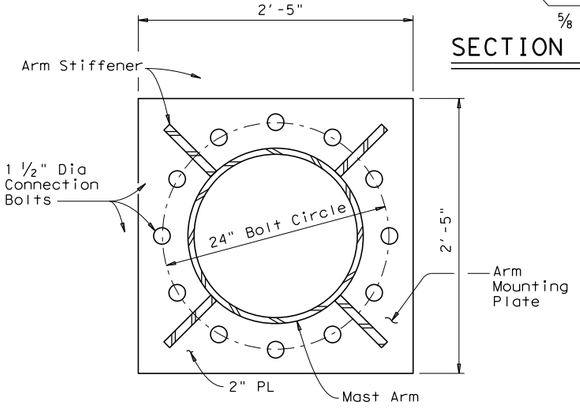
D_B = Pole Base O.D.
$D_{19.5}$ = Pole Top O.D. with no Luminaire and no ILSN (single mast arm)
$D_{20.25}$ = Pole Top O.D. with no Luminaire and no ILSN (dual mast arm)
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

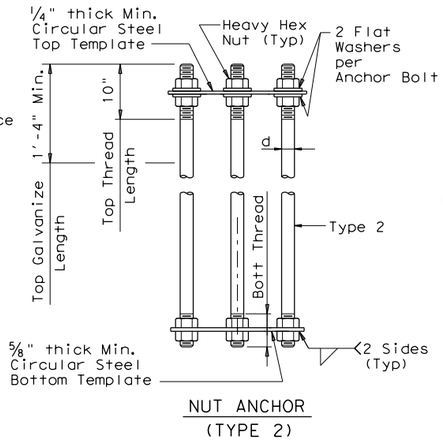
(13) Shaft profile 16-sided or 18-sided is considered to be equivalent to round section.



SECTION C-C

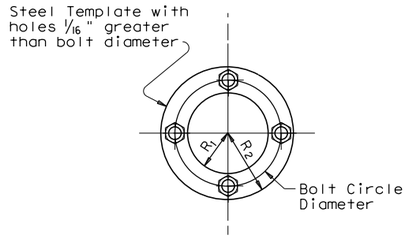


SECTION D-D



NUT ANCHOR
(TYPE 2)

ANCHOR BOLT ASSEMBLY



TEMPLATE DETAIL

ANCHOR BOLT & TEMPLATE SIZE						
Bolt Dia in.	Length ‡	Top Thread	Bottom Thread	Bolt Circle	R_2	R_1
2 1/2"	5'-2"	10"	6 1/2"	27"	16"	11"

‡ Min dimension given, longer bolts are acceptable.

FOUNDATION DESIGN TABLE													
FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		DRILLED SHAFT LENGTH-ft (16), (17), (18)			ANCHOR BOLT DESIGN (14)				FOUNDATION DESIGN LOAD (15)		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
48-A	48"	20 #9	#4 at 6"	21.9	19.5	14.7	2 1/2"	55	27"	2	490	10	50' to 65' Mast arm assembly.

SEE SHEET "TS-FD" FOR ADDITIONAL DETAILS.

(14) Anchor bolt design develops the foundation capacity given under Foundation Design Laods.

(15) Foundation Design Loads are the allowable moments and shears at the base of the structure.

(16) Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

(17) If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

(18) Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

GENERAL NOTES:

Built-up Box Connection: For the welded arm-to-pole connection as a build-up box configuration illustrated here is an example only, fabricators are required to submit a shop drawing of box connection for approval. The drawing shall specify the details of each box element, welds of arm-to-pole connection, arm-to-plate socket connection, and arm rise creation. Specify the proper location of drain holes along the pole. 2 1/2" dia hole in the pole mounting plate and 4" dia hole in the pole need to be aligned for wiring access or drainage. Arm stiffeners cut to match arm inclination and taper shall also be included.

The deviation from flat for either arm or pole mounting plate shall not exceed 1/32 in., which is measured along the center of mounting plate to a radial distance of 13.5 in. The deformed-from-flat connection between arm and pole mounting plates shall not be allowed if the center of both mounting plates cannot contact directly.

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

Sheet 3 of 5 LMA(3)-12

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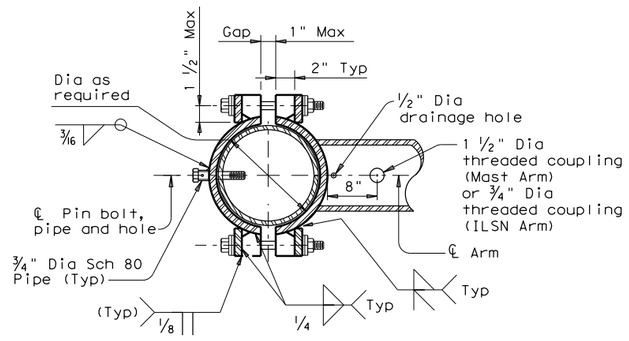
CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

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CLAMP-ON CONNECTION

80 MPH WIND

Clamp-on Arm Lc	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"

100 MPH WIND

Clamp-on Arm Lc	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	thk (12)	Rise	L_1	D_1	D_2	thk (12)	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	8.0	5.3	.179	1'-8"	19.1	8.0	3.5	.179	1'-7"
24	23.1	9.0	5.8	.179	1'-9"	23.1	9.0	3.5	.179	1'-8"
28	27.1	9.5	5.7	.179	1'-10"	27.1	10.0	3.5	.179	1'-9"
32	31.0	9.5	5.2	.239	1'-11"	31.0	9.5	3.5	.239	1'-10"
36	35.0	10.0	5.1	.239	2'-0"	35.0	10.0	3.5	.239	1'-11"
40	39.0	10.5	5.1	.239	2'-3"	39.0	11.0	3.5	.239	2'-1"
44	43.0	11.0	5.1	.239	2'-8"	43.0	11.5	4.0	.239	2'-3"

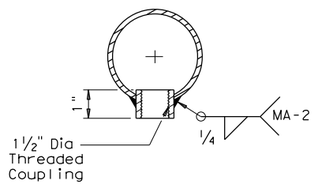
D1 = Arm Base O.D.
D2 = Arm End O.D.
L1 = Shaft Length
Lc = Clamp-on Arm Length

(12) Thickness shown is minimum, thicker materials may be used.

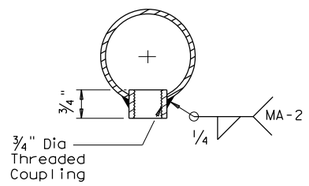
CLAMP-ON ARM CONNE

ILSN Arm Size		A	F	4 Conn. Bolts	⅞ Dia. Pin Bolts
Sch 40 pipe Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
3	.216	10	4	¾	2

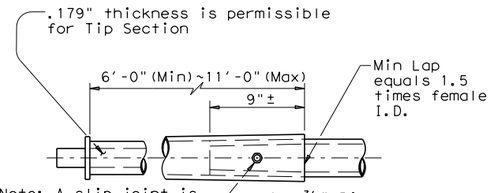
Mast Arm Size		A	F	4 Conn. Bolts	⅝" Dia. Pin Bolts
Base Dia	Thick			Dia	No.
in.	in.	in.	in.	in.	ea
6.5	.179	12	6	1	2
7.5	.179	14	8	1	2
8.0	.179	14	8	1	2
9.0	.179	16	10	1	2
9.5	.179	18	12	1 ¼	3
9.5	.239	18	12	1 ¼	3
10.0	.239	18	12	1 ¼	3
10.5	.239	18	12	1 ¼	3
11.0	.239	18	12	1 ¼	3
11.5	.239	18	12	1 ¼	3



ARM COUPLING DETAIL



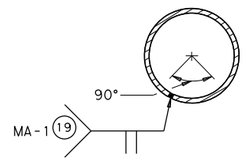
ILSN ARM COUPLING DETAIL



SLIP JOINT DETAIL (CLAMP-ON ARM)

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL

(19) Longitudinal Seam Weld must be oriented within the lower 90° of the signal arm.
60% Min penetration
100% penetration within 6" of circumferential base welds.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies or ILSN arm support. For a clamp-on mast arm, a maximum 1 ½" wide vertical slotted hole may be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1". For an ILSN arm, a 1 ½" diameter hole shall be cut in the front clamp plate for wire access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces. Pin bolts shall be ASTM A325 with threads excluded from the shear plane. Pin bolt and ¾" diameter pipe shall have 3/16" diameter holes for a ⅛" diameter galvanized cotter pin. Back clamp plate shall be furnished with a ¾" diameter hole for each pin bolt. An 11/16" diameter hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES
LONG MAST ARM ASSEMBLY (50 TO 65 FT) (80 AND 100 MPH WIND ZONE)

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CONT	SECT	JOB	HIGHWAY
24	6		417
DIST	COUNTY		
SA	MEDINA		175

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Shipping Parts List

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers, and any additional hardware listed in the table.

Nominal Arm Length	30' Poles with Luminaire: See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex	24' Poles with ILSN: See note above plus one small hand hole	19.50' (Single Mast Arm) 20.25' (Dual Mast Arm) Poles with no Luminaire and no ILSN: See note above

Single Mast Arm

Lf ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50	50L		50S		50	
55	55L		55S		55	
60	60L	1	60S		60	
65	65L		65S		65	

Dual Mast Arm

Lf ft.	Lc ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
50	20	5020L		5020S		5020	
	24	5024L		5024S		5024	
	28	5028L		5028S		5028	
	32	5032L		5032S		5032	
	36	5036L	1	5036S		5036	
	40	5040L		5040S		5040	
	44	5044L		5044S		5044	
55	20	5520L		5520S		5520	
	24	5524L		5524S		5524	
	28	5528L		5528S		5528	
	32	5532L		5532S		5532	
	36	5536L		5536S		5536	
	40	5540L		5540S		5540	
	44	5544L		5544S		5544	
60	20	6020L		6020S		6020	
	24	6024L		6024S		6024	
	28	6028L		6028S		6028	
	32	6032L		6032S		6032	
	36	6036L		6036S		6036	
	40	6040L		6040S		6040	
	44	6044L		6044S		6044	
65	20	6520L		6520S		6520	
	24	6524L		6524S		6524	
	28	6528L		6528S		6528	
	32	6532L		6532S		6532	
	36	6536L		6536S		6536	
	40	6540L		6540S		6540	
	44	6544L		6544S		6544	

Shipping Parts List

Traffic Signal Arms (Fixed Mount) (1 per pole)
Ship each arm with listed equipment attached

Nominal Arm Length	Type IV Arm (4 Signals) 3 Bracket Assembly and 4 CGB Connectors	
ft.	Designation	Quantity
50	50IV	1
55	55IV	
60	60IV	1
65	65IV	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	2

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Traffic Signal Arms (80 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal) 2 CGB connector and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 1 Bracket Assembly and 3 CGB connectors, and 1 clamp w/bolts and washers		Type III Arm (3 Signals) 2 Bracket Assembly and 4 CGB connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80	1	36III-80	
40					40III-80	
44					44III-80	

Traffic Signal Arms (100 MPH Clamp-On Mount) (1 per pole) Ship each arm with listed equipment attached

Nominal Arm	Type I Arm (1 Signal) 2 CGB connector and 1 clamp w/bolts and washers		Type II Arm (2 Signals) 1 Bracket Assembly and 3 CGB connectors, and 1 clamp		Type III Arm (3 Signals) 2 Bracket Assembly and 4 CGB connectors, and 1 clamp	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-100					
24	24I-100		24II-100			
28	28I-100		28II-100			
32			32II-100		32III-100	
36			36II-100		36III-100	
40					40III-100	
44					44III-100	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
2 1/2 "	5' - 3"	2

Each anchor bolt assembly consists of the following: Top and bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers and 4 nut anchor devices (type 2) per Standard Drawing "TS-FD". Templates may be removed for shipment.

Foundation Summary Table **

Location Ident.	Avg. N Blow/ft.	No. Each	Drill Shaft *** Length (feet)
			48-A
US 90 AT COUNTRY LN - POLE C	10		22
US 90 AT EB TO WB TURN - POLE C	10		22
US 90 AT FM 471 - POLE F	10		22
US 90 AT FM 471 - POLE K	10		22
Total Drill Shaft Length			88

Notes

** Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

*** Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

Abbreviations

Lf= Fixed Arm Length
Lc= Clamp-on Arm Length (44' Max.)

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LONG MAST ARM ASSEMBLY PARTS LIST

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CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

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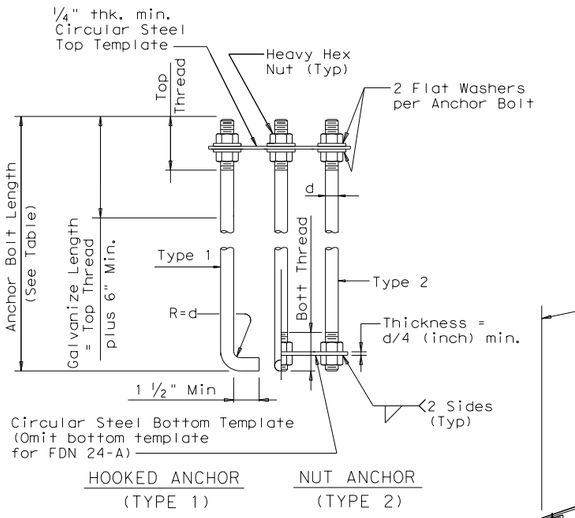
FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft (4), (5), (6)			ANCHOR BOLT DESIGN (1)				FOUNDATION DESIGN LOAD (2)		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

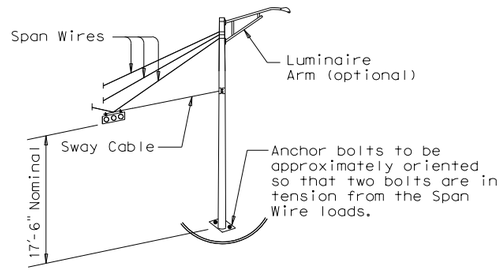
		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

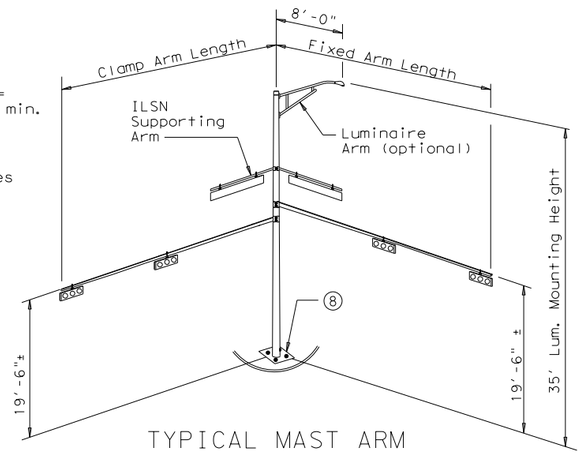


ANCHOR BOLT ASSEMBLY

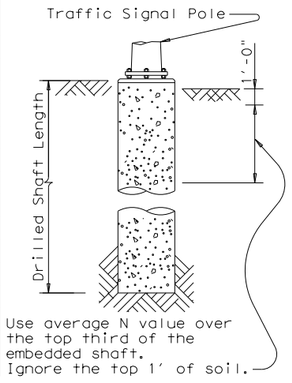
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL STRAIN POLE ASSEMBLY



TYPICAL MAST ARM ASSEMBLY



NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

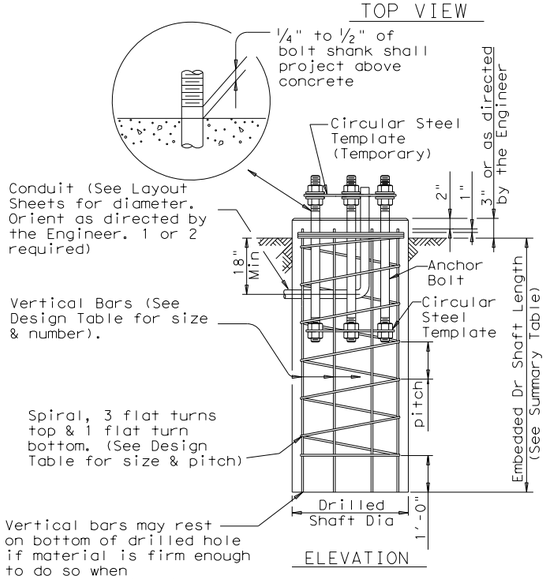
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

TOP VIEW



ELEVATION

FOUNDATION DETAILS

FOUNDATION SUMMARY TA

Section X, Item d.

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED (FEET)				
				24-A	30-A	36-A	36-B	42-A
138 - POLE D	13.2	36-A				13		
138 - POLE E	11.3	30-A			11			
138 - POLE G	13.2	36-A				13		
138 - POLE H	11.3	30-A			11			
138 - POLE L	13.2	36-A				13		
138 - POLE M	13.2	36-A				13		
143 - POLE D	13.2	36-A				13		
143 - POLE D	13.2	36-A				13		
138 - POLE D	11.3	30-A			11			
TOTAL DRILLED SHAFT LENGTHS					33	78		88

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

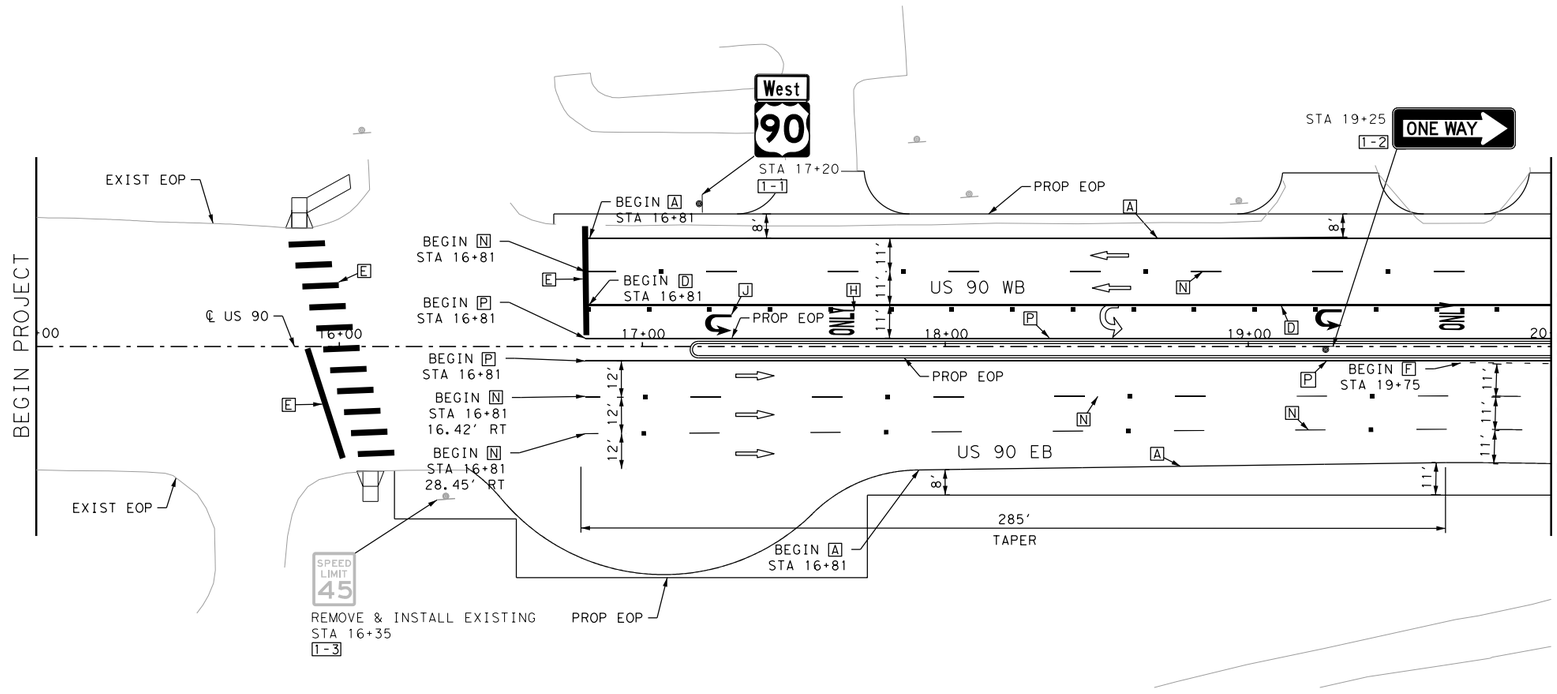
Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

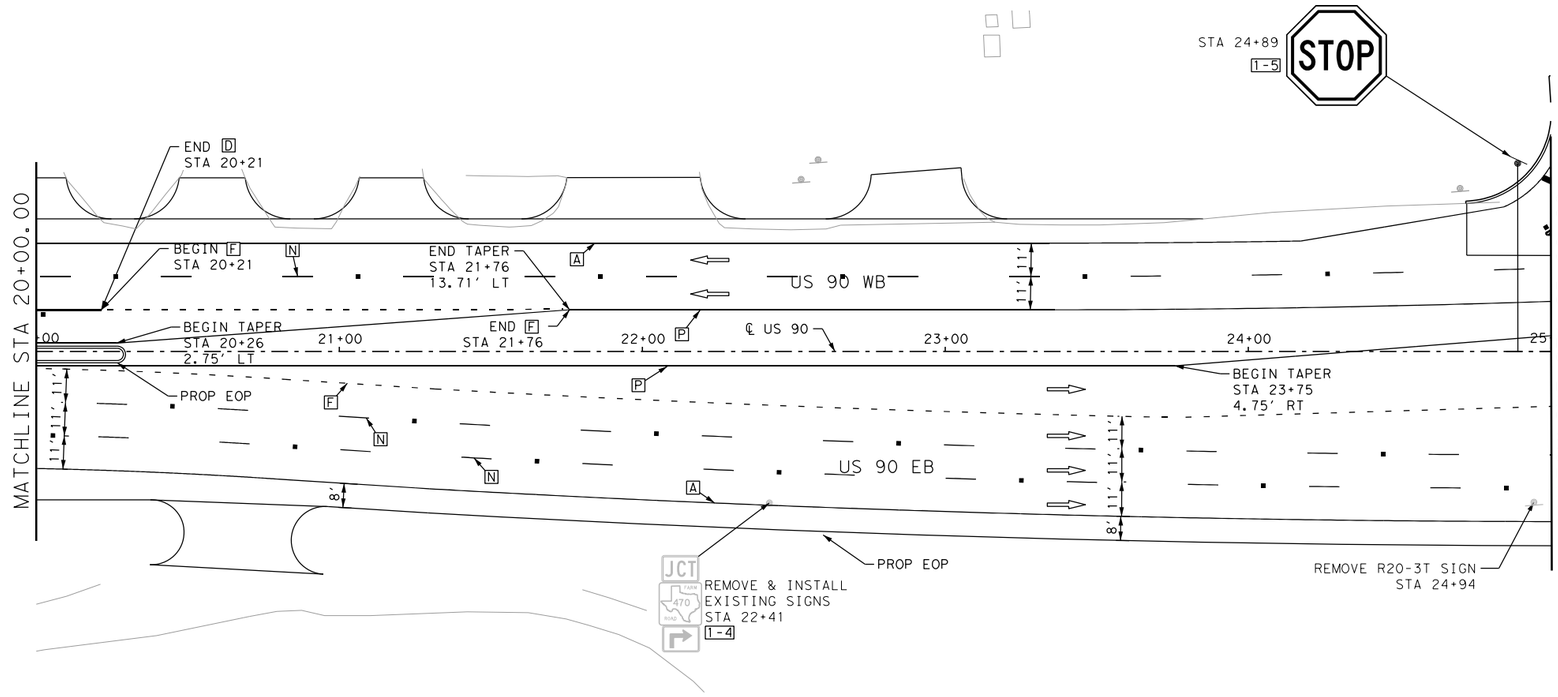
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

©TxDOT August 1995	DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB
REVISIONS 5-96 11-99 1-12	CONT	SECT	JOB	HIGHWAY
	24	6		419
	DIST	COUNTY		
	SA	MEDINA		





LEGEND

A	6" SLD (W) STRIPE
C	4" SLD (W) STRIPE
D	8" SLD (W) STRIPE W/ TY II-C-R @ 20' C-C
E	24" SLD (W) STRIPE
F	6" DOT (W) STRIPE
G	24" SLD (Y) STRIPE
H	WHITE WORD
J	WHITE ARROW
K	24" SLD (W) STRIPE @ 45 DEG @ 10'
M	YIELD PAVEMENT MARKING (W)
N	6" BRK (W) STRIPE W/ TY II-C-R @ 80' C-C
P	6" SLD (Y) STRIPE
	TRAFFIC FLOW ARROWS
	PROPOSED SIGN
	EXISTING SIGN TO BE REMOVED
	EXISTING SIGN TO REMAIN
1-1	SMALL SIGN DESIGNATION
L-X	LARGE SIGN DESIGNATION

NOTES

1. ALL PAVEMENT MARKINGS SHOWN ARE PROPOSED.
2. ALL DIMENSIONS ARE TO BACK OF CURB, EDGE OF PVMT. TO CENTER OF PVMT. MARKINGS UNLESS OTHERWISE NOTED.
3. SEE PAVEMENT MARKING STANDARDS FOR MOREALL INFORMATION.
4. ALL EXISTING FEATURES ARE SHOWN SCREENED BACK, i.e. FADED.
5. ALL TYPE I PAVEMENT MARKINGS SHALL BE 100 MIL THICK.

DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

SIGNING AND PAVEMENT MARKINGS LAYOUT

STA 15+00 TO STA 25+00

SHEET 1 OF 5

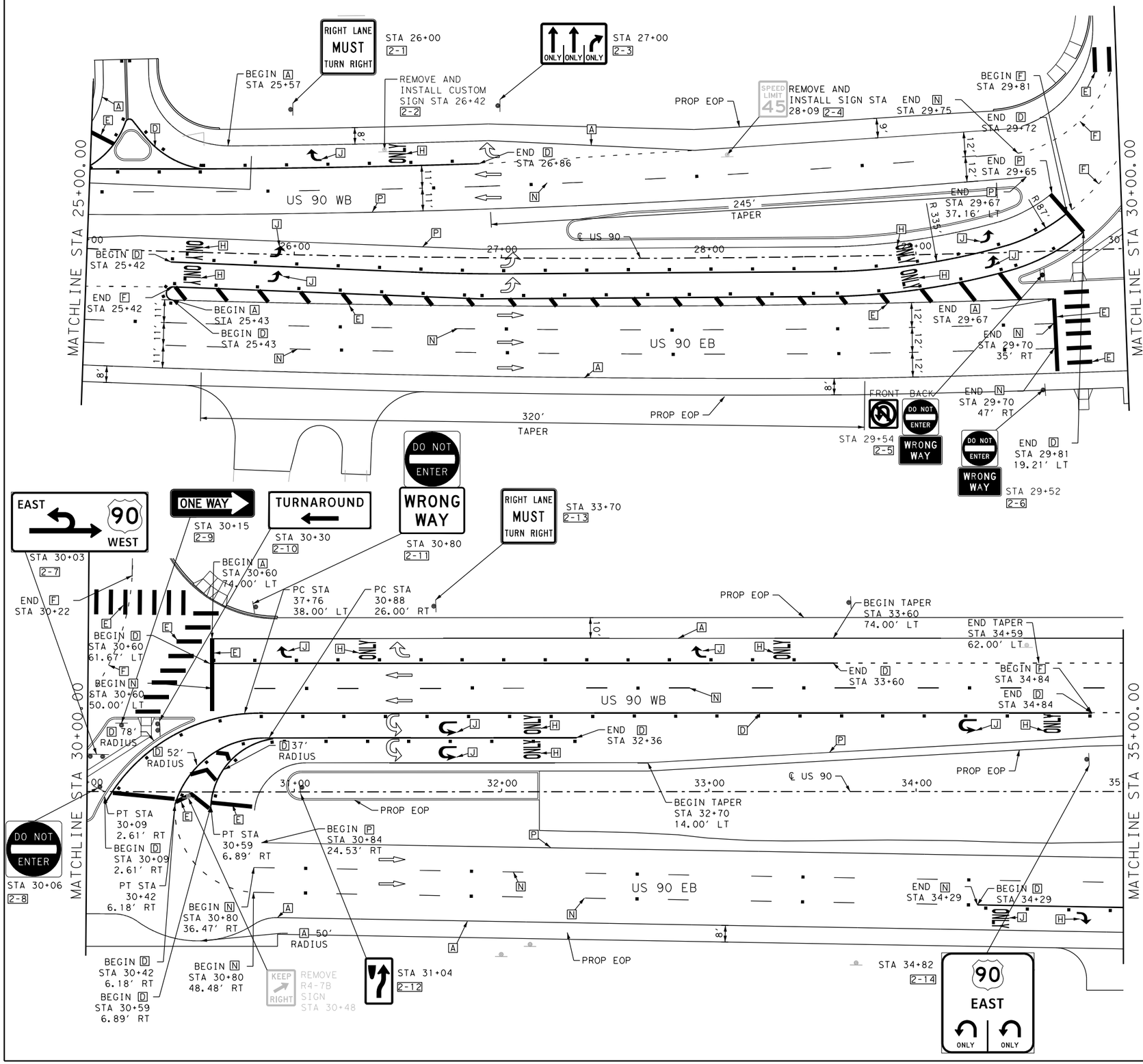
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024

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Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603SPM_02.dgn



LEGEND

A	6" SLD (W) STRIPE
C	4" SLD (W) STRIPE
D	8" SLD (W) STRIPE W/ TY II-C-R @ 20' C-C
E	24" SLD (W) STRIPE
F	6" DOT (W) STRIPE
G	24" SLD (Y) STRIPE
H	WHITE WORD
J	WHITE ARROW
K	24" SLD (W) STRIPE @ 45 DEG @ 10'
M	YIELD PAVEMENT MARKING (W)
N	6" BRK (W) STRIPE W/ TY II-C-R @ 80' C-C
P	6" SLD (Y) STRIPE

TRAFFIC FLOW ARROWS
PROPOSED SIGN
EXISTING SIGN TO BE REMOVED
EXISTING SIGN TO REMAIN
1-1 SMALL SIGN DESIGNATION
L-X LARGE SIGN DESIGNATION

NOTES

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2. ALL DIMENSIONS ARE TO BACK OF CURB, EDGE OF PVMT. TO CENTER OF PVMT. MARKINGS UNLESS OTHERWISE NOTED.
3. SEE PAVEMENT MARKING STANDARDS FOR MOREALL INFORMATION.
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DESIGN

STATE OF TEXAS
RAYMOND D. GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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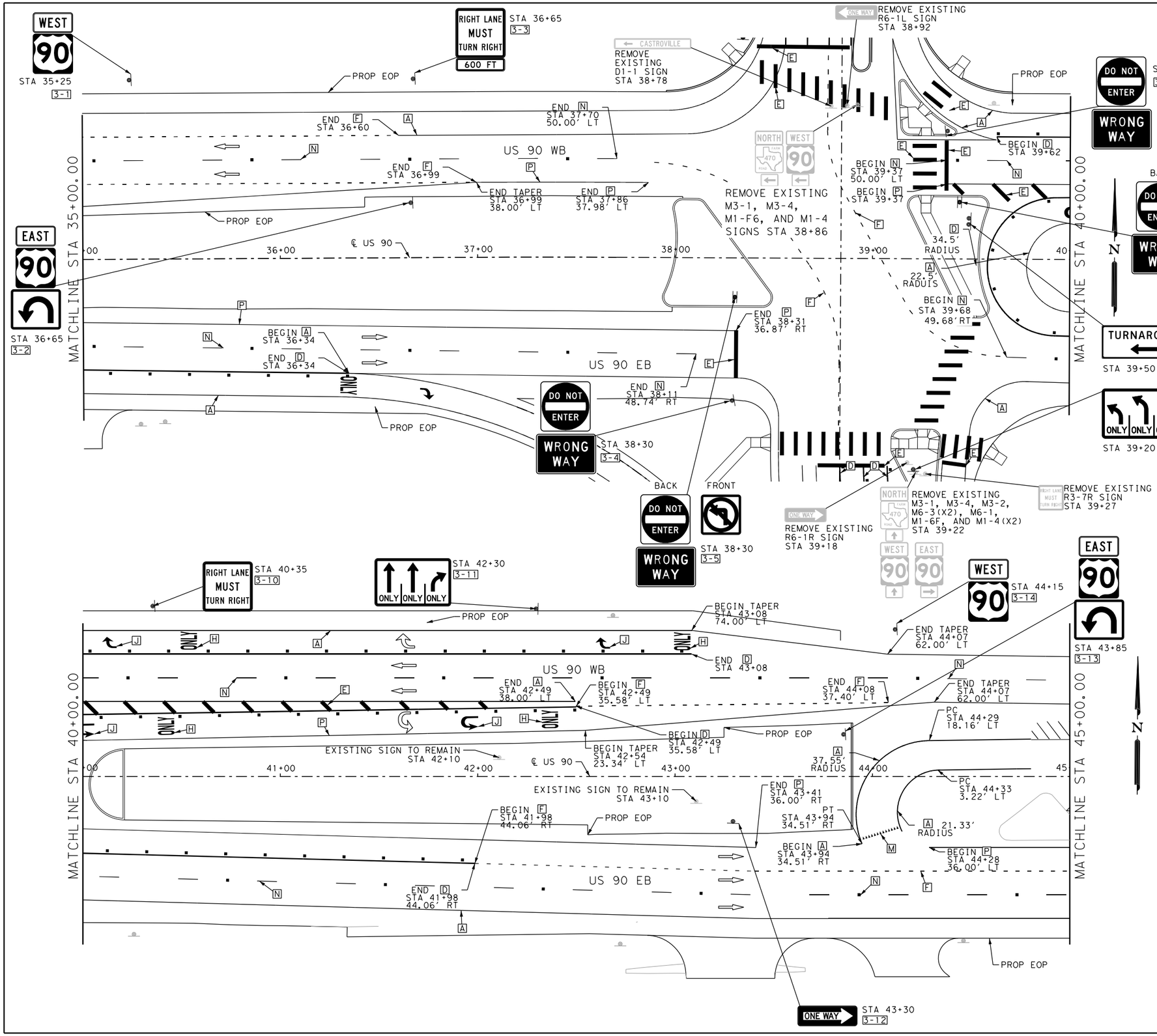
SIGNING AND PAVEMENT MARKINGS LAYOUT

STA 25+00 TO STA 35+00

SHEET 2 OF 5

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CHK DGN:	6	TEXAS	_			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

Plotted on: 2/22/2024



LEGEND

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N	6" BRK (W) STRIPE W/ TY II-C-R @ 80' C-C
P	6" SLD (Y) STRIPE

TRAFFIC FLOW ARROWS
PROPOSED SIGN
EXISTING SIGN TO BE REMOVED
EXISTING SIGN TO REMAIN
1-1 SMALL SIGN DESIGNATION
L-X LARGE SIGN DESIGNATION

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DESIGN

STATE OF TEXAS — RAYMOND D. GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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US 90 AT ALSATIAN OAKS

SIGNING AND PAVEMENT MARKINGS LAYOUT

STA 35+00 TO STA 45+00

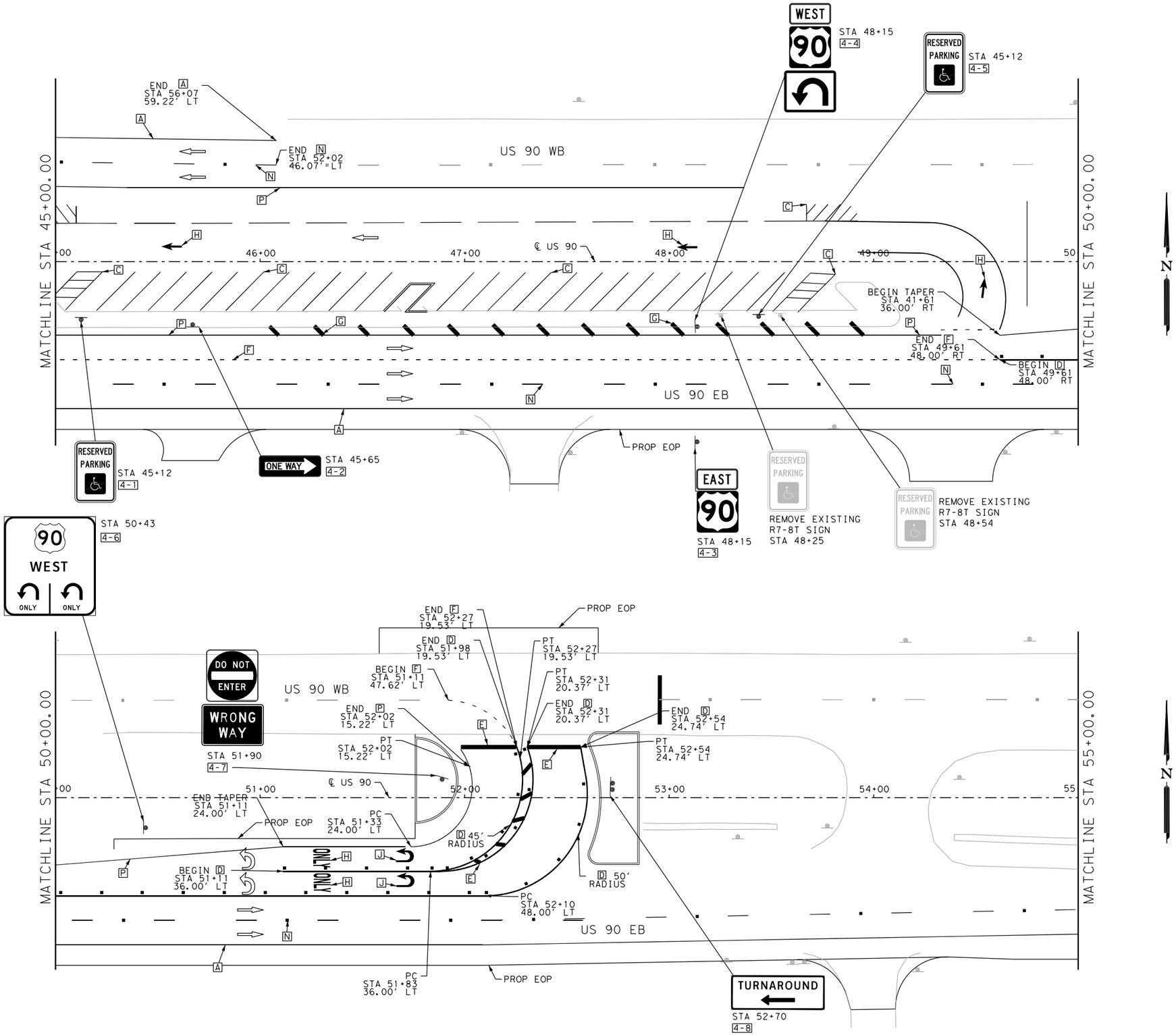
SHEET 3 OF 5

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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		

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Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\Traffic\1273603SPM_04.dgn



LEGEND

- A 6" SLD (W) STRIPE
- C 4" SLD (W) STRIPE
- D 8" SLD (W) STRIPE W/ TY II-C-R @ 20' C-C
- E 24" SLD (W) STRIPE
- F 6" DOT (W) STRIPE
- G 24" SLD (Y) STRIPE
- H WHITE WORD
- J WHITE ARROW
- K 24" SLD (W) STRIPE @ 45 DEG @ 10'
- M YIELD PAVEMENT MARKING (W)
- N 6" BRK (W) STRIPE W/ TY II-C-R @ 80' C-C
- P 6" SLD (Y) STRIPE
- TRAFFIC FLOW ARROWS
- PROPOSED SIGN
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO REMAIN
- 1-1 SMALL SIGN DESIGNATION
- L-X LARGE SIGN DESIGNATION

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DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
98622
LICENSED
PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 25 50 75
SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
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911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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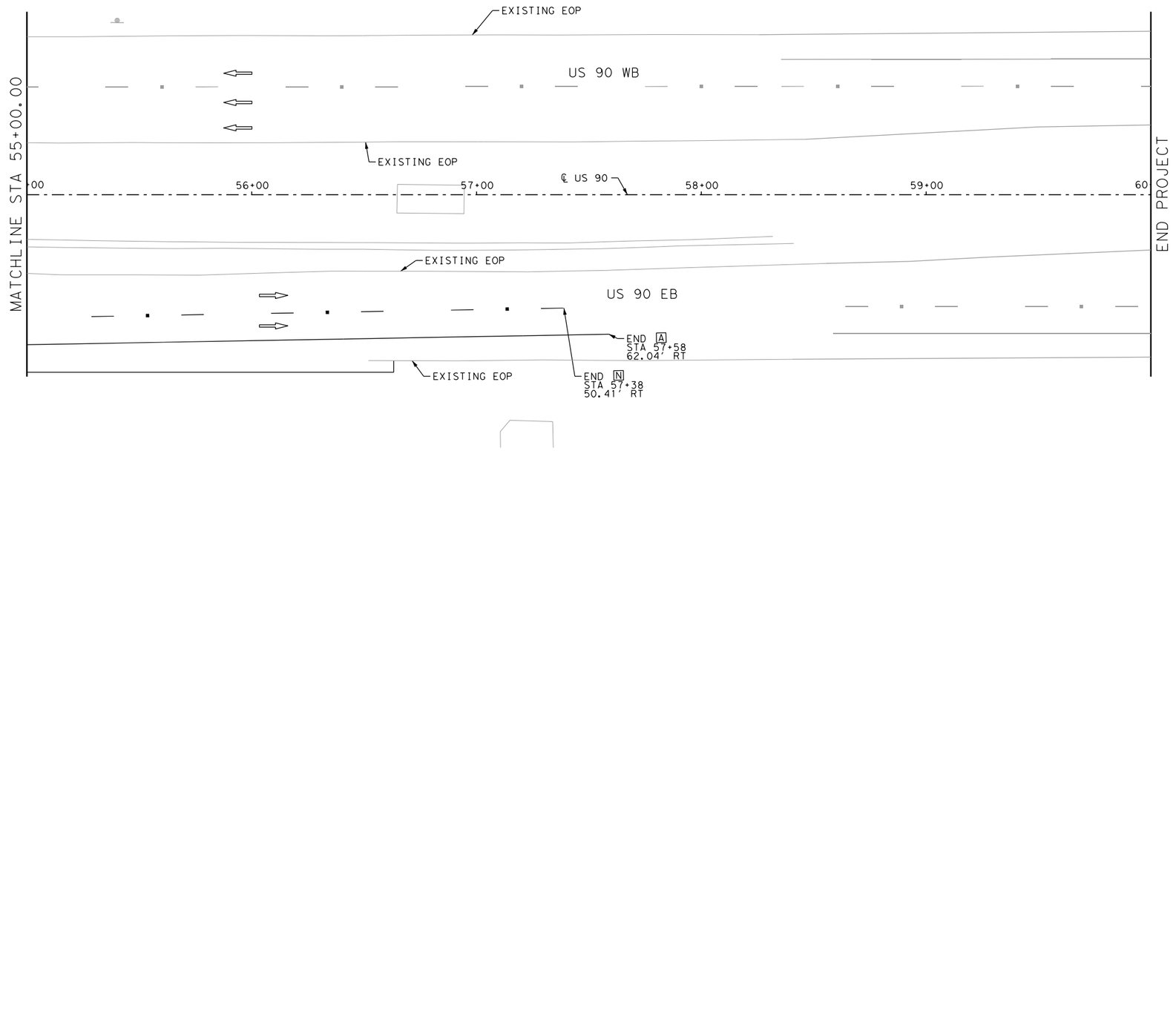
US 90 AT ALSATIAN OAKS

SIGNING AND PAVEMENT MARKINGS LAYOUT

STA 45+00 TO STA 55+00

SHEET 4 OF 5

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		



N

LEGEND

- A 6" SLD (W) STRIPE
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DESIGN

STATE OF TEXAS · RAYMOND D GUERRA · 136215 · LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS · DAN THOMA · 98622 · LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 25 50 75

SCALE: 1"= 50'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
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US 90 AT ALSATIAN OAKS

SIGNING AND PAVEMENT MARKINGS LAYOUT

STA 55+00 TO STA 60+00

SHEET 5 OF 5

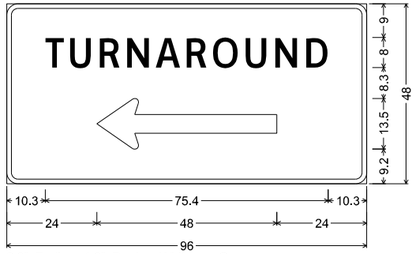
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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
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Plotted on: 2/22/2024

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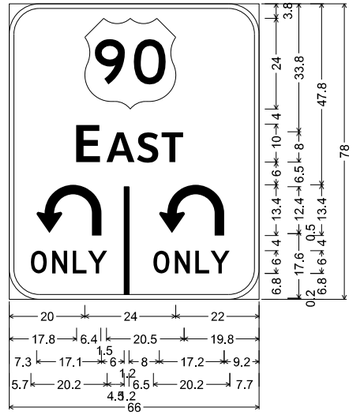
Plotted on: 2/22/2024

2-6, 3-9, & 4-6



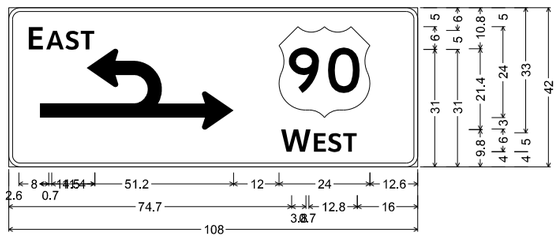
3.0" Radius, 1.3" Border, White on Green;
"TURNAROUND" ClearviewHwy-3-W;
Standard Arrow Custom 48.0" X 13.5" 180';

2-10



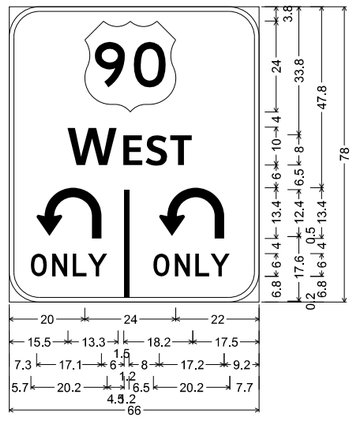
8.0" Radius, 1.3" Border, White on Green;
US 90 M1-4;
"E AST", ClearviewHwy-5-W-R 50% spacing;
UL ir=5, s=2.5; UL ir=5, s=2.5;
"ONLY", D; "ONLY", D;

2-3



3.0" Radius, 1.0" Border, White on Green;
"W EST", ClearviewHwy-5-W-R 50% spacing;
U-TURN-THRU ARROW; US 90 M1-4;
"E AST", ClearviewHwy-5-W-R 50% spacing;

4-4



8.0" Radius, 1.3" Border, White on Green;
US 90 M1-4;
"W EST", ClearviewHwy-5-W-R 50% spacing;
UL ir=5, s=2.5; UL ir=5, s=2.5;
"ONLY", D; "ONLY", D;

DESIGN

STATE OF TEXAS
RAYMOND D GUERRA
136215
LICENSED
PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS
DAN THOMA
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DAN THOMA, P.E. — 2/22/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

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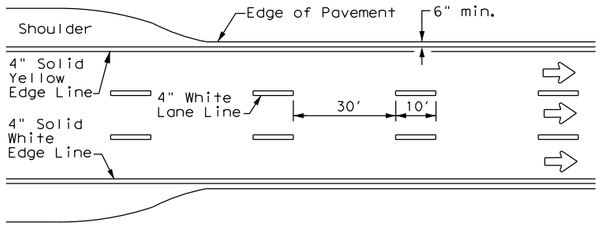
US 90 AT ALSATIAN OAKS

LARGE SIGN DETAILS

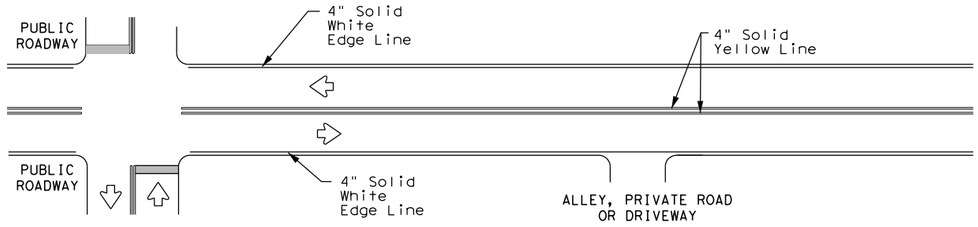
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CHK DGN:	6	TEXAS	-			
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
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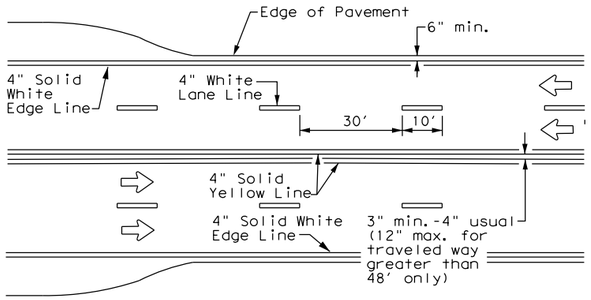
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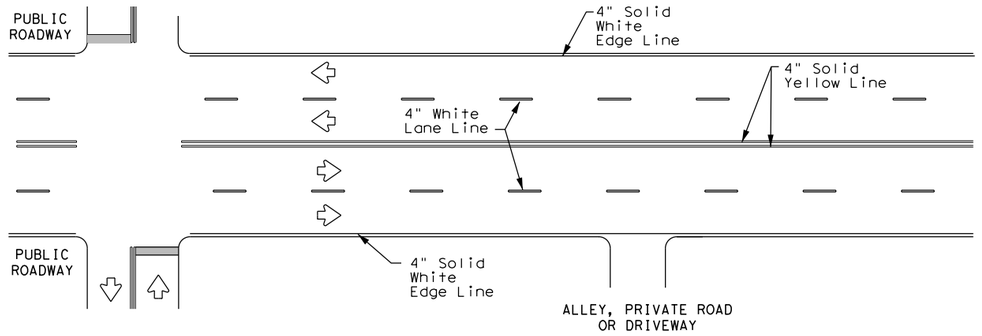
EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



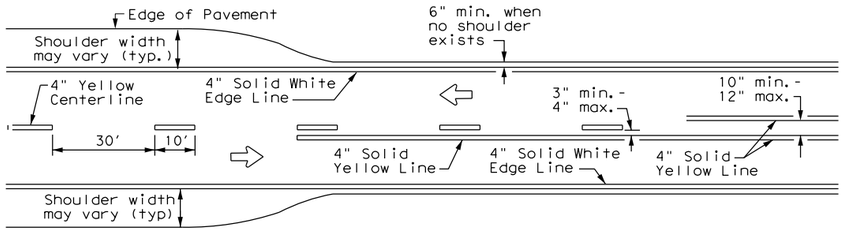
TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



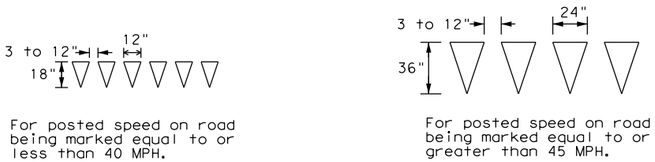
CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



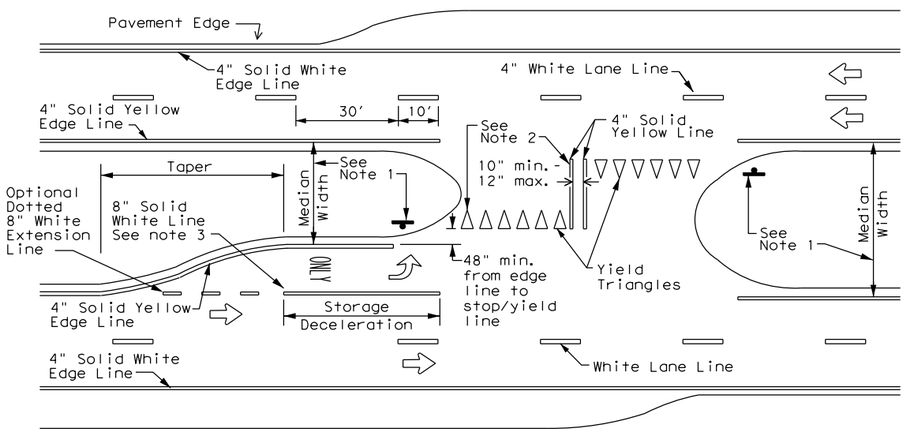
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

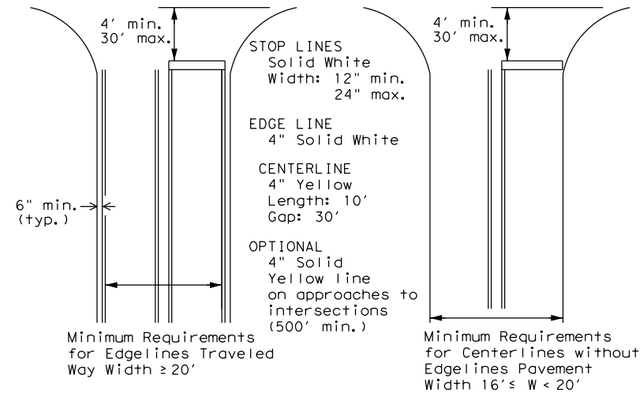
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the 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.



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

Texas Department of Transportation | Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

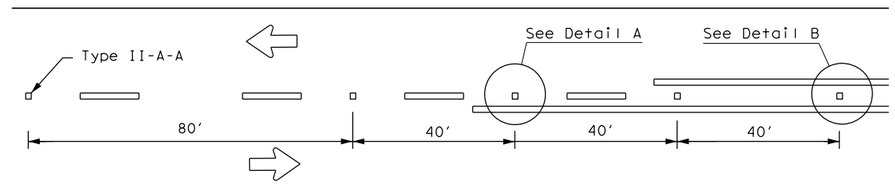
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©TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
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5-00 2-12	DIST	COUNTY		
8-00 6-20	SA	MEDINA		184

426

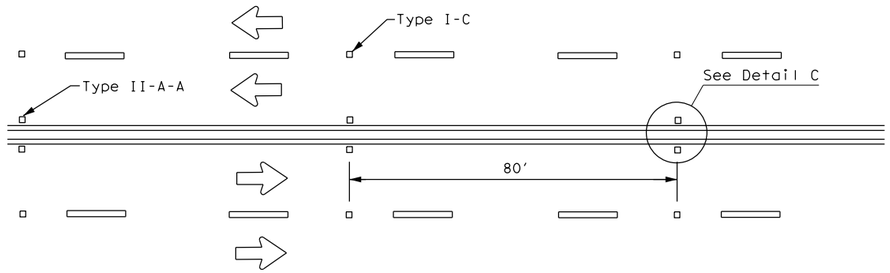
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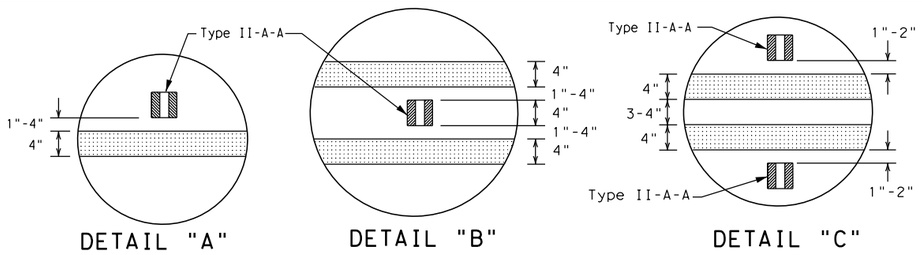
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



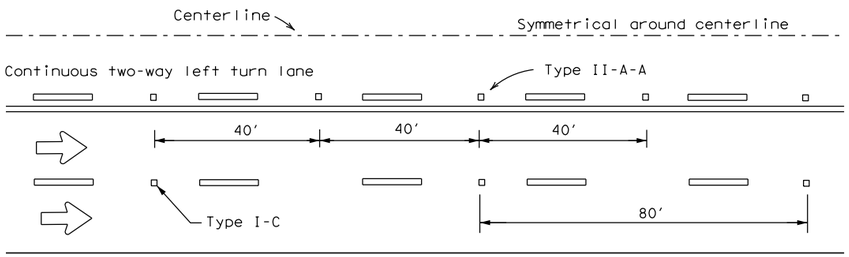
CENTERLINE FOR ALL TWO LANE ROADWAYS



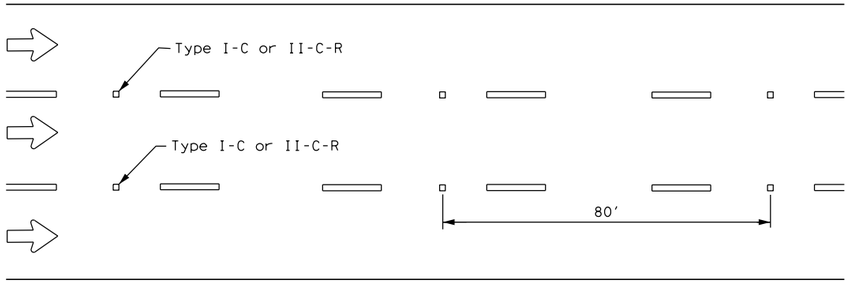
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" DETAIL "B" DETAIL "C"

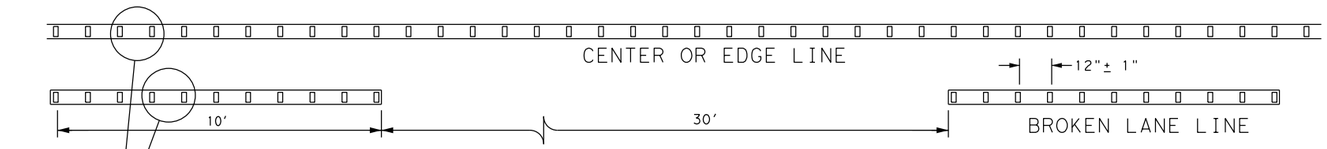


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



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

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



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

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.

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

NOTE

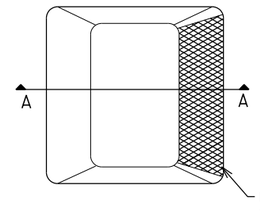
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

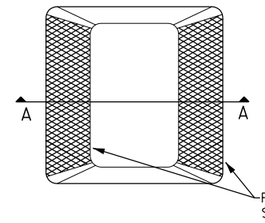
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

MATERIAL SPECIF	
PAVEMENT MARKERS (REFLECTORIZED	
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

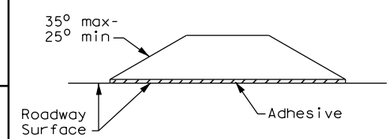
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	24	6		427
	DIST	COUNTY		
	SA	MEDINA		185

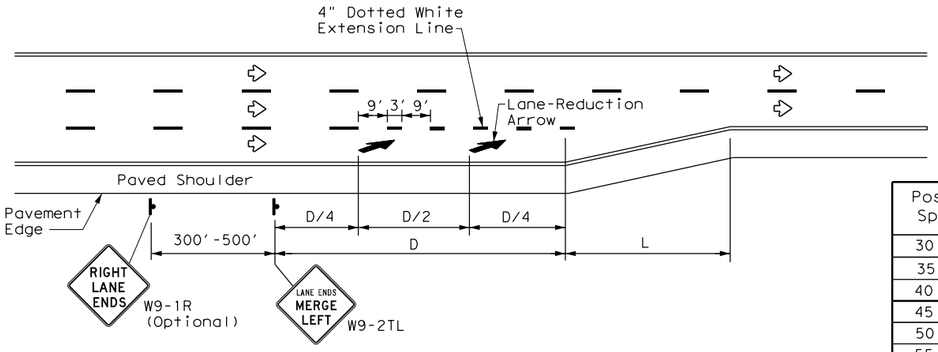
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DATE: 2/22/2024 11:29:04 AM
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Section X, Item d.

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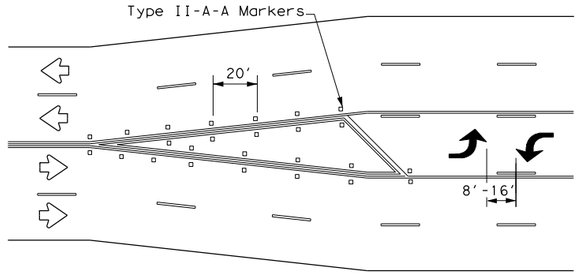


LANE REDUCTION

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

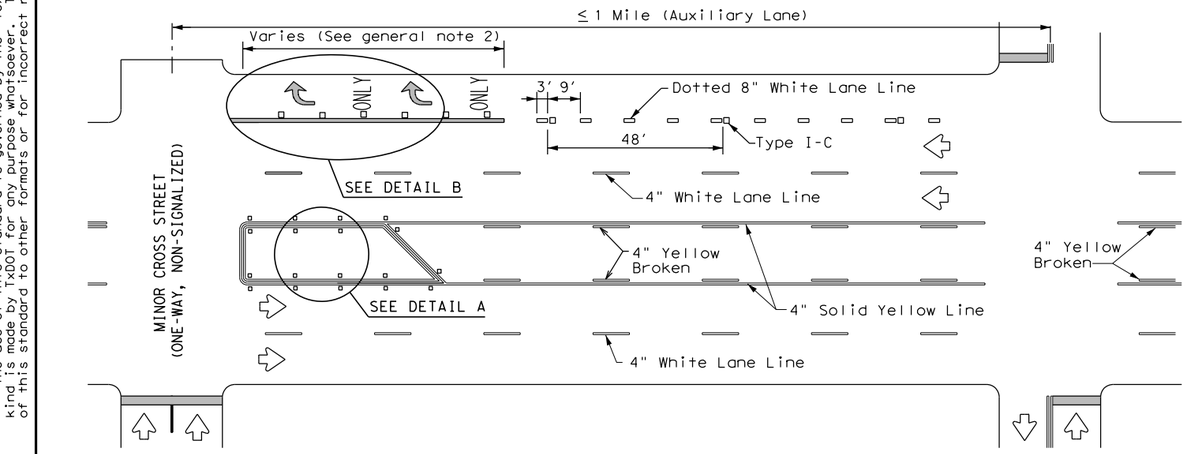
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

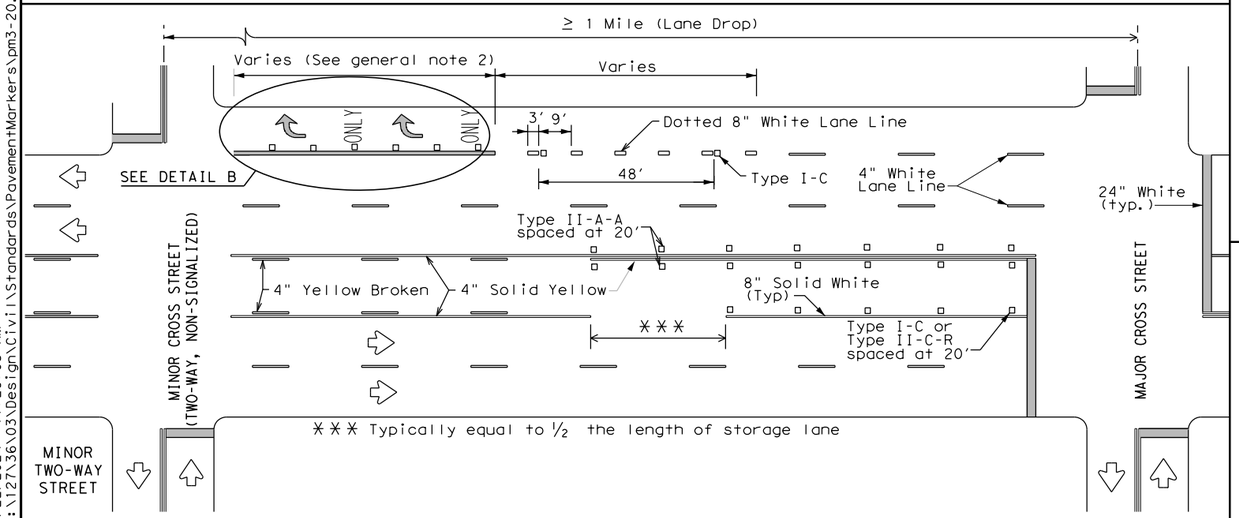
1. Lane use word and arrow markings [illegible] where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words 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.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

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

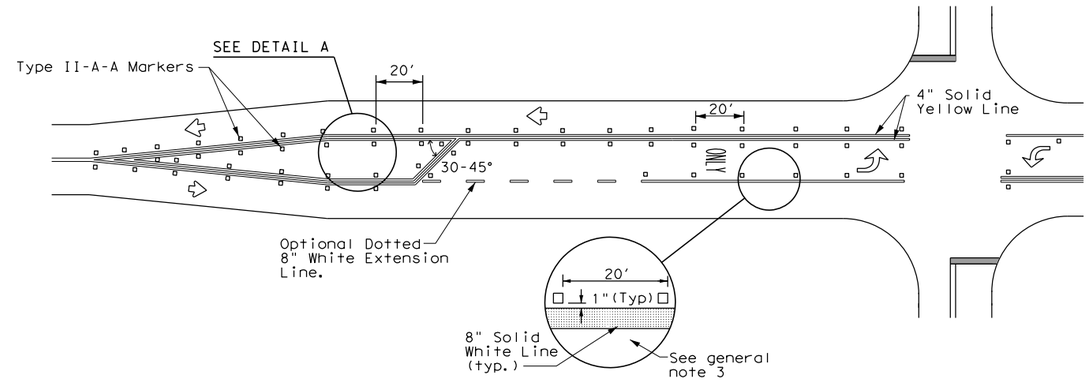
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



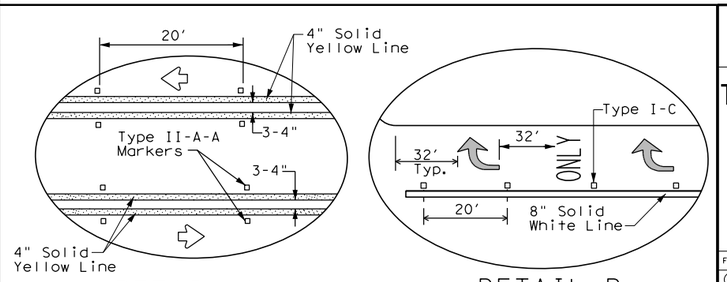
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



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



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

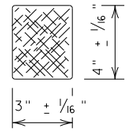
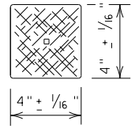
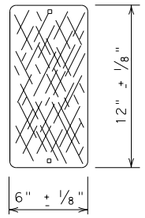
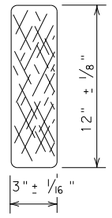
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©TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
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8-00 2-12	SA	MEDINA		186
3-03 6-20				

22C

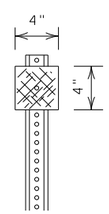
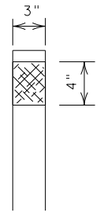
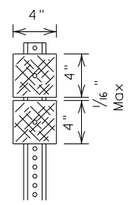
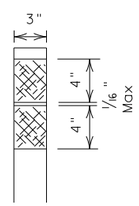
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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

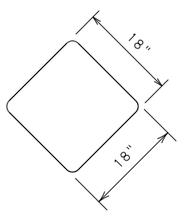
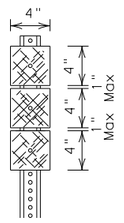
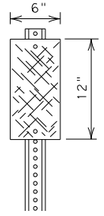
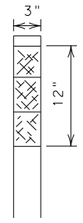
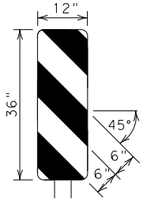
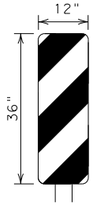
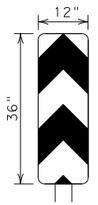
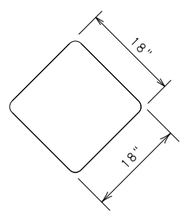
- NUMBER OF REFLECTORS
  - S = Single
  - D = Double
- COLOR OF REFLECTORS
  - W = White
  - Y = Yellow
  - R = Red
- REFLECTOR UNIT SIZE
  - 1 or 2
- TYPE OF POST OR DELINEATOR
  - WC = Wing Channel Post
  - YFLX = Yellow Flexible Post
  - WFLX = White Flexible Post
  - BRF = Barrier Reflector
- TYPE OF MOUNT
  - GND = Embedded (drivable or set in concrete)
  - CTB = Concrete Barrier Mount
  - GF1 or GF2 = Guard Fence Attachment
  - SRF = Surface Mount
- DIRECTION
  - If Required
  - BI = Bi-Directional
  - BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

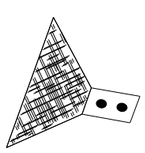
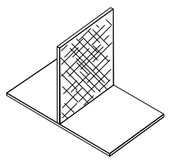
- TYPE OF OBJECT MARKER
  - 1, 2, 3, or 4
- NUMBER OF REFLECTORS OR DIRECTION
  - X = 3-Size 2 reflector units (Type 2 only)
  - Y = 1-Size 3 reflector unit (Type 2 only)
  - Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
  - L = Left Side (Type 3 Object Marker only)
  - R = Right Side (Type 3 Object Marker only)
  - C = Center (Type 3 Object Marker only)
- TYPE OF POST
  - WC = Wing Channel Post
  - WFLX = White Flexible Post
  - TWT = Thin Walled Tubing
- TYPE OF MOUNT
  - GND = Embedded (drivable)
  - SRF = Surface Mount
  - WAS = Wedge Anchor Steel
  - WAP = Wedge Anchor Plastic
- DIRECTION
  - If Required
  - BI = Bi-Directional

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

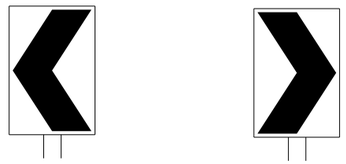
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE	 W1-8			
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

ONE DIRECTION LARGE ARROW

DEVICE	 W1-6	
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE

1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

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©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
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4-10 7-20	SA	MEDINA		187

20A

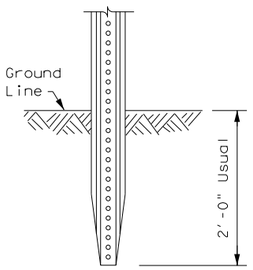
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POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

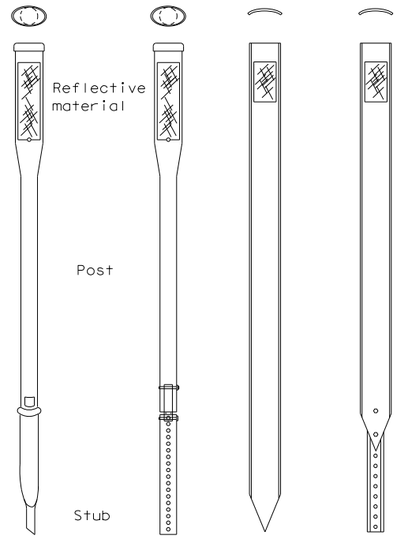


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

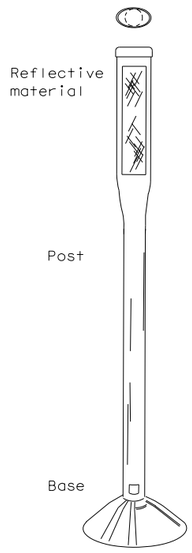
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



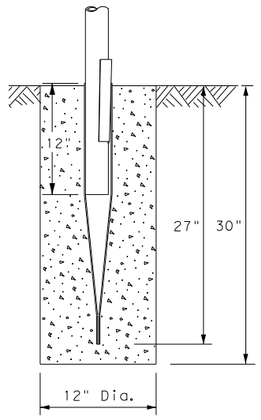
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

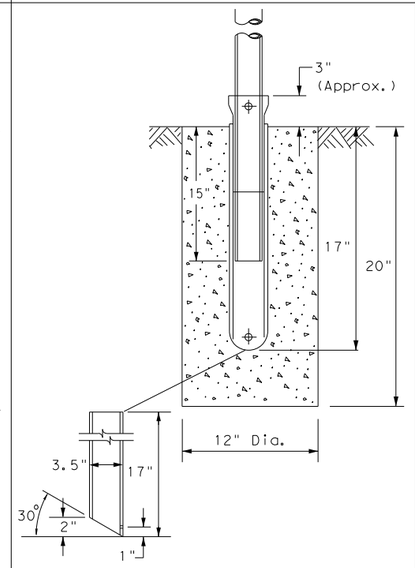
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

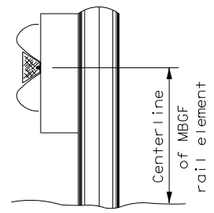
NOTE

1. Install per manufacturer's recommendations.

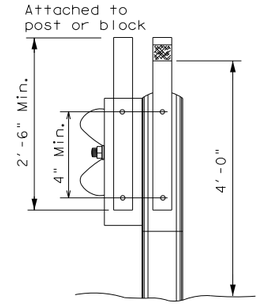
TYPE OF BARRIER MOUNTING

GUARD FENCE ATTACHMENT

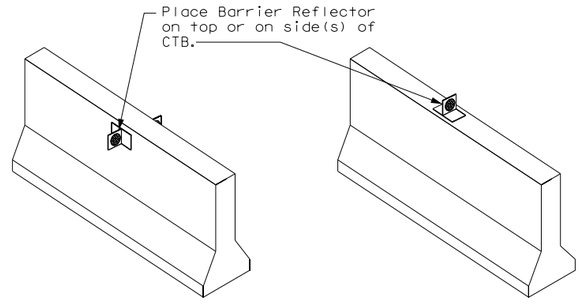
GF1



GF2



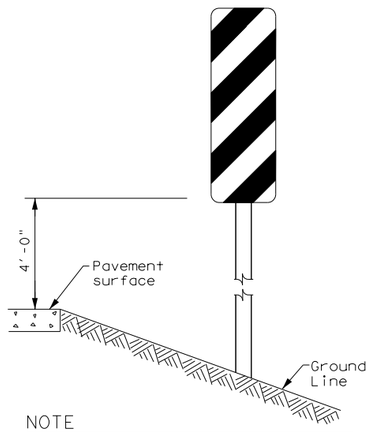
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

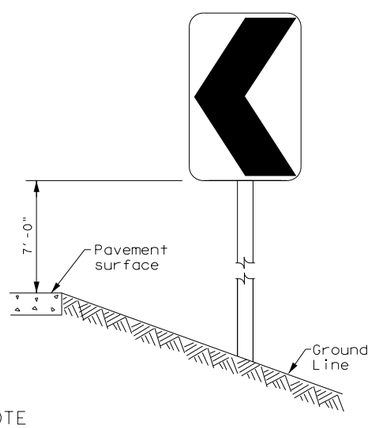
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

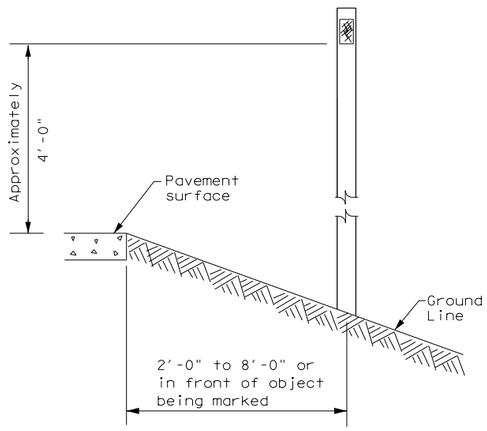
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation — Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

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©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
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4-10 7-20	SA	MEDINA		188
20B				

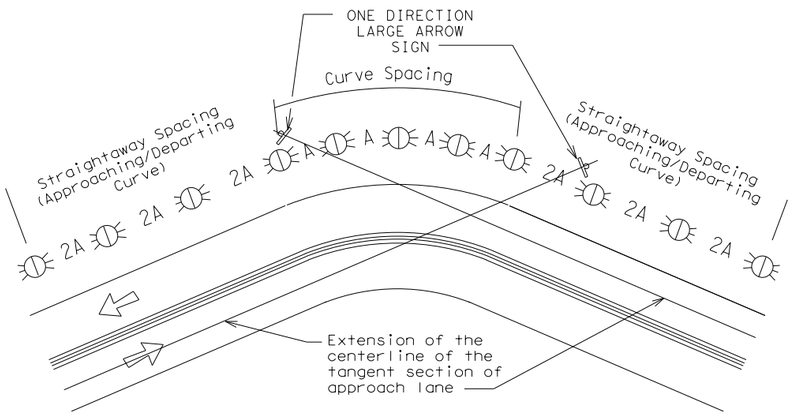
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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Curve Advisory Speed	
	Turn (30 MPH or less)	Curve (35 MPH or more)
5 MPH & 10 MPH	• RPMs	• RPMs
15 MPH & 20 MPH	• RPMs and One Direction Large Arrow sign	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons.
25 MPH & more	• RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons	• RPMs and Chevrons

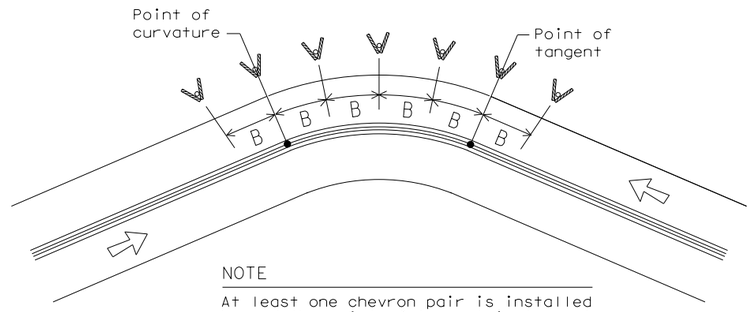
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET			
	Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	——
2	2865	160	320	——
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2xA	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SP

Section X, Item d.

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Frwy./Exp. Tangent	RPMs	See PM-series and FPM-series standard sheets
Frwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Frwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/Deceleration Lane	Double delineators (see Detail 3 on D&OM(4))	100 feet (See Detail 3 on D & OM (4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete)and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line	Every 5th cable barrier post (up to 100'max)
Guard Rail Terminus/Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM (4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

NOTES

1. Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

LEGEND	
	Bi-directional Delineator
	Delineator
	Sign

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

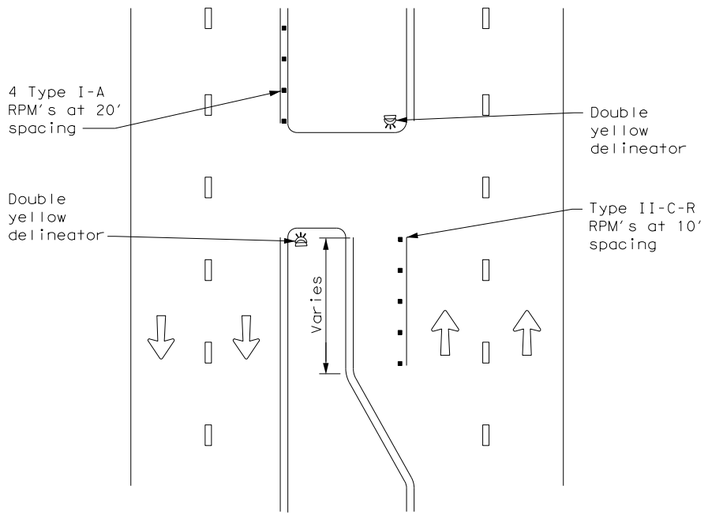
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©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
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8-15 7-20	SA	MEDINA		189

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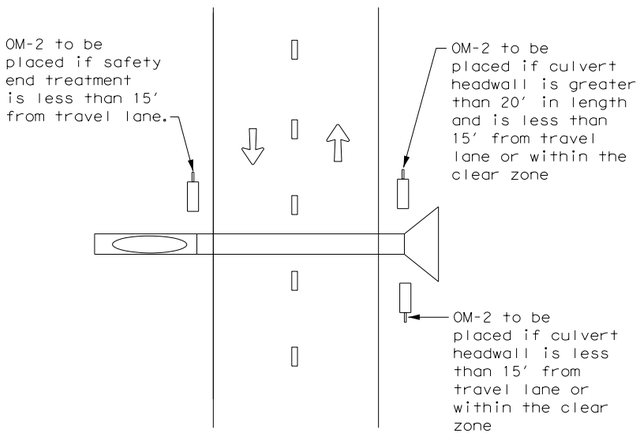
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CROSSOVERS



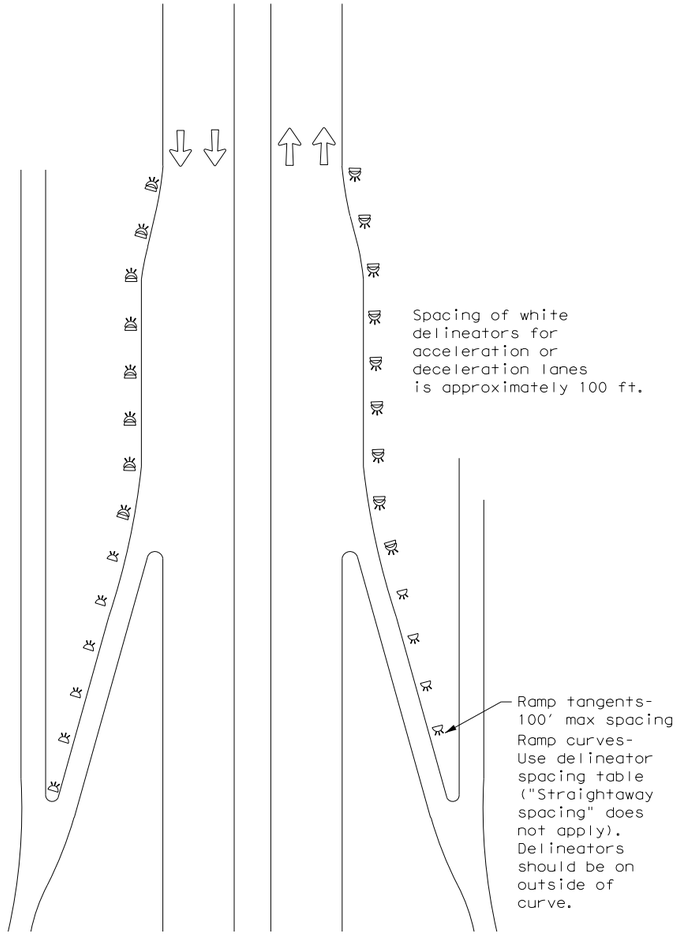
DETAIL 1

FOR CULVERTS WITHOUT MBGF



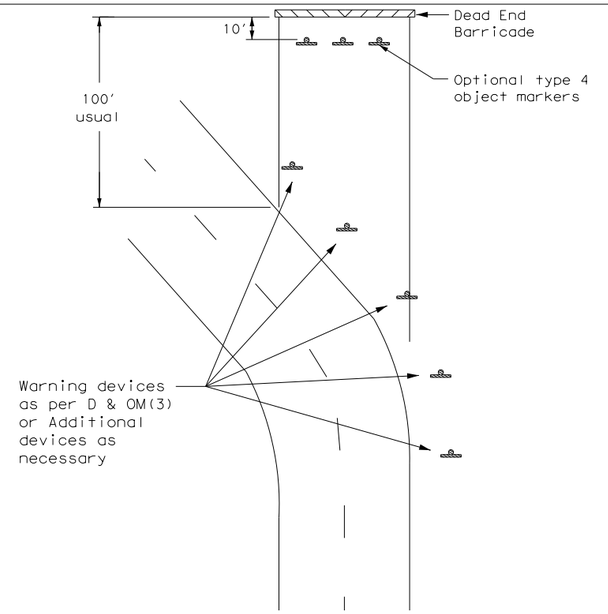
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



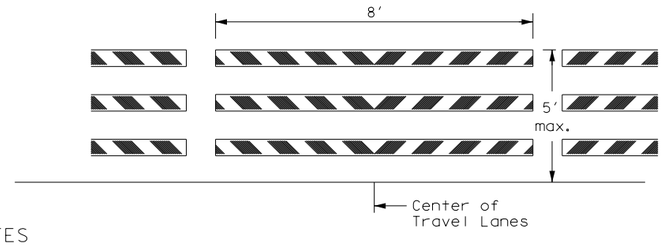
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

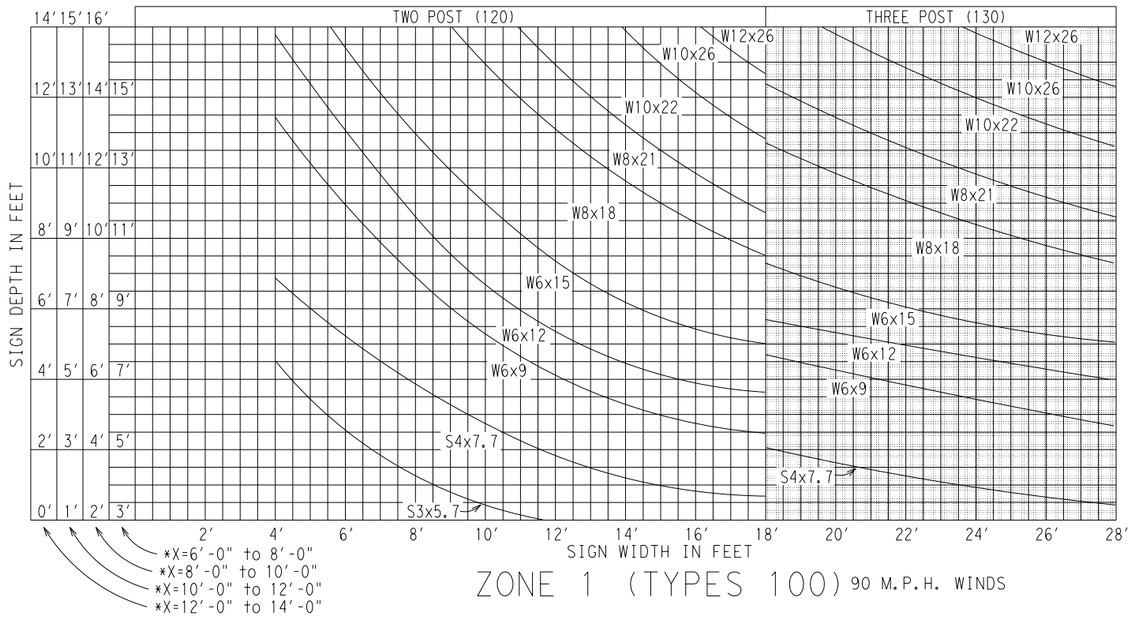
D & OM(4)-20

FILE: dom4-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
3-15	DIST	COUNTY		
7-20	SA	MEDINA		190

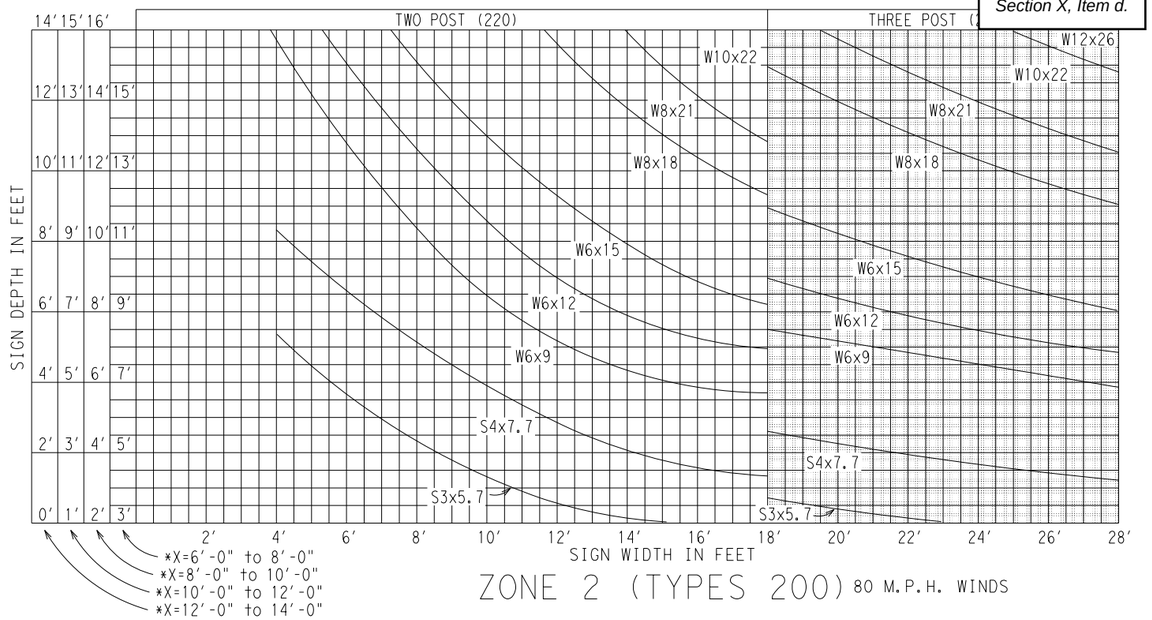
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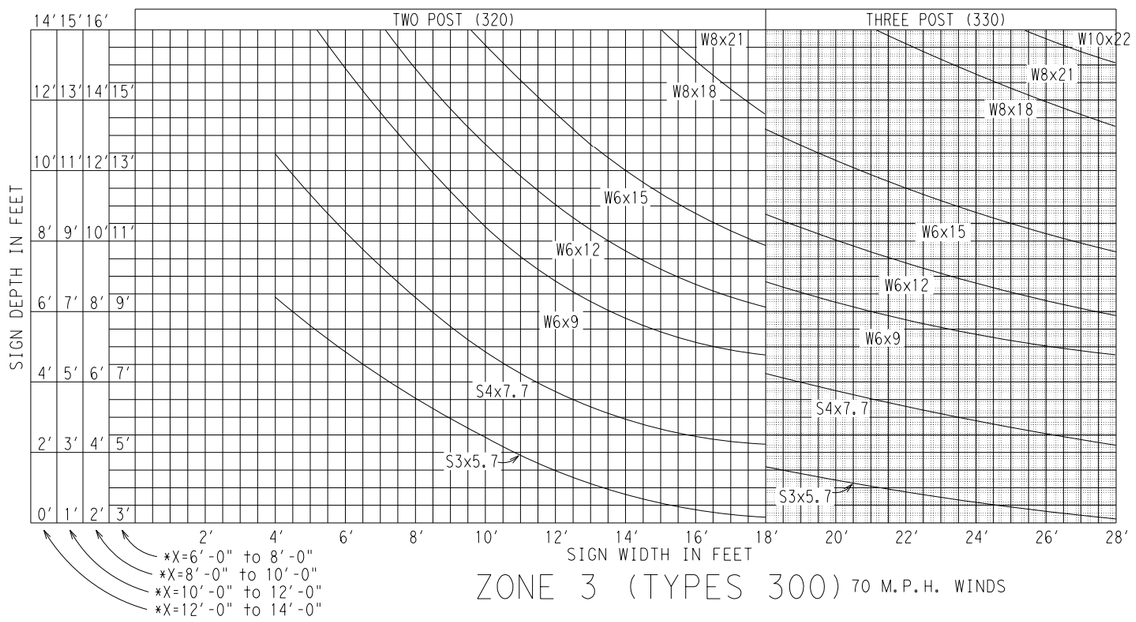
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ZONE 1 (TYPES 100) 90 M.P.H. WINDS



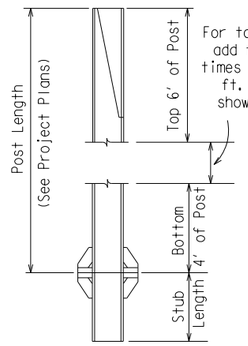
ZONE 2 (TYPES 200) 80 M.P.H. WINDS



ZONE 3 (TYPES 300) 70 M.P.H. WINDS

* NOTE: "X" EQUALS THE AVERAGE HEIGHT FROM THE GROUND LINE TO THE BOTTOM EDGE OF THE SIGN.

SHADED AREA DENOTES 3 POST SUPPORTS



POST WEIGHT DATA

POST SIZE	WEIGHT OF ONE POST (#)	WEIGHT OF TWO POSTS (#)	WEIGHT OF THREE POSTS (#)
W6x9*	123.2	246.4	369.6
W6x12*	160.3	320.6	480.9
W6x15*	167.8	335.6	503.4
W8x18*	201.8	403.6	605.4
W8x21*	254.7	509.4	764.1
W10x22*	266.0	532.0	798.0
W10x26*	308.0	616.0	924.0
W12x26*	308.6	617.2	925.8
S3x5.7*	85.9	171.8	257.7
S4x7.7*	112.2	224.4	336.6

*LAST FIGURES=POST WT. PER FT.

Weight Data is the weight of items shown for one, two or three posts - (includes top 6' of post, bottom 4' of post, post foundation stub, related base connection plates and stiffeners, friction fuse plate and all high strength bolts, nuts and washers).

SIGN TYPE

SIGN TYPE 1 3 0

- 1 — Wind Design Zone
- 3 — Series No.
- 0 — 0 Aluminum/Fiberglass, 1 Aluminum, 2 Fiberglass
- 0 — No. of Posts

Note: Footings for S3x5.7 and S4x7.7 post sizes shall be non-reinforced with Class A concrete, while footing for all other post sizes shall be reinforced with Class C concrete.

Texas Department of Transportation
Traffic Operations Division

LARGE ROADSIDE SIGN SUPPORTS
POST SELECTION
WORKSHEET
SMD(8W1)-08

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REVISIONS
1-82
5-01
9-08

CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		191

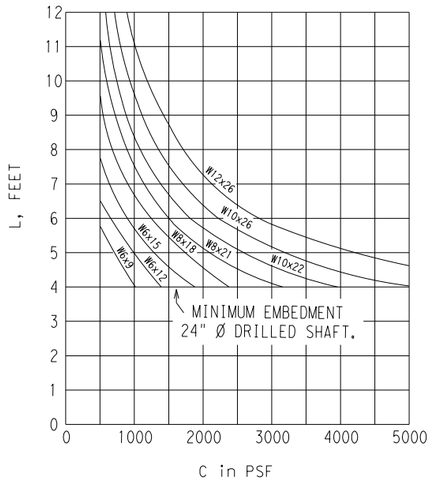
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29A

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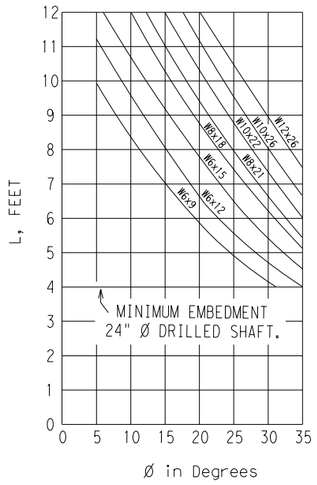
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I



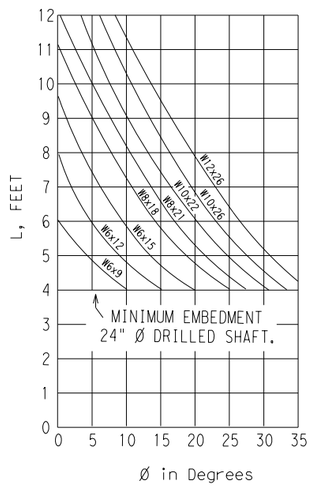
Ø = 0 Degrees

II



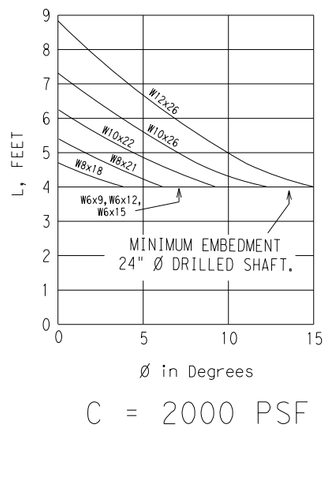
C = 0 PSF

III



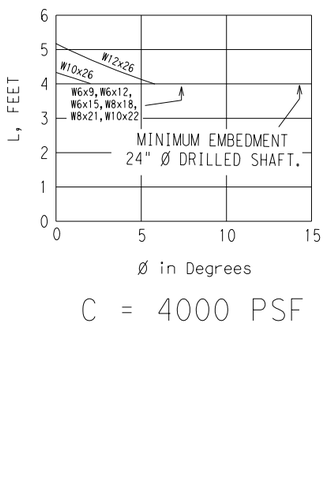
C = 500 PSF

IV



C = 2000 PSF

V



C = 4000 PSF

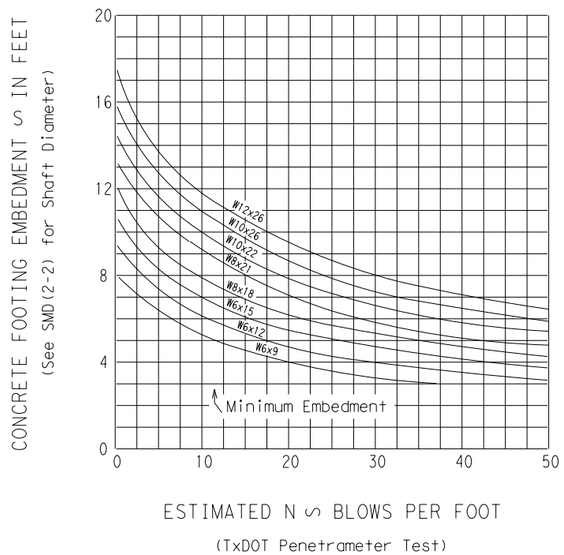
DRILLED CONCRETE FOOTING DEPTH CHART
(COHFRIC DESIGN)

NOTE: THESE CHARTS MAY BE USED AS AN ALTERNATE TO THE CHART BELOW, PROVIDED THAT SOIL COHESION AND INTERNAL FRICTION (COHFRIC) DATA ARE AVAILABLE.

LEGEND:

L = Required embedment of concrete drilled shaft, in feet
C = Cohesive shear strength of soil, in psf
Ø = Angle of internal friction of soil, in degrees

For values of C and Ø which are intermediate to those on the charts, embedments may be determined by straight - line interpolation.



DRILLED CONCRETE FOOTING DEPTH CHART
(TxDOT PENETROMETER DESIGN)

NOTE: ESTIMATED N SHOULD BE BASED AT APPROXIMATELY THE UPPER ONE-THIRD POINT OF THE DRILLED CONCRETE FOOTING BELOW THE GROUND LINE

Note:
1. Curves shown on this sheet are applicable for reinforced concrete footings only.

Texas Department of Transportation
Traffic Operations Division

LARGE ROADSIDE SIGN SUPPORTS FOUNDATION WORKSHEET
SMD(8W2)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
5-74
4-78
9-08

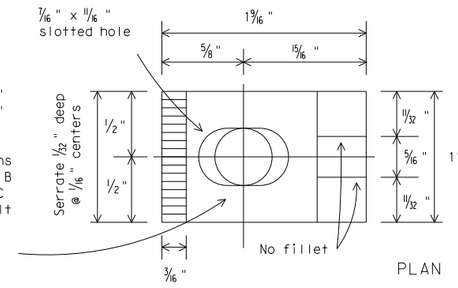
CONT	SECT	JOB	HIGHWAY
24	6		434
DIST	COUNTY		
SA	MEDINA		192

29B

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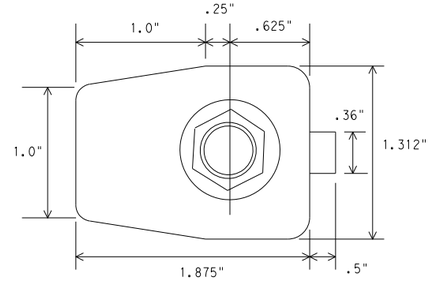
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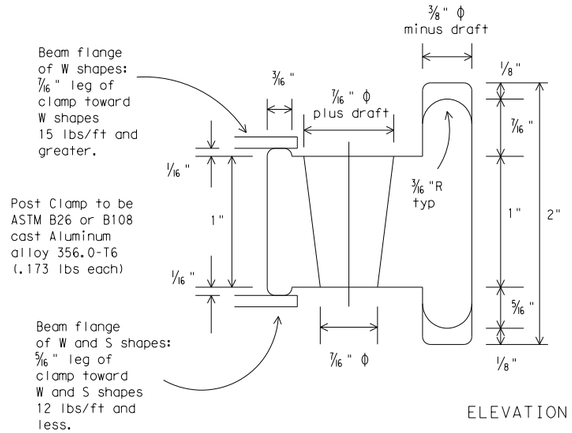


NOTE: centerline of hole for 3/8" diameter squarehead bolt x 2 1/4" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.

PLAN

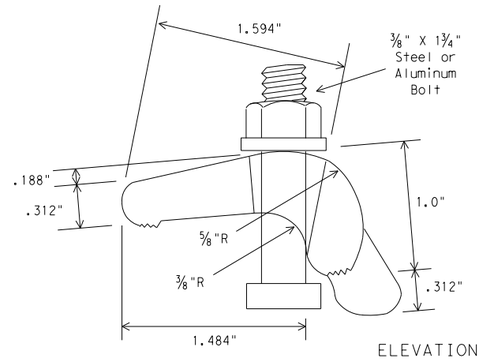


PLAN



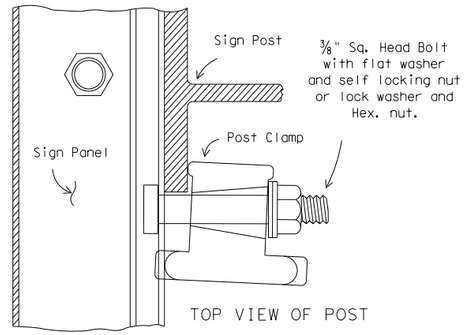
ELEVATION

POST CLAMP DETAIL

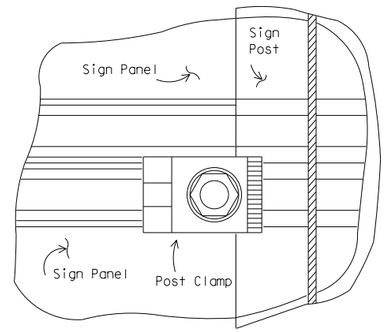


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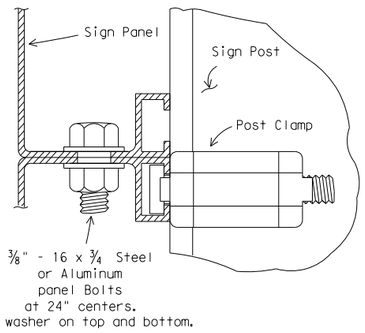
ALTERNATE POST CLAMP DETAIL



TOP VIEW OF POST



TOP VIEW OF CLAMP



SIDE VIEW OF PANELS

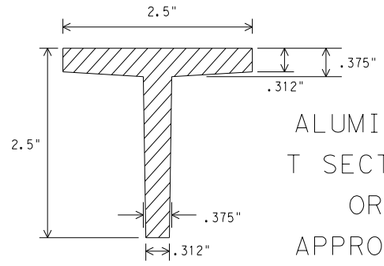
CONNECTION DETAILS

DEPARTMENTAL MATERIAL SPECIFICATIONS — SIGN HARDWARE — DMS-7120

Section X, Item d.

GENERAL NOTES:

1. Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
2. Materials and fabrication shall conform to the requirements of the Department material specifications.
3. Structural steel shall be "low-alloy steel" for non-bridge structures per Item 442, "Metal For Structures."
4. For fiberglass substrate connection details, see manufacturer's recommendations.

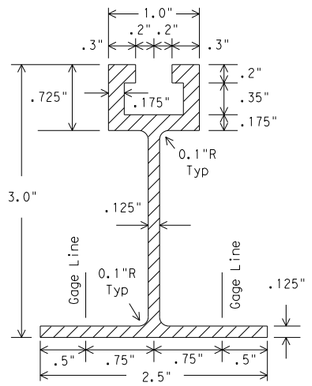


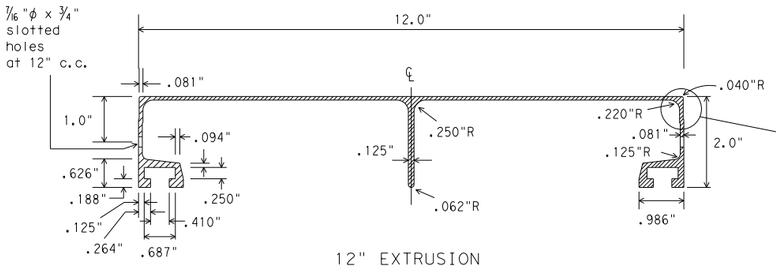
1.912 lbs/ft

ALUMINUM T SECTION OR APPROVED ALTERNATIVE

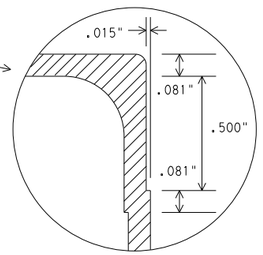
WINDBEAM CROSS SECTION

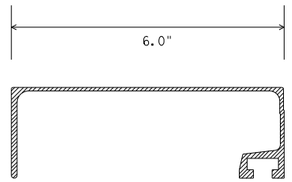
Windbeam to be extruded aluminum (1.175 lbs/ft) or approved alternative



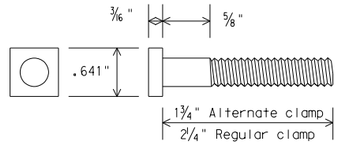


12" EXTRUSION





6" EXTRUSION



POST CLAMP BOLT DETAIL

ALUMINUM SIGN PANEL EXTRUSION DETAILS

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS- EXTRUDED ALUMINUM SIGN PANELS & HARDWARE

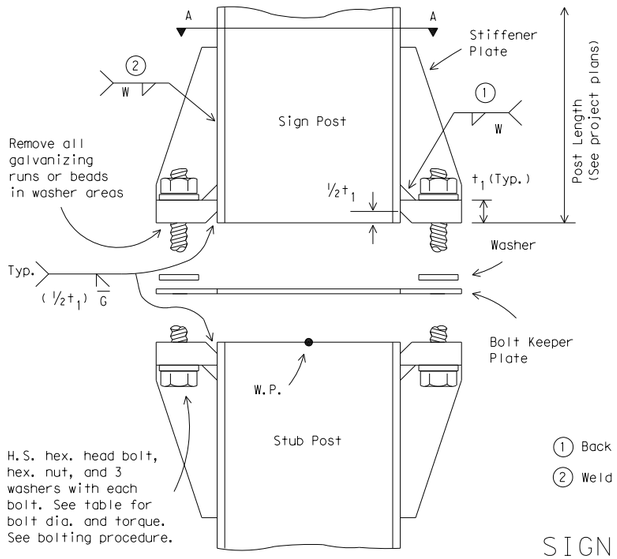
SMD(2-1)-08

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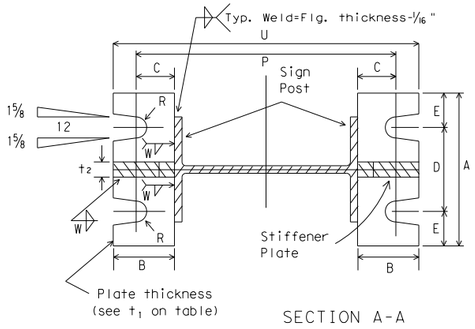
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CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		

9-08 REVISIONS

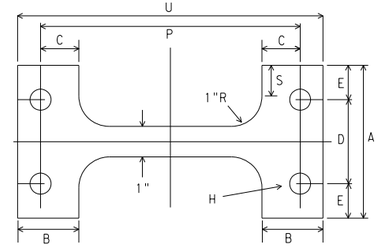
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ELEVATION

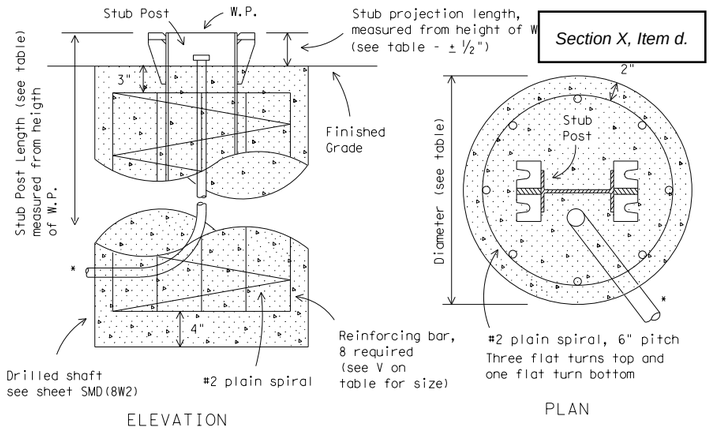


SECTION A-A



H= Bolt dia. + ⅛"

BOLT KEEPER PLATE
30 Ga galv. sheet steel



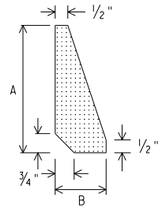
ELEVATION PLAN

FOUNDATION DETAIL

*Note: For signs with electrical apparatus, see ED(10) for conduit required in founation.

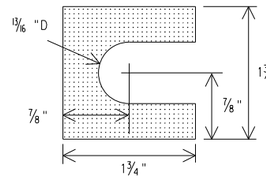
1. Back up weld to be made before installing stiffener plate
2. Weld W may be continued across clips to seal joint

SIGN POST AND STUB POST
(For W Shapes)



STIFFENER PLATE DETAIL

Steel Plate (thickness = t_2)
(See table for dimensions)



SHIM DETAIL

Furnish two .012"+ thick and two .032"+ thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM B36.

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt as shown.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
4. Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque. Do not overtighten.
5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

Base Connection Data Table

Dimensions / Post Size	Bolt Size & Torque	A	B	C	D	E	t_1	t_2	W	R
W6x9	⅝"ϕ x 2¾" 440-450 inch pounds 36-38 foot pounds	5"	2"	1¼"	2¾"	1⅛"	¾"	½"	¼"	11/32"
W6x12										
W6x15										
W8x18										
W8x21	¾"ϕ x 3½" 740-750 inch pounds 62-63 foot pounds	6"	2¼"	1⅜"	3½"	1¼"	1"	¾"	5/16"	13/32"
W10x22										
W10x26										
W12x26										
S3x5.7	½"ϕ x 2½" 440-450 inch pounds 36-38 foot pounds	See Detail Below								
S4x7.7										

Perforated Fuse Plate Data Table

F	G	J	K	M	d_1	d_2	t_3	Bolt Dia.	Wt. (ea.) (lbs.)	Bolt length
4¼"	2"	4"	2¼"	1"	9/16"	¾"	¼"	½"	1.01	1½"
5"	2½"	6"	3½"	1½"	11/16"	1¼"	⅜"	⅝"	2.51	2¼"
5"	2½"	5¼"	2¾"	1¼"	11/16"	1 1/16"	⅜"	⅝"	2.26	2¼"
5½"	2½"	5¼"	2¾"	1¼"	13/16"	1"	½"	¾"	3.35	2¼"
6"	3"	5¾"	2¾"	1⅜"	13/16"	1⅛"	½"	¾"	4.03	2¼"
6"	3"	6½"	3½"	1⅝"	13/16"	1 5/16"	½"	¾"	4.47	2¼"
3¾"	1½"	2⅝"	1½"	⅝"	9/16"	⅜"	¼"	½"	0.60	1½"

Bolt Keeper Data

P	S	U
8⅜"	1"	9⅞"
8½"		10"
8½"		10"
10⅝"		12⅛"
11"	1½"	12¾"
12⅞"		14⅝"
13⅛"		14⅞"
15"		16¾"
See Detail Below		

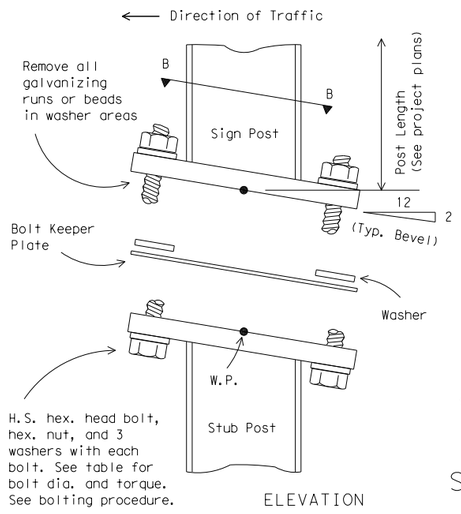
Foundation Data

Stub length	Stub projection	Dr. Shaft diameter	Bar V Size
2'-0"	3"	24"	#5
2'-0"	3"		#5
2'-6"	3"		#6
2'-6"	3"		#7
3'-0"	2½"		#8
3'-0"	2½"		#9
3'-0"	2½"		#10
3'-0"	2½"		#11
3'-3½"	3½"	12"	Non-reinforced ③

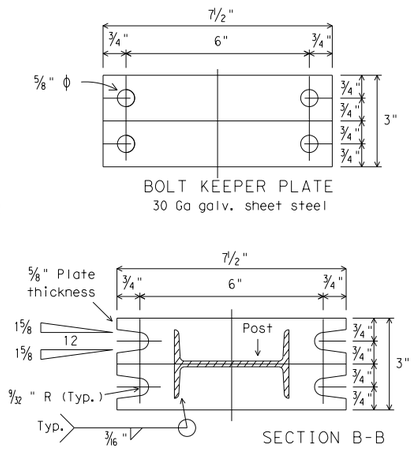
③ Foundation design shall be Type G Mount, see SMD (TY G).

PERFORATED FUSE PLATE DETAIL

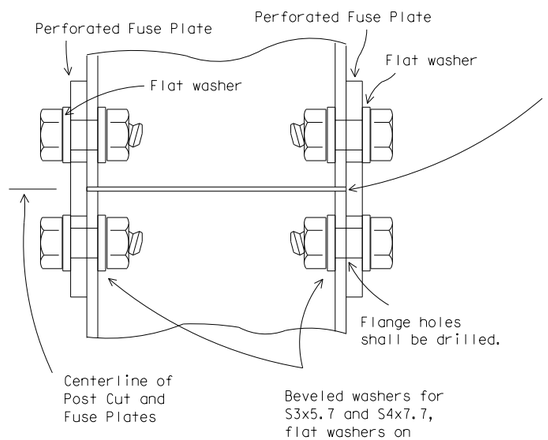
Use H.S. hex head bolts, hex head nut and bevel or flat washer (where req'd) under nut. All holes shall be drilled, sub-punched and reamed. All plate cuts shall preferably be saw cuts. However, flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be permitted. Steel fuse plates shall conform to the requirements of ASTM A36. ASTM A572 Grade 50 or ASTM A588 may be substituted for A36 at the option of the fabricator. Mill test reports shall be submitted for Fuse Plates. Steel used shall have an ultimate tensile strength not to exceed 80 KSI. For alternative Fuse Plate contact Traffic Operations Division.



ELEVATION



SIGN POST AND STUB POST
(For S4x7.7 and S3x5.7)



DETAIL "A"

Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface repaired per Item 445, "Galvanizing."

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS- LARGE ROADSIDE SIGNS FOUNDATION & STUB

SMD(2-2)-08

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REVISIONS
4-98
9-08

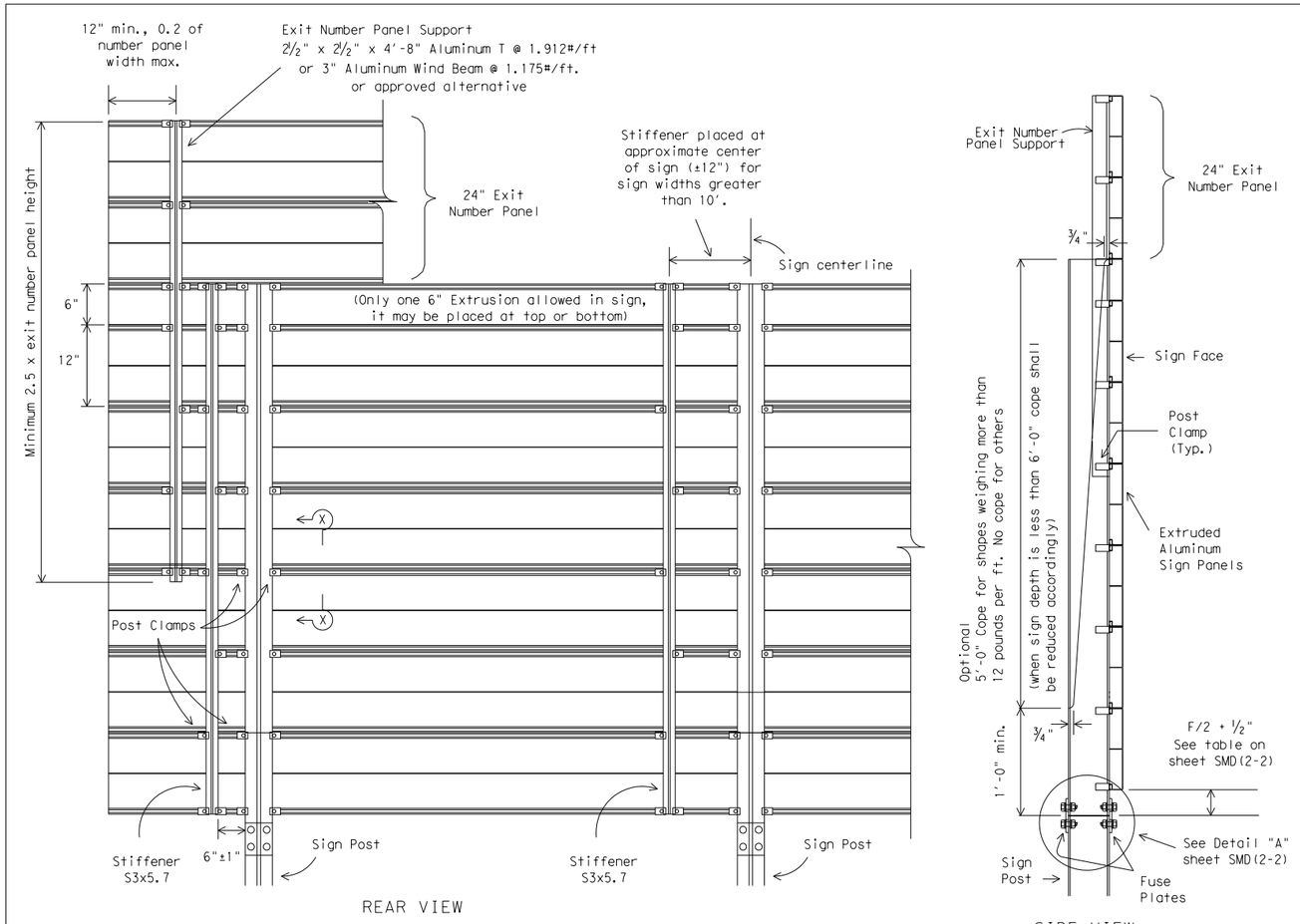
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24	6		
DIST	COUNTY		
SA	MEDINA		194

436

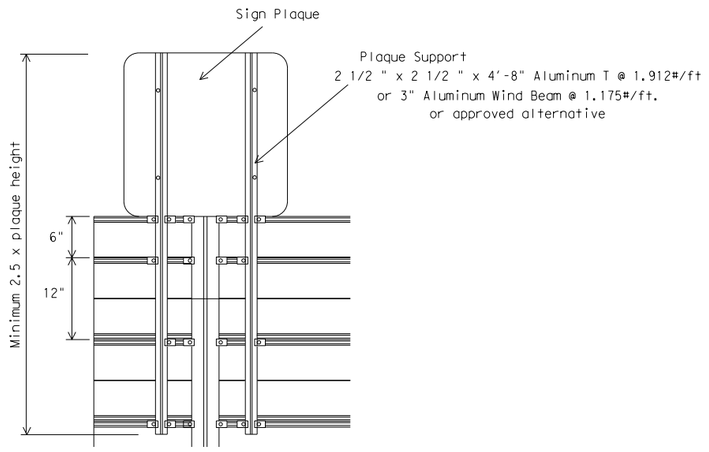
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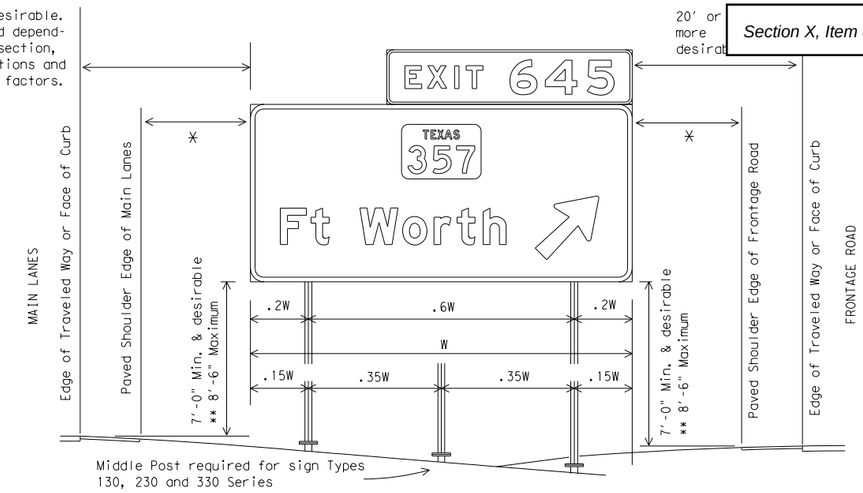
ALUMINUM PARENT SIGN & EXIT NUMBER PANEL MOUNTING DETAILS



SIGN PLAQUE MOUNTING DETAIL TO ALUMINUM PARENT SIGN

30' or more desirable. May be reduced depending on cross section, viewing conditions and other related factors.

20' or more desirable



TYPICAL SIGN INSTALLATION AND LOCATION

LATERAL CLEARANCE NOTES:

Lateral clearances of signs mounted on median side of main lanes are the same as shown above where space will permit.

Where a sign is to be located behind guardrail, an allowable minimum clearance of five feet may be used, measured from the face of the guardrail to the near edge of sign.

✳ - 6' minimum and desirable may be used only in areas of limited lateral clearance and when approved by the Engineer.

POST SPACING NOTES:

Post spacing on a two post sign may vary a maximum of plus or minus 10% of total sign width to fit field conditions.

Post spacing on a three post sign may vary a maximum of plus or minus 5% of total sign width to fit field conditions.

SIGN HEIGHT NOTES:

** The 8' 6" maximum may be exceeded when placing signs on extreme slopes. In these conditions, a 7' minimum from natural ground to bottom of sign must be maintained.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN HARDWARE	DMS-7120

GENERAL NOTES:

1. Exit number panel shall be mounted to the right hand side of the parent sign for right exits and to the left hand side for left exits. The number panel shall be mounted with two uprights so its right edge is even with the right edge of the parent sign or vice-versa for left hand exits.
2. Exit number panel support shall be symmetrical about number panel centerline.
3. Exit number panel support shall be ASTM A36 structural steel galvanized after fabrication, or ASTM B221 aluminum alloy 6061-T6 or approved alternative.
4. All bolts, nuts and washers shall be galvanized per ASTM Designation: B695 Class 50, or A153 Class C or D.
5. Posts, parent sign panels, and exit number panels shall comply with notes on sheets SMD(2-1) and SMD(2-2).
6. Signs (such as exit number panels) attached above a parent sign shall be made of the same type material as the parent sign. General Service and Routing signs may be fabricated from flat sheet aluminum.
7. Exit number panel support and other connection hardware required to fasten exit number panel to parent sign shall be subsidiary to "Aluminum Signs" or "Fiberglass Signs."
8. For fiberglass sign installation details, see manufacturer's recommendations.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS-LARGE ROADSIDE SIGNS

SMD(2-3)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		195

REVISIONS
9-08

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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)

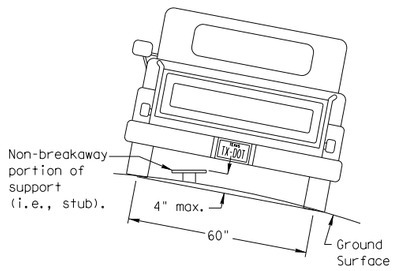
Post Type
- FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
- TWT = Thin-Walled Tubing (see SMD(TWT))
- 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
- S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

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))

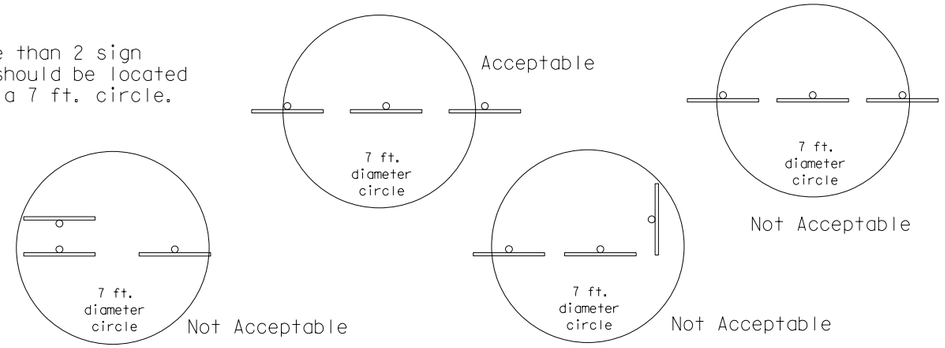
Sign Mounting Designation
- P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
- T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
- U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
- IF REQUIRED
- 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
- BM = Extruded Wind 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-1))

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



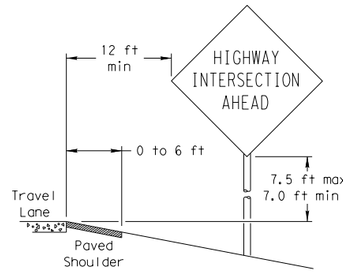
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



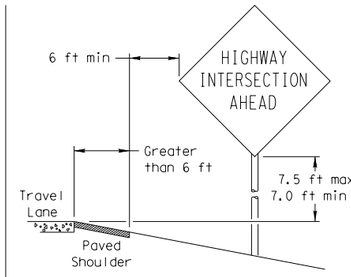
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

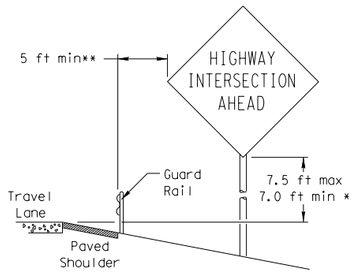
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



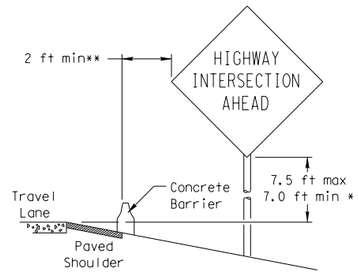
GREATER THAN 6 FT. WIDE

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

BEHIND BARRIER



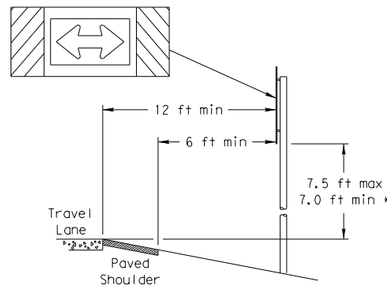
BEHIND GUARDRAIL



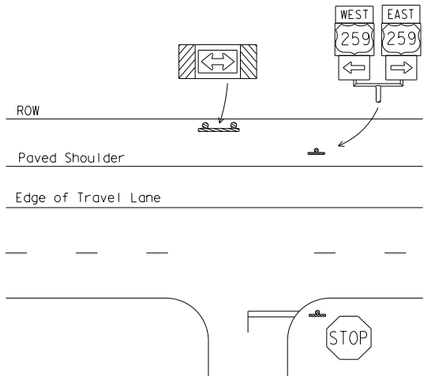
BEHIND CONCRETE BARRIER

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

T-INTERSECTION



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



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

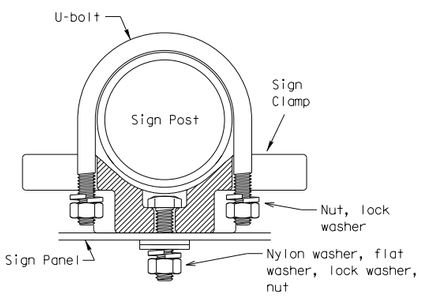
The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

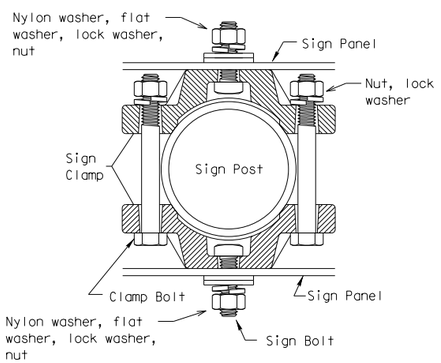


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

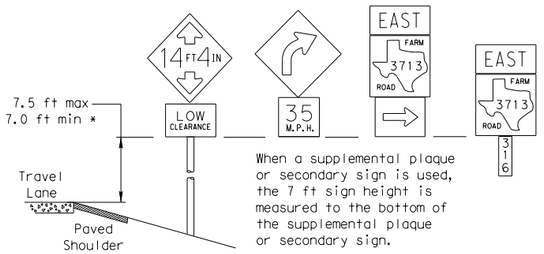
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



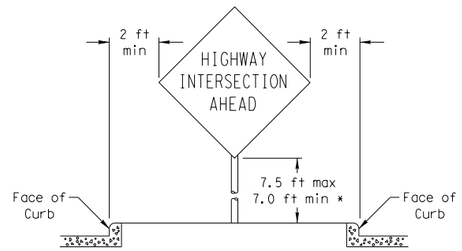
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



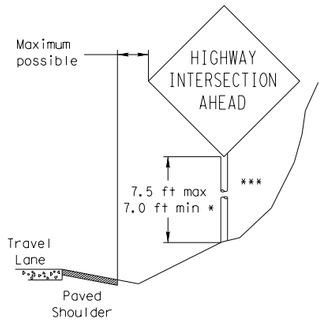
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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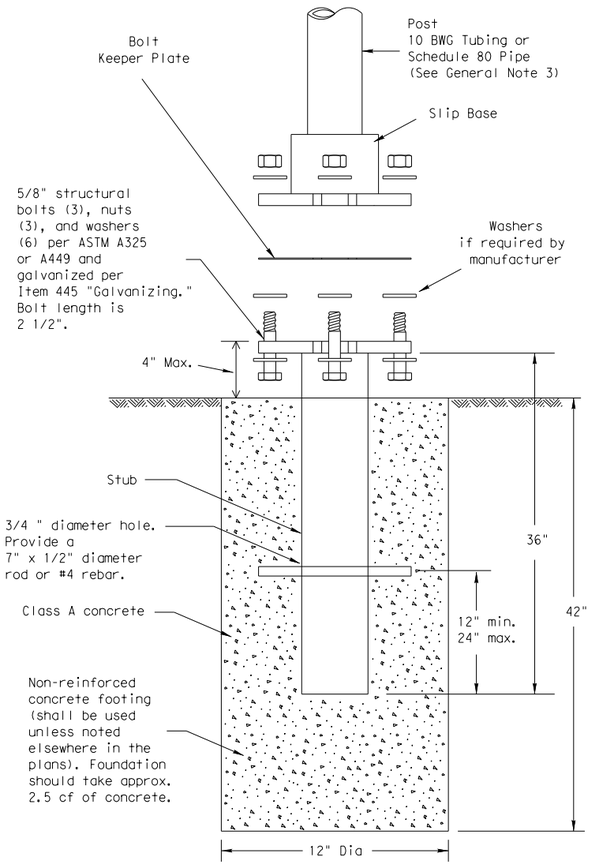
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	DIST	COUNTY		
	SA	MEDINA		196

26A

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

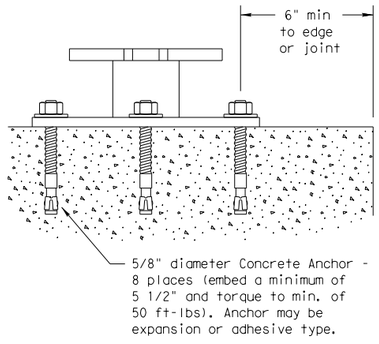
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



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

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
24	6		
DIST	COUNTY		
SA	MEDINA		197

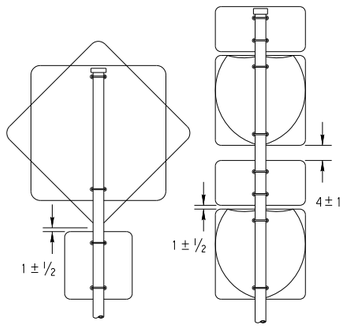
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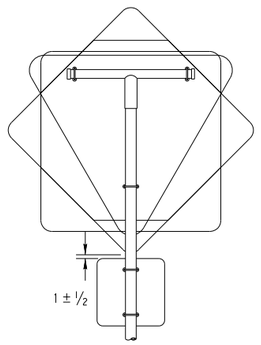
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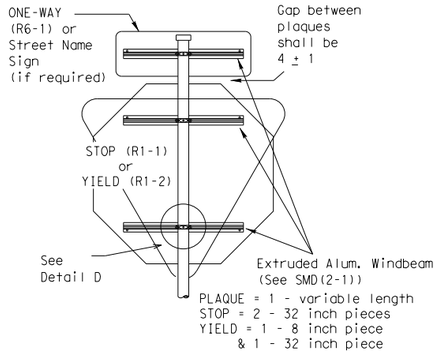
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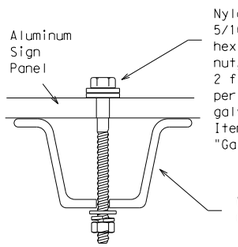
SM RD SGN ASSM TY XXXXX(1)XX(P)



SM RD SGN ASSM TY XXXXX(1)XX(T)

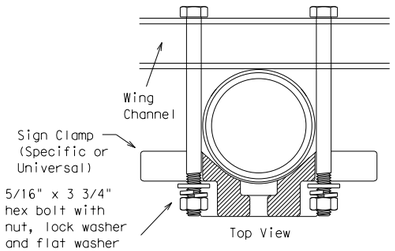


SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



Top View

Detail A



Top View

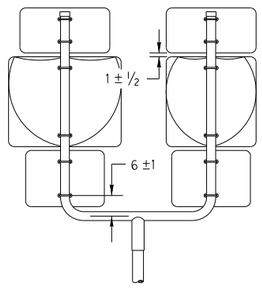
Detail B

GENERAL NOTES:

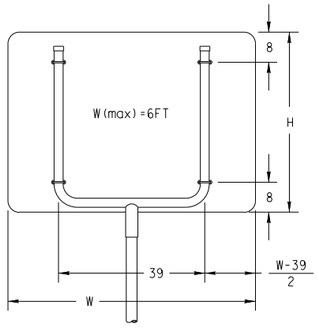
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

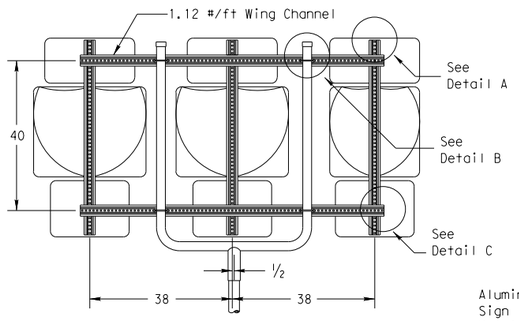
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



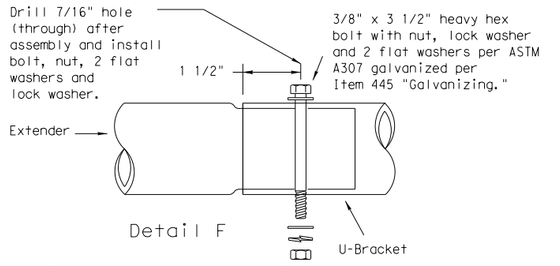
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

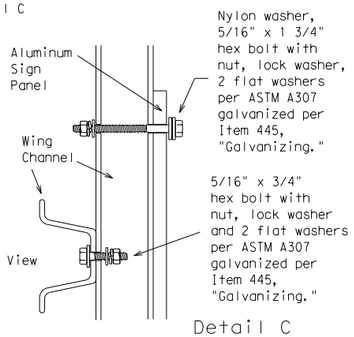


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)



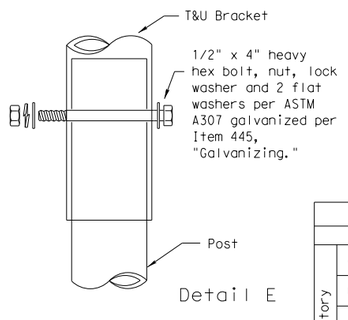
Detail F

Splices shall only be allowed behind the sign substrate.

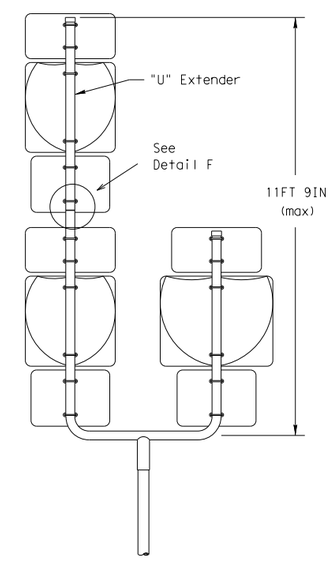


SIDE VIEW

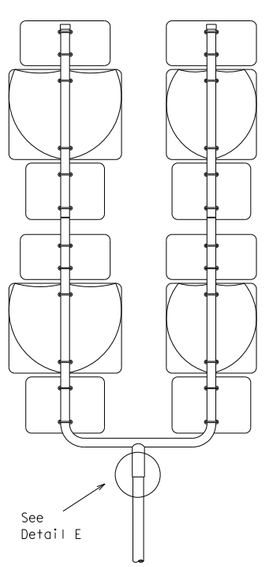
Detail C



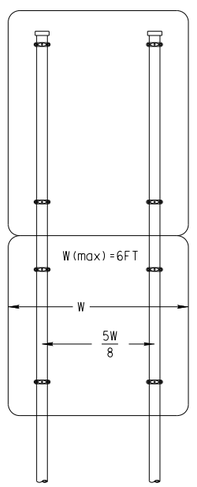
Detail E



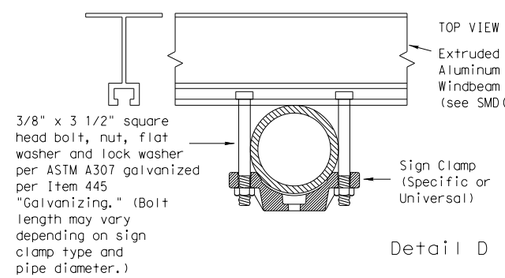
SM RD SGN ASSM TY S80(1)XX(U-1EXT)



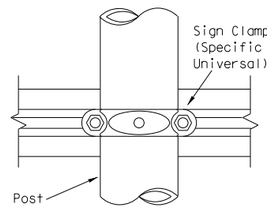
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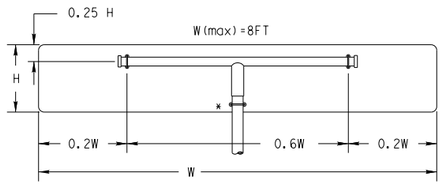


SM RD SGN ASSYM TY XXXXX(2)XX(P)



Detail D

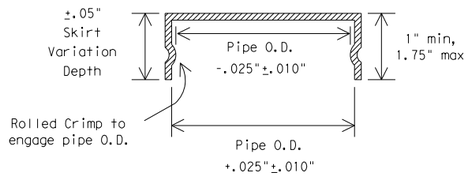




All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

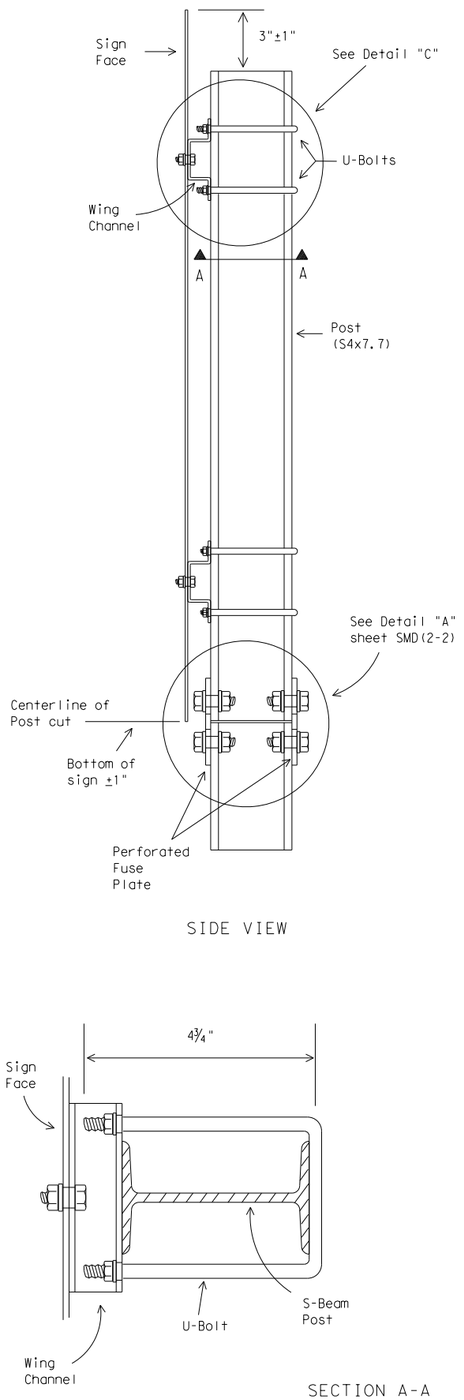
©TxDOT July 2002

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	DIST	COUNTY		
	SA	MEDINA		198

26C

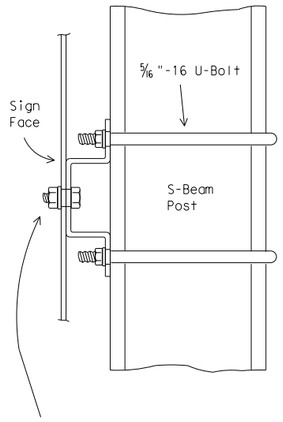
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WING CHANNEL CLAMP DETAIL FOR TYPE G MOUNT



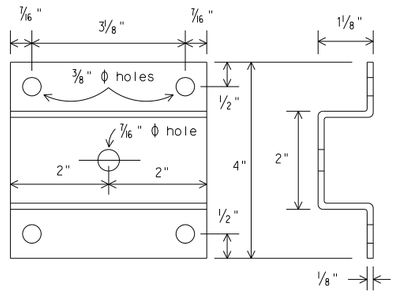
SIDE VIEW

SECTION A-A



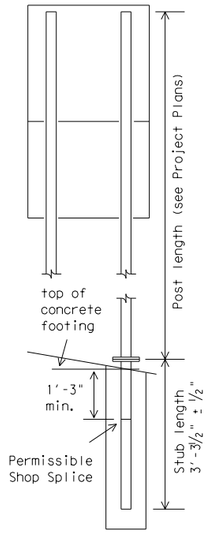
Galvanized steel or aluminum self-locking hex. head nut. 3/8 " - 16 x 3/4 " hex. head bolt for sheet metal. 3/8 " - 16 x 1 1/4 " hex. head bolt for plywood. 3/8 " galvanized medium washer.

DETAIL "C"



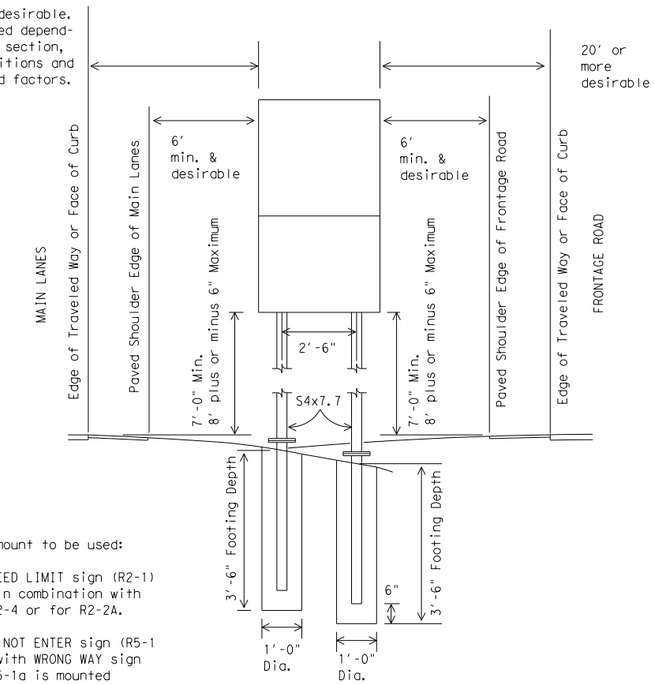
WING CHANNEL

Wing channel, 4" width x 1⅛" depth x ⅛" thickness, shall be aluminum (ASTM B221 6061-T6 or B308 6061-T6), galvanized steel (ASTM A36) or stainless steel (ASTM A167 type 304, No. 2B finish).



The weight of one S4x7.7 post is equal to 112.2 lbs. plus 7.7 lbs./ft x (post length in feet minus 10 ft). The weight of 112.2 lbs. includes 10 feet of post length, post foundation stub, related connection plates, friction fuse plate, and all high strength bolts, nuts and washers.

30' or more desirable. May be reduced depending on cross section, viewing conditions and other related factors.



This type mount to be used:

(1) For SPEED LIMIT sign (R2-1) when used in combination with R2-2 and R2-4 or for R2-2A.

(2) For DO NOT ENTER sign (R5-1 when used with WRONG WAY sign (R5-1a). R5-1a is mounted above R5-1.

DEPARTMENTAL MATERIAL SPECIFICATIONS
SIGN HARDWARE DMS-7120

GENERAL NOTES:

1. Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
2. Materials and fabrication shall conform to the requirements of the Department material specifications.
3. Structural steel shall be "Low-Alloy Steel" for non-bridge structures per Item 442, "Metal For Structures."
4. Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface repaired per Item 445, "Galvanizing." (Cut surface will not be treated until plate is installed and all bolts fully tightened.)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS, TYPE G SUPPORT

SMD(TY G)-08

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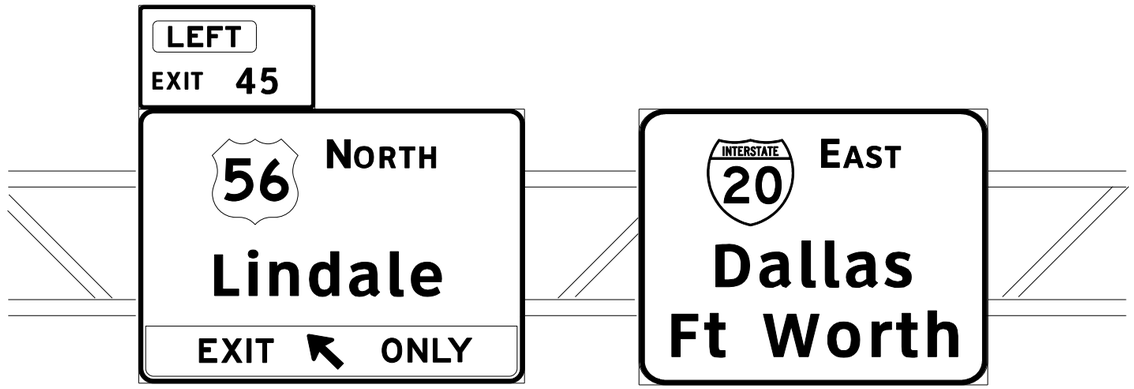
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REVISIONS
1-97
9-08

CONT	SECT	JOB	HIGHWAY
24	6		441
DIST	COUNTY		
SA	MEDINA		199

REQUIREMENTS FOR OVERHEAD AND LARGE GROUND-MOUNTED SIGNS

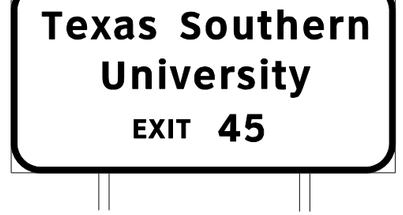
TYPICAL EXAMPLES











GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign summary sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Black legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
   White legend shall use the Clearview Alphabet.
   The following Clearview fonts shall be used to replace the existing white FHWA lettering, when not specified in the SHSD or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be cut-out white sheeting applied to colored background sheeting.
6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius need not be trimmed or rounded if fabricated from an extruded material.
7. Sign substrate for ground-mounted signs shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative. Sign substrate for overhead signs shall be any material that meets DMS-7110. Exit Number Panels attached above the parent sign shall be made with the same substrate and sheeting as the parent sign.
8. Mounting details of attachments to parent sign face are shown on Standard Plan Sheet TSR(5). Mounting details of exit number panels above parent sign are shown in the "SMD series" Standard Plan Sheets.
9. Background sheeting shall be applied to the substrate per sheeting manufacturer's recommendations. Sheeting will not be allowed to bridge the horizontal gap between panels.
10. Cut all legend, symbols, borders, and direct applied sign attachments at panel joints.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE B OR C SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(1)-13

FILE: tsr1-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
12-03 7-13	DIST	COUNTY		
9-08	SA	MEDINA		200

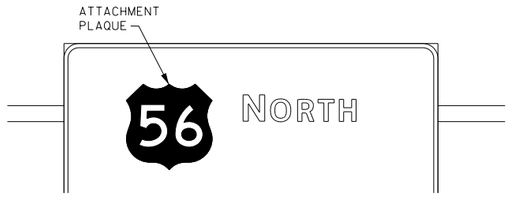
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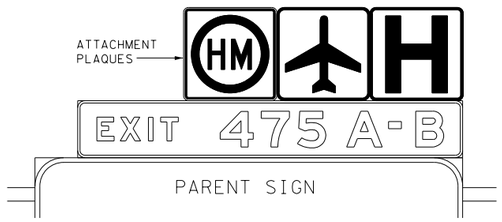
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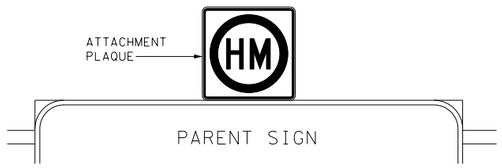
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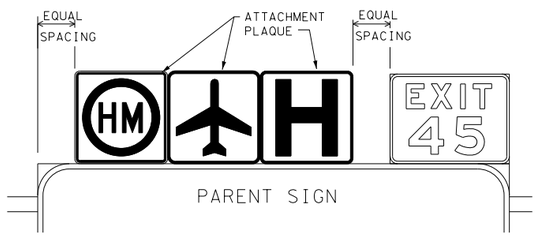
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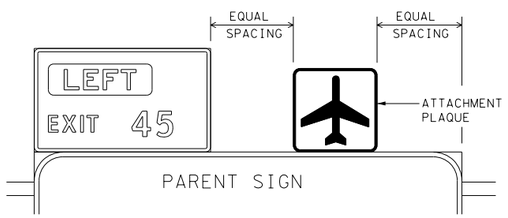
REQUIREMENTS FOR ATTACHMENTS TO OVERHEAD AND LARGE GROUND MOUNTED SIGNS









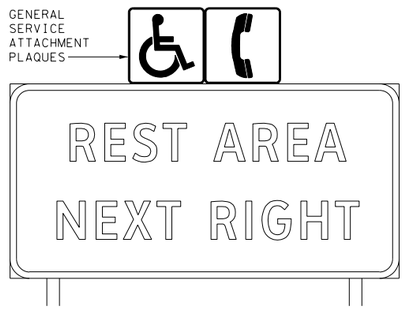


DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Route Marker legends (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod, or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to white background sheeting, or combination thereof.
7. Route markers and other attachments within the parent sign face shall be direct applied unless otherwise specified in the plans. Attachments not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
8. General Service Plaques shall be 0.080 inch thick and Routing Plaques shall be 0.100 inch thick.
9. The priority for Routing Plaques shall be (left to right) Hazardous Material, Airport then Hospital. See examples for mounting location.
10. Mounting details of attachments to parent signs face are shown on Standard Plan Sheet TSR(5). Mounting details of sign plaque attachments above and below parent sign are shown in the "SMD series" Standard Plan Sheets.
11. Plaques shall be horizontally centered at the top of the parent sign. If an exit number panel exists, the plaque shall be centered between the edge of the parent sign and the edge of the exit number panel. The plaque may be placed above the exit number panel when there is insufficient space.

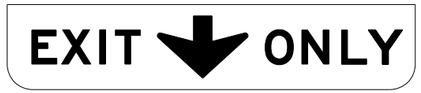


TYPICAL EXAMPLES

REQUIREMENTS FOR EXIT ONLY AND LEFT EXIT

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

SHEETING REQUIREMENTS FOR OVERHEAD EXIT PANELS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLUORESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND	BLACK	ACRYLIC NON-REFLECTIVE FILM







TYPICAL EXAMPLES

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD). Individual panel sizes shown in the plans may be adjusted to fit actual parent sign sizes if necessary.
2. Exit Panel legend shall use the Federal Highway Administration (FHWA)Standard Highway Alphabets E Series.
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend shall be applied by screening process or cut-out acrylic non-reflective black film to yellow background sheeting, or combination thereof.
5. Exit Only and Left Exit panels within the parent sign face shall be direct applied unless otherwise specified in the plans. Panels not direct applied shall use 0.063 inch thick one piece sheet aluminum signs (Type A).
6. Mounting details of Exit Only and Left Exit panel attachments to parent signs face are shown on Standard Plan Sheet TSR(5).

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(2)-13

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©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
12-03 7-13	DIST	COUNTY		
9-08	SA	MEDINA		201
2				443

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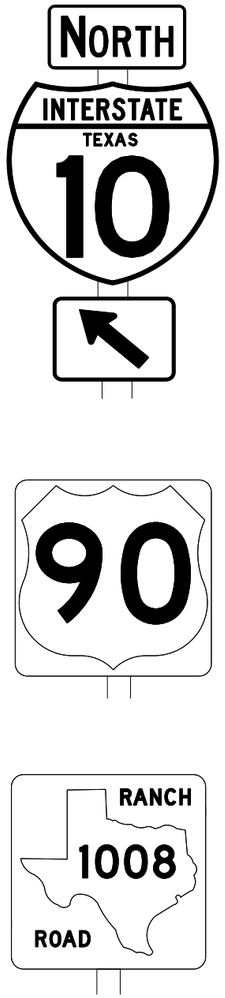
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REQUIREMENTS FOR INDEPENDENT MOUNTED ROUTE SIGNS

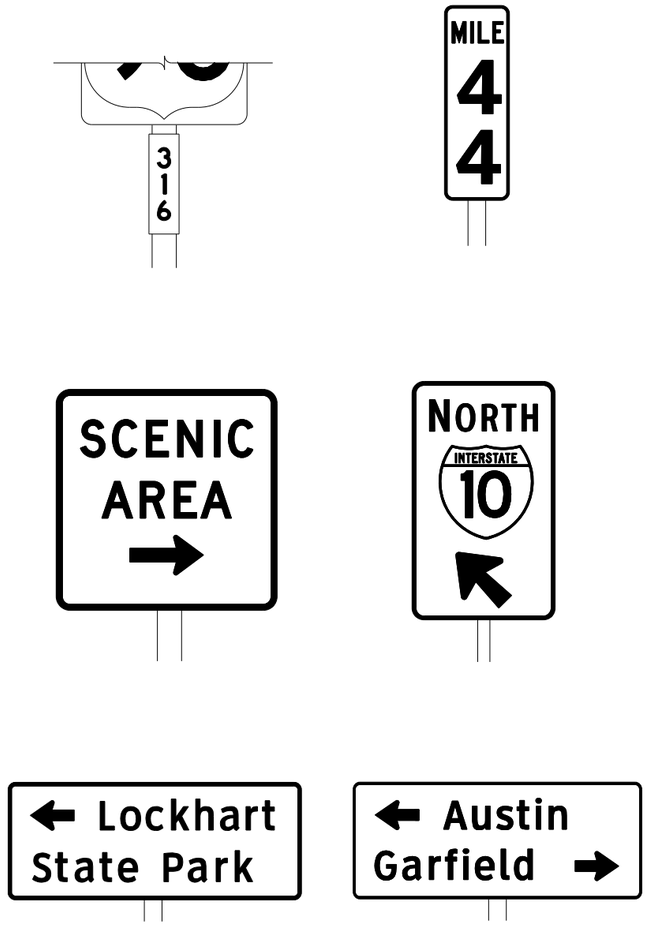
SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE A SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & BORDERS	ALL OTHERS	TYPE B or C SHEETING



TYPICAL EXAMPLES

REQUIREMENTS FOR BLUE, BROWN & GREEN D AND I SERIES GUIDE SIGNS

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	ALL	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE D SHEETING
LEGEND, SYMBOLS & BORDERS	ALL OTHERS	TYPE B OR C SHEETING



TYPICAL EXAMPLES

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).

2. White legend shall use the Clearview Alphabet. The following Clearview fonts shall be used to replace the existing white Federal Highway Administration (FHWA) Standard Highway Alphabets, when not specified in the SHSD, or in the plans.

B	CV-1W
C	CV-2W
D	CV-3W
E	CV-4W
Emod	CV-5WR
F	CV-6W

3. Route sign legend (ie. IH, US, SH and FM shields) shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets B, C, D, E, Emod or F).

4. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.

5. Independent mounted route sign with white or colored legend and borders shall be applied by screening process with transparent color ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof. White legend, symbols and borders on all other signs shall be cut-out white sheeting applied to colored background sheeting.

6. Information regarding borders and radii for signs is found in the "Standard Highway Sign Designs for Texas". Dimensions shown and described for borders and corner radii on parent sign are nominal. Borders may vary in width as much as 1/2 inch. Corner radii above 3 inches may vary in width as much as 1 inch. Borders and corner radii within a parent sign must be of matching widths. The sign area outside the corner radius should be trimmed or rounded.

7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.

8. Mounting details of roadside signs are shown in the "SMD series" Standard Plan Sheets.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080
7.5 to 15	0.100
Greater than 15	0.125

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

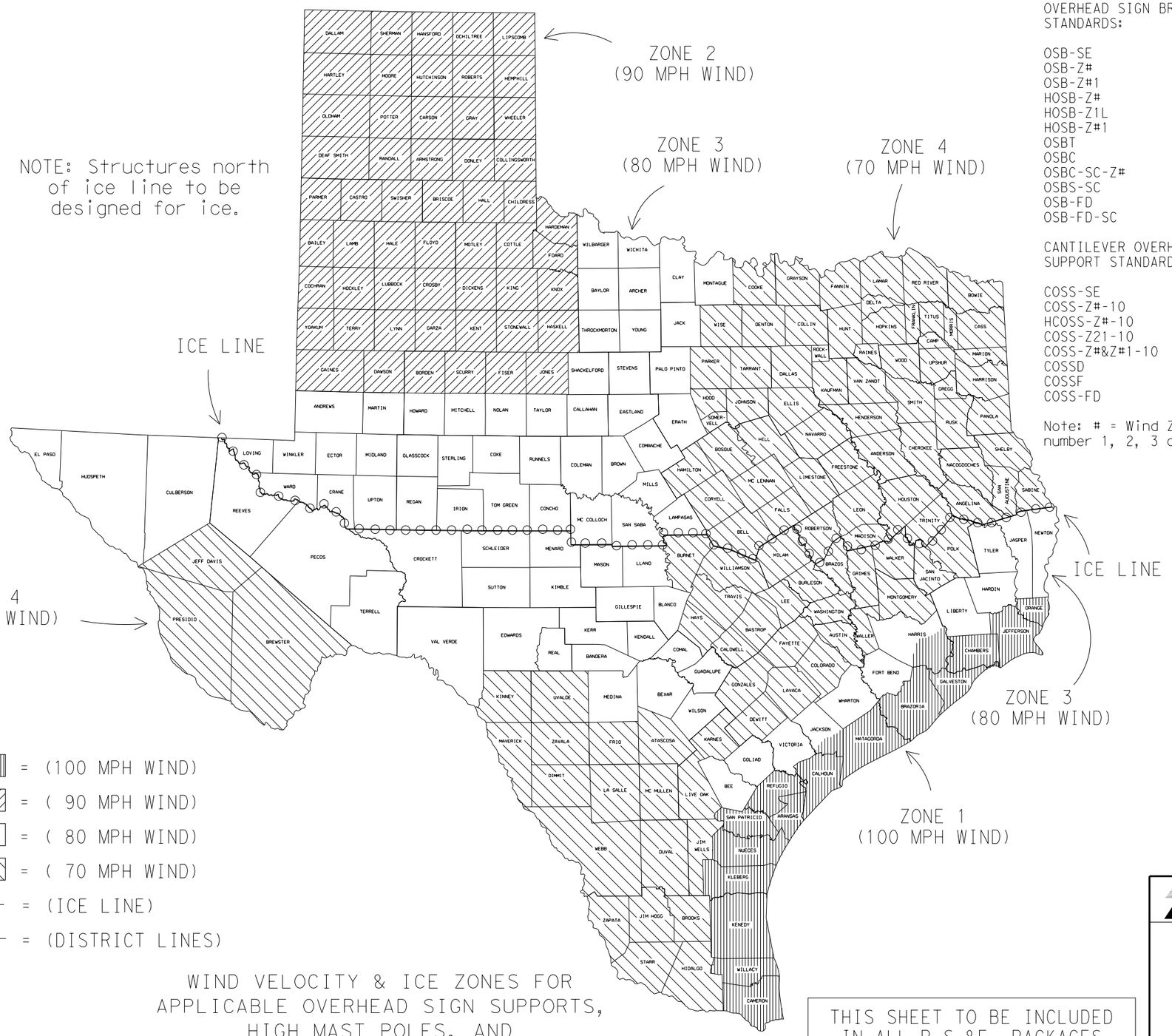
TSR(3)-13

FILE:	tsr3-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	October 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS		24	6		
12-03 7-13		DIST	COUNTY		444
9-08		SA	MEDINA		202

3

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DATE: 2/22/2024 11:29:33 AM
FILE: P:\127\36\03\Design\Civil\Standards\Signing\windice.dgn



LEGEND

ZONE 1 - = (100 MPH WIND)
ZONE 2 - = (90 MPH WIND)
ZONE 3 - = (80 MPH WIND)
ZONE 4 - = (70 MPH WIND)
= (ICE LINE)
= (DISTRICT LINES)

WIND VELOCITY & ICE ZONES FOR APPLICABLE OVERHEAD SIGN SUPPORTS, HIGH MAST POLES, AND TRAFFIC SIGNAL POLES

Based on 50 Year Mean Recurrence Interval of Fastest Mile Wind Velocity at 33 feet height.

THIS SHEET TO BE INCLUDED IN ALL P.S.&E. PACKAGES CONTAINING ONE OR MORE OF THE APPLICABLE STANDARD SHEETS LISTED HEREON

APPLICABLE STANDARDS SHEETS

OVERHEAD SIGN BRIDGE STANDARDS:

OSB-SE
OSB-Z#
OSB-Z#1
HOSB-Z#
HOSB-Z1L
HOSB-Z#1
OSBT
OSBC
OSBC-SC-Z#
OSBS-SC
OSB-FD
OSB-FD-SC

CANTILEVER OVERHEAD SIGN SUPPORT STANDARDS:

COSS-SE
COSS-Z#-10
HCOSS-Z#-10
COSS-Z21-10
COSS-Z#&Z#1-10
COSSD
COSSF
COSS-FD

Note: # = Wind Zone number 1, 2, 3 or 4

HIGH MAST ILLUMINATION POLE STANDARDS:

HMIP-98
HMIF-98

WALKWAYS AND BRACKETS STANDARDS:

SWW
SB(SWL-1)

TRAFFIC SIGNAL POLE STANDARDS:

SP-80
SP-100
SMA-80
SMA-100
DMA-80
DMA-100
MA-C
MAC(ILSN)
MAD-D
TS-FD
LUM-A
CFA
LMA
TS-C
MA-DPD

FOR HARRIS CO. ONLY
Zone line is just North of US 90, around on the North, West and South sides of IH 610 and down the West side of SH 288.

FOR JACKSON CO. ONLY
Zone line is just North of SH 616.

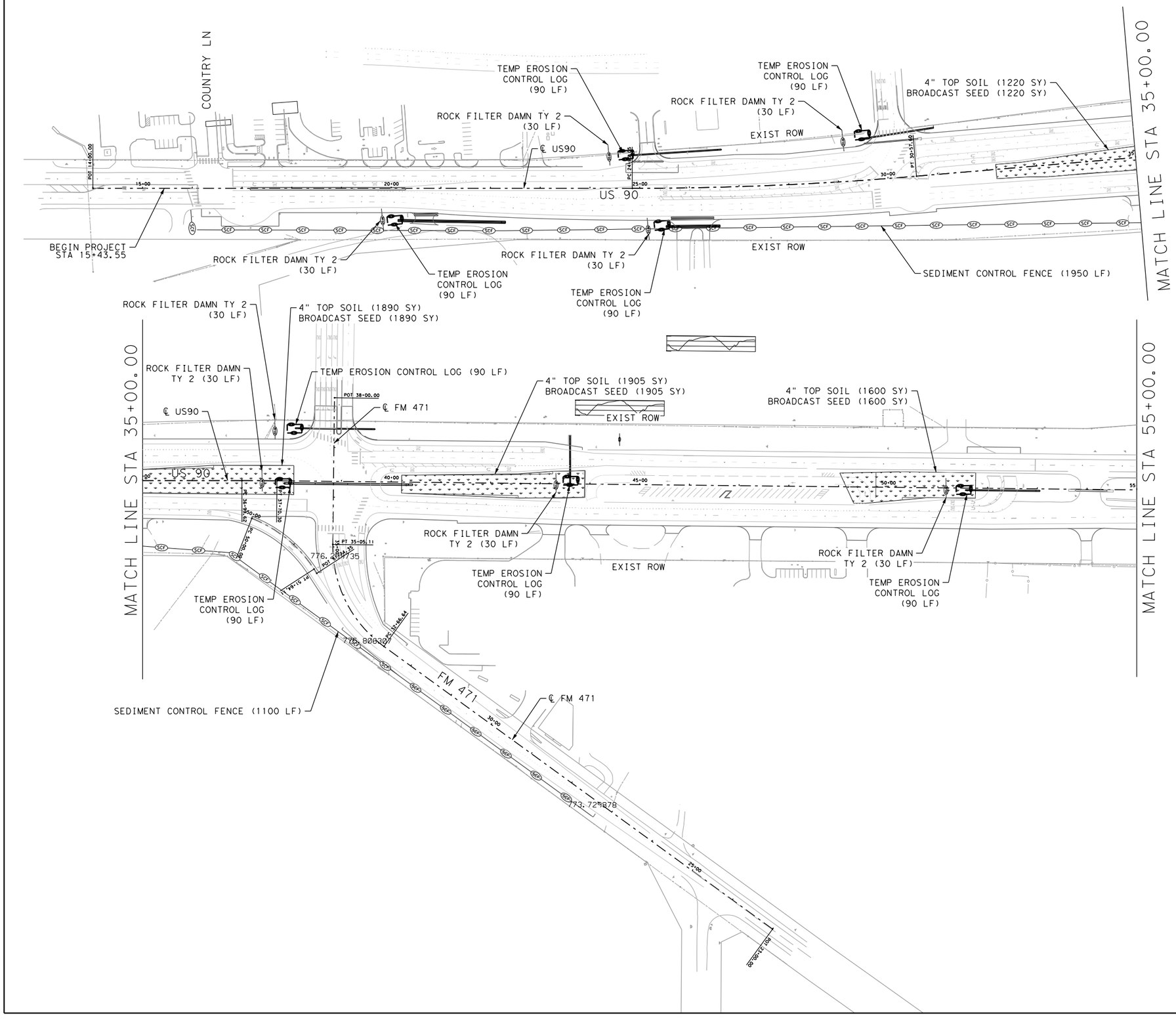
Texas Department of Transportation

Traffic Operations Division Standard

WIND VELOCITY AND ICE ZONES

WV & IZ-14

FILE: windice.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1996	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-14-Added list of applicable standards, restricting use to structures designed for Fastest Mile wind speeds.	24	6		445
	DIST	COUNTY		
	SA	MEDINA		203



SW3P LEGEND

- RFD2 — ROCK FILTER DAM (TY 2)
- SCF — SEDIMENT CONTROL FENCE
- CONTOURS
- FLOW ARROW
- TOPSOIL AND SEEDING

SW3P NOTES:

1. REFER TO TEMPORARY EROSION CONTROL MEASURE STANDARDS FOR MORE INFORMATION.
2. CONSTRUCTION ENTRANCE/EXIT LOCATIONS TO BE DETERMINED IN THE FIELD.
3. SW3P CONTROL MEASURES INSTALLED DURING CONSTRUCTION ARE TO REMAIN IN PLACE UNTIL GRASS COVER IS ACHIEVED OR AS APPROVED BY THE ENGINEER.
4. SW3P CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED AFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS SHEET AND SIGNED BY THE RESPONSIBLE PARTY.
5. ALL SW3P CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITION AT ALL TIMES.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 100 200 300

SCALE: 1"= 200'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
911 CENTRAL PKWY N | SAN ANTONIO, TX 78232 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation
©2024

US 90 AT ALSATIAN OAKS

SW3P LAYOUT

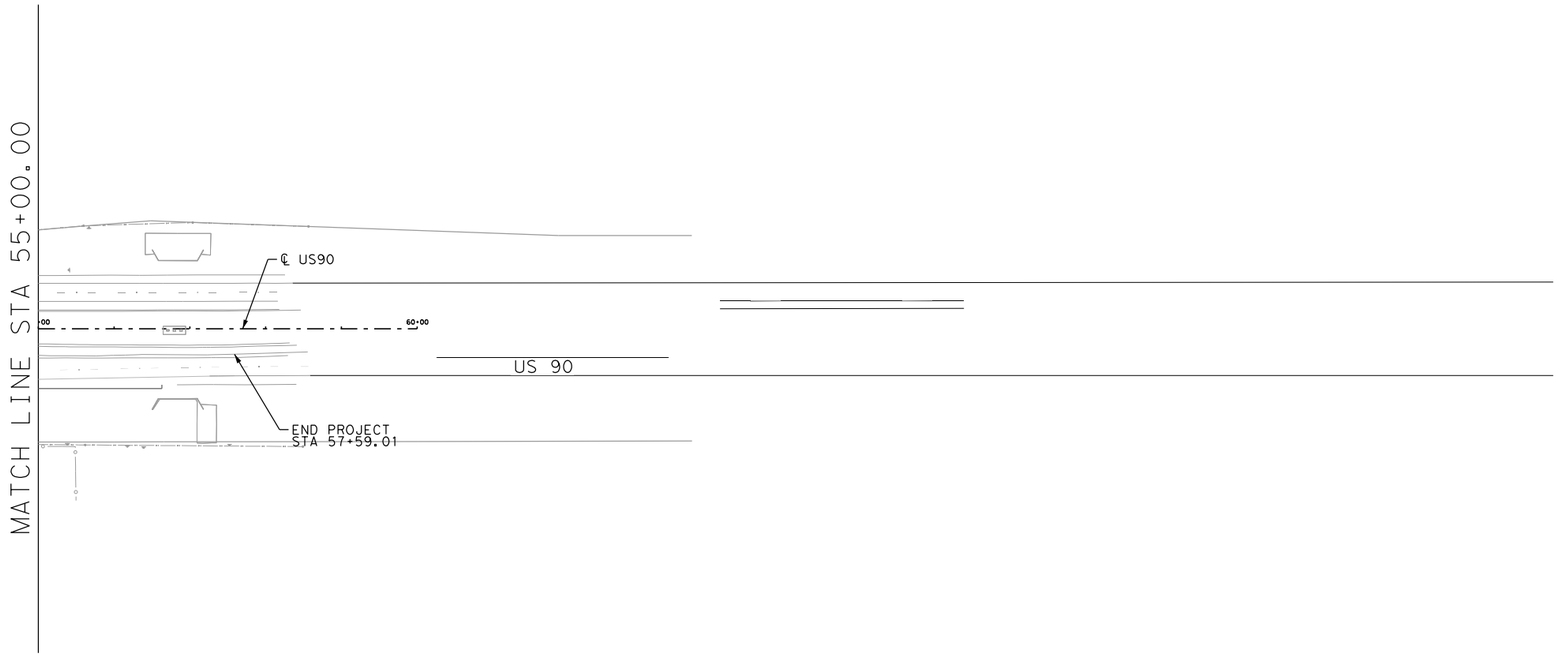
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SHEET 1 OF 2

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DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		284

Plotted on: 2/22/2024

Design Filename: P:\127\36\03\Design\Civil\SW3P\1273603_SW3P01.dgn





SW3P LEGEND

- RFD2 — ROCK FILTER DAM (TY 2)
- SCF — SEDIMENT CONTROL FENCE
- CONTOURS
- FLOW ARROW
- TOPSOIL AND SEEDING

SW3P NOTES:

1. REFER TO TEMPORARY EROSION CONTROL MEASURE STANDARDS FOR MORE INFORMATION.
2. CONSTRUCTION ENTRANCE/EXIT LOCATIONS TO BE DETERMINED IN THE FIELD.
3. SW3P CONTROL MEASURES INSTALLED DURING CONSTRUCTION ARE TO REMAIN IN PLACE UNTIL GRASS COVER IS ACHIEVED OR AS APPROVED BY THE ENGINEER.
4. SW3P CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED AFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS SHEET AND SIGNED BY THE RESPONSIBLE PARTY.
5. ALL SW3P CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITION AT ALL TIMES.

DESIGN

STATE OF TEXAS — RAYMOND D GUERRA — 136215 — LICENSED PROFESSIONAL ENGINEER

RAYMOND D. GUERRA, P.E. — 2/22/2024 DATE

APPROVAL

STATE OF TEXAS — DAN THOMA — 98622 — LICENSED PROFESSIONAL ENGINEER

DAN THOMA, P.E. — 2/22/2024 DATE

0 100 200 300

SCALE: 1"= 200'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
911 CENTRAL PKWY N I SAN ANTONIO, TX 78232 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

US 90 AT ALSATIAN OAKS

SW3P LAYOUT

STA 55+00.00 TO END PROJECT

SHEET 2 OF 2

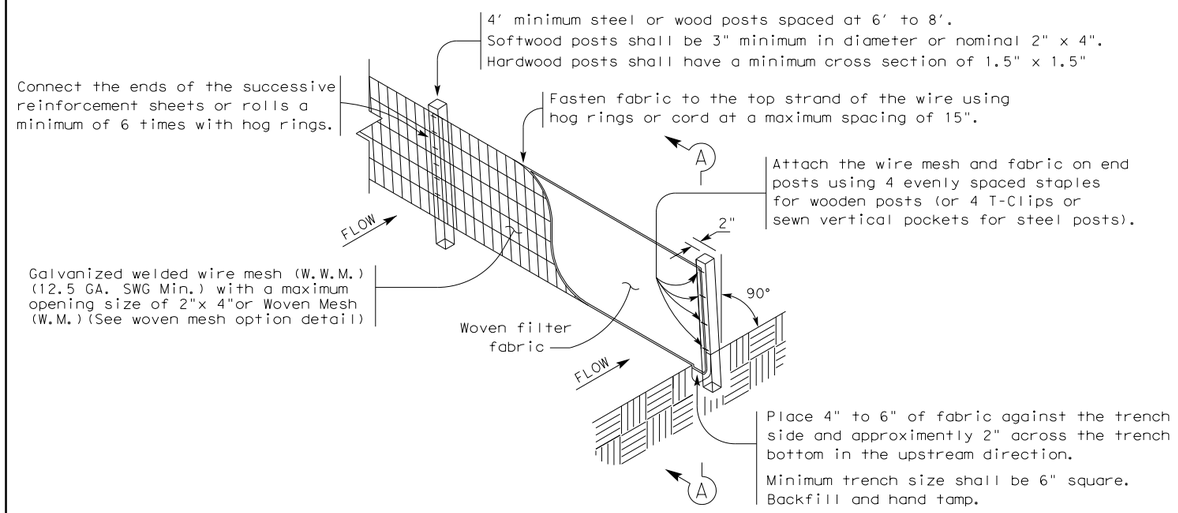
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CHK DGN: BC	6	TEXAS	-			D
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	
CHK DWG:	SA	MEDINA	24	6		203

Plotted on: 2/22/2024

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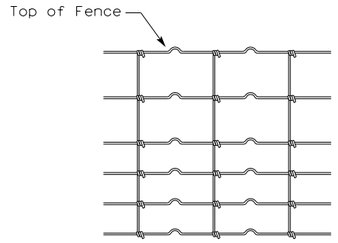
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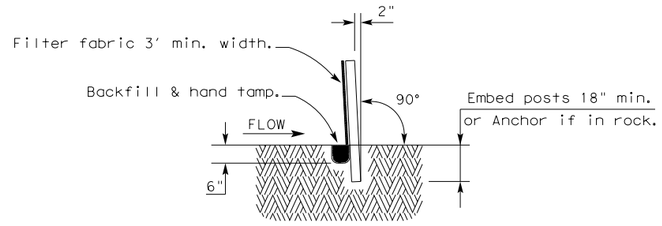
DATE:
FILE: ec116.dgn
© TxDOT 2024
DN: TxDOT CK: KM DW: VP DN/CK: LS



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

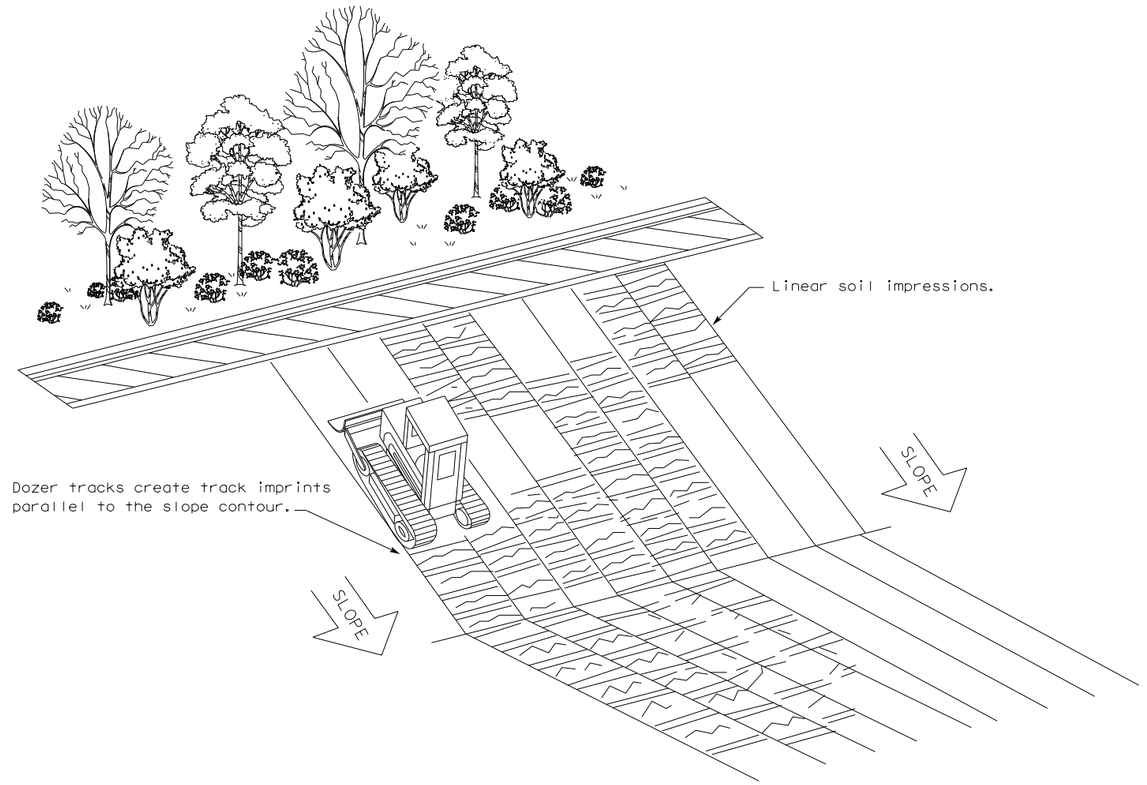
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

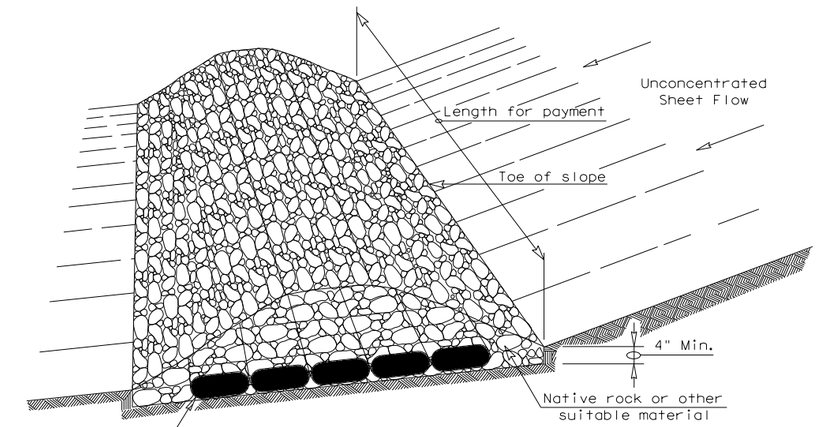
FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	24	6		
	DIST	COUNTY		
	SA	MEDINA		206

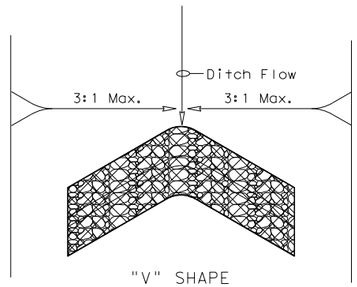
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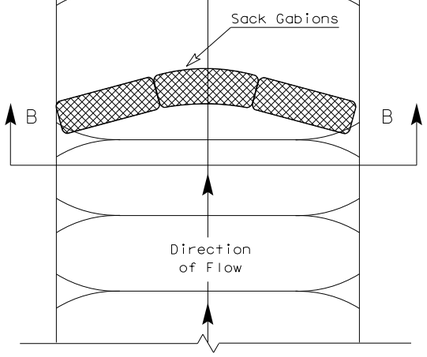


FILTER DAM AT TOE OF SLOPE

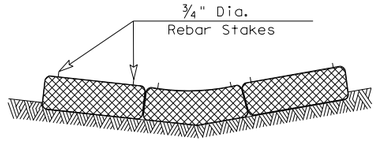
RFD1



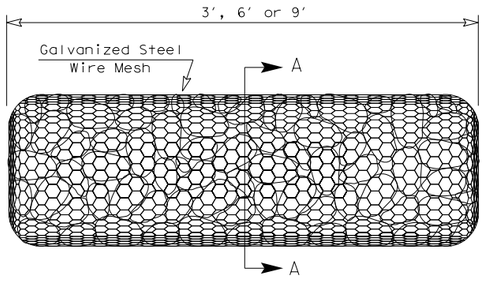
"V" SHAPE
PLAN VIEW



PLAN VIEW

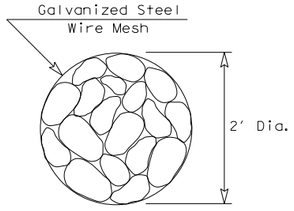


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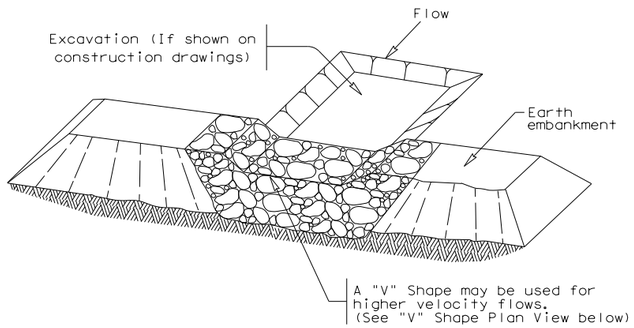


TYPE 4 (SACK GABIONS)

RFD4

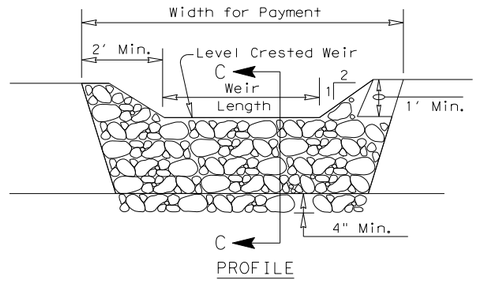


SECTION A-A

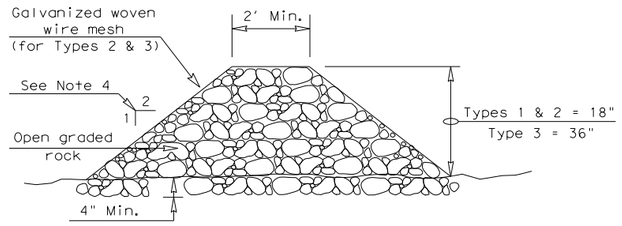


FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2



PROFILE



SECTION C-C

ROCK FILTER DAM USAGE GUIDELINES

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

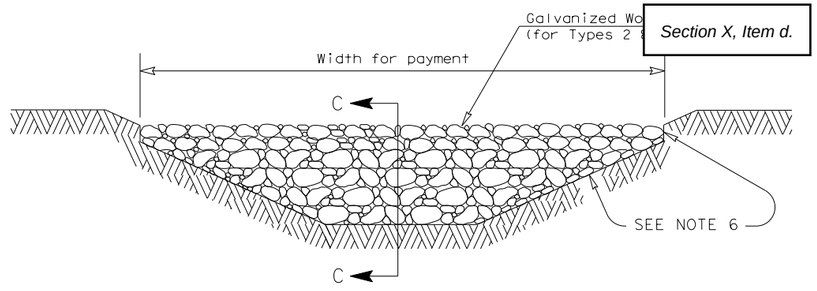
Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam — RFD1
Type 2 Rock Filter Dam — RFD2
Type 3 Rock Filter Dam — RFD3
Type 4 Rock Filter Dam — RFD4

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

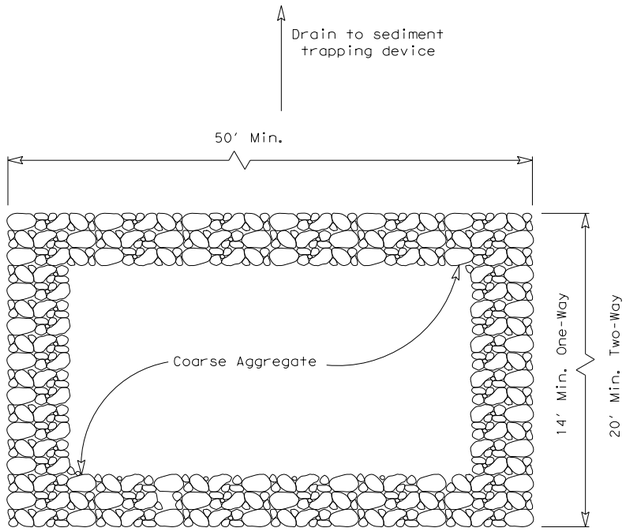
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© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
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	SA	MEDINA		207

449

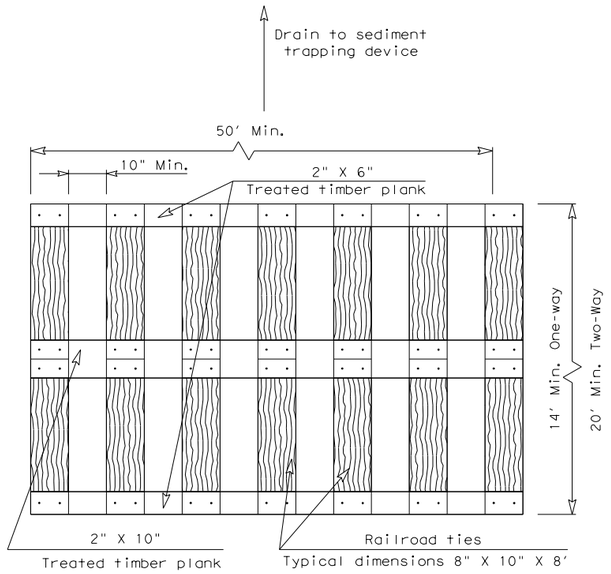
Section X, Item d.

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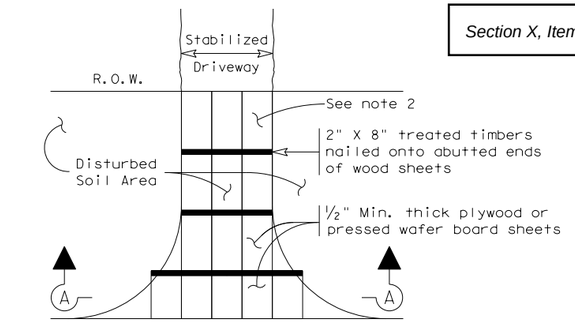
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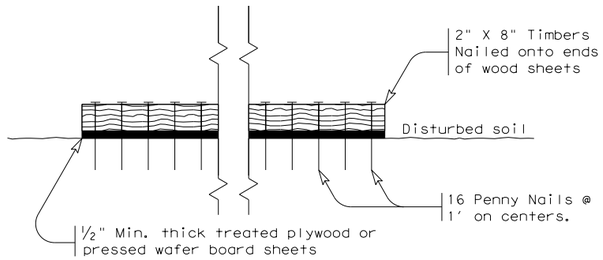
PLAN VIEW



PLAN VIEW



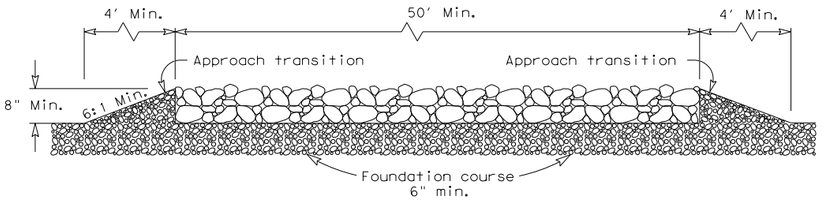
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

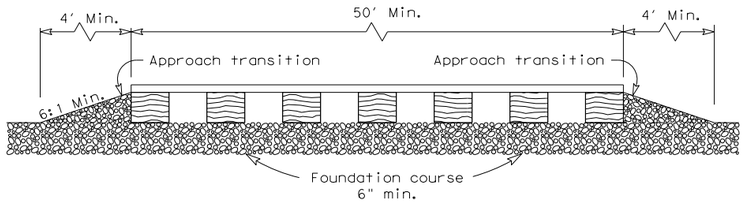
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50′.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50′.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

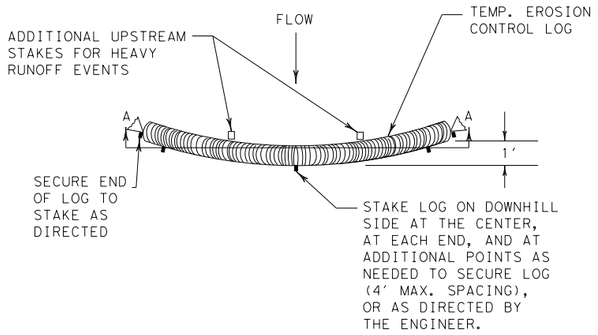
CONSTRUCTION EXITS

EC(3)-16

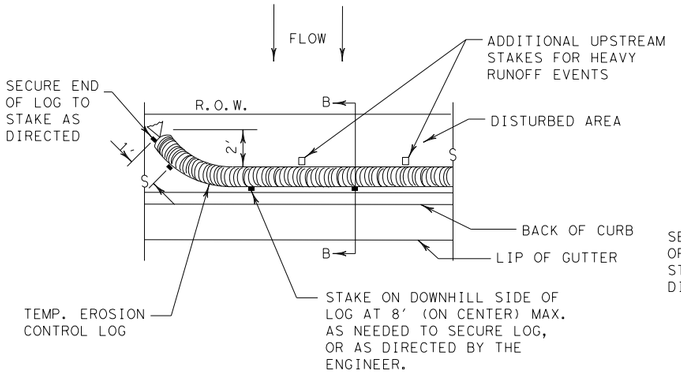
FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS	
©TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY
REVISIONS	24	6			450
	DIST	COUNTY			
	SA	MEDINA			208

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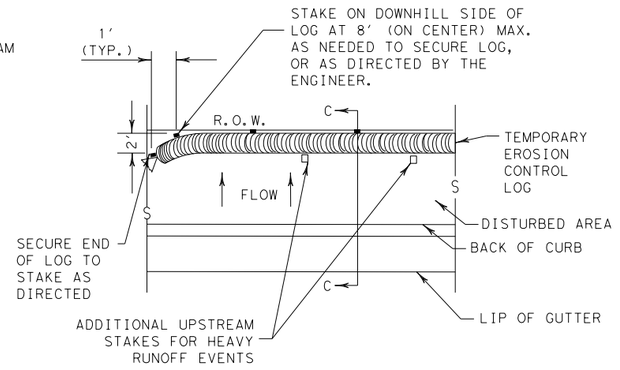
DATE: 2/22/2024
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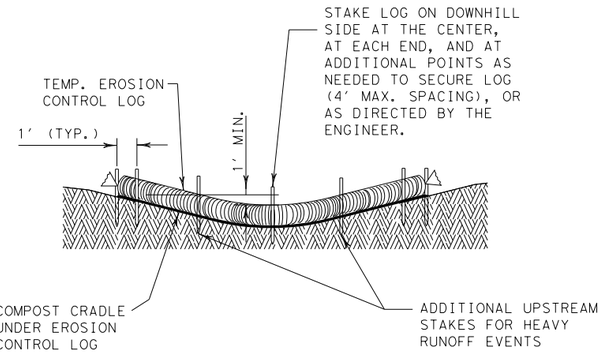
PLAN VIEW



PLAN VIEW



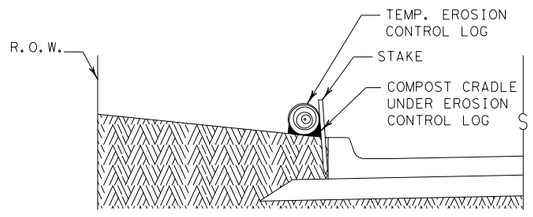
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

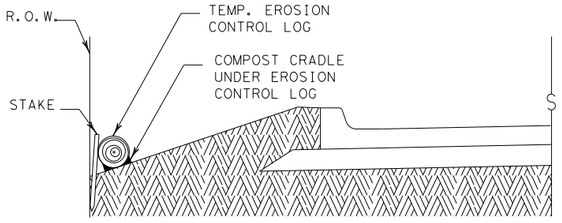
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



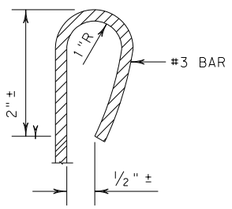
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW

LEGEND

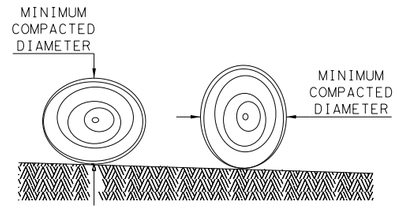
- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL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



REBAR STAKE DETAIL

GENERAL NOTES

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'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.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

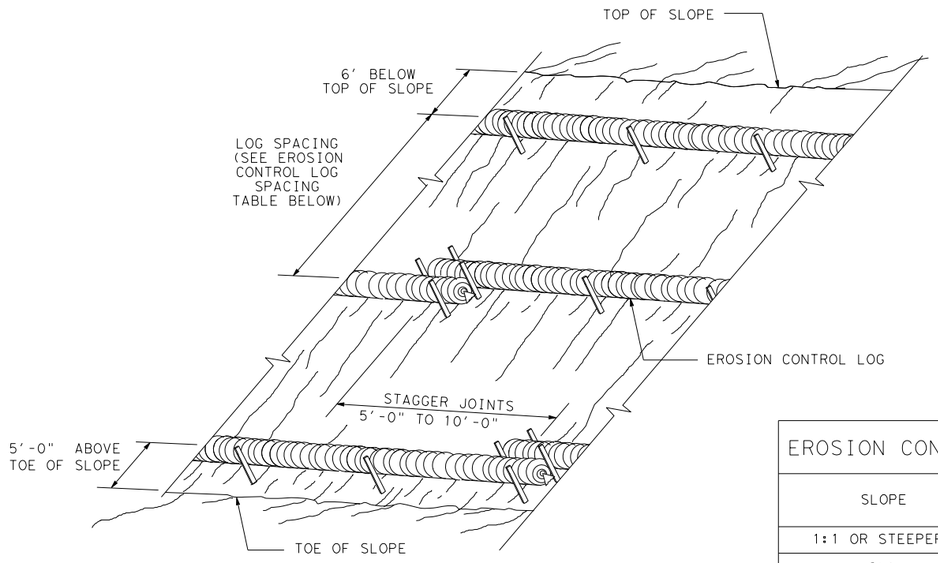
EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
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	DIST	COUNTY			451
	SA	MEDINA			209

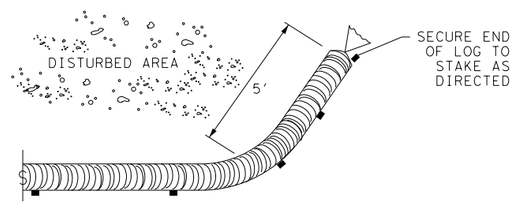
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EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

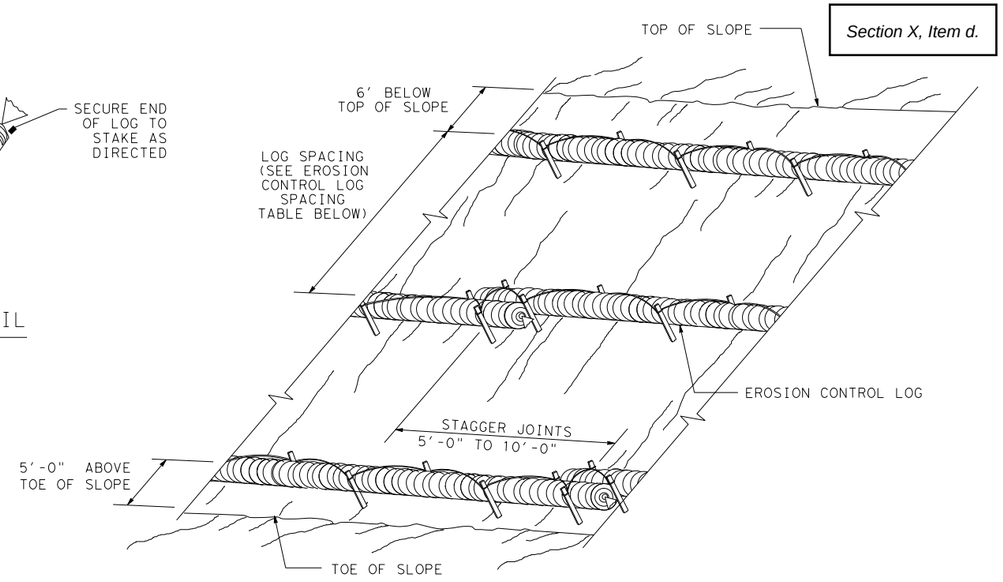
CL-SST



END SECTION RAP DETAIL

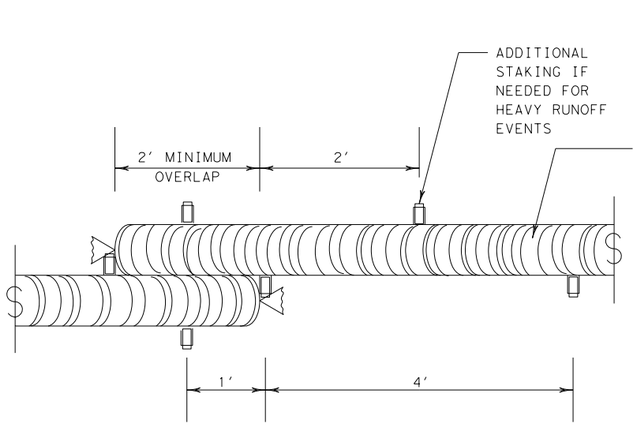
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

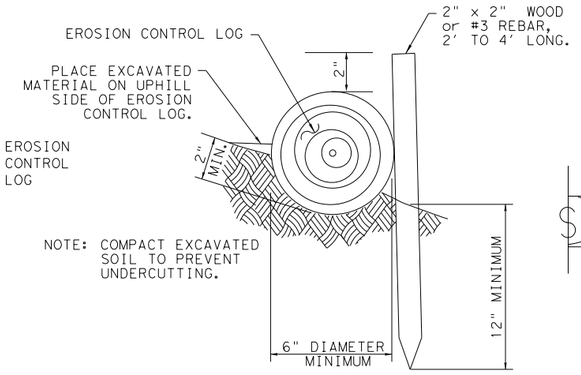
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

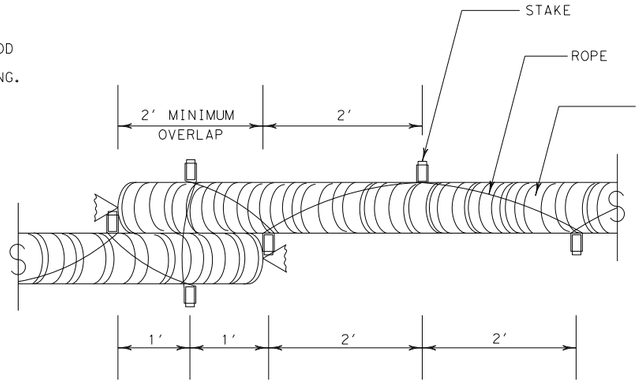


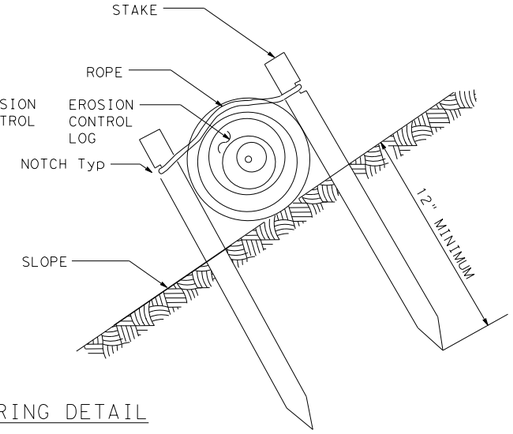


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

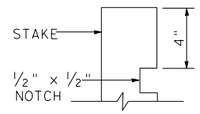
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

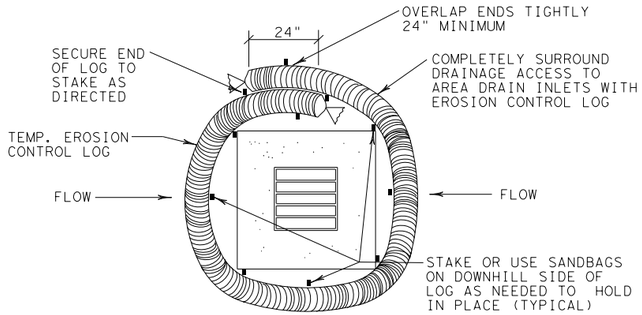
Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

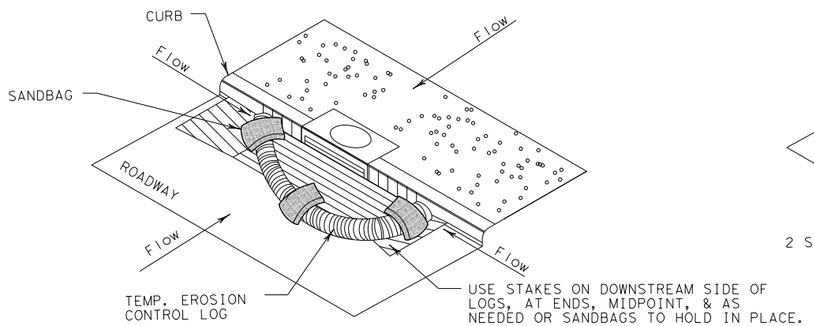
EC(9)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	24	6			452
	DIST	COUNTY			
	SA	MEDINA			210



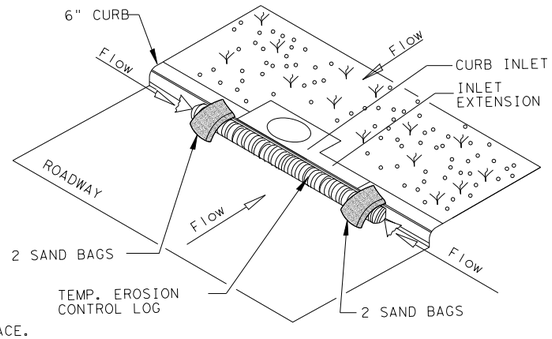
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

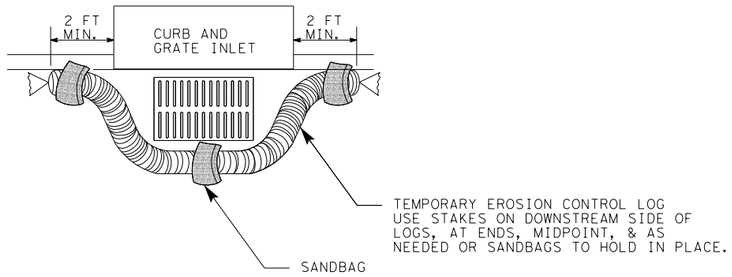
CL-CI



EROSION CONTROL LOG AT CURB INLET

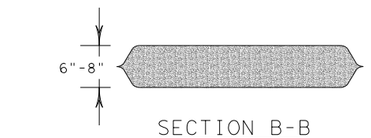
CL-CI

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.

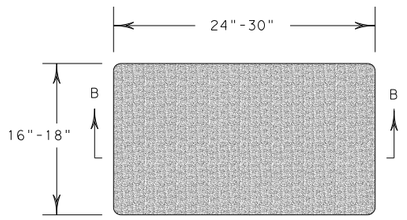


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

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	24	6			
	DIST	COUNTY			
	SA	MEDINA		211	

453

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FILE: P:\127\36\03\Design\Civil\Standards\SW3P\ec916.dgn

CONT	SECT	JOB	HIGHWAY
0024	06		
DIST			
SAN		MEDINA	1

DESIGN SPEED = 60 mph
A.D.T. = 29,087

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
(SEE SHEET 2 FOR INDEX OF SHEETS)	

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
TURNAROUND IMPROVEMENT

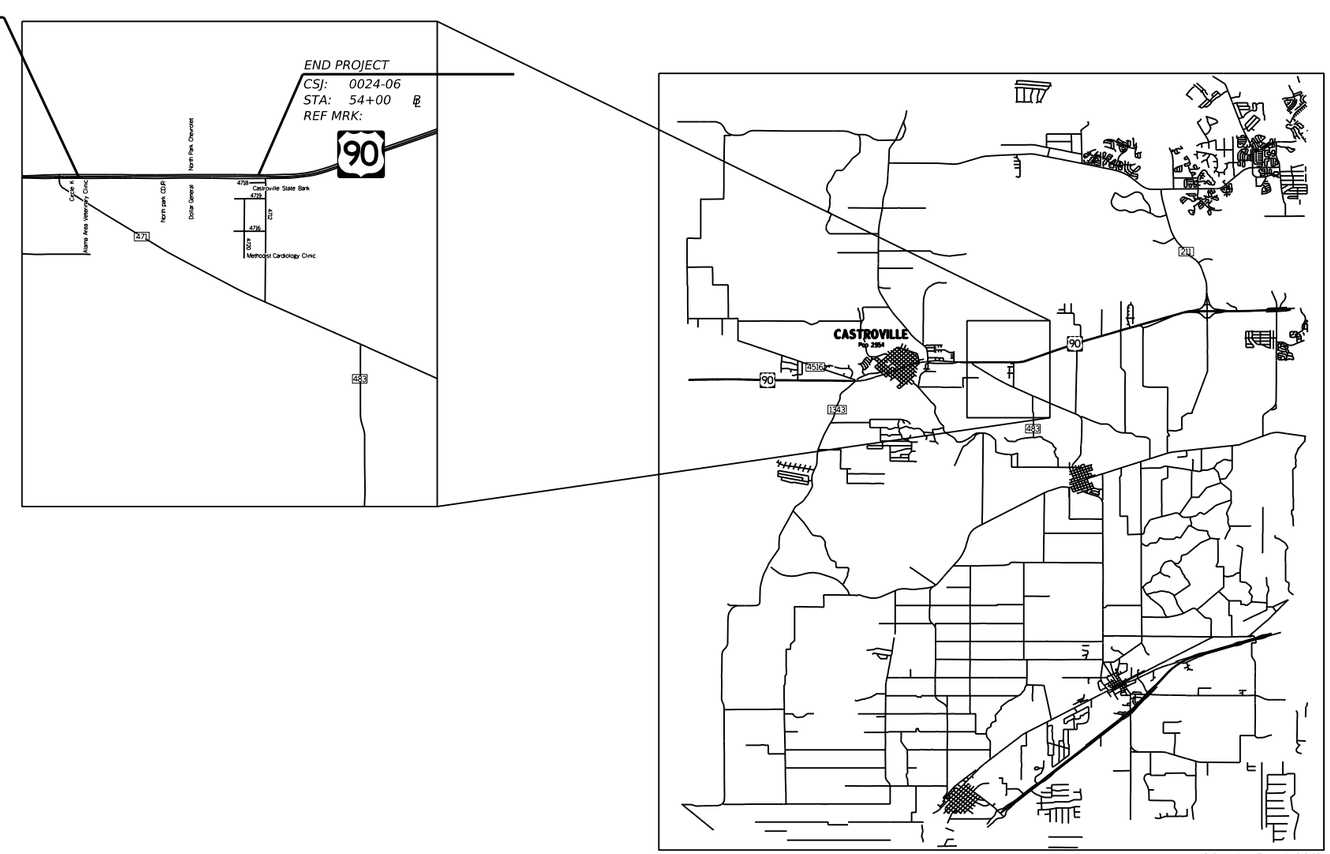
US 90
FLAT CREEK

NET LENGTH OF ROADWAY = 5000 FT.= 0.95 MI.
NET LENGTH OF PROJECT = 3600 FT.= 0.68 MI.

CSJ: 0024-06
LIMITS: US 90 & FM 471 TO US 90 & COUNTY ROAD 4712

BEGIN PROJECT
CSJ: 0024-06
STA: 23+00
REF MRK:

END PROJECT
CSJ: 0024-06
STA: 54+00
REF MRK:



SCALE: 1" = 7,000'

MEDINA COUNTY
SAN ANTONIO DISTRICT

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT:

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED
PROFESSIONAL ENGINEER

Oscar Arturo Garza, P.E.
3/24/2026

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
2610 North Shary Road
Mission, TX 78574
Phone: 956-271-6688
www.kci.com
TBPE Registration No. F-10573

DATE: 3/24/2026 5:57:10 PM
FILE: pw://kci-pw.bentley.com:kci-pw-05/Documents/KCI Projec 2020 - 2025/2024/US 90 at Falt Creek - ORD TxDOT 22R3/4 - Design/Plan Set/1. General/Alternative/K_US 90_FaltCreek_TITLE.dgn

	GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJET LAYOUT
4	TYPICAL SECTION
5	GENERAL NOTES
6	US 90 QUANTITY SUMMARY
	TRAFFIC CONTROL PLAN STANDARDS
7-18	BC (1)-21 THRU BC(12)-21
19-20	TCP (1-4)-18 THRU TCP (1-5)-18
21-23	TCP (2-4)-18 THRU TCP (2-6)-18
24	TCP (3-2)
25	TCP (5-1)-18
26	WZ (BRK)-13
27	WZ (RS)-22
	ROADWAY DETAILS
28-32	US 90 TURNAROUND LAYOUT
33	PAVEMENT MARKING LAYOUT
	ROADWAY DETAILS STANDARDS
34	CASS(TL3)-14
35	TE(HMAC)-11
	DRAINAGE STANDARDS
36	CD-SETP-PD-20
	ENVIRONMENTAL ISSUES
37-38	US 90 STORMWATER POLLUTION PREVENTION PLAN (SWP3)
39	ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS
	ENVIRONMENTAL ISSUES STANDARDS
40-41	EC (1)-16 THRU EC (2)-16
42-44	EC (9)-16

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED
PROFESSIONAL ENGINEER

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

Oscar Arturo Garza, P.E.

3/24/2026
DATE

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES
2610 North Shary Road
Mission, TX 78574
Phone: 956-271-6688
www.kci.com
TBPE Registration No. F-10573

US 90

INDEX OF SHEETS

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0024	06	NA	
DIST	COUNTY		
SAN	MEDINA		

455

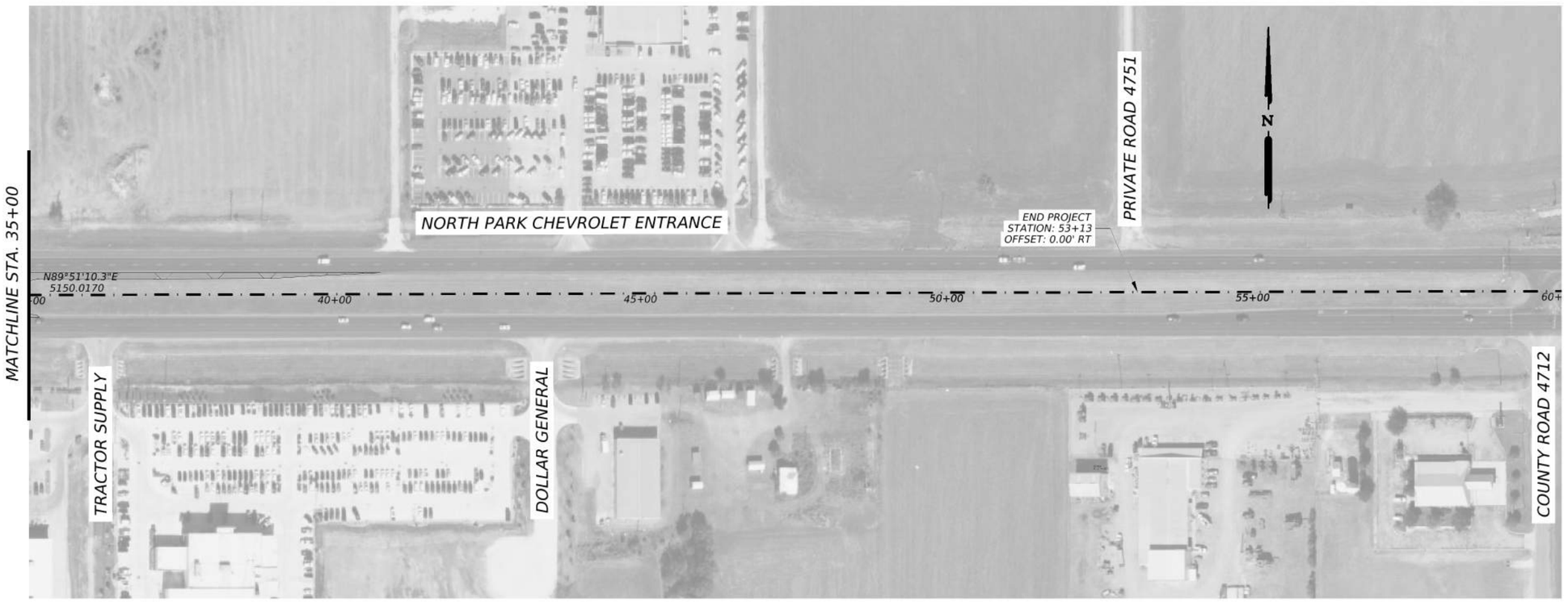
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LEGEN

ALIGNM





0' 100' 200'

SCALE: 1" = 200'

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED
PROFESSIONAL ENGINEER

Oscar Arturo Garza, P.E.

3/16/2026

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US 90

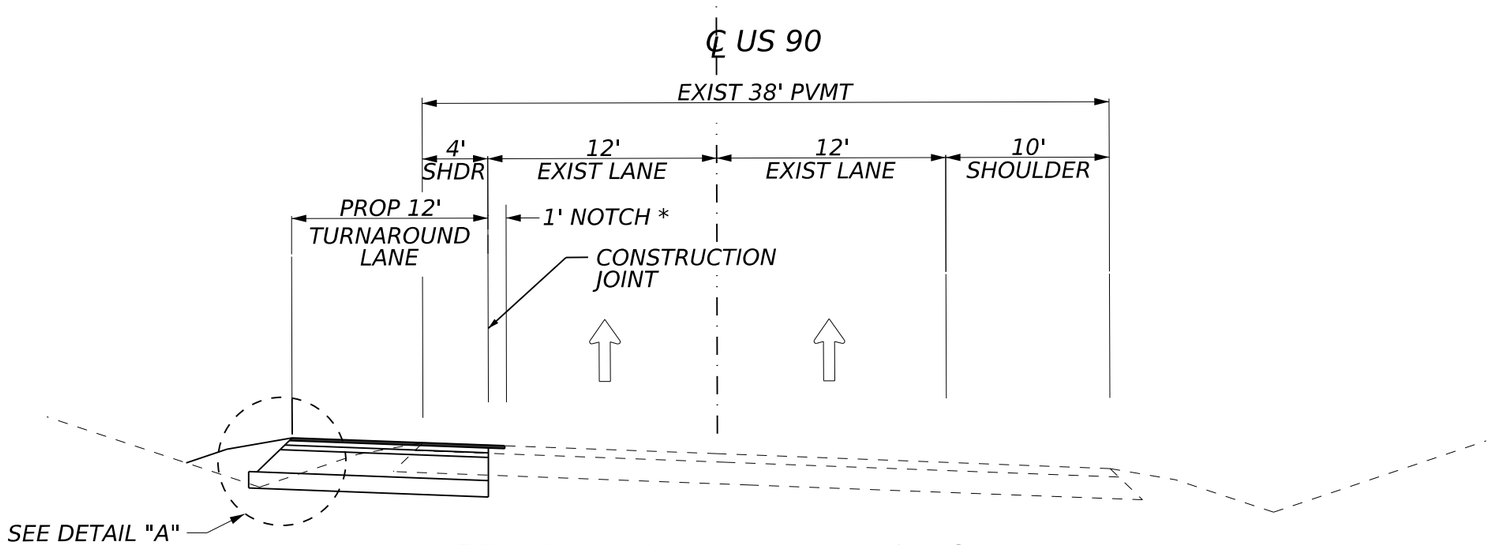
PROJECT LAYOUT

SCALE:
H: 1" = 200'

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0024	06	NA	
DIST	COUNTY		
SAN	MEDINA		

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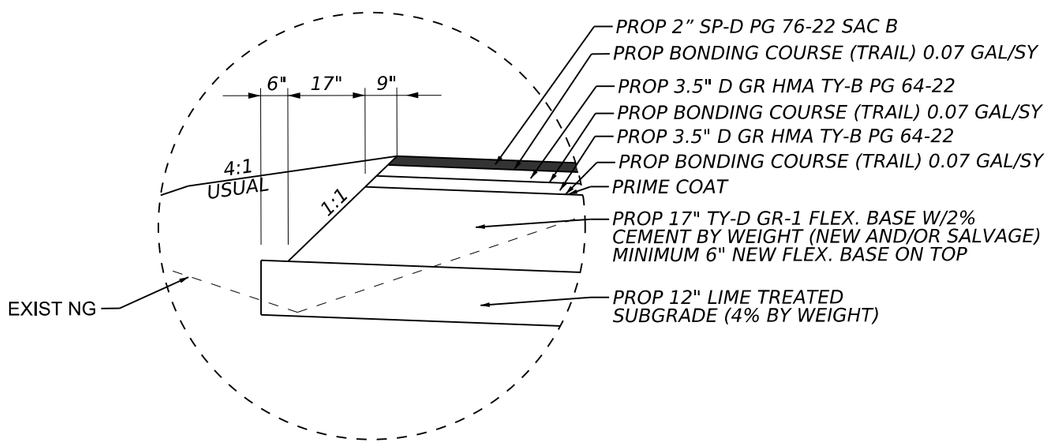


PROPOSED TYPICAL SECTION

N.T.S.

* NOTE:

WHEN NOTCH AND WIDEN IS NOT ADJACENT TO MILL AND OVERLAY SECTION, NOTCH 1' INTO EXISTING TRAVEL LANE AT DEPTH OF 2"



DETAIL "A"

N.T.S.

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED
PROFESSIONAL ENGINEER
Oscar Arturo Garza, P.E.
3/30/2026

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Phone: 956-271-6688
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TBPE Registration No. F-10573

HWY 90

PROPOSED TYPICAL SECTION

SCALE: N.T.S. SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0024	06	NA	457
DIST	COUNTY		
SAN	MEDINA		4

DATE:
FILE:

**********GENERAL NOTES**********
2024 Specification Book (Revised May 15, 2025)

--Item 502--
General

Access to adjoining property must be maintained at all times.

Barricades, Signs, and Traffic Control Devices

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.

After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

Cover permanent signs if not used. This is subsidiary to Item 502.

--Item 666--
Use TY II markings (vs. an acrylic or epoxy) on asphalt surfaces as the sealer for the TY I markings, unless otherwise approved by the Engineer.

--3007 --
The minimum application rates are listed in Table UC/BC. The Engineer may adjust the application rates taking into consideration the existing pavement surface conditions.

Table UC/BC

	Recommended Application Rate Gal/SY	
Material	Underseal	Bonding Course
TRAIL - Emulsified Asphalt	N/A	0.12
TRAIL - Hot Asphalt	0.17	0.12
Spray Applied Underseal Membrane	0.30	0.15
Seal Coat - Emulsion (CHFRS-2P, CRS-2P)	0.35	N/A
Seal Coat - Asphalt (AC-15P, AC-20-5TR, AC-20XP, AC10-2TR)	0.27	N/A
Aggregate for Seal Coat Options TY PB GR 4 (AC) or TY B GR 4 (Emulsion)	1 CY:120 SY	N/A

SUMMARY OF ROADWAY ITEMS

LOCATION	110	132	247	260	260	275	275	310	342	341	344	354	354	432	529	543	543	3007	536	771
	7001	7003	7013	7005	7009	7001	7021	7004	7015	7001	7065	7051	7076	7013	7002	7009	7017	7001	7002	7009
	EXCAV (ROADWAY)	EMBANK (FNL)(OC)(TY B)	FL BS (CMP IN PLC)(TY D GR 1-2)	LIME (COM OR QK)(SLURRY)	LIME TRT (EXIST MATL)(12")	CEMENT	CEMENT TREAT (MX EXST MTL & NW BS)(17"	PRIME COAT (MC-30)	TACK COAT	D-GR HMA TY-B PG64-22	SP MIXES SP-D SAC-B PG76-22	PLANE ASPH CONC PAV(2")	PLANE ASPH CONC PAV (1" TO 2")	RIPRAP (MOW STRIP)(4 IN)	CONC CURB (TY II)	CABLE BARRIER SYS (INSTL)(TL-3)(14'-0"	CABLE BARRIER TERM SEC (INSTL)(TL-3)	BONDING COURSE	CONC MEDIAN	CABLE SPLICE / TURNBUCKLE (TL-3)
	CY	CY	TON	TON	SY	TON	SY	GAL	GAL	TON	TON	SY	SY	CY	LF	LF	EA	GAL	SY	EA
CS: 0024-06	118.87	641.88	137.73	7.8	3545	3.8	3545	248	2437	1415	3382.8	26130	7770	11	202	835	5	744.4	86	3
PROJECT TOTALS	118.87	641.88	137.73	7.8	3545	3.8	3545	248	2437	1415	3382.8	26130	7770	11	202	835	5	744.4	86	3

SUMMARY OF REMOVAL ITEMS

LOCATION	106 7002	496 7004	496 7007	543 7037	677 7001	677 7004	677 7008	677 7009	677 7015	104 7006
	OBLITERATING ABANDONED ROAD	REMOV STR (SET)	REMOV STR (PIPE)	CABLE BARRIER (REMOVE)	ELIM EXT PM & MRKS (4")	ELIM EXT PM & MRKS (8")	ELIM EXT PM & MRKS (24")	ELIM EXT PM & MRKS (ARROW)	ELIM EXT PM & MRKS (WORD)	REMOV CONC (RIPRAP)
	SY	EA	LF	LF	LF	LF	LF	EA	EA	SY
CS: 0024-06	3857	4	126.8	777	120	120	12	2	1	390
PROJECT TOTALS	3857	4	126.8	777	120	120	12	2	1	346

SUMMARY OF MOBILIZATION ITEMS

LOCATION	500 7001	502 7001
	MOBILIZATION	BARRICADES, SIGNS AND TRAFFIC HANDLING
	LS	MO
CS: 0024-06	1.00	3.00
PROJECT TOTALS	1	3

SUMMARY OF SIGNING ITEMS

LOCATION	644 7001
	IN SM RD SN SUP&AM TY10BWG(1) SA(P)
	EA
CS: 0024-06	1
PROJECT TOTALS	1

SUMMARY OF LANDSCAPE ITEMS

LOCATION	7026 7021
	SEEDING, HYDROMULCH
	SY
CS: 0024-06	400
PROJECT TOTALS	400

SUMMARY OF DRAINAGE ITEMS

LOCATION	464 7003	465 7001
	RC PIPE (CL III)(18 IN)	INLET (COMPL)(TY S)
	LF	EA
CS: 0024-06	112	1
PROJECT TOTALS	112	1

SWP3 SUMMARY

LOCATION	506 7001	506 7011	506 7044	506 7046
	ROCK FILTER DAMS (INSTALL) (TY 1)	ROCK FILTER DAMS (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)
	LF	LF	LF	LF
CS: 0024-06	100	100	50	50
PROJECT TOTALS	100	100	50	50

SUMMARY OF PAVEMENT MARKING ITEMS

LOCATION	666 7066	666 7021	666 7024	666 7036	666 7117	666 7408	666 7411	666 7423	668 7091	672 7006	672 7004
	REFL PAV MRK TY I (W)(WORD)(100MIL)	REFL PAV MRK TY I (W)8"(LNDP)(100MIL)	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	REFL PAV MRK TY I (Y)12"(SLD)(100MIL)	REFL PAV MRK TY I (W)6"(BRK)(100MIL)	REFL PAV MRK TY I (W)6"(SLD)(100MIL)	REFL PAV MRK TY I (Y)6"(SLD)(100MIL)	PREFAB PM TY C (W)(ARROW)	REFL PAV MRKR TY II-C-R	REFL PAV MRKR TY II-A-A
	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA
CS: 0024-06	4	890	1285	32	273	6146	6540	7072	7	75	3
PROJECT TOTALS	4	890	1285	32	273	6146	6540	7072	7	75	3

DRAIN D IMPROVEMENTS

LOCATION	110 7002	132 7003	464 7007	432 7003	7026 7021	402 7001
	EXCAV (CHANNEL)	EMBANK (FNL)(OC)(TY B)	RC PIPE (CL III)(30 IN)	RIPRAP (CONC)(6 IN)	SEEDING,HYDROMULCH	TRENCH EXCAVATION PROTECTION
	CY	CY	LF	SY	SY	LF
CS: 0024-06	57	1026	213	155	4783	213
PROJECT TOTALS	57	1026	213	155	4783	213

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US 90

QUANTITY SUMMARY

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0024	06	NA	459
DIST	COUNTY		
SAN	MEDINA		6

DATE: 3/30/2026 4:16:03 PM
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DW: CK: DW: CK:

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

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

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

WORKER SAFETY NOTES:

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

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

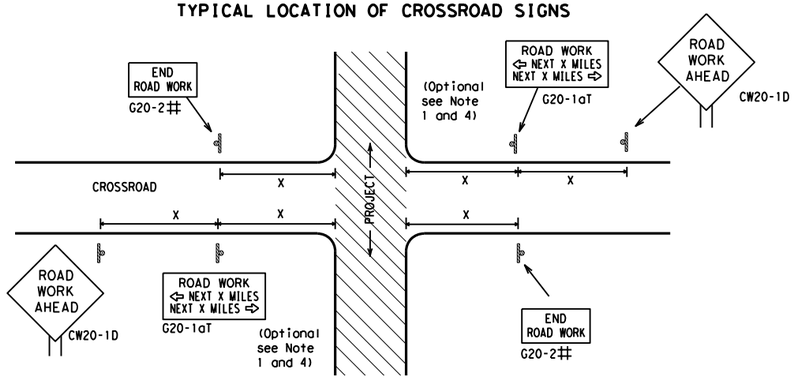
BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
4-03 7-13	DIST	COUNTY		
9-07 8-14	SAN	MEDINA		7
5-10 5-21				

460

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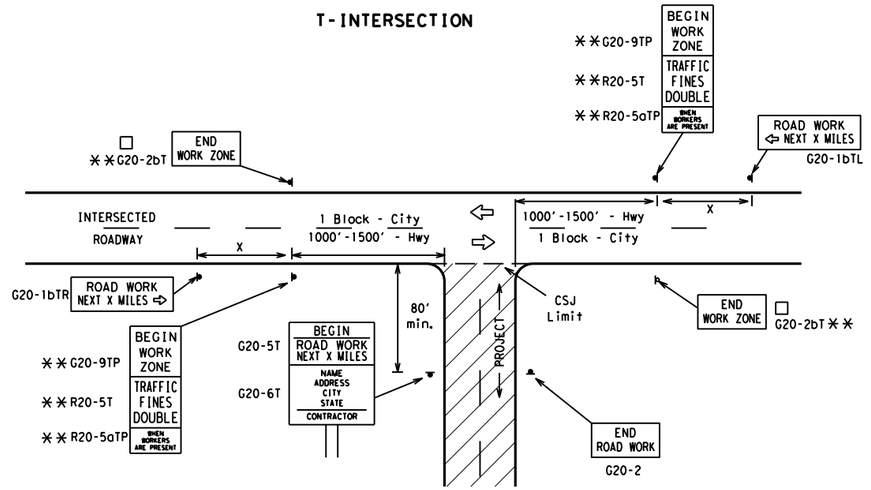
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

SIZE

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

SPACING

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

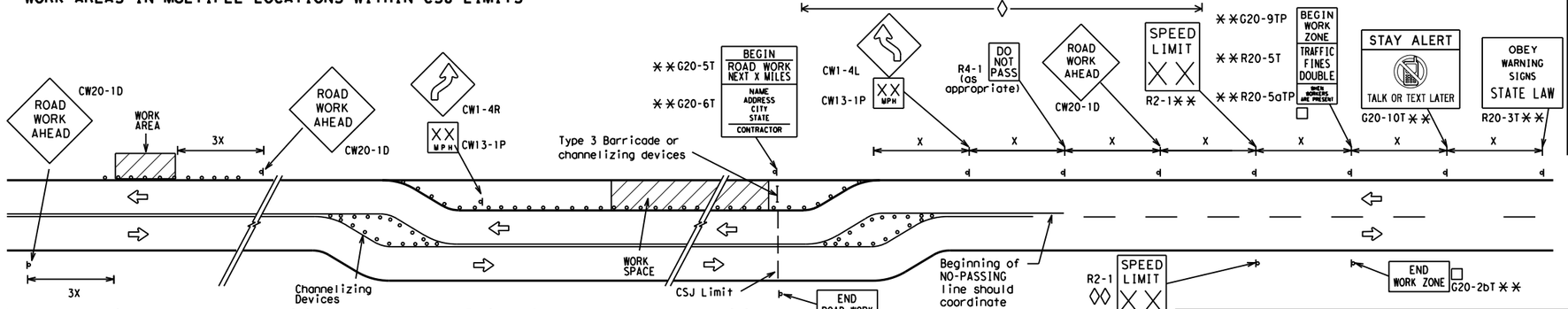
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

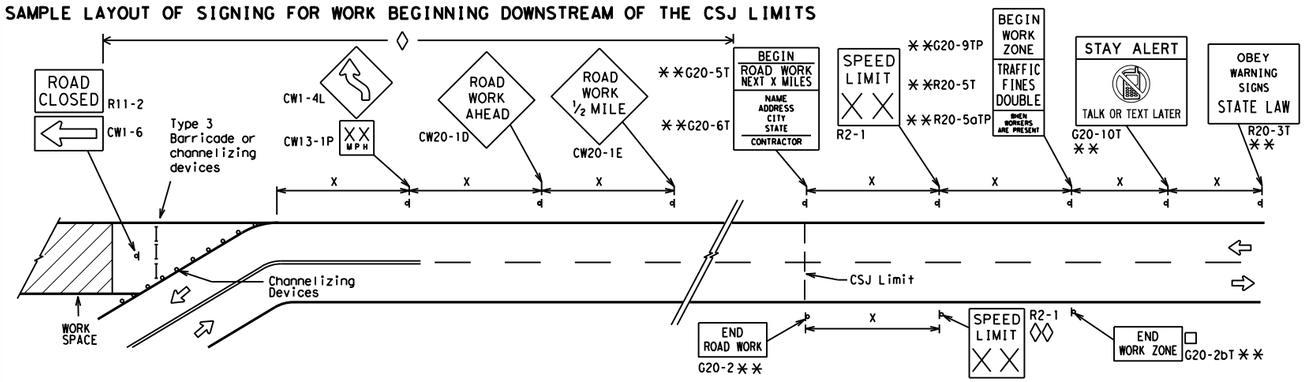
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING 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.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ 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.

SHEET 2 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE:	bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS		0024	06	NA	
9-07 8-14		DIST	COUNTY		461
7-13 5-21		SAN	MEDINA		8

DATE:
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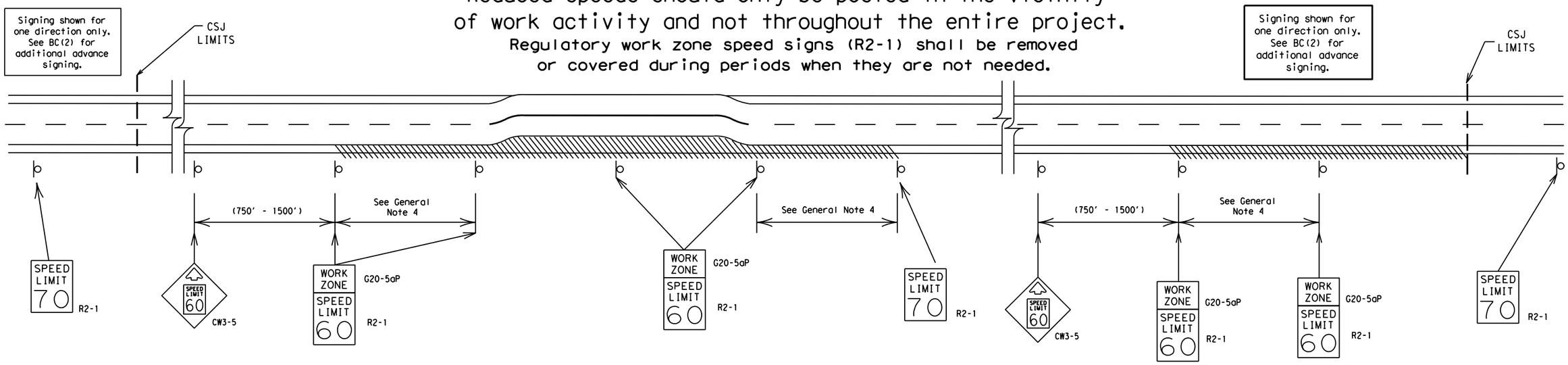
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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:

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

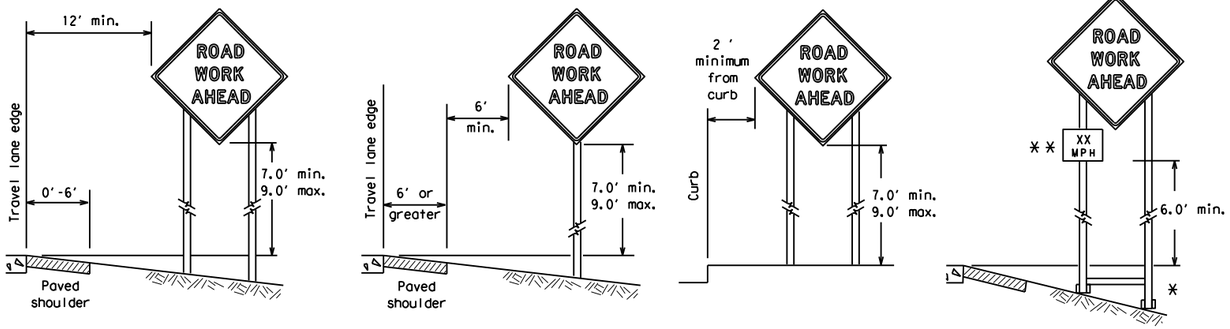
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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
9-07 8-14	DIST	COUNTY		
7-13 5-21	SAN	MEDINA		9

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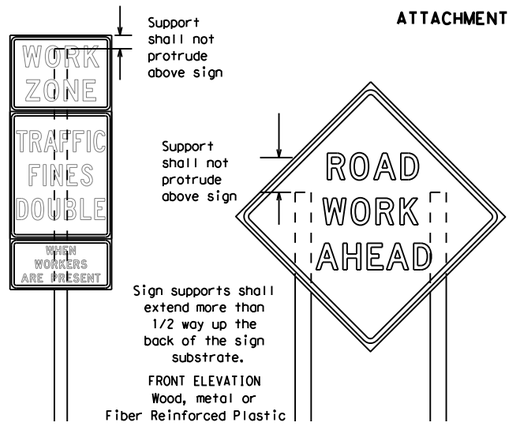
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

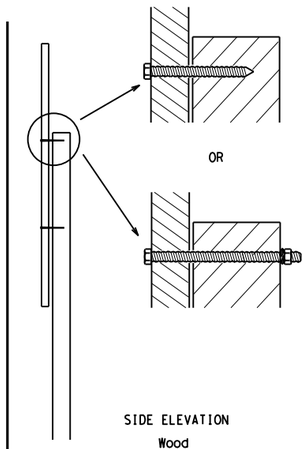


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** 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





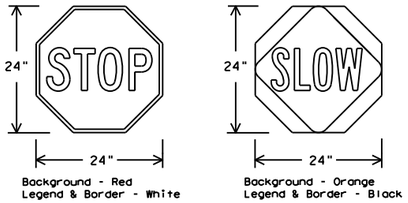
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

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

STOP/SLOW PADDLES

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



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

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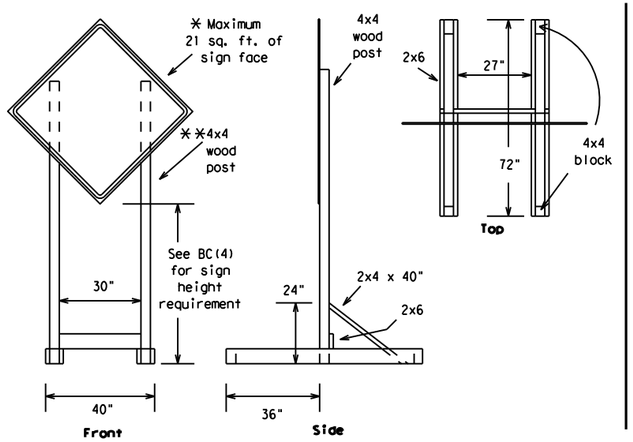
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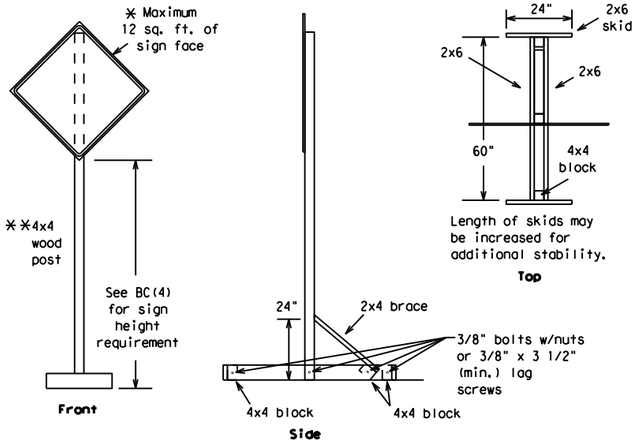
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7-13 5-21	SAN	MEDINA		10

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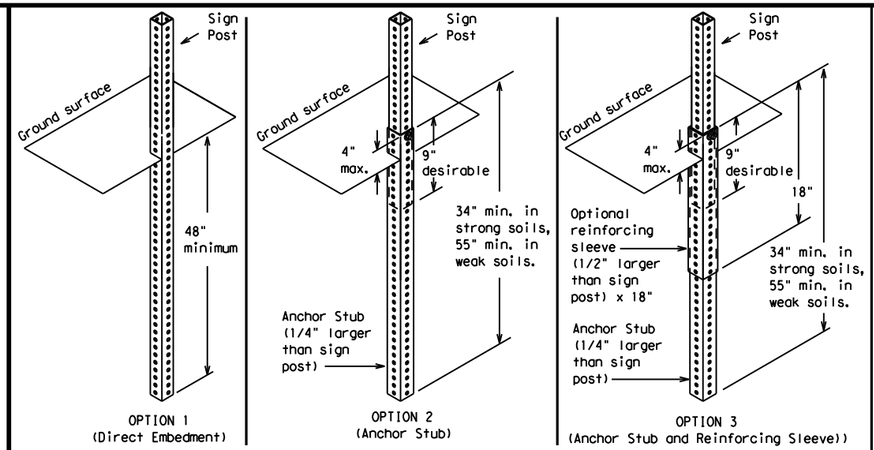
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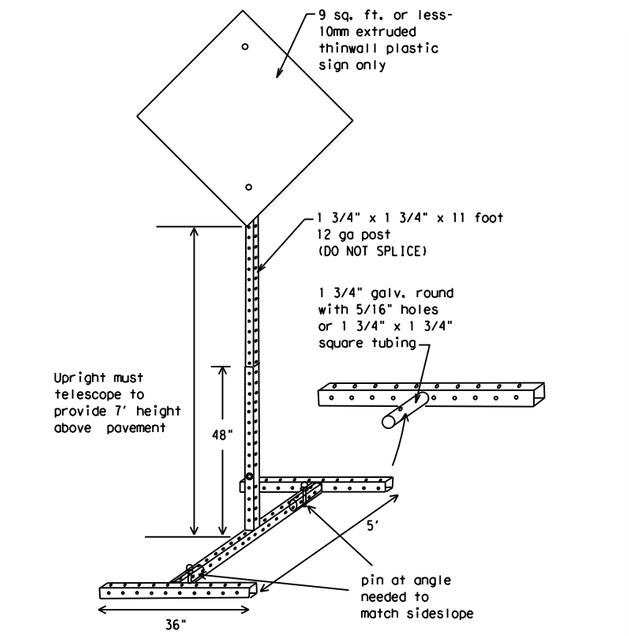
SKID MOUNTED WOOD SIGN SUPPORTS

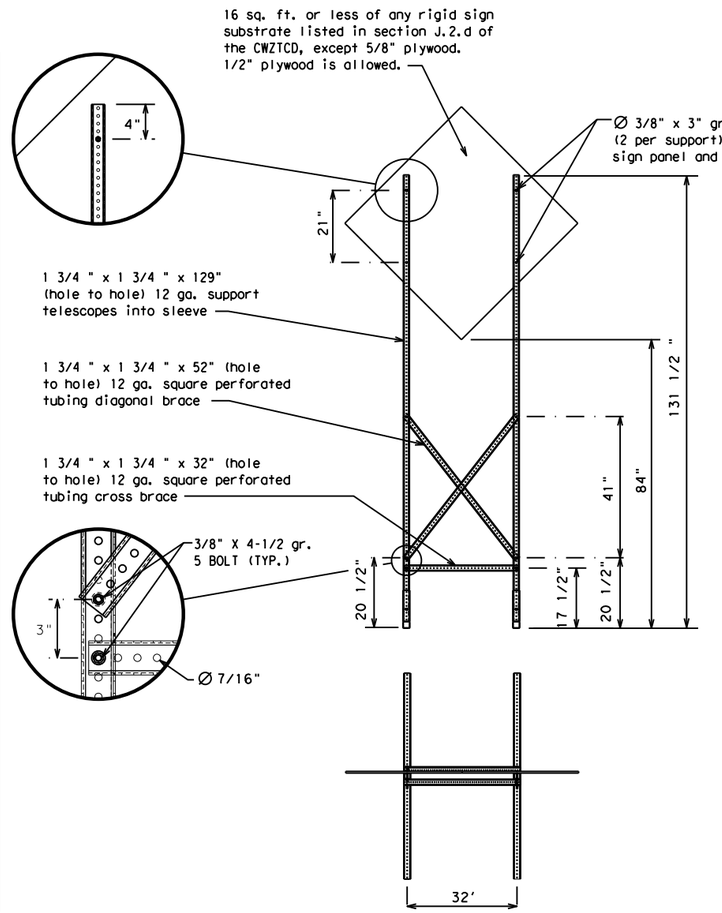
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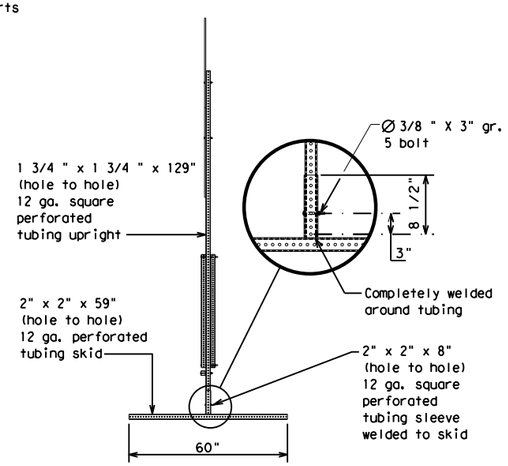


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

SHEET 5 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

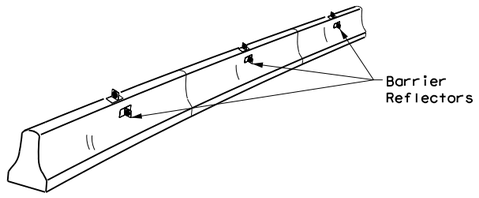
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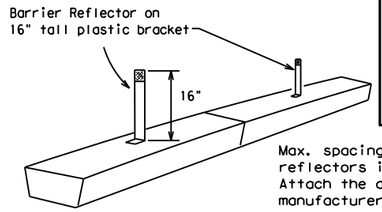
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1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors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



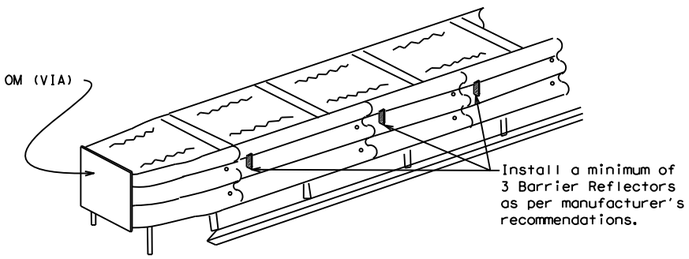
CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.



Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

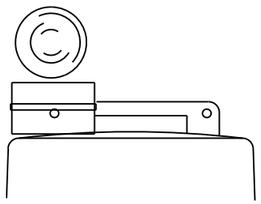
LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

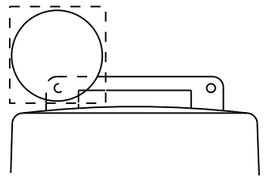
WARNING LIGHTS



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

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS



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

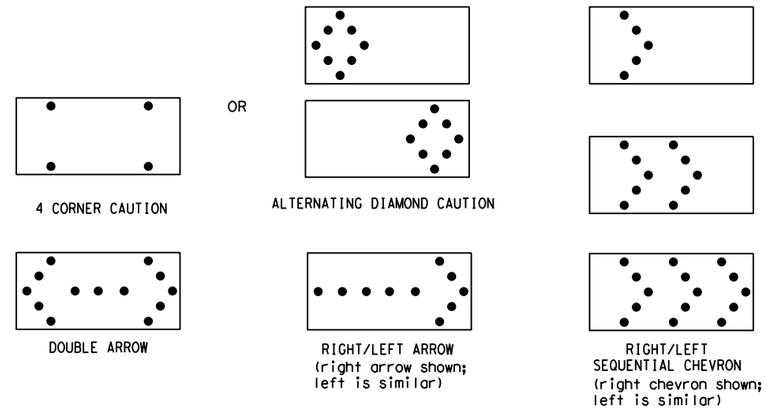
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shou taper or merging taper, otherwise they shall be delineated with four (4) ch devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

SHEET 7 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
9-07 8-14	DIST	COUNTY		
7-13 5-21	SAN	MEDINA		13

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DATE:
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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

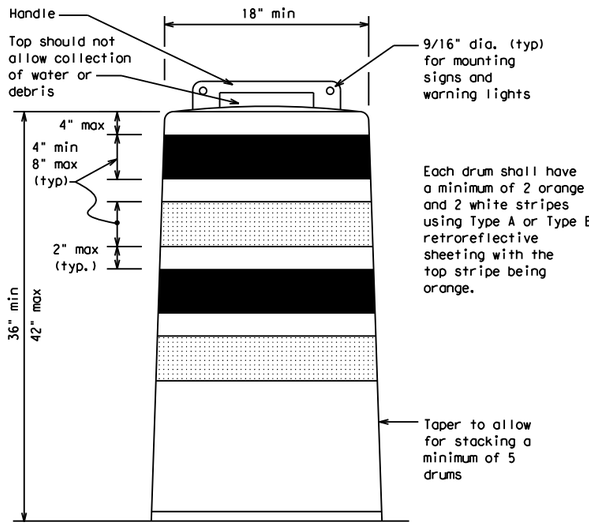
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

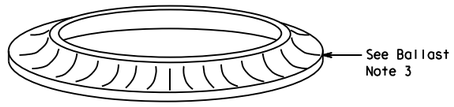
RETROREFLECTIVE SHEETING

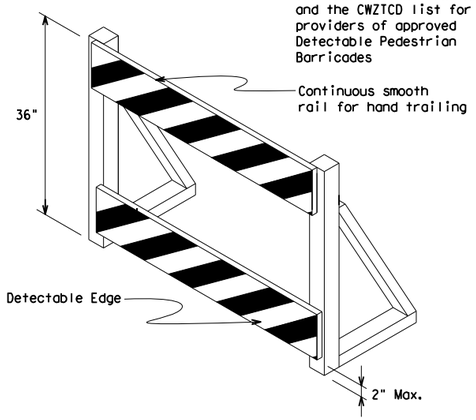
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.



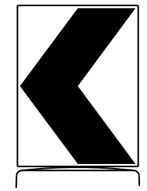




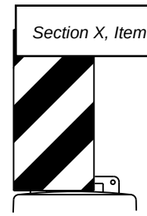
This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{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.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation | Traffic Safety Division Standard

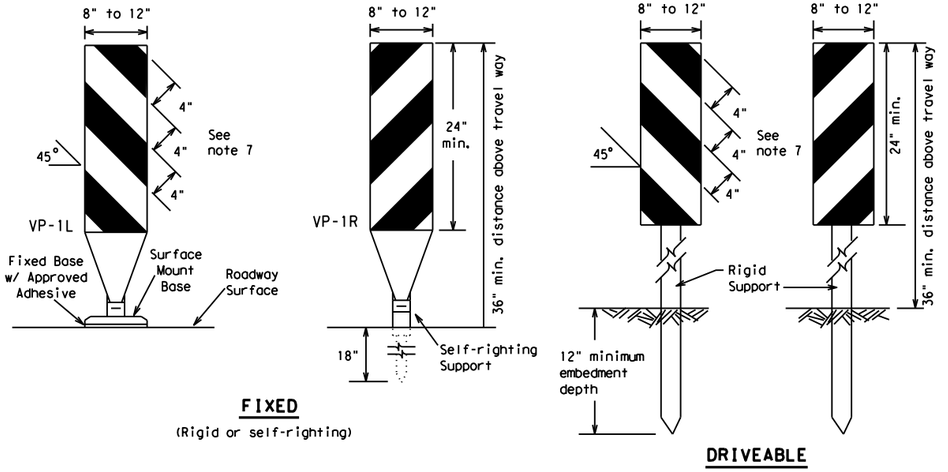
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 5-21	SAN	MEDINA		14
7-13				

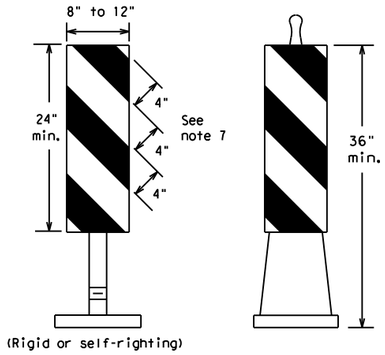
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FIXED
(Rigid or self-righting)

DRIVEABLE

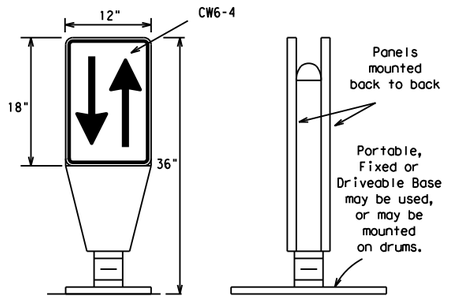


(Rigid or self-righting)

PORTABLE

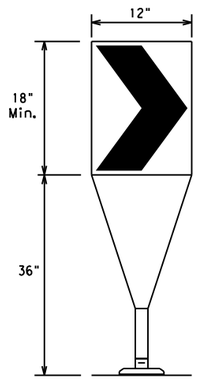
VERTICAL PANELS (VPs)

1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



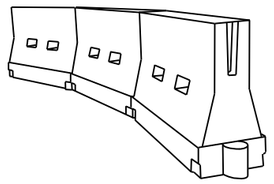
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

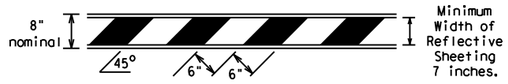
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
9-07 8-14	DIST	COUNTY		468
7-13 5-21	SAN	MEDINA		15

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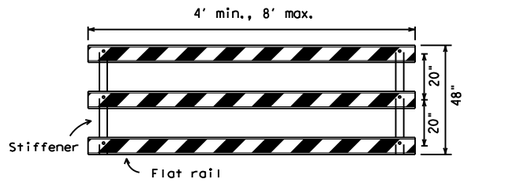
TYPE 3 BARRICADES

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 or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



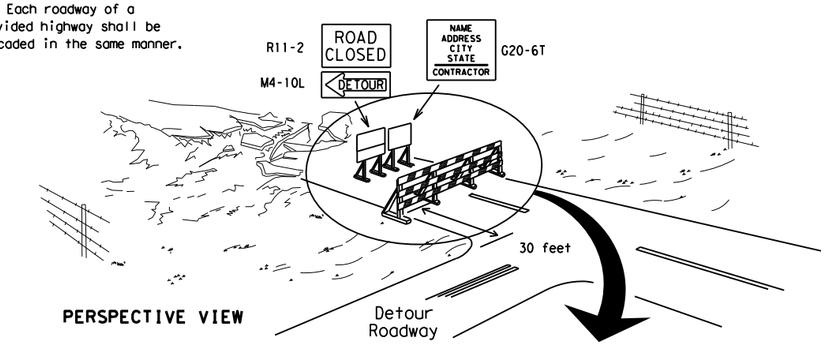
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

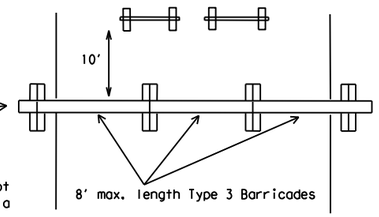
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

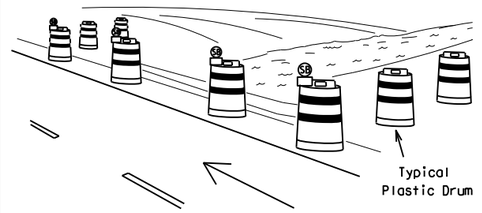
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

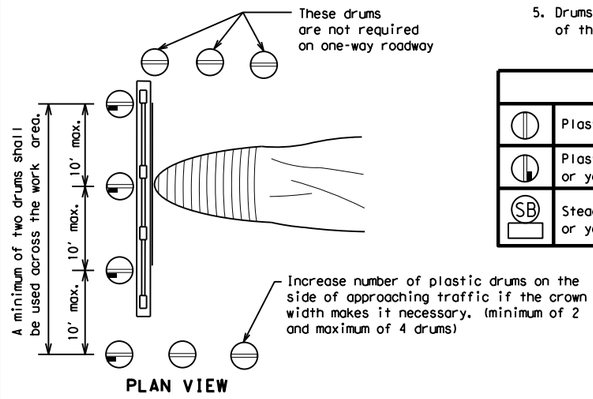
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

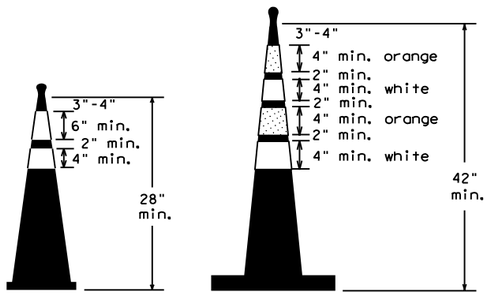
1. Where positive [illegible] capability is [illegible] may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width 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.



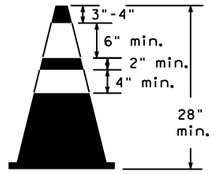
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

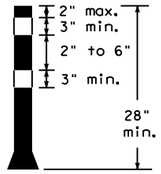
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

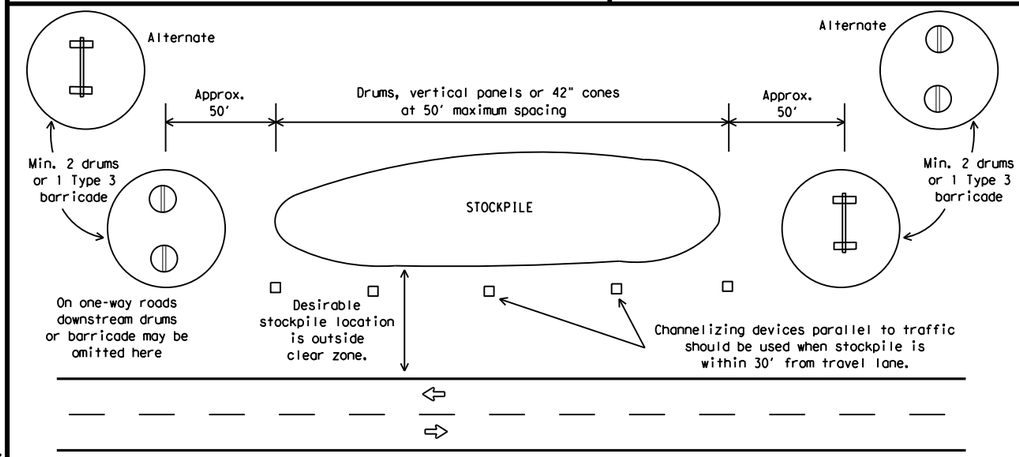


Tubular Marker

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.

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 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 or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

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

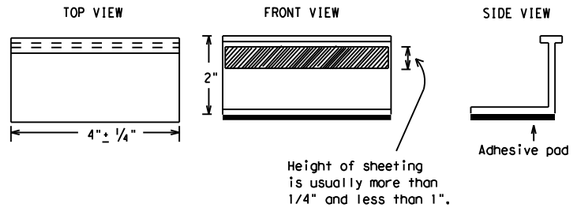
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECI	
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).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

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2-98 9-07 5-21	DIST	COUNTY		
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11-02 8-14				

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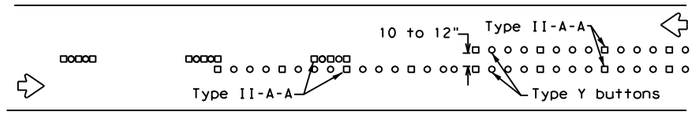
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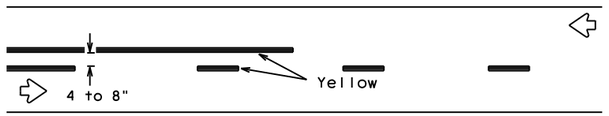
PAVEMENT MARKING PATTERNS



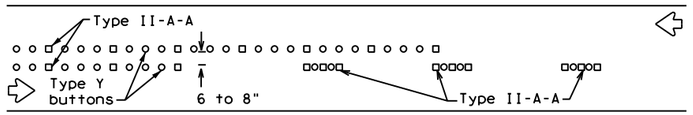
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



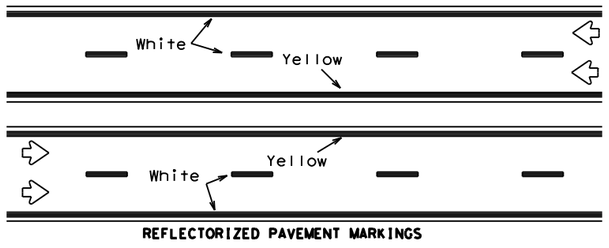
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



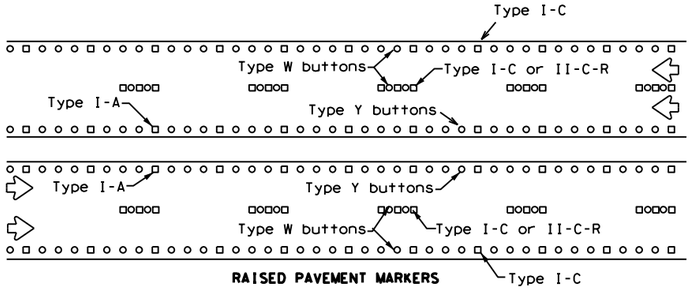
RAISED PAVEMENT MARKERS - PATTERN B

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

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



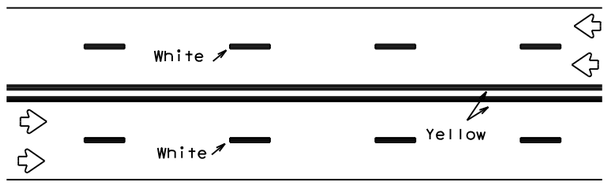
REFLECTORIZED PAVEMENT MARKINGS



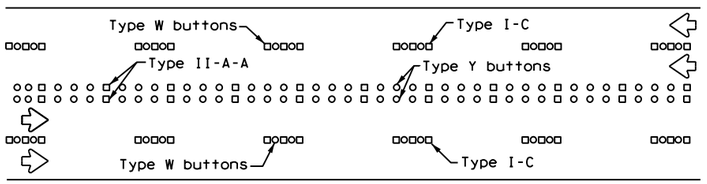
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



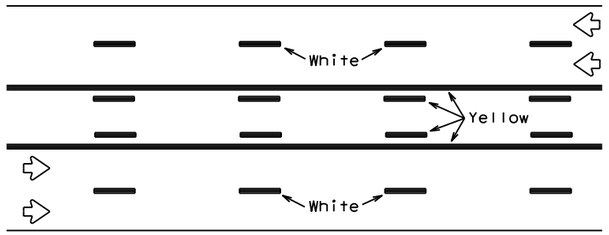
REFLECTORIZED PAVEMENT MARKINGS



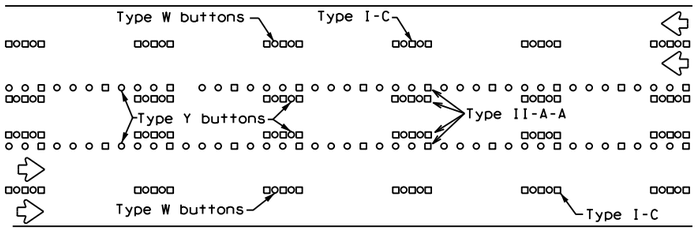
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

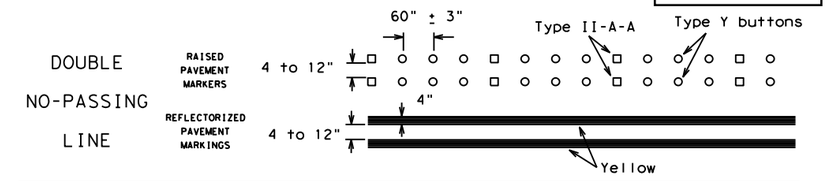
TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DET

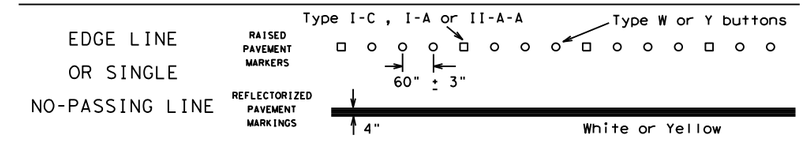
Section X, Item d.

SOLID LINES

DOUBLE NO-PASSING LINE

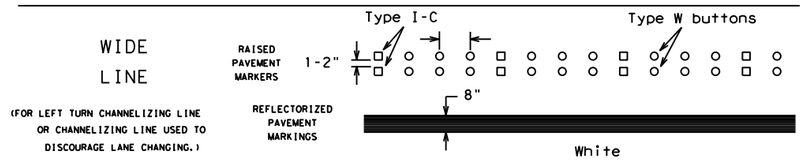


EDGE LINE OR SINGLE NO-PASSING LINE



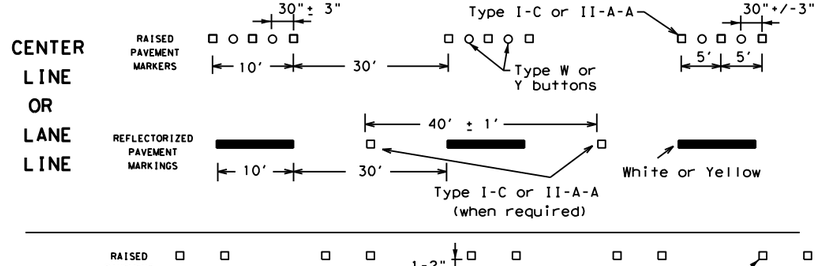
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

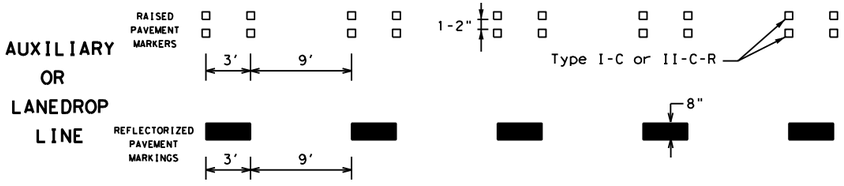


BROKEN LINES

CENTER LINE OR LANE LINE

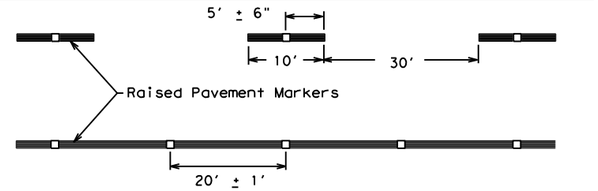


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

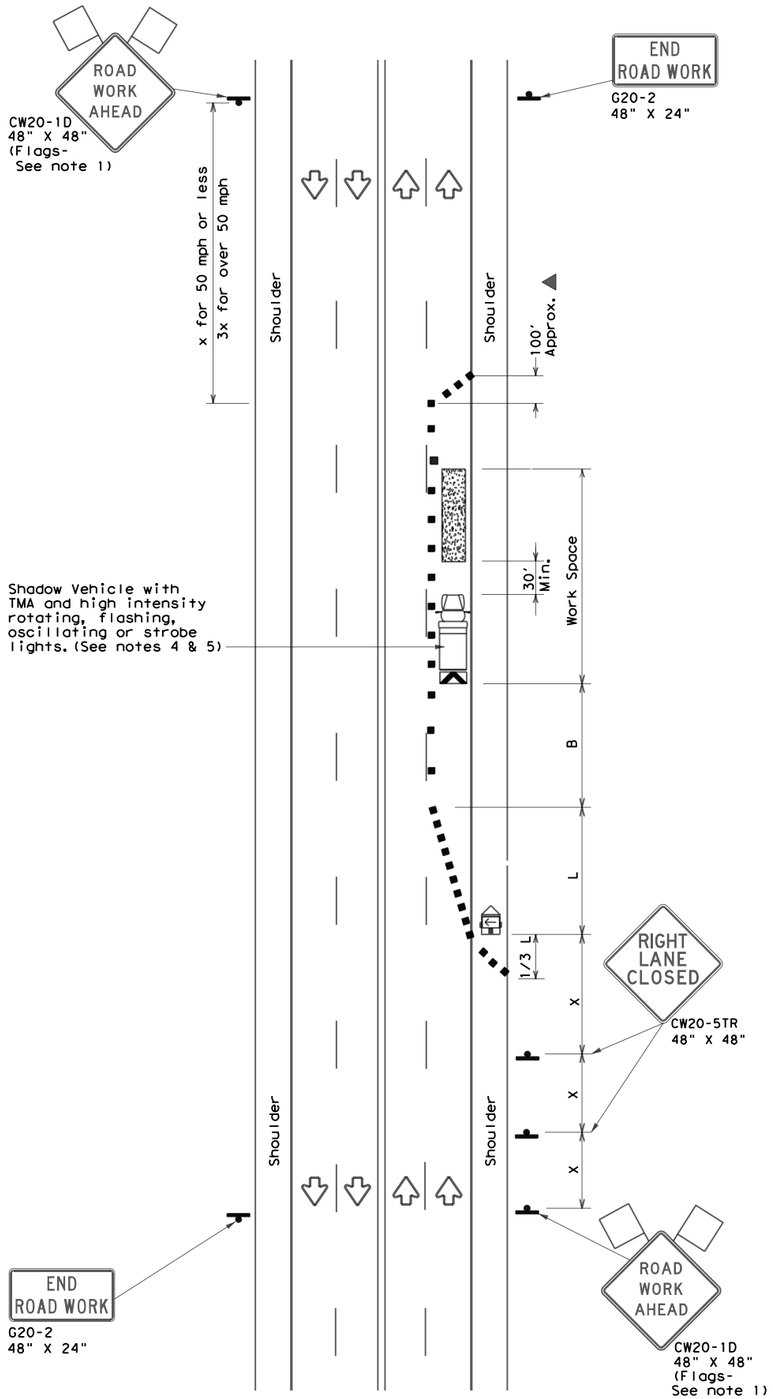
BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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1-97 9-07 5-21	DIST	COUNTY		
2-98 7-13	SAN	MEDINA		18
11-02 8-14				

106

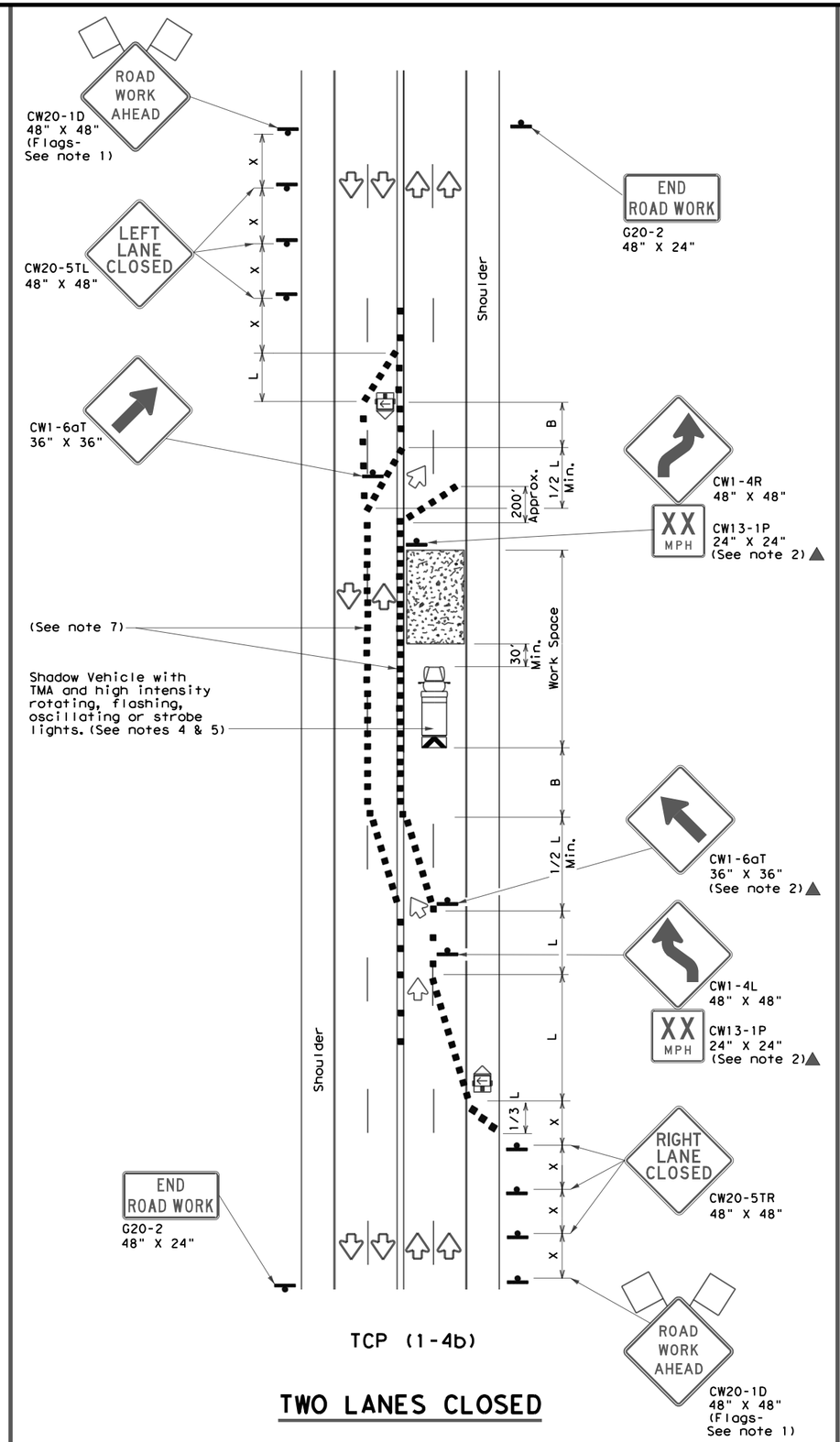
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DATE:
FILE:



TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

6. If this TCP is used for a left lane closure , CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

7. Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

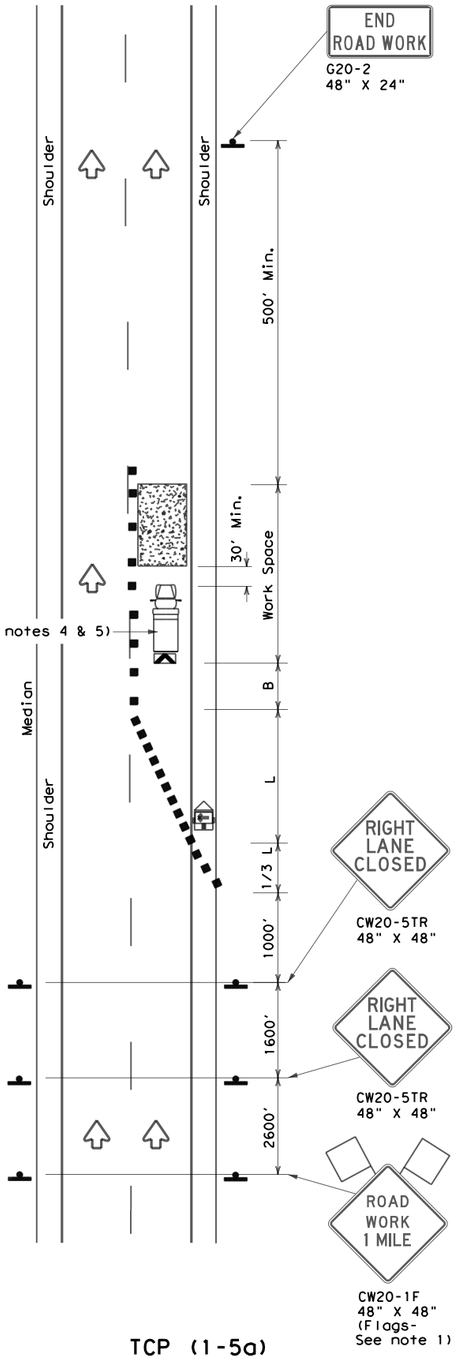
TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		
8-95 2-12	SAN	MEDINA		19
1-97 2-18				

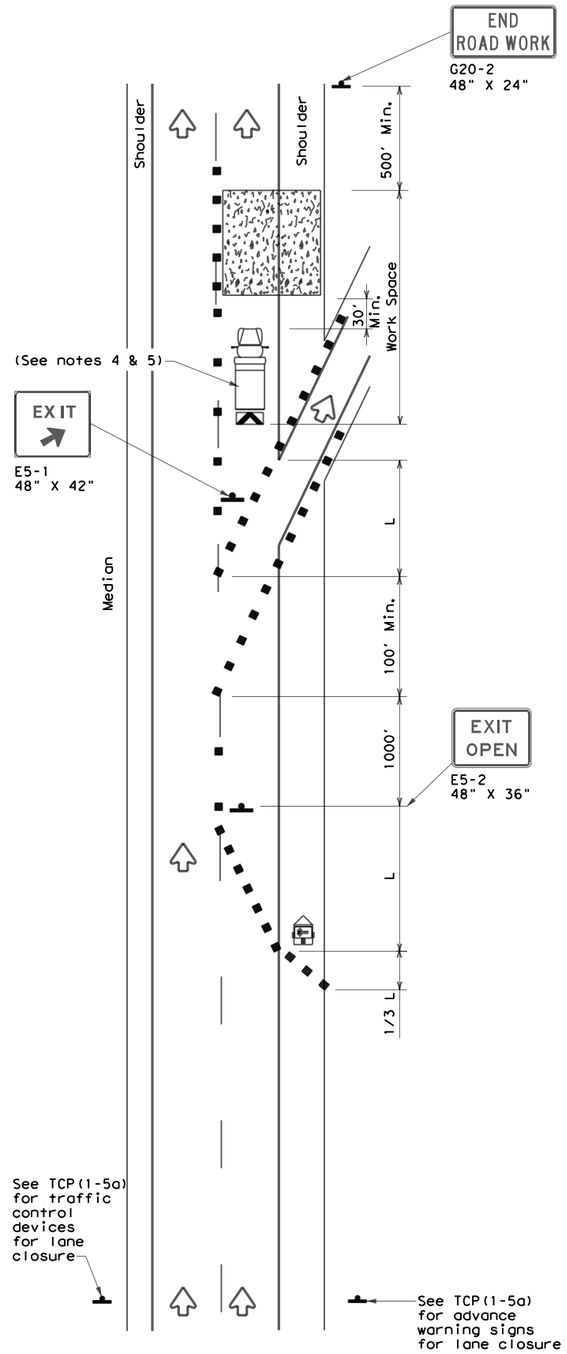
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DATE:
FILE:



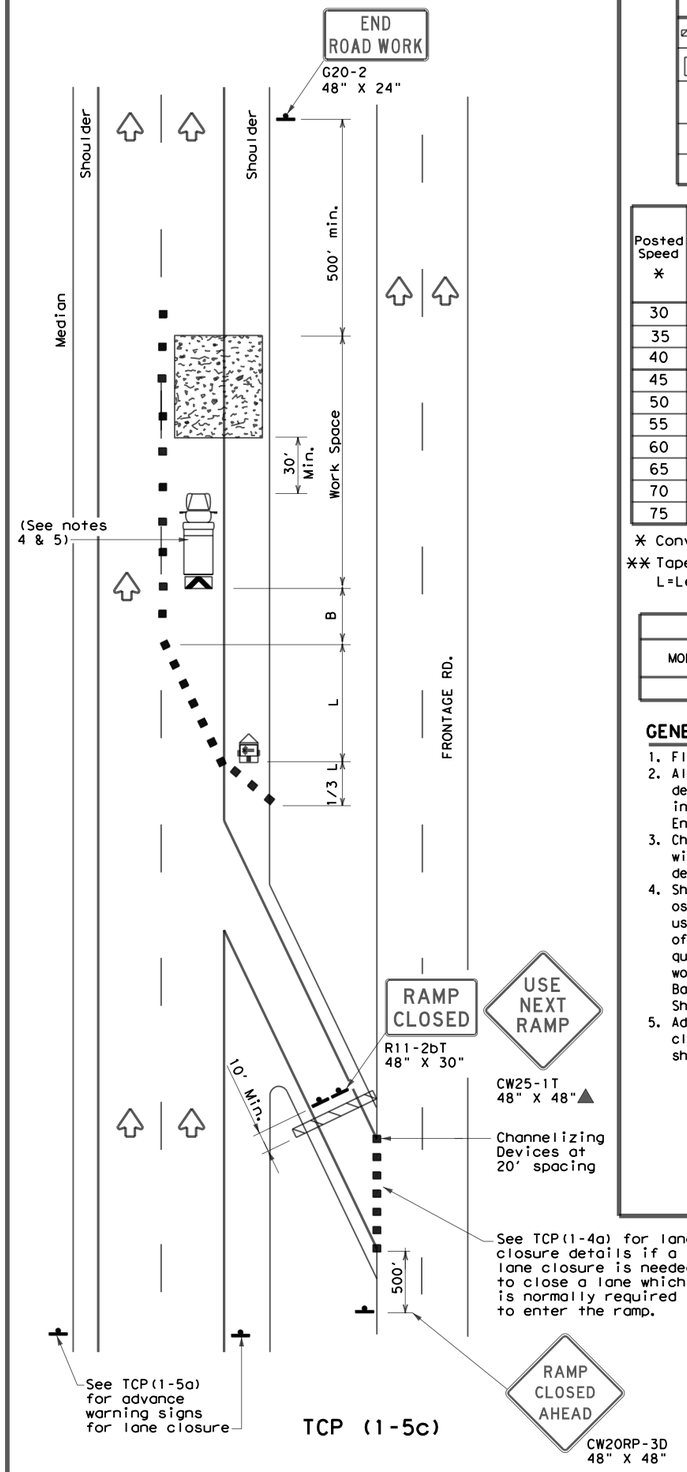
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓		

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

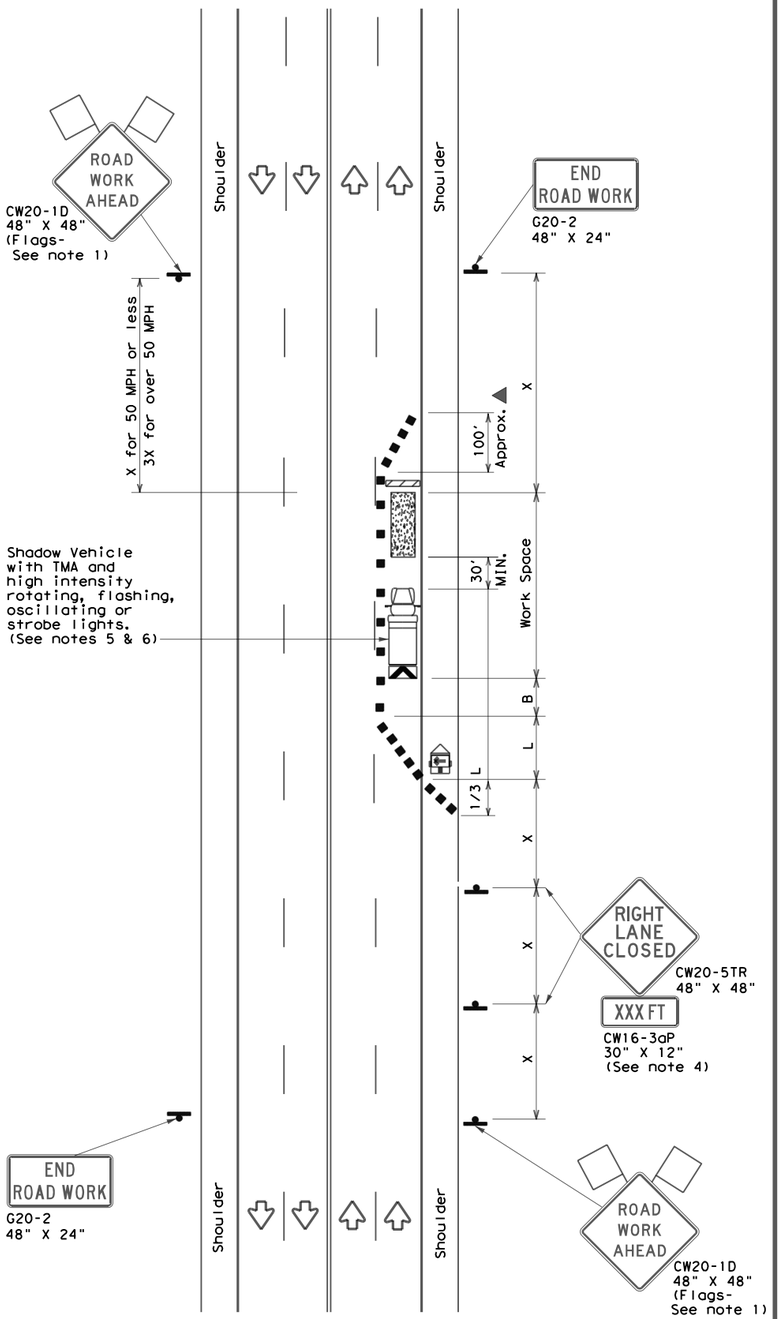
TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(1-5)-18

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	SAN	MEDINA		

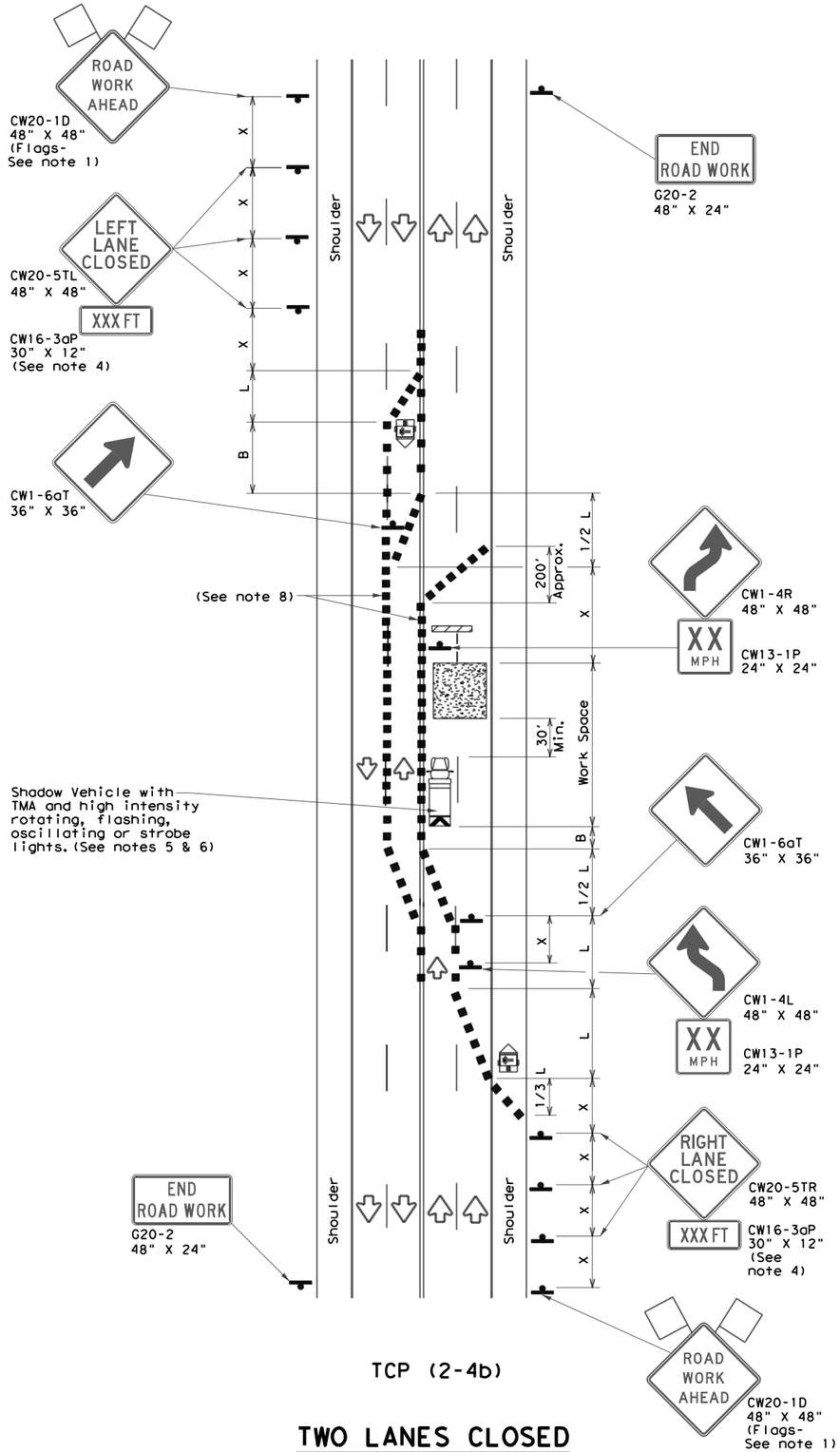
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FILE:



TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
		✓	✓	

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

7. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED"signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

8. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter devices spacing is intended for the area of conflicting markings, not the entire work zone.

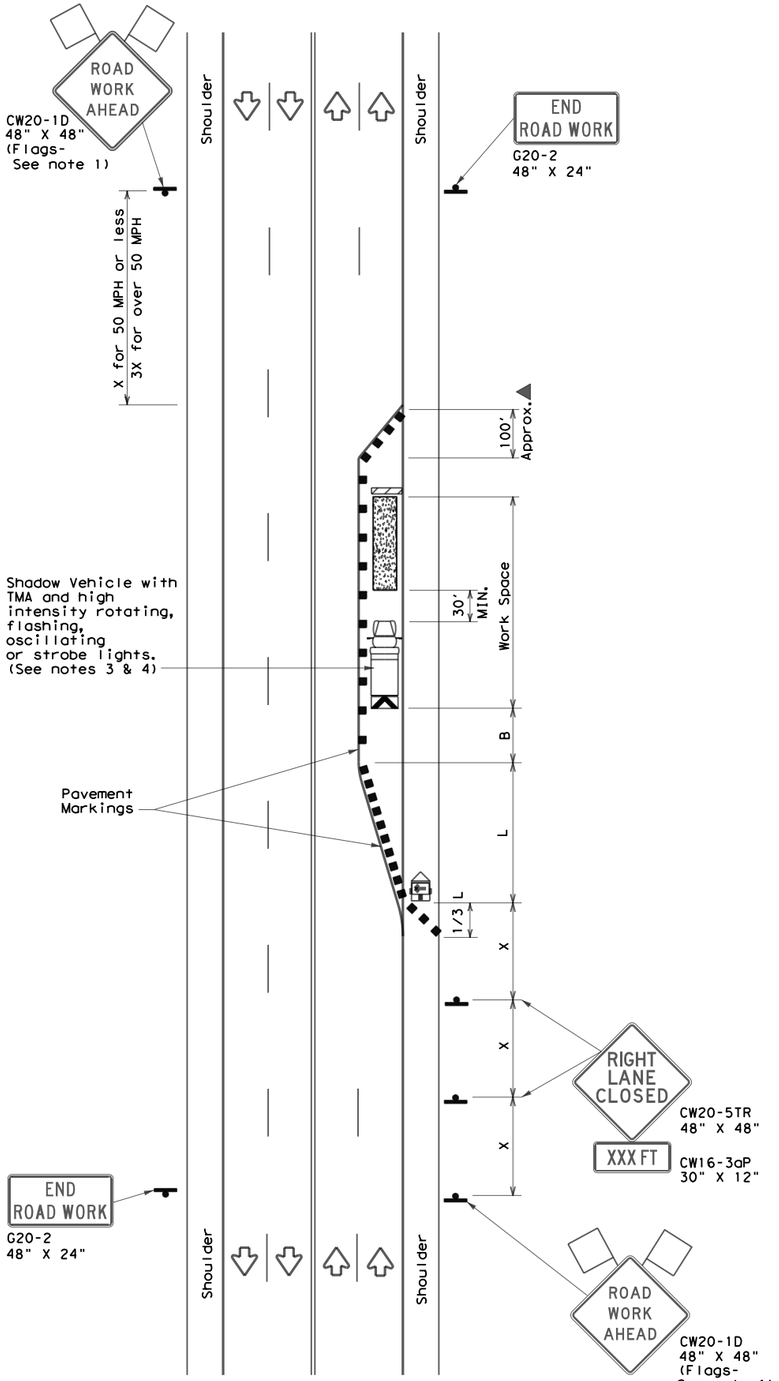
Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

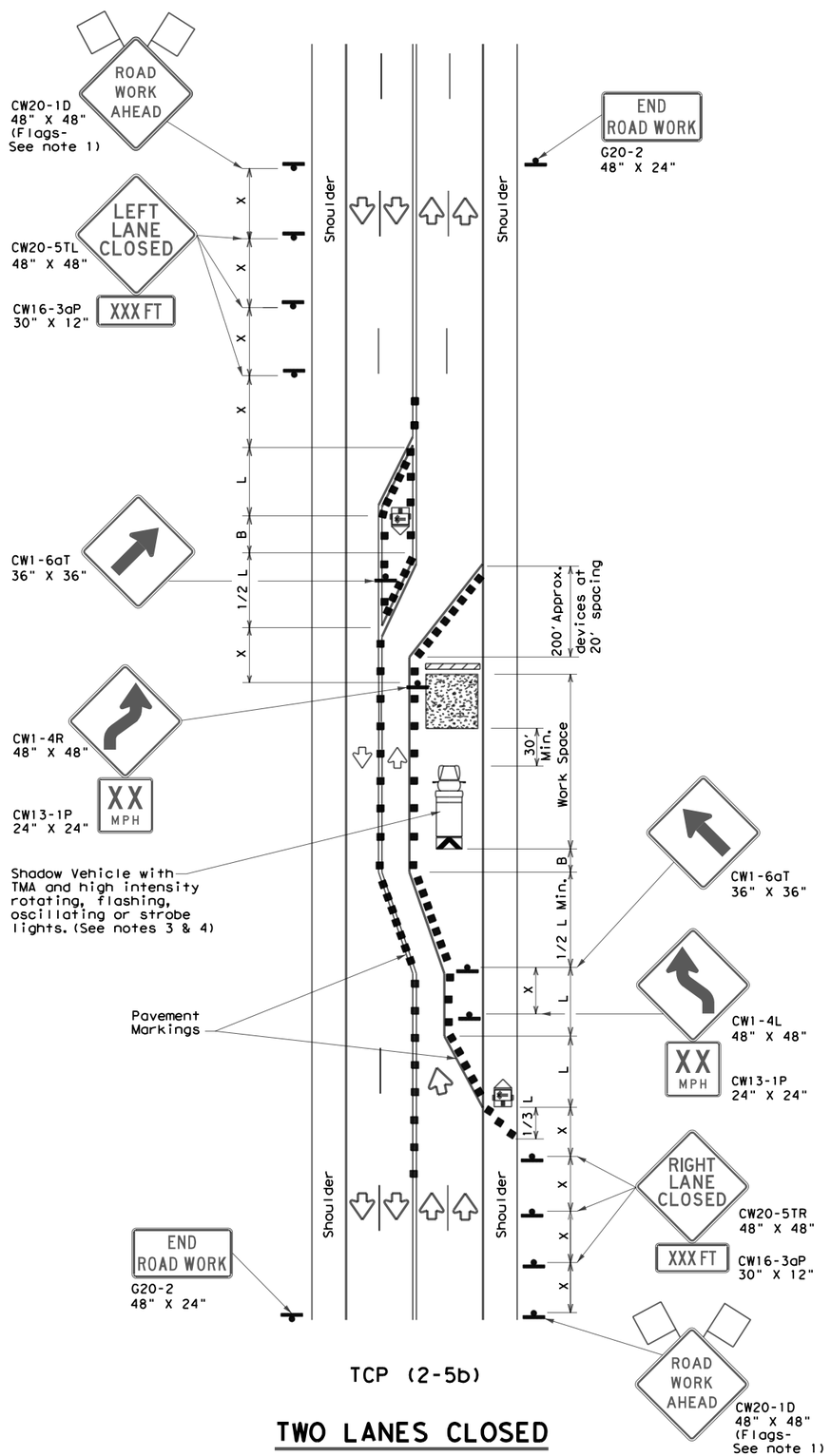
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0024	06	NA	
1-97 2-12	DIST	COUNTY		
4-98 2-18	SAN	MEDINA		21

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TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

TWO LANES CLOSED

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew eposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substitutued for the Shadow Vehicle and TMA.
4. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

6. If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-5b)

7. Conflicting pavement markings shall be removed for long-term projects.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

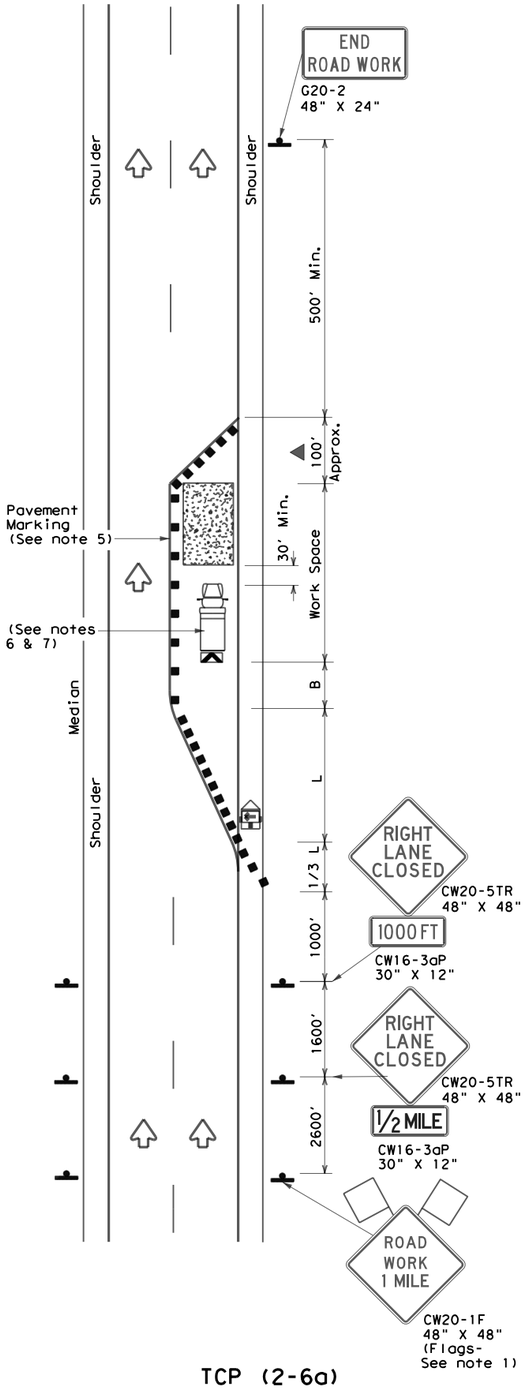
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1-97 3-03	SAN	MEDINA		22
4-98 2-18				

DATE:
FILE:

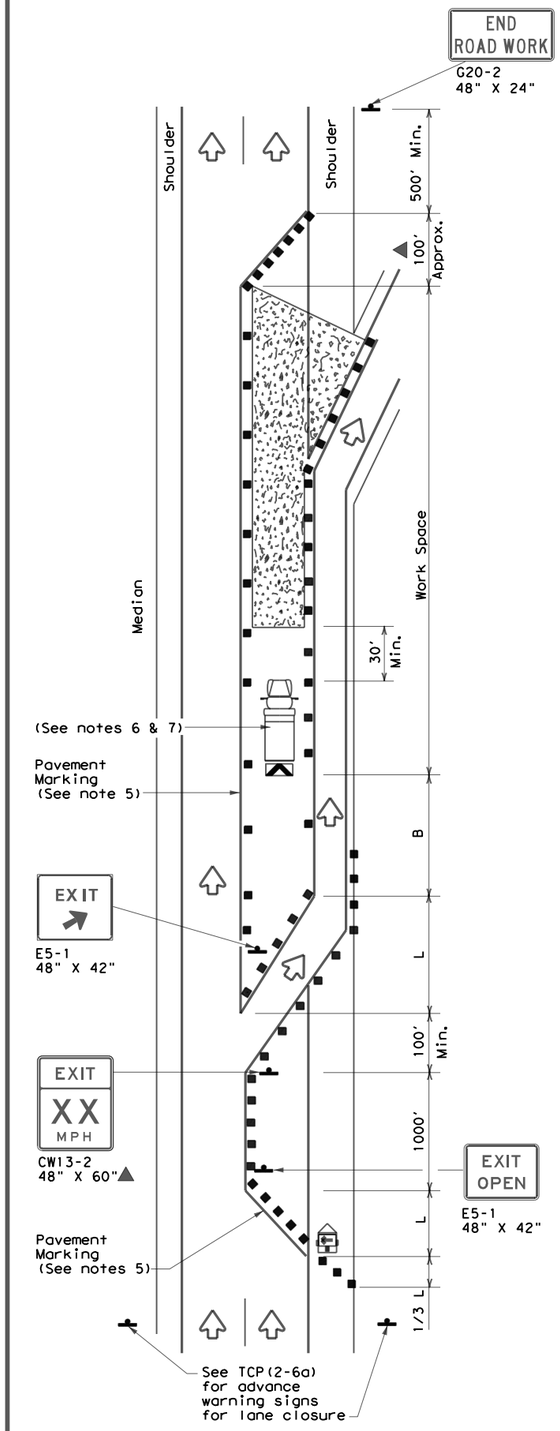
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FILE:



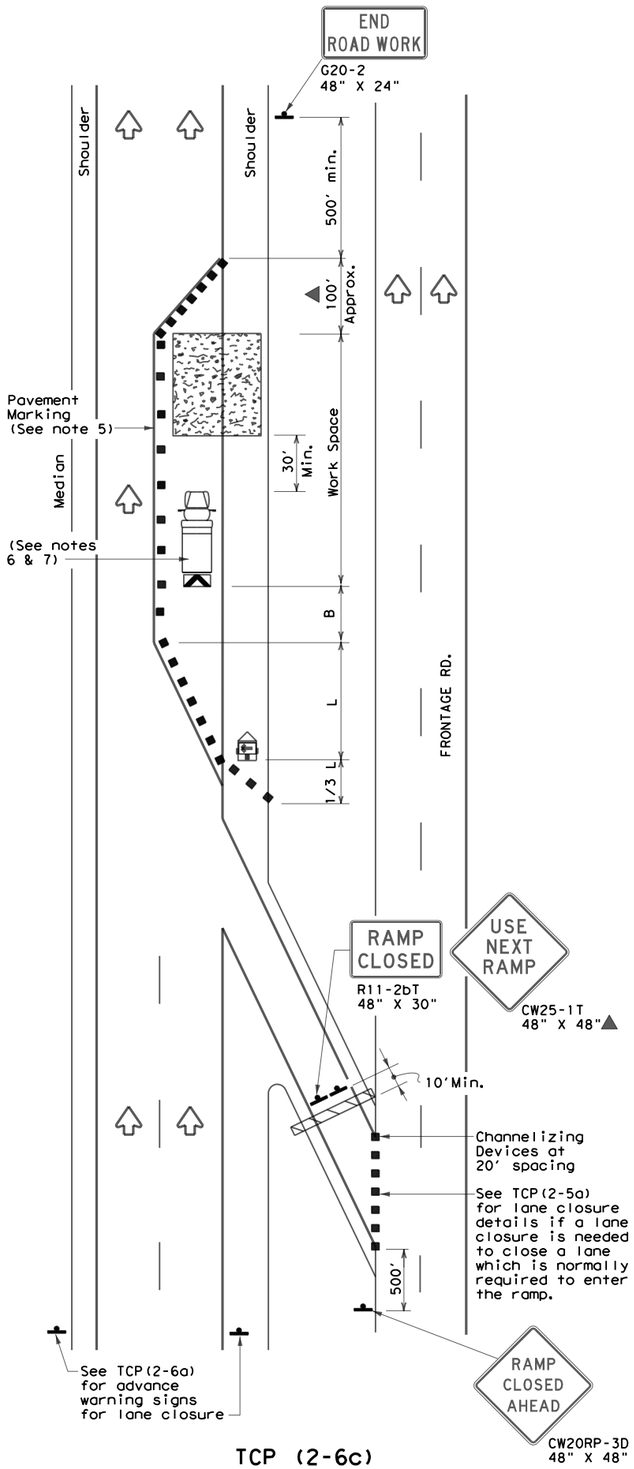
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

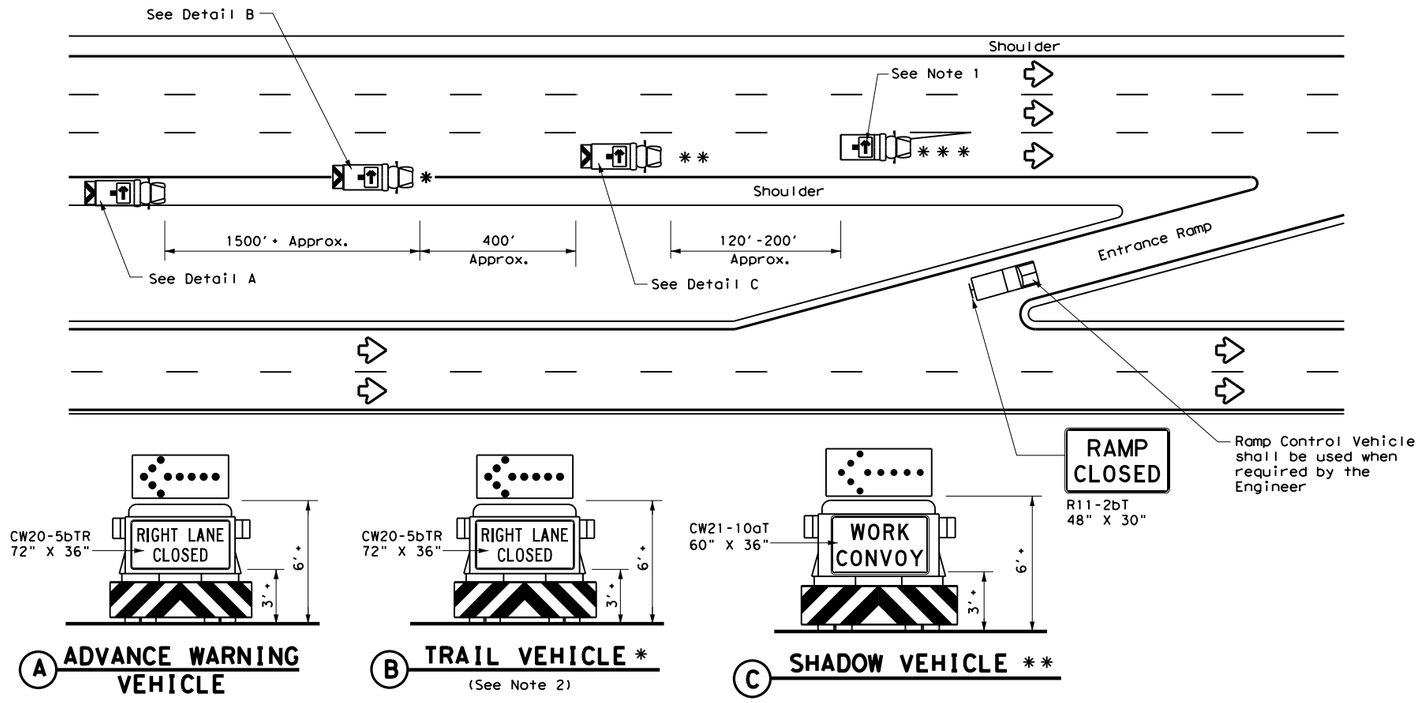
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

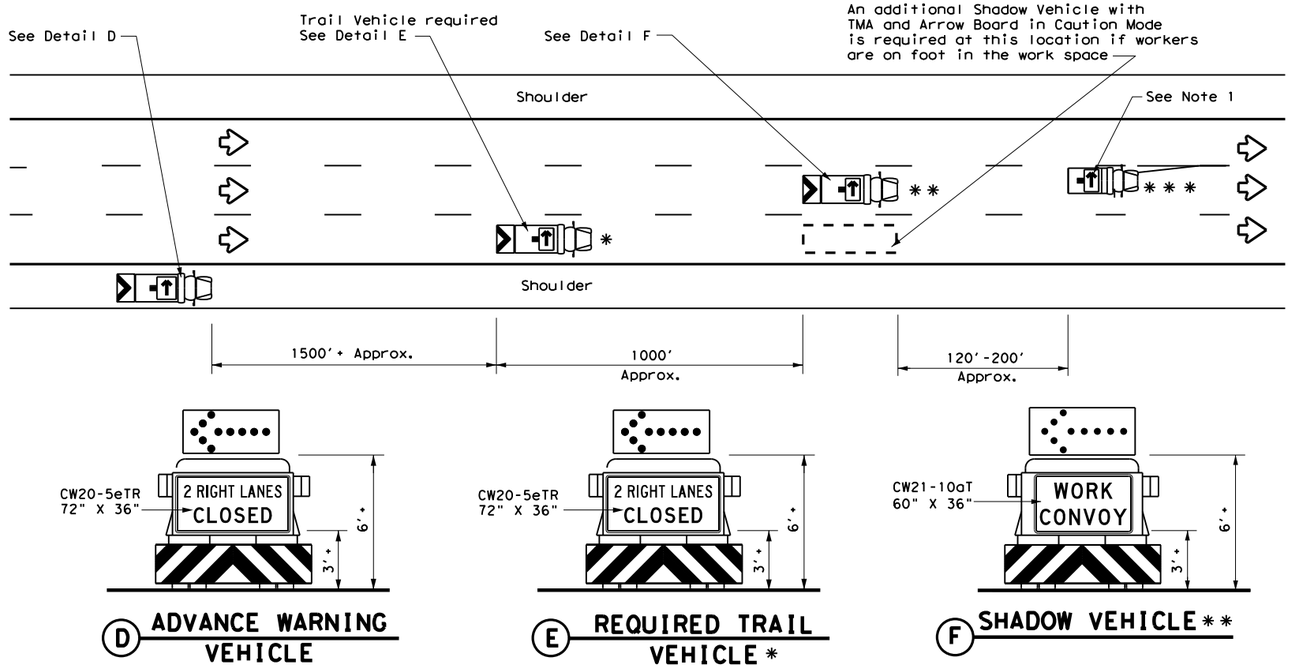
TCP(2-6)-18

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2-94 4-98	DIST	COUNTY		476
8-95 2-12	SAN	MEDINA		23
1-97 2-18				

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RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

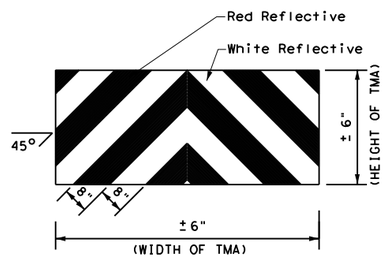
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FILE:

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
2. For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
3. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

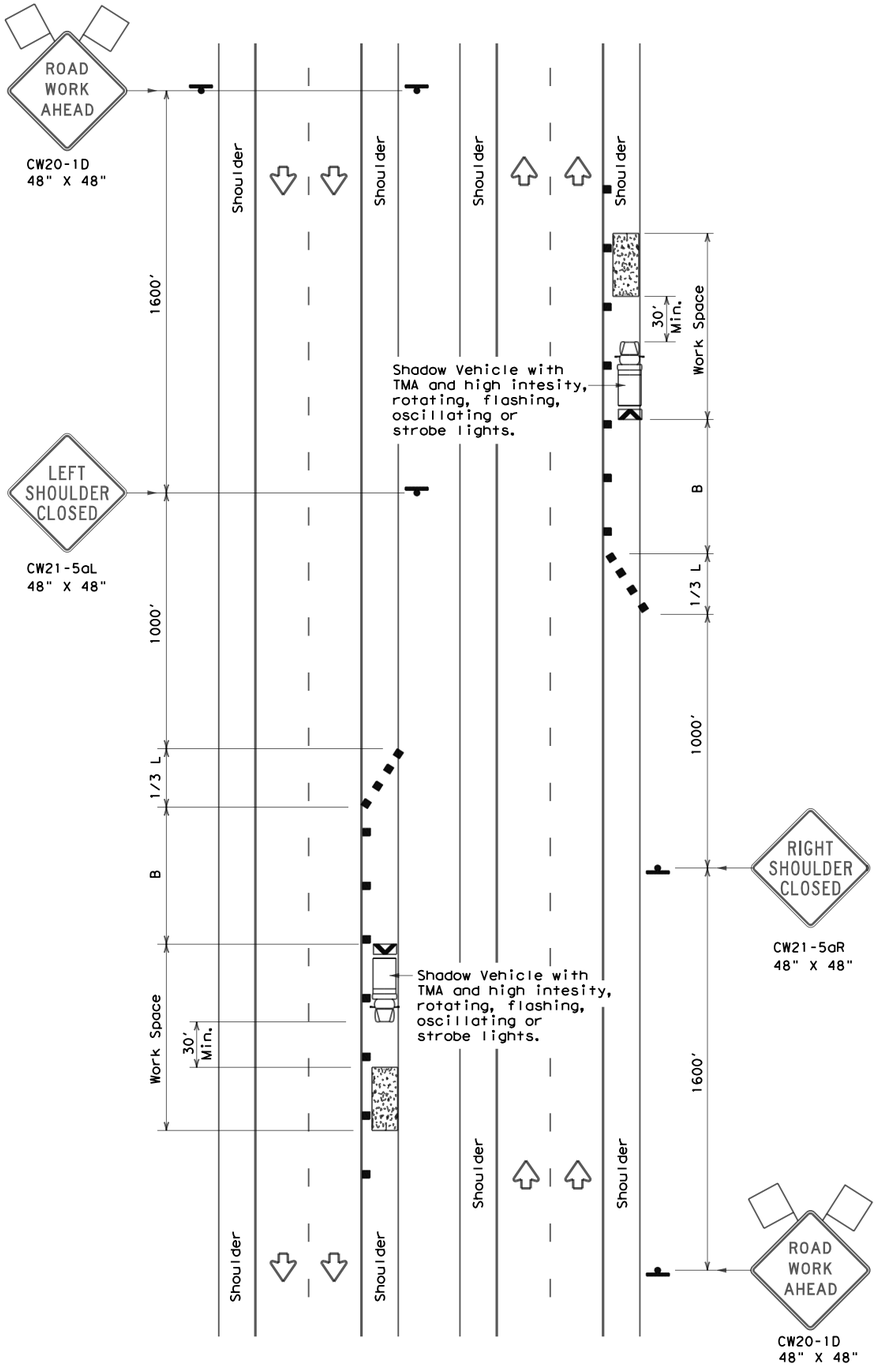
TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		24

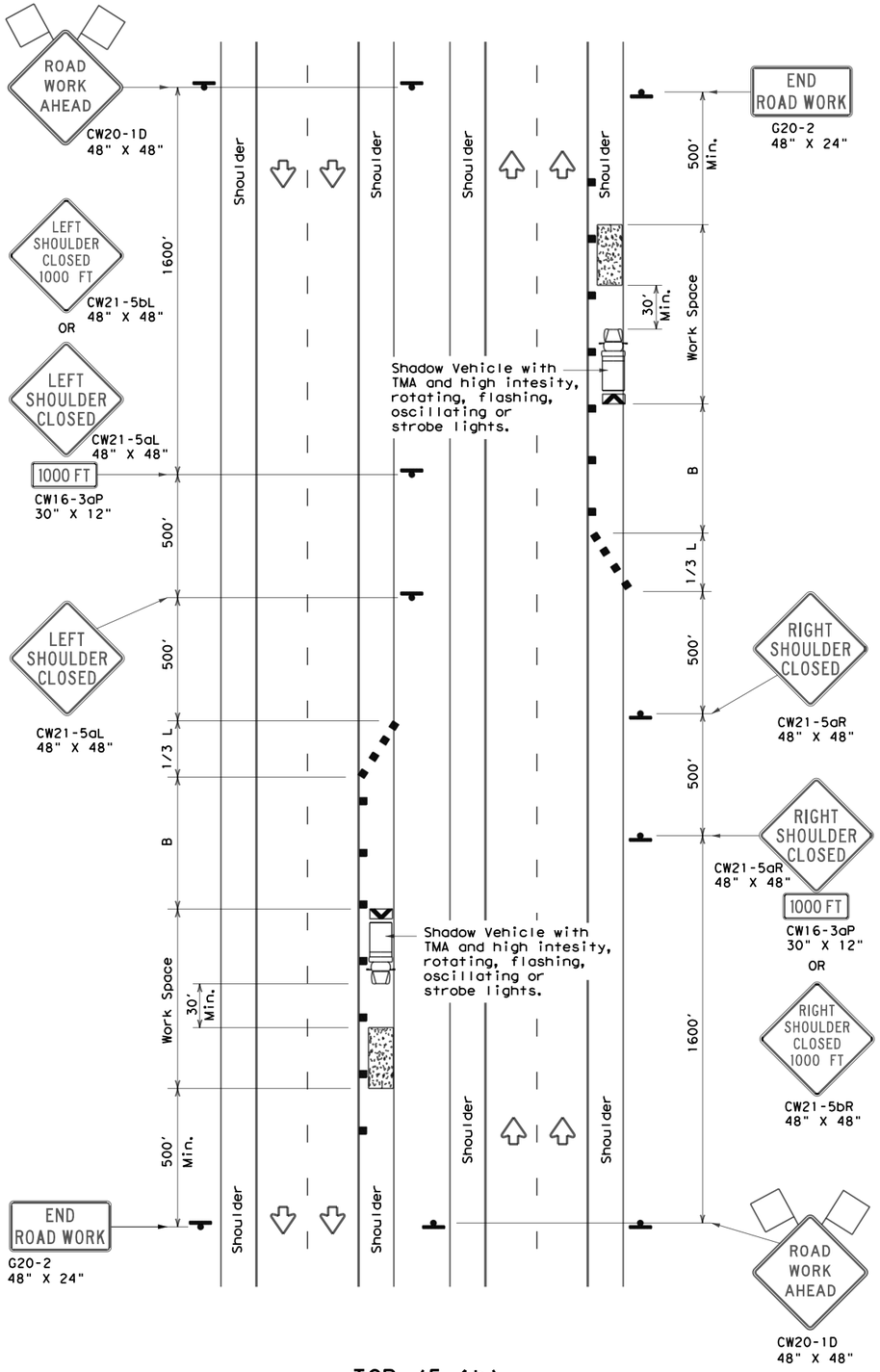
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DATE:
FILE: tcp5-1-18.dgn



TCP (5-1a)

WORK AREA ON SHOULDER



TCP (5-1b)

WORK AREA ON SHOULDER

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	90'
35		205'	225'	245'	35'	70'	120'
40		265'	295'	320'	40'	80'	155'
45	L=WS	450'	495'	540'	45'	90'	195'
50		500'	550'	600'	50'	100'	240'
55		550'	605'	660'	55'	110'	295'
60		600'	660'	720'	60'	120'	350'
65		650'	715'	780'	65'	130'	410'
70		700'	770'	840'	70'	140'	475'
75		750'	825'	900'	75'	150'	540'
80		800'	880'	960'	80'	160'	615'

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

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	TCP(5-1a)	TCP(5-1b)	TCP(5-1b)	

GENERAL NOTES

1. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30' to 100' in advance of the area of crew exposure without adversely effecting the performance or quality of the work. Type 3 barricades or drums may be substituted when workers on foot are no longer present when approved by the Engineer.
2. 28" tall or taller one-piece cones will be allowed only for Short Duration or Short Term stationary operations when workers are present to maintain the devices upright and in proper location. Intermediate Term stationary work areas should use Drums, Vertical Panels or 42" tall two-piece cones.

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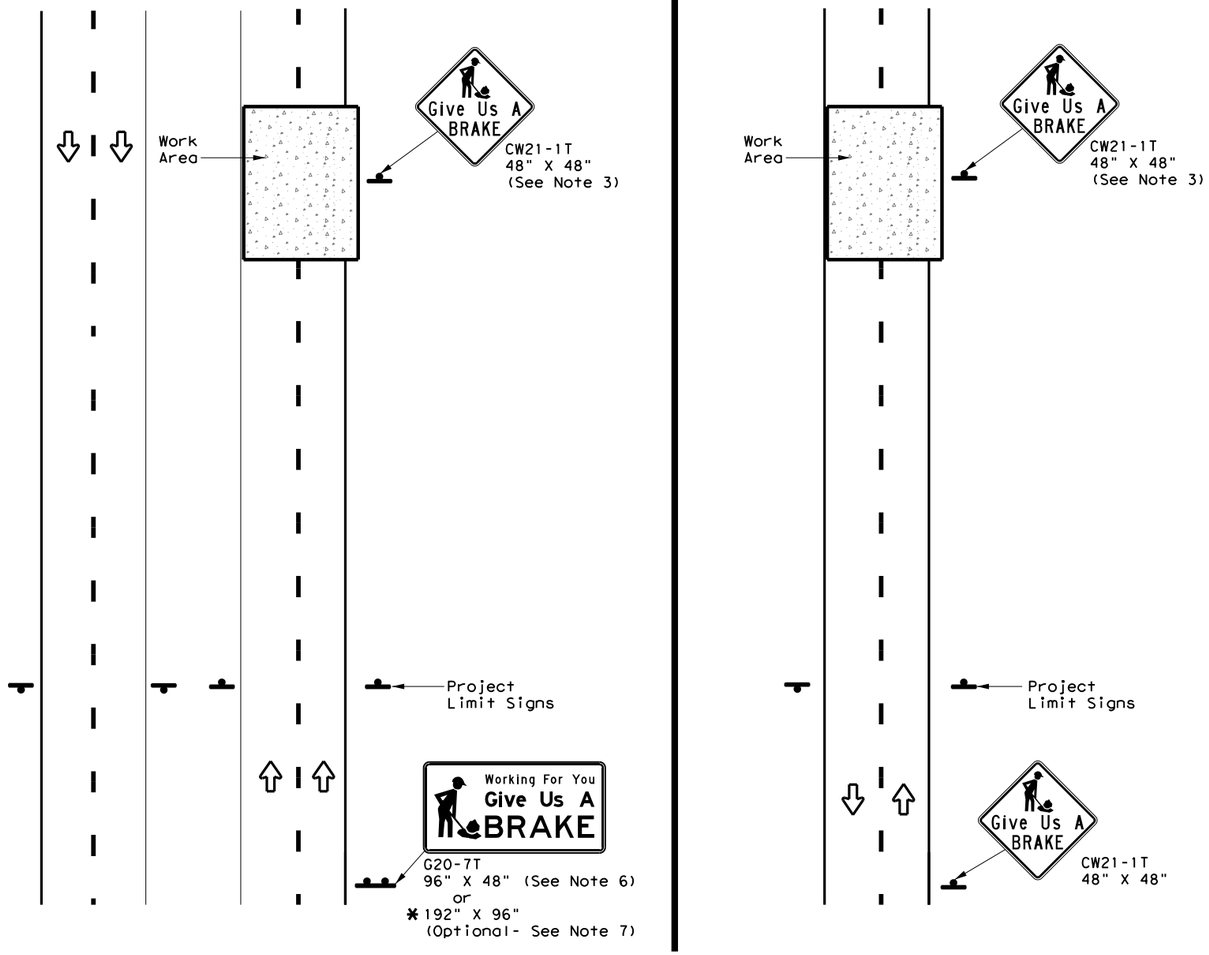
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN SHOULDER WORK FOR FREEWAYS / EXPRESSWAYS

TCP(5-1)-18

FILE: tcp5-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
2-18	DIST	COUNTY		
	SAN	MEDINA		25

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DIVIDED HIGHWAY

UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

DATE:
FILE:

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

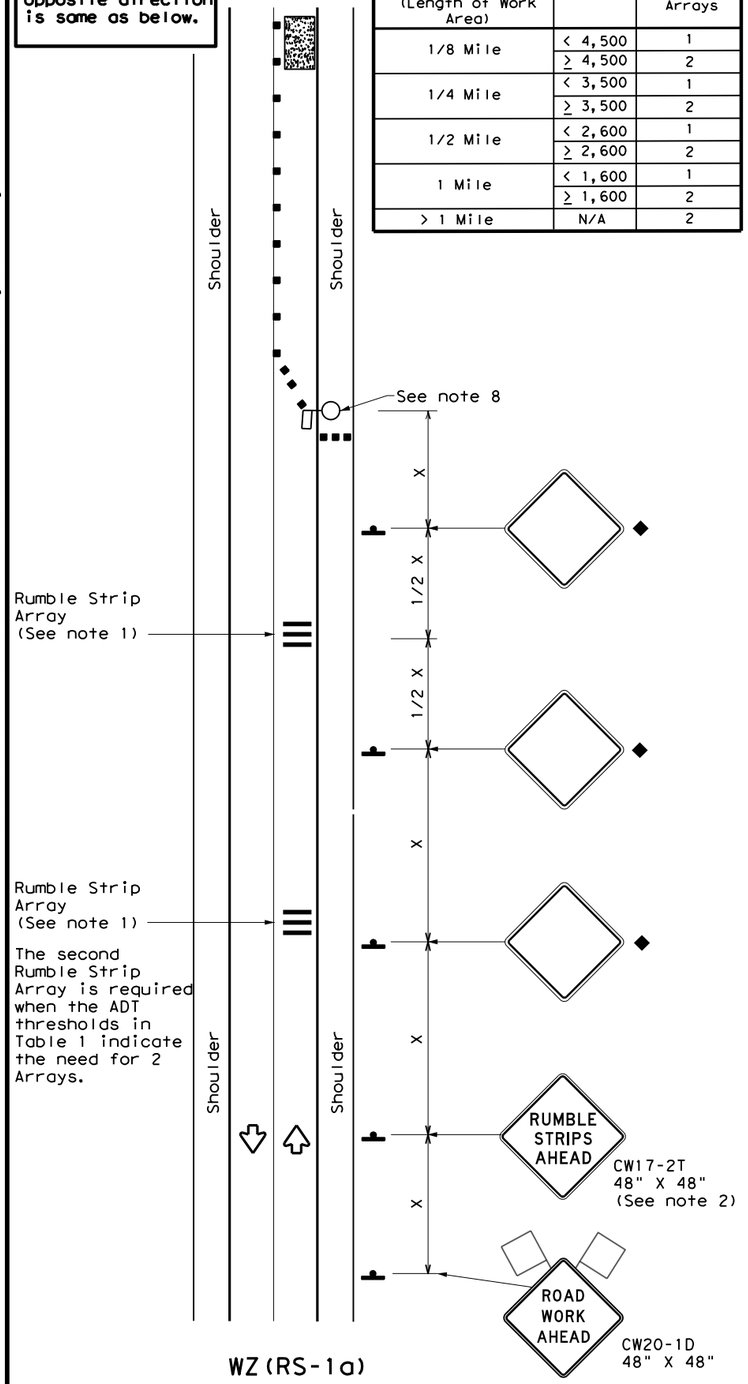
WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
6-96 5-98 7-13	DIST	COUNTY		
8-96 3-03	SAN	MEDINA		26

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DATE:
FILE:

Warning sign and rumble strip sequence in opposite direction is same as below.

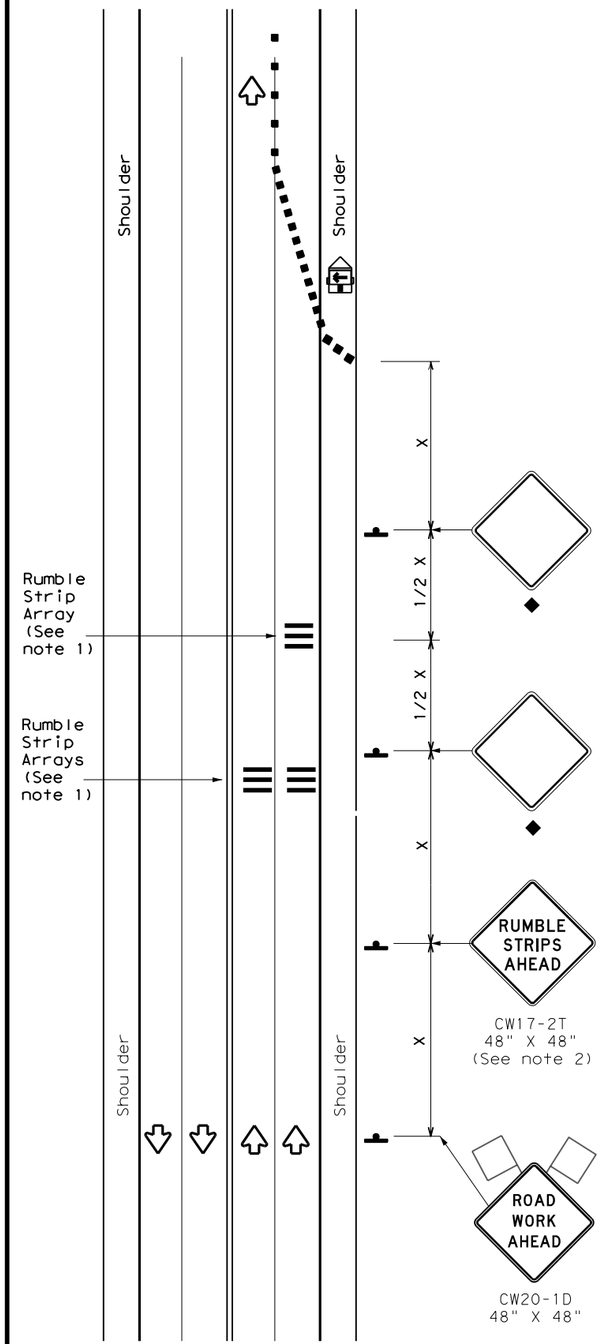


WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION

TABLE 1

Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
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)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.

* For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

TABLE 2

Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

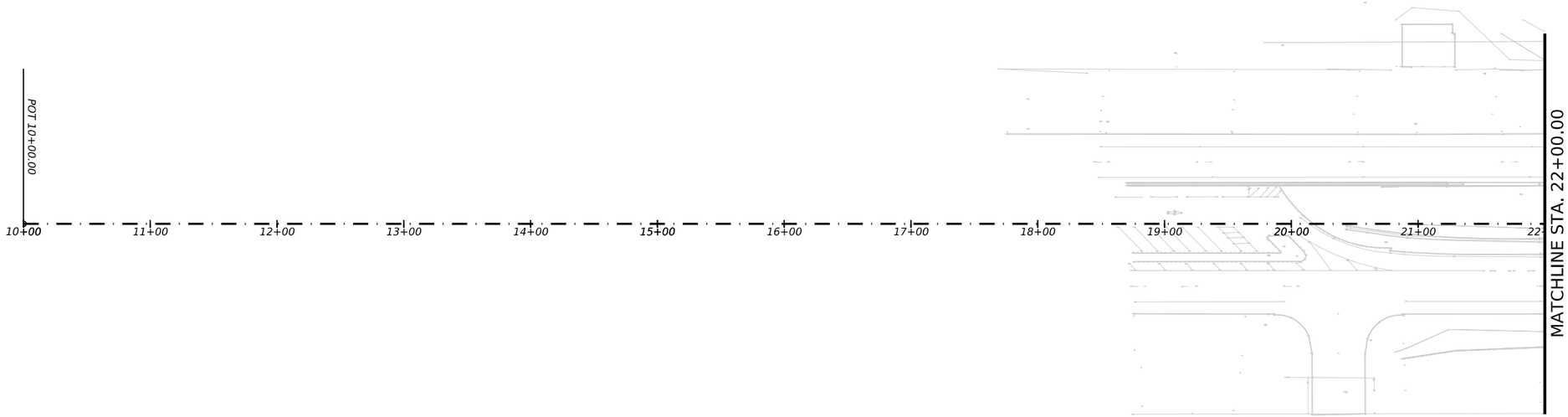
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TEMPORARY RUMBLE STRIPS

WZ(RS)-22

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© TxDOT	November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS		0024	06	NA	
2-14 1-22		DIST	COUNTY		
4-16		SAN	MEDINA		27

117



0' 50' 100'

SCALE: 1"=100'

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OSCAR A. GARZA
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Oscar Arthur Garza, P.E.

3/16/2026

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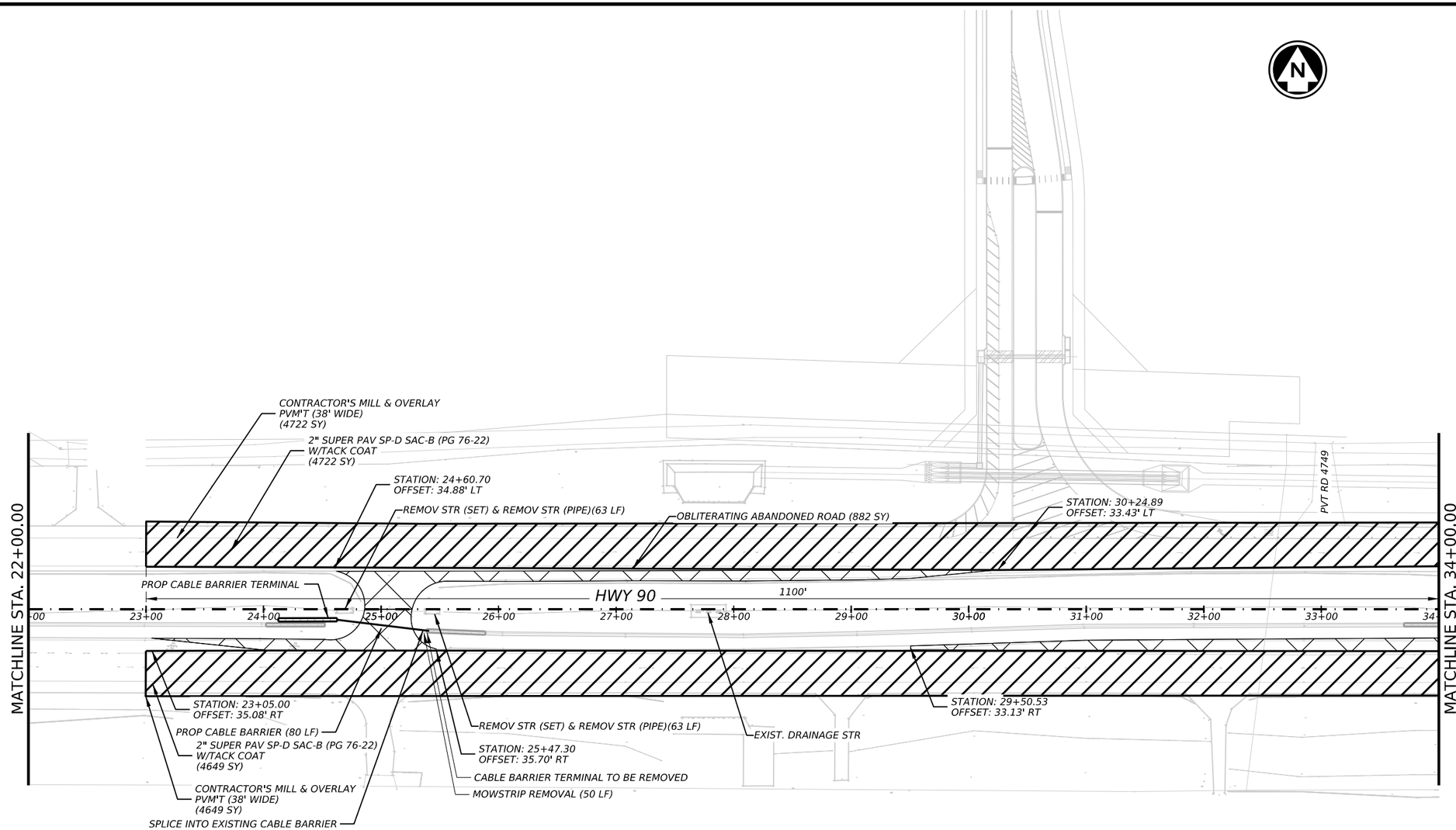
HWY 90

Turnaround Layout

SCALE: 1" = 100' SHEET 1 OF 5

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DIST	COUNTY		
SAN	MEDINA		28

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LEGEND

- PROPOSED TURNAROUND
- ASPHALT REMOVAL
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED RCP
- MILL & OVERLAY

NOTE: Reference Sheets 502-521 from the Flat Creek Commerical Collector Plans

0' 50' 100'

SCALE: 1"=100'

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HWY 90

Turnaround Layout

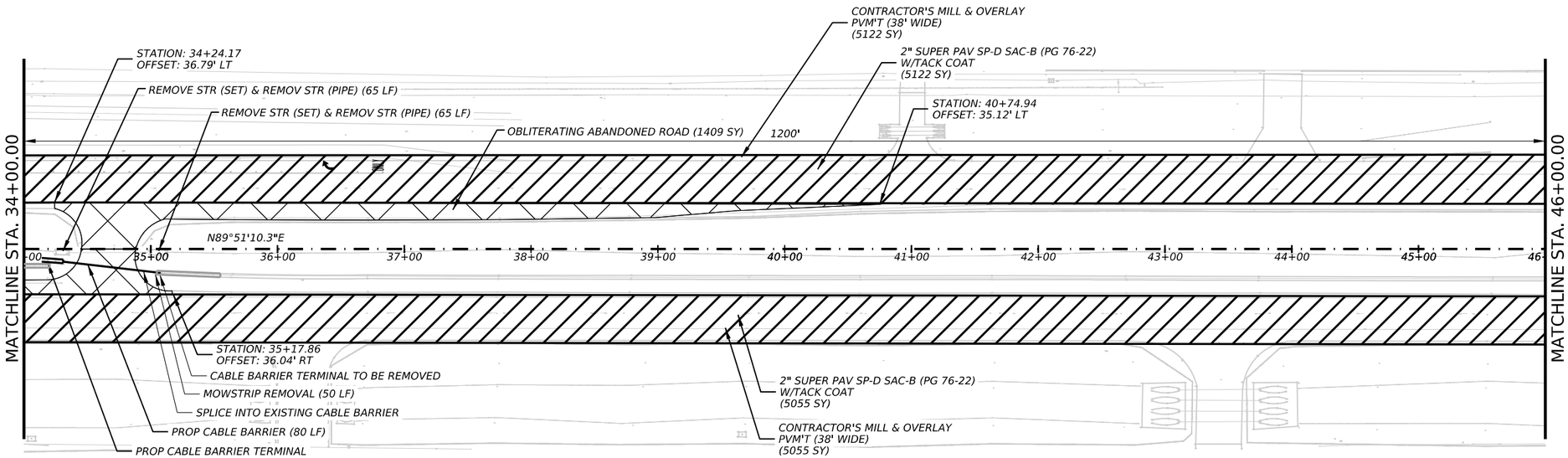
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SHEET 2 OF 5

CONT	SECT	JOB	HIGHWAY
0024	06	NA	
DIST	COUNTY		
SAN	MEDINA		29

482

DATE:
FILE:



LEGEND

- PROPOSED TURNAROUND
- ASPHALT REMOVAL
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED RCP
- MILL & OVERLAY

0' 50' 100'

SCALE: 1"=100'

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HWY 90

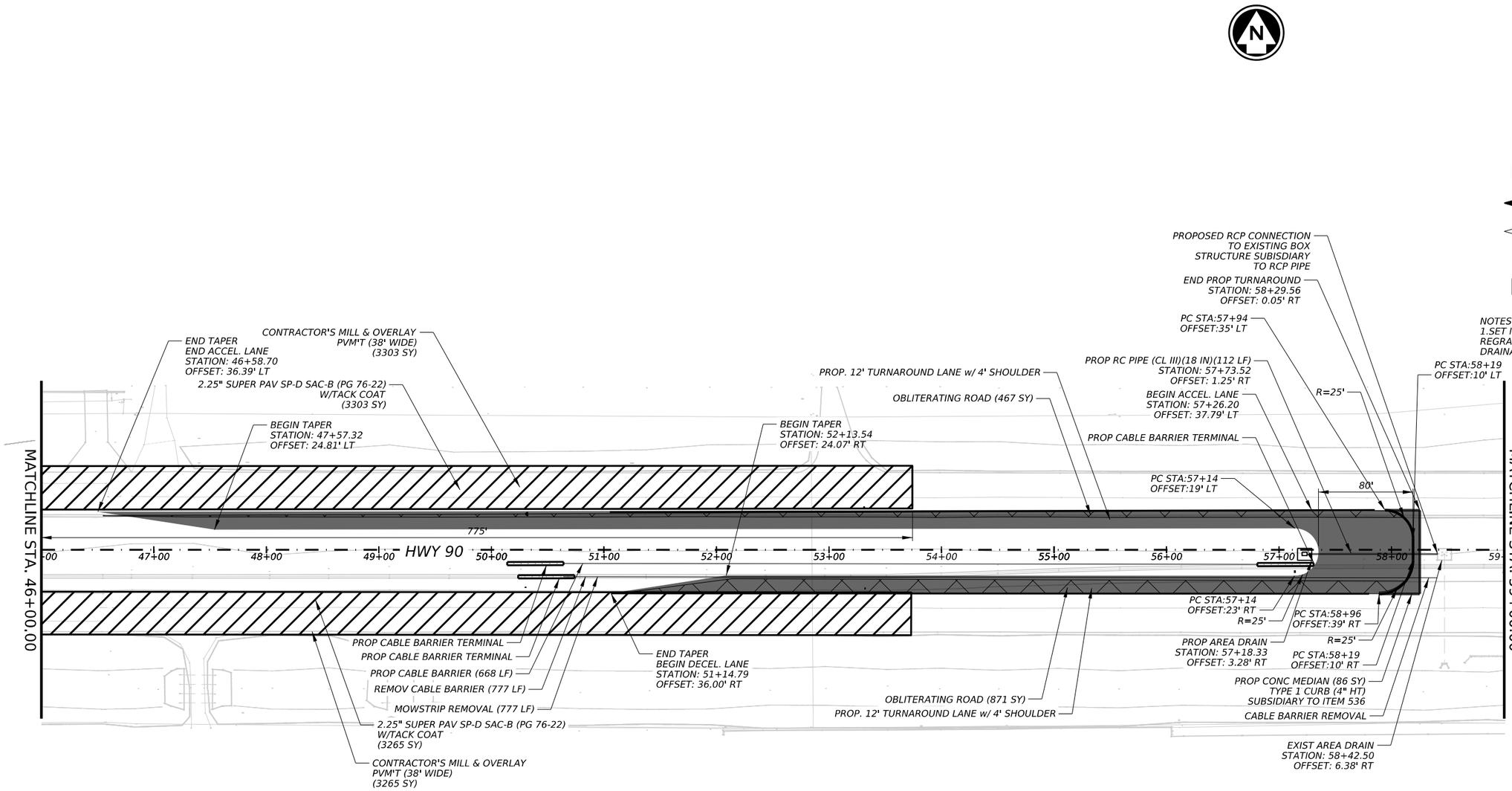
Turnaround Layout

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DIST	COUNTY		
SAN	MEDINA		30

DATE:
FILE:

CK
DW
CK
DW



LEGEND

- PROPOSED TURNAROUND
- ASPHALT REMOVAL
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED RCP
- MILL & OVERLAY

NOTES:
1.SET INVERTS TO MATCH EXSITING FLOWLINES.
REGRADE AS NECESSARY TO REESTABLISH PREEXSITING DRAINAGE PATTERNS.

0' 50' 100'
SCALE: 1"=100'

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HWY 90

Turnaround Layout

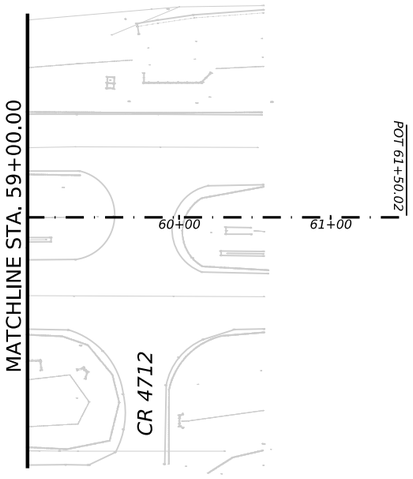
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SHEET 4 OF 5

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DIST	COUNTY		
SAN	MEDINA		31

DATE:
FILE:

CK:
DW:
CK:
DW:



LEGEND

- PROPOSED TURNAROUND
- ASPHALT REMOVAL
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- PROPOSED RCP
- MILL & OVERLAY

0' 50' 100'
SCALE: 1"=100'

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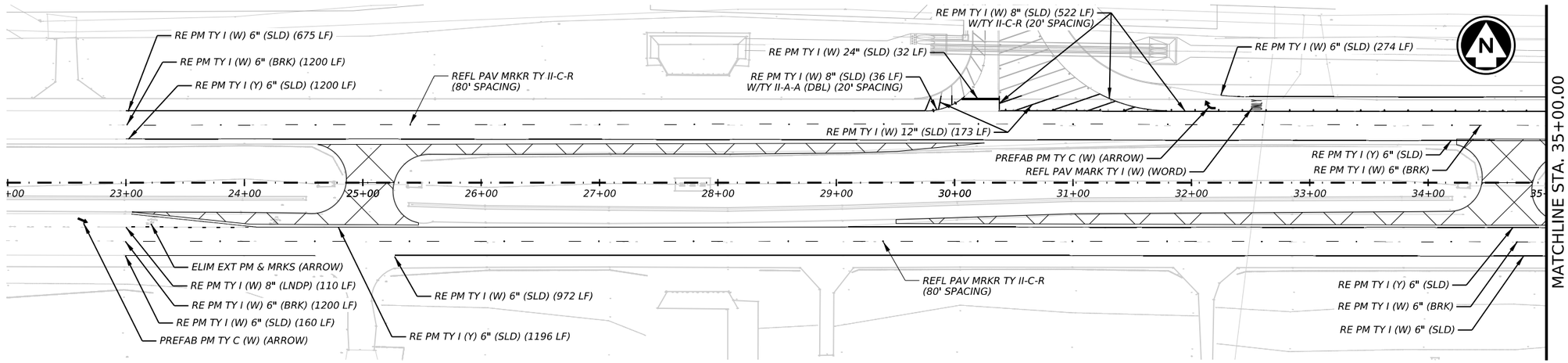
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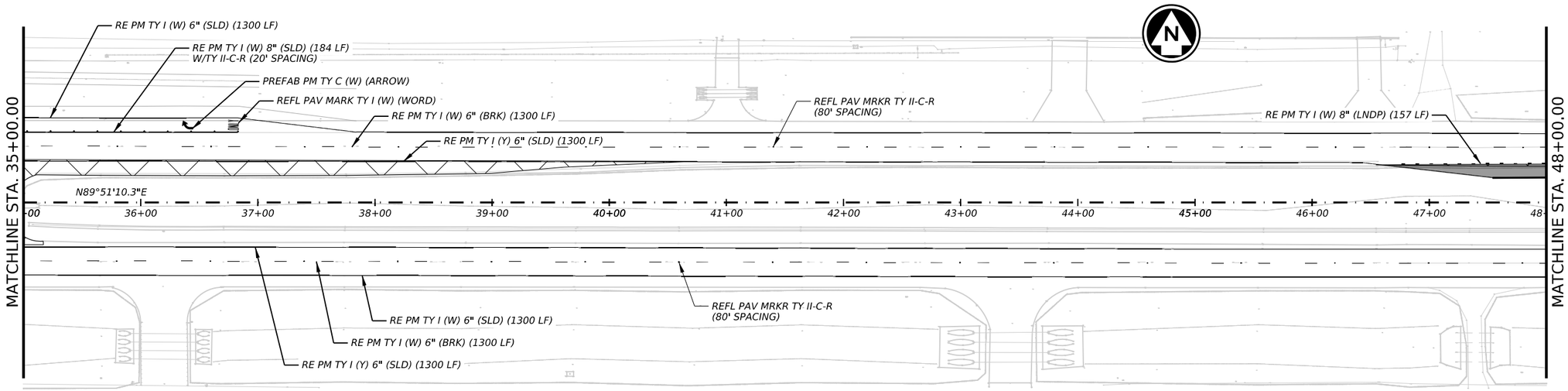
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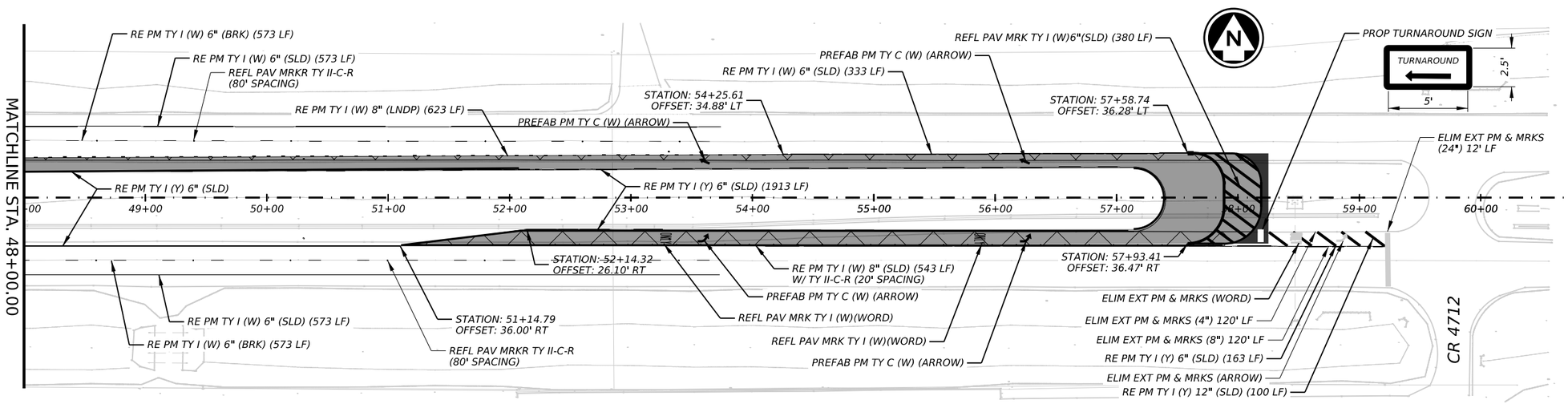
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DIST	COUNTY		
SAN	MEDINA		32

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0' 50' 100'

SCALE: 1"=100'

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HWY 90

PAVEMENT MARKING LAYOUT

SCALE: 1" = 100' SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
0024	06	NA	486
DIST	COUNTY		
SAN	MEDINA		33

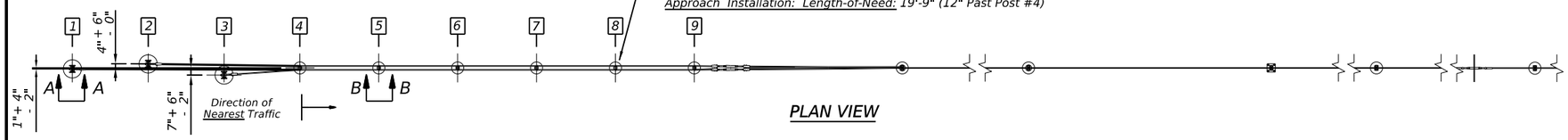
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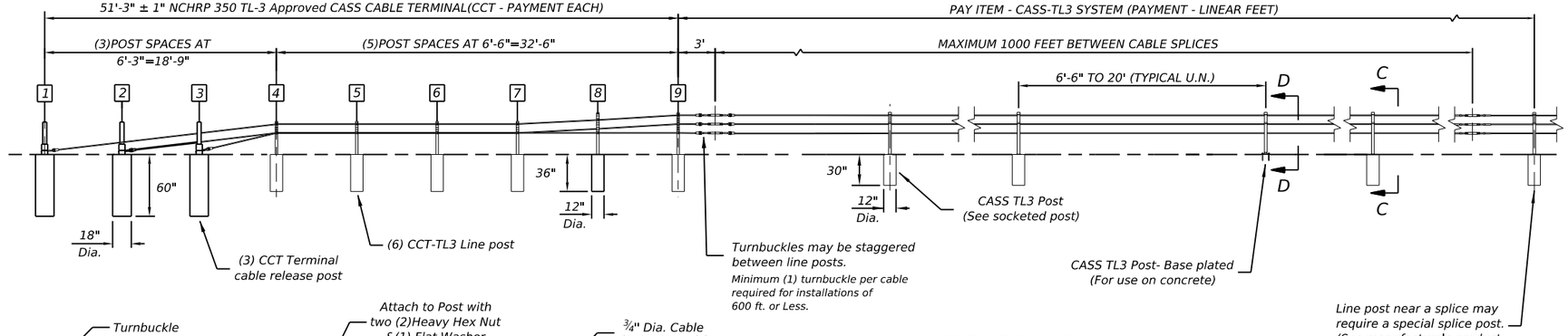
DATE:
FILE:

Preferred Installation: Locate post #2 away from nearest traffic.
System has been succesfully tested with opposite installation.

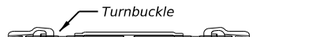
Length-of-Need Cass Cable Terminal (CCT):
Departure Installation: Length-of-Need: 44'-9" (At Post #8)
Approach Installation: Length-of-Need: 19'-9" (12" Past Post #4)



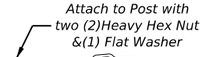
PLAN VIEW



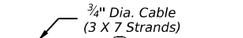
ELEVATION VIEW
(TYPICAL LAY-OUT)



CABLE SPLICE WITH TURNBUCKLE
(OPEN BODY STYLE)



CABLE STUD ASSEMBLY



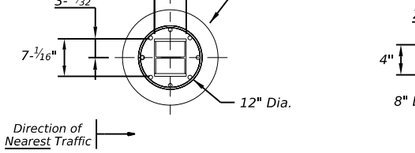
TORPEDO CABLE SPLICE

MOW STRIP DETAIL*			CONCRETE FOOTING CHART		
MOW STRIP	DEPTH	WIDTH	FOOTING	TUBE SLEEVE	REBAR RING
NONE			30" Min.	27" Min.	YES
HMA	6" Min.	3' Min.	27" Min.	15" Min.	NO
HMA	8" Min.	3' Min.	24" Min.	15" Min.	NO
RC	3" Min.	3' Min.	24" Min.	15" Min.	NO

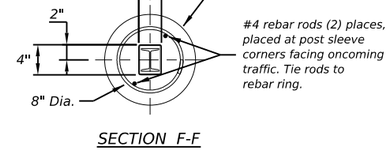
Chart does not apply to Terminal Posts 1 thru 9.
** Mow strip or pavement.*
HMA = Hot Mix Asphalt (Not Recycled Asphalt Pavement).
RC = Reinforced Concrete (TxDOT Class A Minimum).

GENERAL NOTES

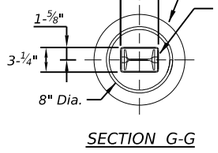
1. This drawing is a general overview of CASS TL-3 Barrier System. See (latest version) for specific details of CASS cable terminal (CCT) and cable safety system (CASS) requirements, proper installation, options and specification.
2. CASS is designed for bi-directional traffic flows and can be installed on either side of the median. Contact Trinity (800-527-6050) or consult the design, installation, or repair manual(s) for additional information.
3. All concrete for CASS footings shall be TxDOT class A. If class A or stronger concrete is utilized for the mowstrip, please see chart below for allowable footing depth and sleeve deviations.
4. All posts shall be socketed unless otherwise specified. All cables shall be pre-stretched unless otherwise specified.
5. For payment see Special Specification "Cable Barrier System".
6. CASS TL-3 shall be installed on shoulders or medians with slopes of 6:1 or flatter without obstructions, depressions, etc. That may significantly affect the stability of an errant vehicle. Grading of site and/or appropriate fill materials may be required. The designer/installer shall "Flatten" or "Round" various topographical inconsistencies that could interfere with the ability of the installer to consistently maintain the design height (in relation to the terrain) of the cables. Please consult manual(s) and / or TxDOT Memo(s) for installations in "Ditch Sections".
7. CASS TL-3 post spacing may be modified to avoid obstacles that conflict with the installation of CASS TL-3 line posts or to reduce deflection on radiuses. No post space can exceed the maximum post TxDOT space limit of 20'. Reducing or increasing post spacing affects deflection. CASS TL-3 may be laterally transferred at a rate not to exceed 30:1.
8. Post foundations may be drilled through existing pavement. Please see line post foundation chart for minimum footing requirements in various applications.
9. For aesthetic purposes Trinity recommends all sleeves, driven posts, and lower cable release posts to be installed reasonably plumb (approximately ⅛" per foot).
10. CASS TL-3 shall be installed in well-drained, compacted, NCHRP Report 350 Standard soil. If soil does not meet this classification, if solid rock/concrete is encountered below grade or if soil is susceptable to severe freeze/thaw cycles, please contact Trinity about alternate footing design(s). Trinity suggests the use of "Mow strips" for erosion prevention and ease of maintenance / installation.
11. See the Texas MUTCD for proper "Barrier" Delineation.



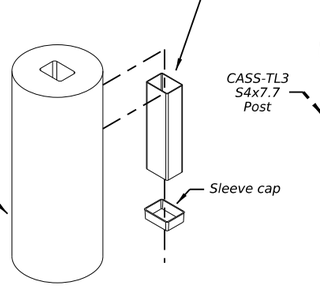
SECTION E-E



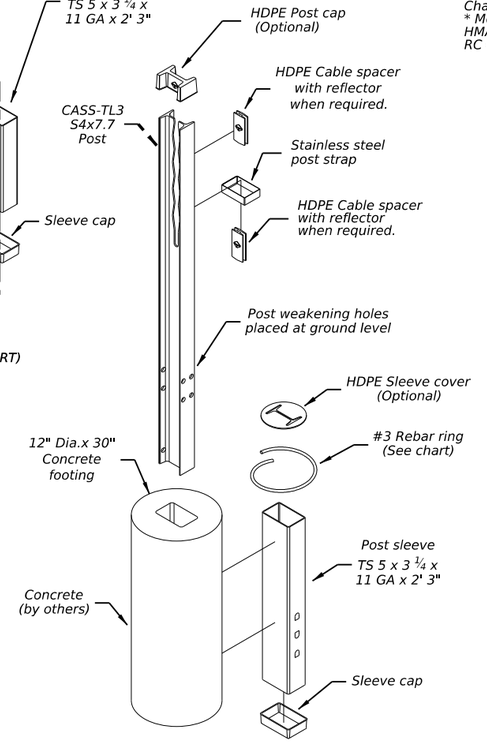
SECTION F-F



SECTION G-G



CONCRETE FOOTING
(IN QUALIFYING MOW STRIP SEE CHART)



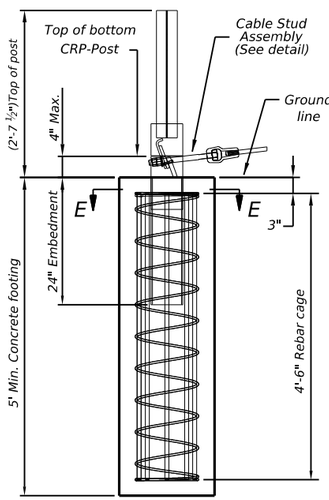
STANDARD POST & CONCRETE FOOTING
(SOCKETED POST)

CABLE TENSION CHART	
FAHRENHEIT	PRE-STRETCHED
DEGREES	LB / FORCE
-10	7300
0	7000
10	6600
20	6300
30	6000
40	5600
50	5300
60	5000
70	4600
80	4300
90	4000
100	3600
110	3300
120	3000
130	2700
140	2500
150	2300

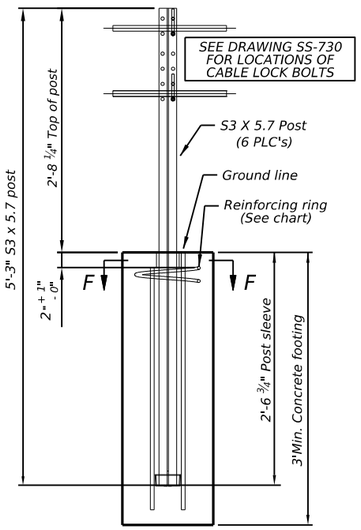
Allowable deviation from chart in tangent sections: +800, -200 pounds/force. Cable tension readings are typically higher in curved cable sections.

Trinity Highway Products, LLC.
2525 Stemmons Freeway
Dallas,TX 75207
Phone: (800) 644-7976

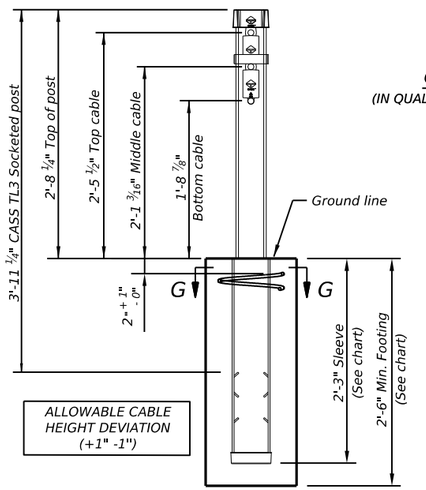
Product.INFO@TRIN.NET



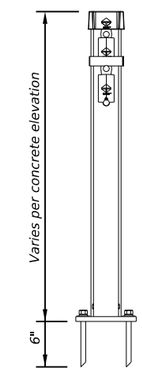
VIEW A-A
(CABLE RELEASE POST 1-3)



VIEW B-B
(TERMINAL LINE POST 4-7)



SECTION C-C
(SOCKETED POST)



SECTION D-D
(BASE PLATED POST)

Texas Department of Transportation

Design Division Standard

TRINITY CABLE SAFETY SYSTEM (TL-3)

CASS(TL3)-14

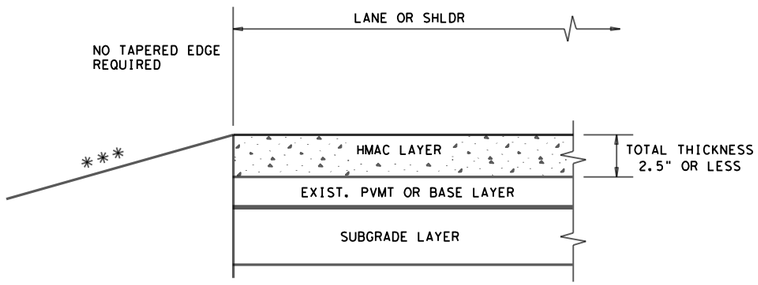
FILE: cass-t1314.dgn	DN: TxDOT	CK: RM	DW: VP	CK:
©TxDOT: MARCH 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		

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DATE:
FILE:

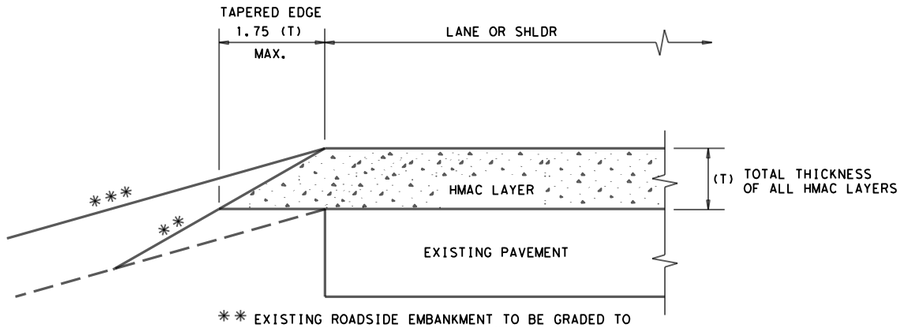
GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

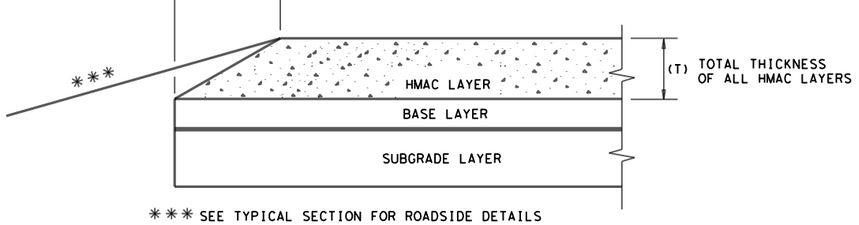
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

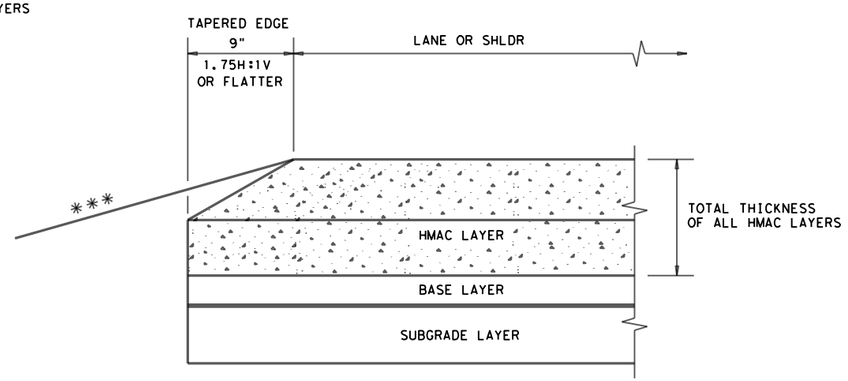
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 5" OR GREATER

(NOT TO SCALE)

Texas Department of Transportation

Design Division Standard

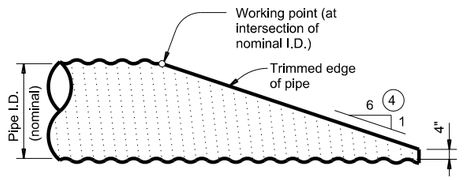
TAPERED EDGE DETAILS HMAC PAVEMENT

TE(HMAC)-11

FILE: tehmac11.dgn	DN: TxDOT	CK: RL	DW: KB	CK:	
© TxDOT January 2011	CONT	SECT	JOB		HIGHWAY
REVISIONS	0024	06	NA		
	DIST	COUNTY			488
	SAN	MEDINA			35

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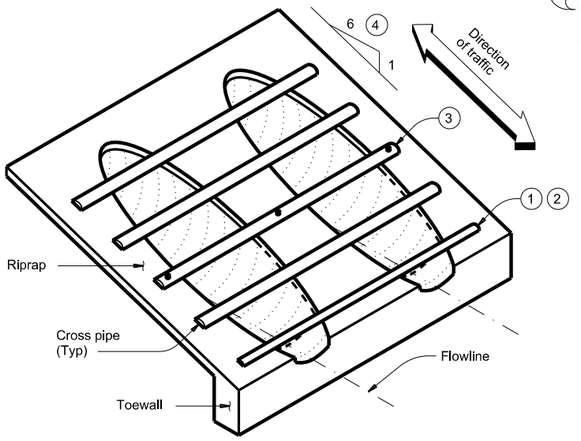
DATE:
FILE:



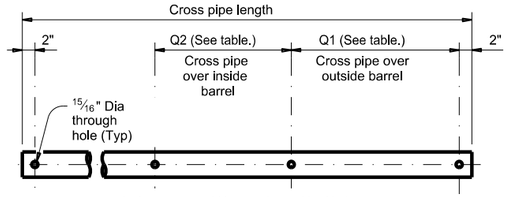
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

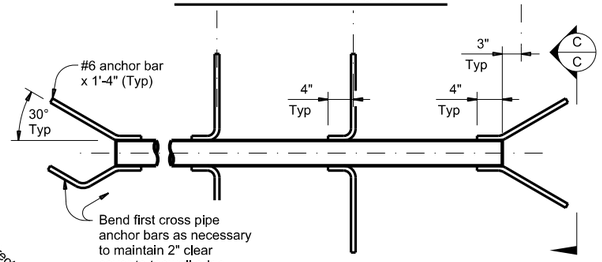
(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



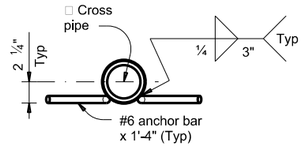
ISOMETRIC VIEW OF TYPICAL INSTALLATION



PIPE WITH BOLTED ANCHOR

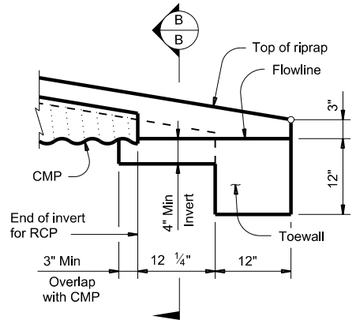


PIPE WITH ANCHOR BARS



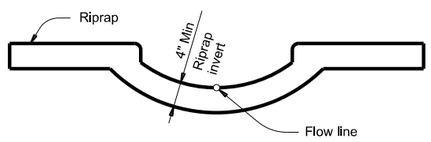
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



SECTION B-B

(Cross pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANT

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

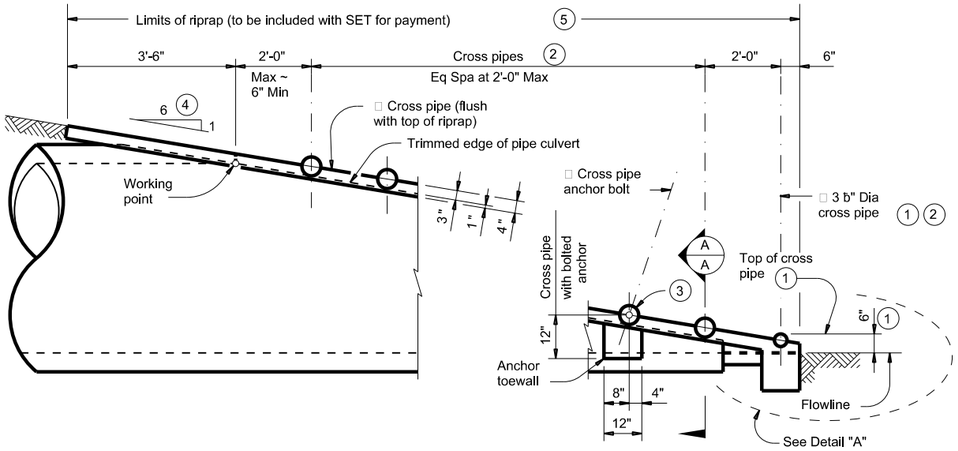
GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

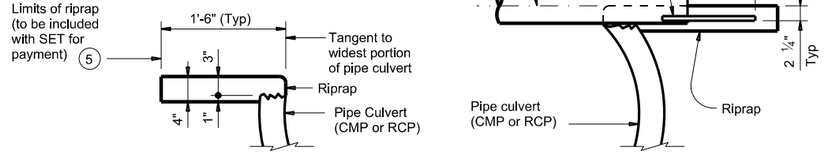
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.



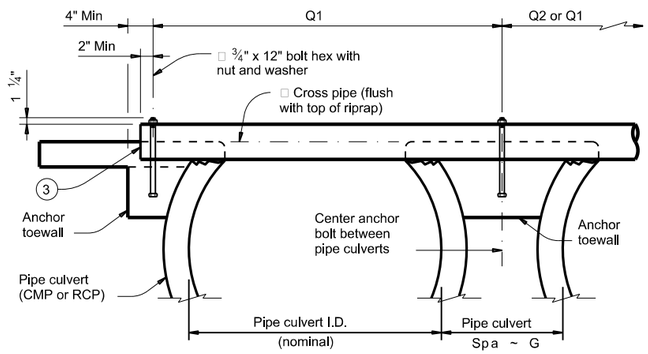
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: CD-SETP-PD-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
	DIST	COUNTY		489
	SAN	MEDINA		36

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For projects with less than one acre of soil disturbing activity and that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

PROPOSED TURNAROUND

1.1 PROJECT CONTROL SECTION JOB (CSJ):

0024-06

1.2 PROJECT LIMITS:

From: FM 471

To: CR 4712

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 29°21'19.29"N ,(Long) 98°51'16.20"W

END: (Lat) 29°21'19.27"N ,(Long) 98°50'19.73"W

1.4 TOTAL PROJECT AREA (Acres): 30.92

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.45

1.6 NATURE OF CONSTRUCTION ACTIVITY:

CONSISTING OF OBLITERATION OF EXISTING TURNAROUNDS AND ADDED PROPOSED TURNAROUND

1.7 MAJOR SOIL TYPES:

Soil Type	Description
KNIPPA CLAY	0 TO 1 PERCENT SLOPES
KNIPPA CLAY	1 TO 3 PERCENT SLOPES
CASTROVILLE CLAY LOAM	0 TO 1 PERCENT SLOPES

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

☐ PSLs determined during preconstruction meeting
☐ PSLs determined during construction
☒ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

☒ Mobilization
☒ Install sediment and erosion controls
☐ Blade existing topsoil into windrows, prep ROW, clear and grub
☒ Remove existing pavement
☒ Grading operations, excavation, and embankment
☒ Excavate and prepare subgrade for proposed pavement widening
☒ Remove existing culverts, safety end treatments (SETs)
☐ Remove existing metal beam guard fence (MBGF), bridge rail
☒ Install proposed pavement per plans
☒ Install culverts, culvert extensions, SETs
☐ Install mow strip, MBGF, bridge rail
☒ Place flex base
☒ Rework slopes, grade ditches
☒ Blade windrowed material back across slopes
☒ Revegetation of unpaved areas
☒ Achieve site stabilization and remove sediment and erosion control measures
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

☒ Sediment laden stormwater from stormwater conveyance over disturbed area
☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
☒ Solvents, paints, adhesives, etc. from various construction activities
☒ Transported soils from offsite vehicle tracking
☒ Construction debris and waste from various construction activities
☐ Contaminated water from excavation or dewatering pump-out water
☒ Sanitary waste from onsite restroom facilities
☒ Trash from various construction activities/receptacles
☐ Long-term stockpiles of material and waste
☐ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities
☐ Other: _____
☐ Other: _____
☐ Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody
MEDINA RIVER	

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: CONSULTANT

☒ Development of plans and specifications
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☐ Other: _____
☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☐ Other: _____
☐ Other: _____
☐ Other: _____

0' 100' 200'
SCALE: 1"= 200'

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED PROFESSIONAL ENGINEER
Oscar Arturo Garza, P.E.
3/16/2026

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

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July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			37
STATE	STATE DIST.	COUNTY	
TEXAS	SAN	MEDINA	
CONT.	SECT.	JOB	HIGHWAY
0024	06	NA	US 90

490

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ X Permanent Planting, Sodding or Seeding
- X ☐ Biodegradable Erosion Control Logs
- X ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- X ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- X Excess dirt/mud on road removed daily
- X Haul roads dampened for dust control
- X Loaded haul trucks to be covered with tarpaulin
- ☐ Stabilized construction exit
- ☐ Daily street sweeping
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- X Chemical Management
- X Concrete and Materials Waste Management
- X Debris and Trash Management
- X Dust Control
- X Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- X Fire hydrant flushings
- X Irrigation drainage
- X Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- X Potable water sources
- X Springs
- X Uncontaminated groundwater
- X Water used to wash vehicles or control dust
- X Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.

0' 100' 200'
SCALE: 1" = 200'

STATE OF TEXAS
OSCAR A. GARZA
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LICENSED
PROFESSIONAL ENGINEER
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STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

© 2023

July 2023 Sheet 2 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
			38
STATE	STATE DIST.	COUNTY	
TEXAS	SAN	MEDINA	
CONT.	SECT.	JOB	HIGHWAY
0024	06	NA	US 90

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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1.

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☒ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☒ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☒ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

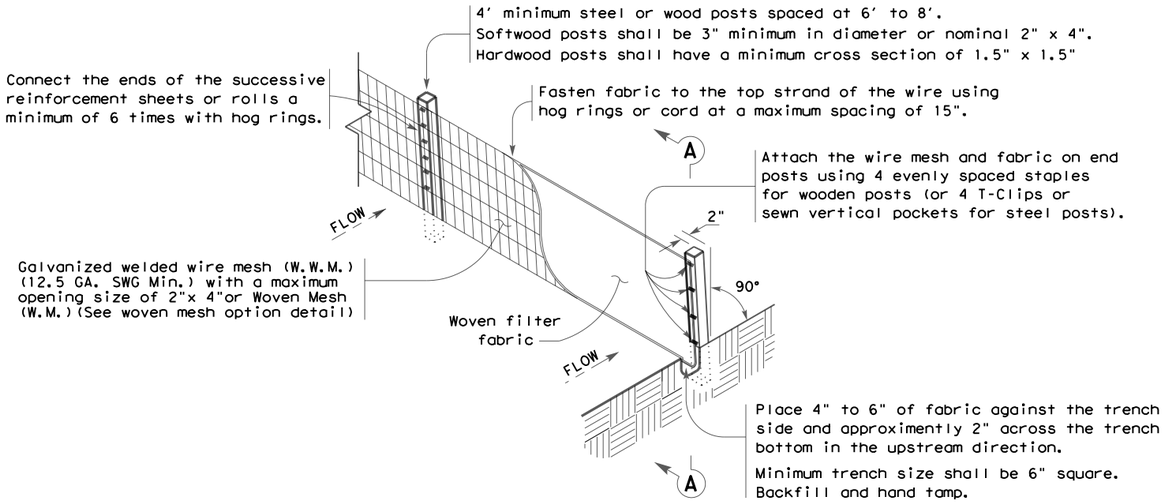
Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

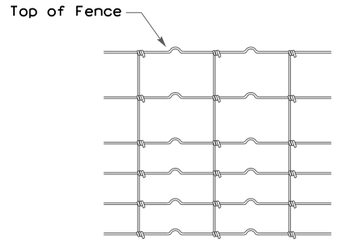
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©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
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12-12-2011 (DS)	DIST	COUNTY			492
05-07-14 ADDED NOTE SECTION IV.	SAN	MEDINA			39
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.					

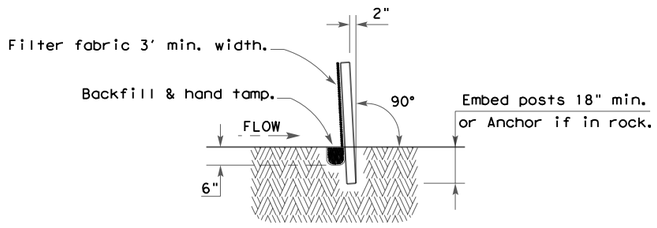
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TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

LEGEND

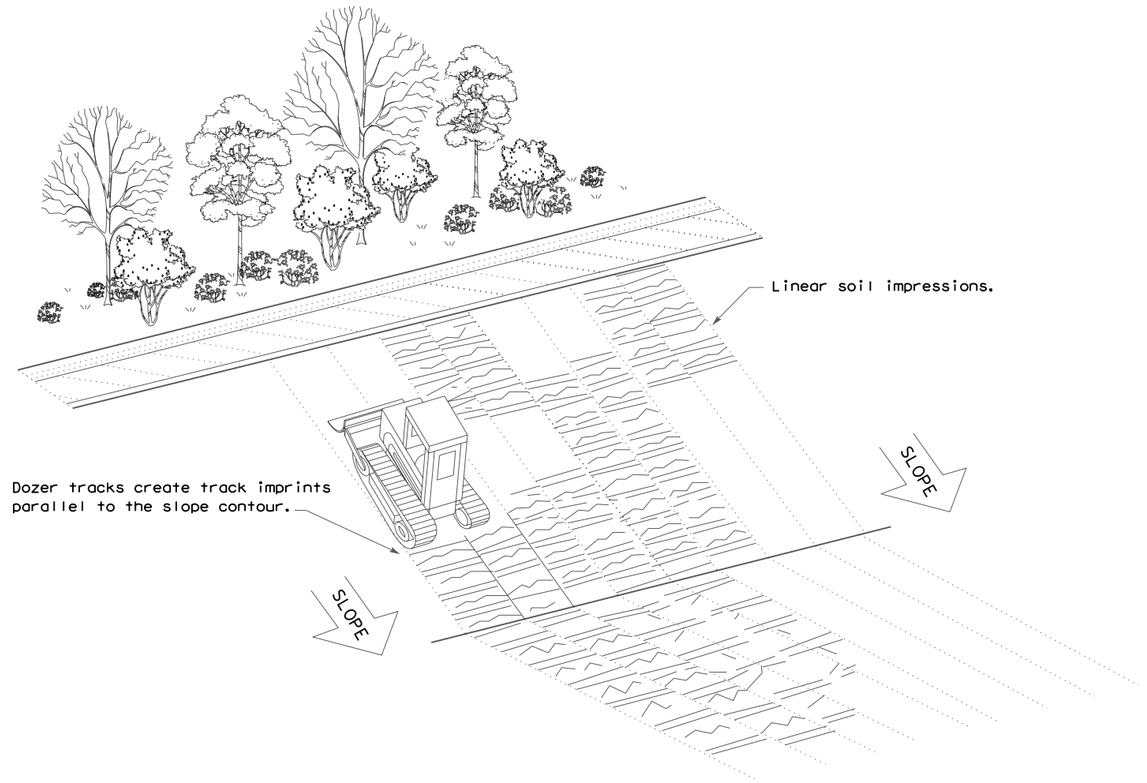
Sediment Control Fence

SCF

DATE
FILE

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

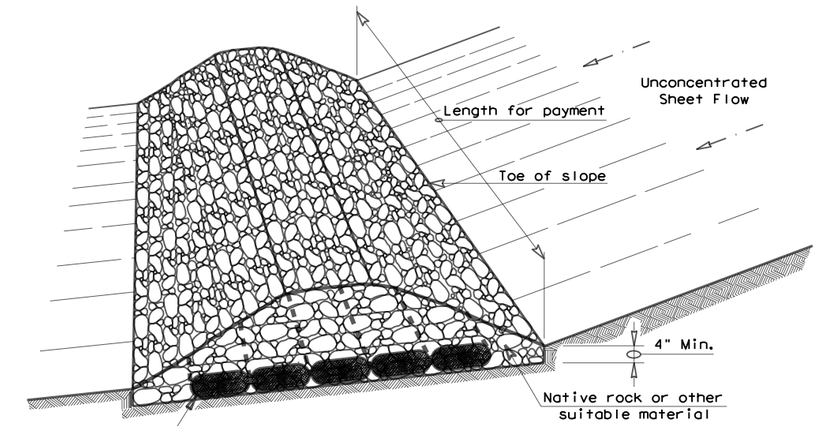
FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		

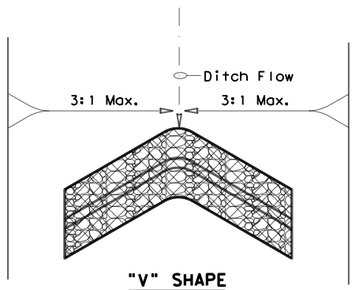
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DATE:
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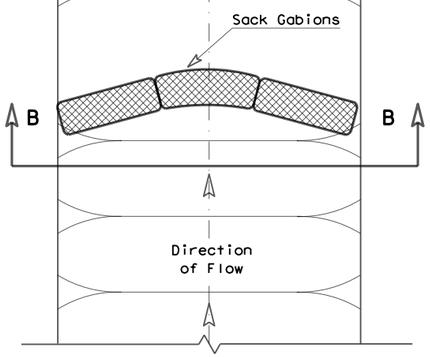


FILTER DAM AT TOE OF SLOPE

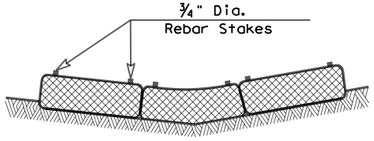
RFD1



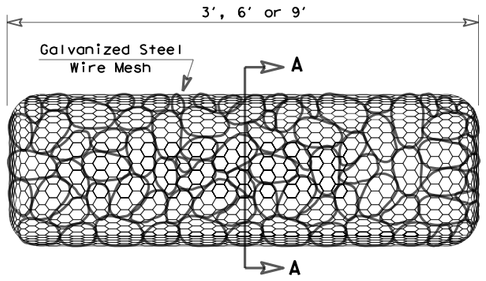
"V" SHAPE PLAN VIEW



PLAN VIEW

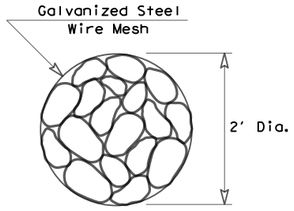


SECTION B-B

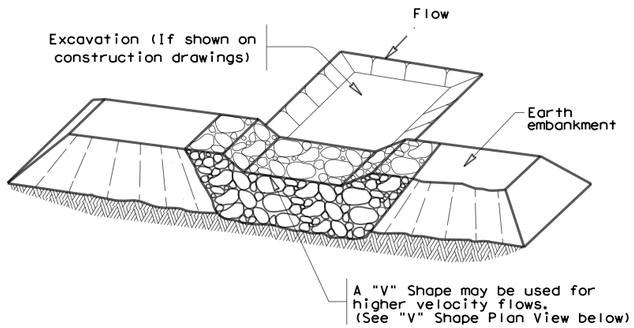


TYPE 4 (SACK GABIONS)

RFD4

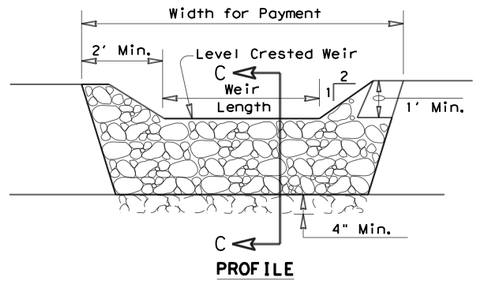


SECTION A-A

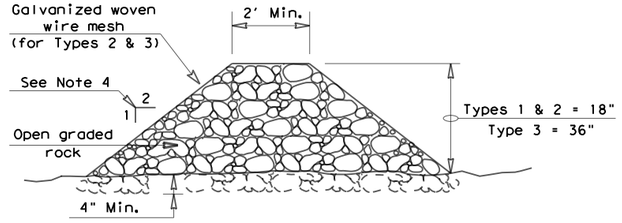


FILTER DAM AT SEDIMENT TRAP

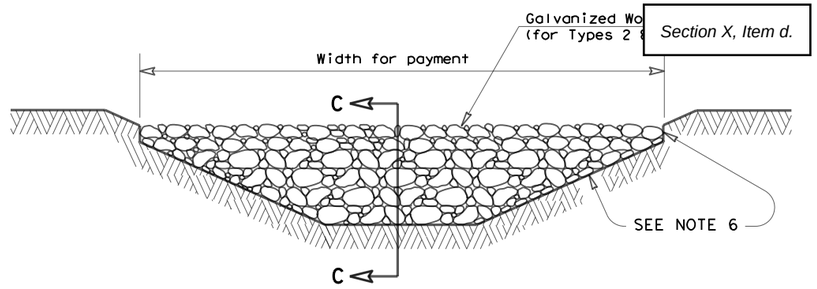
RFD1 OR RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

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

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

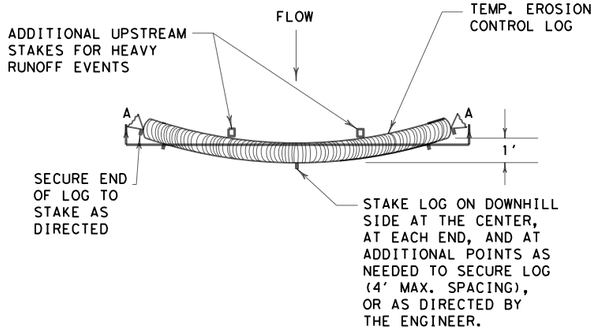
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© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		

494

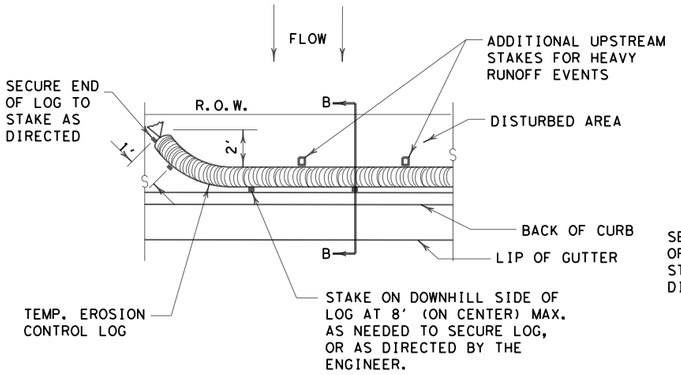
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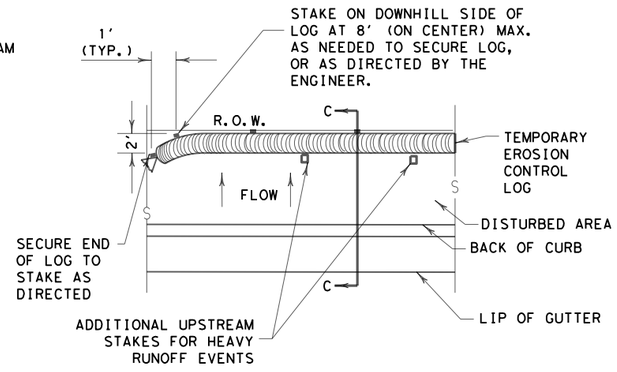
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FILE:



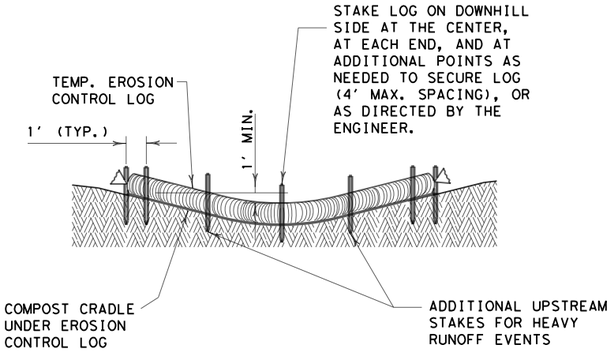
PLAN VIEW



PLAN VIEW



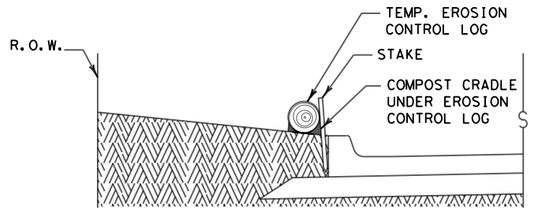
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

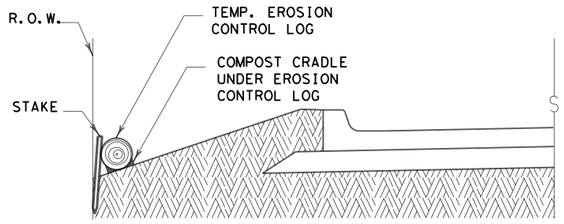
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

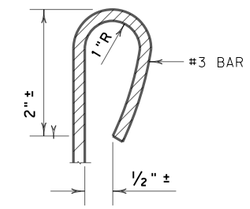
CL-BOC



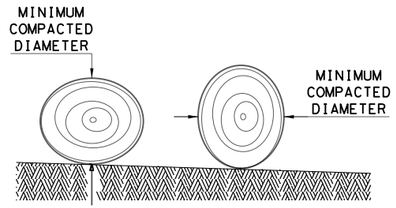
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

GENERAL NOTES

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'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.

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

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.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

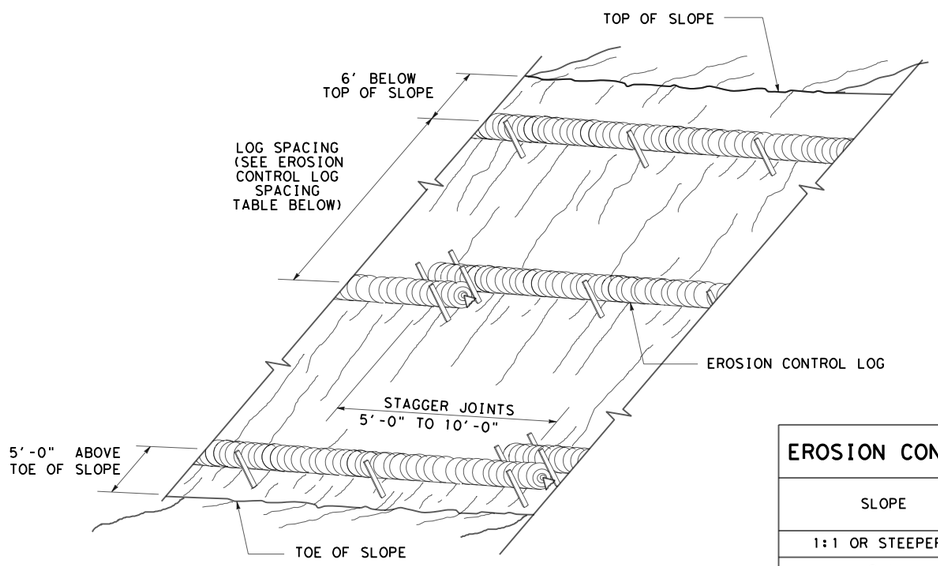
EROSION CONTROL LOG

EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0024	06	NA		
	DIST	COUNTY			
	SAN	MEDINA			

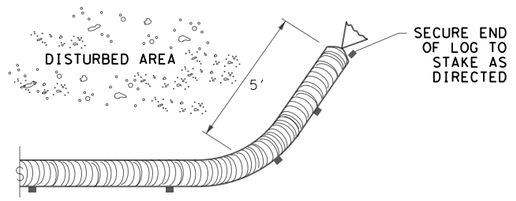
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EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

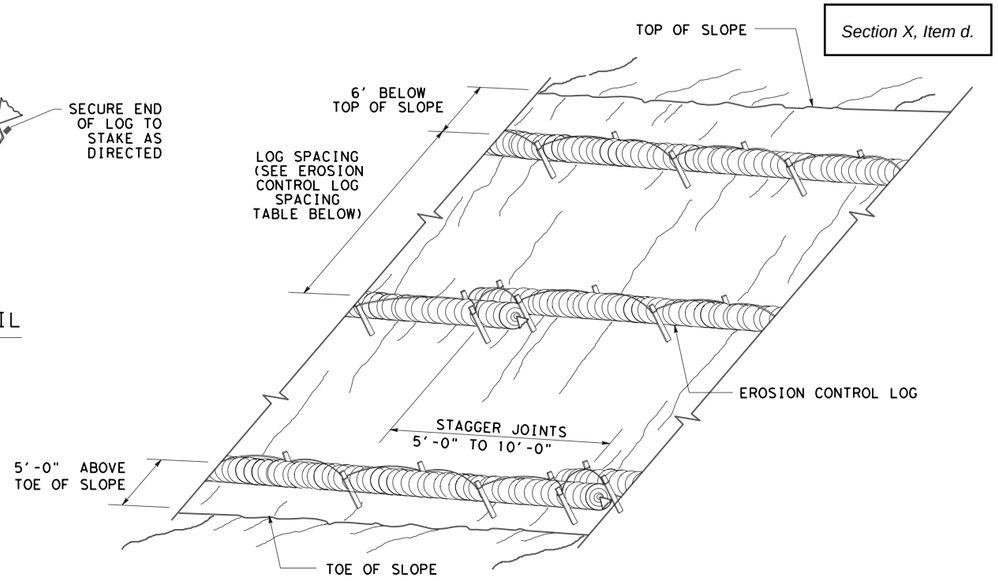
CL-SST



END SECTION RAP DETAIL

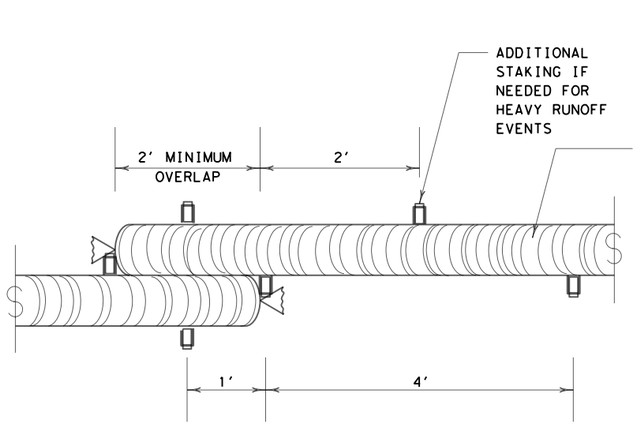
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

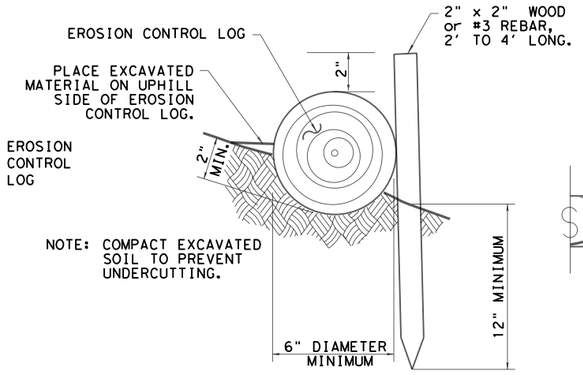
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

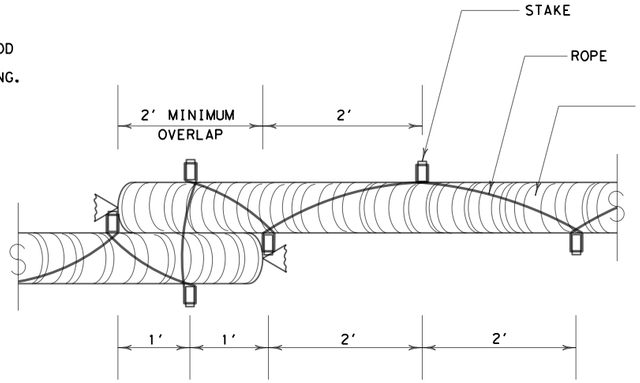


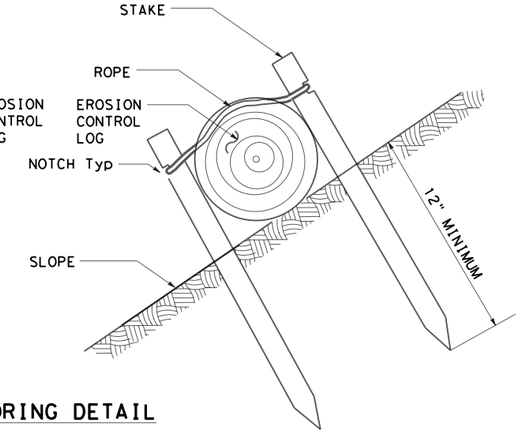


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

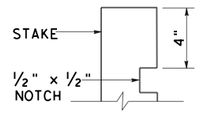
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

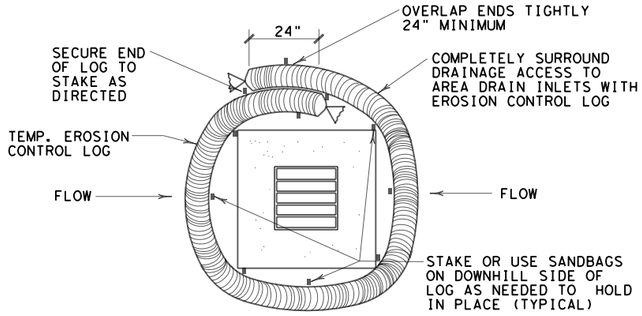
Texas Department of Transportation | Design Division Standard

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

FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		

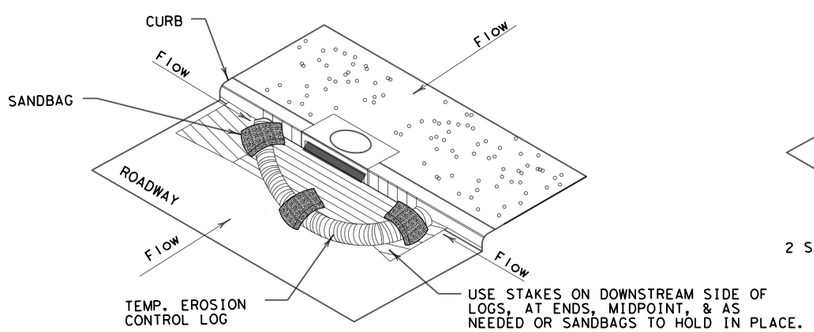
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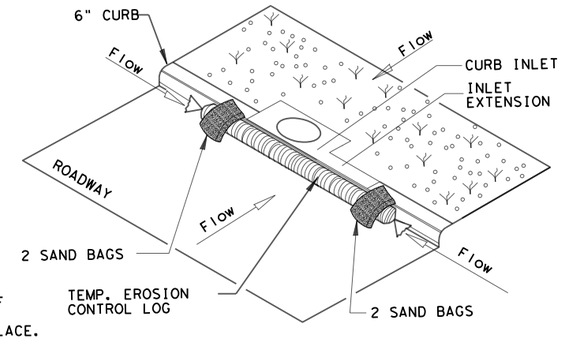
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

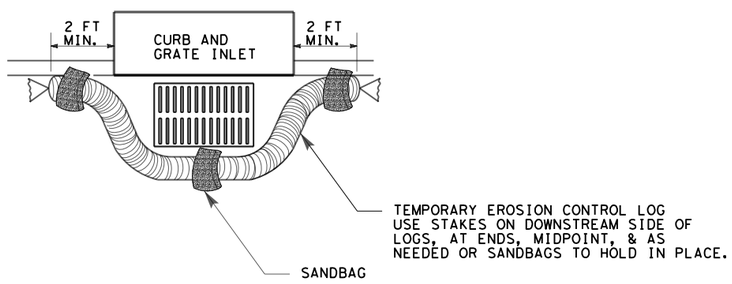
CL-CI



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.

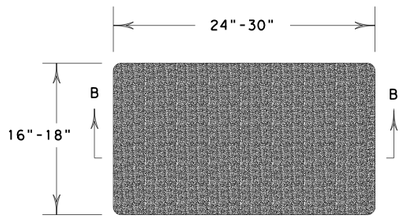


EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SECTION B-B



SANDBAG DETAIL

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	0024	06	NA	
	DIST	COUNTY		
	SAN	MEDINA		

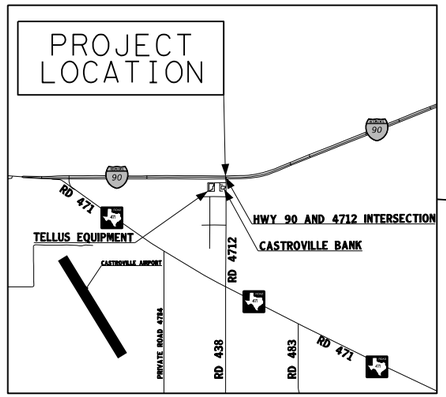
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	SHEET INDEX
2	EXISTING CONDITIONS
3	PROPOSED CONDITIONS

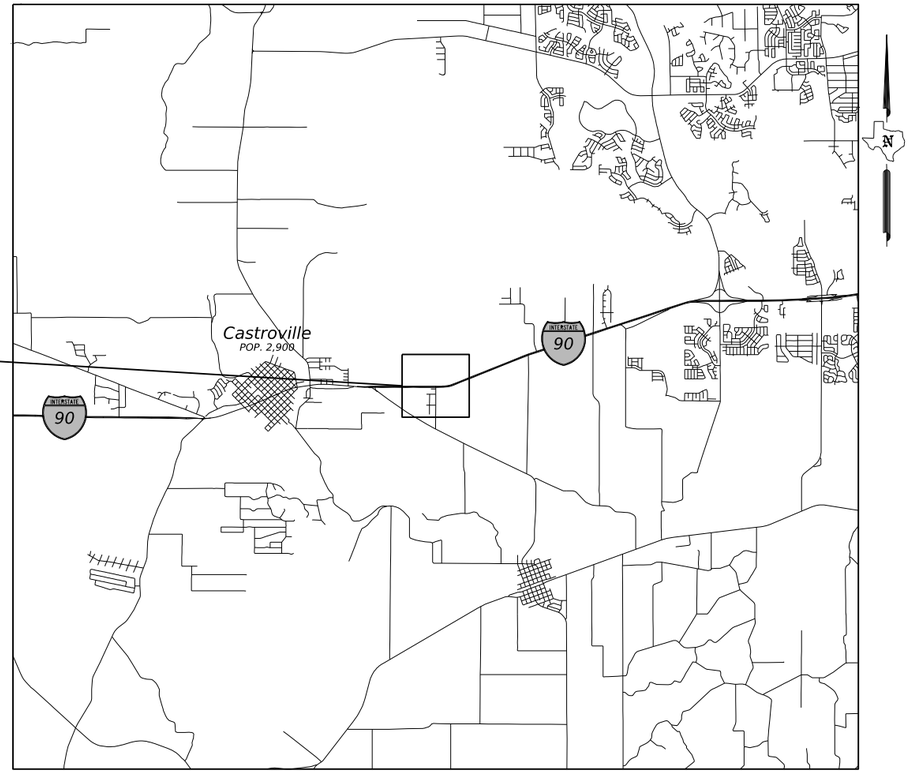
STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS FOR SIGNAL TIMING AND LEFT TURN REMOVAL AT US 90 & VICTORY LANE

MAY 2026



VICINITY MAP
N.T.S.



MEDINA COUNTY
SAN ANTONIO DISTRICT

STATE OF TEXAS
OSCAR A. GARZA
122125
LICENSED PROFESSIONAL ENGINEER

Oscar Arturo Garza, P.E.
Date: 5/15/26

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
2610 N Shary Rd
Mission, Texas 78574
Phone: 956-271-6694
www.kci.com
TBPE Registration No. F-10573

DATE: $DATE$ $TIME$
FILE: $FILE$

CK
DW
CK
DW

EXISTING TRAFFIC CONTROLLER CABINET

EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

B A

N

LEGEND

- EXISTING CONTROLLER
- EXISTING TRAFFIC SIGNAL HEAD
- EXISTING MAST ARM AND POLE
- EXISTING LUMINAIRE
- EXISTING VIVDS CAMERA
- EXISTING SIGNS & SIGNAL HEADS
- EXISTING SIGN
- PROPOSED REMOVAL OF TRAFFIC SIGNAL HEAD
- PROPOSED REMOVAL OF SIGN
- PROPOSED REMOVAL OF SIGNS & SIGNAL HEADS
- FLOW ARROW

US 90

12' THRU LANE

12' THRU LANE

E D C

S2

S1

EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

EXISTING CABLE BARRIER

REMOVE LEFT TURN AND PAVEMENT MARKINGS

12' LEFT TURN

12' THRU LANE

12' THRU LANE

12' SHLDR

EXISTING RETAINING WALL

EXISTING DRAINAGE STRUCTURE

CR 4712

12' THRU LANE

12' THRU LANE

12' LEFT TURN

EXISTING LED SIGNAL HEADS & BACKPLATES

12"

R Y G

A,B,C

12"

R Y G

D,E,F,G,I,J

EXISTING DRAINAGE STRUCTURE

12"

R Y G

H

REMOVE SIGNAL HEAD

REMOVE "LEFT TURN SIGNAL" SIGN

G F

S3

S4

H

S5

I

J

EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

EXISTING CABLE BARRIER

12' THRU LANE

12' THRU LANE

12' SHLDR

US 90

EXISTING SIGNS

US 90

S3

CR 4712

S2, S5

LEFT TURN SIGNAL

S1,S4

DATE:
FILE:

Texas Department of Transportation

US 90 AELVOET TRACT

EXISTING CONDITIONS DIAGRAM

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SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
		AELVOET TRACT	
DIST	COUNTY		
	MEDINA		2

499

CK
DW
CK
DW

EXISTING TRAFFIC CONTROLLER CABINET & BBU

EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

LEGEND

- EXISTING CONTROLLER
- EXISTING TRAFFIC SIGNAL HEAD
- EXISTING MAST ARM AND POLE
- EXISTING LUMINAIRE
- EXISTING VIVDS CAMERA
- EXISTING SIGNS & SIGNAL HEADS
- EXISTING SIGN
- FLOW ARROW
- RE PM TY I (Y) 12" (SLD)
- RE PM TY I (Y) 6" (SLD)

US 90

12' THRU LANE
12' THRU LANE
S2
S1
E
D
C
EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

12' THRU LANE
12' THRU LANE
12' LEFT TURN

EXISTING LED SIGNAL HEADS & BACKPLATES

12" R Y G — A,B,C

12" R Y G — D,E,F,G,H,I

EXISTING SIGNS

US 90 — S3

CR 4712 — S2, S5

LEFT TURN SIGNAL — S1,S4

EXISTING DRAINAGE STRUCTURE

EXISTING SIGNAL POLE WITH SIGNAL HEADS, SIGNS, LUMINAIRE, & VIVIDS

S3
S5
G
F
H
I

EXISTING CABLE BARRIER

RE PM TY I (Y) 12" (SLD)
RE PM TY I (Y) 6" (SLD)

EXISTING CABLE BARRIER

12' THRU LANE
12' THRU LANE
12' SHLDR

12' THRU LANE
12' THRU LANE
12' SHLDR

US 90

EXISTING RETAINING WALL

EXISTING DRAINAGE STRUCTURE

CR 4712

DATE:
FILE:

Texas Department of Transportation

US 90
AELVOET TRACT

PROPOSED CONDITIONS DIAGRAM

©TxDOT 2026

SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
		AELVOET TRACT	500
DIST	COUNTY		
	MEDINA		3

Agenda Report

Agenda of: May 26, 2026

Department: Community Development Director

Subject: Presentation and Discussion – City of Castroville Building Permit Process

RECOMMENDED ACTION

Receive a presentation and provide direction, if any.

ITEM SUMMARY

Staff will provide a brief presentation outlining the City of Castroville's building permit process, including when permits are required, the steps involved in obtaining a permit, inspection requirements, and the importance of compliance with approved plans, applicable building codes, and zoning regulations.

BACKGROUND

The building permit process is a core function of the City's development and regulatory responsibilities. Permitting ensures construction is performed safely, complies with adopted building codes and zoning standards, and protects both property owners and the City.

As development activity continues in Castroville, staff has identified the need to clearly communicate permitting expectations, common requirements, and areas that frequently cause delays or compliance issues. This presentation is intended to provide Council with an overview of the process and support consistent messaging to applicants, contractors, and the public.

PRESENTATION OVERVIEW

The presentation will cover the following key topics:

- When a building permit is required
- The building permit application and plan review process
- Contractor registration and licensing requirements
- Permit fees and review timelines
- Inspections and scheduling requirements
- The importance of constructing in accordance with approved plans
- Requirements for amended permits when plans change

- Certificate of Occupancy requirements
- Coordination with Historic Landmark Commission approvals for properties within the Historic Overlay District

The presentation emphasizes early coordination with staff, complete applications, and adherence to approved plans to reduce delays and enforcement issues.

FISCAL IMPACT

There is no fiscal impact associated with this agenda item. The presentation is informational only.

PRESENTED BY

Breana Soto, Community Development Director

ATTACHMENTS

- Building Permit Process PowerPoint Presentation

Building Permits: Process & Expectations

Breana Soto

Community Development Director



Introduction & Purpose



WHAT BUILDING PERMITS ARE



WHY THEY MATTER



HOW THEY PROTECT PROPERTY OWNERS AND THE CITY

Community Development Department

Contracted Plan Review Services

Roles & Responsibilities in the Permit Review Process

When a Building Permit Is Required



New construction



Additions and remodels



Structural changes



Electrical, plumbing, and mechanical work



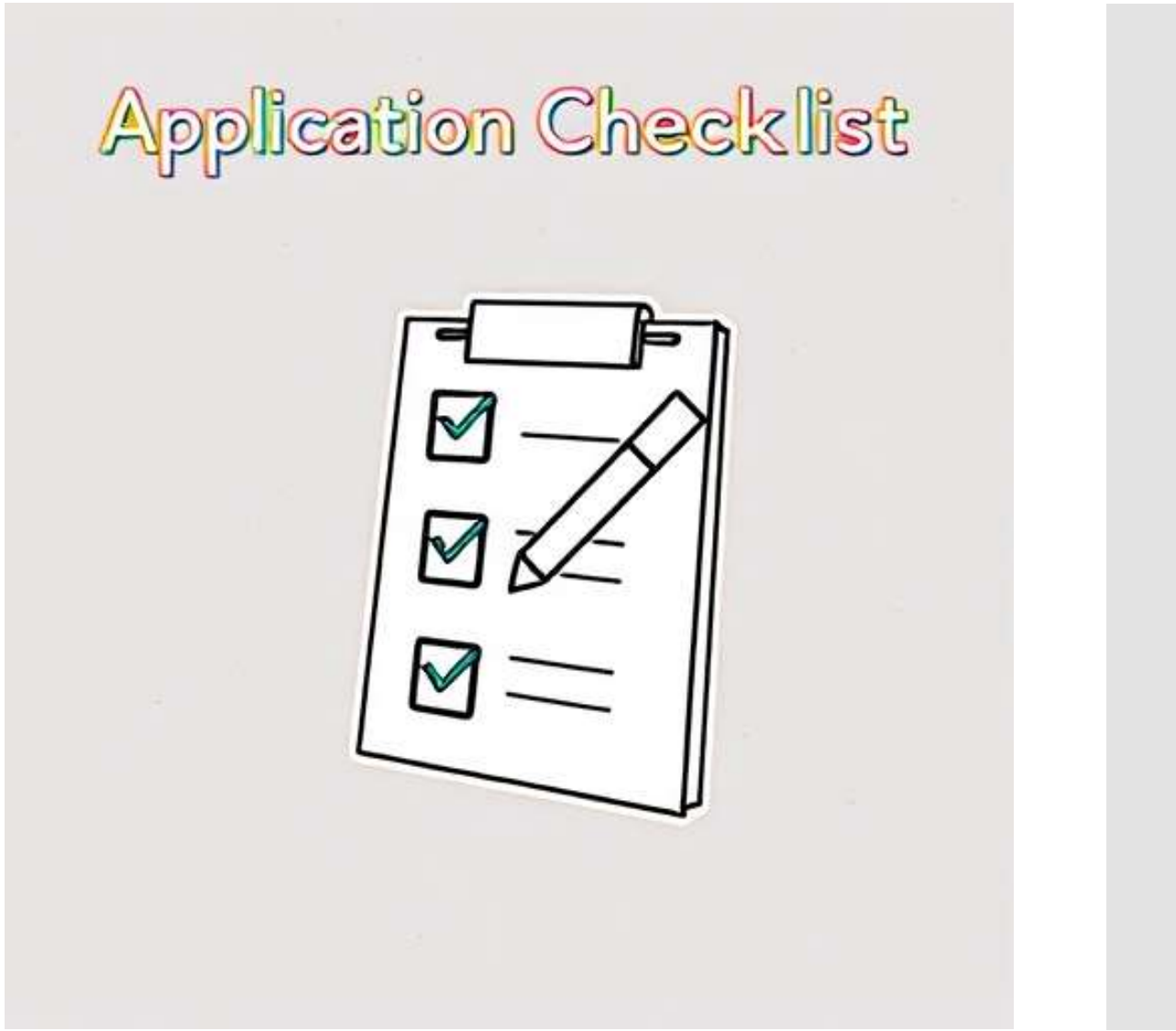
Accessory structures, fences, and site work

Complete Applications Matter

Applications must be fully completed

Owner information and valuation required

Information must match City records





Building Permit Application Process

APPLICATION SUBMITTAL

PLAN REVIEW

PERMIT ISSUANCE

Contractor Registration Requirement

- All contractors must be registered with the City
- Licenses must be current
- Applies to general contractors and MEP trades



Plan Review & Review Timelines

Residential vs. commercial review

Third-party reviewers

Typical review: ~10 business days

Fees must be paid before review

Codes Used

Comprehensive Zoning Ordinance

City of Castroville Code of Ordinances

- Chapter 24: Signs
- Chapter 100: Subdivision

International Building Code

- 2012 International Building Code
- 2012 International Plumbing Code
- 2012 International Property Maintenance Code
- 2014 National Electric Code
- 2012 International Existing Building Code
- 2012 Fuel and Gas Code
- 2012 Mechanical Code
- 2012 International Residential Code
- 2012 International Energy Conservation Code
- 2012 International Fire Code

Permit Fees & Invoicing



APPLICATION AND PLAN REVIEW FEES REQUIRED



FEES MUST BE PAID BEFORE REVIEW



INVOICES TIED TO PERMIT NUMBERS

Issuance of Permits

Permit is sent to plan review and inspections

Permit issued after:
- Plans are approved
- Fees are paid

Construction must match approved plans

Inspections: Requirements & Process



Inspections ensure work is done safely and correctly



Required at specific construction stages



Must pass before moving to the next phase

Inspection Scheduling Rules

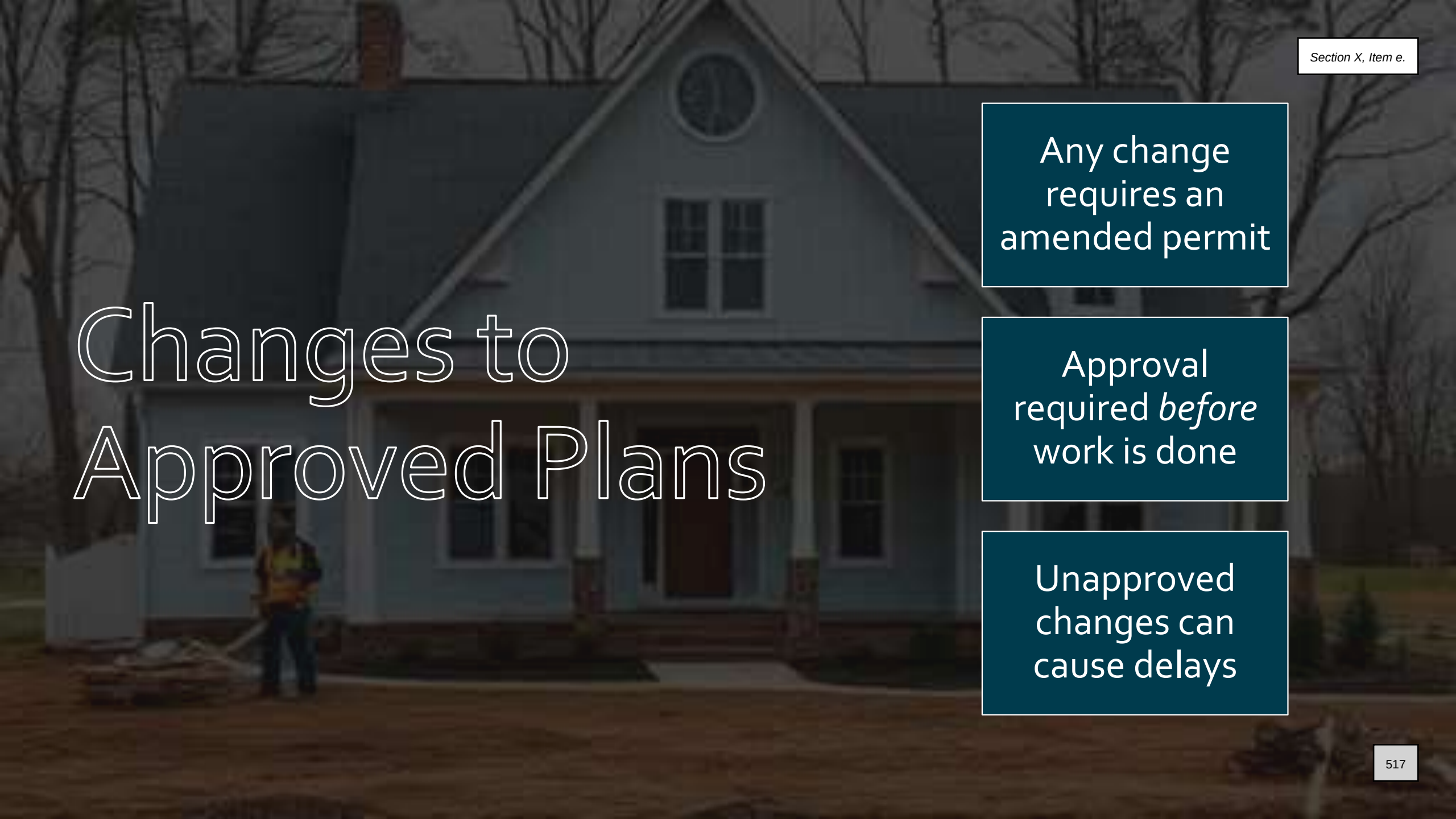
- Inspections must be requested in advance
- No same-day inspections
- Requests made on Fridays are scheduled no earlier than Monday





Inspection Questions or Concerns

- First contact: the contracted building inspector
- If clarification is needed:
  - Community Development Director
  - City coordinates with inspection firm
- City provides administrative oversight



Changes to Approved Plans

Any change requires an amended permit

Approval required *before* work is done

Unapproved changes can cause delays

Work Not Included in a Permit



Property owners and contractors are responsible for compliance



Unpermitted work may be identified during inspections

Maintaining Compliance During Construction

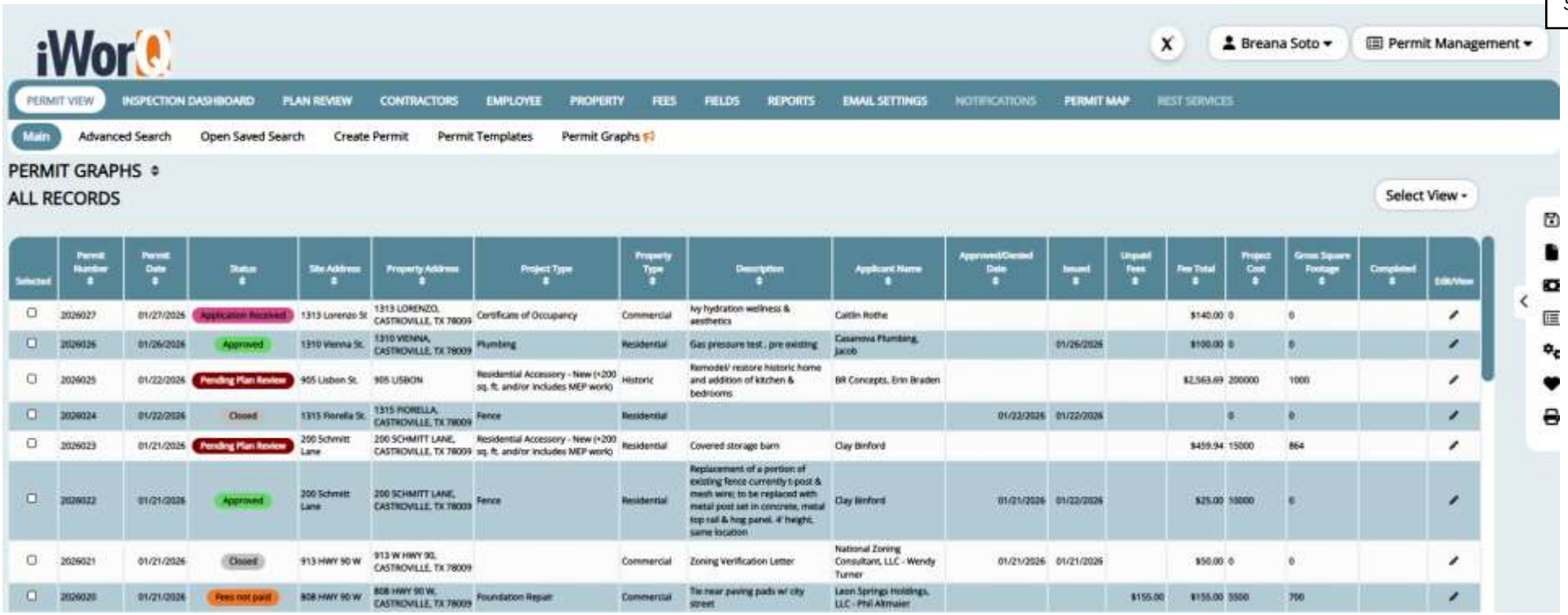
How Compliance Is Ensured

- Required inspections
- Documentation of issues
- City oversight

Possible Outcomes

- Required corrections
- Re-inspection
- Stop-work notice
- Delayed Certificate of Occupancy

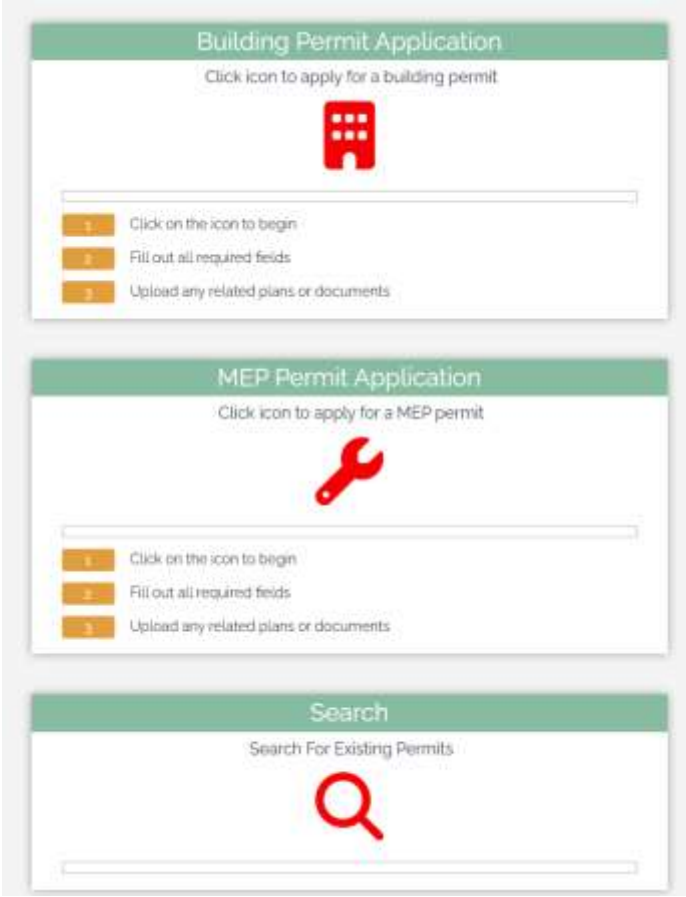



iWorQ
X
Breana Soto
Permit Management
PERMIT VIEW
INSPECTION DASHBOARD
PLAN REVIEW
CONTRACTORS
EMPLOYEE
PROPERTY
FEES
FIELDS
REPORTS
EMAIL SETTINGS
NOTIFICATIONS
PERMIT MAP
REST SERVICES
Main
Advanced Search
Open Saved Search
Create Permit
Permit Templates
Permit Graphs
PERMIT GRAPHS
ALL RECORDS
Select View

What we use

-

How to apply



PERMITTING

To apply for permits online or search an existing permit, please click the picture below.



Permit from Staff Side

https://www.iworq.net/iworq/0_Pages/popupEdit.php?sid=WG43H7CQXS3GP50B6G6D6QF45Q600&k=6223&id=27815548

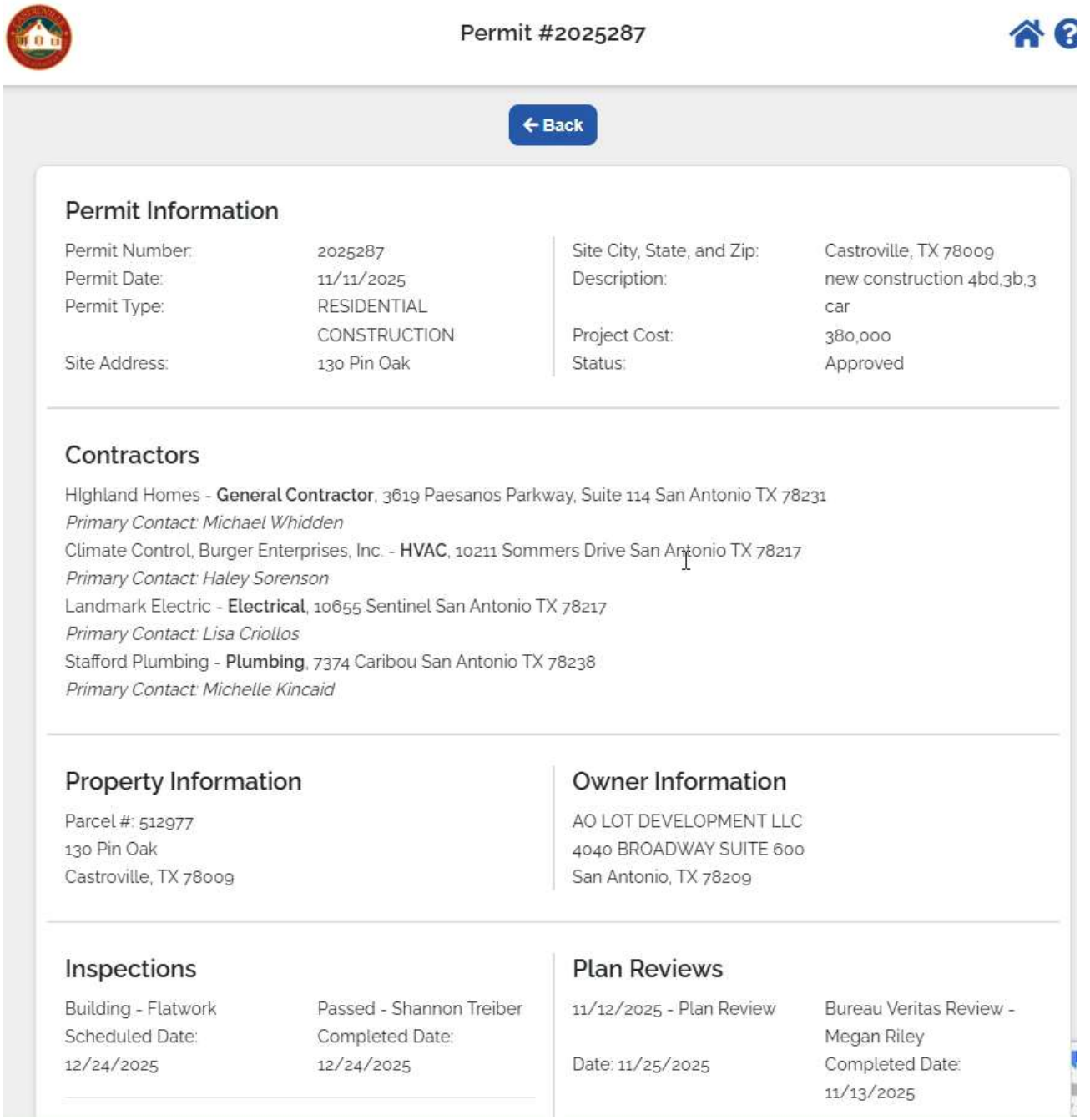
PERMIT

HISTORY SAVE

Permit #:	2025287	Occupancy Use:	Residential
Permit Date:	11/11/25	Occupancy Group:	R3
Permit Type:	RESIDENTIAL CONSTR	Design Occupant Load:	
Status:	Approved	Automatic Fire Sprinkler System Present:	--
Bureau Veritas Project #:	2025-030522	Automatic Fire Sprinkler System Required:	--
Site Address:	130 Pin Oak		
Site City, State, and Zip:	Castroville, TX 78009	Code and Edition:	--
Project Type:	New SFR	Boards/Commissions:	--
Property Type:	Residential	Number of Lots:	1
Description:	new construction 4bd,3b,3 car	Gross Square Footage:	3695
		Approved/Denied Date:	11/13/2025
Business Name:		Issued:	11/19/2025
Applicant Name:	Highland Homes, Michael Bradshaw	Flood Hazard Boundary:	Outside of Floodplain
		Completed:	
Applicant Phone:	210-336-2433	Expiration Date:	06/22/2026
Applicant Address:	3619 Paesanos Parkway, Suite 114	FIRM Map No.:	--
		Elevation Certificate Required:	--
Applicant City, State, and Zip:		Substantial	

- Copy Permit
- Email Permit
- Print Permit
- Save As Template
- Apply Template
- Add Letter
- Notes
- Contractors
- Property
- Add Inspection
- Add Plan Review
- Add Valuation
- Add Fees
- Add Payment
- Add Deposit
- Add CC Payment
- Upload File
- Open Permit Map

Permit from Public Side



Permit #2025287

← Back

Permit Information

Permit Number:	2025287	Site City, State, and Zip:	Castroville, TX 78009
Permit Date:	11/11/2025	Description:	new construction 4bd,3b,3 car
Permit Type:	RESIDENTIAL CONSTRUCTION	Project Cost:	380,000
Site Address:	130 Pin Oak	Status:	Approved

Contractors

HIghland Homes - **General Contractor**, 3619 Paesanos Parkway, Suite 114 San Antonio TX 78231
Primary Contact: Michael Whidden
Climate Control, Burger Enterprises, Inc. - **HVAC**, 10211 Sommers Drive San Antonio TX 78217
Primary Contact: Haley Sorenson
Landmark Electric - **Electrical**, 10655 Sentinel San Antonio TX 78217
Primary Contact: Lisa Criollos
Stafford Plumbing - **Plumbing**, 7374 Caribou San Antonio TX 78238
Primary Contact: Michelle Kincaid

Property Information

Parcel #: 512977
130 Pin Oak
Castroville, TX 78009

Owner Information

AO LOT DEVELOPMENT LLC
4040 BROADWAY SUITE 600
San Antonio, TX 78209

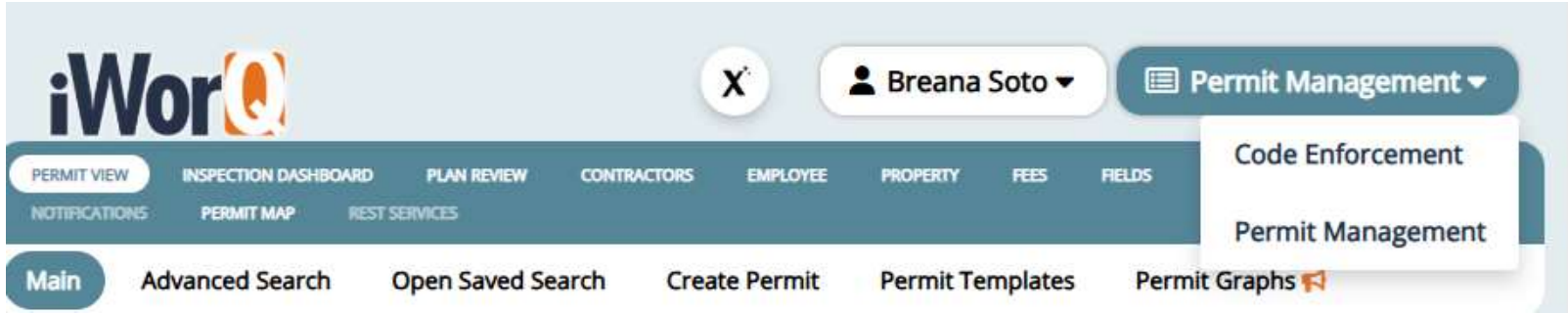
Inspections

Building - Flatwork	Passed - Shannon Treiber
Scheduled Date: 12/24/2025	Completed Date: 12/24/2025

Plan Reviews

11/12/2025 - Plan Review	Bureau Veritas Review - Megan Riley
Date: 11/25/2025	Completed Date: 11/13/2025

When Code Enforcement Gets Involved



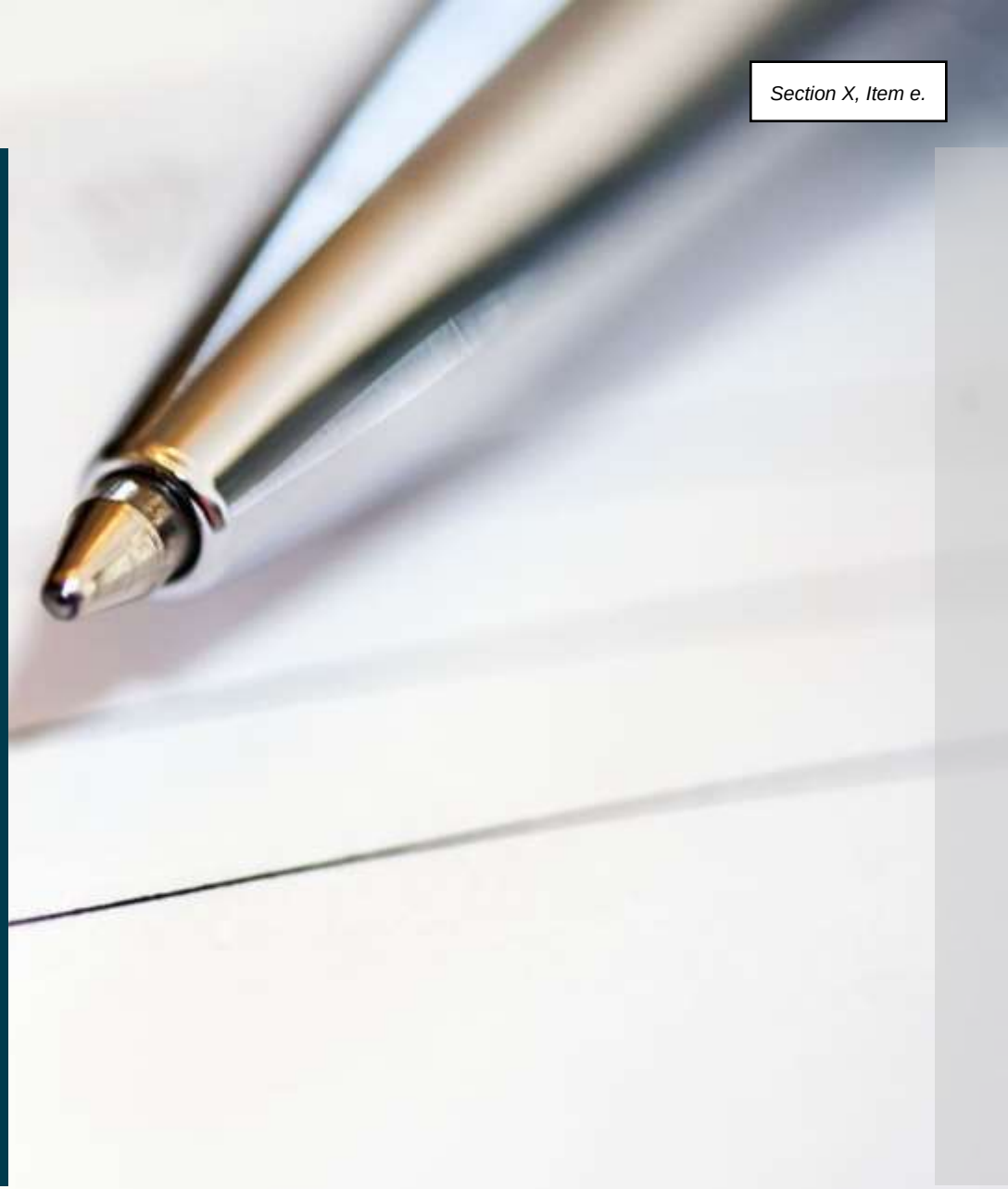
Not part of routine plan review or inspections

Becomes involved when:

- Work is done without a permit
- Stop-work orders are issued
- Repeated non-compliance occurs
- Public safety concerns exist

Certificate of Occupancy (COO)

- Final approval before occupancy
- All inspections must pass
- All fees must be paid



Historic Landmark Commission (HLC) Properties

- Certificate of Appropriateness (COA) required for historic properties
- COA does **not** replace a building permit
- Building code and zoning still apply

- The Historic Preservation Officer (HPO) and their role

COA Fees & Timing



COA FEE REQUIRED BEFORE REVIEW

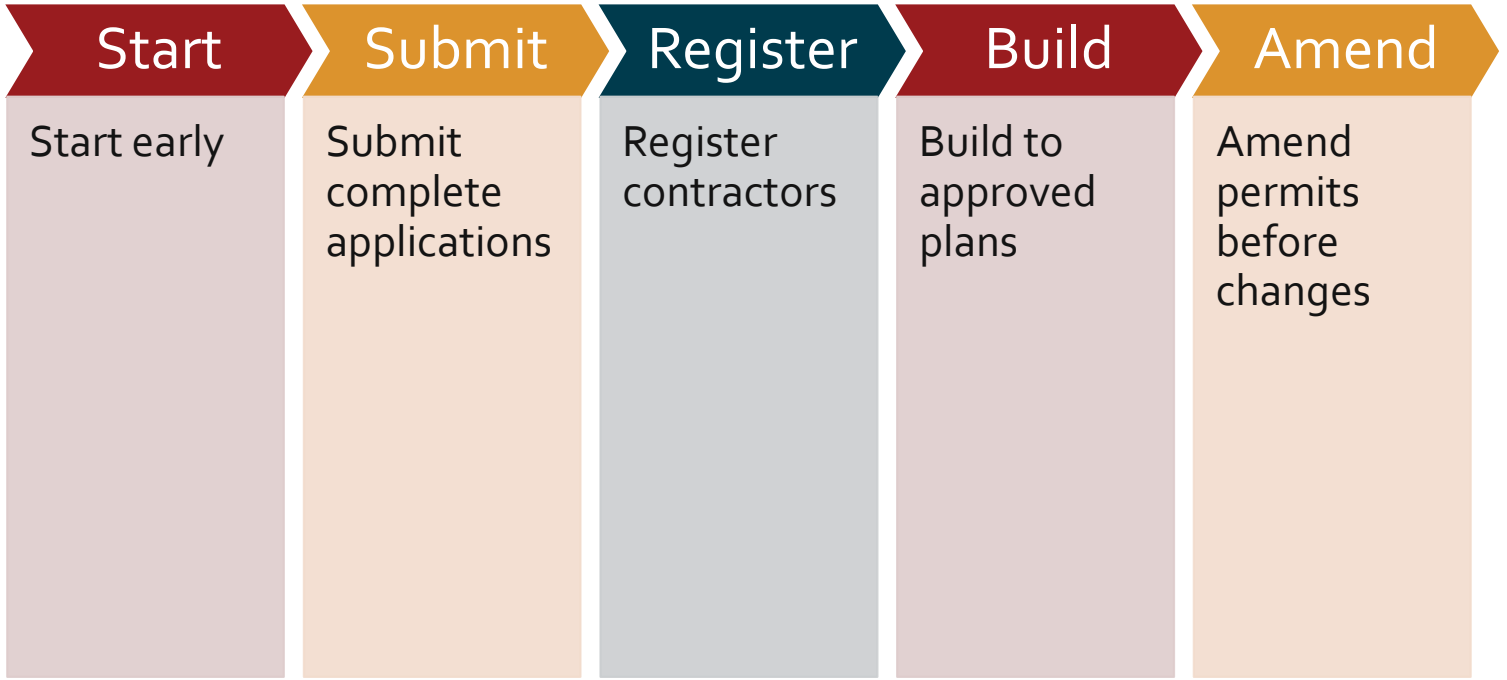


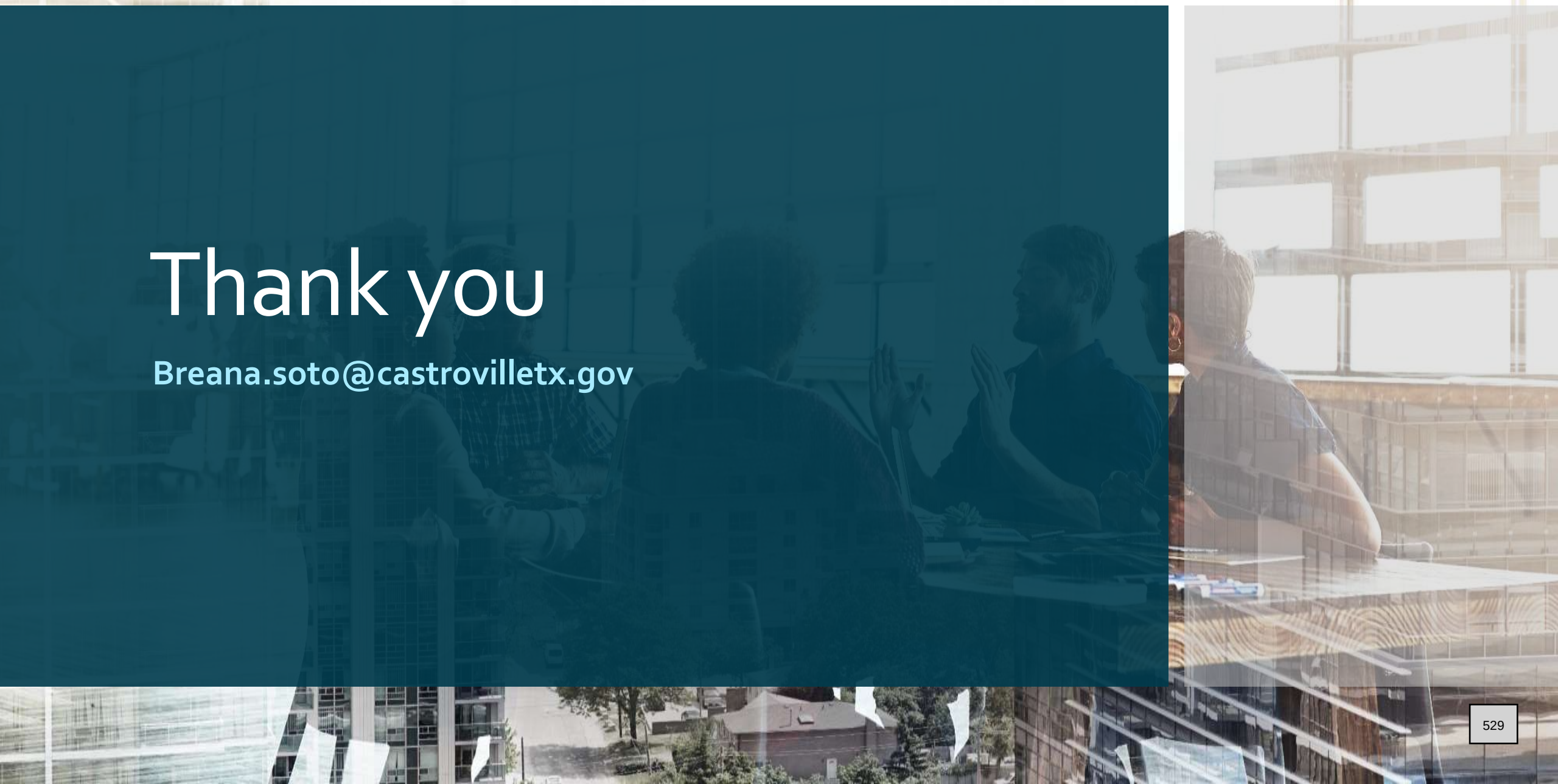
REQUIRED BEFORE AGENDA PLACEMENT



COORDINATE EARLY WITH PERMITTING

Key Takeaways & Best Practices





Thank you

Breana.soto@castrovilletx.gov

CODE COMPLAINCE



WHAT IS CODE COMPLIANCE AND WHY IT EXISTS

- Code enforcement ensures compliance with local laws, ordinances and regulations related to health, safety, zoning, and property maintenance

- Focuses on protecting public health, safety, welfare, and quality of life

- Emphasizes correction and voluntary compliance before punishment

GOALS OF CODE ENFORCEMENT

- Protect public health and safety
- Prevent hazards, nuisances, and unsafe conditions
- Maintain community appearance and standards
- Ensure fair, consistent, and lawful enforcement
- Encourage education and voluntary compliance

LEGAL AUTHORITY

- Authority derived from state law and locally adopted ordinances
- Powers include inspections, notices of violation, citations, fines, and abatement
- Enforcement is limited by due process and property rights protections
- Purpose is lawful compliance, not arbitrary enforcement

*Texas Local Government Codes: § 51.001; 54.001; 54.032; 54.039; CHAPTER 214
*Texas transportation Code: Chapter 683

CASTROVILLE CODE ENFORCEMENT OFFICER ROLE

- Operates under direction of the Police Chief
- Enforces zoning, land use, nuisance housing, building, and safety codes
- Serves as a resource to residents, businesses, and City departments
- Balances enforcement with public education and problem-solving

ESSENTIAL FUNCTIONS OF THE POSITION

- Investigates complaints and observed violations
- Conducts field inspections and follow-up
- Issues notices, warnings, and orders to comply
- Maintains detailed documentation and case files
- Prepares reports, correspondence, and court-related documents

TYPICAL VIOLATION PROCESS

•Complaint received or violation observed (Example: weedy lot/ junk vehicle)

•Site visit and photo documentation

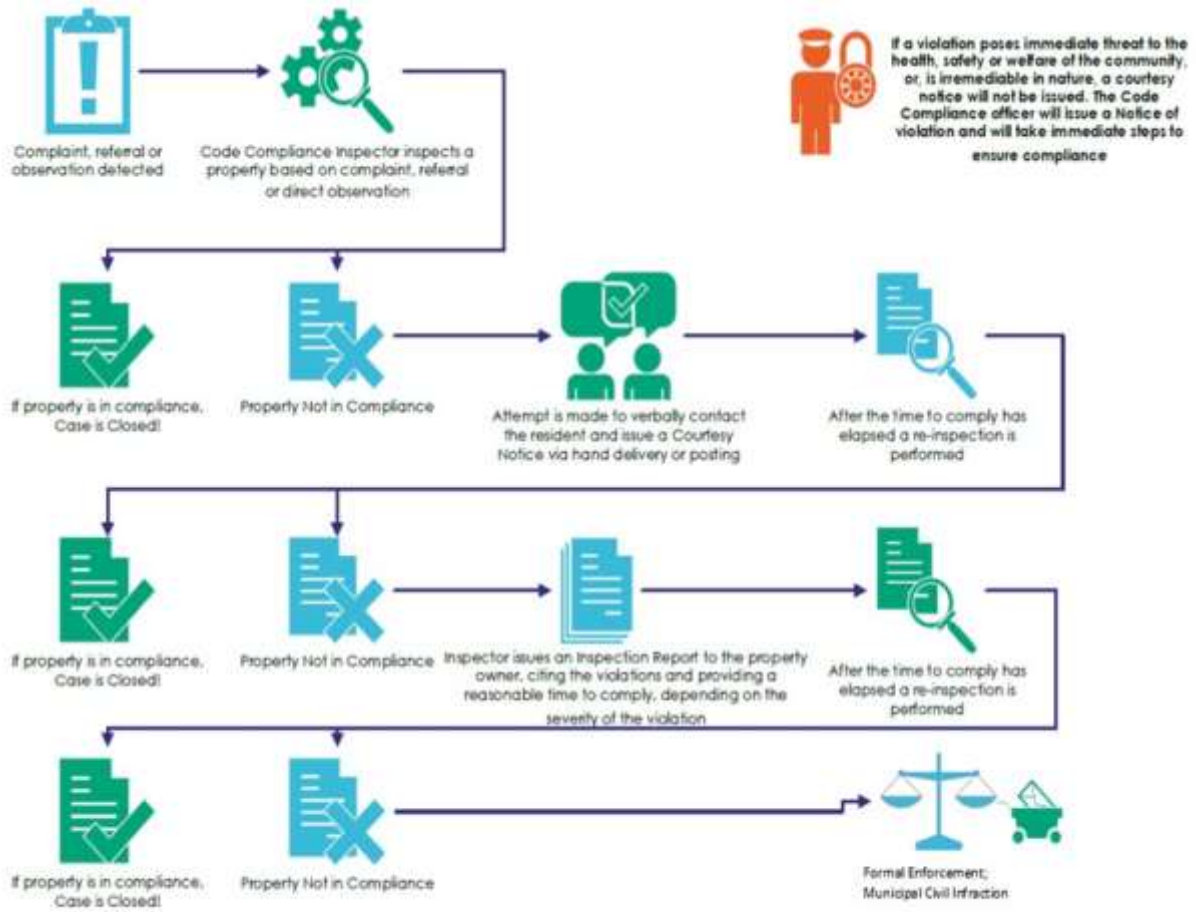
•Owner contact or door hanger issued allowing 10 days to contact code compliance. If violation is corrected the case is closed.

•If violation is not corrected a letter is mailed and hand delivered notice of violation letter issued.

•Follow-up inspection. If not resolved the case is elevated

•Citation issued only if non-compliance continues and referred to municipal court.

VIOLATION PROCESS



PREPARING A CASE FOR COURT

- Confirm applicable state law and city ordinance
- Verify violation and penalty authority
- Collect evidence: reports, photos, correspondence, notices
- Citations issued by licensed peace officers or registered code officers

PROSECUTOR REVIEW AND LEGAL COORDINATION

- Case reviewed by prosecutor
- Complaint filed with Municipal Court if warranted
- Coordination with City Attorney as needed
- Court action used when voluntary compliance fails

ABATEMENT OPTIONS AND CONSIDERATIONS

- Authorized by ordinance or statute
- Includes weeds, trash, junked vehicles, unsafe structures
- Requires hearings and due process
- Cost-benefit analysis compares abatement vs court action
- Liens and cost recovery considered

TRACKING AND PROGRAM ACCOUNTABILITY

•All cases tracked using iWorQ management software. Software captures date time and nature of the violation and tracks progress.

•Allows transparency, documentation, and progress tracking

•Primary goal is compliance, not punishment

•Enforcement supports a safer, healthier, more livable Castroville

QUESTIONS?



Agenda Report

Agenda of: May 26, 2026

Department: Public Works

Subject: Consider and take appropriate action to adopt a resolution recognizing City of Castroville Public Works employees as First Responders during National Public Works Week.

Recommended Motion: Staff recommends that the City Council acknowledge and recognize the dedication, professionalism, and service of the City of Castroville Public Works employees during National Public Works Week.
Because the Public Works Department has requested additional time to further evaluate the operational, personnel, insurance, and policy implications associated with formally designating Public Works employees as “First Responders,” staff recommends postponing consideration of the proposed resolution to a future date.

Background:

National Public Works Week was observed nationwide during the week of May 18–24, 2026, as an opportunity to recognize the critical role Public Works professionals play in maintaining essential public infrastructure and supporting community safety and resilience. The City of Castroville Public Works Department provides vital services including water and wastewater operations, street maintenance, drainage maintenance, emergency response support, infrastructure restoration, and operational assistance during severe weather and emergency events.

The Public Works Director initially requested consideration of a formal resolution recognizing Public Works employees as First Responders in alignment with initiatives supported by the American Public Works Association (APWA). Supporting materials prepared for the proposed item outlined the increasing national recognition of Public Works personnel as critical contributors to emergency response and recovery operations.

However, following additional internal discussion, the Public Works Director requested that formal Council consideration of the designation be postponed until additional research can be completed regarding potential operational, insurance, personnel, and policy implications associated with a formal “First Responder” designation. Staff intends to continue evaluating the issue and may return with additional information and recommendations at a later date.

While the formal resolution is being postponed, staff believes it remains appropriate to publicly recognize and express appreciation for the dedication, professionalism, and service provided daily by the

City's Public Works employees during National Public Works Week. Public Works personnel frequently serve in difficult and hazardous conditions to maintain essential services and support the health, safety, and welfare of the community. Supporting informational materials note that Public Works professionals are often among the first personnel responding during disasters and infrastructure emergencies and are essential to restoring critical public services.

Fiscal Impact: N/A

☐ **Budgeted** ☐ **Requires Budget**

Source of Funding: N/A

Attachments:

Urgency (0-5 = Low Urgency to High Urgency): 2

Impact (0-5 = Low Impact to High Impact): 3

Submitted by: R. Scott Dixon