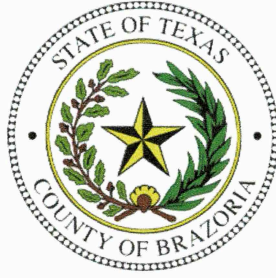


BRAZORIA COUNTY
PURCHASING DEPARTMENT



SUSAN P. SERRANO, CPPO, CPPB
Purchasing Director

NOTICE TO PROCEED

September 25, 2025

TECA Construction, LLC
Attn: Ramiro Hernandez
203 County Road 698A
Angleton, TX 77515
Sent via Email to: Ramirohdz_05@outlook.com

RE: Notice to Proceed for CSP #25-66 Pavement Repairs to Silverlake Phase II

Dear Mr. Hernandez:

Your company is approved to commence the work in accordance with the above referenced project on Monday, November 3, 2025 with a completion timeframe of 150 calendar days.

The project manager is Barbara Martinez, Engineering Department.

Please complete this process by acknowledging this copy of this NOTICE TO PROCEED to the County.

Very truly yours,

Natasha Stulberg, CPPB
Brazoria County Assistant Purchasing Director

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by: TECA Construction LLC

this 25 day of September, 2025.

Printed Name and Title: Ramiro Hernandez / Co-Owner

Signature:

Brazoria County Courthouse Campus Administration Building
237 E. Locust Street, Suite 406 - Angleton, TX 77515
(979) 864-1825

BRAZORIA COUNTY
PURCHASING DEPARTMENT



SUSAN P. SERRANO, CPPO, CPPB
Purchasing Director

August 28, 2025

TECA Construction, LLC
Attn: Ramiro Hernandez
203 County Road 698A
Angleton, TX 77515
Ramirohdz_05@outlook.com

Re: Award for CSP# 25-66 Pavement Repairs for Silverlake Phase II

Dear Mr. Hernandez:

Brazoria County is pleased to inform you that on August 26, 2025, Commissioners' Court awarded the above listed project to your company.

A purchase order and /or notice to proceed will follow. Do not proceed with delivery of services or materials prior to receiving a purchase order number from Brazoria Country.

A Certificate of Interested Parties, Form 1295 is required. Vendors are to log onto the Texas Ethics Commission's website https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm and fill out Form 1295. Once the form is completed online, the system will issue a certificate number. Please print, sign the form, and email it to Amanda Erickson at aerickson@brazoriacountytx.gov.

In addition, per Texas Local Government Code 176, completion of the Conflict of Interest Questionnaire, Form CIQ, is required if applicable. You may access the form and further information on our website at <http://brazoriacountytx.gov/departments/purchasing> under the Doing Business section, Conflict of Interest Reporting.

Per Texas Local Government Code Chapters 808, 809, and 2274, completion of the Boycott Verification Form is required, if applicable. You may access the form and further information on our website at <http://brazoriacountytx.gov/departments/purchasing> under the Doing Business section.

Please email the CIQ and Boycott Verification Form to Amanda Erickson at aerickson@brazoriacountytx.gov.

As a reminder, a copy of a current certificate of insurance shall be due to Brazoria County within ten (10) calendar days after receipt of notification of award. The contract shall not become effective until the certificate of insurance is received. Failure to provide said certificate may result in cancellation and/or termination of the contract. Please have the certificate of insurance name Brazoria County as an additional insured and a waiver of subrogation applies in favor of Brazoria County.

Per the solicitation, a performance and payment bond are required and due prior to the start of the project.

Thank you for your interest in Brazoria County. If you have any questions, please do not hesitate to contact me.

Very truly yours,

Susan P. Serrano, CPPO, CPPB
Brazoria County Purchasing Director

BRAZORIA COUNTY CONTRACT SHEET

THE STATE OF TEXAS COUNTY OF BRAZORIA

This memorandum of agreement made and entered into on the 26th day of August 2025, by and between Brazoria County in the State of Texas (hereinafter designated County), acting herein by County Judge L.M. "Matt" Sebesta, Jr., by virtue of an order of Brazoria County Commissioners' Court, and TECA Construction, LLC..

WITNESSETH:

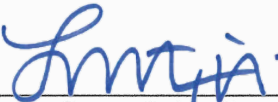
The Vendor and the County agree that the Instructions to Respondents, Specifications/Statement of Work, Standard Terms & Conditions, and all other requirements herein for **CSP# 25-66 Pavement Repairs for Silverlake Phase II** as stated in the Competitive Sealed Proposal Table of Contents hereto attached and made a part hereof, together with the bond (when required), vendor's response and negotiated pricing, shall constitute the full agreement and Contract between parties and for furnishing the items set out and described; the County agrees to pay the prices stipulated in the accepted offer.

The order of precedence shall be:

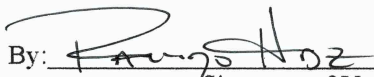
- Brazoria County **CSP# 25-66 Pavement Repairs for Silverlake Phase II**
- Vendor's submittal to the above listed CSP and the final accepted pricing

It is further agreed that this Contract shall not become binding or effective until signed by the parties hereto and a purchase order authorizing the items desired has been issued.

Executed at Angleton, Texas this 15th day of September 2025.

By: 
County Judge Signature

By: L.M. "Matt" Sebesta, Jr.
Printed Name

By: 
(Signature of Vendor)

By: RAMIRO HERNANDEZ CO-OWNER
Printed Name and Title

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

1 of 1

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 CERTIFICATION OF FILING

Certificate Number:
2025-1358818

Date Filed:
09/04/2025

Date Acknowledged:
9/5/2025

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

TECA CONSTRUCTION, LLC
ANGLETON, TX United States

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

BRAZORIA COUNTY

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.

CSP# 25-66

Pavement removal, concrete pavement, curb and gutter, inlet replacement, environmental controls, seeding, sod, and watering for the CSP# 25-66 Pavement Repairs for Silverlake Phase II.

4	Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
			Controlling	Intermediary
	HERNANDEZ, RAMIRO	ANGLETON, TX United States	X	
	HERNANDEZ, RAUL	ANGLETON, TX United States	X	

5 Check only if there is NO Interested Party.

☐

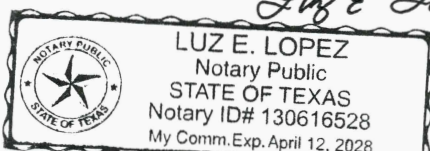
6 UNSWORN DECLARATION

My name is RAMIRO HERNANDEZ, and my date of birth is MAY 05, 2025.

My address is 216 PRAIRIE LEA, ANGLETON, TEXAS, 77515, U.S.A.
(city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Brazoria County, State of Texas, on the 4 day of September 25
(month) (year)



[Signature]
Signature of authorized agent of contracting business entity
(Declarant)

Boycott Verification

This verification is required pursuant to Sections 808, 809, 2271, and 2274 (87(R) Senate Bill 13 and 19 versions) of the Texas Government Code:

Definitions:

1. Per Government Code Chapter 808, "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purpose
2. Per Government Code Chapter 809, "Boycott energy company" means, without an ordinary business purpose, refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company:
 - (A) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or
 - (B) does business with a company described by Paragraph (A).
3. Per Government Code Chapter 2274 (87(R) Senate Bill 19), "Discriminate against a firearm entity or firearm trade association":
 - (A) means, with respect to the entity or association, to:
 - (i) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association;
 - (ii) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or
 - (iii) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association;
4. "Company" has the meaning assigned by Texas Government Code Sections 808.001(2), 809.001(2), and 2274.001(2) (87(R) Senate Bill 19).

This verification is only required for a contract that is between a governmental entity and a company with 10 or more full-time employees; and has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental entity. If your contract value or number of employees does not reach that threshold, please provide a written certification of the contract amount and number of employees.

I, RAMIRO HERNANDEZ (Person name), the undersigned representative of (Company or Business Name) TECA CONSTRUCTION LLC (hereinafter referred to as Company) being an adult over the age of eighteen (18) years of age, do hereby depose and verify under oath that the company named-above,

- (A) does not boycott Israel currently;
- (B) will not boycott Israel during the term of the contract the named Company, business or individual with Brazoria County Texas, Texas;
- (C) does not boycott energy companies currently;
- (D) will not boycott energy companies during the term of the contract the named Company, business or individual with Brazoria County, Texas;
- (E) does not discriminate against a firearm entity of firearm trade association currently; and
- (F) will not discriminate against a firearm entity of firearm trade association during the term of the contract the named Company, business or individual with Brazoria County, Texas

09/03/2025
DATE


SIGNATURE OF COMPANY REPRESENTATIVE

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

TECA CONSTRUCTION LLC

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.

BRAZORIA COUNTY

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes

☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes

☒ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

N/A

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 Randy Ho
Signature of vendor doing business with the governmental entity

09/03/2025
Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;

or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

09/02/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER SIG/Smith Insurance Group 700 N. Front Street Suite C Angleton TX 77515		CONTACT NAME: Maria (Mary) Pena PHONE (A/C, No, Ext): (979) 849-4348 E-MAIL ADDRESS: mary.pena@sig4you.com FAX (A/C, No): (979) 583-4047	
		INSURER(S) AFFORDING COVERAGE	
		INSURER A: Kinsale Insurance Co	
		INSURER B: Progressive Insurance	
		INSURER C: Kinsale Insurance Co	
		INSURER D: Texas Mutual Insurance Company	
		INSURER E:	
		INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** CL2552277993 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY	Y	Y	0100299539-1	05/07/2025	05/07/2026	EACH OCCURRENCE \$ 1,000,000
	☐ CLAIMS-MADE ☒ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000
							MED EXP (Any one person) \$ Excluded
							PERSONAL & ADV INJURY \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$ 2,000,000
	☒ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	OTHER:						\$
B	AUTOMOBILE LIABILITY	Y	Y	988452805	10/22/2024	10/22/2025	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	☒ ANY AUTO						BODILY INJURY (Per person) \$
	☐ OWNED AUTOS ONLY ☒ SCHEDULED AUTOS						BODILY INJURY (Per accident) \$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident) \$
							Uninsured/Underinsured \$ 1,000,000
C	UMBRELLA LIAB ☒ OCCUR	Y	Y	0100351703-1	05/07/2025	05/07/2026	EACH OCCURRENCE \$ 5,000,000
	☒ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE \$ 5,000,000
	DED RETENTION \$						\$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	N/A	Y	0002122833	02/03/2025	02/03/2026	☒ PER STATUTE ☐ OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Brazoria County is listed as additional insured for both GL and Auto Liability. Waiver of subrogation applies to both GL and Auto. Primary and Non Contributory applies to GL. (30) day notice of cancellation applies to GL Liability.

CERTIFICATE HOLDER**CANCELLATION**

Brazoria County 237 E. Locust Angleton TX 77515	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE <i>Justin Smith</i>
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STATUTORY PERFORMANCE BOND TEXAS PUBLIC WORKS

Bond No. 3201572

KNOW ALL BY THESE PRESENTS:

That Teca Construction LLC, (Hereinafter called the "Principal"), as Principal, and Developers Surety and Indemnity Company, a corporation organized and existing under the laws of the State of California, licensed to do business in the State of Texas and admitted to write bonds, as surety, (hereinafter called the "Surety"), are held and firmly bound unto Brazoria County (hereinafter called the Obligee), in the amount of One Million Two Hundred Eighty-One Thousand Six Hundred Fifty-Eight and 36/100 Dollars (\$ 1,281,658.36) for the payment whereof the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Obligee, dated the _____ day of _____, 20____, for CSP # 25-66 Pavement Repairs for Silverlake Phase II, which contract is hereinafter referred to as the "Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall faithfully perform the work required by the Contract then this obligation shall be null and void; otherwise to remain in full force and effect;

PROVIDED HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provision, conditions and limitations of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument, this 11 day of SEPTEMBER, 2025.

Teca Construction LLC
Principal

BY: Ramiro Hernandez
Signature

Name: Ramiro Hernandez
Title: CO-OWNER

Developers Surety and Indemnity Company

BY: Hannah Montagne
Signature

Name: Hannah Montagne
Attorney-In-Fact

The Rider(s) Attached Hereto Is/Are Incorporated in the Bond and Contains Important Coverage Information and Limitations



AmTrust Surety
an AmTrust Financial Company

STATUTORY PAYMENT BOND TEXAS PUBLIC WORKS

Bond No. 3201572

KNOW ALL BY THESE PRESENTS:

That Teca Construction LLC, (Hereinafter called the "Principal"), as Principal, and Developers Surety and Indemnity Company, a corporation organized and existing under the laws of the State of California, licensed to do business in the State of Texas and admitted to write bonds, as surety, (hereinafter called the "Surety"), are held and firmly bound unto Brazoria County (hereinafter called the Obligee), in the amount of One Million Two Hundred Eighty-One Thousand Six Hundred Fifty-Eight and 36/100 Dollars (\$ 1,281,658.36) for the payment whereof the said Principal and Surety bind themselves and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Obligee, dated the _____ day of _____, 20____, for CSP # 25-66 Pavement Repairs for Silverlake Phase II, which contract is hereinafter referred to as the "Contract."

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Principal shall pay all claimants supplying labor and material to him or a subcontractor in the prosecution of the work provided for in said Contract, then, this obligation shall be null and void; otherwise to remain in full force and effect;

PROVIDED HOWEVER, that this bond is executed pursuant to the provisions of Chapter 2253 of the Texas Government Code and all liabilities on this bond shall be determined in accordance with the provision, conditions and limitations of said Chapter to the same extent as if it were copied at length herein.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument, this 11 day of SEPTEMBER, 2025.

Teca Construction LLC
Principal

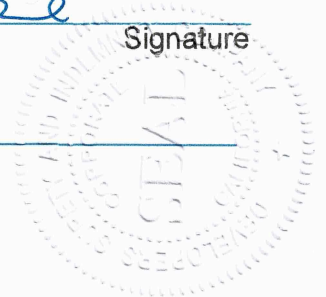
BY: Ramiro Hernandez Signature

Name: RAMIRO HERNANDEZ
Title: CO-OWNER

Developers Surety and Indemnity Company

BY: Hannah Montagne Signature

Name: Hannah Montagne
Attorney-In-Fact:



The Rider(s) Attached Hereto Is/Are Incorporated in the Bond and Contains Important Coverage Information and Limitations

**POWER OF ATTORNEY FOR
COREPOINTE INSURANCE COMPANY
DEVELOPERS SURETY AND INDEMNITY COMPANY**
59 Maiden Lane, 43rd Floor, New York, NY 10038
(212) 220-7120

KNOW ALL BY THESE PRESENTS that, except as expressly limited herein, COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY, do hereby make, constitute and appoint:

Shelly Bolender, Michele Bonnin, Rebecca Garza, Jillian O'Neal, Erica Cox and Hannah Montagne, of The Woodlands, TX

as its true and lawful Attorney-in-Fact, to make, execute, deliver and acknowledge, for and on behalf of said companies, as sureties, bonds, undertakings and contracts of suretyship giving and granting unto said Attorney-in-Fact full power and authority to do and to perform every act necessary, requisite or proper to be done in connection therewith as each of said company could do, but reserving to each of said company full power of substitution and revocation, and all of the acts of said Attorney-in-Fact, pursuant to these presents, are hereby ratified and confirmed. This Power of Attorney is effective July 24, 2023 and shall expire on December 31, 2025.

This Power of Attorney is granted and is signed under and by authority of the following resolutions adopted by the Board of Directors of COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY (collectively, "Company") on February 10, 2023.

RESOLVED, that Sam Zaza, President, Surety Underwriting, James Bell, Vice President, Surety Underwriting, and Craig Dawson, Executive Underwriter, Surety, each an employee of AmTrust North America, Inc., an affiliate of the Company (the "Authorized Signors"), are hereby authorized to execute a Power of Attorney, qualifying attorney(s)-in-fact named in the Power of Attorney to execute, on behalf of the Company, bonds, undertakings and contracts of suretyship, or other suretyship obligations; and that the Secretary or any Assistant Secretary of the Company be, and each of them hereby is, authorized to attest the execution of any such Power of Attorney.

RESOLVED, that the signature of any one of the Authorized Signors and the Secretary or any Assistant Secretary of the Company, and the seal of the Company must be affixed to any such Power of Attorney, and any such signature or seal may be affixed by facsimile, and such Power of Attorney shall be valid and binding upon the Company when so affixed and in the future with respect to any bond, undertaking or contract of suretyship to which it is attached.

IN WITNESS WHEREOF, COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY have caused these presents to be signed by the Authorized Signor and attested by their Secretary or Assistant Secretary this March 27, 2023.

By: [Signature]
Printed Name: Sam Zaza
Title: President, Surety Underwriting



ACKNOWLEDGEMENT:

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF California COUNTY OF Orange

On this 27 day of March, 2023, before me, Hoang-Quyen Phu Pham, personally appeared Sam Zaza who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to within the instrument and acknowledged to me that they executed the same in their authorized capacity, and that by the signature on the instrument the entities upon behalf which the person acted, executed this instrument.

I certify, under penalty of perjury, under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

[Signature]



CORPORATE CERTIFICATION

The undersigned, the Secretary or Assistant Secretary of COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY, does hereby certify that the provisions of the resolutions of the respective Boards of Directors of said corporations set forth in this Power of Attorney are in force as of the date of this Certification.

This Certification is executed in the City of Cleveland, Ohio, this March 19, 2023.

DocuSigned by:
By: Barry W. Moses Barry W. Moses, Assistant Secretary

POA No. N/A

DocuSign Envelope ID: 3352BFD6-5E9D-4796-837E-C1E455E6530F

Ed. 0323

Signed and sealed this _____ day of _____



**Developers Surety and Indemnity Company
CorePointe Insurance Company**

AmTrust Surety

An AmTrust Financial Company

IMPORTANT NOTICE:

To obtain information or make a complaint:

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights, or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance at:

P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 475-1771
E-mail: ConsumerProtection@tdi.state.tx.us

For any complaints you may also contact AmTrust Customer Service at:

Telephone: **1-877-528-7878**

Your notice of claim against the attached bond may be given to the surety company that issued the bond by sending it by mail to the following address:

Mailing Address: AmTrust Financial Services, Inc.
P.O. Box 5939
Cleveland, OH 44101
Attention: Surety Claims

Physical Address: AmTrust Financial Services, Inc.
800 Superior Ave
Cleveland, OH 44114

Email: suretybondclaims@amtrustgroup.com

Note: The maximum size for any single email message including attachments is 20MB. Please send any correspondence in excess of this size to the P.O. Box noted above.

PREMIUM OR CLAIM DISPUTES:

If you have a dispute concerning a premium, you should contact the agent first. If you have a dispute concerning a claim, you should contact the company first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR BOND:

This notice is for information only and does not become a part or condition of the attached document.

Pavement Repairs for Silverlake Phase II

ITEM CODE		DESCRIPTION	UNIT	EST QTY	UNIT PRICE	TOTAL
ITEM NO.	DESC CODE					
TRAFFIC CONTROL						
500	7001	MOBILIZATION	LS	1.00	\$23,644.94	\$23,644.94
502	7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.00	\$2,379.30	\$11,896.50
662	7097	WK ZN PAV MRK REMOV (Y)4"(SLD)	LF	4,764.00	\$1.35	\$6,431.40
		SUBTOTAL				\$41,972.84
REMOVAL						
104	7001	REMOV CONC (PAV)	SY	10,230.00	\$12.63	\$129,204.90
104	7013	REMOV CONC (SIDEWALK, RAMP OR SUP)	SY	93.00	\$13.90	\$1,292.70
496	7002	REMOV STR (INLET)	EA	2.00	\$1,683.69	\$3,367.38
644	7073	REMOVE SM RD SN SUP&AM	EA	2.00	\$318.67	\$637.34
		SUBTOTAL				\$134,502.32
ROADWAY						
260	7001	LIME (COM OR QK)(SLURRY) OR QK(DRY)	TON	204.00	\$444.00	\$90,576.00
260	7007	LIME TRT (EXIST MATL)(8")	SY	11,288.00	\$8.65	\$97,641.20
360	7092	CONC PAV (JOINT REINF) (8")	SY	10,202.00	\$72.72	\$741,889.44
400	7010	CEM STABIL BKFL	CY	332.00	\$154.72	\$51,367.04
400	7011	CEMENT STAB BACKFILL (INLET OR MH)	CY	12.00	\$151.07	\$1,812.84
465	9999	INLET (COMPL)(MODIFIED)	EA	2.00	\$4,565.91	\$9,131.82
479	7001	ADJUSTING MANHOLES	EA	3.00	\$2,276.38	\$6,829.14
479	7007	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2.00	\$816.31	\$1,632.62
529	7002	CONC CURB (TY II)	LF	226.00	\$15.47	\$3,496.22
529	9999	CONC CURB (4" x 12")	LF	4,069.00	\$4.66	\$18,961.54
531	7002	CONC SIDEWALKS (5")	SY	37.00	\$104.34	\$3,860.58
531	7020	CURB RAMPS (TY 7)	SY	91.00	\$298.89	\$27,198.99
		SUBTOTAL				\$1,054,397.43
SIGN PVMT MRK						
644	7001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2.00	\$800.83	\$1,601.66
644	7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	9.00	\$650.19	\$5,851.71
666	7036	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	22.00	\$12.30	\$270.60
666	7268	RE PROFILE PM TY I(Y)4"(SLD)(100MIL)	LF	177.00	\$4.51	\$798.27
666	7272	RE PROFILE PM TY I(Y)4"(BRK)(100MIL)	LF	640.00	\$3.22	\$2,060.80
672	7004	REFL PAV MRKR TY II-A-A	EA	64.00	\$7.73	\$494.72
678	7001	PAV SURF PREP FOR MRK (4")	LF	640.00	\$1.29	\$825.60
678	7008	PAV SURF PREP FOR MRK (24")	LF	22.00	\$3.86	\$84.92
		SUBTOTAL				\$11,988.28
STORM WATER POLLUTION PREVENTION						
162	7002	BLOCK SODDING	SY	697.00	\$7.72	\$5,380.84
162	7003	STRAW OR HAY MULCH	SY	4,709.00	\$0.65	\$3,060.85
164	7015	DRILL SEED (TEMP_WARM_COOL)	SY	4,709.00	\$1.74	\$8,193.66
166	7001	FERTILIZER	AC	1.12	\$5,747.77	\$6,437.50
168	7001	VEGETATIVE WATERING	TGL	134.10	\$55.18	\$7,399.64
506	7020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	468.00	\$10.63	\$4,974.84
506	7024	CONSTRUCTION EXITS (REMOVE)	SY	468.00	\$3.54	\$1,656.72
506	7043	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	108.00	\$9.27	\$1,001.16
506	7046	BIODEG EROSN CONT LOGS (REMOVE)	LF	108.00	\$6.41	\$692.28
		TOTAL				\$1,281,658.36

EXHIBIT A – REQUIRED DOCUMENTS

*Note: In order to sign the following documents electronically and insert an authorized signature into the PDF, you will need to use the **latest version of Adobe Reader**. Be aware that such a signature will have the full legal force of a handwritten signature under Texas law. Additionally, all documents with company name and authorized/contact person, and their title with the company, must be identical and match the W-9 with the company's legal name. Documents with different company names may be considered non-responsive.*

- RESPONDENT CERTIFICATION FORM
- BIDDER/RESPONDENT'S AFFIRMATION & SDNs/BLOCKED PERSONS AFFIRMATION
- WORKERS COMPENSATION REQUIREMENTS
- CERTIFICATION REGARDING LOBBYING FORM
- EXCEPTIONS TO STANDARD TERMS & CONDITIONS & SPECIAL REQUIREMENTS *(if applicable)* (If vendor has any exceptions to the RFP terms & conditions or special requirements, they must be included with the RFP submittal in order to be considered)
- NON COLLUSION AFFIDAVIT
- BID BOND
- CONFLICT OF INTEREST QUESTIONNAIRE – FORM CIQ *(if applicable)*
- CONTRACTOR ACKNOWLEDGMENT OF STORMWATER MANAGEMENT PROGRAM
- TEXAS GOVERNMENT CODE 552, SUBCHAPTER J ACKNOWLEDGEMENT FORM
- PROHIBITED TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES AND EQUIPMENT CERTIFICATION FORM *(Vendor to sign form if applicable to telecommunications)*
- AUTHORIZED NEGOTIATOR
- RESIDENT / NONRESIDENT BIDDER PROVISIONS
- VENDOR DATA SHEET & W-9 FORM

TECA CONSTRUCTION, LLC
LEGAL NAME OF CONTRACTING COMPANY

RAMIROHDZ_05@OUTLOOK.COM
EMAIL ADDRESS

<u>RAMIRO HERNANDEZ</u>	<u>CO-OWNER</u>
Typewritten or Printed Name	Title

BRAZORIA COUNTY BIDDER/RESPONDENT'S AFFIRMATION

This form must be completed, signed, and returned by Bidder/Respondent

NOTE: FAILURE TO SIGN AND RETURN THIS FORM WITHIN 10 DAYS OF AWARD NOTIFICATION MAY RESULT IN THE TERMINATION OF ANY RESULTING PURCHASE ORDER OR CONTRACT.

1. Bidder/Respondent affirms that they are duly authorized to execute this Contract, that this company, corporation, firm, partnership or individual has not prepared this bid/offer in collusion with any other bidder, and that the contents of this bid/offer as to prices, terms or conditions of said bid/offer have not been communicated by the undersigned nor by any employee or Director to any other person engaged in this type of business prior to the official opening of this bid/offer.
2. Bidder/Respondent hereby assigns to purchaser any and all claims for overcharges associated with this Contract which arise under the antitrust laws of the United States, 15 USCA Section 1 et seq., and which arise under the antitrust laws of the State of Texas, Tex. Bus. & Com. Code, Section 15.01, et seq.
3. Pursuant to §262.0276 (a) of the Texas Local Government Code and subject to Brazoria County Court Order No. 36 of October 28, 2003, Bidder/Respondent, hereby affirms that Bidder/Respondent:

(Please check all that are applicable)

☐ Does not own taxable property in Brazoria County.

☒ Does not owe any ad valorem taxes to Brazoria County or is not otherwise indebted to Brazoria County.

BIDDER/RESPONDENT'S SDNs/BLOCKED PERSONS AFFIRMATION

Pursuant to §2155.077 of the Texas Government Code and subject to Brazoria County Court Order No. 19 of August 9, 2005, Bidder/Respondent, hereby affirms that Bidder/Respondent:

(Please check all that are applicable)

☒ Is not excluded from doing business at the federal level.

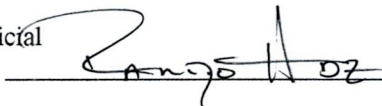
☒ Is not listed as Specially Designated Nationals (SDN)s/Blocked Persons (individuals and companies owned or controlled by or acting for or on behalf of targeted Countries; or individuals, groups and entities, such as terrorists and narcotics traffickers designated under programs that are not country-specific).

2. Brazoria County may not make procurement transactions with SDNs/Blocked Persons.

If any additional information is required regarding these requirements, please contact The Brazoria County Purchasing Department PRIOR to execution.

Bidder/Respondent Company Name TECA CONSTRUCTION, LLC

Signature of Company Official
Authorizing the Bid/Offer



Date 07/29/2025

Company Official

(Printed Name) RAMIRO HERNANDEZ

Official's Position CO-OWNER

WORKERS' COMPENSATION REQUIREMENTS

BIDDER/RESPONDENT INSTRUCTIONS:

READ THIS ENTIRE DOCUMENT CAREFULLY. FOLLOW ALL INSTRUCTIONS. YOU ARE RESPONSIBLE FOR FULFILLING ALL REQUIREMENTS AND SPECIFICATIONS. BE SURE YOU UNDERSTAND THEM.

The following requirements and specifications supersede all other Requirements where applicable.

Workers' Compensation Insurance Coverage

A. Definitions

Certificate of coverage ("certificate") – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project – includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in §406.096) – includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity or employees of any entity with furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

- B.** The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
- C.** The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.
- D.** If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.
- E.** The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
 - (1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - (2) no later than seven (7) days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- F.** The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- G.** The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- H.** The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- I.** The contractor shall contractually require each person with whom it contracts to provide services on a project, to:
 - (1) provide coverage, base on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
 - (2) provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - (3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (4) obtain from each other person with whom it contracts, and provide to the contractor:
 - (a) a certificate of coverage, prior to the other person beginning work on the project; and

- (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
- (5) retain all required certificated of coverage on file for the duration of the project and for one (1) year thereafter;
- (6) notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew of should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
- (7) contractually require each person with whom it contracts, to perform as required by paragraphs (9.1) - (9.7), with the certificates of coverage to be provided to the person for whom they are providing services.

J. By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier of, or in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administration penalties, criminal penalties, civil penalties, or other civil actions.

K. The contractor's failure to comply with any of these provision is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

If awarded a contract for RFP #25-67 by my signature below, I certify that I will provide workers' compensation insurance coverage for each employee employed on this project. I also certify that each of my subcontractors will also provide workers compensation for each employee employed on this project.


SIGNATURE

RAMIRO HERNANDEZ
Typewritten or Printed Name

07/29/2025
DATE

CO-OWNER
Title

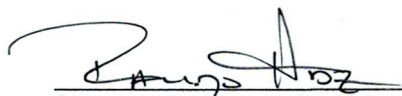
CERTIFICATION REGARDING LOBBYING

Certifications For Contracts, Grants, Loans, And Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed within this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



Signature/Authorized Certifying Official

RAMIRO HERNANDEZ / CO-OWNER

Typed Name and Title

TECA CONSTRUCTION, LLC

Applicant / Organization

07/29/2025

Date Signed

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

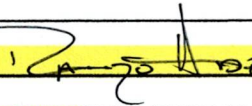
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

0348-0046

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

Type of Federal Action: <u>N/A</u> a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	Status of Federal Action: <u>N/A</u> a. bid/offer/application b. initial award c. post-award	Report Type: <u>N/A</u> a. initial filing b. material change
Name and Address of Reporting Entity: <u>N/A</u> Prime _____ Subawardee Tier _____, if Known: Congressional District, if known:		If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime: <u>N/A</u> Congressional District, if known:
Federal Department/Agency: <u>N/A</u>	7. Federal Program Name/Description: CFDA Number, if applicable: <u>N/A</u>	
Federal Action Number, if known: <u>N/A</u>	9. Award Amount, if known: <u>N/A</u> \$	
10. a. Name and Address of Lobbying Registrant <i>(if individual, last name, first name, MI):</i> <u>N/A</u>	b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i> <u>N/A</u>	
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature:  Print Name: <u>RAMIRO HERNANDEZ</u> Title: <u>CO-OWNER</u> Telephone No.: <u>979-549-5832</u> Date: <u>07/29/2025</u>	
Federal Use Only	Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)	

Note: If this form is not applicable to your company, please mark the form N/A and sign the highlighted signature field above.

**VENDOR TO INSERT EXCEPTIONS TO
STANDARD TERMS & CONDITIONS & SPECIAL
REQUIREMENTS HERE (IF APPLICABLE)**

 X Company **does not** have exceptions *(If applicable, check here)*

Or

 Company does have exceptions *(If applicable, check here and list exceptions here for consideration. Brazoria County will review all exceptions listed and will formally communicate as to if any exceptions are accepted by the County. If exceptions are accepted by the County, they will be added in the form of an addendum.)*

NON-COLLUSION AFFIDAVIT

THE STATE OF TEXAS

OWNER Brazoria County

Before me, the undersigned authority, on this day personally appeared Jose Ramiro Hernandez
who being by me duly sworn upon oath says: that he is duly qualified and authorized to make this affidavit for and on behalf of
Teca Construction LLC ("Contractor"), of and is fully cognizant of the fact herein set out: that Contractor has
not, either directly or indirectly, entered into any agreement with OWNER in any collusion: or otherwise taken any action in restraint
of free competitive bidding in connection with the contract for the above referenced project.

Name Ramiro Hernandez Title Co-Owner

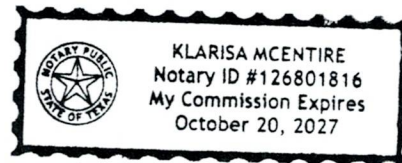
SWORN TO AND SUBSCRIBED BEFORE ME by the said Jose Ramiro Hernandez this 26th day of
July, 20 25, to certify which witness my hand and seal of office.

[Signature]
NOTARY PUBLIC in and for

State of Texas

Printed Name: KLARISA MCENTIRE

My Commission Expires: 10-20-2027



BID BOND

VENDOR TO INSERT COPY OF BID BOND HERE

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310 Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE Teca Construction LLC
203 CR 698A, Angleton, TX 77515

as Principal, hereinafter called the Principal, and Developers Surety and Indemnity Company
800 Superior Avenue E., 21st Floor, Cleveland, OH 44114

a corporation duly organized under the laws of the State of CA

as Surety, hereinafter called the Surety, are held and firmly bound unto Brazoria County

237 E. Locust Street, Suite 406, Angleton, TX 77515

as Obligor, hereinafter called the Obligor, in the sum of Five Percent of the Greatest Amount Bid

Dollars (\$ 5% G.A.B.),
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for RFP # 25-66 Pavement Repairs for Silverlake Phase II

NOW, THEREFORE, if the Obligor shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligor in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and materials furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligor the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligor may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this 29th day of July, 2025

Brenda Reyna
(Witness)

[Signature]
(Witness)

Teca Construction LLC

(Principal)

(Seal)

By: [Signature]

Co-Owner
(Title)

Developers Surety and Indemnity Company

(Surety)

By: [Signature]

Attorney-in-Fact Hannah Montagne

Surety Phone No.



POWER OF ATTORNEY FOR
COREPOINTE INSURANCE COMPANY
DEVELOPERS SURETY AND INDEMNITY COMPANY
59 Maiden Lane, 43rd Floor, New York, NY 10038
(212) 220-7120

KNOW ALL BY THESE PRESENTS that, except as expressly limited herein, COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY, do hereby make, constitute and appoint:

Hannah Montagne, of The Woodlands, TX

as its true and lawful Attorney-in-Fact, to make, execute, deliver and acknowledge, for and on behalf of said companies, as sureties, bonds, undertakings and contracts of suretyship giving and granting unto said Attorney-in-Fact full power and authority to do and to perform every act necessary, requisite or proper to be done in connection therewith as each of said company could do, but reserving to each of said company full power of substitution and revocation, and all of the acts of said Attorney-in-Fact, pursuant to these presents, are hereby ratified and confirmed. This Power of Attorney is effective 02/01/2024 and shall expire on December 31, 2025.

Bond No.: Bid Bond
Principal: Teca Construction LLC
Obligee: Brazoria County

This Power of Attorney is granted and is signed under and by authority of the following resolutions adopted by the Board of Directors of COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY (collectively, "Company") on February 10, 2023.

RESOLVED, that Sam Zaza, President, Surety Underwriting, James Bell, Vice President, Surety Underwriting, and Craig Dawson, Executive Underwriter, Surety, each an employee of AmTrust North America, Inc., an affiliate of the Company (the "Authorized Signors"), are hereby authorized to execute a Power of Attorney, qualifying attorney(s)-in-fact named in the Power of Attorney to execute, on behalf of the Company, bonds, undertakings and contracts of suretyship, or other suretyship obligations; and that the Secretary or any Assistant Secretary of the Company be, and each of them hereby is, authorized to attest the execution of any such Power of Attorney.

RESOLVED, that the signature of any one of the Authorized Signors and the Secretary or any Assistant Secretary of the Company, and the seal of the Company must be affixed to any such Power of Attorney, and any such signature or seal may be affixed by facsimile, and such Power of Attorney shall be valid and binding upon the Company when so affixed and in the future with respect to any bond, undertaking or contract of suretyship to which it is attached.

IN WITNESS WHEREOF, COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY have caused these presents to be signed by the Authorized Signor and attested by their Secretary or Assistant Secretary this March 27, 2023.

By: _____

Printed Name: Sam Zaza

Title: President, Surety Underwriting



ACKNOWLEDGEMENT:

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF California

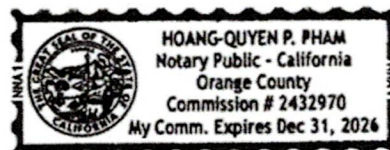
COUNTY OF Orange

On this 27 day of March, 2023, before me, Hoang-Quyen Phu Pham, personally appeared Sam Zaza, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to within the instrument and acknowledged to me that they executed the same in their authorized capacity, and that by the signature on the instrument the entities upon behalf which the person acted, executed this instrument.

I certify, under penalty of perjury, under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____



CORPORATE CERTIFICATION

The undersigned, the Secretary or Assistant Secretary of COREPOINTE INSURANCE COMPANY and DEVELOPERS SURETY AND INDEMNITY COMPANY, does hereby certify that the provisions of the resolutions of the respective Boards of Directors of said corporations set forth in this Power of Attorney are in force as of the date of this Certification.

This Certification is executed in the City of Cleveland, Ohio, this March 19, 2023.

DocuSigned by:

By: _____

Barry W. Moses

Barry W. Moses, Assistant Secretary

POA No. N/A

6B6415E7ADE548C...

DocuSignEnvelopeID:3352BF06-5E9D-4796-837E-C1E455E6530F

Ed. 0323

Signed and sealed this 29th day of July, 2025

IMPORTANT NOTICE:

To obtain information or make a complaint:

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights, or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance at:

P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 475-1771
E-mail: ConsumerProtection@tdi.state.tx.us

For any complaints you may also contact AmTrust Customer Service at:

Telephone: **1-877-528-7878**

Your notice of claim against the attached bond may be given to the surety company that issued the bond by sending it by mail to the following address:

Mailing Address: AmTrust Financial Services, Inc.
P.O. Box 5939
Cleveland, OH 44101
Attention: Surety Claims

Physical Address: AmTrust Financial Services, Inc.
800 Superior Ave
Cleveland, OH 44114

Email: suretybondclaims@amtrustgroup.com

Note: The maximum size for any single email message including attachments is 20MB. Please send any correspondence in excess of this size to the P.O. Box noted above.

PREMIUM OR CLAIM DISPUTES:

If you have a dispute concerning a premium, you should contact the agent first. If you have a dispute concerning a claim, you should contact the company first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

ATTACH THIS NOTICE TO YOUR BOND:

This notice is for information only and does not become a part or condition of the attached document.

CONFLICT OF INTEREST QUESTIONNAIRE**FORM CIQ**

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

TECA CONSTRUCTION, LLC

2 ☐ Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information is being disclosed.BRAZORIA COUNTY

Name of Officer

4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes☒ No

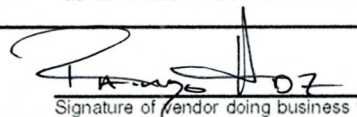
B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?

☐ Yes☒ No

5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.

N/A

6 ☐ Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).

7 
Signature of vendor doing business with the governmental entity

07/29/2025

Date

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

- (a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

(i) a contract between the local governmental entity and vendor has been executed;

or

(ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

(i) a contract between the local governmental entity and vendor has been executed; or

(ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

- (a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

(1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);

(2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or

(3) has a family relationship with a local government officer of that local governmental entity.

- (a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

(A) begins discussions or negotiations to enter into a contract with the local governmental entity; or

(B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

(A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);

(B) that the vendor has given one or more gifts described by Subsection (a); or

(C) of a family relationship with a local government officer.



Contractor Acknowledgement of Stormwater Management Program

I hereby acknowledge that I am aware of the Stormwater Management Program and standard operating procedures developed by Brazoria County in compliance with the TPDES General Permit No. TXR040000. I agree to comply with all applicable best management practices and standard operating procedures while conducting my services for Brazoria County. I agree to conduct all services in a manner that does not introduce illicit discharges of pollutants to streets, stormwater inlets, drainage ditches or any portion of the drainage system. The following materials and/or pollutant sources must not be discharged to the drainage system as a result of any services provided:

1. Grass clippings, leaves, mulch, rocks, sand, dirt or other waste materials resulting from landscaping activities, (except those materials resulting from ditch mowing or maintenance activities)
2. Herbicides, pesticides and/or fertilizers, (except those intended for aquatic use)
3. Detergents, fuels, solvents, oils and/or lubricants, other equipment and/or vehicle fluids,
4. Other hazardous materials including paints, thinners, chemicals or related waste materials,
5. Uncontrolled dewatering discharges, equipment and/or vehicle wash waters,
6. Sanitary waste, trash, debris, or other waste products
7. Wastewater from wet saw machinery,
8. Other pollutants that degrade water quality or pose a threat to human health or the environment.

Furthermore, I agree to notify Brazoria County immediately of any issue caused by or identified by TECA CONSTRUCTION, LLC that is believed to be an immediate threat to human health or the environment.

(Company/Contractor)


Contractor Signature

07/29/2025

Date

RAMIRO HERNANDEZ

Printed Name

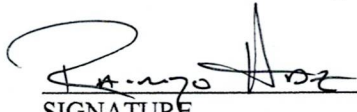
CO-OWNER

Title

TEXAS GOVERNMENT CODE 552, SUBCHAPTER J

ACKNOWLEDGEMENT FORM

**Respondent acknowledges having read and understood the following law,
effective January 1, 2020**



SIGNATURE

"must be authorized to execute on behalf of company"

07/29/2025

DATE

RAMIRO HERNANDEZ

Typewritten or Printed Name

CO-OWNER

Title

SUBCHAPTER J. ADDITIONAL PROVISIONS RELATED TO CONTRACTING INFORMATION

Sec. 552.371. CERTAIN ENTITIES REQUIRED TO PROVIDE CONTRACTING INFORMATION TO GOVERNMENTAL BODY IN CONNECTION WITH REQUEST. (a) This section applies to an entity that is not a governmental body that executes a contract with a governmental body that:

(1) has a stated expenditure of at least \$1 million in public funds for the purchase of goods or services by the governmental body; or

(2) results in the expenditure of at least \$1 million in public funds for the purchase of goods or services by the governmental body in a fiscal year of the governmental body.

(b) This section applies to a written request for public information received by a governmental body that is a party to a contract described by Subsection (a) for contracting information related to the contract that is in the custody or possession of the entity and not maintained by the governmental body.

(c) A governmental body that receives a written request for information described by Subsection (b) shall request that the entity provide the information to the governmental body. The governmental body must send the request in writing to the entity not later than the third business day after the date the governmental body receives the written request described by Subsection (b).

(d) Notwithstanding Section [552.301](#):

(1) a request for an attorney general's decision under Section [552.301](#)(b) to determine whether contracting information subject to a written request described by Subsection (b) falls within an exception to disclosure under this chapter is considered timely if made not later than the 13th business day after the date the governmental body receives the written request described by Subsection (b);

(2) the statement and copy described by Section [552.301](#)(d) is considered timely if provided to the requestor not later than the 13th business day after the date the governmental body receives the written request described by Subsection (b);

(3) a submission described by Section [552.301](#)(e) is considered timely if submitted to the attorney general not later than the 18th business day after the date the governmental body receives the written request described by Subsection (b); and

(4) a copy described by Section [552.301](#)(e-1) is considered timely if sent to the requestor not later than the 18th business day after the date the governmental body receives the written request described by Subsection (b).

(e) Section [552.302](#) does not apply to information described by Subsection (b) if the governmental body:

(1) complies with the requirements of Subsection (c) in a good faith effort to obtain the information from the contracting entity;

(2) is unable to meet a deadline described by Subsection (d) because the contracting entity failed to provide the information to the governmental body not later than the 13th business day after the date the governmental body received the written request for the information; and

(3) if applicable and notwithstanding the deadlines prescribed by Sections [552.301](#)(b), (d), (e), and (e-1), complies with the requirements of those subsections not later than the eighth business day after the date the governmental body receives the information from the contracting entity.

(f) Nothing in this section affects the deadlines or duties of a governmental body under Section [552.301](#) regarding information the governmental body maintains, including contracting information.

Sec. 552.372. BIDS AND CONTRACTS. (a) A contract described by Section [552.371](#) must require a contracting entity to:

(1) preserve all contracting information related to the contract as provided by the records retention requirements applicable to the governmental body for the duration of the contract;

(2) promptly provide to the governmental body any contracting information related to the contract that is in the custody or possession of the entity on request of the governmental body; and

(3) on completion of the contract, either:

(A) provide at no cost to the governmental body all contracting information related to the contract that is in the custody or possession of the entity; or

(B) preserve the contracting information related to the contract as provided by the records retention requirements applicable to the governmental body.

(b) Unless Section [552.374](#)(c) applies, a bid for a contract described by Section [552.371](#) and the contract must include the following statement: "The requirements of Subchapter J, Chapter [552](#), Government Code, may apply to this (include "bid" or "contract" as applicable) and the contractor or vendor agrees that the contract can be terminated if the contractor or vendor knowingly or intentionally fails to comply with a requirement of that subchapter."

(c) A governmental body may not accept a bid for a contract described by Section [552.371](#) or award the contract to an entity that the governmental body has determined has knowingly or intentionally failed to comply with this subchapter in a previous bid or contract described by that section unless the governmental body determines and documents that the entity has taken adequate steps to ensure future compliance with the requirements of this subchapter.

Sec. 552.373. NONCOMPLIANCE WITH PROVISION OF SUBCHAPTER. A governmental body that is the party to a contract described by Section [552.371](#) shall provide notice to the entity that is a party to the contract if the entity fails to comply with a requirement of this subchapter applicable to the entity. The notice must:

(1) be in writing;

(2) state the requirement of this subchapter that the entity has violated; and

(3) unless Section [552.374](#)(c) applies, advise the entity that the governmental body may terminate the contract without further obligation to the entity if the entity does not cure the violation on or before the 10th business day after the date the governmental body provides the notice.

Sec. 552.374. TERMINATION OF CONTRACT FOR NONCOMPLIANCE. (a) Subject to Subsection (c), a governmental body may terminate a contract described by Section [552.371](#) if:

(1) the governmental body provides notice under Section [552.373](#) to the entity that is party to the contract;

(2) the contracting entity does not cure the violation in the period prescribed by Section [552.373](#);

(3) the governmental body determines that the contracting entity has intentionally or knowingly failed to comply with a requirement of this subchapter, and

(4) the governmental body determines that the entity has not taken adequate steps to ensure future compliance with the requirements of this subchapter.

(b) For the purpose of Subsection (a), an entity has taken adequate steps to ensure future compliance with this subchapter if:

(1) the entity produces contracting information requested by the governmental body that is in the custody or possession of the entity not later than the 10th business day after the date the governmental body makes the request; and

(2) the entity establishes a records management program to enable the entity to comply with this subchapter.

(c) A governmental body may not terminate a contract under this section if the contract is related to the purchase or underwriting of a public security, the contract is or may be used as collateral on a loan, or the contract's proceeds are used to pay debt service of a public security or loan.

Sec. 552.375. OTHER CONTRACT PROVISIONS. Nothing in this subchapter prevents a governmental body from including and enforcing more stringent requirements in a contract to increase accountability or transparency.

Sec. 552.376. CAUSE OF ACTION NOT CREATED. This subchapter does not create a cause of action to contest a bid for or the award of a contract with a governmental body.

Added by Acts 2019, 86th Leg., R.S., Ch. 1216 (S.B. [943](#)), Sec. 9, eff. January 1, 2020.

PROHIBITED TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES AND EQUIPMENT CERTIFICATION FORM

(Vendor to sign form if applicable to telecommunications)

The undersigned vendor hereby represents and warrants that the equipment, systems, and/or services which it will provide to Brazoria County do not use covered telecommunications equipment or services (as defined in Section 889 John S. McCain National Defense Authorization Act for Fiscal Year 2019 (FY 2019 NDAA), Pub. L. No. 115-232 (2018)) as a substantial or essential component of any system, or as critical technology of any system.

Additionally, the undersigned vendor hereby represents and warrants that the equipment, systems, and/or services it will provide are not prohibited from being procured using grant funds under section 889 of the FY 2019 NDAA.

Further, per 2 CFR 200.216 (b) & (c)

(b) As described in section 889 of [Public Law 115-232](#), “covered telecommunications equipment or services” means any of the following:

- (1) Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);
- (2) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);
- (3) Telecommunications or video surveillance services provided by such entities or using such equipment;
- (4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country;

(c) For the purposes of this section, “covered telecommunications equipment or services” also include systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

N/A

COMPANY NAME

N/A

SIGNATURE OF COMPANY REPRESENTATIVE

N/A

PRINTED NAME

N/A

TITLE

N/A

DATE

AUTHORIZED NEGOTIATOR

If your company is selected to enter into negotiations with the County, please list the name and contact information for the individual or individuals that will be negotiating a possible contract on behalf of your company.

Name: RAMIRO HERNANDEZ

Title: CO-OWNER

Email Address: RAMIROHDZ_05@OUTLOOK.COM

Phone Number: 979-549-5832

Name: RAUL HERNANDEZ

Title: CO-OWNER

Email Address: RAUL309.HN@OUTLOOK.COM

Phone Number: 979-267-5312

RESIDENT / NONRESIDENT BIDDER PROVISIONS

Chapter 2252, Subchapter A, of the Texas Government Code establishes certain requirements applicable to proposers who are not Texas residents. Under the statute, a "resident" proposer is a person whose principle place of business is in Texas, including a contractor whose ultimate parent company or majority owner has its principle place of business in Texas.

A "nonresident" proposer is a person who is not a Texas resident. Please indicate the status of your company as a "resident" proposer or a "nonresident" proposer under these definitions.

Please check (✓) one of the following:

- ☒ I certify that my company is a **Resident Proposer**.
- ☐ I certify that my company is a **Nonresident Proposer**.

If your company is a Nonresident Proposer, you must provide the following information for your resident state (the state in which your company's principle place of business is located):

Company Name

Address

City

State

Zip Code

- A. Does your resident state require a proposer whose principle place of business is in Texas to under-price proposers whose resident state is the same as yours by a prescribed amount or percentage to receive a comparable contract?

☐ Yes ☐ No

- B. What is the prescribed amount of percentage? \$ _____ or _____ %

EXHIBIT B – VENDOR RESPONSE

EXHIBIT B – THE FOLLOWING ADDITIONAL REQUIREMENTS ARE TO BE SUBMITTED WITH YOUR CSP RESPONSE:

- BID TABLE WITH PRICING
- VENDOR RESPONSE TO EVALUATION CRITERIA
- EXCEPTIONS TO STANDARD TERMS & CONDITIONS & SPECIAL REQUIREMENTS (*if applicable*) (If vendor has any exceptions to the CSP terms & conditions or special requirements, they must be included with the CSP submittal in order to be considered)
- SIGNED ADDENDUMS (IF APPLICABLE)

**BRAZORIA COUNTY
BID TABLE**

VENDOR TO INSERT COMPLETED BID TABLE HERE

Pavement Repairs for Silverlake Phase II

ITEM CODE		DESCRIPTION	UNIT	EST QTY	UNIT PRICE	TOTAL
ITEM NO.	DESC CODE					
TRAFFIC CONTROL						
500	7001	MOBILIZATION	LS	1.00	\$23,644.94	\$23,644.94
502	7001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	5.00	\$2,379.30	\$11,896.50
662	7097	WK ZN PAV MRK REMOV (Y)4"(SLD)	LF	4,764.00	\$1.35	\$6,431.40
		SUBTOTAL				\$41,972.84
REMOVAL						
104	7001	REMOV CONC (PAV)	SY	10,230.00	\$12.63	\$129,204.90
104	7013	REMOV CONC (SIDEWALK, RAMP OR SUP)	SY	93.00	\$13.90	\$1,292.70
496	7002	REMOV STR (INLET)	EA	2.00	\$1,683.69	\$3,367.38
644	7073	REMOVE SM RD SN SUP&AM	EA	2.00	\$318.67	\$637.34
		SUBTOTAL				\$134,502.32
ROADWAY						
260	7001	LIME (COM OR QK)(SLURRY) OR QK(DRY)	TON	204.00	\$444.00	\$90,576.00
260	7007	LIME TRT (EXIST MATL)(8")	SY	11,288.00	\$8.65	\$97,641.20
360	7092	CONC PAV (JOINT REINF) (8")	SY	10,202.00	\$72.72	\$741,889.44
400	7010	CEM STABIL BKFL	CY	332.00	\$154.72	\$51,367.04
400	7011	CEMENT STAB BACKFILL (INLET OR MH)	CY	12.00	\$151.07	\$1,812.84
465	9999	INLET (COMPL)(MODIFIED)	EA	2.00	\$4,565.91	\$9,131.82
479	7001	ADJUSTING MANHOLES	EA	3.00	\$2,276.38	\$6,829.14
479	7007	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2.00	\$816.31	\$1,632.62
529	7002	CONC CURB (TY II)	LF	226.00	\$15.47	\$3,496.22
529	9999	CONC CURB (4" x 12")	LF	4,069.00	\$4.66	\$18,961.54
531	7002	CONC SIDEWALKS (5")	SY	37.00	\$104.34	\$3,860.58
531	7020	CURB RAMPS (TY 7)	SY	91.00	\$298.89	\$27,198.99
		SUBTOTAL				\$1,054,397.43
SIGN PVMT MRK						
644	7001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2.00	\$800.83	\$1,601.66
644	7065	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	9.00	\$650.19	\$5,851.71
666	7036	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	22.00	\$12.30	\$270.60
666	7268	RE PROFILE PM TY I(Y)4"(SLD)(100MIL)	LF	177.00	\$4.51	\$798.27
666	7272	RE PROFILE PM TY I(Y)4"(BRK)(100MIL)	LF	640.00	\$3.22	\$2,060.80
672	7004	REFL PAV MRKR TY II-A-A	EA	64.00	\$7.73	\$494.72
678	7001	PAV SURF PREP FOR MRK (4")	LF	640.00	\$1.29	\$825.60
678	7008	PAV SURF PREP FOR MRK (24")	LF	22.00	\$3.86	\$84.92
		SUBTOTAL				\$11,988.28
STORM WATER POLLUTION PREVENTION						
162	7002	BLOCK SODDING	SY	697.00	\$7.72	\$5,380.84
162	7003	STRAW OR HAY MULCH	SY	4,709.00	\$0.65	\$3,060.85
164	7015	DRILL SEED (TEMP WARM COOL)	SY	4,709.00	\$1.74	\$8,193.66
166	7001	FERTILIZER	AC	1.12	\$5,747.77	\$6,437.50
168	7001	VEGETATIVE WATERING	TGL	134.10	\$55.18	\$7,399.64
506	7020	CONSTRUCTION EXITS (INSTALL) (TY 1)	SY	468.00	\$10.63	\$4,974.84
506	7024	CONSTRUCTION EXITS (REMOVE)	SY	468.00	\$3.54	\$1,656.72
506	7043	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	108.00	\$9.27	\$1,001.16
506	7046	BIODEG EROSN CONT LOGS (REMOVE)	LF	108.00	\$6.41	\$692.28
		TOTAL				\$1,281,658.36

VENDOR TO INSERT RESPONSE HERE
(Include the information below in the specified order)

SECTION 1

VENDORS GENERAL EXPERIENCE & QUALIFICATIONS

General Contractors Name: TECA CONSTRUCTION, LLC

I. General

- a. Qualification information submitted shall be applicable only to the company entity or branch that will perform this Work.
- b. Attach your Project Organization Chart
- c. Submit list of other fully staffed branch offices
- d. Submit list of corporate officers, partnerships or owners of organization

II. History

- a. Please specify:

☐ Corporation - State of Incorporation _____

☒ Partnership

☐ Sole Proprietorship

☐ Joint Venture

- b. Specify: In continuous business since: MARCH 2024

- c. Specify:

☐ Large Business (100 or more employees)

☒ Small Business (fewer than 100 employees)

☐ Other _____

III. Experience

- a. Normally performs 100 % of work with own forces.

- b. Proposing to perform 100 % of work for this project with own forces.

- i. List Trades Construction Laborers, Carpenters, Concrete Finishers, Rodbusters,

Equipment Operators, Quality Control, Safety

SECTION 1

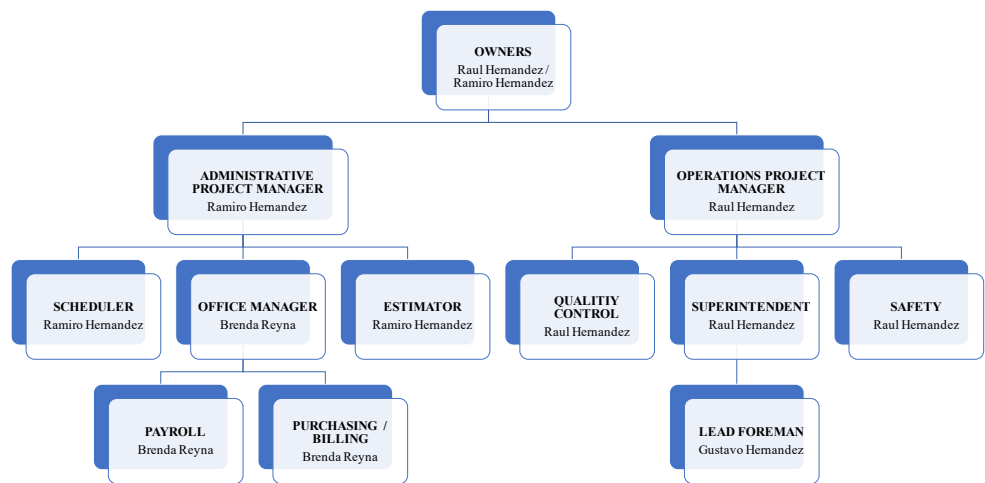
VENDORS GENERAL EXPERIENCE & QUALIFICATIONS

General Contractors Name: Teca Construction, LLC

I. General

- a. Qualification information submitted shall be applicable only to the company entity or branch that will perform this Work.
- b. Attach your Project Organization Chart

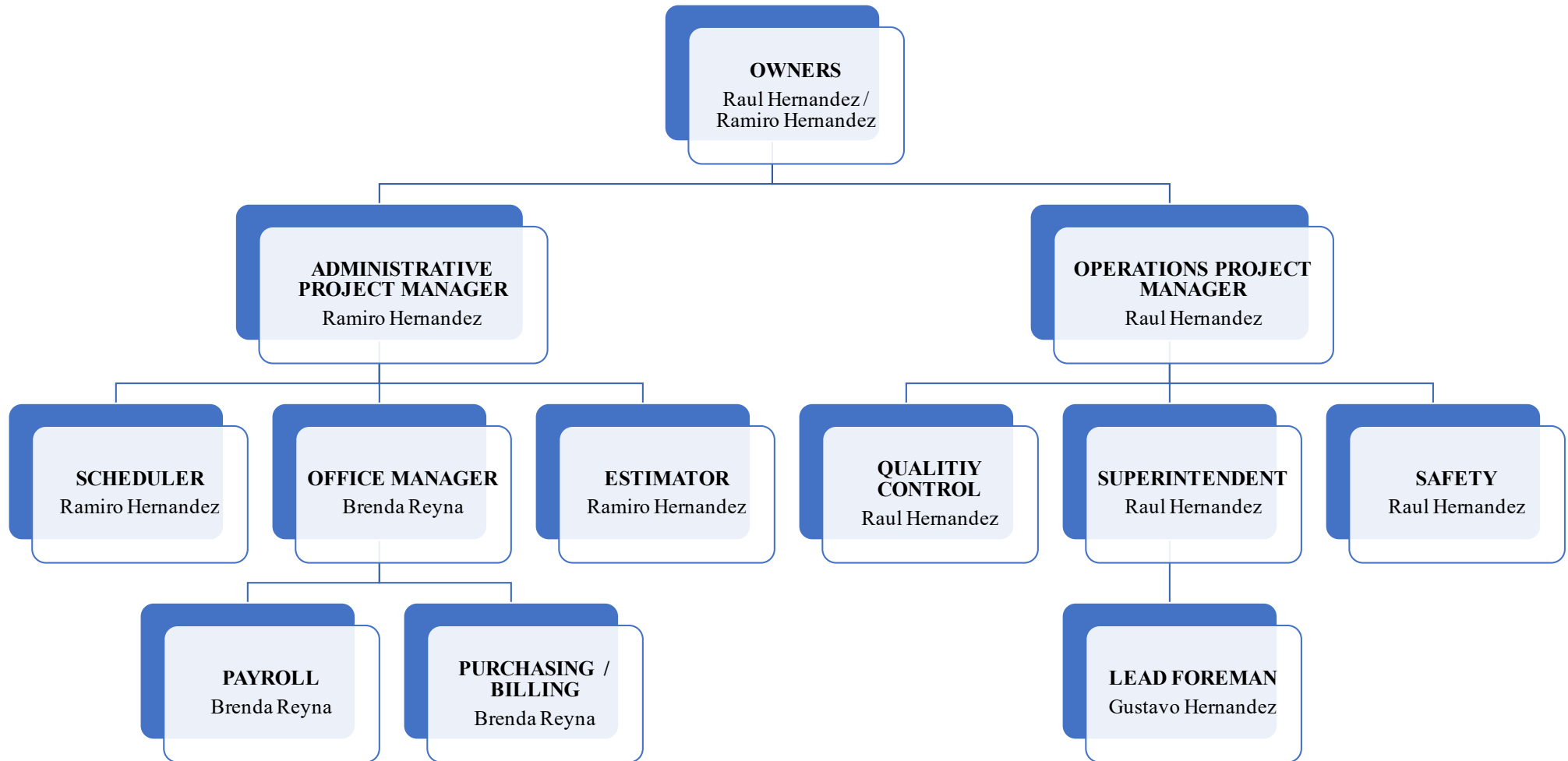
**TECA CONSTRUCTION, LLC
PROJECT ORGANIZATION CHART**



- c. Submit list of other fully staffed branch offices.
Teca Construction, LLC does not have other branch offices.
- d. Submit list of corporate officers, partnerships or owners of organization
Owners of organization: Jose Raul Hernandez and Jose Ramiro Hernandez

TECA CONSTRUCTION, LLC

PROJECT ORGANIZATION CHART



SECTION 1-CONTINUATION

VENDORS GENERAL EXPERIENCE & QUALIFICATIONS

Vendor to provide documentation to show the following. Please label each section as shown below:

- (i) Quality of Work: Demonstrated ability to perform services in accordance with contract specifications. Conformance to good standards of workmanship.
- (ii) Customer Satisfaction: Satisfaction of end users with the contractor's completed products and services.
- (iii) Timeliness of performance: compliance with delivery schedules; reliability; responsiveness to technical direction, no assessment of liquidated damages.
- (iv) Business relations: Effective management, ability to manage projects involving subcontracts, working relationship with the contracting officer and technical representatives, reasonable/cooperative behavior, flexibility, effective contractor recommended solutions, businesslike concern for government's interests.
- (v) Cost control: Ability to complete contracts within budget (at or below); reasonableness of price change proposals submitted; providing current, accurate, and complete billings.

SECTION 1-CONTINUATION

VENDORS GENERAL EXPERIENCE & QUALIFICATIONS

- (i) Quality of Work: Demonstrate ability to perform services in accordance with contract specifications. Conformance to good standards of workmanship.

Teca Construction, LLC commits to providing high quality services throughout the construction phase of the project. With over 30 years of experience in the construction industry, we are able to guarantee quality work. We are able to provide quality work not only by the experience we have gathered throughout the years but also by becoming familiar with the specifications.

Raul, one of the owners, has become very familiar to the expected quality of work to be performed in Brazoria County. While working for Matula and Matula Construction, Inc for the past 20 years, he was part of multiple projects throughout Brazoria County. During those years he was able to gather knowledge and complete successful projects.

Ramiro, the other owner of Teca, has been part of multiple projects in commercial and in the industrial industry. While working for Performance Contractors and for Baker Concrete, quality was a high priority. Ramiro had to inspect the work before turning it over to the client. Being able to follow the specifications while inspecting the work was key to turning over a quality product.

As a year-old company, we have delivered high quality products to our clients and our goal is to continue with our high-quality work.

We have included the resumes for Raul and Ramiro as part of this document.

- (ii) Customer Satisfaction: Satisfaction of end users with the contractor's completed products and services.

Teca was founded on March 2024 and since we have been fortunate to work with multiple clients. The work we have done for those projects has been to the satisfaction of our clients. Since the company was founded, several clients have continued to give us opportunities on their projects. One of our clients that continues to give us opportunities, is the City of Lake Jackson.

We have developed a great relationship with them and part of that is because they have been satisfied with our final product. As company, we will do our best to continue providing a great product that satisfies our future clients.

- (iii) Timeliness of performance: compliance with delivery schedules; reliability; responsiveness to technical direction, no assessment of liquidated damages.

As a company we pride ourselves on being reliable and completing our projects within the time frame set in the schedule. Construction can be unpredictable and as a company we have to always search for alternatives in order to finish within the set schedule.

Our goal as a company is to have continuous communication with the client and with our vendors. Having that communication will allow us to keep the project on track and avoid any liquidated damages.

- (iv) Business relations: Effective management, ability to manage projects involving subcontracts, working relationship with the contracting officer and technical representatives, reasonable/cooperative behavior, flexibility, effective contractor recommended solutions, businesslike concern for government's interests.

As a new company we have successfully completed multiple projects. Part of that success is the ability to effectively manage each one of those projects.

Whether we are a subcontractor or the general contractor, building a relationship with the contracting officer and technical representatives is a key component in delivering a successful final product. It is fundamental to have great communication and being cooperative in order to manage a project with greater ease.

As a project starts to develop, unpredictability can be an issue and concerns can start to arise. With the construction experience that we personally have, we are able to recommend a solution to a problem, if it was to emerge.

- (v) Cost control: Ability to complete contracts within budget (at or below); reasonableness of price change proposals submitted; providing current, accurate, and complete billings.

One of our goals as company is to complete every single project within budget and on schedule. We have been very successful in that aspect. Every project we have completed has been within the established budget. Part of that success is to having a great managing team who can oversee the project. By having two owners we are able to administrate and operate the projects at the same time. While one of the owners is supervising the project on-site, the other is overseeing the administrative work.

When a price change proposal needs to be submitted, we will look at the work that is required to perform that task and provide a reasonable proposal. Our intention is to be fair and competitive in all of our pricings. Our objective is to develop a great relationship and help with accomplishing the goal to complete a successful project.

By having one owner on-site and the other at the office, it helps with providing current, accurate, and complete billings to the client.

SECTION 2

PROJECTS

List Projects Similar in Size and Scope which were completed in the last five (5) years

Project	Project Location	\$ Amount	Type	Date
CULVERT REPAIR BRAZORIA COUNTY	LAKE JACKSON, TX	\$ 221,297.41	Culvert Extensions	07/2024 - 09/2024
BRIDGE REPAIRS - BRINSAP 2020 PKG 2 FOR HARRIS CTY	HARRIS COUNTY	\$ 588,682.00	Bridge Repairs	08/2024 - 03/2025
EMERGENCY REPAIR OF CULVERT BRIDGE	LAKE JACKSON, TX	\$166,180.42	Culvert & Street Panel Repair	05/2024 - 07/2024

SECTION 3

CONTRACTOR KEY PERSONNEL

I. Superintendent & Project Manager Information

- a. Resumes of key personnel shall also be included. Professional affiliations, memberships, and certifications for each of the key personnel must be included and will be used to evaluate the proposed team and personnel.

Project Manager	Years Experience	Projects
RAUL HERNANDEZ	22	20
RAMIRO HERNANDEZ	3	5

Superintendent	Years Experience	Projects
RAUL HERNANDEZ	22	Approx. 50

Scheduler	Years Experience	Projects
RAMIRO HERNANDEZ	6	10

Quality Control Person	Years Experience	Projects
RAUL HERNANDEZ	22	Approx. 50
RAMIRO HERNANDEZ	12	15

RAUL HERNANDEZ

OBJECTIVE

Proficient Project Specialist with strong construction background and specialized experience in construction properties. Familiar with related codes and standards and successful in keeping work in line with regulations. Expert in managing contracts, paperwork and timelines. Highly-motivated employee with desire to take on new challenges. Strong work ethic, adaptability and exceptional interpersonal skills. Adept at working effectively unsupervised and quickly mastering new skills. Hardworking employee with customer service, multitasking and time management abilities. Devoted to giving every customer a positive and memorable experience.

SKILLS

- OSHA Regulations
- Workforce training
- Environmental Compliance
- Equipment management
- Labor Management
- Site Inspections
- Progress Reporting
- Field supervision
- Construction Scheduling
- Subcontractor coordination
- Scheduling expertise

WORK HISTORY

TECA CONSTRUCTION, LLC

March 2024 – Present

- Started Company
- Estimating projects
- Negotiated contracts with vendors and subcontractors.
- Created work crew schedules and delegated assignments.
- Delegated work to staff, setting priorities and goals.
- Reviewed plans and specifications with architects and engineers prior to beginning work on a project.
- Prepared and planned worksites to help jobs run smoothly
- Trained employees in proper construction techniques and safety protocols.
- Manage multiple projects

Matula & Matula Construction INC – Lake Jackson

General Construction Superintendent

06/2003 – 04/2024

- Conducted daily safety briefings with crew members to ensure compliance with safety regulations.
- Managed budgets for multiple construction projects while meeting customer requirements.
- Maintained accurate records of material inventory levels at job sites.
- Established clear communication channels among all parties involved in a construction project.
- Created detailed documents outlining tasks completed by workers during each shift.
- Reviewed plans and specifications with architects and engineers prior to beginning work on a project.
- Provided guidance and direction to foremen regarding construction procedures.
- Developed and maintained project schedules to ensure deadlines were met.
- Inspected job sites daily and documented progress reports.
- Resolved conflicts between contractors and sub-contractors in a timely manner.
- Ensured that all materials used on the jobsite were of high quality standards.
- Managed multiple projects simultaneously while ensuring timely completion within budget constraints.
- Interpreted blueprints and drawings accurately when needed for various aspects of the job site activities.
- Coordinated labor resources for construction projects to maximize efficiency.
- Tracked costs associated with each phase of a project from start to finish.
- Supervised the work of subcontractors, including scheduling, budgeting, and quality control.
- Managed vendor relationships by negotiating contracts, overseeing subcontractors, and resolving conflicts.
- Monitored project performance against established goals, making adjustments as needed to ensure successful completion of tasks.
- Managed multiple projects simultaneously while maintaining high levels of accuracy and attention-to-detail.
- Organized and facilitated meetings with stakeholders to review progress and address issues.

-
- Identified potential risks associated with projects and developed strategies to mitigate them.
 - Maintained accurate records of activities related to each project including documentation, costs, timelines, invoices.
 - Monitored compliance with local and state codes and job specifications to deliver superior quality.
 - Prepared and planned worksites to help jobs run smoothly.
 - Trained and monitored employees to teach daily tasks and improve performance.
 - Delegated work to staff, setting priorities and goals.
 - Cleaned or prepared construction sites to eliminate hazards.
 - Provided leadership, insight and mentoring to newly hired employees to supply knowledge of various company programs.
 - Established and enforced procedures and work standards, promoting team performance and safety.
 - Created work crew schedules and delegated assignments.
 - Maintained accurate records of completed work orders, invoices, change orders, etc.
 - Demonstrated effective leadership skills throughout the construction process.
 - Trained employees in proper construction techniques and safety protocols.
 - Scheduled resources such as equipment rentals and staff hours.
 - Addressed on-site issues; resolved disputes among team members.
 - Ensured timely project delivery within budget constraints.
 - Negotiated contracts with vendors and subcontractors.
 - Coordinated subcontractors, laborers, and materials suppliers.
 - Conducted site inspections to ensure safety compliance.
 - Oversaw construction projects from conception to completion.
 - Coordinated phases of construction projects from inception to completion.
 - Inspected sites before and after construction projects.
 - Reviewed project blueprints and specifications to determine number of workers needed to complete jobs.
 - Resolved labor, design and tool issues during construction projects.
 - Kept detailed progress records to hit strict deadlines and adjust plans.
 - Recruited and hired workers, in addition to supervising and monitoring daily performance.
 - Implemented onsite safety protocols and procedures and properly trained team members on prevention measures.
-

EDUCATION

Angleton High School | Angleton, TX
GED 05/1994

REFERENCES

References available upon request

OBJECTIVE

To apply my expertise in developing a construction company with the objective of delivering a safe, timely, and quality product to our clients.

EDUCATION

University of Houston, Houston, TX

Graduation Date: December 2013

Bachelor of Science in Construction Management

- Relevant Courses: Construction Management I and II, Construction Planning and Scheduling, Construction Estimating I and II, Construction Documents, Strength of Construction Materials, Soil Mechanics and Foundations, Accounting Principles I and II
- OSHA 30 Hour

WORK EXPERIENCE

Teca Construction, Angleton, TX

March 2024 – Present

- Helped with the startup of the company
- Developed spreadsheets for estimating and scheduling
- Assisted with estimating projects
- Reviewed contracts
- Started working full time with the company on September 2024
- In charge of estimating, scheduling, and project cost

Performance, Austin, TX

January 2024 – September 2024

- Part of the construction for Samsung Austin Semiconductor
- Worked with the Project Service Department
- Developed work packages for the pipe, mechanical, and civil departments
- Wrote and distribute RFI's
- Wrote change order's
- Part of managing the projects budget
- Set up internal meetings to communicate on the project status
- Assisted with developing and managing the work schedule

Performance, Kingsport, TN

July 2023 – December 2023

- Part of the construction for Eastman Chemical Molecular Recycling Facility
- Worked with the Project Service Department
- Developed work packages and testing packages for the pipe and mechanical departments
- Wrote and distribute RFI's
- Part of managing the projects budget
- Communicated with management and the client on the project status

Performance, McIntosh, AL

May 2023 – July 2023

- Part of the construction for Linde PLC project
- Worked as a manager for the System Turnover Department
- Developed work packages and testing packages for the pipe and mechanical departments
- Communicated with field supervision and client

Performance, Batavia, OH

February 2023 – May 2023

- Worked with the Project Service Department
- Part of the team that developed a construction execution plan for a new Nestle Purina Facility
- Assisted with developing the preliminary schedule
- Communicated with our management group and the client
- In charge of writing and distributing RFI's

Performance, Baytown, TX

August 2022 - February 2023

- Part of the Exxon Mobil Baytown Chemical Expansion Project
- Worked with the System Turnover Department
- Inspected civil, structural, and pipe before being turned over to the client
- Worked with the Project Service Department
- In charge of writing and distributing RFI's

Performance, Baytown, TX

November 2021 - August 2022

- Part of the Exxon Mobil Baytown Chemical Expansion Project
- Worked as a lead surveyor
- Communicating and working along different disciplines
- In charge of laying out pipe supports using a Trimble robotic total station

Wood., Freeport, TX

February 2019 - April 2020

- Worked as a civil estimator
- Estimated projects ranged from \$20,000.00 - \$2,000,000.00
- Communicating with client throughout the bidding process.
- Setting internal meetings to communicate with other disciplines throughout the bidding process.

Wood., Freeport, TX

April 2017 - February 2019

- Worked as a surveyor
- In charge of layouts, elevations, and as-builts
- Communicating with co-workers and other contractors if during construction

Baker Concrete, Houston, TX

May 2013 - April 2017

- Worked as a surveyor
- Duties include line and grade and concrete take-offs
- Reading Construction drawings, issuing and distributing RFI's
- Part of different projects throughout Houston and College Station

Matula and Matula Const., Lake Jackson, TX

August 2010 - May 2013

- Worked full time during the summers and part-time throughout the year
- Helped with concrete pours
- Helped the carpenters and rodbusters
- Helped the surveyor

SKILLS**Software:** AutoCAD, Microsoft office (Word, Excel, and PowerPoint), Primavera P6**Language:** Great communication and writing skills in both Spanish and English

SECTION 4

CONTRACTOR REFERENCES

References: Name 5 projects of similar work, giving owner's name, owner's representative's name, project architect's name, and telephone numbers for each. References must be provided for owners of similar size and scope as the proposed project.

1. Name of government or agency: CITY OF SANTA FE

Address: 12002 Hwy 6, Santa Fe, Tx 77510

Contact Name: Billy Creppon (Owner Representative) / Steve Stacy (MBCO Engineering)

Phone Number: 409-218-8656 / 936-355-3440

\$ amount of project / contract: \$842,234.96

Contract / Project dates: 06/04/2025 - 08/11/2025

2. Name of government or agency: MB Western

Address: 711 Old Genoa Red Bluff Rd, Houston, Tx 77034

Contact Name: Rance Johnson (Project Manager) / Gladys G Stone (Harris County Eng. Dept)

Phone Number: 832-718-7144 / 713-274-3901

\$ amount of project / contract: \$588,682.00

Contract / Project dates: 08/2024 - 03/2025

3. Name of government or agency: MB Western

Address: 711 Old Genoa Red Bluff Rd, Houston, Tx 77034

Contact Name: Rance Johnson (Project Manager) / David A Garza (Ing Garza Civil Engineering)

Phone Number: 832-718-7144 / 956-792-3597

\$ amount of project / contract: \$221,297.41

Contract / Project dates: 07/2024 - 09/2024

4. Name of government or agency: City of Lake Jackson

Address: 25 Oak Drive, Lake Jackson, Tx 77566

Contact Name: Eddie Herrera (Engineering Department)

Phone Number: 979-482-3521

\$ amount of project / contract: \$166,180.42

Contract / Project dates: 05/2025 - 07/2025

5. Name of government or agency: City of Lake Jackson

Address: 25 Oak Drive, Lake Jackson, Tx 77566

Contact Name: Robin Hyden (Parks and Recreation Director) / Eddie Herrera (Eng. Department)

Phone Number: 979-297-4533 / 979-482-3521

\$ amount of project / contract: \$206,310.87

Contract / Project dates: 10/2024 - 07/2025

SECTION 5

CONTRACTOR'S CURRENT WORK SCHEDULE/RECORD

I. Current Work Schedule

- a. List major construction projects your organization has in-progress using the format below:

Name & Location of Project	Contract \$	% Complete	Projected Completion Date	Owner Contact And Phone
Warpath Avenue Reconstruction / Santa Fe	\$842,234.96	85%	08/11/2025	Billy Creppon 409-218-8656
Paving & Drainage Rehab / Missouri City	\$528,630.14	20%	09/19/2025	Chad Hablinski 713-579-3825

- b. Total number and dollar amount of contracts currently in progress:

Number 2 \$ 1,370,865.10

- c. Largest single contract amount currently in progress:

Project Name: Warpath Avenue Reconstruction

Projected Completion Date : 08/11/2025

Dollar Amount \$ 842,234.96

II. Past Record

- a. List major construction projects of our organization has completed in the last 5 years with completion dates and references.

Name & Location of Project	Contract \$	Date Completed	Owner Contact and Phone
Culvert Extension Repair Lake Jackson, Tx	\$221,297.41	September 2024	Rance Johnson 832-718-7144
Bridge Repairs - Brinsap 2020 Pkg 2 / Harris County	\$588,682.00	March 2025	Rance Johnson 832-718-7144
Emergency Repair of Culvert Bridge / Lake Jackson, Tx	\$166,180.42	July 2025	Eddie Herrera 979-482-3521

b. Volume of work completed over last 5 years:

\$ 947,370.32. (Through 2025)

\$ 327,983.35 (2024)

\$ _____

\$ _____

\$ _____

SECTION 6

VENDOR LITIGATION, CLAIMS, REPUTATION & COMPLIANCE

I. Please answer the following questions

- a. Has your firm ever defaulted, been declared to be in default, or failed to complete any work awarded?

☐ yes

☒ no

If yes, stipulate where and why: _____

- b. Has your firm ever paid (or had withheld from payment) liquidated damages for failure to complete a contract on time?

☐ yes

☒ no

If yes, stipulate where and why: _____

- c. Has your organization ever been charged with or paid a fine for non-compliance of State and/or Federal statutes or regulations?

☐ yes

☒ no

If yes, stipulate where and why: _____

- II. List pending claims and/or litigation against or involving project owners at time of submitting Proposal.
Show project name, owner and summary explanation.

N/A

SECTION 7

CONTRACTOR'S SAFETY RECORD

- I. List your organization's Workers Compensation Experience Modification Rate (EMR) for the last five years, as obtained from your insurance agent.

2024 Our company currently does
not qualify for an EMR

2023 _____

This is due to our company
2022 being 1 year old

2021 _____

2020 _____

- II. Complete the matrix below for the last five years, as obtained from OSHA No. 200 Log:

	2024	2023	2022	2021	2020
Number of injuries & illnesses	0				
Number of lost time accidents	0				
Number of recordable cases	0				
Number of fatalities	0				
Number of employee direct hire fixed hours (round to 1,000's)	0				

- III. Please answer the following questions regarding your safety program

- a. Are regular project safety meetings held for Field Supervisor(s)?

☒ yes

☐ no

If yes, frequency:

☒ weekly

☐ bi-monthly

☐ monthly

☐ as needed

- b. Are project safety inspections conducted?

☒ yes

☐ no

If yes, who performs inspections? TECA MANAGEMENT PERSONEL

How often? MONTHLY

Who is required to attend? PROJECT MANAGER AND SUPERINTENDENT

- c. Does your organization have a written safety program?

x yes

 no

If yes, provide a copy. It will become a compliance document upon contract award.

- d. Does your organization have a safety orientation program for new employees?

x yes

 no

For employees promoted to Field Supervisor?

x yes

 no

If yes, does your Supervisor Safety Program include instructions on the following:

Safety work practices	<u>x</u> yes	<u> </u> no
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Tool box safety meetings	<u>x</u> yes	<u> </u> no
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First aid procedures	<u>x</u> yes	<u> </u> no
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Accident investigation	<u>x</u> yes	<u> </u> no
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Fire protection	<u>x</u> yes	<u> </u> no
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New worker's orientation	<u>x</u> yes	<u> </u> no
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SAFETY PLAN

TECA CONSTRUCTION, LLC



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CONSTRUCTION SAFETY PLAN

INTRODUCTION:

As part of measures to improve and consolidate upon the existing safety measures on site, this document is hereby compiled to outline the basic safety plan requirements to be implemented and guidelines to ensure construction works on site are executed within optimum safe levels.

It describes the methodologies for identifying and analyzing construction risks, process steps, operations and controls, approaches for mitigating identified workplace risks and the process for reporting safety events.

This construction safety plan shall be communicated and made available to all stakeholders and persons involved in the construction work and visitors to the site, who must understand and comply with its requirements at all times and shall be updated as the need arises.

HEALTH AND SAFETY RESPONSIBILITIES

PROJECT MANAGER/HEAD OF UNITS

- Coordinate planning meetings for protect safety
- Ensure that safety and health issues are addressed with maximum priority
- Ensure dedicated protect resource for safety.
- Conduct weekly safety meetings
- Implement safety program and policy
- Monitor safety performance on the project through observation, inspection, corrective action and documentation

SUPERVISORS/FOREMEN

- Implements safety program and policy
- Promote accident prevention through constant communication
- Conduct weekly safety meetings
- Identify hazards and advise on proper and approved safety guards and PPE
- Require all workers to comply with health and safety regulations

HEAD SAFETY OFFICER

- Develop and maintain safety training program(s)

- Assist in Project safety planning
- Conduct routine inspection of job sites
- Implement safety program and policy
- Require all workers to comply with the health and safety regulations

OTHER WORKERS

- Work in a safe manner at all times and comply with all safety rules, procedures and requirements
- Report all accidents, near misses and unsafe conditions
- Attend safety meetings

VISITORS

- Visitors shall be required to act in a safe manner while at the construction site
- Visitors to the construction site must be appropriately dressed and must obtain a safety clearance from any member of the safety team before accessing the construction site.
- Visitors touring the site should not be left unattended to by their host or any of his or her representative
- All visitors to the construction site must check-in with the security at the entrance of the construction site and check-out at the point of leaving.

SUBCONTRACTORS(NORMINATED/DOMESTIC)

- Provide a site-specific safety plan prior to commencement of any work
- Work in a safe manner at all times and comply with safety rules, procedures and requirements
- Report all accidents, near misses, and unsafe conditions
- Provide MSDS (material safety data sheet) for all equipment and materials brought to site
- Attend weekly safety meetings
- Provide weekly job hazard analysis (JHA) on a timely basis

CONSULTANTS

- Carry-out routine inspection of the construction site and ensures that all contractors are complying with federal, state and local safety codes
- Brings to the attention of the Main Contractor and other Sub Contractors whenever there is a breach of necessary safety requirements
- Together with the Main contractor and other sub-contractors, carry-out safety audit of the site and recommend actions to be taken should there be any areas of safety concerns.

SAFETY STANDARDS

SAFETY MEETINGS

Project team will hold a weekly safety meeting every Monday morning at 7:00am. Attendance of all persons on site is mandatory. Minutes of meetings shall be documented for the records.

NEW HIRES ORIENTATION

Each new hire shall be required to attend an orientation prior to their commencement of work on site.

Subcontractors shall orient new hires in their team who works onsite.

DRUG AND ALCOHOL POLICY

Alcohol or drugs are not to be consumed on premises before or during work hours. No smoking.

PERSONAL PROTECTIVE EQUIPMENT PPE

All persons on site must be properly equipped in their safety apparels which includes helmets, high visibility vest, eye protection and safety boots at all times. Other PPE such as gloves, ear plugs safety belts shall be used as appropriate for the task being performed.

GOOD HOUSEKEEPING

Housekeeping at the respective work sites is the responsibility of all. For example, the Main contractor, Subcontractors (nominated and domestic) and must be carried-out on a daily basis.

JOB HAZARD ANALYSIS (JHA)

Job hazard analysis will be required to be completed by each on site subcontractor for them to identify hazards associated and surrounding their works. JHA's are to be turned in no later than 3:30pm each Friday. This shall be reviewed by the head safety officer and incorporate for discussion at the following Monday's safety meeting.

JOB HAZARD ANALYSIS (GENERAL)

The following are the identified job hazard analysis mainly associated with the execution of various task on site. This will be discussed regularly as a Project team and measures taken to prevent or control their occurrence. Subcontractors both Nominated and Domestic shall be

required to provide their JHA's particularly on jobs with relatively higher risk or that poses unsafe conditions. This is to ensure more safety awareness and prevention. Only competent persons shall be allowed to complete specific tasks. According to Occupational Safety and Health Administration (OSHA) a "competent person" is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to workers and who has authorization to take prompt correct measures to eliminate them.

DEMOLITION

HAZARDS	CONTROLS
Collapsing Structure	Trace and understand the load paths prior to demolition along safe paths
Dust and Flying Debris	Use water control, safety net and good housekeeping to control
Pit, Holes, Leading edges	Barricade off area, use warning signs and caution tapes
Overhead work	Use goggles or face shield

EARTHWORK

HAZARDS	CONTROLS
Active Utility Lines	Re-locate and use spotter when digging
Excavation	Proper shoring and sloping areas taped/barricaded off
Moving Equipment	Equipment shall have back-up alarms and safe distance shall be kept. A standby flagging personnel shall monitor areas around moving equipment and ensure safety

SITE UTILITIES

HAZARDS	CONTROLS
High Voltage Equipment	Ensure power has been isolated from such equipment and that there are no residual currents/charges before order commencement of such works
Utility Lines	Relocated/Disconnect power prior to any work in such locations

CONCRETE

HAZARDS	CONTROLS
Concrete burns	Wear gloves and safety glasses
Tripping	Keep materials and debris well packed-up and ensure good housekeeping around work area

MASONRY

HAZARDS	CONTROLS
Falls	Use properly installed/erected scaffolds and ladders
Eye, Hand, Foot Injuries	Wear proper PPE
Dust	Use dust controls – nose mask

CARPENTRY

HAZARDS	CONTROLS
Eye injuries	Use eye protection
Power tools injuries	Ensure tools in good repair, use blade guards, check power cords
Falls	Make sure ladders and scaffolds are properly used and erected. Use handrails and barriers where required
Hand Injuries	Use hand gloves

ROOFING

HAZARDS	CONTROLS
Fall	Stay within the leading edge, use personal fall arrest if outside the leading edge
Falling loads	Properly barricade off area
Foot and Hand injuries	Use safety shoes and hand gloves
Hot work	Fire watch, fire extinguishers readily available
Holes	Label “HOLE” secure roof

WINDOWS INSTALLATION

HAZARDS	CONTROLS
Eye injuries	Eye protection from breaking glass

METAL WORKS AND FRAMING

HAZARDS	CONTROLS
Power operated equipment	Only certified operator can operate equipment, use eye protection
Cuts	Use hand gloves, watch for sharp edges, burrs
Tripping	Keep work area free from obstacles, use safety boots
Hot works and cutting works	Use hand gloves, safety glasses and keep fire extinguishers handy
Falling loads	No work under suspended loads

RESOURCES PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Helmets
- Reflective vests
- Safety boot/shoes
- Hand gloves
- Protective glasses/goggles
- Respirator masks

MEDICAL

- First Aid Kits

FIRE

- Fire extinguishers

OTHER SAFETY EQUIPMENT

- Safety nets
- Safety belts and Fall Arrest Systems
- Safety Signs

TRAFFIC CONTROL

Any activity either within or outside the construction site that changes sidewalks, affects pedestrian or vehicular traffic will require one or more of the following to be implemented.

- Flagging will be utilized as needed
- Traffic control will be set-up and taken down as needed
- Barricading where necessary shall be used to separate pedestrian path from vehicular traffic
- Safe, clearly marked routes shall be maintained through and around hazardous activities at all times.

EMERGENCIES

The senior person on site:

- Shall always keep selected individuals on site to help with incidents
- In an incidence shall immediately call the attention of the Head Safety Officer
- Initiate site control and account for all workers

An emergency could occur at any moment; hence it will be ensured that access and egress areas remain clear and marked in the event of an emergency.

FIRE PREVENTION PLAN

- General safety measures shall be taken
- Fire extinguishers shall be provided close to points of flash fire/heat works
- Routine checks carried-out on fire extinguishers to ensure that they are properly charged and accessible.
- Stairway access and egress shall be illuminated during workhours
- All access routes shall be unobstructed and maintained
- Exit signs shall be posted at the exit point(s)
- Good housekeeping practices to ensure that combustible debris are removed from work places on a regular basis

HOT WORK

This includes any work involving operations capable of initiating fires or causing explosion. The following constitutes hot work; cutting, welding, brazing, soldering, grinding or any other similar activity. The use of hot work equipment shall be in accordance with the following requirements, including a pre-site inspection, fire watch and post inspection procedures;

- Ensure that hot work site is clear of combustibles
- Ensure a fully charged fire extinguisher is readily available

- Position a fire watch personnel with the responsibility to watch for occurrence of fire during and after hot work operations.
- The fire watch shall be maintained a minimum of 30mins after the conclusion of the work to look out for left-over sparks, slag or smoldering combustibles.
- Hot work shall cease 2 hours before the close of days' work

FALL PROTECTION PLAN

- Fall protection (guard rails, warning lines, hole covers) will be used to protect workers expose to a fall hazard above 6ft. When the site condition or work process makes this impracticable, personal fall arrest system will be used.
- Toe boards and safety net will be used to protect against falling objects where applicable

SITE SAFETY AUDIT /RECOMMENDATION

Site safety audit will be a continuous process and shall be reviewed quarterly. Hence, on resumption of work on site, a Site Safety audit shall immediately be carried-out and any or all of the following obvious recommendations made where necessary;

- Existing scaffolds, cat ladders, wood works/supports and braces replaced or fortified
- A list of Personal Protective Equipment will subsequently be made available to provide safety wears for the various categories of workers
- Fire extinguishers provided at the site offices and the respective work locations at the main building
- Safety net to be made available to provide a protective screen/shield against falling objects from the main building and other ancillary buildings
- Provision of other safety equipment such as safety belts, fall arrest systems and safety signs
- Selected trainings and routine safety drills shall be organized for specific needs and targeted to enhance and empower members of the project team on the execution of basic safety-first aids. This is to create a more safety conscious team and enhance the team's readiness to handle emergencies should they arise.

SECTION 8

SUBCONTRACTOR LIST

The Offerer shall provide a list of subcontractors your firm intends to contract with for services for each trade included in your offer.

SUBCONTRACTOR	TRADE
TS&L	Traffic Control

Section 9

VENDOR TO INSERT PROJECT SCHEDULE HERE

COMPANY: **TECA CONSTRUCTION, LLC**
PROJECT NAME: PAVEMENT REPAIRS FOR SILVERLAKE PHASE II RFP#25-66
PROJECT START: September 2, 2025
CURRENT DATE: July 29, 2025
WEEKS IN PROGRESS: -WK 5
TOTAL CALENDAR DAYS: 150

							2-Sep	7-Sep	14-Sep	21-Sep	28-Sep	5-Oct	12-Oct	19-Oct	26-Oct	2-Nov	9-Nov	16-Nov	23-Nov	30-Nov	7-Dec	14-Dec	21-Dec	28-Dec	4-Jan	11-Jan	18-Jan	25-Jan	1-Feb
BID NO.	TASK	PROJECT LEAD	START DATE	END DATE	DAYS	PROGRESS	WK 1	WK 2	WK 3	WK 4	WK 5	WK 6	WK 7	WK 8	WK 9	WK 10	WK 11	WK 12	WK 13	WK 14	WK 15	WK 16	WK 17	WK 18	WK 19	WK 20	WK 21	WK 22	WK 23
001	TRAFFIC CONTROL																												
001A	Mobilization	RAUL HERNANDEZ	2-Sep	5-Sep	4	0%																							
001B	Demobilization	RAUL HERNANDEZ	26-Jan	30-Jan	5	0%																							
001C	Installation of Barricades, Signs and Traffic Handling	RAUL HERNANDEZ	2-Sep	3-Sep	2	0%																							
001D	Removal of Barricades, Signs and Traffic Handling	RAUL HERNANDEZ	28-Jan	29-Jan	2	0%																							
001E	WK ZN PAV MRK REMOV (Y)4"(SLD)	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
002	REMOVAL																												
002A	Remove Conc (Pav) Sta. 9+96.25 to 19+19.39 Phase I	RAUL HERNANDEZ	3-Sep	9-Sep	5	0%																							
002B	Remove Conc (Pav) Sta. 19+98.19 to 25+74.38 Phase I	RAUL HERNANDEZ	10-Sep	16-Sep	5	0%																							
002C	Remove Conc (Pav) Sta. 26+96.38 to 33+19.73 Phase I	RAUL HERNANDEZ	16-Sep	22-Sep	5	0%																							
002D	Remove Conc (Pav) Sta. 9+96.25 to 19+19.39 Phase II	RAUL HERNANDEZ	10-Nov	14-Nov	5	0%																							
002E	Remove Conc (Pav) Sta. 19+98.19 to 25+74.38 Phase II	RAUL HERNANDEZ	17-Nov	21-Nov	5	0%																							
002F	Remove Conc (Pav) Sta. 26+96.38 to 33+19.73 Phase II	RAUL HERNANDEZ	24-Nov	28-Nov	5	0%																							
002G	Remove Conc (Sidewalk, Ramp or Sup) Phase I	RAUL HERNANDEZ	3-Nov	4-Nov	2	0%																							
002H	Remove Conc (Sidewalk, Ramp or Sup) Phase II	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
002I	Remove Str (Inlet) Phase I	RAUL HERNANDEZ	17-Sep	25-Oct	28	0%																							
002J	Remove Str (Inlet) Phase II	RAUL HERNANDEZ	8-Dec	19-Jan	31	0%																							
002K	Remove Sm Rd Sn Sup&Am Phase I	RAUL HERNANDEZ	17-Sep	25-Oct	28	0%																							
00L	Remove Sm Rd Sn Sup&Am Phase II	RAUL HERNANDEZ	8-Dec	19-Jan	31	0%																							
003	ROADWAY																												
003A	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 9+96.25 to 19+19.39 Phase I	RAUL HERNANDEZ	10-Sep	16-Sep	5	0%																							
003B	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 19+98.19 to 25+74.38 Phase I	RAUL HERNANDEZ	17-Sep	23-Sep	5	0%																							
003C	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 26+96.38 to 33+19.73 Phase I	RAUL HERNANDEZ	24-Sep	30-Sep	5	0%																							
003D	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 9+96.25 to 19+19.39 Phase II	RAUL HERNANDEZ	1-Dec	5-Dec	5	0%																							
003E	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 19+98.19 to 25+74.38 Phase II	RAUL HERNANDEZ	8-Dec	12-Dec	5	0%																							
003F	Lime (Com or Qk)(Slurry) or Qk(Dry) Sta. 26+96.38 to 33+19.73 Phase II	RAUL HERNANDEZ	15-Dec	19-Dec	5	0%																							
003G	Lime Trt (Exist Matl)(8") Sta. 9+96.25 to 19+19.39 Phase I	RAUL HERNANDEZ	10-Sep	16-Sep	5	0%																							
003H	Lime Trt (Exist Matl)(8") Sta. 19+98.19 to 25+74.38 Phase I	RAUL HERNANDEZ	17-Sep	23-Sep	5	0%																							
003I	Lime Trt (Exist Matl)(8") Sta. 26+96.38 to 33+19.73 Phase I	RAUL HERNANDEZ	24-Sep	30-Sep	5	0%																							
003J	Lime Trt (Exist Matl)(8") Sta. 9+96.25 to 19+19.39 Phase II	RAUL HERNANDEZ	1-Dec	5-Dec	5	0%																							
003K	Lime Trt (Exist Matl)(8") Sta. 19+98.19 to 25+74.38 Phase II	RAUL HERNANDEZ	8-Dec	12-Dec	5	0%																							
003L	Lime Trt (Exist Matl)(8") Sta. 26+96.38 to 33+19.73 Phase II	RAUL HERNANDEZ	15-Dec	19-Dec	5	0%																							
003M	Conc Pav (Joint Reinf) (8") Sta. 9+96.25 to 19+19.39 Phase I	RAUL HERNANDEZ	17-Sep	30-Sep	10	0%																							
003N	Conc Pav (Joint Reinf) (8") Sta. 19+98.19 to 25+74.38 Phase I	RAUL HERNANDEZ	1-Oct	14-Oct	10	0%																							
003O	Conc Pav (Joint Reinf) (8") Sta. 26+96.38 to 33+19.73 Phase I	RAUL HERNANDEZ	15-Oct	28-Oct	10	0%																							
003P	Conc Pav (Joint Reinf) (8") Sta. 9+96.25 to 19+19.39 Phase II	RAUL HERNANDEZ	8-Dec	19-Dec	10	0%																							
003Q	Conc Pav (Joint Reinf) (8") Sta. 19+98.19 to 25+74.38 Phase II	RAUL HERNANDEZ	22-Dec	8-Jan	14	0%																							
003R	Conc Pav (Joint Reinf) (8") Sta. 26+96.38 to 33+19.73 Phase II	RAUL HERNANDEZ	9-Jan	19-Jan	7	0%																							
003S	Cem Stabil Bkfl Phase I	RAUL HERNANDEZ	17-Sep	28-Oct	30	0%																							
003T	Cem Stabil Bkfl Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003U	Cement Stab Backfill (Inlet or mh) Phase I	RAUL HERNANDEZ	17-Sep	28-Oct	30	0%																							
003V	Cement Stab Backfill (Inlet or mh) Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003W	Inlet (Compl)(Modified) Phase I	RAUL HERNANDEZ	17-Sep	28-Oct	30	0%																							
003X	Inlet (Compl)(Modified) Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003Y	Adjusting Manholes Phase I	RAUL HERNANDEZ	17-Sep	28-Oct	30	0%																							
003Z	Adjusting Manholes Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003AA	Adjusting Manholes (Water Valve Box) Phase I	RAUL HERNANDEZ	17-Sep	28-Oct	30	0%																							
003BB	Adjusting Manholes (Water Valve Box) Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003CC	Conc Curb (Ty II) Phase I	RAUL HERNANDEZ	3-Nov	7-Nov	5	0%																							
003DD	Conc Curb (Ty II) Phase II	RAUL HERNANDEZ	22-Dec	22-Jan	24	0%																							
003EE	Conc Curb (4" x 12")	RAUL HERNANDEZ	3-Nov	7-Nov	5	0%																							
003FF	Conc Sidewalks (5") Phase I	RAUL HERNANDEZ	3-Nov	7-Nov	5	0%																							
003GG	Conc Sidewalks (5") Phase II	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
003HH	Curb Ramps (ty 7) Phase I	RAUL HERNANDEZ	3-Nov	7-Nov	5	0%																							
003II	Curb Ramps (ty 7) Phase II	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004	SIGN PVMT MRK																												
004A	In ms rd sn Sup&am TY10BWG(1)sa(p)	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004B	Relocate sm rd sn sup&am ty 10BWG	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004C	Refl Pav mrk TY I (W)24"(SLD)(100mil)	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004D	Re Profile Pm TY I (Y)4"(SLD)(100mil)	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004E	Re Profile Pm TY I (Y)4"(BRK)(100mil)	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004F	Refl Pav mrkr Ty II-A-A	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004G	Pav Surf Prep for MRK (4")	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
004H	Pav Surf Prep for MRK (24")	RAUL HERNANDEZ	26-Jan	27-Jan	2	0%																							
005	STORM WATER POLLUTION PREVENTION																												
005A	Block Sodding	RAUL HERNANDEZ	3-Sep	5-Sep	3	0%																							
005B	Straw or Hay Mulch	RAUL HERNANDEZ	3-Sep	5-Sep	3	0%																							
005C	Drill Seed (Temp_Warm_Cool)	RAUL HERNANDEZ	3-Nov	26-Jan	61	0%																							
005D	Fertilizer	RAUL HERNANDEZ	3-Nov	26-Jan	61	0%																							
005E	Vegetative Watering	RAUL HERNANDEZ	3-Nov	30-Jan	65	0%																							
005F	Construction Exits (Install) (TY 1)	RAUL HERNANDEZ	9-Sep	10-Nov	45	0%																							
005G	Construction Exits (Remove)	RAUL HERNANDEZ	30-Sep	19-Dec	59	0%																							
005H																													

**VENDOR TO INSERT EXCEPTIONS TO
STANDARD TERMS & CONDITIONS & SPECIAL
REQUIREMENTS HERE (IF APPLICABLE)**

 X Company **does not** have exceptions *(If applicable, check here)*

Or

 Company does have exceptions *(If applicable, check here and list exceptions here for consideration. Brazoria County will review all exceptions listed and will formally communicate as to if any exceptions are accepted by the County. If exceptions are accepted by the County, they will be added in the form of an addendum.)*

VENDOR TO INSERT EXCEPTIONS HERE

SIGNED ADDENDUMS (IF APPLICABLE)

VENDOR TO INSERT SIGNED ADDENDUMS HERE

BRAZORIA COUNTY ADDENDUM NUMBER 1

RFP# 25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

PLEASE INCLUDE THIS SIGNED ADDENDUM WITH YOUR SEALED RFP PACKAGE.

This Addendum modifies the RFP#25-66 package as follows:

1. Definitions: All definitions set forth in the Contract shall have the same meaning unless stated otherwise in this Addendum.
2. Brazoria County Clarification:
 - 2.1 Section 9.0 Evaluation Criteria – Other factors – Section Seven-Vendors Safety Record has been removed from the evaluation criteria. Section Seven will not be included in the scoring.

Vendors will still need to complete and include Section 7 Contractor's Safety Records found in Exhibit B Vendor Response with your submission.
3. All other terms and conditions of the RFP are to remain unchanged.

Please refer any questions regarding this RFP to the Brazoria County Purchasing Department at (979) 864-1825 or bidclarifications@brazoriacountytx.gov.

TECA CONSTRUCTION, LLC

LEGAL NAME OF CONTRACTING COMPANY

979-549-5832

TELEPHONE NUMBER

SIGNATURE

FACSIMILE NUMBER

RAMIRO HERNANDEZ / CO-OWNER

NAME AND TITLE PRINTED

*Addendum approved by:



Susan P. Serrano, CPPO, CPPB
County Purchasing Director

07/01/2025

Date

BRAZORIA COUNTY ADDENDUM NUMBER 2

CSP#25-66 PAVEMENT REPAIRS TO SILVERLAKE PHASE II

PLEASE INCLUDE THIS SIGNED ADDENDUM WITH YOUR SEALED CSP PACKAGE.

This Addendum modifies the CSP#25-66 package as follows:

1. Definitions: All definitions set forth in the Contract shall have the same meaning unless stated otherwise in this Addendum.
2. Brazoria County clarification:
 - 2.1 The method of procurement has been revised from a Request for Proposal (RFP) to a Competitive Sealed Proposal (CSP). The main solicitation document, along with Exhibit A and Exhibit B have been revised to reflect the change from the RFP procurement method to the CSP procurement method.

In addition, there has been no change to the specifications or scope of work. Any reference to an RFP is now substituted with CSP.

The updated documents are posted in Bonfire and labeled as Addendum No.2_. Please submit Addendum No.2_25-66 Exhibit A Required Documents and Addendum No.2_ Exhibit B Vendor Response with your solicitation.
 - 2.2 Attachment E Affidavit of Final Payment & Retainage Release has been removed and is no longer applicable to the solicitation.
3. All other terms and conditions of the CSP are to remain unchanged.

Please refer any questions regarding this CSP to the Brazoria County Purchasing Department at (979) 864-1825 or bidclarifications@brazoriacountytx.gov.

TECA CONSTRUCTION, LLC

LEGAL NAME OF CONTRACTING COMPANY

979-549-5832

TELEPHONE NUMBER

FACSIMILE NUMBER

SIGNATURE

RAMIRO HERNANDEZ / CO-OWNER
NAME AND TITLE PRINTED

*Addendum approved by:



07/23/2025

Susan P. Serrano, CPPO, CPPB
County Purchasing Director

Date



**BRAZORIA COUNTY
PURCHASING DEPARTMENT
237 E. LOCUST STREET, SUITE 406
ANGLETON, TEXAS 77515
TEL: 979-864-1825 FAX: 979-864-1034**

**BRAZORIA COUNTY
REQUEST FOR PROPOSAL COVER SHEET**

The REQUEST FOR PROPOSAL (RFP) and accompanying documents are for your convenience in submitting an offer for the referenced products and/or services for BRAZORIA COUNTY.

“RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II”

Sealed Hard Copy or Electronic offers shall be received no later than:

TUESDAY, JULY 29, 2025 at 2:00 P.M. LOCAL TIME

***PROPOSAL OPENING WILL BE AVAILABLE VIA ZOOM. MEETING LINK IS AVAILABLE ON THE PROJECT DETAILS PAGE IN BONFIRE UNDER “IMPORTANT EVENTS”. BONFIRE LINK:**

<https://brazoriacounty.bonfirehub.com/portal/?tab=login>

IF SUBMITTING AN ELECTRONIC SEALED OFFER:

PREFERRED METHOD IS USING THE “BONFIRE” ELECTRONIC BIDDING PLATFORM.

USE LINK, <https://brazoriacounty.bonfirehub.com/portal/?tab=login>,

CLICK THE HELP BUTTON PROVIDED IN THE BONFIRE WEBSITE AS NEEDED.

IF SUBMITTING A HARD COPY SEALED OFFER:

THE PHYSICAL ADDRESS FOR COURIERS, HAND DELIVERIES AND THE US POSTAL SERVICE IS:

SUSAN SERRANO, CPPO, CPPB
PURCHASING DIRECTOR
BRAZORIA COUNTY COURTHOUSE CAMPUS ADMINISTRATION BUILDING
237 E. LOCUST STREET, SUITE 406
ANGLETON, TEXAS 77515

PLEASE USE THE RETURN LABEL PROVIDED WITH THIS SOLICITATION:

*****Please note: US Postal Service mailing address***

The U.S. mail may not deliver to the physical address shown above. Respondents who prefer to use the U.S. mail may submit their offers using the U.S. Postal Service mailing address shown above.

However, packages delivered by the U.S. Postal Service to the Brazoria County mailing address are subject to delays that may cause a response to be rejected due to missing a solicitation receipt deadline.

Responses delivered to the mailing address are routed through the County mailroom and may not reach the required location in time for the bid / offer opening.

Respondents using the U.S. mail should take this possible delay into account when using the U.S. mail.

BRAZORIA COUNTY is very conscious and extremely appreciative of the time and effort you have expended to submit an offer. We would appreciate it if you would indicate on any “No Offer” response, any requirement of this RFP which may have influenced your decision to “No Offer”. If your response to this RFP is a “No Offer” response, please complete the Statement of No Offer in this RFP package and submit.

Any prospective respondent desiring any explanation or interpretation of the solicitation must make a written request online through Bonfire electronic platform or email the project facilitator as shown in Section “Questions Due Date (for Clarifications)”, which must be received by the Purchasing Department at least five (5) business days prior to the scheduled time for the offer opening. Any information given to a prospective respondent concerning this solicitation will be furnished promptly to all other known prospective respondents as a written amendment/addendum to the solicitation. Brazoria County reserves the right to accept or reject any or all bids/offers as it deems in its best interest and to waive any formalities.

It is the Respondent’s responsibility to verify the issuance of Addenda in regard to this Offer. All Addenda shall be submitted to all known respondents and shall be posted on the Bonfire electronic bidding platform at <https://brazoriacounty.bonfirehub.com/portal/?tab=login>. Brazoria County shall not be responsible for failed internet connections or power interruptions.

All required Offer documents shown on the Table of Contents, including any Addenda Receipt Forms which may have been issued, must be submitted in the Bonfire electronic bidding platform or a sealed envelope included in a hard copy submittal, marked with the bidder’s company name, the Offer name, number and due date.



SUSAN SERRANO, CPPO, CPPB
Purchasing Director
Brazoria County Courthouse Campus Administration Building
237 E. Locust Street, Suite 406
Angleton, Texas 77515

Published Dates: WEDNESDAY, JUNE 25, 2025
WEDNESDAY, JULY 2, 2025

BRAZORIA COUNTY CONTRACT SHEET

THE STATE OF TEXAS COUNTY OF BRAZORIA

This memorandum of agreement made and entered into on the _____ day of _____, 2025, by and between Brazoria County in the State of Texas (hereinafter designated County), acting herein by County Judge L.M. "Matt" Sebesta, Jr., by virtue of an order of Brazoria County Commissioners' Court, and _____ (hereinafter designated Vendor / Contractor).
(company name)

WITNESSETH:

The Vendor and the County agree that the Instructions to Respondents, Specifications/Statement of Work, Standard Terms & Conditions, and all other requirements herein for RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II as stated in the Request for Proposal Table of Contents hereto attached and made a part hereof, together with the bond (when required), vendor's response and negotiated pricing, shall constitute the full agreement and Contract between parties and for furnishing the items set out and described; the County agrees to pay the prices stipulated in the accepted offer.

The order of precedence shall be:

- Brazoria County RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II
- Vendor's submittal to the above listed RFP and the final accepted pricing

It is further agreed that this Contract shall not become binding or effective until signed by the parties hereto and a purchase order authorizing the items desired has been issued.

Executed at Angleton, Texas this _____ day of _____ 2025.

By: _____
County Judge Signature

By: _____
Printed Name

By: _____
Signature of Vendor

By: _____
Printed Name and Title

SIGNATURE REQUIRED BY
VENDOR UPON AWARD

REQUEST FOR PROPOSAL

TABLE OF CONTENTS

RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

All documents included in this Table of Contents represent components which comprise this bid/offer package and subsequent awarded executed contract. The documents shown in Exhibit A and Exhibit B are required to be submitted in your bid/offer package. *It is the respondent's responsibility to be thoroughly familiar with all requirements and specifications. Be sure you understand the requirements before you return your bid/offer packet.*

The "Exhibit A - Required Forms" and "Exhibit B – Additional Requirements" below are required to be uploaded into the Bonfire electronic procurement portal system or included with your hard copy submittal in one (1) large sealed envelope or box with the Brazoria County Return Label affixed.

FAILURE TO RETURN THE FOLLOWING FORMS MAY DEEM YOUR PROPOSAL AS NON-RESPONSIVE.

EXHIBIT A – REQUIRED DOCUMENTS

- RESPONDENT CERTIFICATION FORM
- BIDDER/RESPONDENT'S AFFIRMATION & SDNs/BLOCKED PERSONS AFFIRMATION
- WORKERS COMPENSATION REQUIREMENTS
- CERTIFICATION REGARDING LOBBYING FORM
- EXCEPTIONS TO STANDARD TERMS & CONDITIONS & SPECIAL REQUIREMENTS *(if applicable)* (If vendor has any exceptions to the RFP terms & conditions or special requirements, they must be included with the RFP submittal in order to be considered)
- NON COLLUSION AFFIDAVIT
- BID BOND
- CONFLICT OF INTEREST QUESTIONNAIRE – FORM CIQ *(if applicable)*
- CONTRACTOR ACKNOWLEDGMENT OF STORMWATER MANAGEMENT PROGRAM
- TEXAS GOVERNMENT CODE 552, SUBCHAPTER J ACKNOWLEDGEMENT FORM
- PROHIBITED TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES AND EQUIPMENT CERTIFICATION FORM *(Vendor to sign form if applicable to telecommunications)*
- AUTHORIZED NEGOTIATOR
- RESIDENT / NONRESIDENT BIDDER
- VENDOR DATA SHEET & W-9 FORM

EXHIBIT B – VENDOR'S RESPONSE

- BID TABLE
- VENDOR RESPONSE TO EVALUATION CRITERIA
- EXCEPTIONS TO STANDARD TERMS & CONDITIONS & SPECIAL REQUIREMENTS *(if applicable)* (If vendor has any exceptions to the RFP terms & conditions or special requirements, they must be included with the RFP submittal in order to be considered)
- SIGNED ADDENDA *(if applicable)*

Attachments to the RFP:

- Exhibit A – Required Documents
- Exhibit B – Vendor's Response
- Attachment A – Bid Table
- Attachment B – Plan Set
- Attachment C – TxDOT Technical Spec Items List
- Attachment D – TxDOT Spec Items
- Attachment E – Affidavit of Final Payment & Retainage Release

BRAZORIA COUNTY SPECIFICATIONS / SCOPE OF WORK

RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

The following requirements and specifications shall be in addition to the other requirements contained herein and shall supersede the other requirements where applicable.

1.0 SCOPE

The specifications and plans are posted in Bonfire and labeled as follows:

- Attachment B Plan Set
- Attachment C Specifications

2.0 Maintenance Warranty

The Contractor warrants to the Owner “County” that all materials and workmanship used in the construction of the Project will be free from defects in materials and workmanship for a period of one (1) year from the date of substantial completion of the Project. If any defect in materials or workmanship occurs during the warranty period, the Contractor shall promptly repair or replace the defective materials or workmanship at its own expense.

This warranty shall not apply to defects caused by: acts of God or other force majeure events, or any other cause, beyond the reasonable control of the Contractor.

The Owner shall notify the Contractor in writing of any defects in materials or workmanship within a reasonable time after discovery of such defects. If the Contractor fails to repair or replace the defective materials or workmanship within a reasonable time after receipt of notice from the Owner, the Owner may have the defective materials or workmanship repaired or replaced at the Contractor's expense.

BRAZORIA COUNTY INSTRUCTIONS TO RESPONDENTS

RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

The following requirements and specifications shall be in addition to the other requirements contained herein and shall supersede the other requirements where applicable.

1.0 THE CONTRACT:

The Contract consists of all documents included in this Request for Proposal Number 25-66, as well as addenda issued prior to execution of the Contract and modifications issued after execution of the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may only be amended or modified under the terms of this Contract. Brazoria County may make partial or complete awards to one or more vendors (if applicable) whichever is in the best interest of the County.

2.0 PROJECT DESCRIPTION

Brazoria County is seeking proposals for Phase II of the Silverlake Street Repairs Project in Brazoria County. The rehabilitation project includes the reconstruction of Northfork Dr from Greggs Ct to Lakecrest Dr. This includes traffic control, pavement removal, concrete pavement, curb and gutter, inlet replacement, environmental controls, seeding, sod, and watering.

No additional widening and/or horizontal geometric modifications are required. Construction should be limited to the existing roadway as close as possible, thus eliminating or minimizing any impacts to the adjacent sidewalks, ditches, utilities, fence lines, etc.

The estimated budget for this project is: \$1,408,294.00
Estimated completion time for this project is: 150 calendar days

3.0 ESTIMATED PROJECT TIMELINE *(dates may be subject to change)*

Step One –

Publicly advertised (1st Notice)	June 25, 2025
Publicly advertised (2nd Notice)	July 2, 2025
Deadline for Questions (Clarifications) Submitted	July 15, 2025
Deadline for Addendum to be posted in Bonfire	July 18, 2025

Response Open/Due date by 2:00 p.m. C.S.T. July 29, 2025

Step Two – Interviews *(if requested by Evaluation Committee)*

Interviews with short-listed candidates

Award - Contract approval by Commissioner's Court August

4.0 QUESTIONS DUE DATE (FOR CLARIFICATIONS)

Any prospective respondent desiring any explanation or interpretation of the proposal must make a written request which must be received by the Purchasing Department on or Tuesday, July 15, 2025. The request must be emailed to bidclarifications@brazoriacountytx.gov. Emails must include the project name and number in the subject field.

All responses to questions or clarification requests will be answered in the form of an addendum after the question deadline and no later than 5 business days prior to the opening/closing date of the solicitation.

5.0 PRE-OFFER MEETING

A pre-offer meeting will be held on **Wednesday, July 9, 2025 at 2:00 p.m.** in the Purchasing Department conference room located at 237 E. Locust Street, Suite 406. Attendance is not mandatory in order to submit an offer; however, it is highly recommended. Interested parties are encouraged to download all of the proposal documents prior to attending the meeting.

A virtual option is available via Teams. The pre-bid meeting link is available on the Project Details page in Bonfire under “Event”. Interested parties will be asked to register for the pre-bid meeting.

6.0 PROPOSAL REQUIREMENTS

The proposal includes instructions to respondents, specifications and contract documents. It is the responsibility of each Respondent before submitting a proposal to examine the contract documents thoroughly.

RFP SUBMISSIONS MAY BE PROVIDED IN ONE OF TWO WAYS, AS EXPLAINED BELOW:

If submitting an RFP Electronic Document Submission (using the Bonfire electronic platform)

Respondent shall fill out and upload the “Exhibit A Required Forms” and “Exhibit B Additional Requirements” into the Bonfire electronic platform. An authorized representative of the company **MUST** sign all required forms. See “Exhibit A Required Forms” for instructions on signing electronically.

If submitting an RFP Hard Copy Document Submission

One (1) original hard copy shall be submitted, which will consist of “Exhibit A Required Forms” and “Exhibit B Additional Requirements”.

The hard copy submission shall be sealed in an envelope or box for delivery to the Brazoria County Purchasing Director per instructions herein. All documents included in the response and the outside of the envelope and/or box must be labeled with the vendor name and the RFP number. A Return Label is also provided in this solicitation.

7.0 PREVAILING WAGE RATES

Chapter 2258 of the Texas Government Code requires state agencies, cities, counties, independent school districts, and all other political subdivisions that engage in public work projects using public funds to include prevailing wage rate in the project request for proposal documents and Contract.

Current prevailing wage rates are incorporated in the Contract documents as attached.

8.0 CONTRACT AWARD / EVALUATION PROCESS

An evaluation committee will examine all responses to this Request for Proposals. Responses that do not conform to the instructions given or that do not address all the questions and services specified may be eliminated from consideration. Brazoria County, however, reserves the right to accept such a response if it is determined to be in the County’s best interest to do so.

Brazoria County may initiate discussions with respondents. Additional information will be accepted during this period from respondents who responded to the original request. Respondents may NOT initiate discussions. Brazoria County expects to conduct discussions with respondent personnel authorized to enter into contractual obligations.

Brazoria County shall rank responses in accordance with the Evaluation Criteria and will review proposal content and its conformance to requirements. Following an initial evaluation, the evaluation team may recommend award without further discussion with one or more respondents or may conduct discussions and interviews with top-ranked responsible respondent(s).

During the discussion / interview and negotiations, the evaluation team may allow the respondent(s) to submit a best and final offer. Final offers shall be evaluated on the same criteria used in the first evaluation.

The award of the contract shall be made to the responsible respondent whose proposal is determined to be the lowest and best evaluated offer resulting from negotiations, taking into consideration the relative importance of price and other evaluation factors set forth in this request for proposal.

“Lowest and best” means an offer providing the best value for the County considering associated direct and indirect costs, including transport, maintenance, reliability, life cycle, warranties and customer service after a sale.

Brazoria County is not bound to accept the lowest priced proposal if that proposal is judged not to provide the best value for the County.

Proposals will be opened publicly to identify the names of the respondents. Other contents of the proposals will not be disclosed prior to award or rejection by Brazoria County.

Brazoria County reserves the right to reject any and all proposals and is not obligated to award a contract pursuant to this request for proposal.

8.1 Financial Statements

If your company is either shortlisted or deemed the highest ranked, you may be required to submit your current and prior 2 years financial statements for review. This ensures Brazoria County that your company, if awarded, has the financial capacity to perform its obligations under for the entirety of the contract.

Failure to provide financial statements may deem your submission as non-responsive.

9.0 EVALUATION CRITERIA

The criteria used to evaluate the proposals shall be:

Price - Price submitted in offer	50 points
Qualifications- Provide qualifications and experience your firm has with similar projects. <i>(See Exhibit B Vendor Qualifications: Section One – Vendors General Experience and Qualifications, Section Two – Projects and Section 9 Project Schedule).</i>	20 points
Proposed Personnel- Provide resumes of key personnel and list any litigation or claims against your firm. <i>(See Exhibit B Vendors Qualification: Section Three – Contractor Key Personnel, Section Six Vendor Litigation, Claims and Reputation & Compliance and Section 8 Subcontractor List)</i>	20 points
References- Provide a minimum of five (5) references for similar services to local government agencies and/or other entities within the last five (5) year. <i>(See Exhibit B Section Four – Vendor References)</i>	5 points
Other factors – Includes but not limited to, available resources and safety record. <i>(See Exhibit B Vendor Qualifications: Section Five- Vendors Current Work Schedule / Record and Section Seven - Vendors Safety Record)</i>	5 points

Bonus Scoring (15 point scale)

9.1 Bonus Points-Interview (If requested by evaluation committee)

Your score may be adjusted up to a maximum of 15 points-total overall possible evaluation points=15

9.1.1 Response to Questions & Answers (0-10 points)

9.1.2 Interview preparedness & adherence to interview (0-5 points)

10.0 CONTRACT TERM

Award of Contract shall begin upon acceptance of Contract and shall continue until completion of the project as stated on the Offer Sheet contained herein.

Brazoria County retains the option to solicit new proposals at any time if in its best interest.

11.0 PROJECT MANAGER

Name: Barbara Martinez
Department: Brazoria County Engineering

The County will maintain oversight to ensure that contractors perform in accordance with the terms, conditions and specifications of the contract.

12.0 INCLEMENT WEATHER FOR HARD COPY SUBMITTALS:

In case of inclement weather or any other unforeseen event causing the County to close for business on the date of a proposal submission deadline, the closing will automatically be postponed until the next business day the County is open and at the time shown on the Cover Sheet.

If inclement weather conditions or any other unforeseen event causes delays in carrier service operations, the County may issue an addendum to all known vendors interested in the project to extend the deadline. It will be the responsibility of the vendor to notify the County of their interest in the project if these conditions are impacting their ability to turn in a submission within the stated deadline. The County reserves the right to make the final judgment call to extend any deadline.

13.0 INSURANCE REQUIREMENTS

Vendor shall furnish certificates of insurance to County evidencing compliance with the insurance requirements hereof for the duration of the project. Certificates shall indicate name of Vendor, name of insurance company, policy number, term of coverage and limits of coverage.

Insurance shall be placed with insurers having an A.M. Best's rating of no less than A. Such insurance must be issued by a casualty company authorized to do business in the State of Texas, and in standard form approved by the Board of Insurance Commissioners of the State of Texas, with coverage provisions insuring the public from loss or damage that may arise to any person or property by reason of services rendered by Vendor.

Insurance required herein shall be maintained in full force and effect during the life of this contract and shall be issued on an occurrence basis. Vendor shall require that any and all subcontractors that are not protected under the Vendor's own insurance policies take and maintain insurance of the same nature and in the same amounts as required of Vendor and provide written proof of such insurance to Vendor. Proof of renewed/replacement coverage shall be provided upon expiration, termination, or cancellation of any policy. Vendor shall not allow any subcontractor to commence work on the subcontract until such insurance required for the subcontractor has been obtained and approved.

In the event that the insurance is renewed during the duration of the contract, Vendor shall furnish certificate of insurance to the County evidencing renewal of policy within 30 days of renewal. Vendor shall provide County with at least 30 days prior written notice of any reduction in the limit of liability by endorsement of the policy, cancellation or non-renewal of the insurance coverage required under this Agreement.

Certificates of Insurance, fully executed by a licensed representative of the insurance company written or countersigned by an authorized Texas state agency, shall be filed with the County Purchasing Agent within ten (10) business days of issuance of notification from the County Purchasing Agent to Bidder that the contract is being activated as written proof of such insurance and further provided that Bidder shall not commence work under this contract until it has obtained all insurance required herein and provided written proof as required herein.

WAIVER OF SUBROGATION:

All policies of insurance shall waive all rights of subrogation against Brazoria County, its officers, employees and agents.

ADDITIONALLY INSURED:

Further, on vendor's certificate of insurance supplied to Brazoria County, Brazoria County shall be listed as additionally insured with the exception of workers compensation insurance. The certificate holder shall be as follows:

Brazoria County
237 E. Locust Street, Suite 401
Angleton, TX 77515

14.0 LIQUIDATED DAMAGES, TERMINATION AND DELAYS

14.1 If the Vendor shall fail to fully complete the work within the time specified on the Bid Table (subject however to extensions of time duly granted in the manner and for the causes specified in the herein) the Vendor shall be charged by Brazoria County as liquidated and ascertained damages the sum of six hundred and eighty-five (\$685.00) dollars for each working day that the work remains incomplete beyond the time herein fixed for the completion, it being hereby expressly and mutually agreed that from the nature of the case it would be impracticable and extremely difficult to fix the actual damage which would or will be suffered in the event that the Vendor should fail to fully complete the work within the time specified, and it being further agreed that said charge herein provided for is reasonable and proper in the premises. The amount so charged may be deducted by Brazoria County from any moneys which might otherwise be or become payable to the Vendor.

14.2 Excusable Delays.

The right of the Vendor to proceed shall not be terminated nor shall the Vendor be charged with liquidated or ascertained damages for any delays in the completion of the work due to:

- Controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency; or
- Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Vendor, including, but not limited to, acts of God or of the public enemy, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.

Provided, however, the Vendor shall promptly notify Brazoria County Project Manager within ten (10) days in writing of the cause of any delay. Upon receipt of such notification, the Brazoria County Project Manager shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this Contract, the delay is determined by the Brazoria County Project Manager to be excusable, Brazoria County shall extend the time for completing the work for a period of time commensurate with the period of excusable delay. Any delay by the Vendor in not notifying the Brazoria County Project Manager shall not be excused.

15.0 CHANGE ORDERS

Due to budget constraints, change orders will be limited to those revisions that are due to unforeseen conditions and are approved by Brazoria County. Vendors are advised to fully understand the scope of work and to review the specifications and drawings in order to submit any requests for clarifications prior to the proposal opening.

In the event a change order is required and approved by Brazoria County, said changes shall be incorporated into this Contract in the form of a change order. All change orders shall be subject to the review and approval of Brazoria County Commissioner's Court, or the Court's designee, and shall be in accordance with the Local Government Code.

Any discrepancies which may be discovered between actual conditions and those represented by the specifications or drawings shall be reported at once to the Brazoria County Project Manager and work shall not proceed except at the Vendor's risk, until written instructions have been received by him from the Brazoria County Project Manager.

16.0 FINAL INSPECTION

When the work included in this Contract is substantially completed, the Vendor shall notify the Project Manager in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The Project Manager will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

Per Brazoria County, substantial completion is defined as a designated portion of a construction project that is sufficiently complete in accordance with the contract for the owner to occupy and / or utilize it for its intended use, without undue interference.

17.0 PAYMENTS TO VENDOR

17.1 Retainage

The Vendor shall prepare his invoice or application for payment for partial payment(s) as of the last day of the month and submit the invoice or pay application to the Project Architect and /or Brazoria County Project Manager for his approval. The amount of the payment due the Vendor shall have five percent (5%) deducted to be retained until final payment.

17.2 Final Payment

After final inspection and acceptance by Brazoria County of all work under the Contract, the Vendor shall prepare his – invoice or application for payment for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Contract. The total amount of the final payment due the Vendor under this Contract shall be the amount computed as described above less all previous payments.

18.0 HISTORICALLY UNDERUTILIZED BUSINESSES (HUB's)

Historically Underutilized Businesses (HUB's) are encouraged to participate in the bid/RFP processes. Although Brazoria County does not certify HUB vendors, Brazoria County recognizes the certifications of other governmental entities. If you are certified by a government entity, please upload the certificate with your response electronically in the Bonfire electronic platform or include a hard copy of your certificate in your submittal.

19.0 SYSTEM FOR AWARD MANAGEMENT (SAM)

The System for Award Management (SAM) is the official registration required prior to bidding on a contract with any federal government agency, including local governments who receive federal funds.

Prior to award, Brazoria County will check www.sam.gov, the System for Award Management (SAM), to ensure that the proposed vendor has not been debarred. Vendor shall provide their Unique Entity ID number to Brazoria County in order to check www.sam.gov for debarment. If you do not have a Unique Entity ID number, you can request a number for free by visiting <https://sam.gov/content/entity-registration>. For additional information about the change from DUNS to Unique Entity ID visit <https://www.gsa.gov/about-us/organization/federal-acquisition-service/office-of-systems-management/integrated-award-environment-iae/iae-systems-information-kit/unique-entity-id-is-here>. Brazoria County is unable to conduct business with vendors who have been debarred.

20.0 AWARD LETTER / NOTICE TO PROCEED

After the award has been made in Commissioner's Court, an award letter will be sent to the vendor with information on how to submit any required documentation needed to finalize the award. Once all required bonds, insurance, and other applicable forms have been submitted to the Purchasing Department, the Project Manager will contact the awarded vendor and set up the project kick-off meeting, if applicable.

21.0 DISCLOSURE OF CERTAIN RELATIONSHIP

Texas Local Government Code chapter 176 requires that any vendor or person who enters or seeks to enter into a contract with a local governmental entity (including any agent of such person or vendor) disclose in the Questionnaire Form CIQ the vendor or person's employment, affiliation, business relationship, family relationship or provision of gifts that might cause a conflict of interest with a local governmental entity.

By law, this questionnaire must be completed and filed with the records administrator of Brazoria County no later than the seventh business day after the date the person engages or communicates with Brazoria County or becomes aware of facts that require the completion of the questionnaire pursuant to Texas Local Government Code section 176.006.

A person commits an offense if the person knowingly violations Texas Local Government Code section 176.006. An offense under this section is a Class C misdemeanor.

A copy of House Bill 23 which amended the Texas Local Government Code Chapter 176 is available

at: <http://www.capitol.state.tx.us/tlodocs/84R/billtext/html/HB00023F.HTM>

Texas Local Government Code Chapter 176 can be found

here: <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>

Questionnaire Form CIQ is included in this bid/offer.

By submitting a response to this request, the vendor or person represents compliance with the requirements of Texas Local Government Code chapter 176. If required, completed forms should be sent with your proposal, as well as to:

Brazoria County Courthouse
County Clerk's Office
111 E. Locust Street, Suite 200
Angleton, TX 77515

22.0 CERTIFICATE OF INTERESTED PARTIES

Effective January 1, 2016, all contracts and contract amendments, extensions, or renewals executed by the Commissioners Court will require the completion of Form 1295 "Certificate of Interested Parties" pursuant to Government Code § 2252.908. Form 1295 must be completed by awarded vendor at time of signed contract submission.

Form 1295 and definitions are included in this bid/offer for your information.

All responding vendors may access a video from the Texas Ethics Commission which explains the process on how to submit Form 1295. The video link is available on the Brazoria County Purchasing website at <http://brazoriacountytx.gov/departments/purchasing/doing-business>.

23.0 BACKGROUND CHECKS AND NON-DISCLOSURE AGREEMENTS:

It is the policy of the County that contractor employees and subcontractors that will complete work in sensitive areas on Brazoria County property be subject to a criminal background check. The County reserves the right to determine a sensitive area and the appropriateness of a criminal background check for any contractor employee or subcontractor.

Non-Disclosure Agreements (NDA) may also be required by Brazoria County. NDAs will be provided to contractor employees and any subcontractors by the Purchasing Department and must be signed and returned in a time frame determined by Purchasing Department

BRAZORIA COUNTY BID TABLE SUBMITTAL INSTRUCTIONS

RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

Please follow the instructions found in Item 1.0 if you are submitting your bid electronically using Bonfire electronic bidding platform

1.0 ONLINE OFFER SUBMISSION (*PREFERRED METHOD OF SUBMISSION*)

RESPONDENTS ARE TO DOWNLOAD AND FILL OUT THE ONLINE BID TABLE FROM BONFIRE AND THEN UPLOAD THE COMPLETED TABLE INTO BONFIRE TO BE INCLUDED WITH THEIR ONLINE PROPOSAL SUBMISSION.

Please follow the instructions found in Item 2.0 if you are submitting a sealed hard copy proposal

2.0 HARD COPY PROPOSAL SUBMISSION

RESPONDENTS ARE TO INCLUDE WITH THEIR SEALED HARD COPY PROPOSAL, A PRINTED COPY OF ATTACHMENT A BID TABLE.

GENERAL: Brazoria County reserves the right to accept or reject any or all bids and waive all technicalities.

All delivered items should be priced – FOB Destination Full Freight Allowed. Brazoria County will not pay for any additional transportation and/or shipping charges.

BRAZORIA COUNTY STATEMENT OF NO OFFER

RFP #25-66 PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

If Respondent is not submitting on the goods and/or services as stated in this RFP, please download and complete this form.

Mail the form to:

Brazoria County Administration Building, Purchasing Department, 237 E. Locust Street, Suite 406, Angleton, Texas 77515.

Or email to: aerickson@brazoriacountytx.gov

NAME OF FIRM: _____

ADDRESS: _____

SIGNATURE: _____

TELEPHONE: _____ DATE: _____

The above has declined to submit a response for the following reason (s) [please check all that apply]:

_____ Specifications too “restrictive”, i.e., goods offered by our company do not meet stated specifications.

_____ Specifications unclear (please explain below).

_____ We do not offer this commodity and/or service or an equivalent.

_____ Insufficient time to respond to the RFP.

_____ Our schedule would not permit us to perform.

_____ Cannot meet insurance requirements.

Remarks: _____

BRAZORIA COUNTY

STANDARD TERMS AND CONDITIONS

1. **FUNDING:** Funds for payment have been provided through the Brazoria County budget approved by the Commissioners Court for the current fiscal year only. State of Texas statutes prohibit the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved. Therefore, anticipated orders or other obligations that may arise past the end of the current Brazoria County fiscal year shall be subject to budget approval.
2. **DELIVERY:** Items ordered from this offer may require delivery to various locations throughout Brazoria County, as specified in this offer or at time of order. All delivery and freight charges (F.O.B. Brazoria County designated location) are to be included in the offer price except as noted herein.
3. **AWARD OF CONTRACT:** Brazoria County reserves the right to reject any or all offers, and to select any part or parts thereof without accepting the entire offer. All solicitations may be compared with contracts available to the County through other sources such as Interlocal Agreements and other appropriate sources. Brazoria County may purchase through the source that provides the best value to the County. The successful Respondent will be notified of award as promptly as a thorough analysis of offers will permit, and shall have ten (10) calendar days following date of notification of award in which to supply payment and performance bonds and certificate of insurance as may be required herein.
 - 3.1 Brazoria County hereby notifies Respondents that pursuant to Texas Local Government Code §262.0276 (effective September 1, 2003) Brazoria County is prohibited from entering into a contract or other transaction which requires approval by the Commissioners Court with an individual, sole proprietorship, corporation, non-profit corporation, partnership joint venture, limited corporation or other entity which is indebted to the County. Further, that this Contract may be terminated and payment withheld if awarded Respondent becomes indebted to the County during the term of the Contract.
4. **EQUAL EMPLOYMENT:** All contracts will be awarded by Brazoria County without consideration as to race, religion, sex, national origin or disability of bidder. Successful bidders are required to adhere to the provisions of 42 USCA Sec. 12101 et seq., Americans with Disabilities Act.
5. **CONTRACT:** The Contract consists of the Instructions to Respondents, Specifications/Statement of Work, Standard Terms & Conditions, all well as all other documents included in the Request for Proposal Number 25-66 as stated in the Request for Proposal Package Checklist, and any drawings and other specifications, as well as addenda issued prior to execution of the Contract, other documents listed in the Contract, and modifications issued after execution of the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. No invoices will be paid prior to acceptance of Contract by Brazoria County. No different or additional terms will become a part of this Contract, except as agreed upon by all parties hereto.
6. **INTERLOCAL PARTICIPATION:** It is hereby made a precondition of any offer for a Contract for supplies or services and a part of these specifications, that the submission of any offer in response to this request constitutes an offer made under the same conditions, for the same price, and for the same effective period as this offer, to any other governmental entity having an interlocal agreement with Brazoria County.
 - 6.1 It is further understood, that any other governmental entity that elects to use a Brazoria County semi-annual or annual award will issue its own Contracts or purchase orders and will require separate billing.
7. **DEFAULT OF RESPONDENT:** If successful respondent defaults by failing to supply payment and performance bonds and/or certificate of insurance within the ten (10) day period allotted, award shall pass to the next respondent who provides the best value to Brazoria County upon the approval of Commissioners' Court.
 - 7.1 Respondent, in submitting this offer, agrees that Brazoria County shall not be liable for damages in the event that the County declares the respondent in default.
8. **ADDENDA:** Any interpretations, corrections or changes to these Contract documents and specifications will be made by addenda. Sole issuing authority of addenda shall be vested in the Brazoria County Purchasing Director. Addenda will be mailed to all that are known to have received a copy of the offer package and/or Contract. Respondents shall acknowledge receipt of all addenda.
9. **SALES TAX:** Brazoria County is exempt by law from payment of Texas Sales Tax and Federal Excise Tax.
10. **ETHICAL CONDUCT:** The respondent shall not offer or accept gifts or anything of value, nor enter into any business arrangement with any employee, official, or Director of Brazoria County. No public official shall have interest in this Contract, in accordance with Texas Local Government Code Annotated Title 5, Subtitle C, Chapter 171.

- 10.1** The Respondent affirms that the only person or parties interested in this offer as principals are those named herein, and that this offer is made without collusion with any other person, firm, or corporation.

11. MINIMUM STANDARDS FOR RESPONSIBLE PROSPECTIVE BIDDERS: A prospective bidder must affirmatively demonstrate bidder's responsibility. A prospective bidder must meet the following requirements:

- 1) Have adequate financial resources, or the ability to obtain such resources as required;
- 2) Be able to comply with the required or proposed delivery schedule;
- 3) Have a satisfactory record of performance;
- 4) Have a satisfactory record of integrity and ethics;
- 5) Be otherwise qualified and eligible to receive an award.

- 11.1** Brazoria County may request representation and other information sufficient to determine bidder's ability to meet these minimum standards listed above.

12. REFERENCES: During an analysis of all offers, Brazoria County may request Respondent to supply a list of three (3) references to which like services or materials have been supplied by Respondent. If requested, references should include name of firm, address, telephone number and name of representative.

13. INSURANCE: Prior to acceptance of contract by Brazoria County, the successful Respondent must furnish a Certificate of Insurance from an approved insurance carrier for the coverage indicated.

14. SILENCE OF SPECIFICATIONS: The apparent silence of the specifications contained as a part of this package as to any detail or to the apparent omission of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

15. INDEMNIFICATION: The successful Respondent (herein after referred to as Contractor), shall defend, indemnify, and save harmless Brazoria County and all its officers, Directors, officials, agents, and employees from all suits, actions, or other claims of any character, name, and description brought for or on account of any injuries or damages of any negligent act or fault of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act of omission, neglect, or misconduct of said Contractor; or because any claims or amount recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising recovered under the Worker's Compensation Act, or any other law, ordinance, order, or decree; or of any Director, employee, subcontractor, or supplier in the execution of, or performance under, any Contract which may result from award of bid/offer.

- 15.1** Further, Contractor indemnifies and will indemnify and save harmless Brazoria County from liability, claim or demand on their part, their Directors, servants, customers, employees, subcontractors, or any employees or agents of subcontractors, whether such liability, claim, or demand arise from event or casualty happening within the job site itself or elsewhere. Contractor shall pay any judgment with costs which may be obtained against Brazoria County growing out of such injury or damages.

- 15.2** Money due the Contractor under and by virtue of his Contract as may be considered necessary by the County for such purpose may be retained for the use of the County, or in case no money is due, his surety may be held until such suit or suits action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to the effect furnished to the County, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance.

16. THIRD PARTY BENEFICIARY CLAUSE: It is specifically agreed between the parties executing the Contract that it is not intended by any of the provisions of any part of the Contract to create with the public or any member thereof a third party beneficiary or to authorize anyone not a party to the Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the Contract.

17. PURCHASE ORDERS REQUIRED: All orders for materials or work must be authenticated by a purchase order issued by the Brazoria County Purchasing Department. Invoices not bearing a purchase order number will not be paid.

18. TESTING: All materials being used in fulfillment of this Contract are subject to inspection or test at any time during their preparation, delivery, or use. At the option of the County Purchasing Director, they may be sampled and tested in order to determine compliance with the governing specifications. Materials not conforming to the requirements of these specifications shall not be used in fulfillment of this Contract with Brazoria County. The County reserves the right to immediately terminate any Contract found not to be in compliance with governing specifications as a result of testing by the County.

19. WAGES: Contractor shall pay or cause to be paid, without cost or expense to Brazoria County, all Social Security, Unemployment and Federal Income Withholding Taxes of all employees; and all such employees shall be paid wages and benefits as required by Federal and/or State law. Contracts involving construction work or supply of materials in place shall abide by the provisions of Article 5159d Texas Revised Civil Statutes Annotated.

20. TERMINATION OF CONTRACT:

Termination with Cause:

“Upon written notice to the Contractor of a defect or breach of this Agreement, Contractor has five (5) business days to cure any defect(s) or breach(es) cited in said notice. If Contractor fails to cure the defect(s) or breach(es) within the five (5) business days allowed, Brazoria County may terminate this Agreement. Nevertheless, Brazoria County reserves the right to provide written notice to the Contractor that this Agreement shall continue if Contractor has in good-faith commenced efforts to cure said defect(s) or breach(es) and Contractor agrees, in writing, to continue to act without undue delay to cure said defect(s) or breach(es).

Termination Without Cause:

This contract may be terminated by either the County or the Contractor at any time, without cause, by providing the other Party at least thirty (30) calendar days’ prior written notice.

21. DELIVERY OF NOTICES: Any notice provided by this Contract (or required by law) to be given to the Contractor by Brazoria County shall be conclusively deemed to have been given and received on the next day after such written notice has been deposited in the mail in Angleton, Texas, by Registered or Certified mail with sufficient postage affixed thereto, addressed to the Contractor at the address so provided; provided this shall not prevent the giving of actual notice in any other manner.

22. DELIVERY TICKETS: Delivery tickets shall accompany each order shipped, and shall show Contractor’s name and address, delivery location, Brazoria County purchase order number and descriptive information as to item and quantity delivered.

23. HAZARDOUS SUBSTANCES: State law requires that shipments of hazardous substances shall include MATERIAL SAFETY DATA SHEETS (MSDS). MSDS must be supplied with the first order shipped under any contract, and at any time MSDS is revised.

24. PAYMENT: Payment shall be made upon receipt and/or acceptance in accordance with the terms of this Contract by the County of items(s) ordered, and receipt of a valid invoice in accordance with Texas Government Code chapter 2251. Contractor is required to pay subcontractors within ten (10) days.

25. CONTRACTOR’S LIABILITY: The Contractor shall be responsible for all damage or injury to property of any character during the execution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, including the Contractor’s agents, employees, subcontractors, and any employees or agents of subcontractors, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

25.1 When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, including the Contractor’s agents, employees, subcontractors, and any employees or agents of subcontractors, he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as he may be directed, or he shall make good such damage or injury in an acceptable manner.

26. DEFECTIVE MATERIALS: Unless otherwise stated herein, items supplied under this Contract shall be subject to the County’s approval. Items found defective or not meeting specifications shall be picked up and replaced by the Contractor at the next service day at no expense to the County. If item is not picked up within one (1) week after notification, the item will become a donation to the County for disposition.

27. WARRANTY: Contractor shall warrant that all items and services shall conform to the proposed specifications, all warranties as stated in the Uniform Commercial Code, and be free from all defects in material, workmanship and title. Contractor and the County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code. Further, Contractor shall provide additional warranty requirements as defined in the Scope of Work attached. Respondents must provide all warranty terms and conditions in response package.

28. ASSIGNMENT: Contractor shall not sell, assign, transfer or convey this Contract, in whole or in part, without the prior written consent of Brazoria County.

29. GOVERNING LAW: Contractor is advised that these requirements shall be fully governed by the laws of the State of Texas and that Brazoria County may request and rely on advice, decisions and opinions of the Attorney General of Texas and the County

Attorney concerning any portion of these requirements. All disputes arising out of this agreement will be resolved in Brazoria County, Texas.

All documents are subject to the Public Information Act requirements.

- 30. DRAWINGS:** All drawings, plans, and specifications are hereby attached and made a part of this Contract.
- 31. RIGHT TO AUDIT:** At any time during the term of this Contract and for a period of four (4) years thereafter, the State of Texas, Brazoria County, and/or other federal, State and local agencies which may have jurisdiction over this contract and/or purchase order, at reasonable times and at its expense reserve the right to audit successful bidder's records and books. If needed for audit, original or independently certified copies of off-site records will be provided to auditors at successful respondent's expense within two (2) weeks of written request.
- 32. BID BOND:** If required by the County, all respondents must submit with bid, a Bid Bond for at least five percent (5%) of the total bid price, if the bid exceeds \$100,000 in Contract price or if the Contract includes construction of public work. Such Bid Bond issued by a surety, acceptable to Brazoria County, authorized to do business in the State of Texas, is a guaranty that the respondent will enter into a contract with Brazoria County (as outlined in the Instructions/Specifications/Statement of Work and attachments) and that offer will furnish the requisite performance and payment bonds as may be required.
- 33. PERFORMANCE AND PAYMENT BONDS:** In the event the total accepted proposal price exceeds \$25,000 the successful respondent must provide to the office of the County Purchasing Director, a payment bond, and if the price exceeds \$100,000 the successful respondent must also provide a performance bond, each in the amount of one hundred percent (100%) of the total contract sum within ten (10) calendar days after receipt of notification of bid/proposal award. Such bonds shall be executed by a corporate surety or corporate sureties in accordance with Article 7.19-1, Vernon's Texas Insurance Code. Such corporate surety/sureties shall be duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue fidelity and surety bonds with a Best Rating of "A" or better and have a bonding capacity adequate for the prescribed amount. Brazoria County reserves the right to accept or reject any surety company proposed by the respondent. In the event Brazoria County rejects the proposed surety company, the respondent will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Brazoria County.
- 34. APPLICABLE LAW:** All applicable laws and regulations of the State of Texas and ordinances and regulations of Brazoria County shall apply.
- 35. COMPLIANCE WITH APPLICABLE LAWS:** Respondent shall at all times observe and comply with all federal, state, local and municipal ordinances, rules, regulations, relating to the provision of the services contracted to be provided by respondent hereunder or which in any manner affect this Contract.
- 36. FORCE MAJEURE:** Neither the County nor the successful respondent shall be deemed in violation of this Agreement if either is prevented from performing its obligations hereunder for any reason beyond its control, including but not limited to, acts of God, civil or military authority, acts of public enemy, war riots, rebellions, accidents, fires, explosions, earthquakes, floods, or catastrophic failure of public transportation; provided however, that in the event of strikes or labor disputes, an inability to procure raw materials, equipment, power or supplies, or the enactment of any law, order, proclamation, regulation, ordinance, demand, or other requirement of any governmental agency or intergovernmental body, which prevents, restricts, interferes or delays with the performance of this Contract, the party so affected, upon giving notice to the other party, shall be excused from such performance to the extent of such prevention, restriction, delay or interference, so long as the party so affected shall use reasonable efforts under the circumstance to avoid or remove such causes of nonperformance, and shall continue performance hereunder with the utmost dispatch whenever such causes are removed.
- 37. SEVERABILITY:** If any provision of this Contract is held to be unenforceable for any reason, the unenforceability thereof shall not affect any other provision contained herein, and the remainder of the Contract shall remain in full force and effect, and enforceable in accordance with its terms.
- 38. QUANTITIES:** Brazoria County requests purchase prices for the items identified in this offer, and in accordance with the specifications provided herein. The quantities provided are given as a guideline only for the purpose of offer preparation. These quantities shall not be construed as the total number of purchases for the Contract. This estimated figure may increase and/or decrease throughout the year. No guarantee is expressed or implied as to the total quantity of items to be purchased under this Contract.
- 38.1** Brazoria County reserves the right to add or delete like or related items at any time during the term of this Contract. The additions or deletions shall be incorporated into the contract in the form of an addendum. Additional items shall be priced in accordance with this contract with appropriate discounts being applied.

- 39. PURCHASE FROM OTHER SOURCES:** Brazoria County reserves the right to purchase goods and/or services specified herein, or of equal or like kind, through contracts established by other governmental agencies or thorough separate procurement actions due to the unique or special needs of Brazoria County. Further, the County reserves the right to obtain such goods and/or services from others without penalty or prejudice to the County or the respondent and such action shall not invalidate in whole or in part this Contract or any rights or remedies Brazoria County may have hereunder.
- 40. AGREEMENT TO NOT BOYCOTT ISRAEL:** By agreeing to this Purchase Order [or if no formal agreement, by providing the good(s) / services(s)] the vendor verifies it does not boycott Israel and will not boycott Israel, as defined by Chapter 808 of the Texas Government Code, during the term of this contract [during the time necessary to provide the good(s) / services(s)].
- 41. TEXAS GOVERNMENT CODE 552, SUBCHAPTER J:** Effective January 1, 2020, the requirements of Subchapter J, Chapter 552, Texas Government Code, may apply to this contract and the Contractor agrees that the contract can be terminated if the Contractor knowingly or intentionally fails to comply with a requirement of that subchapter.
- 42. PROHIBITED TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES AND EQUIPMENT CERTIFICATION (2 CFR 200.216):** By agreeing to this purchase order (or if no formal agreement, by providing goods/services) the vendor represents and warrants that the equipment, systems, and/or services which it will provide to Brazoria County do not use covered telecommunications equipment or services (as defined in Section 889 John S. McCain National Defense Authorization Act for Fiscal Year 2019 (FY 2019 NDAA), Pub. L. No. 115-232 (2018)) as a substantial or essential component of any system, or as critical technology of any system. Additionally, the vendor represents and warrants that the equipment, systems, and/or services it will provide are not prohibited from being procured using grant funds under section 889 of the FY 2019 NDAA.
- 43. AGREEMENT TO NOT BOYCOTT ENERGY COMPANIES:** By agreeing to this Purchase Order [or if no formal agreement, by providing the good(s) / services(s)] the vendor verifies it does not boycott energy companies and will not boycott energy companies, as defined by Chapter 809 of the Texas Government Code, during the term of this contract [during the time necessary to provide the good(s) / services(s)].
- 44. AGREEMENT TO NOT DISCRIMINATE AGAINST A FIREARM ENTITY OR TRADE ASSOCIATION:** By agreeing to this Purchase Order [or if no formal agreement, by providing the good(s) / services(s)] the vendor verifies it does not discriminate against a firearm entity or trade association and will not discriminate against a firearm entity or trade association, as defined by Chapter 2274 of the Texas Government Code, during the term of this contract [during the time necessary to provide the good(s) / services(s)].
- 45. DEBRIEF, PROTEST AND APPEAL PROCUDURES:** Please see page 20 of 48, section D. of the Brazoria County Policy and Procedure Manual which can be found on the Brazoria County Purchasing Department's "Doing Business" webpage, <https://www.brazoriacountytx.gov/departments/purchasing/doing-business>.
- 46. DISCLOSURE OF INTERESTED PARTIES FORM 1295:** A person or business, who enters into a contract with the County, meeting the conditions according to Texas Local Government Code Sec. 2252.908, is required to file Form 1295 with Texas Ethics Commission. A contract entered into by a governmental entity is voidable for failure to provide the disclosure of interested parties if the entity submits written notice to the business entity of the failure to submit the form and the business entity has not provided the form on, or before, the 10th business day after the business entity receives written notice to submit the Form 1295. **This form is not required unless there is a contract between the vendor and the Brazoria County. Do not submit this form unless you receive an award letter from the County.**

BRAZORIA COUNTY SPECIAL REQUIREMENTS

RESPONDENT INSTRUCTIONS:

READ THIS ENTIRE DOCUMENT CAREFULLY. FOLLOW ALL INSTRUCTIONS. YOU ARE RESPONSIBLE FOR FULFILLING ALL REQUIREMENTS AND SPECIFICATIONS. BE SURE YOU UNDERSTAND THEM.

The following requirements and specifications supersede other requirements where applicable.

General

The requirements set forth below are intended to outline the basic operating parameters and procedures required to provide goods and/or services to Brazoria County as described herein. It is not the intention to describe every item required. In the performance of this Contract, the successful respondent represents it is familiar with the condition under which Brazoria County operates and represents that it has the resources, knowledge and skills to properly support the County's needs consistent with these special conditions and the Contract documents.

The County reserves the right to modify this Contract and Scope of Work as necessary to develop and maintain specifications / statement of work that meets the County's needs. Such modifications shall be mutually agreed upon and shall be incorporated into this Contract as an addendum. Brazoria County shall not be responsible for any additional charge that is not stated in this Contract or mutually agreed to prior to such work or service is performed and/or invoiced.

The Specifications/Statement of Work provided in this package is to be used as a guide in developing an offer to this RFP. The information contained herein is not intended to be restrictive and the County will consider alternate offers submitted by respondent. Alternate offers shall be clearly marked with the proposed alternates and or exceptions to the Specifications/Statement of Work and shall include all pricing/cost advantages if applicable. Respondents are expected to include any additional requirements that may have been inadvertently left out of the attached Specifications/Statement of Work.

All offers inclusive of pricing shall remain firm for acceptance for a period of ninety (90) days from opening date unless otherwise specified by Brazoria County.

Prices offered shall reflect the full Specifications/Statement of Work as defined per the RFP documents, inclusive of all associated costs for insurance, taxes, overhead, profit and bonding, if required and so identified.

Respondent must include all incidental costs in his pricing. Brazoria County will not provide or allow for parking or travel reimbursements for the respondent's employees. Respondent's offices, administration and/or place of business will not be on Brazoria County premises and will be the respondent's responsibility. Only those costs shown on the Pricing/Delivery Sheet and confirmed by a purchase order will be paid.

It is also understood that any and all persons who provide services under Contract to Brazoria County, resulting from this Request for Proposal, shall be and remain employees of the Contractor, not Brazoria County. It is understood and agreed that the respondent is solely responsible for all services being provided and shall provide adequate insurance to cover against any and all losses incurred by the respondent's employees and or equipment during the course of the Contract.

Respondents may be requested to provide presentations, such presentations may develop into negotiating sessions with the successful respondent as selected by the evaluation committee. If Brazoria County and respondent are unable to agree to Contract terms, Brazoria County reserves the right to terminate Contract negotiations with that respondent and enter into negotiations with another respondent.

No award or acquisition can be made until Commissioners Court approves such action.

Brazoria County will not be obligated to the respondent for goods and/or services until completion of a signed Contract as approved by Commissioners Court.

Submission of an offer implies the respondent's acceptance of the evaluation criteria and respondent recognition that subjective judgments must be made by the evaluating committee.

This Request for Proposal in no manner obligates Brazoria County or any of its agencies to the eventual purchase of any goods and/or services described, implied or which may be proposed, until confirmed by a written Contract and purchase order. Progress toward this end is solely at the discretion of Brazoria County and may be terminated at any time prior to the signing of a Contract.

Brazoria County will not be liable for any costs incurred by the respondent in preparing a response to this RFP. Brazoria County makes no guarantee that any goods and/or services will be purchased as a result of this request for proposal, and reserves the right to reject any and all offers. All offers and their accompanying documentation will become the property of Brazoria County. All offers shall be open to negotiation.

All documents will be held by the County and are NOT subject to public view until an award is made. When an award is made, offers are subject to review under the "Public Information Act". To the extent permitted by law, respondents may request in writing non-disclosure of confidential data. Such data shall accompany the offer, be readily separable from the offer and shall be CLEARLY MARKED "CONFIDENTIAL".

All correspondence relating to this RFP, from advertisement to award shall be sent to the Brazoria County Purchasing Department. All presentations and/or meetings between Brazoria County and the respondent relating to this RFP shall be coordinated by the Brazoria County Purchasing Department. Deviations from this requirement may cause the cancellation of this RFP process and/or disqualification of respondent's proposal.

All information provided to respondent for the purpose of submitting a proposal in response to this RFP is confidential, and is and will remain, the property of Brazoria County and will not be used by respondent for any other purposes.

The respondent is expected to examine all documents, forms, specifications, and all instructions. Failure to do so will be at respondent's risk.

The use of liquid paper is **NOT** acceptable and may result in the disqualification of RFP. If an error is made, bidder **MUST** draw a line through the error and initial each change.

Exceptions

Respondent Terms & Conditions are subject to the review and approval of Brazoria County. In the event of conflicting Terms & Conditions, the terms and conditions contained in the solicitation package shall prevail.

Respondent must clearly identify any conflict with terms & conditions by denoting them on the same page where the conflicting terms and conditions appear.

Public Information Act

All responses to this solicitation are in their entirety, subject to the Public Information Act. Brazoria County will respond to open records requests in accordance to law by providing all requested response information unless respondent (respondent) has specifically identified, in the response package, any section or part respondent deems confidential and/or proprietary. Respondent must note and identify such information on the page where such information appears in the same manner as other exceptions.

Late Offer - Electronic Submissions

Once the project closes in Bonfire, Respondents are not able to upload a finalized submission electronically.

Late Offer – Hard Copy Submissions

Hard Copy proposals received in the office of the County Purchasing Director after submission deadline will be considered void and unacceptable. Brazoria County is not responsible for lateness or non-delivery of mail, carrier, etc., and the date/time stamp in the office of the County Purchasing Director shall be the official time of receipt.

Altering Submissions - Electronic

If an error is made after your proposal submission is finalized, click [HERE](#) for instructions. Bonfire allows for respondents to make alterations or amendments and re-submit their submissions before the project closes.

Altering Submissions – Hard Copy

Bids cannot be altered or amended after submission deadline. Any interlineation, alteration, or erasure made before opening time must be initialed by the signer of the bid/offer, guaranteeing authenticity.

Substitutions to Offer

Brazoria County reserves the right to accept any and all or none of the substitutions deemed to be in the best interest of the County.

Withdrawal of Offer

An offer may not be withdrawn or canceled by the respondent without the permission of Brazoria County for a period of ninety (90) days following the date designated for the receipt of bids/offers, and respondent so agrees upon submittal of their bid/offer.

Descriptions

Any reference to model and/or make/manufacture used in bid/offer specifications or scope of work are descriptive, not restrictive. It is used to indicate the type and quality desired. Bids/Offer on items of like quality will be considered. Offer must provide hardware specifications where hardware is offered.

Terms of Payment

Terms of payment shall be net thirty (30) days from receipt of acceptable invoice and/or acceptance of conforming goods, whichever is later. However, alternate terms will be considered and may be offered. Invoices for installed equipment and software will not be paid prior to complete acceptance by Brazoria County unless otherwise specified. If installation of equipment and software is delayed, the

County reserves the right (without extra expense or penalty) to delay a portion of the payment until equipment is installed and functioning properly.

Pricing / Delivery

All items should be priced – FOB Destination Full Freight Allowed, inside delivery. Brazoria County will not pay for any additional transportation and/or shipping charges.

No charges may be billed to the County unless such costs were explicitly included in the proposal. Respondent will incur any costs not explicitly included in the proposal and/or mutually agreed to in writing by the Brazoria County Purchasing Department.

Reduction in Price: If during the life of the contract, the successful bidder's net prices to other customers for items awarded herein are reduced below the contracted price, it is understood and agreed that the benefits of such reduction shall be extended to Brazoria County.

Price Increase: Requests for price adjustments must be solely for the purpose of accommodating an increase in the vendor's cost. A request for a pricing increase will be reviewed by Purchasing Department using the Producer Price Index (PPI) and/or Consumer Price Index (CPI) and any other research available to determine market conditions favorable to the increase. If market conditions dictate an increase to an awarded vendor's cost, the awarded vendor may submit a request to increase pricing no later than thirty (30) days after receiving notice of the County's intent to renew the contract. Requests will only be considered at the time of renewal with written approval from the County. Additionally, the vendor must de-escalate pricing on a previously escalated item, if the decrease is appropriate, due to market conditions.

The request must be in writing and substantiated with supporting documentation (i.e., increase in manufacturers direct cost, etc.). The request shall be addressed to the County Purchasing Director, 237 E. Locust, Suite 406, Angleton, Texas 77515. The request may also be emailed to the Contract Specialist listed in the solicitation. The awarded vendor's past history of honoring contracts at the bid/offer price will be an important consideration in the determination of requested price increase. Brazoria County reserves the right to accept or reject any/all of the requests for price adjustments as it deems to be in the best interest of the County. If rejected, either party may terminate the contract in accordance with the termination provisions of the contract.

Personnel

Successful respondent agrees at all times to maintain an adequate staff of experienced and qualified full time employees to ensure efficient performance under this Agreement. No part-time, subcontract, or third party personnel may perform services hereunder without the prior written consent of the Brazoria County Purchasing Department.

Successful respondent agrees that at all times its employees will perform required services in a professional and workmanlike manner in accordance with good industry practices.

Brazoria County may, at any time, request the removal and replacement of any of successful respondent's employees and the successful respondent will duly consider such request.

Legal Documents

Respondent must submit with its proposal any agreements for services, etc. which may be required by their organization to enter into a Contract with Brazoria County. These agreements must be completed, executed by respondent's authorized representative and submitted with the returned proposal, and are subject to review and amendment by the Brazoria County Attorney's Office, and to approval by Commissioners Court. In the event of conflicting terms, the Brazoria County Terms and Conditions, Statement of Work, and attachments shall prevail.

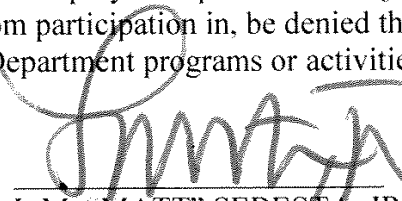
Contract Obligations

This offer, submitted documents and any negotiations, when properly accepted by Brazoria County, shall constitute a Contract equally binding between the successful respondent and Brazoria County. The selected respondent will be considered as the prime Contractor and shall assume responsibility for the goods and/or services. Failure to meet obligations may result in the cancellation of any Contracts.

The respondent's response may be incorporated into any Contract which results from this RFP, therefore, respondents are cautioned not to make claims or statements which they are not prepared to commit to Contractually. Failure by the respondent to meet such claims will result in a requirement that the respondent provide resources necessary to meet submitted claims and/or breach of Contract.

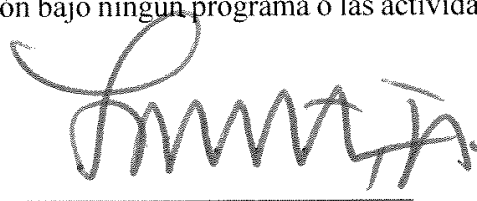
**Title VI and Related Statues
Nondiscrimination Statement**

Brazoria County, as a recipient of Federal financial assistance and under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person shall on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment per 42 U.S.S. § 2000d-3), color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any Department programs or activities.


L.M. "MATT" SEBESTA, JR.
COUNTY JUDGE

**Titulo VI y Estatutos Relacionados
Declaration de No Discriminacion**

Brazoria County, como beneficiario de la asistencia financiera federal y según el Título VI de la Ley de Derechos Civiles de 1964 y los estatutos relacionados, asegura que ninguna persona será excluida por motivos de raza, religión (donde el objetivo principal de la ayuda financiera es proporcionar empleo por 42 USS § 2000d-3), color, origen nacional, sexo, edad o discapacidad de participacion en, o negado los beneficios de, ni será sujeto a discriminación bajo ningún programa o las actividades del Departamento.


L.M. "MATT" SEBESTA, JR.
COUNTY JUDGE

PREVAILING WAGE RATES

"General Decision Number: TX20250038 01/03/2025

Superseded General Decision Number: TX20240038

State: Texas

Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: 	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: 	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
0 01/03/2025

SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE		
FINISHER (Paving and Structures).....	\$ 12.98	**
ELECTRICIAN.....	\$ 27.11	
FORM BUILDER/FORM SETTER		
Paving & Curb.....	\$ 12.34	**
Structures.....	\$ 12.23	**
LABORER		
Asphalt Raker.....	\$ 12.36	**
Flagger.....	\$ 10.33	**
Laborer, Common.....	\$ 11.02	**
Laborer, Utility.....	\$ 11.73	**
Pipelayer.....	\$ 12.12	**
Work Zone Barricade Servicer.....	\$ 11.67	**
PAINTER (Structures).....	\$ 18.62	
POWER EQUIPMENT OPERATOR:		
Asphalt Distributor.....	\$ 14.06	**
Asphalt Paving Machine.....	\$ 14.32	**
Broom or Sweeper.....	\$ 12.68	**
Concrete Pavement Finishing Machine.....	\$ 13.07	**
Concrete Paving, Curing, Float, Texturing Machine....	\$ 11.71	**
Concrete Saw.....	\$ 13.99	**
Crane, Hydraulic 80 Tons or less.....	\$ 13.86	**
Crane, Lattice boom 80 tons or less.....	\$ 14.97	**
Crane, Lattice boom over 80 Tons.....	\$ 15.80	**
Crawler Tractor.....	\$ 13.68	**
Excavator, 50,000 pounds or less.....	\$ 12.71	**
Excavator, Over 50,000 pounds.....	\$ 14.53	**
Foundation Drill, Crawler Mounted.....	\$ 17.43	**
Foundation Drill, Truck Mounted.....	\$ 15.89	**
Front End Loader 3 CY or Less.....	\$ 13.32	**
Front End Loader, Over 3 CY.	\$ 13.17	**
Loader/Backhoe.....	\$ 14.29	**
Mechanic.....	\$ 16.96	**

Milling Machine.....	\$ 13.53	**
Motor Grader, Fine Grade....	\$ 15.69	**
Motor Grader, Rough.....	\$ 14.23	**
Off Road Hauler.....	\$ 14.60	**
Pavement Marking Machine....	\$ 11.18	**
Piledriver.....	\$ 14.95	**
Roller, Asphalt.....	\$ 11.95	**
Roller, Other.....	\$ 11.57	**
Scraper.....	\$ 13.47	**
Spreader Box.....	\$ 13.58	**

Servicer.....\$ 13.97 **

Steel Worker

Reinforcing Steel.....	\$ 15.15	**
Structural Steel Welder.....	\$ 12.85	**
Structural Steel.....	\$ 14.39	**

TRUCK DRIVER

Low Boy Float.....	\$ 16.03	**
Single Axle.....	\$ 11.46	**
Single or Tandem Axle Dump..	\$ 11.48	**
Tandem Axle Tractor w/Semi Trailer.....	\$ 12.27	**

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====
** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658 (\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal

number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c) (1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage

and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION"

INSURANCE REQUIREMENTS

The following requirements and specifications shall be in addition to the other requirements contained herein and shall supersede the other requirements where applicable.

INSURANCE: Prior to acceptance of contract by Brazoria County, the successful bidder must furnish a Certificate of Insurance together with a receipt showing the time period for which premium has been paid, from an approved insurance carrier for the coverage indicated below.

A. FOR CONSTRUCTION WORK CONTRACTS, THE FOLLOWING COVERAGES ARE REQUIRED:

1. Statutory workers compensation in accordance with the State of Texas requirements.
2. Comprehensive general liability including owners and contractors protective liability insurance for bodily injury, death, or property damages in the following amounts:

COVERAGE	PER OCCURRENCE
a. Premises and product liability	\$3,000,000
b. Aggregate policy limits	\$1,000,000

3. Comprehensive automobile and truck liability insurance (covering owned, hired and non-owned vehicles):

COVERAGE	PER OCCURRENCE
a. Bodily injury (including death)	\$3,000,000
b. Property damage	\$3,000,000

Insurance certificates and policy endorsements shall include agreements to hold Commissioners Court of Brazoria County and Brazoria County, Texas harmless; i.e., shall include coverage for “Hold Harmless Agreement”.

Failure to maintain insurance coverage as required herein shall be grounds for immediate termination of contract.

All policies must provide, by endorsement to the policy, that thirty (30) days prior written notice of cancellation or material change in coverage be given to the Purchasing Director of Brazoria County. Such insurance when accepted by the County in writing will become acceptable and shall remain unmodified until final acceptance of the work. Coverage provided must be on an occurrence basis.

No policy submitted shall be subject to limitations, conditions, or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the successful bidder. The decision of Brazoria County thereon is final.

All policies shall be written through a company duly entered and authorized to transact that class of insurance in the State of Texas.

Neither approval by Brazoria County of any insurance supplied by the successful bidder, nor a failure to disapprove that insurance, shall relieve the successful bidder of full responsibility of liability, damages and accidents as set forth herein.

No additional payment shall be made for any insurance that the successful bidder may be required to carry.

Certificate Holder information shall be as follows:

Brazoria County
237 E. Locust Street, Suite 401
Angleton, TX 77515

BRAZORIA COUNTY BID BOND INFORMATION AND REQUIREMENTS

The following requirements supersede other requirements where applicable.

BID BOND: All respondents must submit with bid/proposal, a bid bond for at least five percent (5%) of the total bid/proposal price for this construction of a public work project. A Bid Bond shall be issued by a surety acceptable to Brazoria County, authorized to do business in the State of Texas, as a guaranty that the respondent will enter into a contract with Brazoria County (as outlined in the Statement of Work and attachments) and that offer will furnish the requisite performance and payment bonds as may be required.

If submitting to this Bid/Offer electronically, an original (paper, not electronic) bid bond is required to be mailed to the Purchasing Department within three (3) business days *of receipt of the Intent to Award letter* and a copy of the original bid bond shall be submitted with the electronic Bid/Offer response. Please use the label found on the last page of the RFP procurement package, as well as the hard copy mailing address found in the same procurement package. If submitting to this Bid/Offer through hard copy format (not electronically), the original bid bond must be included in the Bid/Offer response.

A guaranty shall be submitted with each bid that the bidder will enter into a contract with Brazoria County for the goods and/or services as outlined in the Specifications, Scope of Work and contract attachments and that respondent will furnish the requisite performance and payment bonds as may be required within ten (10) days after award of the contract and receipt of contract and performance bond forms.

Performance bond and payment bond shall be in a sum equal to the amount of money to be paid by the County under the contract, unless otherwise stated, and shall be executed by a surety company authorized to do business in the State of Texas.

Written verification of the validity of the bond shall be received by the Purchasing Department from the Contractor's Surety before any payments will be made.

BRAZORIA COUNTY PERFORMANCE BOND INFORMATION AND REQUIREMENTS

The following requirements supersede other requirements where applicable.

PERFORMANCE BOND: (Public Works Contract or as Required by Commissioner's Court) As designated below, the successful respondent must provide a performance bond, in the amount of one hundred percent (100%) of the total contract sum within ten (10) calendar days after receipt of notification of bid/proposal award. Such bond shall be executed by a corporate surety or corporate sureties in accordance with Article 7.19-1, Vernon's Texas Insurance Code. Such corporate surety/sureties shall be duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue fidelity and surety bonds with a Best Rating of "A" or better and have a bonding capacity adequate for the prescribed amount. Brazoria County reserves the right to accept or reject any surety company proposed by the respondent. In the event Brazoria County rejects the proposed surety company, the respondent will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Brazoria County.

XX PERFORMANCE BOND REQUIRED WHEN BID/PROPOSAL EXCEEDS \$100,000
AND IS FOR PUBLIC WORK.

_____ PERFORMANCE BOND REQUIRED WHEN BID/PROPOSAL EXCEEDS \$50,000.00 AND IS REQUIRED BY
BRAZORIA COUNTY.

If the performance bond and related documents are not returned to the Brazoria County Purchasing Department, 237 E. Locust, Suite 406, Angleton, Texas 77515 within ten (10) days of award, Brazoria County has the right to render the award ineffective.

Written verification of the validity of the bond shall be received by the Purchasing Department from the Contractor's Surety before any payments will be made.

BRAZORIA COUNTY PAYMENT BOND INFORMATION AND REQUIREMENTS

The following requirements supersede other requirements where applicable.

PAYMENT BOND: (Public Works Contract) In the event the total accepted bid/proposal price exceeds \$25,000 the successful respondent must provide to the office of the County Purchasing Director, a payment bond in the amount of one hundred percent (100%) of the total contract sum within ten (10) calendar days after receipt of notification of bid/proposal award. Such bond shall be executed by a corporate surety or corporate sureties in accordance with Article 7.19-1, Vernon's Texas Insurance Code. Such corporate surety/sureties shall be duly authorized and admitted to do business in the State of Texas and licensed in the State of Texas to issue fidelity and surety bonds with a Best Rating of "A" or better and have a bonding capacity adequate for the prescribed amount. Brazoria County reserves the right to accept or reject any surety company proposed by the respondent. In the event Brazoria County rejects the proposed surety company, the respondent will be afforded five (5) additional days to submit the required bonds issued by a surety company acceptable to Brazoria County.

 X PAYMENT BOND REQUIRED WHEN BID/PROPOSAL EXCEEDS \$25,000 AND IS FOR PUBLIC WORKS.

If the payment bond and related documents are not returned to the Brazoria County Purchasing Department, 237 E. Locust, Suite 406, Angleton, Texas 77515 within ten (10) days of award, Brazoria County has the right to render the award ineffective.

Written verification of the validity of the bond shall be received by the Purchasing Department from the Contractor's Surety before any payments will be made.

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

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is _____, and my date of birth is _____.

My address is _____ (street) _____ (city) _____ (state) _____ (zip code) _____ (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20____.
(month) (year)

Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

TEXAS ETHICS COMMISSION RULES

CHAPTER 46. DISCLOSURE OF INTERESTED PARTIES

§ 46.1. Application

- (a) This chapter applies to section 2252.908 of the Government Code
- (b) Section 2252.908 of the Government Code applies only to a contract of a governmental entity or state agency entered into after December 31, 2015, that meets either of the following conditions:
 - (1) the contract requires an action or vote by the governing body of the entity or agency; or
 - (2) The value of the contract is at least \$1 million.
- (c) A contract does not require an action or vote by the governing body of a governmental entity or state agency if:
 - (1) the governing body has legal authority to delegate to its staff the authority to execute the contract
 - (2) The governing body has delegated to its staff the authority to execute the contract; and
 - (3) The governing body does not participate in the selection of the business entity with which the contract is entered into.

§ 46.3. Definitions

- (a) “Contract” means a contract between a governmental entity or state agency and a business entity at the time it is voted on by the governing body or at the time it binds the governmental entity or state agency, whichever is earlier, and includes an amended, extended, or renewed contract.
- (b) “Business entity” includes an entity through which business is conducted with a governmental entity or state agency, regardless of whether the entity is a for-profit or nonprofit entity. The term does not include a governmental entity or state agency.
- (c) “Controlling interest” means: (1) an ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds 10 percent; (2) membership on the board of directors or other governing body of a business entity of which the board or other governing body is composed of not more than 10 members; or (3) service as an officer of a business entity that has four or fewer officers, or service as one of the four officers most highly compensated by a business entity that has more than four officers. Subsection (3) of this section does not apply to an officer of a publicly held business entity or its wholly owned subsidiaries.
- (d) “Interested party” means: (1) a person who has a controlling interest in a business entity with whom a governmental entity or state agency contracts; or (2) an intermediary.
- (e) “Intermediary,” for purposes of this rule, means, a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of or agent for the business entity who:
 - (1) receives compensation from the business entity for the person’s participation;
 - (2) communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contract; and
 - (3) is not an employee of the business entity or of an entity with a controlling interest in the business entity.
- (f) “Signed” includes any symbol executed or adopted by a person with present intention to authenticate a writing, including an electronic signature.
- (g) "Value" of a contract is based on the amount of consideration received or to be received by the business entity from the governmental entity or state agency under the contract.

§ 46.4. Changes to Contracts (new rule effective January 1, 2017)

(a) Section 2252.908 of the Government Code does not apply to a change made to an existing contract, including an amendment, change order, or extension of a contract, except as provided by subsections (b) or (c) of this section.

(b) Section 2252.908 of the Government Code applies to a change made to an existing contract, including an amendment, change order, or extension of a contract, if a disclosure of interested parties form was not filed for the existing contract; and either:

(1) the changed contract requires an action or vote by the governing body of the entity or agency;
or

(2) the value of the changed contract is at least \$1 million.

(c) Section 2252.908 of the Government Code applies to a change made to an existing contract, including an amendment, change order, or extension of a contract, if the business entity submitted a disclosure of interested parties form to the governmental entity or state agency that is a party to the existing contract; and either:

(1) there is a change to the disclosure of interested parties; or

(2) the changed contract requires an action or vote by the governing body of the entity or agency;
or

(3) the value of the changed contract is at least \$1 million greater than the value of the existing contract.

§ 46.5. Disclosure of Interested Parties Form

(a) A disclosure of interested parties form required by section 2252.908 of the Government Code must be filed on an electronic form prescribed by the commission that contains the following:

(1) The name of the business entity filing the form and the city, state, and country of the business entity's place of business;

(2) The name of the governmental entity or state agency that is a party to the contract for which the form is being filed;

(3) The name of each interested party and the city, state, and country of the place of business of each interested party;

(4) The identification number used by the governmental entity or state agency to track or identify the contract for which the form is being filed and a short description of the services, goods, or other property used by the governmental entity or state agency provided under the contract; and

(5) An indication of whether each interested party has a controlling interest in the business entity, is an intermediary in the contract for which the disclosure is being filed, or both.

(b) The certification of filing and the completed disclosure of interested parties form generated by the commission's electronic filing application must be printed, signed by an authorized agent of the contracting business entity, and submitted to the governmental entity or state agency that is the party to the contract for which the form is being filed.

(c) A governmental entity or state agency that receives a completed disclosure of interested parties form and certification of filing shall notify the commission, in an electronic format prescribed by the commission, of the receipt of those documents not later than the 30th day after the date the governmental entity or state agency receives the disclosure.

(d) The commission shall make each disclosure of interested parties form filed with the commission under section 2252.908(f) of the Government Code available to the public on the commission's Internet website not later than the seventh business day after the date the commission receives the notice required under subsection (c) of this section.

****Note:** . A contract entered into by a governmental entity is voidable for failure to provide the disclosure of interested parties if the entity submits written notice to the business entity of the failure to submit the form and the business entity has not provided the form on, or before, the 10th business day after the business entity receives written notice to submit the Form 1295.

Boycott Verification

This verification is required pursuant to Sections 808, 809, 2271, and 2274 (87(R) Senate Bill 13 and 19 versions) of the Texas Government Code:

Definitions:

1. Per Government Code Chapter 808, "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purpose
2. Per Government Code Chapter 809, "Boycott energy company" means, without an ordinary business purpose, refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company:
 - (A) engages in the exploration, production, utilization, transportation, sale, or manufacturing of fossil fuel-based energy and does not commit or pledge to meet environmental standards beyond applicable federal and state law; or
 - (B) does business with a company described by Paragraph (A)
3. Per Government Code Chapter 2274 (87(R) Senate Bill 19), "Discriminate against a firearm entity or firearm trade association":
 - (A) means, with respect to the entity or association, to:
 - (i) refuse to engage in the trade of any goods or services with the entity or association based solely on its status as a firearm entity or firearm trade association;
 - (ii) refrain from continuing an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association; or
 - (iii) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association;
4. "Company" has the meaning assigned by Texas Government Code Sections 808.001(2), 809.001(2), and 2274.001(2) (87(R) Senate Bill 19).

This verification is only required for a contract that is between a governmental entity and a company with 10 or more full-time employees; and has a value of \$100,000 or more that is to be paid wholly or partly from public funds of the governmental entity. If your contract value or number of employees does not reach that threshold, please provide a written certification of the contract amount and number of employees.

I, _____ (Person name), the undersigned representative of (Company or Business Name) _____
_____ (hereinafter referred to as Company)

being an adult over the age of eighteen (18) years of age, do hereby depose and verify under oath that the company named-above,

- (A) does not boycott Israel currently;
- (B) will not boycott Israel during the term of the contract the named Company, business or individual with Brazoria County Texas, Texas;
- (C) does not boycott energy companies currently;
- (D) will not boycott energy companies during the term of the contract the named Company, business or individual with Brazoria County, Texas;
- (E) does not boycott a firearm entity of firearm trade association currently; and
- (F) will not boycott a firearm entity of firearm trade association during the term of the contract the named Company, business or individual with Brazoria County, Texas

DATE

SIGNATURE OF COMPANY REPRESENTATIVE

APPENDIX A of TITLE VI ASSURANCES

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) **Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) **Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the *Recipient* or Brazoria County to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the *Recipient*, or Brazoria County as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the *Recipient* shall impose such contract sanctions as it or Brazoria County may determine to be appropriate, including, but not limited to: (a.) withholding of payments to the contractor under the contract until the contractor complies, and/or (b.) cancellation, termination or suspension of the contract, in whole or in part.

(6) **Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the *Recipient* or *Brazoria County* may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the *Recipient* to enter into such litigation to protect the interests of the *Recipient*, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

**BRAZORIA COUNTY
RETURN LABEL**

**USE THIS LABEL ONLY IF YOU ARE SUBMITTING A HARD
COPY PROPOSAL SUBMISSION**

<u>SEALED REQUEST FOR PROPOSAL (RFP)</u>	
RFP#:	25-66
OPENING DATE:	TUESDAY, JULY 29, 2025
OPENING TIME:	2:00 P.M. LOCAL TIME
RFP DESCRIPTION:	PAVEMENT REPAIRS FOR SILVERLAKE PHASE II
RETURN OFFER TO:	PHYSICAL ADDRESS: COUNTY PURCHASING DIRECTOR BRAZORIA COUNTY PURCHASING 237 E. LOCUST STREET, SUITE 406 ANGLETON, TEXAS 77515
<i>DATED MATERIAL – DELIVER IMMEDIATELY</i>	

**PLEASE CUT OUT AND AFFIX THE RFP LABEL ABOVE TO THE OUTER
MOST ENVELOPE OF YOUR RESPONSE TO HELP ENSURE PROPER
DELIVERY!**

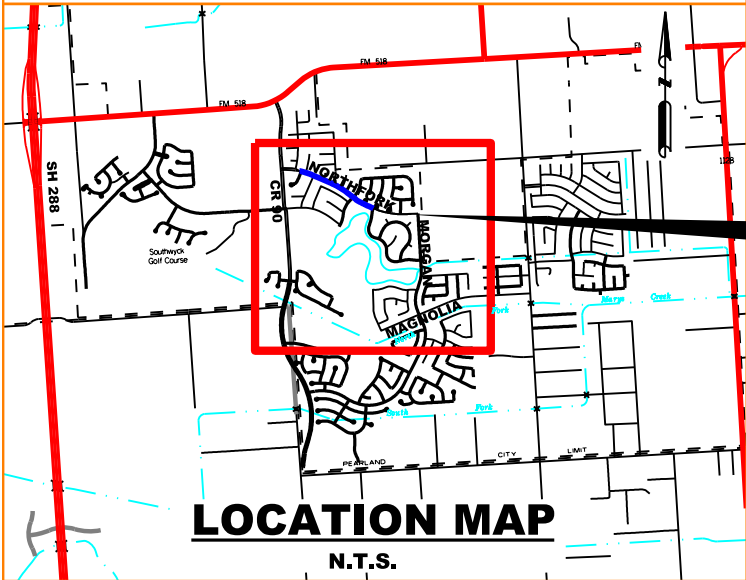
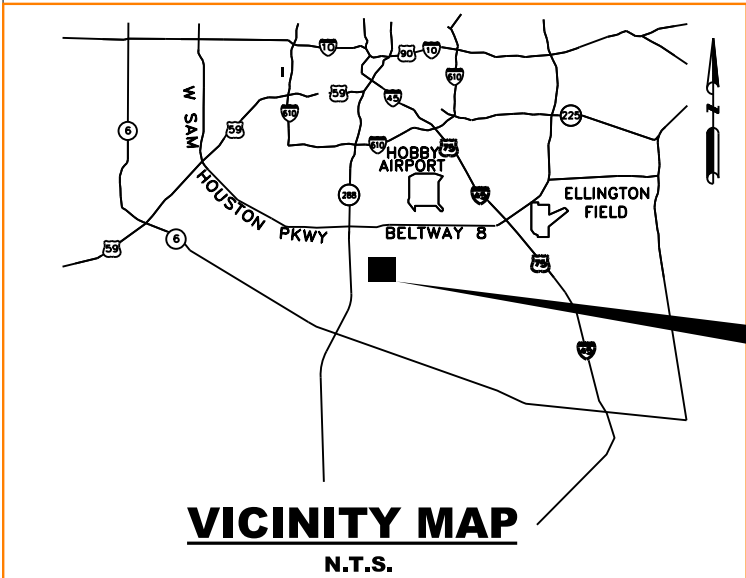
*******LATE RFP's CANNOT BE ACCEPTED*******

BRAZORIA COUNTY ENGINEERING DEPARTMENT
BRAZORIA COUNTY, TEXAS
CONSTRUCTION PLANS FOR
PAVEMENT REPAIRS FOR SILVERLAKE PHASE II
RFP#25-66

LIMITS: NORTHFORK DR (CR 648) FROM STA 9+96.25 TO STA 33+19.73
2323.48 LF (0.44 MI)

COMMISSIONERS COURT

L.M. "MATT" SEBESTA, JR.
COUNTY JUDGE



JAY BURRIDGE
COMMISSIONER

PRECINCT 1

STACY L. ADAMS
COMMISSIONER

PRECINCT 3

RYAN CADE
COMMISSIONER

PRECINCT 2

DAVID LINDER
COMMISSIONER

PRECINCT 4



INDEX OF DRAWINGS
SEE SHEET 2 FOR DETAILED INDEX OF SHEETS



APPROVED FOR CONSTRUCTION
BRAZORIA COUNTY ENGINEERING

BinkleyBarfield | DCCM

Binkley & Barfield, Inc. | TxEng F-257
1710 Seamist Dr, Houston, TX 77008
713.869.3433 | BinkleyBarfield.DCCM.com

MR. MATT HANKS, J.D., P.E.
COUNTY ENGINEER

DATE

DATE:6/9/2025 8:48:02 AM USER:User PLOTDRIVER: TxDOT_PDF_Gray.plt
FILE:J:\BrazoriaCountyEng\2400000235.000_CADD\6.03_Drawings\6.03.1_Sheet_Files\GEN\GNIS01_INDEX_01.dgn

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40	INLET DETAILS
41 - 53	ROADWAY STANDARDS

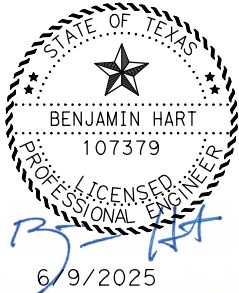
IV. TRAFFIC ITEMS

54 - 56	NORTHFORK DR SIGNING AND PAVEMENT MARKING LAYOUT
57 - 58	SIGNING AND PAVEMENT MARKING STANDARDS

V. ENVIRONMENTAL ISSUES

59 - 61	NORTHFORK DR SW3P PLAN LAYOUT
62 - 66	ENVIRONMENTAL STANDARDS

NO.	DATE	REVISION	APPROVED





Brazoria County Engineering Department
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SILVERLAKE PAVEMENT REPAIRS

INDEX OF SHEETS

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.	
6		2	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

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1. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SECURITY TO PROTECT THE PROJECT SITE, CONTRACTOR PROPERTY, EQUIPMENT, AND WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING STREETS OF CONSTRUCTION DIRT AND DEBRIS AT CLOSE OF EACH WORK DAY.
4. THE CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF THE JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR, ALONG WITH CONCURRENCE FROM THE FIELD ENGINEER, SHALL DETERMINE HIS/HER LAY-DOWN AND/OR STAGING AREA LOCATIONS.
6. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS A MINIMUM OF 24 HOURS PRIOR TO BLOCKING DRIVEWAYS OR ENTERING UTILITY EASEMENTS.
7. TRAFFIC INGRESS AND EGRESS FOR DRIVEWAYS AND PEDESTRIAN ACCESS FACILITIES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
8. THE CONTRACTOR SHALL REMOVE ANY FENCES, POSTS, PLANTERS, PERMANENT TRASH CONTAINERS, CULVERTS, ETC, OR SECTIONS THEREOF, THAT ENCROACH WITHIN THE COUNTY'S RIGHT-OF-WAY, NOTE: PRIOR TO CONSTRUCTION THE PROPERTY OWNER WAS PAID TO RELOCATE OR REPLACE THESE ITEMS OUTSIDE THE COUNTY'S RIGHT-OF-WAY, IF THE OWNER HAS FAILED TO DO SO, THE CONTRACTOR WILL REPLACE THEM WITH THE MINIMAL LEVEL OF QUALITY NEEDED TO SECURE THE PROPERTY AND/OR MAINTAIN MAIL DELIVERY. IN THAT CASE, PAYMENT FOR THESE INSTALLATIONS WILL BE INCLUDED AS EXTRA WORK ITEMS OR AS OVERRUNS TO EXISTING PAY ITEMS.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS LOCATED OUTSIDE OF THE COUNTY'S RIGHT-OF-WAY, SHALL BE REPLACED WITH LIKE-KIND OR BETTER AT THE CONTRACTOR'S EXPENSE.

IF THESE ITEMS ARE LOCATED WITHIN THE PROJECT RIGHT-OF-WAY AND ARE DESIGNATED TO REMAIN, ANY DAMAGE CAUSED BY THE CONTRACTOR TO SUCH ITEMS, SHALL BE REPLACED WITH THE LIKE-KIND OR BETTER AT THE CONTRACTOR' S EXPENSE.

TREES, BUSHES, SHRUBBERY, AND OTHER DAMAGED PLANTINGS DESIGNATED TO REMAIN SHALL BE REPLACED WITHIN 72 HOURS OF REMOVAL AND TO BE WATERED THOROUGHLY, NO SEPARATE PAY.

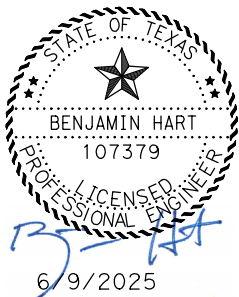
9. PAVED SURFACES, PAVEMENT MARKERS AND MARKINGS SHALL BE PROTECTED FROM DAMAGE BY TRACKED EQUIPMENT.
10. IRON RODS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PUBLIC LAND SURVEYOR FOR THE ORIGINAL PROPERTY OWNER AT NO SEPARATE PAY.
11. CONSTRUCTION STAKING WILL BE PROVIDED BY THE CONTRACTOR, TWO COPIES OF STAKING NOTES TO BE PROVIDED TO THE ENGINEER PRIOR TO CONSTRUCTION.
12. THE CONTRACTOR SHALL MAINTAIN UPDATED RED-LINED RECORD DRAWINGS ON SITE FOR INSPECTION BY THE ENGINEER.
13. MOWING, TREE TRIMMING, MAINTENANCE, AND CLEANUP OF THE PROJECT SHALL MEET THE REQUIREMENT OF SPECIFICATION ITEM 700 (NO SEPARATE PAY), MOWING, TREE TRIMMING, MAINTENANCE, AND CLEAN-UP IS REQUIRED FOR THE PROJECT LIMITS AND DURATION, REGARDLESS OF THE CONTRACTOR'S SCOPE OF ACTIVITIES WITHIN THE PROJECT LIMITS.
14. THE REMOVAL OF ANY ABANDONED UTILITIES REQUIRED TO COMPLETE THE WORK SHALL BE INCIDENTAL AND NO SEPARATE PAYMENT SHALL BE MADE.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIAL ON-SITE OR SECURED OFF-SITE AT NO ADDITIONAL EXPENSE TO BRAZORIA COUNTY, ANY SUITABLE EXCAVATED MATERIAL ON THE PROJECT WHICH IS AVAILABLE AT THE TIME OF NEED; WHETHER FROM STORM SEWER, ROADWAY, AND/OR CHANNEL EXCAVATION, SHALL BE USED BEFORE BORROW IS BROUGHT ON-SITE.
16. MANHOLES, JUNCTION BOXES, INLETS, AND RISERS ARE TO BE PRE-CAST OR CAST IN PLACE.
17. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES TO BRACE UTILITY POLES BEFORE BEGINING CONSTRUCTION, CONTRACTOR TO MAINTAIN SERVICE DURING CONSTRUCTION.
18. UTILITY POLES TO BE BRACED AS NEEDED PRIOR TO BEGINNING CONSTRUCTION.
19. THE SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, SEPTEMBER 1, 2024, GOVERN THIS PROJECT.

1. EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO ORIGINAL CONDITION OR BETTER, IN ACCORDANCE WITH TxDOT STANDARDS.
2. SAWCUTTING EXISTING PAVEMENT (CONCRETE OR ASPHALT) SHALL BE INCIDENTAL AND NOT PAID SEPARATELY.
3. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT ALL RADIUS RETURNS OF THE INTERSECTION AND SPACED NOT MORE THAN 60 FEET APART. JOINTS SHALL BE DOWEL TYPE WITH 1-1/4" SMOOTH BARS (GRADE 60) 18-INCHES LONG PLACED ON 12-INCHES CENTERS.
4. EXISTING WATER VALVES AND MANHOLES SHALL BE ADJUSTED AS NECESSARY TO MATCH TOP OF PROPOSED PAVEMENT ELEVATION.
5. ONE-INCH THICK BOARD EXPANSION JOINTS OR ONE-HALF INCH NON-EXTRUDING PERFORMED JOINTS SHALL BE USED BETWEEN SIDEWALK AND CURB, FIRE HYDRANTS, UTILITY POLES AND OTHER UTILITIES. THIS WILL BE INCIDENTAL TO ITEM 360.
6. THE EXISTING SUBGRADE (MIN 8-INCHES) WILL BE REMIXED WITH 6% LIME AND STABILIZED PRIOR TO PLACING CONCRETE PAVEMENT.

1. ALL STORM SEWERS SHALL BE INSTALLED, BEDDED, AND BACKFILLED IN CONFORMITY WITH THE LATEST TxDOT SPECIFICATIONS WITH ALL AMMENDMENTS THERETO.
2. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING STORM SEWERS BEFORE BEGINNING CONSTRUCTION.
3. OTHER THAN BRICK PLUGS, REFERENCES TO BRICK IN SPECIFICATIONS ARE FOR EXCEPTIONS ONLY AS SPECIFICALLY DIRECTED IN WRITING BY THE ENGINEER.
4. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE APPROVED TRAFFIC CONTROL PLAN.
2. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS EXCEPT DURING FLAGGING OPERATIONS OR PROVIDE DETOURS AROUND THE CONSTRUCTION SITE AND PROVIDE PUBLIC NOTIFICATION.
3. LANE CLOSURES SHALL BE DURING OFF-PEAK HOURS ONLY (MONDAY THROUGH FRIDAY 9 A.M. TO 4 P.M.). UNIFORMED PEACE OFFICERS OR FLAGGERS, IN RADIO CONTACT, ARE REQUIRED TO DIRECT TRAFFIC DURING LANE CLOSURES.
4. DETOURS REQUIRE PRIOR APPROVAL OF THE FIELD ENGINEER AND PRECINCT, DETOUR PLANS, IF ALLOWED, MUST INCLUDE APPROPRIATE DETOUR SIGNAGE, PUBLIC NOTICE VIA SIGNAGE TWO WEEKS IN ADVANCE STATING THE DATES OF THE AGREED UPON DATE OF CLOSURE AND DATE THE ROAD WILL RE-OPEN TO TRAFFIC, CONTRACTOR TO USE (WITH PRIOR APPROVAL OF THE FIELD ENGINEER). HIGH EARLY STRENGTH CONCRETE AND OTHER RELATED CONSTRUCTION METHODS TO MINIMIZE THE DURATION OF THE DETOUR AND TO ENSURE THAT THE ROADWAY IS OPEN ON, OR PRIOR TO, THE AGREED UPON DATE.
5. ONE DAY PRIOR TO THE IMPLEMENTATION OF A TRAFFIC CONTROL PLAN PHASE OR STEP, OR THE IMPLEMENTATION OF AN ADDITIONAL, REVISED, OR NEW TRAFFIC CONTROL ELEMENT, THE CONTRACTOR SHALL MEET WITH THE ENGINEER TO GIVE A DETAILED DESCRIPTION OF THE CONTRACTOR'S PLAN AND PREPARATIONS. THE CONTRACTOR SHALL OBTAIN WRITTEN CONCURRENCE FROM THE ENGINEER THAT ADEQUATE PROJECT PROGRESS HAS BEEN ACHIEVED AND THAT ADEQUATE PREPARATIONS ARE IN PLACE PRIOR TO SWITCHING TRAFFIC. IF, IN THE OPINION OF THE ENGINEER, REQUIRED PROGRESS AND ADEQUATE PREPARATIONS ARE NOT COMPLETE, THE CONTRACTOR SHALL NOT IMPLEMENT THE NEXT PHASE, STEP, OR ELEMENT OF TRAFFIC CONTROL UNTIL INCOMPLETE CONSTRUCTION ITEMS OR PREPARATIONS ARE COMPLETED. TIME EXTENSIONS WILL NOT BE GRANTED FOR DELAYS CAUSED BY THE INCOMPLETE CONSTRUCTION ITEMS OR INADEQUATE CONTRACTOR PREPARATIONS REQUIRED TO IMPLEMENT TRAFFIC CONTROL.
6. TRAFFIC CONTROL PER THE CONTRACT IS REQUIRED FOR THE ENTIRE DURATION OF THE PROJECT, INCLUDING THE PUNCHLIST PERIOD. PAYMENT FOR TRAFFIC CONTROL THAT IS PROPERLY INSTALLED FOR LESS THAN A FULL MONTH SHALL BE BASED ON A PERCENTAGE BASIS OF THE TIME INSTALLED. TRAFFIC CONTROL PAYMENTS TO THE CONTRACTOR SHALL END 10 DAYS AFTER SUBSTANTIAL COMPLETION, ALTHOUGH PROPER TRAFFIC CONTROL MUST BE MAINTAINED UNTIL PUNCHLIST COMPLETION.
7. THE PURPOSE OF THE CONSTRUCTION SEQUENCE AND TRAFFIC HANDLING OUTLINED HEREIN IS TO DOCUMENT A VIABLE TCP THAT CAN BE UTILIZED TO CONSTRUCT THE PROJECT. IT IS THE BASIS OF ESTIMATION FOR THE TRAFFIC CONTROL BID ITEMS, AND IS NOT TO BE UTILIZED AND IMPLEMENTED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

NO.	DATE	REVISION	APPROVED



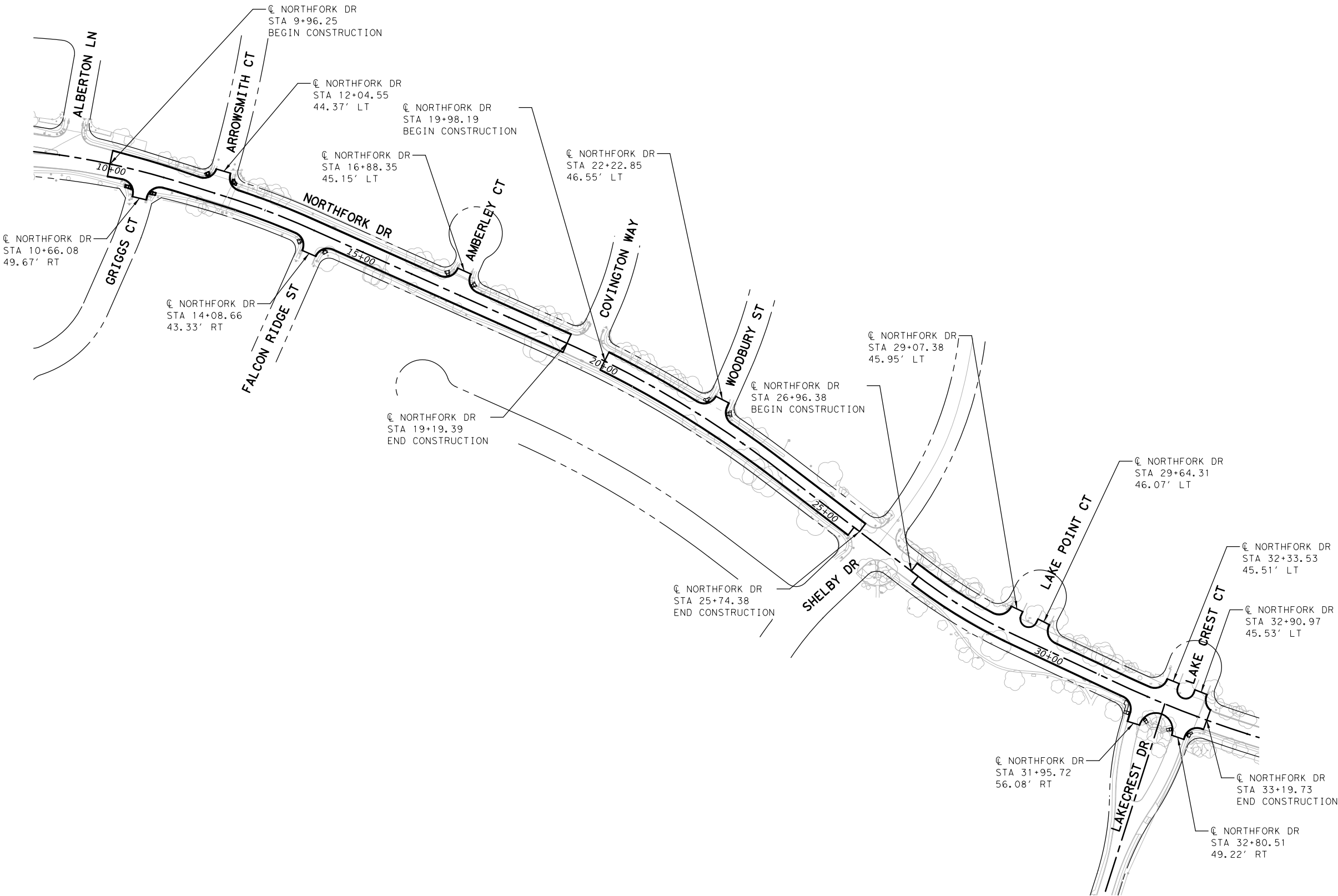
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GENERAL NOTES

SHEET 1 OF 1

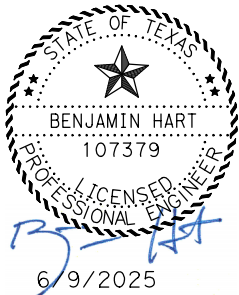
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6			3
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

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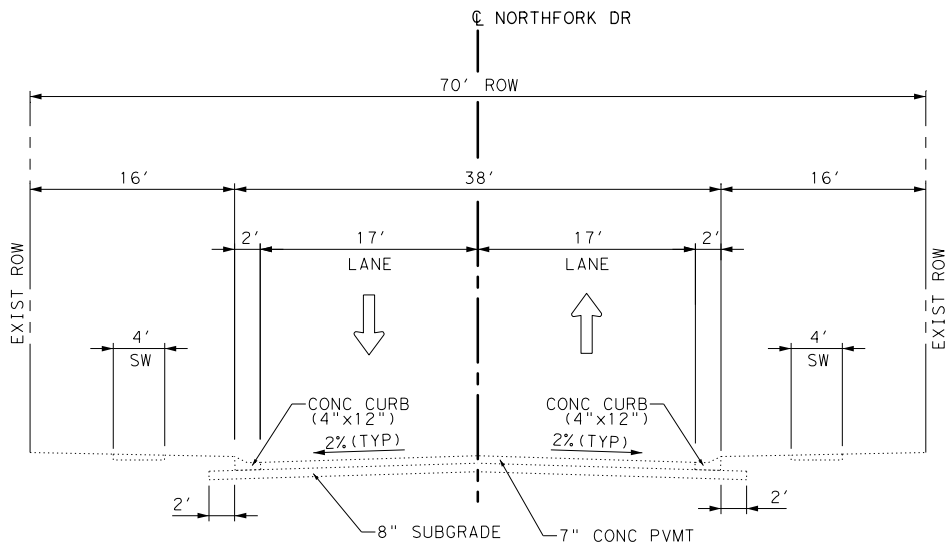
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SILVERLAKE PAVEMENT REPAIRS
PROJECT LAYOUT

SHEET 1 OF 1			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			4
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

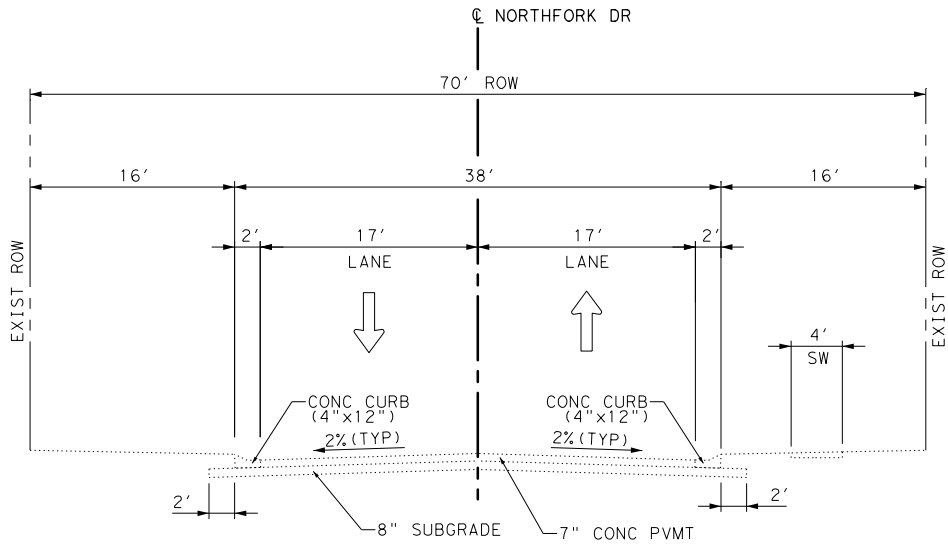
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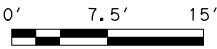
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CL NORTHFORK STA 9+96.25 TO STA 19+19.39
CL NORTHFORK STA 19+98.19 TO STA 25+74.38

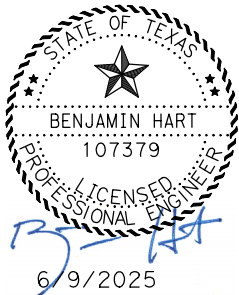


EXISTING NORTHFORK TYPICAL SECTION

CL NORTHFORK STA 26+96.38 TO STA 33+19.73



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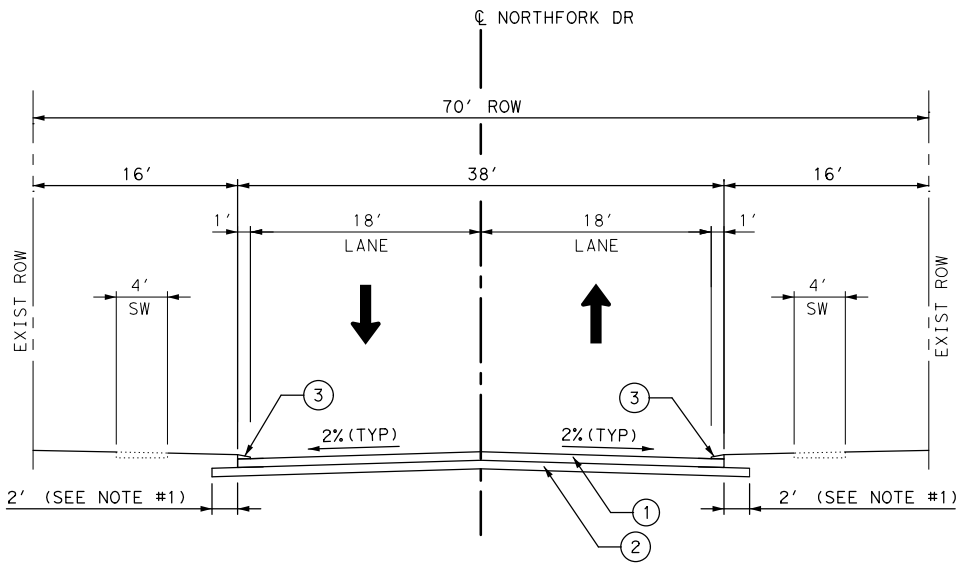
SILVERLAKE PAVEMENT REPAIRS

**EXISTING
TYPICAL SECTIONS**

SHEET 1 OF 1

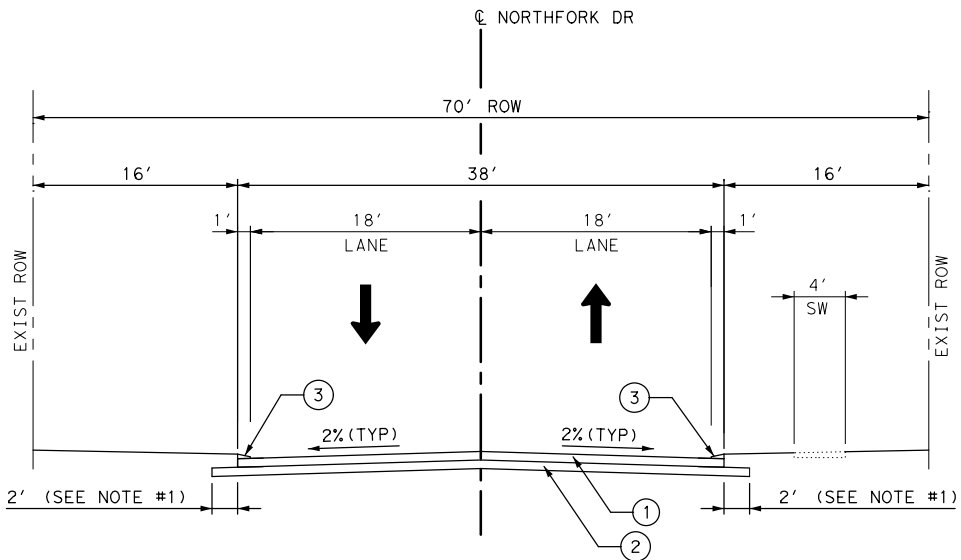
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STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
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PROPOSED NORTHFORK TYPICAL SECTION

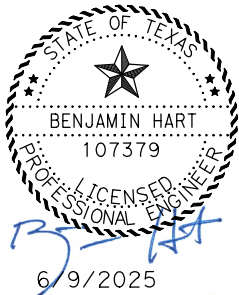
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CL NORTHFORK STA 19+98.19 TO STA 25+74.38



PROPOSED NORTHFORK TYPICAL SECTION

CL NORTHFORK STA 26+96.38 TO STA 33+19.73

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SILVERLAKE PAVEMENT REPAIRS
PROPOSED
TYPICAL SECTIONS

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		6
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

SUMMARY OF ROADWAY QUANTITITES														
ITEM			260	260	360	400	400	465	479	479	529	529	531	531
DESC. CODE			7001	7007	7092	7010	7011	9999	7001	7007	7002	9999	7002	7020
SHT NO.	STATION TO STATION		LIME(COM OR QK)(SLURRY)OR QK(DRY)	LIME TRT (EXST MATL)(8")	CONC PAV (JOINT REINF) (8")	*CEM STABIL BKFL	CEMENT STAB BACKFILL (INLET OR MH)	INLET (COMPL) (MODIFIED)	ADJUSTING MANHOLES	ADJUSTING MANHOLES (WATER VALVE BOX)	CONC CURB (TY II)	CONC CURB (4" x 12")	CONC SIDEWALKS (5")	CURB RAMPS (TY 7)
			TON	SY	SY	CY	CY	EA	EA	EA	LF	LF	SY	SY
	NORTHFORK													
1	BEGIN	16+00	59	3256	2955	96	6	1	0	1	0	1215	11	38
2	16+00	26+00	80	4421	3980	130	0	0	2	0	0	1787	11	26
3	26+00	END	65	3611	3267	106	6	1	1	1	226	1067	16	27
TOTAL			204	11288	10202	332	12	2	3	2	226	4069	37	91

*QUANTITIES FOR BID ITEM 400-7010 ARE TO BE USED AS NEEDED IN THE EVENT THE SUBGRADE IS UNABLE TO BE STABILIZED

SUMMARY OF REMOVAL QUANTITITES					
ITEM			104	104	496
DESC. CODE			7001	7013	7002
SHT NO.	STATION TO STATION		REMOV CONC (PAV)	REMOV CONC (SIDEWALK, RAMP OR SUP)	REMOV STR (INLET)
			SY	SY	EA
NORTHFORK DR					
1	BEGIN	16+00	2989	41	1
2	16+00	26+00	3967	28	
3	26+00	END	3274	24	1
TOTAL			10230	93	2

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SILVERLAKE PAVEMENT REPAIRS SUMMARY OF QUANTITIES			
SHEET 1 OF 2			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			7
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

SUMMARY OF TRAFFIC CONTROL QUANTITIES				
ITEM			502	662
DESC. CODE			7001	7097
P&P SHT NO.	STATION TO STATION		BARRICADES, SIGNS AND TRAFFIC HANDLING	WK ZN PAV MRK REMOV (Y)4"(SLD)
			MO	LF
PHASE1			2.5	
NORTHFORK				
1	BEGIN	16+00		635
2	16+00	26+00		975
3	26+00	END		794
PHASE2				
NORTHFORK			2.5	
1	BEGIN	16+00		602
2	16+00	26+00		973
3	26+00	END		785
TOTAL			5	4764

SUMMARY OF PAVEMENT MARKINGS QUANTITIES											
ITEM			644	644	644	666	666	666	672	678	678
DESC. CODE			7001	7065	7073	7036	7272	7268	7004	7001	7008
P&P SHT NO.	STATION TO STATION		IN SM RD SN SUP&AM TY10BWG(1)SA(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	REMOVE SM RD SN SUP&AM	REFL PAV MRK TY I (W)24"(SLD)(100M IL)	RE PROFILE PM TY I(Y)4"(BRK)(100MI L)	RE PROFILE PM TY I(Y)4"(SLD)(100MI L)	REFL PAV MRKR TY II-A-A	PAV SURF PREP FOR MRK (4")	PAV SURF PREP FOR MRK (24")
			EA	EA	EA	LF	LF	LF	EA	LF	LF
	NORTHFORK										
1	BEGIN	16+00	2	4	2	0	160	177	16	160	0
2	16+00	26+00	0	2	0	0	250	0	25	250	0
3	26+00	END	0	3	0	22	230	0	23	230	22
TOTAL			2	9	2	22	640	177	64	640	22

SUMMARY OF SWP3 QUANTITITES											
ITEM			162	162	164	166	168	506	506	506	506
DESC. CODE			7002	7003	7015	7001	7001	7020	7024	7043	7046
P&P SHT NO.	STATION TO STATION		BLOCK SODDING	STRAW OR HAY MULCH	DRILL SEED (TEMP_WARM_C OOL)	FERTILIZER	VEGETATIVE WATERING	CONSTRUCTION EXITS (INSTALL) (TY 1)	CONSTRUCTION EXITS (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (8")	BIODEG EROSN CONT LOGS (REMOVE)
			SY	SY	SY	AC	TGL	SY	SY	LF	LF
NORTHFORK											
1	BEGIN	16+00	195	1298	1298	0.31	37.0	156	156	36	36
2	16+00	26+00	293	2117	2117	0.50	59.8	156	156	48	48
3	26+00	END	209	1294	1294	0.31	37.3	156	156	24	24
TOTAL			697	4709	4709	1.12	134.1	468	468	108	108

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SILVERLAKE PAVEMENT REPAIRS			
SUMMARY OF QUANTITIES			
SHEET 2 OF 2			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			8
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

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NORTHFORK DRIVE

PRE-PHASE PREPARATION: SET UP SWP3. REMOVE AND REPLACE EXISTING CONCRETE PAVEMENT (8" TYPICAL) ON SEGMENTS OF NORTHFORK DR FROM STA. 9+96.25 TO STA. 33+19.73. USE MOBILE TRAFFIC CONTROL OPERATION DURING RECONSTRUCTION. WORK HOURS: 9A-3P MON-FRI; 9P-5A MON-FRI ALL DAY/NIGHT - SAT AND SUN.

PHASE 1 - INSTALL AND COMPLETE PAVEMENT REPAIR ON RIGHT SIDE OF CENTERLINE FROM STA. 9+96.25 TO STA. 33+19.73.

1. SET UP ADVANCE SIGNAGE PER TMUTCD TO CLOSE DOWN THE EASTBOUND LANE OF NORTHFORK DR AND SET UP CHANNELIZING DEVICES TO ESTABLISH A ONE-WAY TRAFFIC AND NORTHFORK DR DETOUR.
2. SAWCUT CONCRETE JOINT OF EXISTING EASTBOUND LANE OF NORTHFORK DRIVE PER PLANS FROM BEGINNING OF PROJECT SEGMENT TO END OF PROJECT SEGMENT TO REMOVE BASE MATERIAL AND EXCESS CONCRETE DOWN TO THE SUBGRADE. STABILIZE THE EXISTING SUBGRADE AS SHOWN IN PLANS. REPAIR ANY BASE FAILURES PRIOR TO STEP 3.
3. STABILIZE SUBGRADE, PLACE PROPOSED 8" BASE MATERIAL AND CONSTRUCT 8" CONCRETE PAVEMENT FOR THE EASTBOUND DIRECTION. DRIVEWAYS ARE TO BE RECONSTRUCTED IN TWO STEPS TO ALLOW ACCESS AT ALL TIMES FOR TRAVELING PUBLIC.
4. DURING NON-WORK HOURS, MOVE CHANNELIZING DEVICES TO EDGE OF CONSTRUCTION ZONE AND OPEN TRAFFIC IN WESTBOUND LANE OF NORTHFORK DRIVE TO ESTABLISH A TWO-WAY TRAFFIC FLOW FOR TRAVELING PUBLIC.
5. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. CONTRACTOR SHALL MAINTAIN AND PROVIDE DAILY UPKEEP OF THE STORM WATER POLLUTION PREVENTION PLAN AS PER THE PLANS AND SPECIFICATIONS.

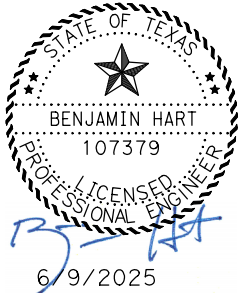
PHASE 2 - INSTALL AND COMPLETE PAVEMENT REPAIR ON LEFT SIDE OF CENTERLINE FROM STA. 9+96.25 TO STA. 33+19.73.

1. MOVE TRAFFIC TO NEWLY CONSTRUCTED EASTBOUND LANE OF NORTHFORK DRIVE. ADJUST ADVANCE SIGNAGE AND DETOURS ACCORDING TO THE PLANS AND TMUTCD.
2. SAWCUT CONCRETE JOINT OF EXISTING WESTBOUND LANE OF NORTHFORK DRIVE FROM BEGINNING OF PROJECT SEGMENT TO END OF PROJECT SEGMENT TO REMOVE BASE MATERIAL AND EXCESS CONCRETE DOWN TO THE SUBGRADE. STABILIZE THE EXISTING SUBGRADE AS SHOWN IN PLANS. REPAIR ANY BASE FAILURES PRIOR TO STEP 3.
3. STABILIZE SUBGRADE, PLACE PROPOSED 8" BASE MATERIAL AND CONSTRUCT 8" CONCRETE PAVEMENT FOR THE WESTBOUND DIRECTION. DRIVEWAYS ARE TO BE RECONSTRUCTED IN TWO STEPS TO ALLOW ACCESS AT ALL TIMES FOR TRAVELING PUBLIC.
4. DURING NON-WORK HOURS, MOVE CHANNELIZING DEVICES TO EDGE OF CONSTRUCTION ZONE AND OPEN TRAFFIC IN EASTBOUND LANE OF NORTHFORK DRIVE TO ESTABLISH A TWO-WAY TRAFFIC FLOW FOR TRAVELING PUBLIC.
5. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. CONTRACTOR SHALL MAINTAIN AND PROVIDE DAILY UPKEEP OF THE STORM WATER POLLUTION PREVENTION PLAN AS PER THE PLANS AND SPECIFICATIONS.

NOTES:

1. REFER TO TRAFFIC CONTROL PLAN FOR ADDITIONAL INFORMATION

NO.	DATE	REVISION	APPROVED



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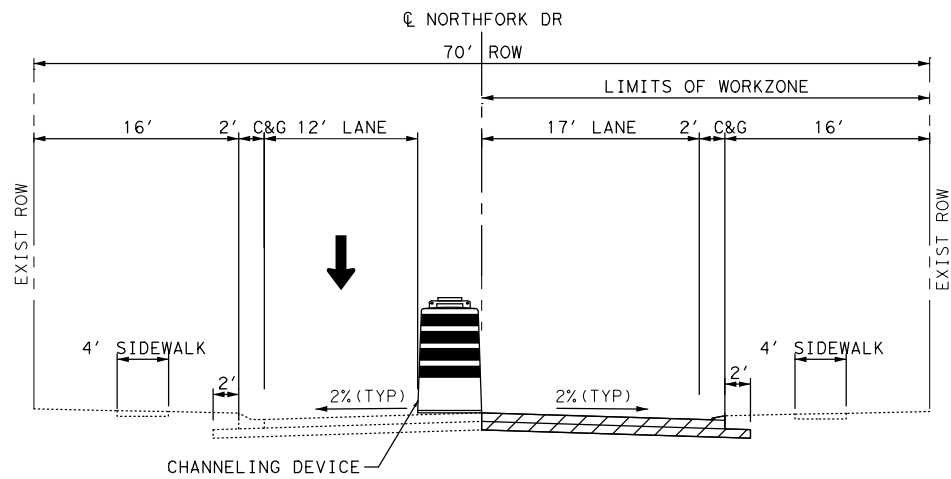
SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NARRATIVE

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.	
6		9	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

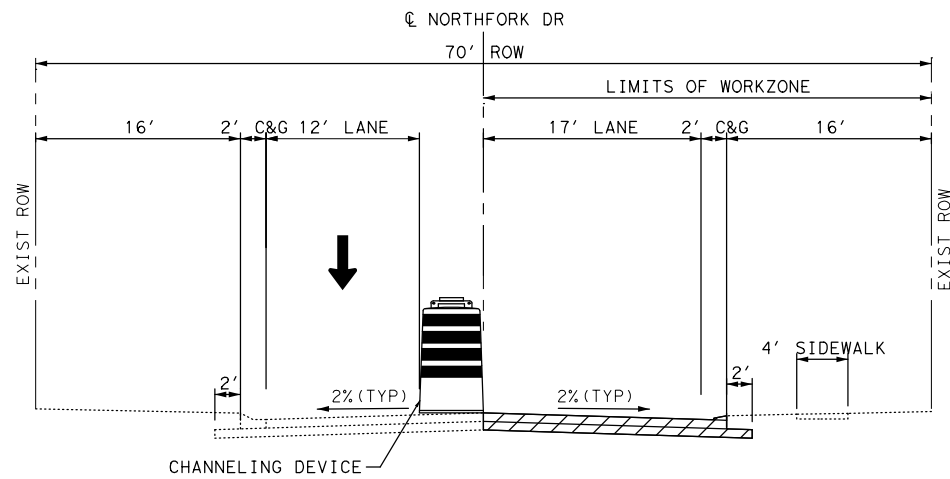
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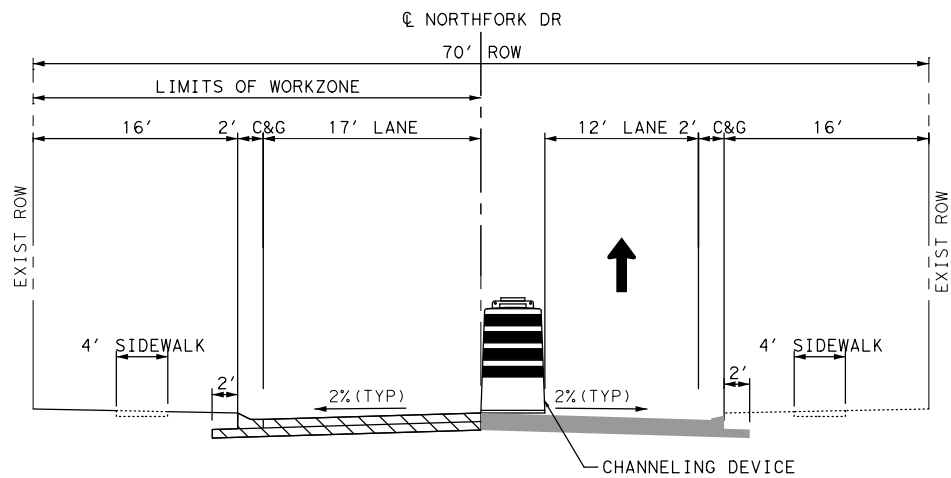
NORTHFORK TCP TYPICAL SECTION PHASE 1

CL NORTHFORK STA 9+96.25 TO STA 19+19.39
CL NORTHFORK STA 19+98.19 TO STA 25+74.38



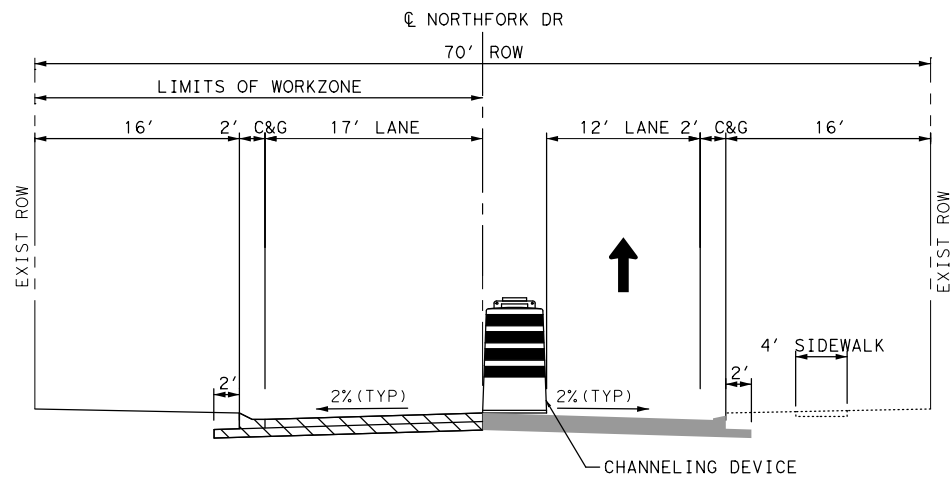
NORTHFORK TCP TYPICAL SECTION PHASE 1

CL NORTHFORK STA 26+96.38 TO STA 33+19.73



NORTHFORK TCP TYPICAL SECTION PHASE 2

CL NORTHFORK STA 9+96.25 TO STA 19+19.39
CL NORTHFORK STA 19+98.19 TO STA 25+74.38



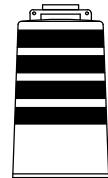
NORTHFORK TCP TYPICAL SECTION PHASE 2

CL NORTHFORK STA 26+96.38 TO STA 33+19.73

0' 7.5' 15'

LEGEND:

- PROPOSED CONSTRUCTION THIS PHASE
- COMPLETED CONSTRUCTION
- TEMP CONSTRUCTION THIS PHASE



CHANNELIZED DEVICE

- EXIST TRAFFIC FLOW
- PROP TRAFFIC FLOW

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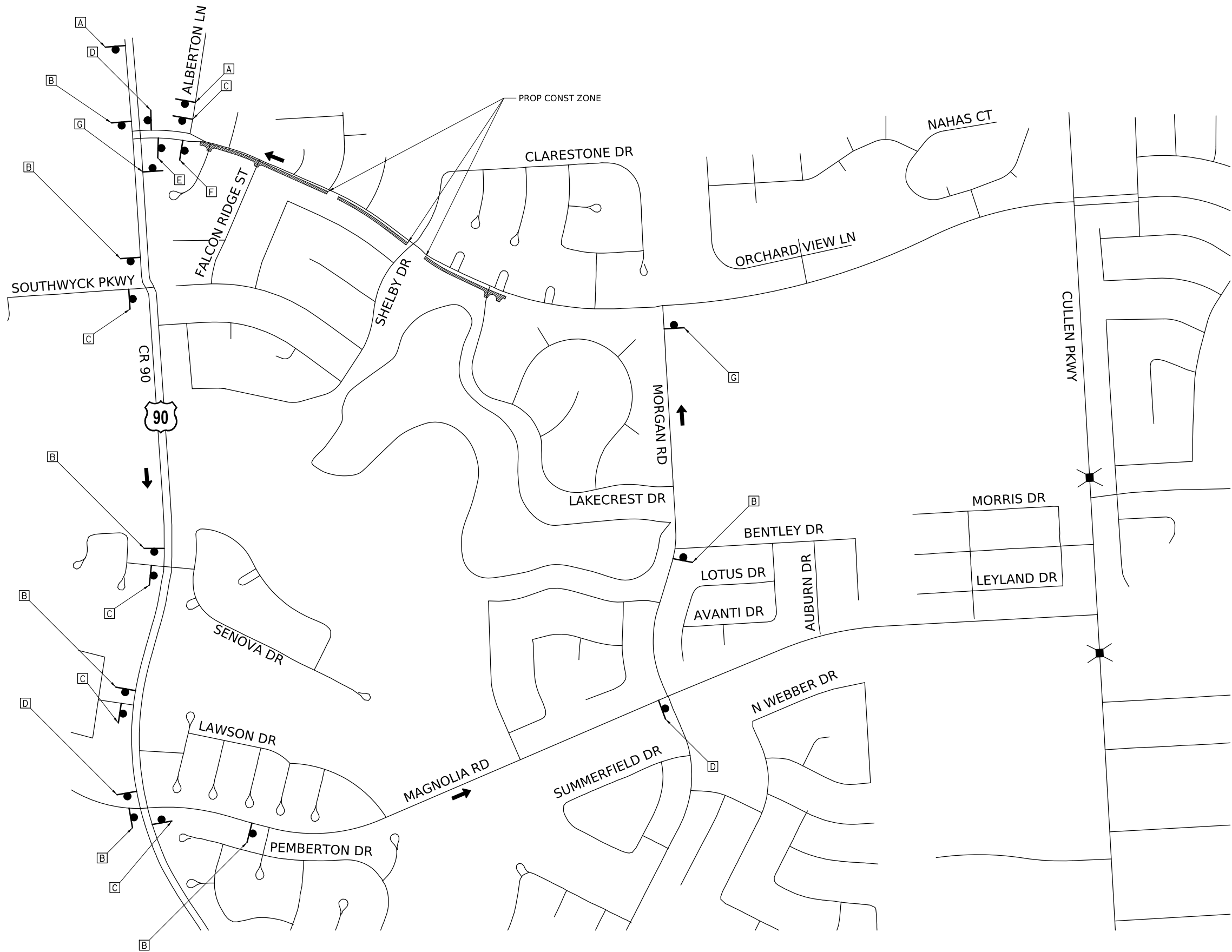
SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
TYPICAL SECTIONS

SHEET 1 OF 1

FED. RD. DIV. NO.		PROJECT NO.		SHEET NO.	
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STATE		DIST.	COUNTY		
TEXAS		HOUSTON	BRAZORIA		
CONT.		SECT.	JOB	HIGHWAY NO.	

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SCALE: N. T. S

LEGEND:

- SIGN
- TYPE III BARRICADE
- DIRECTION OF DETOUR TRAFFIC
- CONSTRUCTION ZONE

NOTES:

- DISTANCE BETWEEN SIGNS ARE 120' AT 30 MPH.

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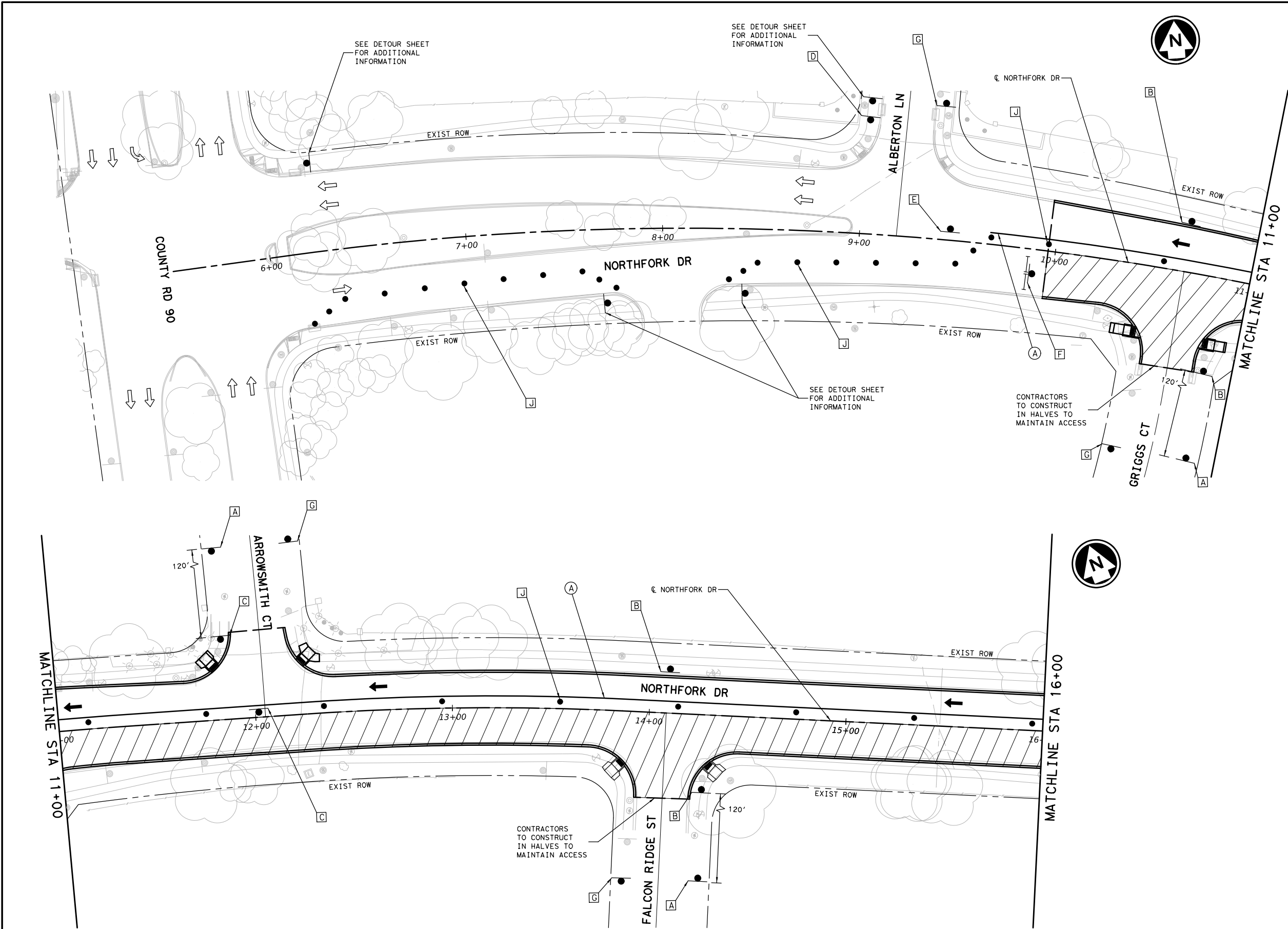
SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
PHASE 1
CONSTRUCTION DETOUR PLAN

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		11
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

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- LEGEND:**
- PROPOSED CONSTRUCTION THIS PHASE
 - COMPLETED CONSTRUCTION
 - TEMP CONSTRUCTION THIS PHASE
 - EXIST TRAFFIC FLOW
 - PROP TRAFFIC FLOW
 - TYPE III BARRICADE
 - SIGN
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - CHANNELIZING DEVICE
 - WK ZN PAV MRK REMOV (Y) 4" (SLD)

- NOTES:**
- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
 - REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED

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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 1

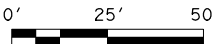
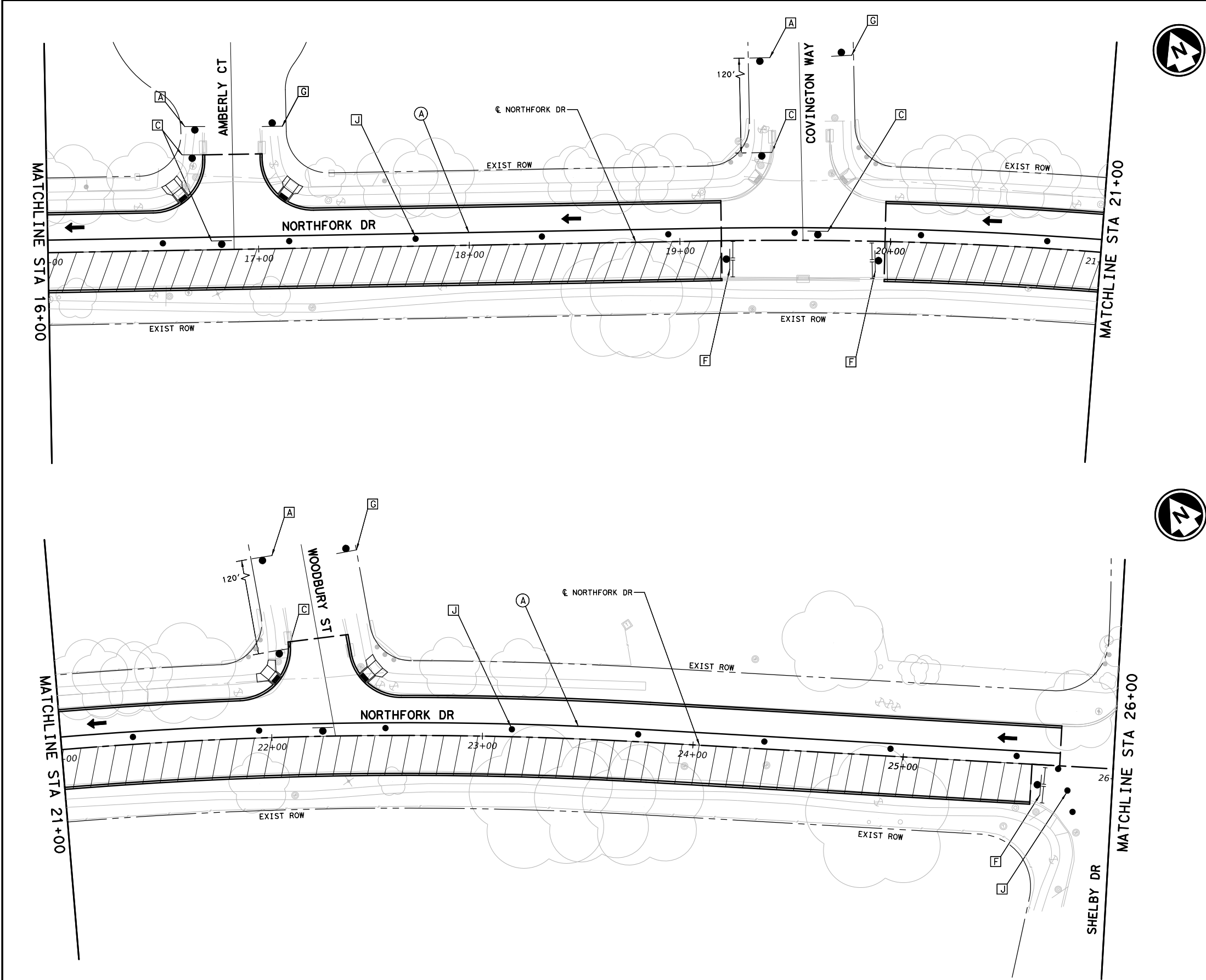
SHEET 1 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		12
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A ROAD WORK AHEAD CW20-1D (48x48)1	B DETOUR ONE WAY M4-9L (30x24) R6-1L (36x12)	C DETOUR ONE WAY M4-9R (30x24) R6-1R (36x12)	D R3-2 (24x24)	E R3-1 (24x24)	F ROAD CLOSED R11-2 (48x30)	G END ROAD WORK G20-2a (48x24)	H CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	I CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	J CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER
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LEGEND:

- PROPOSED CONSTRUCTION THIS PHASE
- COMPLETED CONSTRUCTION
- TEMP CONSTRUCTION THIS PHASE
- EXIST TRAFFIC FLOW
- PROP TRAFFIC FLOW
- TYPE III BARRICADE
- SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- CHANNELIZING DEVICE
- WK ZN PAV MRK REMOV (Y) 4" (SLD)

NOTES:

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- REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED



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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 1

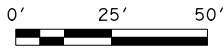
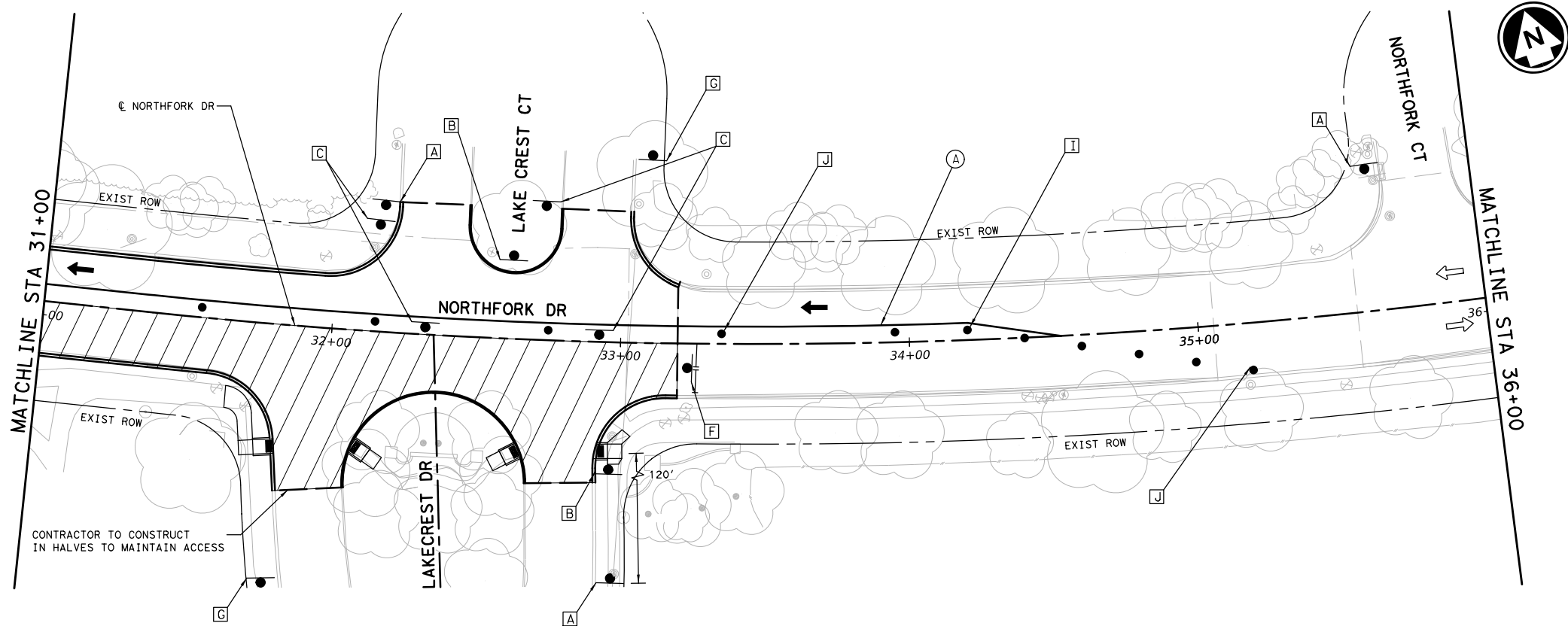
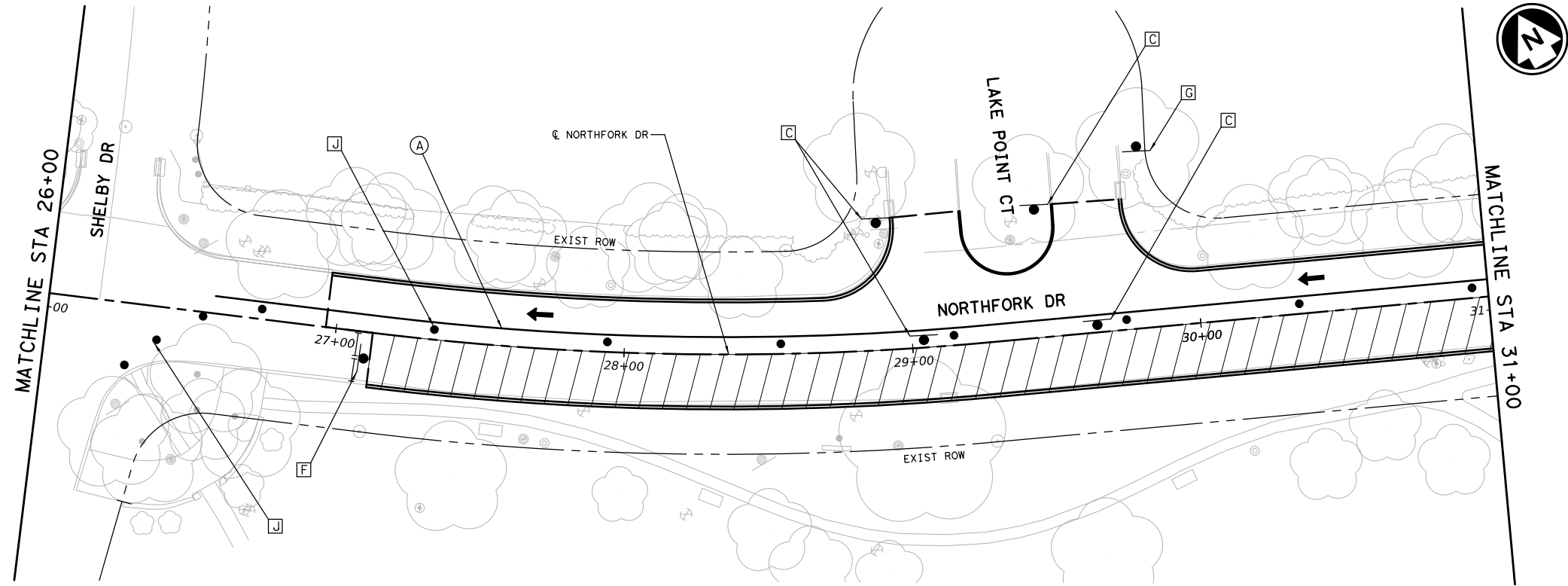
SHEET 2 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		13
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A	B	C	D	E	F	G	H	I	J
ROAD WORK AHEAD CW20-1D (48x48)1	DETOUR ONE WAY M4-9L (30x24) R6-1L (36x12)	DETOUR ONE WAY M4-9R (30x24) R6-1R (36x12)	R3-2 (24x24)	R3-1 (24x24)	ROAD CLOSED R11-2 (48x30)	END ROAD WORK G20-2a (48x24)	CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER

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- LEGEND:**
- PROPOSED CONSTRUCTION THIS PHASE
 - COMPLETED CONSTRUCTION
 - TEMP CONSTRUCTION THIS PHASE
 - EXIST TRAFFIC FLOW
 - PROP TRAFFIC FLOW
 - TYPE III BARRICADE
 - SIGN
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - CHANNELIZING DEVICE
 - WK ZN PAV MRK REMOV (Y) 4" (SLD)

- NOTES:**
- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
 - REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED

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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 1

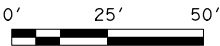
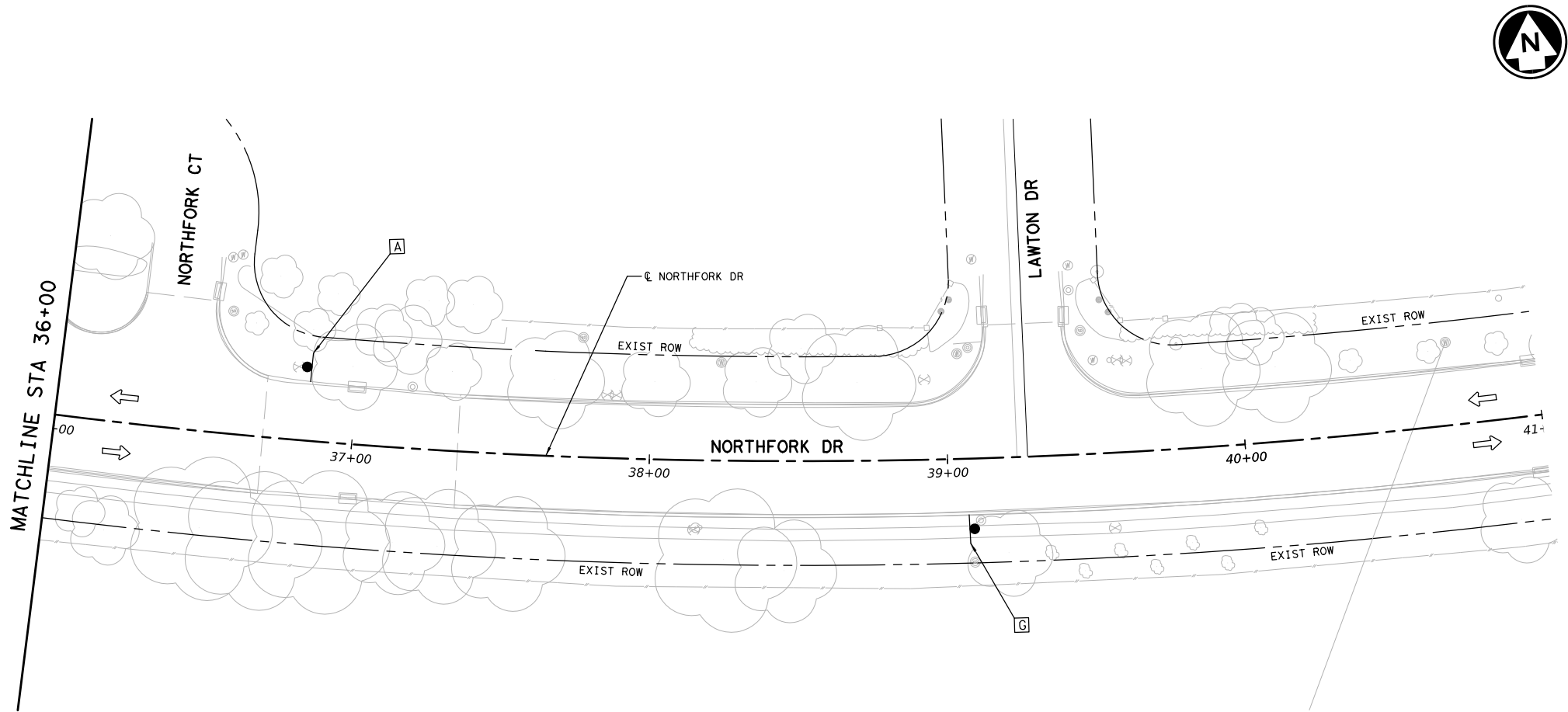
SHEET 3 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		14
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A ROAD WORK AHEAD CW20-1D (48x48)1	B DETOUR M4-9L (30x24) R6-1L (36x12)	C DETOUR M4-9R (30x24) R6-1R (36x12)	D R3-2 (24x24)	E R3-1 (24x24)	F ROAD CLOSED R11-2 (48x30)	G END ROAD WORK G20-2a (48x24)	H CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	I CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	J CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER
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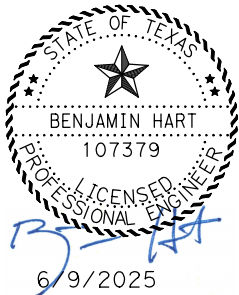
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- LEGEND:**
- PROPOSED CONSTRUCTION THIS PHASE
 - COMPLETED CONSTRUCTION
 - TEMP CONSTRUCTION THIS PHASE
 - EXIST TRAFFIC FLOW
 - PROP TRAFFIC FLOW
 - TYPE III BARRICADE
 - SIGN
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - CHANNELIZING DEVICE
 - WK ZN PAV MRK REMOV (Y) 4" (SLD)

- NOTES:**
- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
 - REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED



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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 1

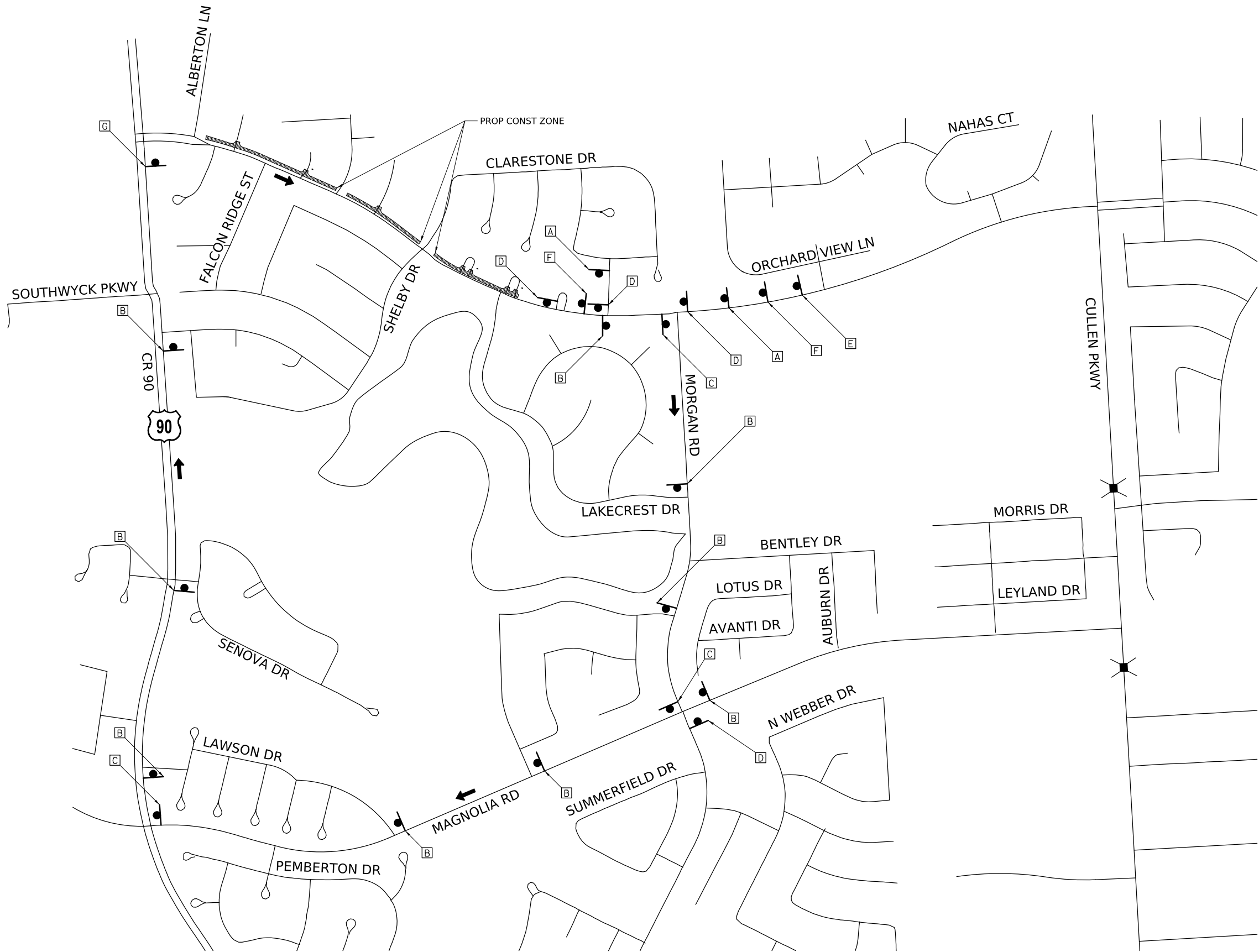
SHEET 4 OF 4

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			15
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

A  CW20-1D (48x48)1	B  M4-9L (30x24) R6-1L (36x12)	C  M4-9R (30x24) R6-1R (36x12)	D  R3-2 (24x24)	E  R3-1 (24x24)	F  R11-2 (48x30)	G  G20-2a (48x24)	H  CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	I  CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	J  CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER
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SCALE: N. T. S

LEGEND:

- SIGN
- TYPE III BARRICADE
- DIRECTION OF DETOUR TRAFFIC
- CONSTRUCTION ZONE

NOTES:

- DISTANCE BETWEEN SIGNS ARE 120' AT 30 MPH.

NO.	DATE	REVISION	APPROVED



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SILVERLAKE PAVEMENT REPAIRS

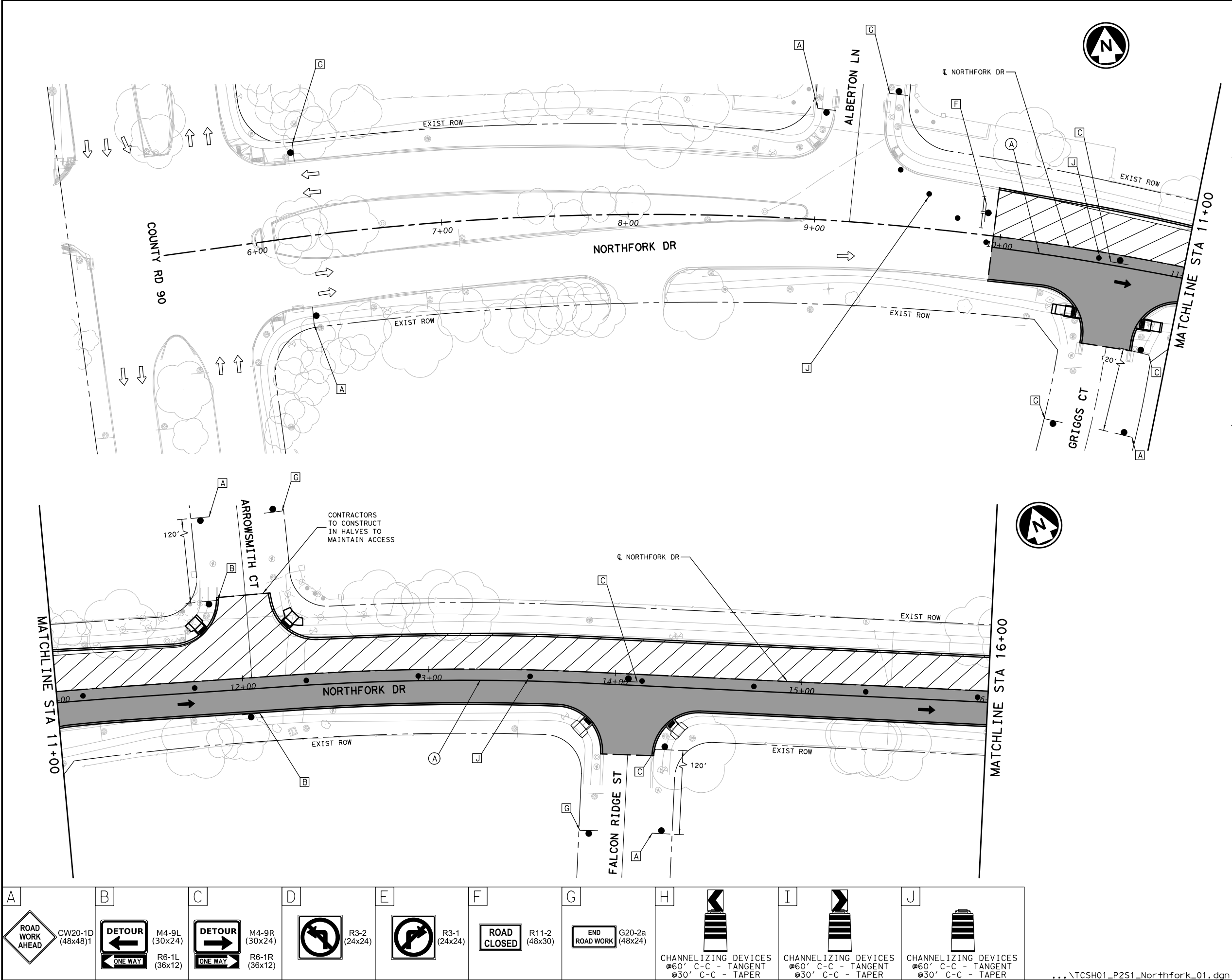
NORTHFORK DR
PHASE 2
CONSTRUCTION DETOUR PLAN

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		16
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A M4-9N (30x12) CW20-2D (36x36)	B M4-9N (30x12) M4-9S (30x24)	C M4-9N (30x12) M4-9R (30x24)	D M4-9N (30x12) M4-9L (30x24)	E CW20-1D (48x48)1	F CW20-3D (36x36)1	G M4-9N (30x12) M4-8a (24x18)
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LEGEND:

- PROPOSED CONSTRUCTION THIS PHASE
- COMPLETED CONSTRUCTION
- TEMP CONSTRUCTION THIS PHASE
- EXIST TRAFFIC FLOW
- PROP TRAFFIC FLOW
- TYPE III BARRICADE
- SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- CHANNELIZING DEVICE
- WK ZN PAV MRK REMOV (Y) 4" (SLD)

NOTES:

- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
- REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED

6/9/2025

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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 2

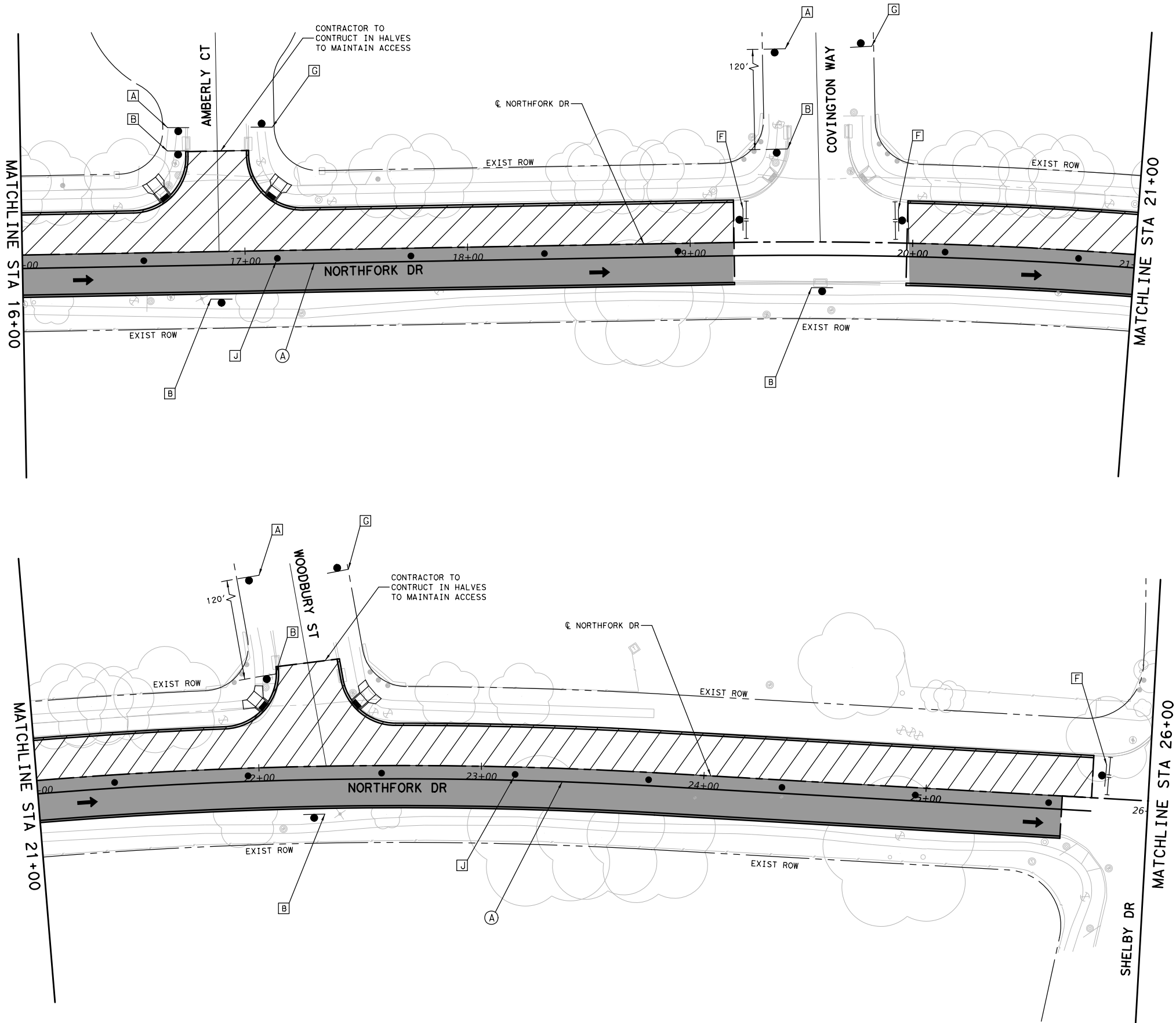
SHEET 1 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		17
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A CW20-1D (48x48)1	B M4-9L (30x24) R6-1L (36x12)	C M4-9R (30x24) R6-1R (36x12)	D R3-2 (24x24)	E R3-1 (24x24)	F R11-2 (48x30)	G G20-2a (48x24)	H CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	I CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	J CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER
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- LEGEND:**
- PROPOSED CONSTRUCTION THIS PHASE
 - COMPLETED CONSTRUCTION
 - TEMP CONSTRUCTION THIS PHASE
 - EXIST TRAFFIC FLOW
 - PROP TRAFFIC FLOW
 - TYPE III BARRICADE
 - SIGN
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- NOTES:**
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NO.	DATE	REVISION	APPROVED

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SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 2

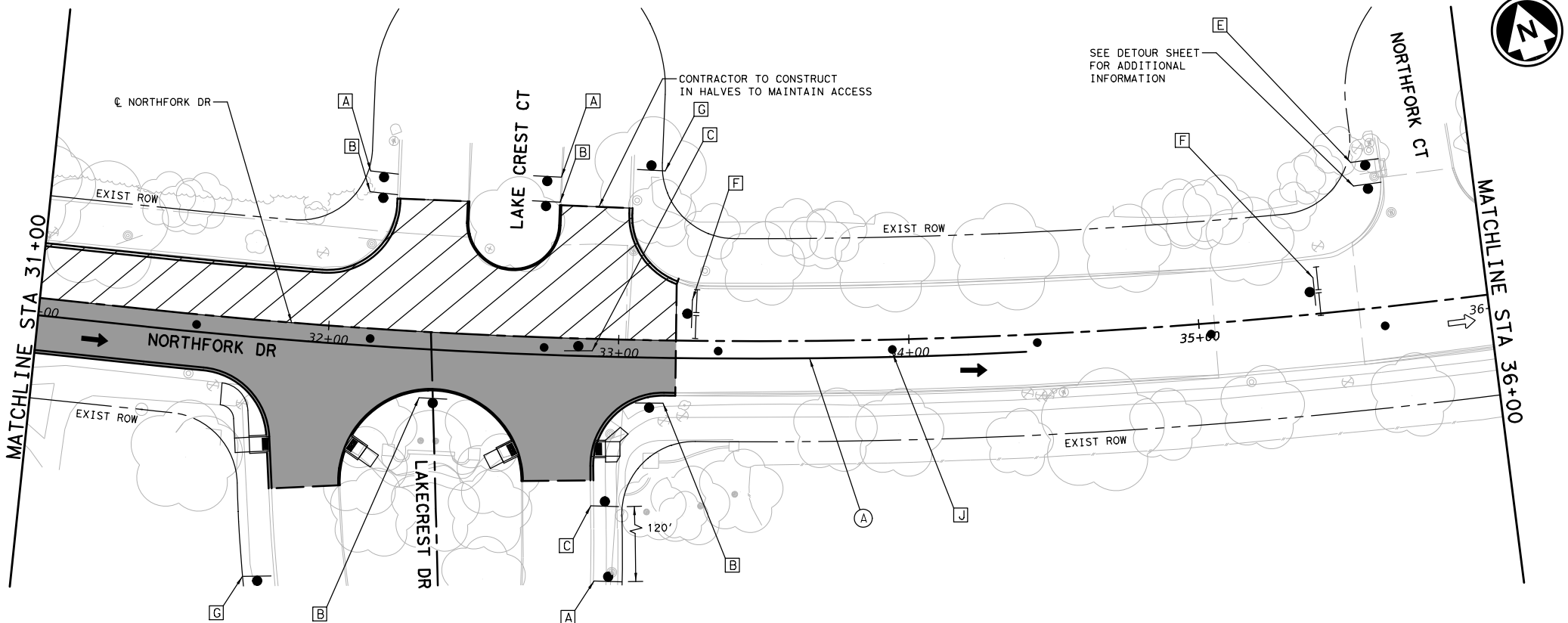
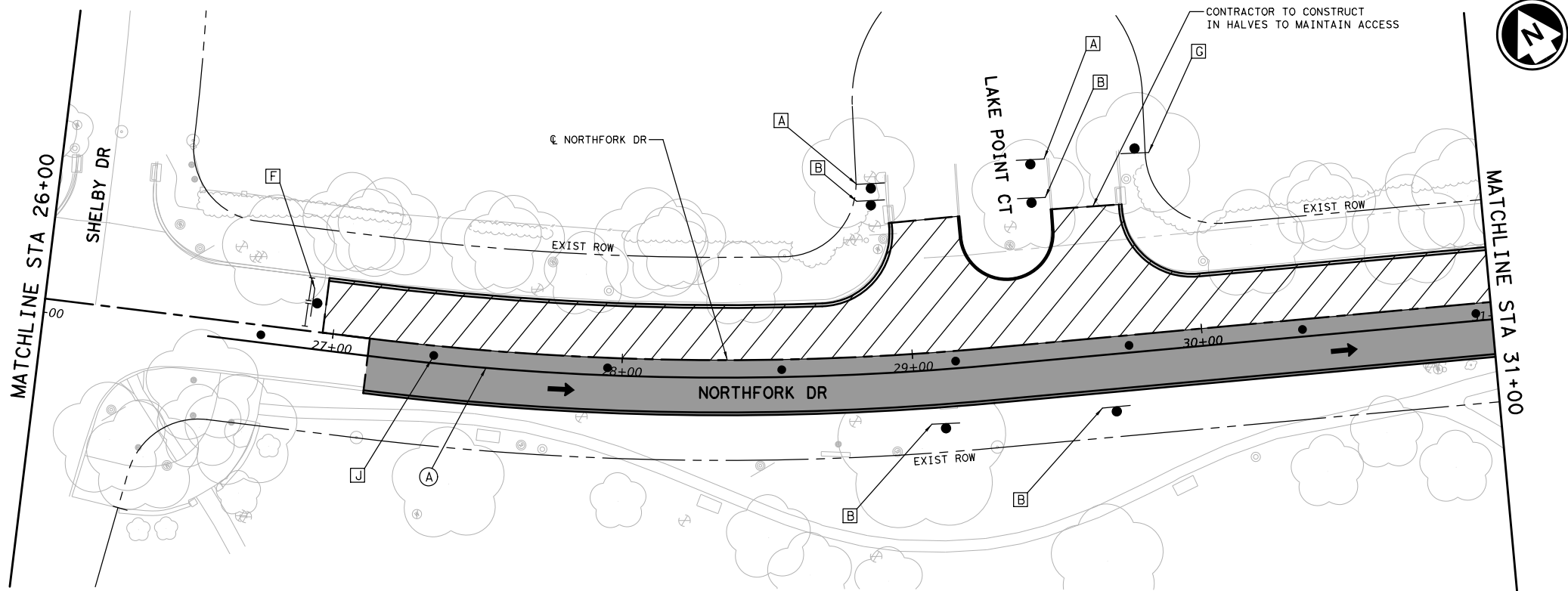
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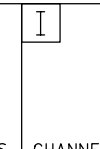
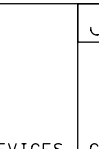
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6		18
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

A	B	C	D	E	F	G	H	I	J
 CW20-1D (48x48)1	 M4-9L (30x24) R6-1L (36x12)	 M4-9R (30x24) R6-1R (36x12)	 R3-2 (24x24)	 R3-1 (24x24)	 R11-2 (48x30)	 G20-2a (48x24)	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER

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A	B	C	D	E	F	G	H	I	J
 ROAD WORK AHEAD CW20-1D (48x48)1	 DETOUR M4-9L (30x24) R6-1L (36x12)	 DETOUR M4-9R (30x24) R6-1R (36x12)	 R3-2 (24x24)	 R3-1 (24x24)	 ROAD CLOSED R11-2 (48x30)	 END ROAD WORK G20-2a (48x24)	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER	 CHANNELIZING DEVICES @60' C-C - TANGENT @30' C-C - TAPER

... \TCSH01_P2S1_Northfork-03.dgn

- LEGEND:**
- PROPOSED CONSTRUCTION THIS PHASE
 - COMPLETED CONSTRUCTION
 - TEMP CONSTRUCTION THIS PHASE
 - EXIST TRAFFIC FLOW
 - PROP TRAFFIC FLOW
 - TYPE III BARRICADE
 - SIGN
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - CHANNELIZING DEVICE
 - WK ZN PAV MRK REMOV (Y) 4" (SLD)

- NOTES:**
- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES.
 - REFER TO BC(1-12)-21 FOR MORE INFORMATION.

NO.	DATE	REVISION	APPROVED



6/9/2025



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713.869.3433 | BinkleyBarfield.DCCM.com

SILVERLAKE PAVEMENT REPAIRS
TRAFFIC CONTROL PLAN
NORTHFORK DR
PHASE 2

SHEET 3 OF 4

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		19
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

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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

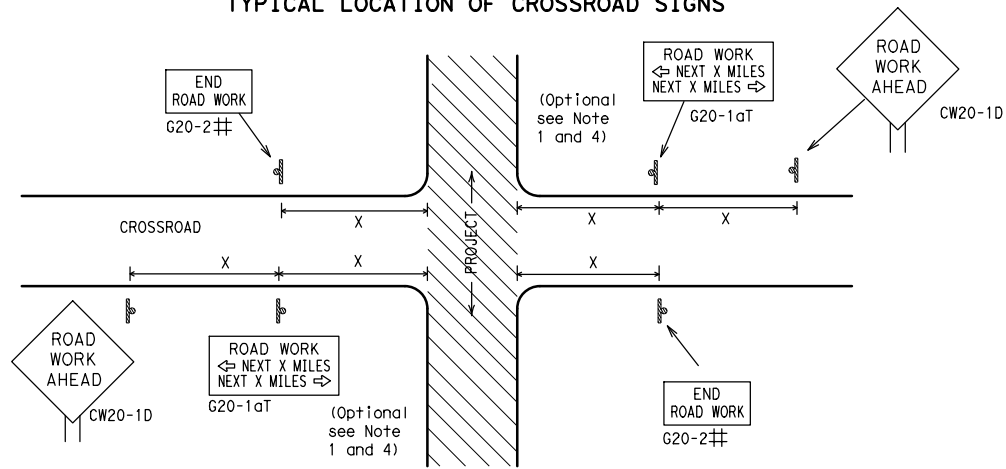
SHEET 1 OF 12

 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	DN: TxDOT	CK: TxDOT
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REVISIONS					
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9-07	8-14				
5-10	5-21				
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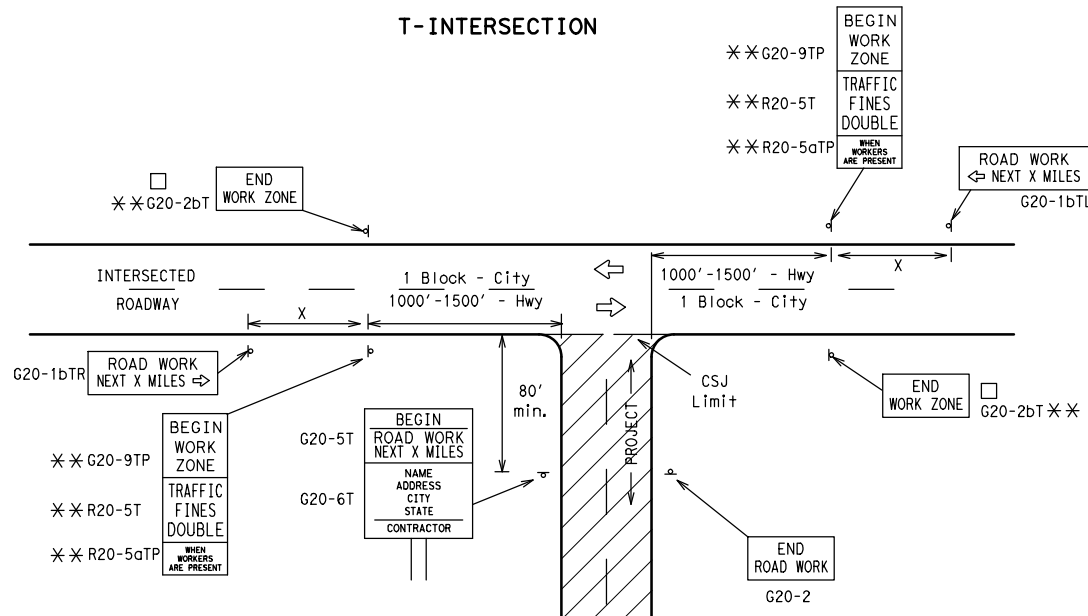
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

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

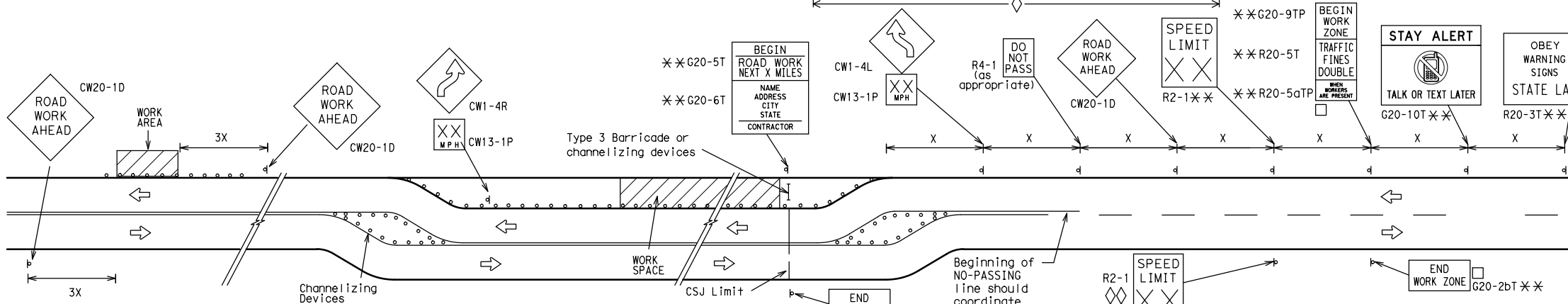
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

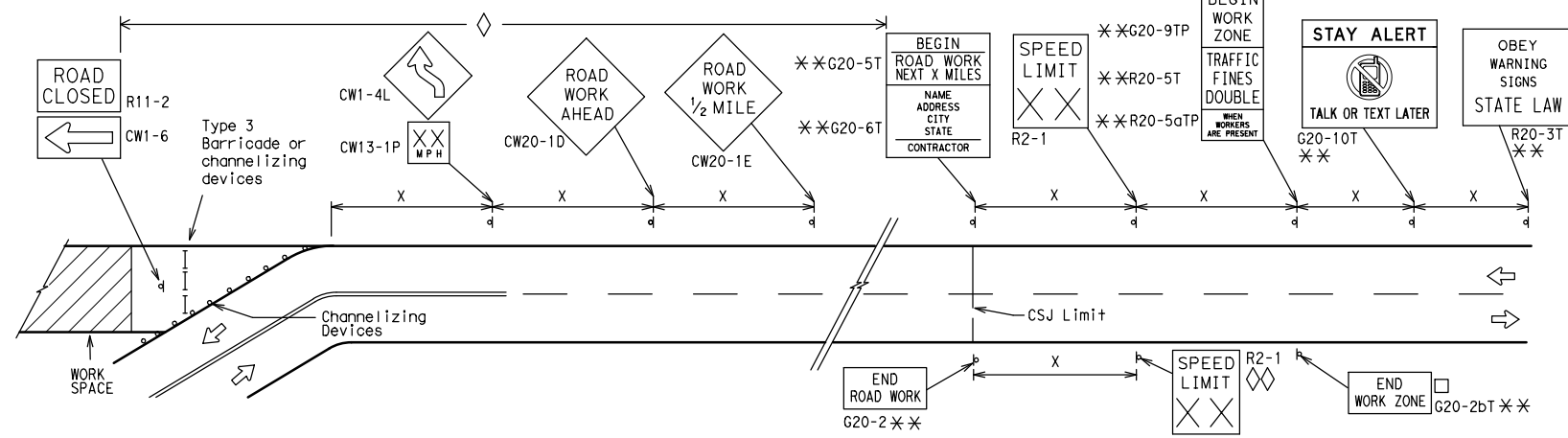
- Special or larger size signs may be used as necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



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.

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

$\Delta\Delta$ 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



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC (2) - 21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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7-13 5-21				
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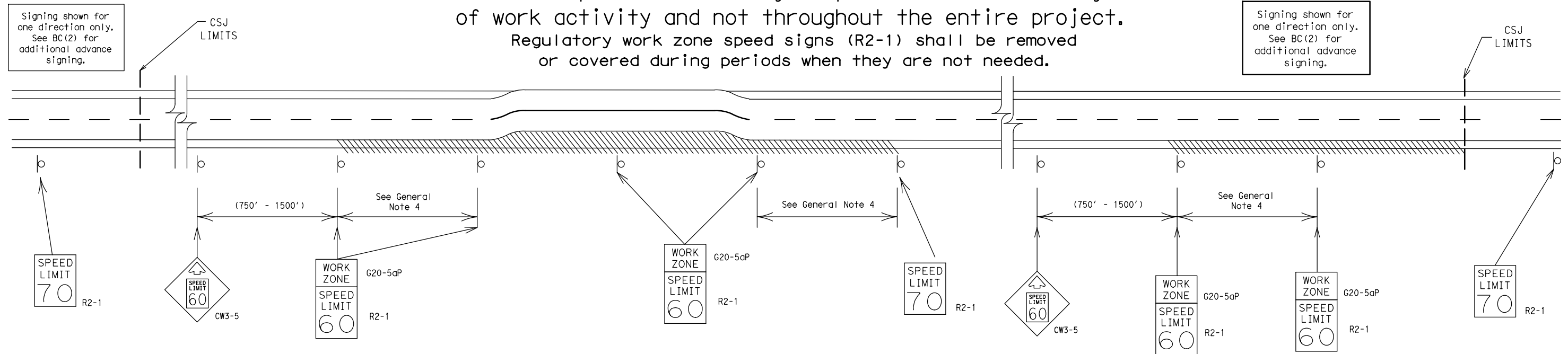
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

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

SHORT TERM WORK ZONE SPEED LIMITS

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

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:

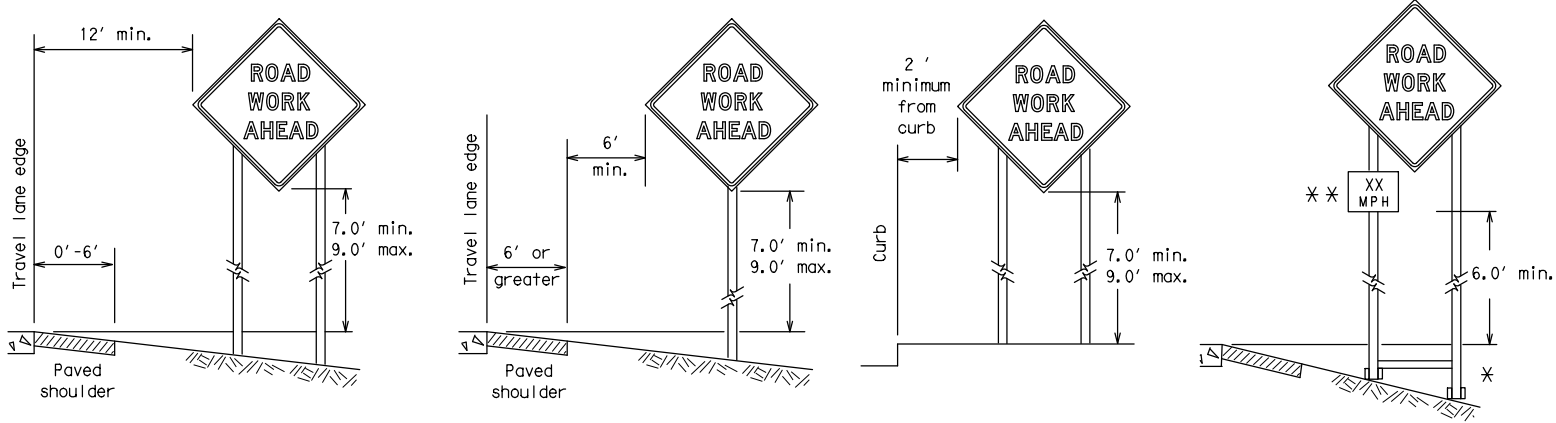
40 mph and greater	0.2 to 2 miles
35 mph and less	0.2 to 1 mile
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP)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

SHEET 3 OF 12

		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT			
BC (3) - 21			
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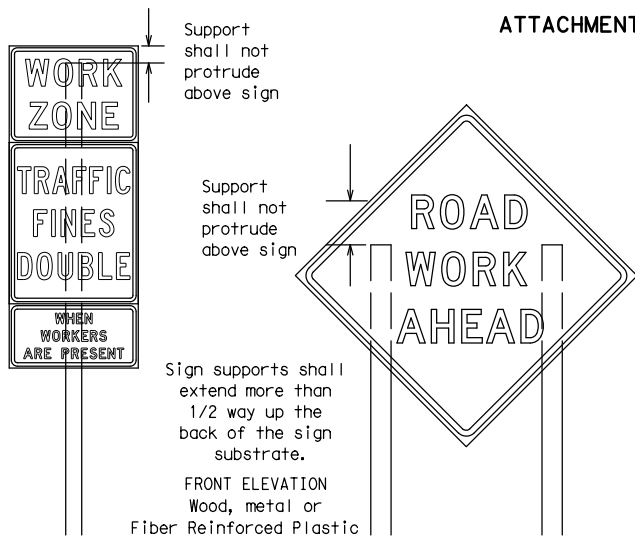
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



✱ 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.

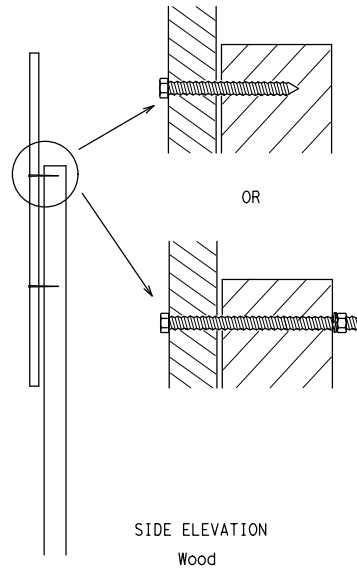
✱✱ When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



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

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



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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

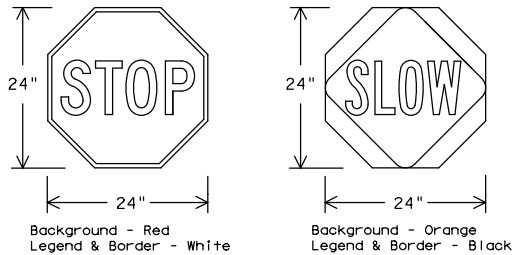
- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not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

FLAGS ON SIGNS

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

STOP/SLOW PADDLES

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



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

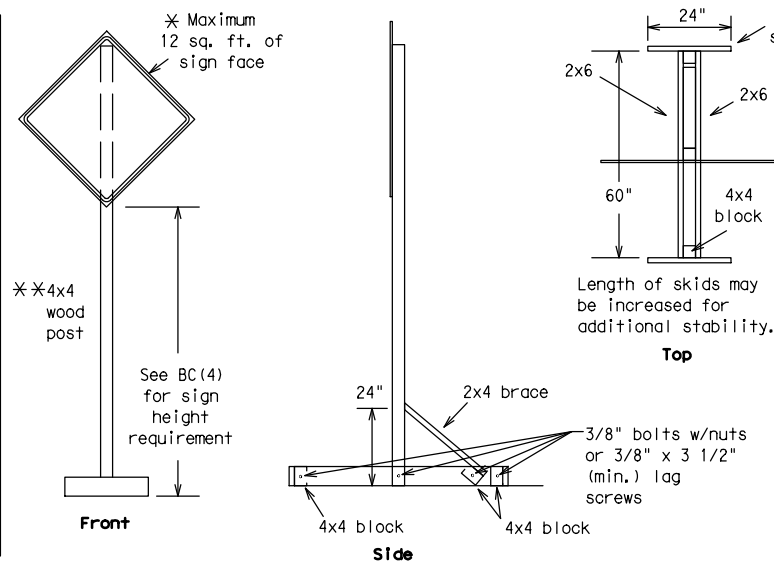
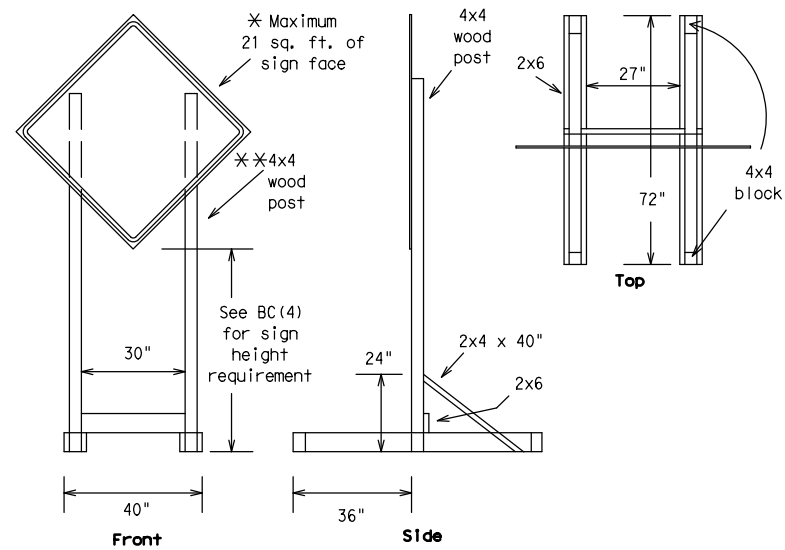
CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- 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.
- 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.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC 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.
- 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.

SHEET 4 OF 12

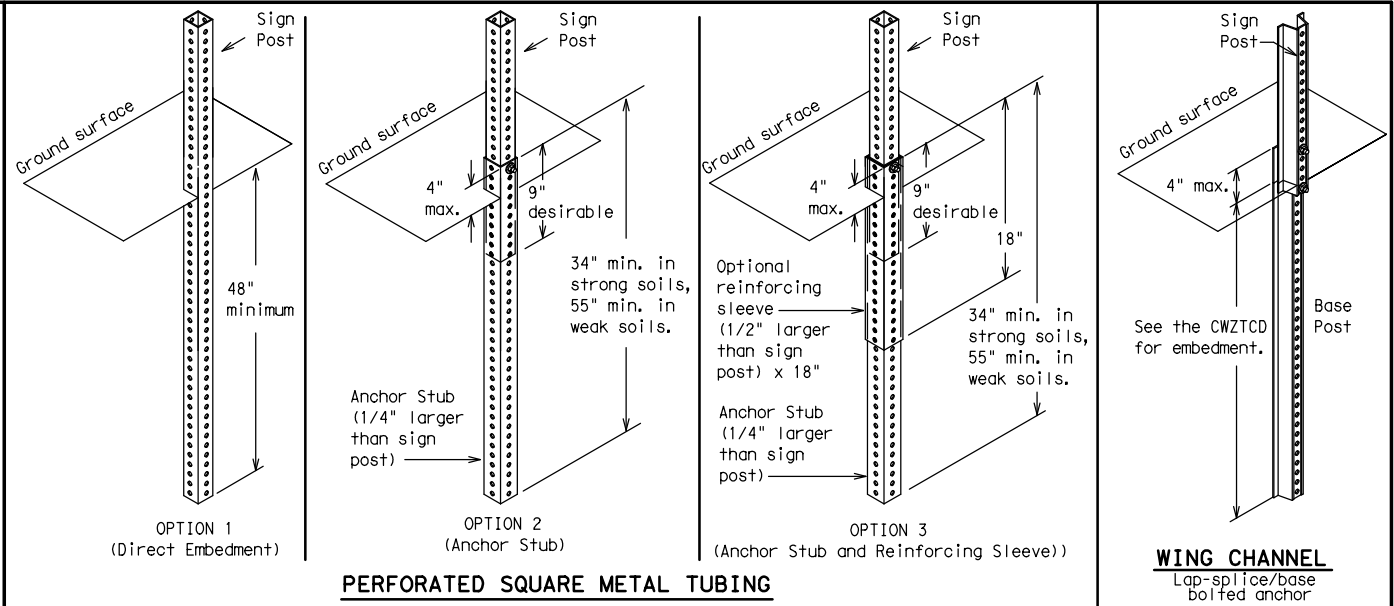
		Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES			
BC (4) -21			
FILE:	bc-21.dgn	DN:	TxDOT
© TxDOT	November 2002	CONT	SECT
REVISIONS		JOB	
9-07	8-14	HIGHWAY	
7-13	5-21	SHEET NO.	
		24	

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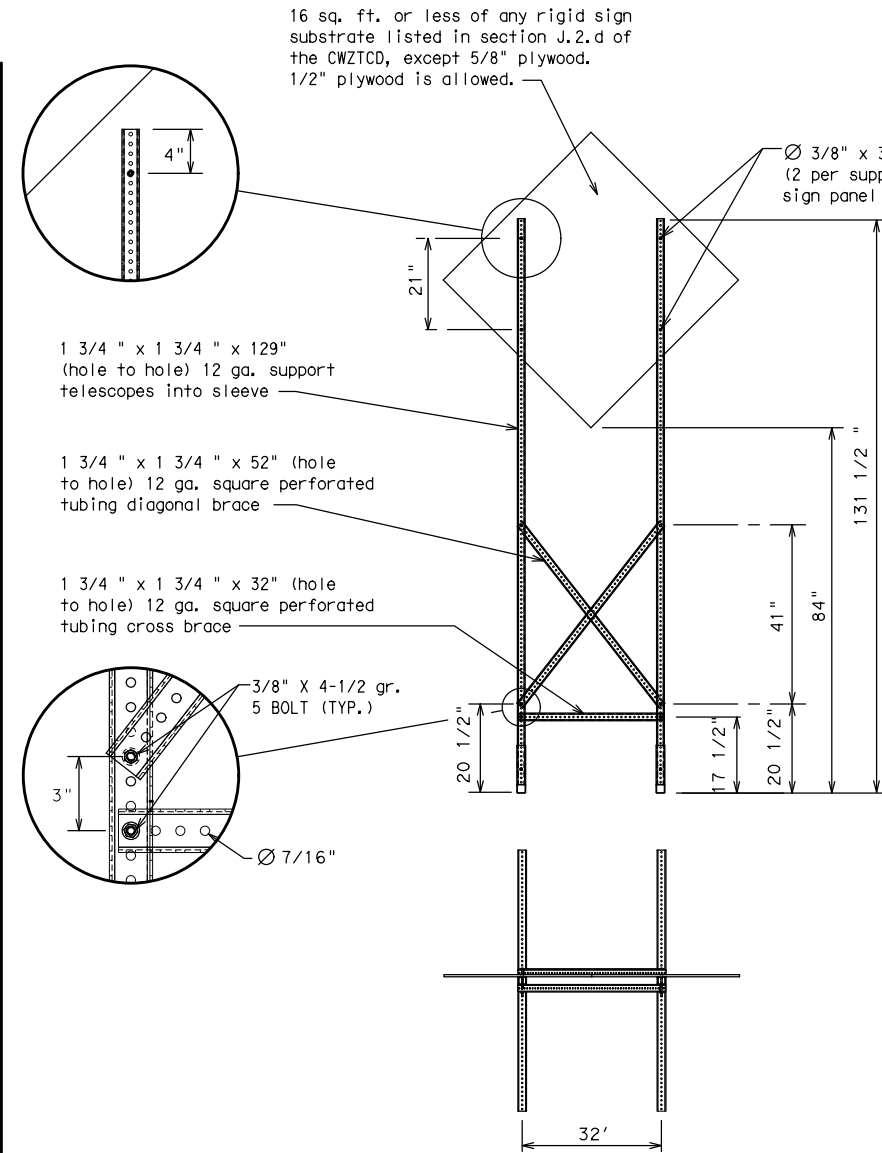
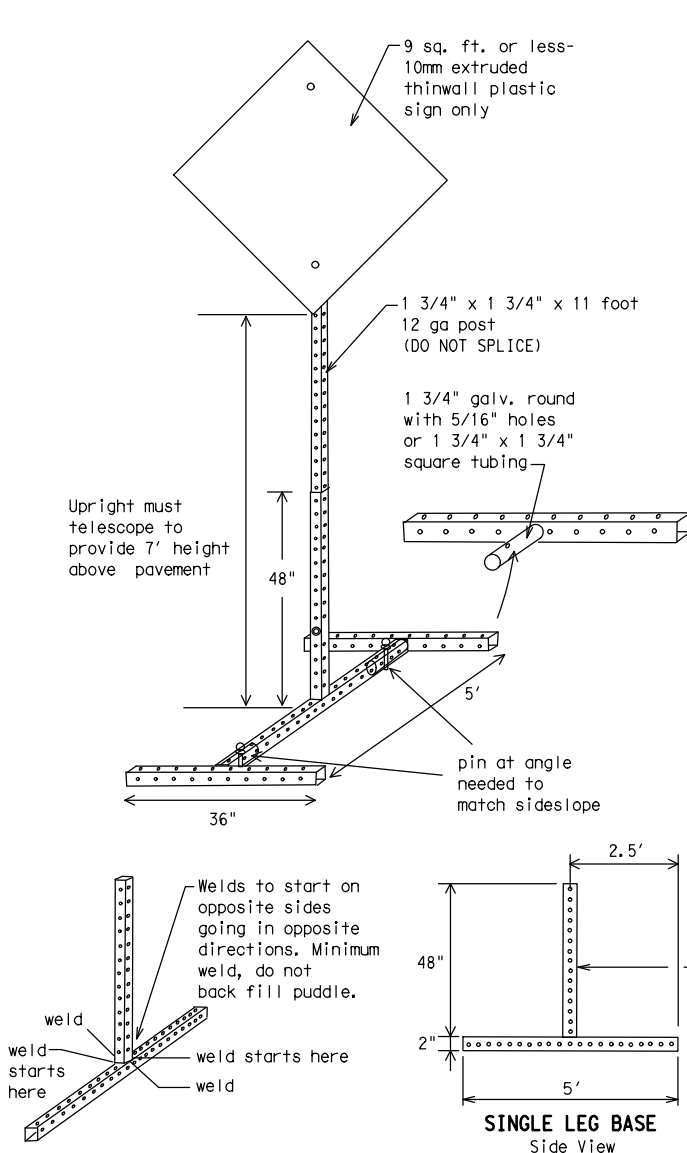
SKID MOUNTED WOOD SIGN SUPPORTS

* 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.

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

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

XXXXXXXX
TO
XXXXXXXX

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.

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.

WORDING ALTERNATIVES

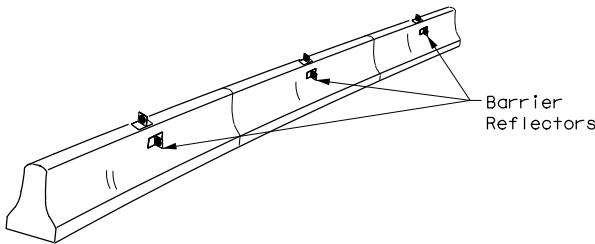
1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
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.

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 Texas Department of Transportation				Traffic Safety Division Standard	
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)					
BC (6) -21					
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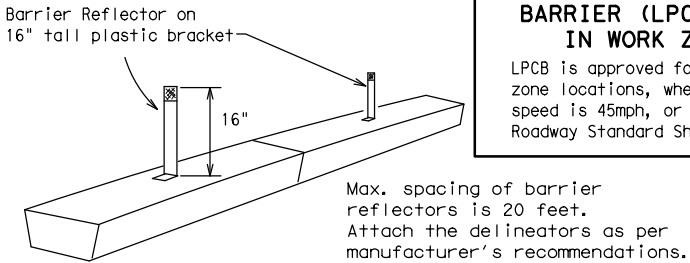
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

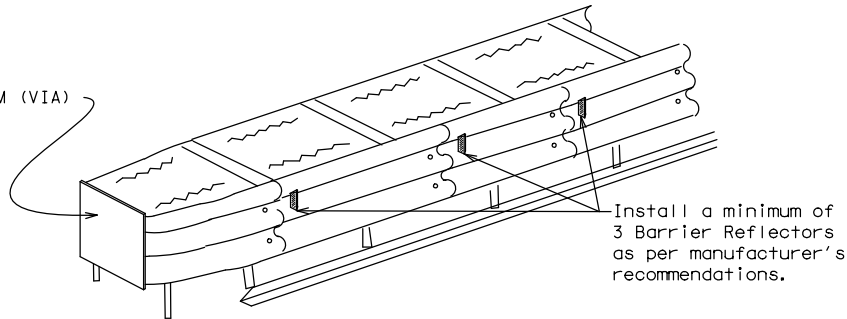


CONCRETE TRAFFIC BARRIER (CTB)

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB)

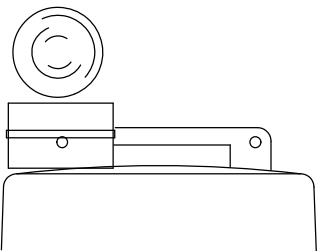


DELINEATION OF END TREATMENTS

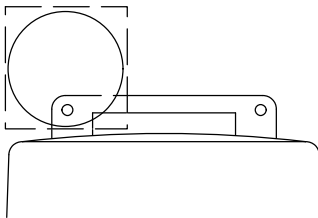
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate 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

- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

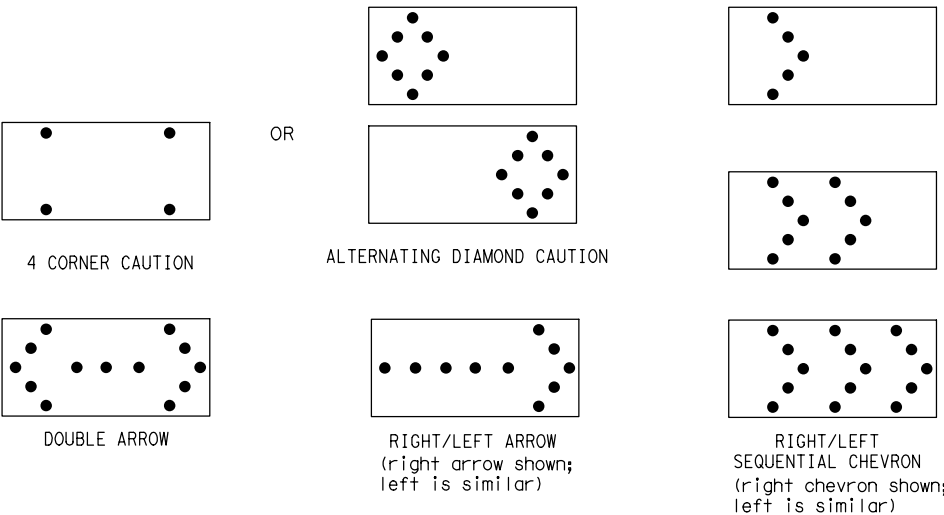
- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
- The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

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.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTCD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



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

BC (7) -21

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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

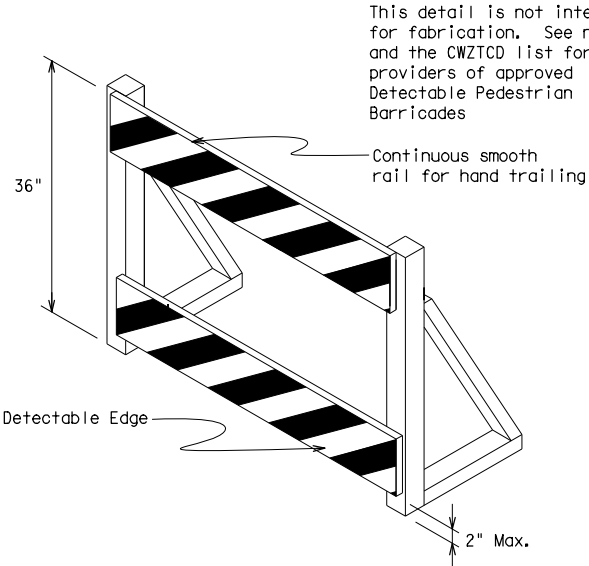
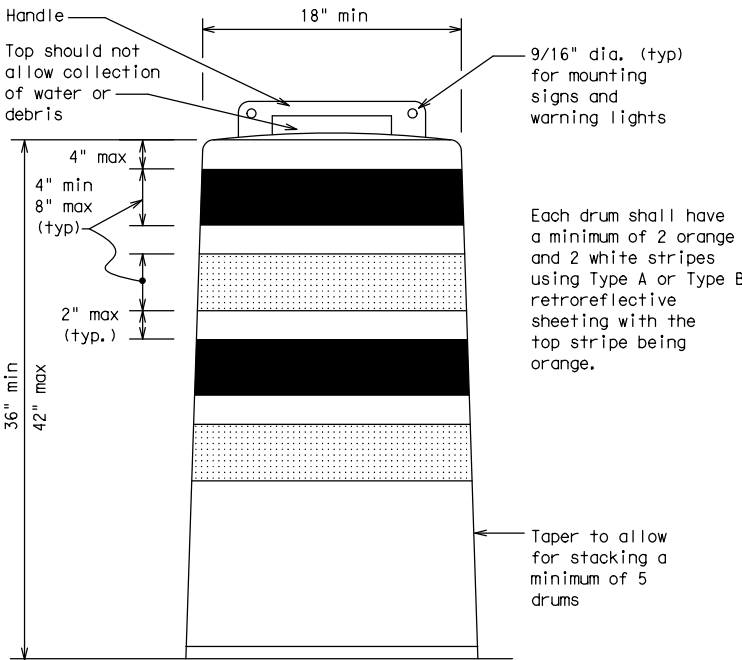
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

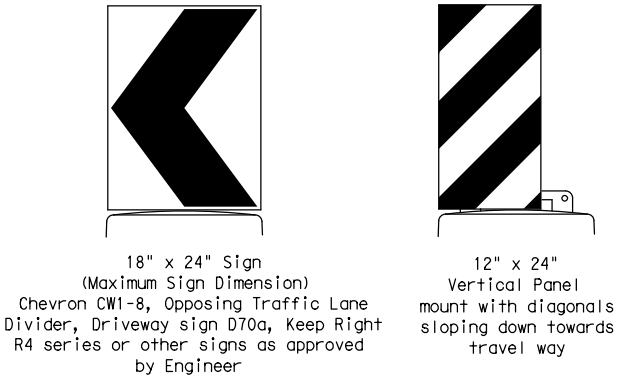
BALLAST

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- 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.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades 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.



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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

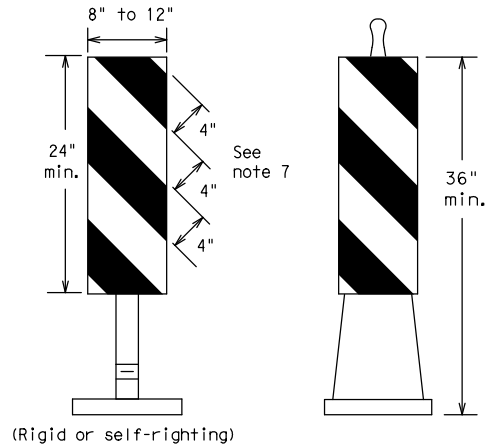
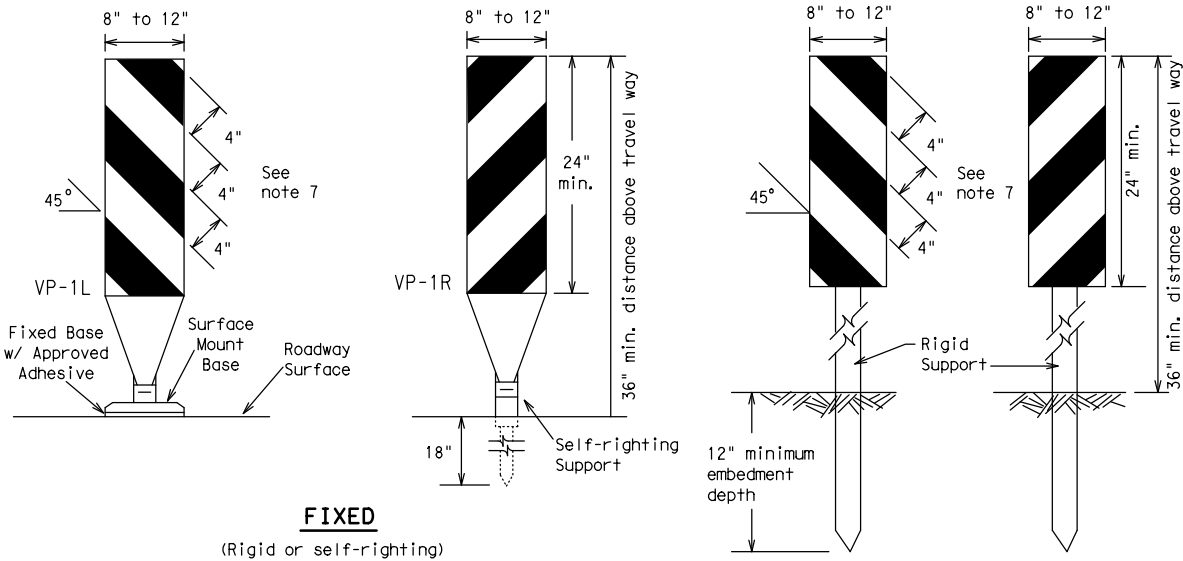
- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

 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
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REVISIONS					
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9-07	5-21				
7-13					
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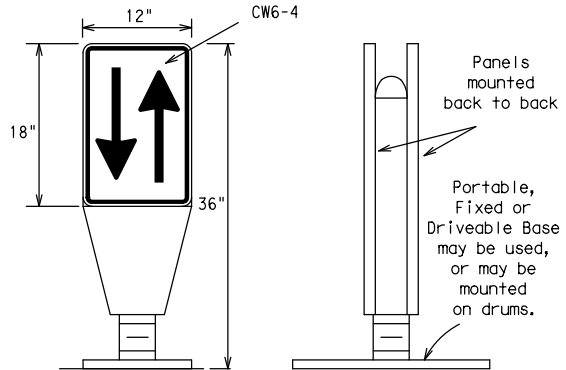
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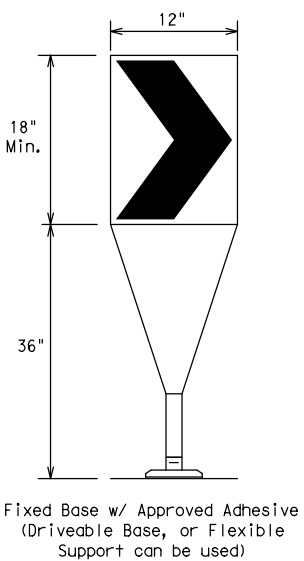
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is 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)



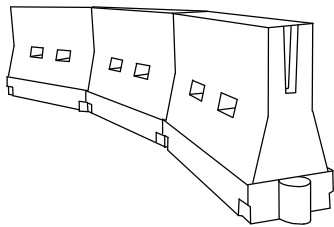
1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The 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)



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



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) -21

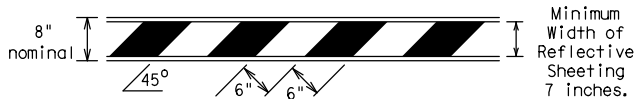
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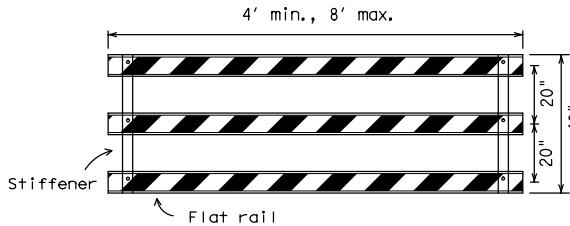
TYPE 3 BARRICADES

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.

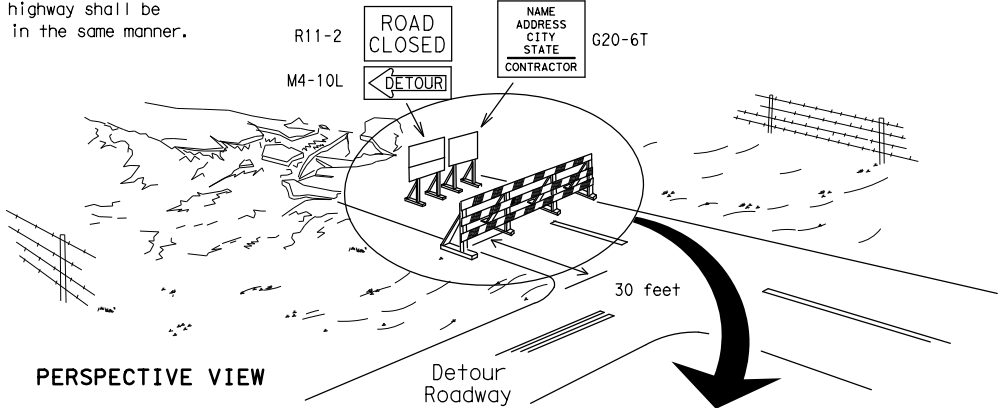


TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

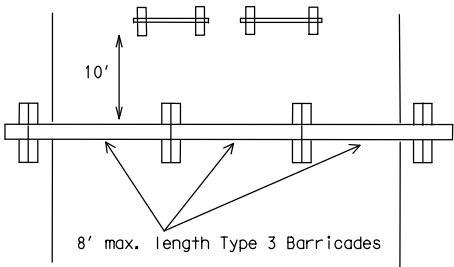
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

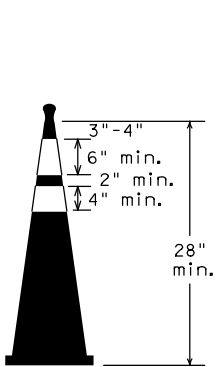
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.

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.

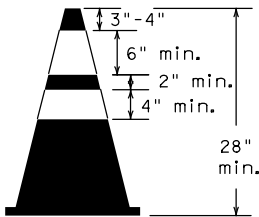
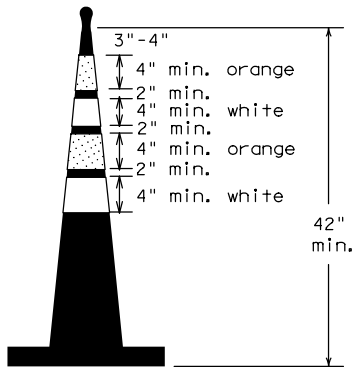


PLAN VIEW

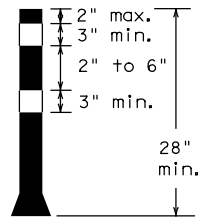
TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



Two-Piece cones



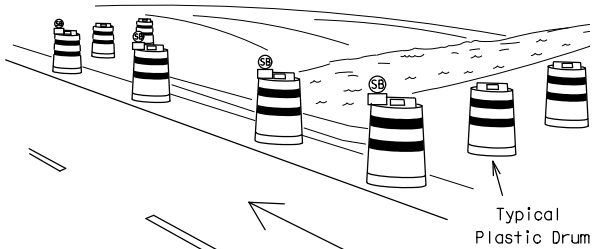
One-Piece cones



Tubular Marker

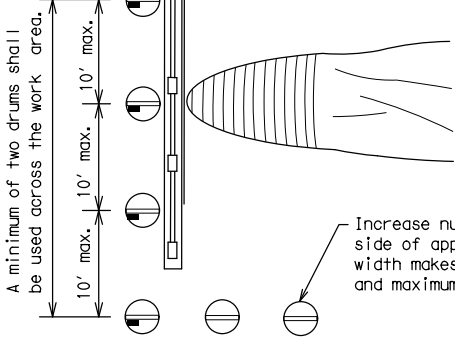
28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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.



PERSPECTIVE VIEW

These drums are not required on one-way roadway



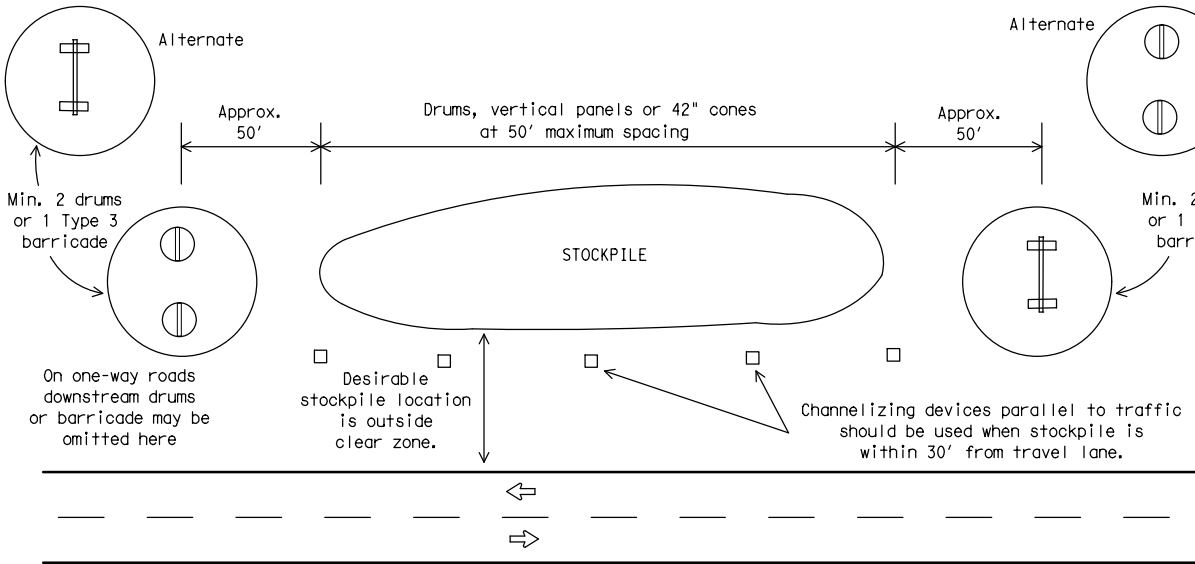
PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

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

Increase number of plastic drums on the side of approaching traffic if the crown width makes it necessary. (minimum of 2 and maximum of 4 drums)



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12



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.

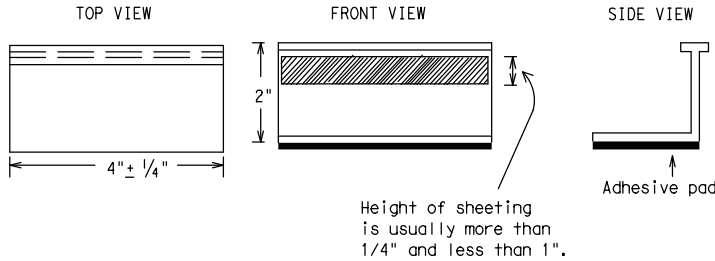
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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 SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

SHEET 11 OF 12



Texas Department of Transportation

Traffic
Safety
Division
Standard

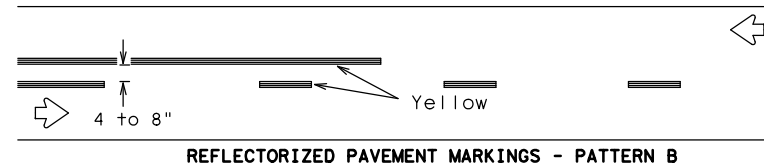
BARRICADE AND CONSTRUCTION
PAVEMENT MARKINGS

BC (11) - 21

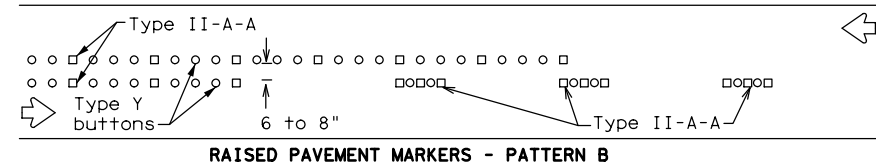
FILE:	bc-21.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	February 1998	CONT	SECT	JOB	HIGHWAY				
REVISIONS		DIST		COUNTY		SHEET NO.			
2-98	9-07	5-21							
1-02	7-13								
11-02	8-14							31	

105

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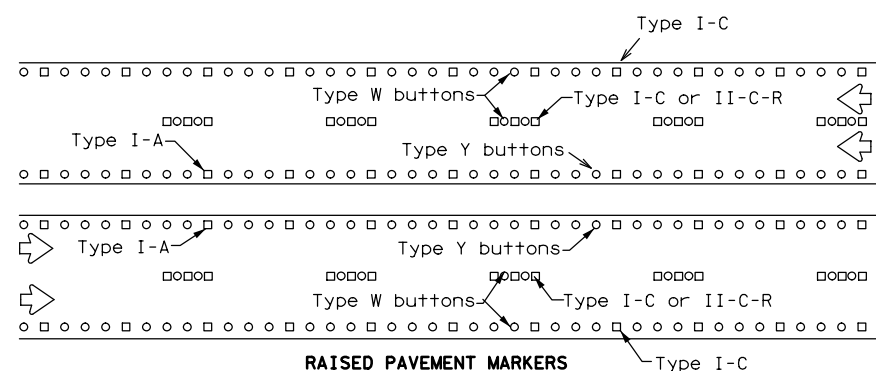


Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.



The diagram illustrates the placement of reflectors on pavement markings. It shows two horizontal road sections. The top section features a solid white line on the left and a dashed yellow line on the right. Arrows point from the text 'White' to the solid line and from 'Yellow' to the dashed line, indicating reflector placement. The bottom section shows a solid white line on the left and a dashed yellow line on the right, with arrows pointing from the text 'White' to the solid line and from 'Yellow' to the dashed line, indicating reflector placement. The entire diagram is labeled 'REFLECTORIZED PAVEMENT MARKINGS' at the bottom.

Prefabricated markings may be substituted for reflectorized pavement markings.



The diagram illustrates the placement of reflectors on pavement markings. It shows two horizontal lines: a top line and a bottom line. The top line has a white arrow pointing to a reflector on a white line segment and a yellow arrow pointing to a reflector on a yellow line segment. The bottom line has a white arrow pointing to a reflector on a white line segment and a yellow arrow pointing to a reflector on a yellow line segment. The text 'REFLECTORIZED PAVEMENT MARKINGS' is written below the diagram.

Prefabricated markings may be substituted for reflectorized pavement markings.

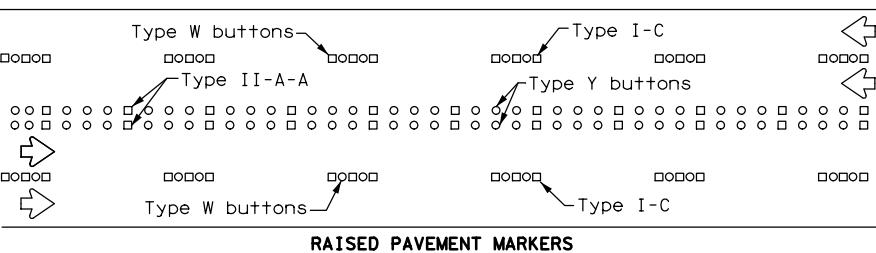
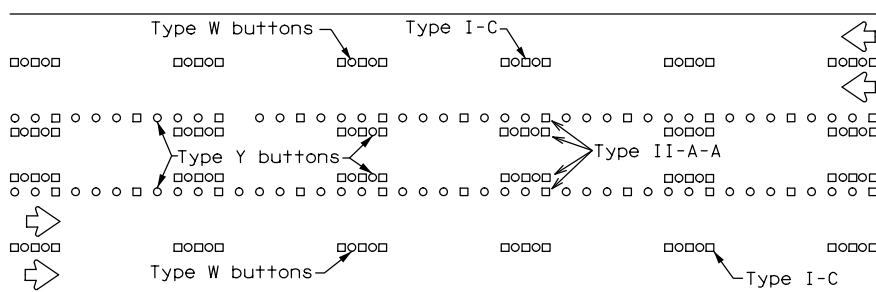


Diagram illustrating a 2D lattice structure with two horizontal layers of sites. The top layer has four sites, with the second and third labeled "White" and connected by a double-headed arrow. The bottom layer has four sites, with the second and third labeled "Yellow" and connected by a double-headed arrow. Arrows on the right indicate coupling between the layers. On the left, arrows point to the first and last sites of the bottom layer.

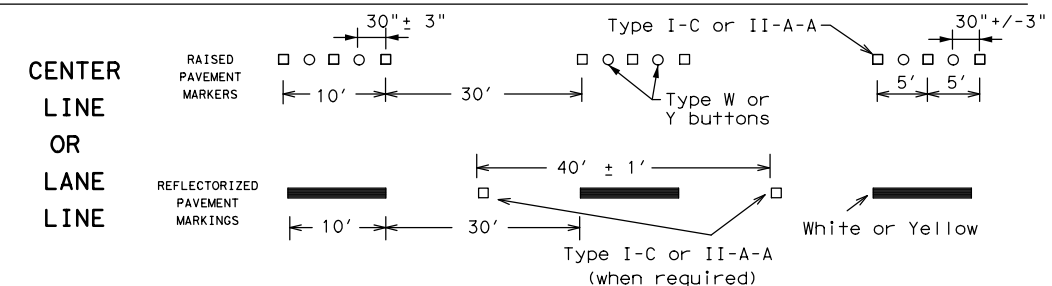
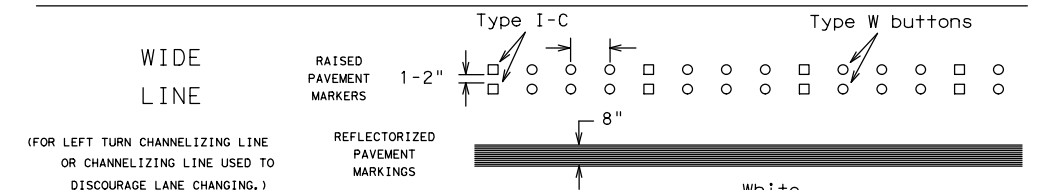
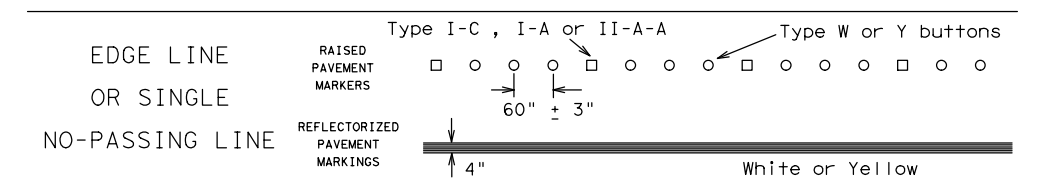
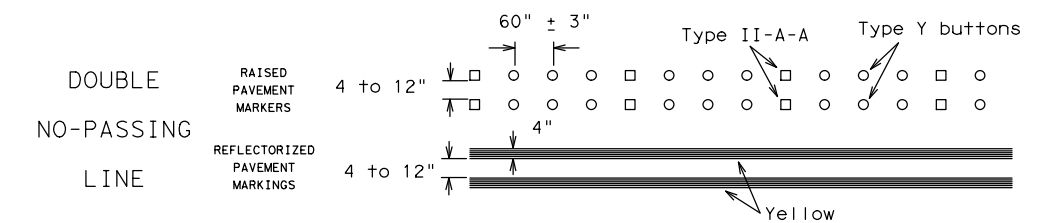
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectorized pavement markings.

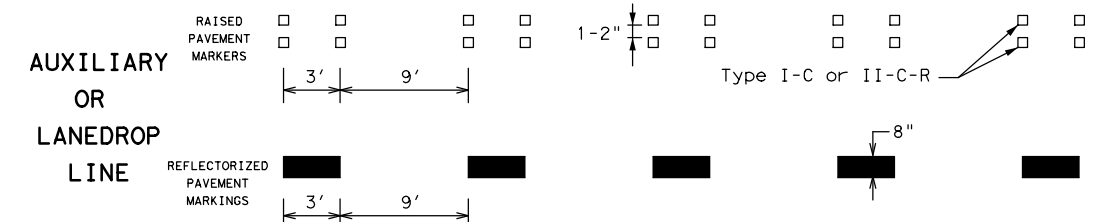


RAISED PAVEMENT MARKERS

SOLID
LINES

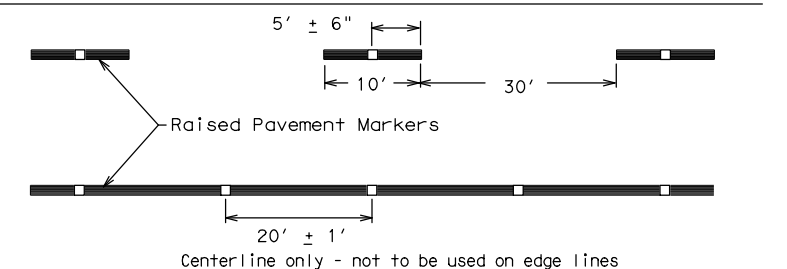


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



**Traffic
Safety
Division
Standard**

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

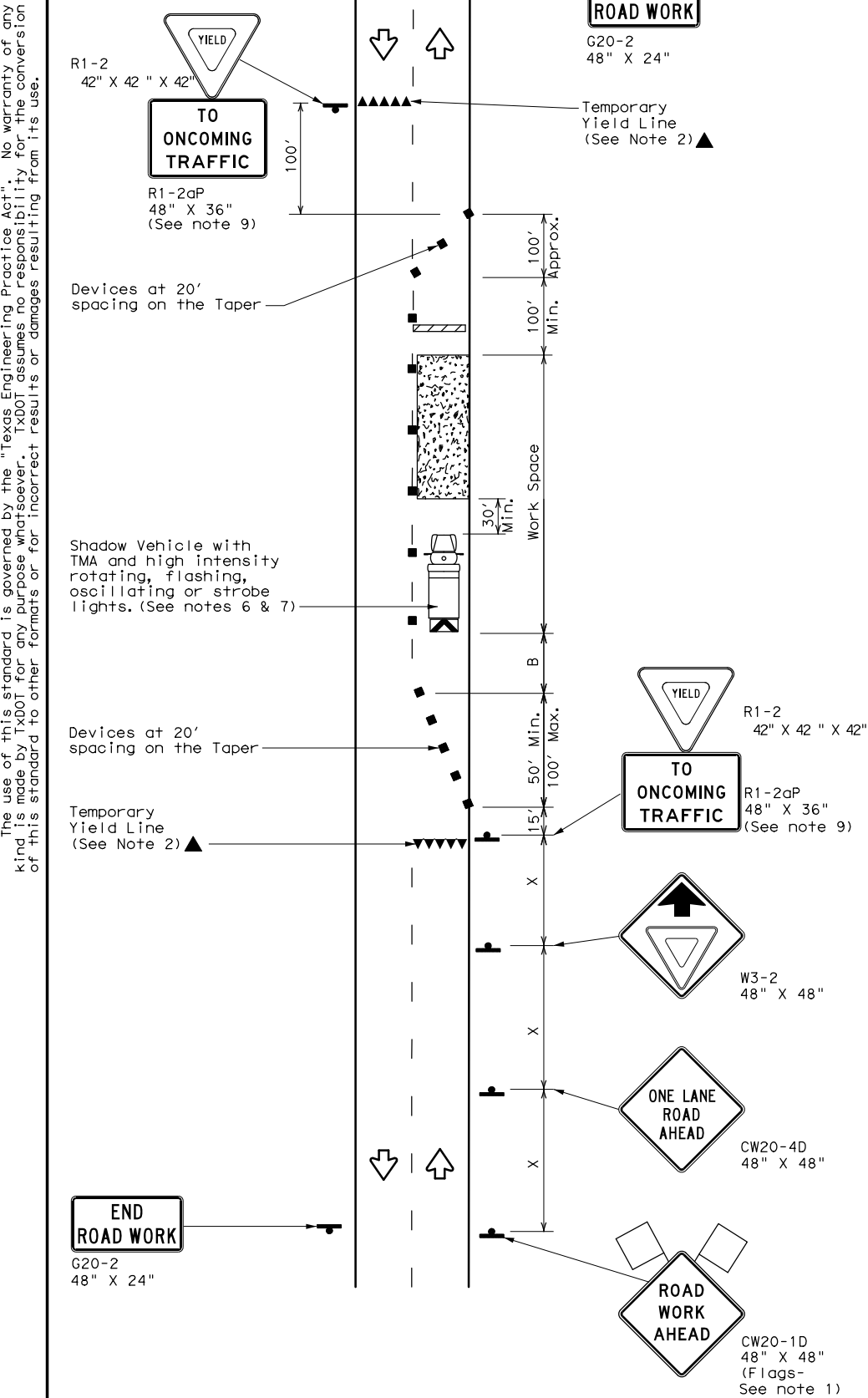
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2-98 7-13									
11-02 8-14									
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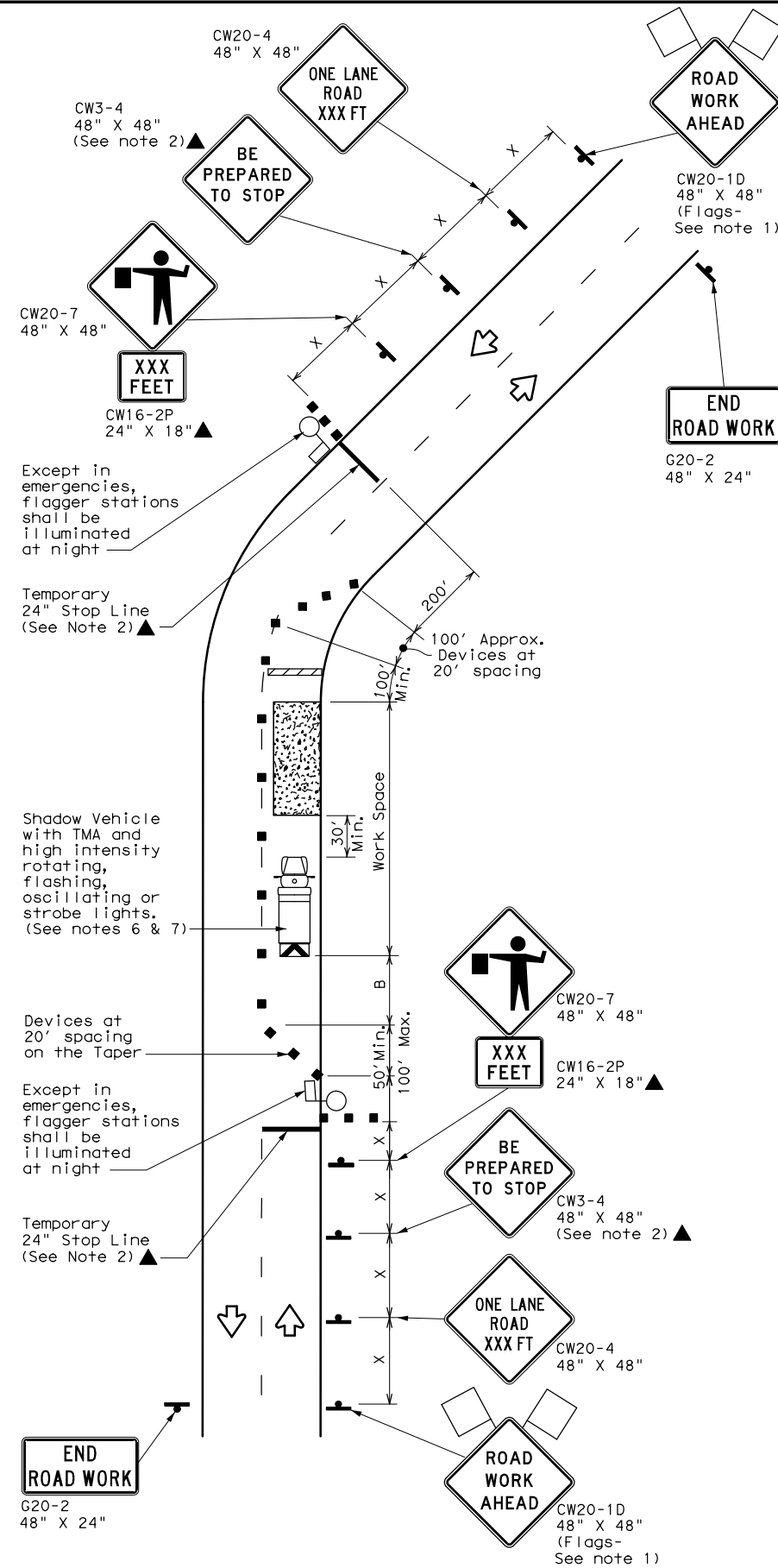
Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

DATE: _____
FILE: _____

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TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	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

- Flags attached to signs where shown, are REQUIRED.
- 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.
- The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
- The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.

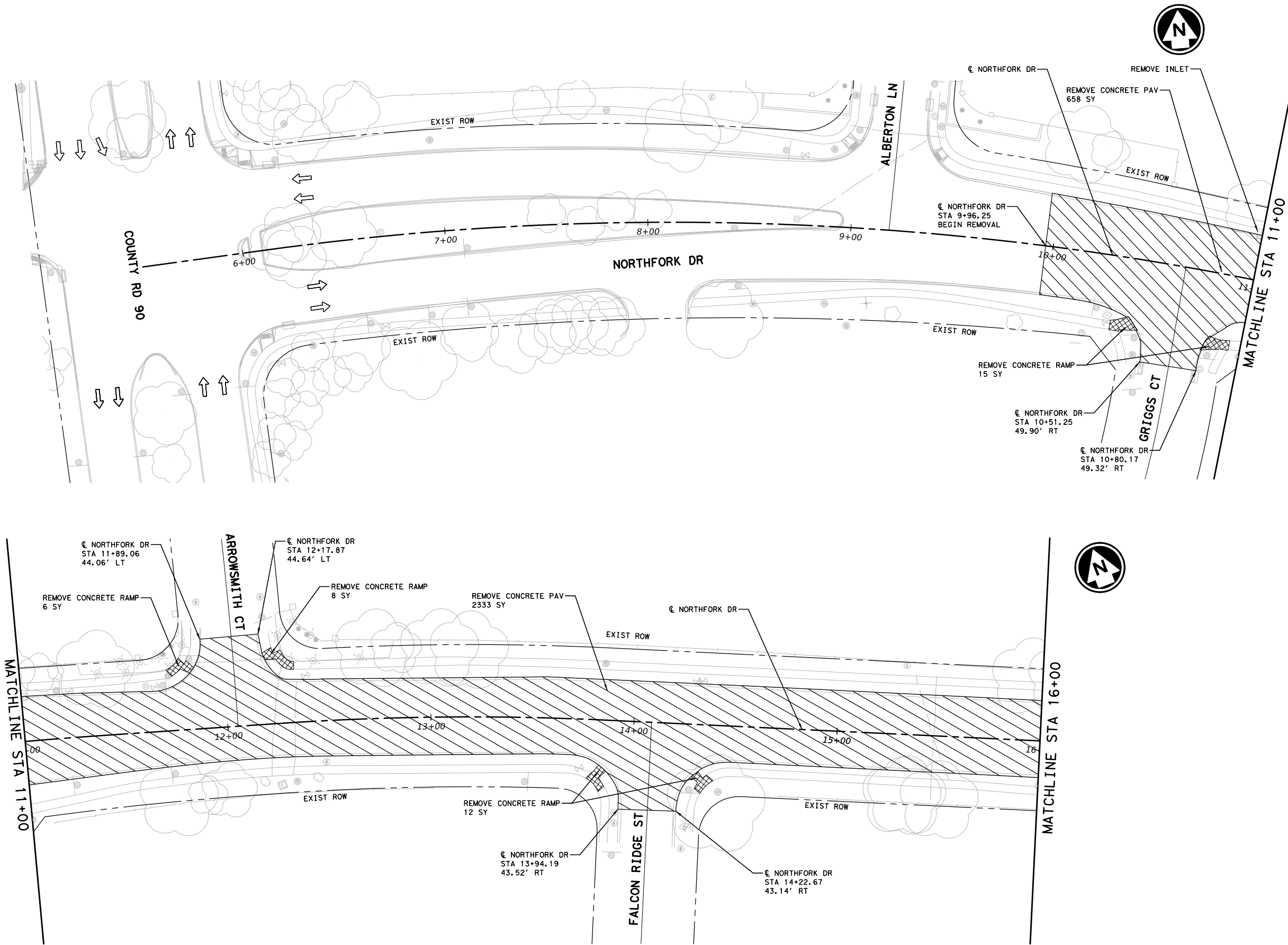
TCP (2-2b)

- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
- Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

		Traffic Operations Division Standard			
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL					
TCP (2-2) - 18					
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© TxDOT December 1985	CONT	SECT	JOB		
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1-97 2-12					
4-98 2-18					
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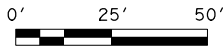
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LEGEND:

- REMOVE CONC (PAV)
- REMOVE CONC (PED. RAMP)



NO.	DATE	REVISION	APPROVED
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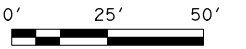
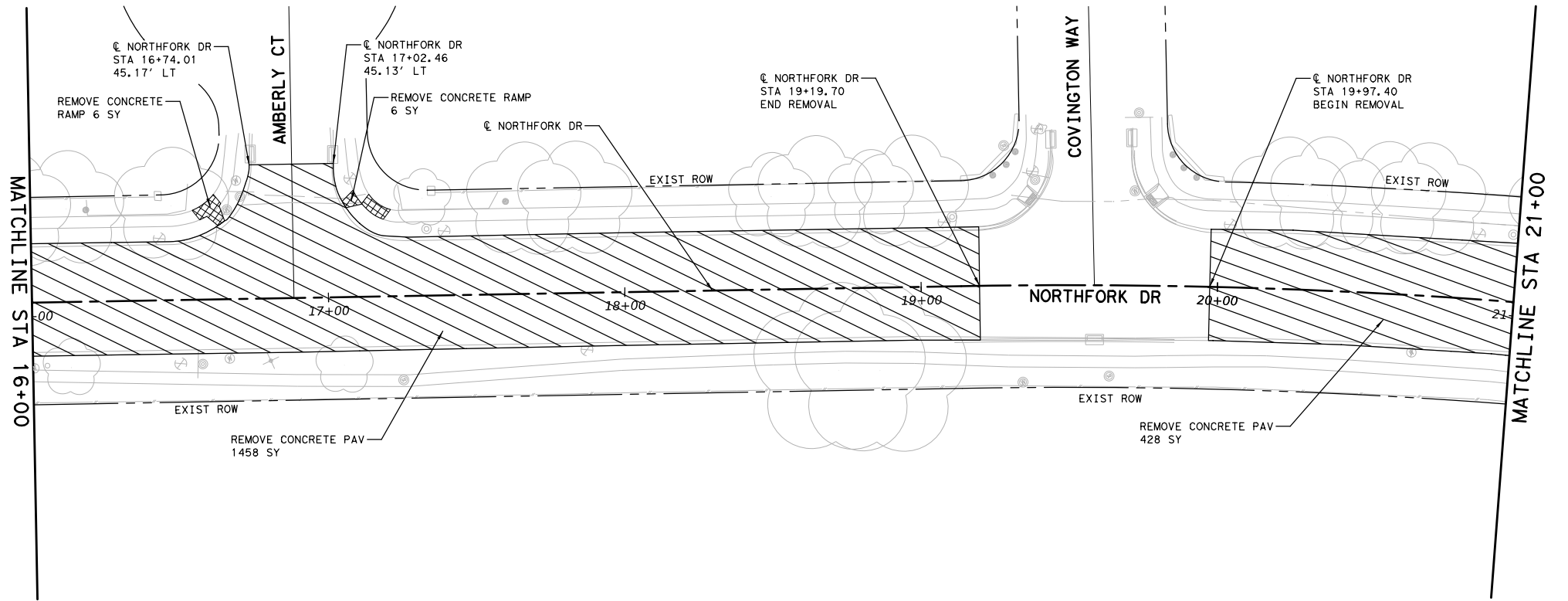
SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
REMOVAL LAYOUT

SHEET 1 OF 3

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TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

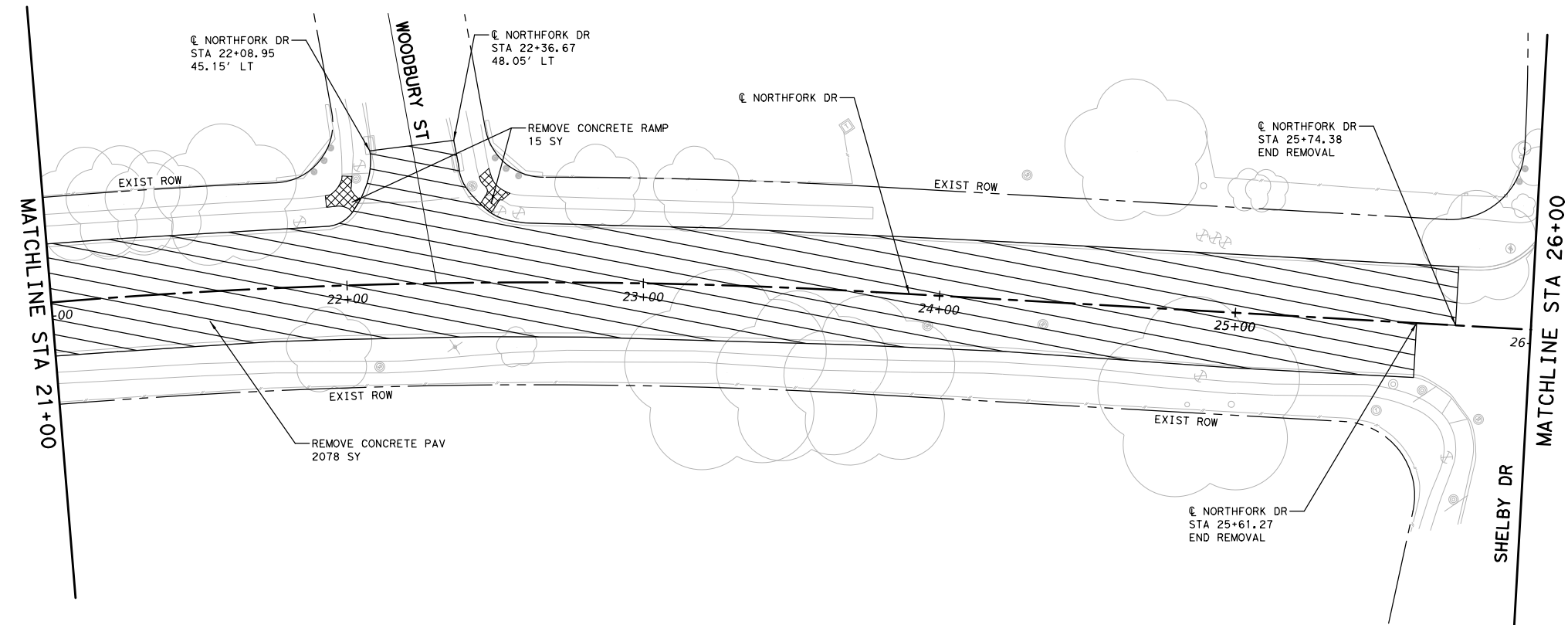
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LEGEND:

- REMOVE CONC (PAV)
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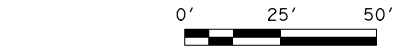
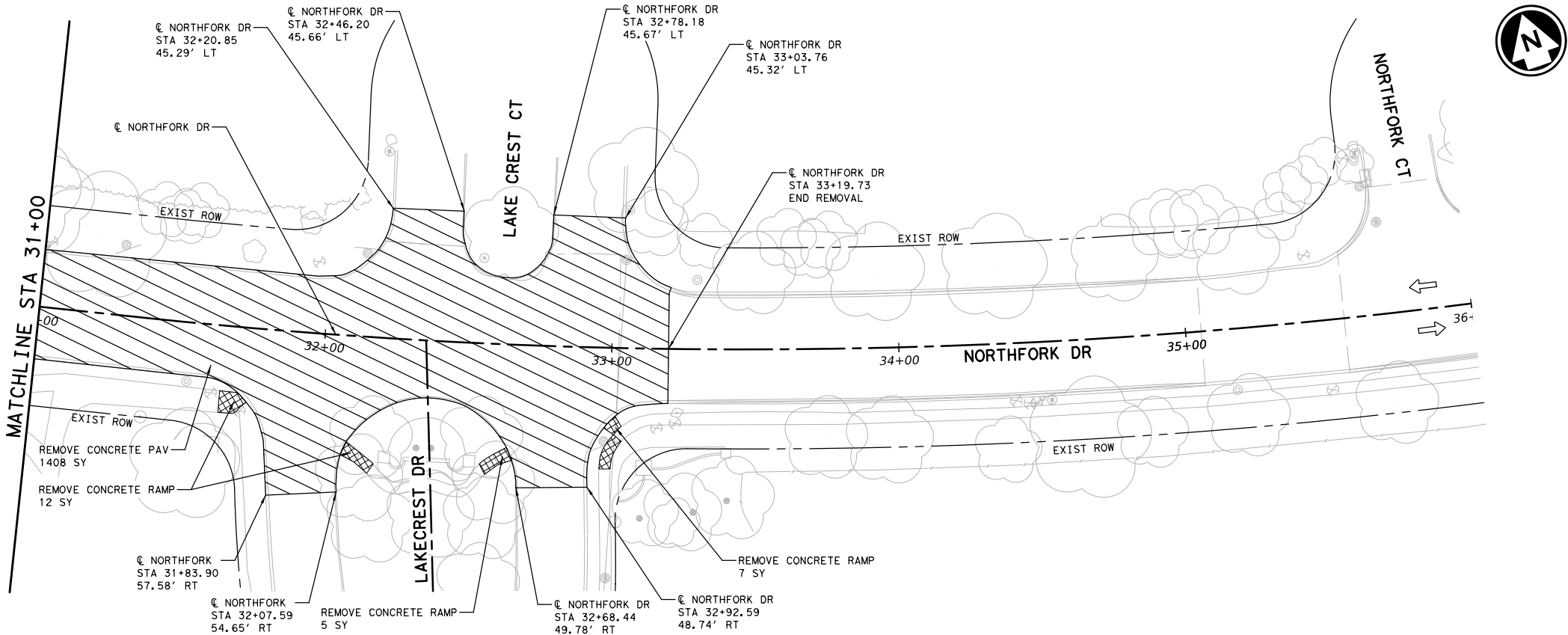
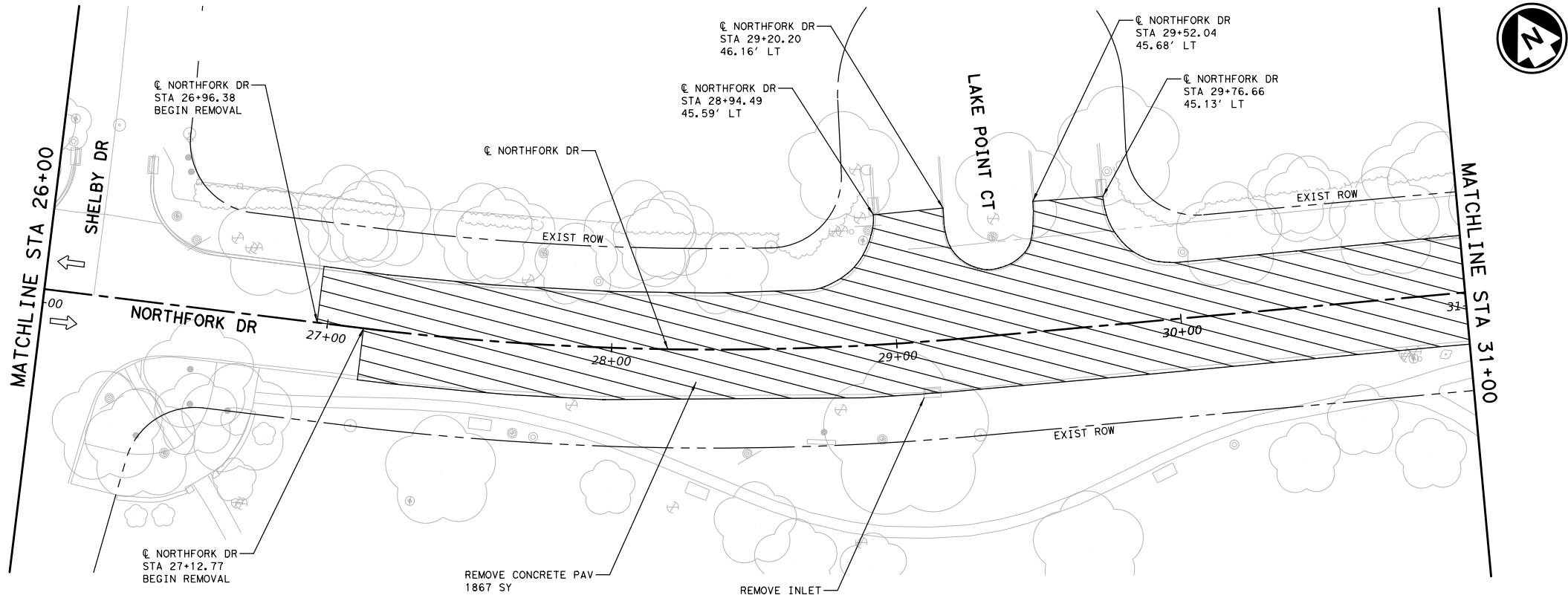
SILVERLAKE PAVEMENT REPAIRS

**NORTHFORK DR
REMOVAL LAYOUT**

SHEET 2 OF 3

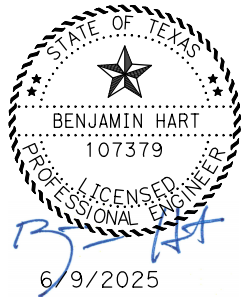
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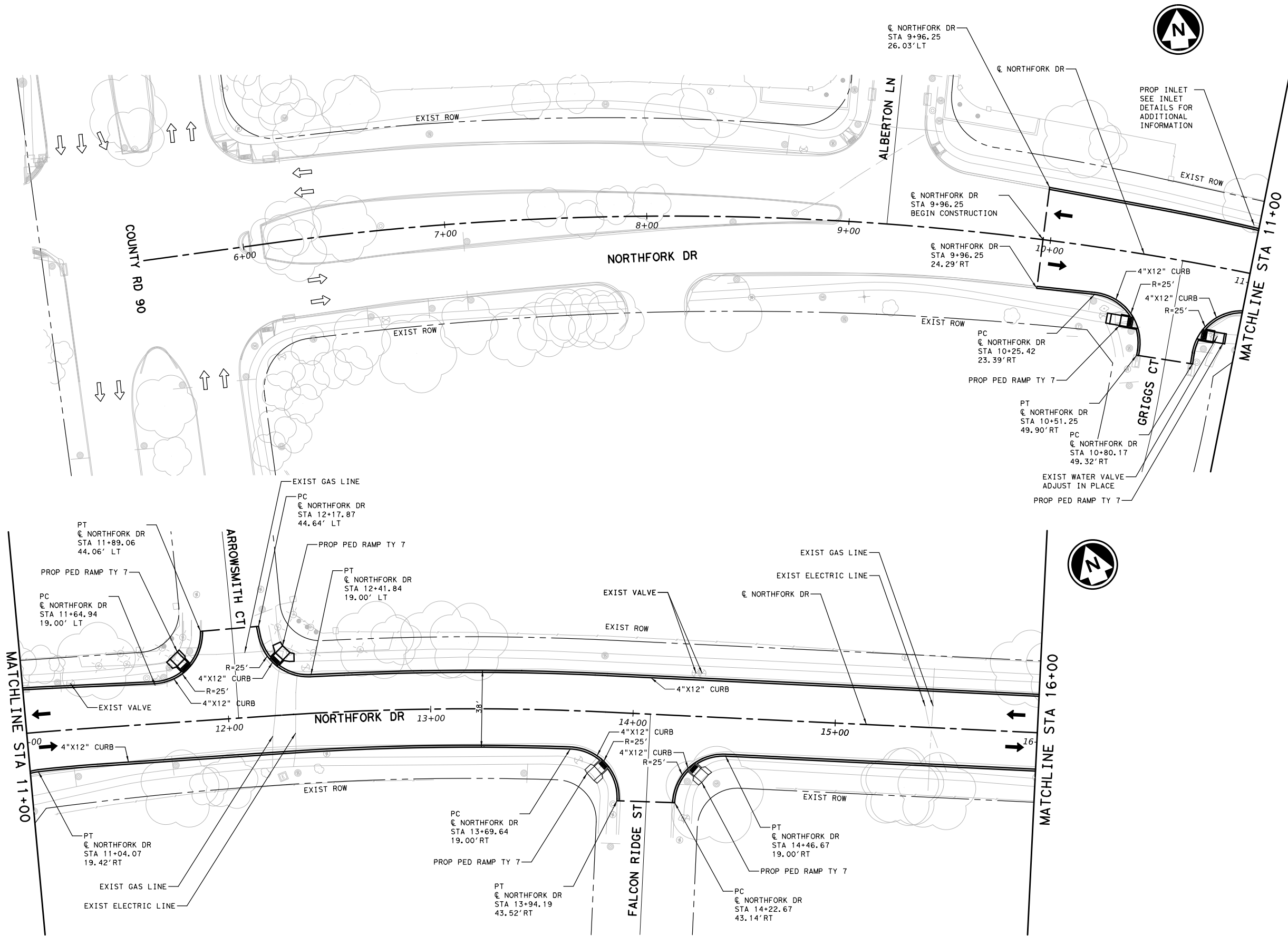


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SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
REMOVAL LAYOUT

SHEET 3 OF 3			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
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CONT.	SECT.	JOB	HIGHWAY NO.



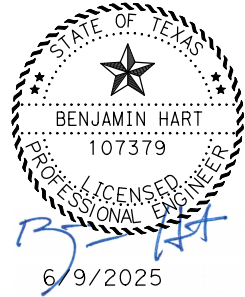
LEGEND:

- ➔ PROPOSED TRAVEL LANE
- ➔ EXISTING TRAVEL LANE

NOTES:

1. JOINT LOCATIONS ARE APPROXIMATE. CONTRACTOR TO CONFIRM LOCATIONS PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS TO CONSTRUCT PROPOSED PAVEMENT AT THE EXISTING PGL ELEVATION.
3. CURB AND GUTTER TO MATCH EXISTING EDGE OF PAVEMENT ELEVATION.
4. ALL LATERALS WILL BE CONNECTED TO EXISTING STORM FLOWLINES.
5. BACKFILL IS INCIDENTAL.

NO.	DATE	REVISION	APPROVED



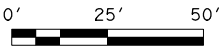
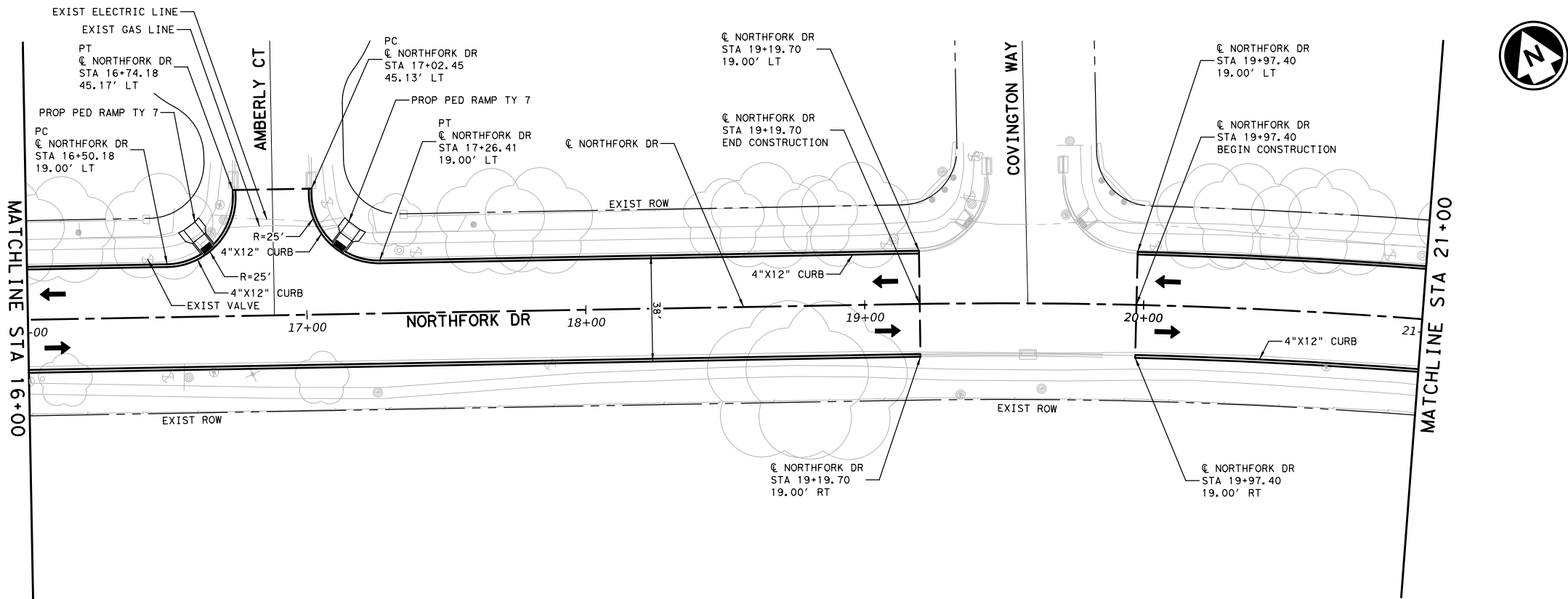
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SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
PLAN LAYOUT

SHEET 1 OF 3			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
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STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
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LEGEND:

- ➔ PROPOSED TRAVEL LANE
- ➞ EXISTING TRAVEL LANE

NOTES:

- JOINT LOCATIONS ARE APPROXIMATE. CONTRACTOR TO CONFIRM LOCATIONS PRIOR TO BEGINNING WORK.
- CONTRACTOR IS TO CONSTRUCT PROPOSED PAVEMENT AT THE EXISTING PGL ELEVATION.
- CURB AND GUTTER TO MATCH EXISTING EDGE OF PAVEMENT ELEVATION.
- ALL LATERALS WILL BE CONNECTED TO EXISTING STORM FLOWLINES.
- BACKFILL IS INCIDENTAL.

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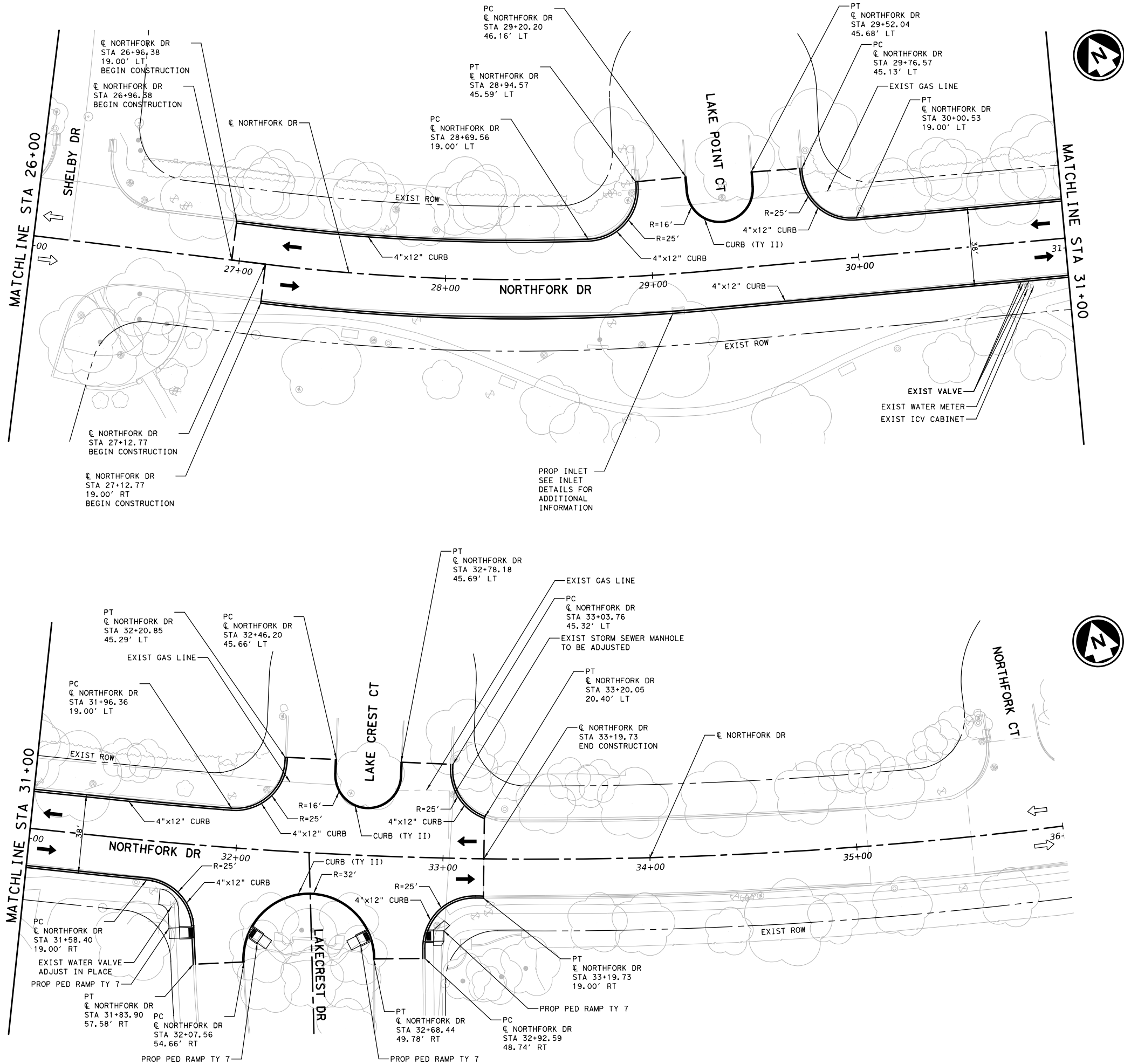
SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
PLAN LAYOUT

SHEET 2 OF 3

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CONT.	SECT.	JOB
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LEGEND:

- ➔ PROPOSED TRAVEL LANE
- ➔ EXISTING TRAVEL LANE

NOTES:

- JOINT LOCATIONS ARE APPROXIMATE. CONTRACTOR TO CONFIRM LOCATIONS PRIOR TO BEGINNING WORK.
- CONTRACTOR IS TO CONSTRUCT PROPOSED PAVEMENT AT THE EXISTING PGL ELEVATION.
- CURB AND GUTTER TO MATCH EXISTING EDGE OF PAVEMENT ELEVATION.
- ALL LATERALS WILL BE CONNECTED TO EXISTING STORM FLOWLINES.
- BACKFILL IS INCIDENTAL.

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STATE OF TEXAS
BENJAMIN HART
107379
PROFESSIONAL ENGINEER
6/9/2025

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SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
PLAN LAYOUT

			SHEET 3 OF 3	
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.	
6			39	
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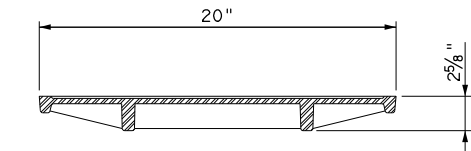
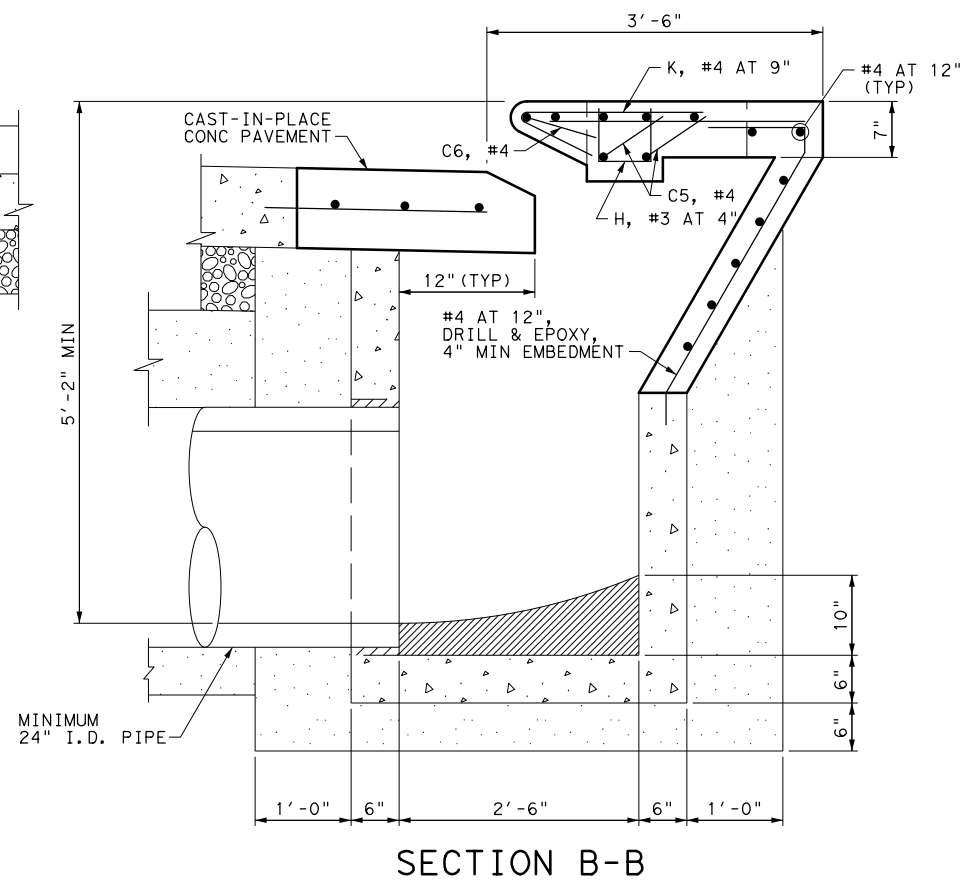
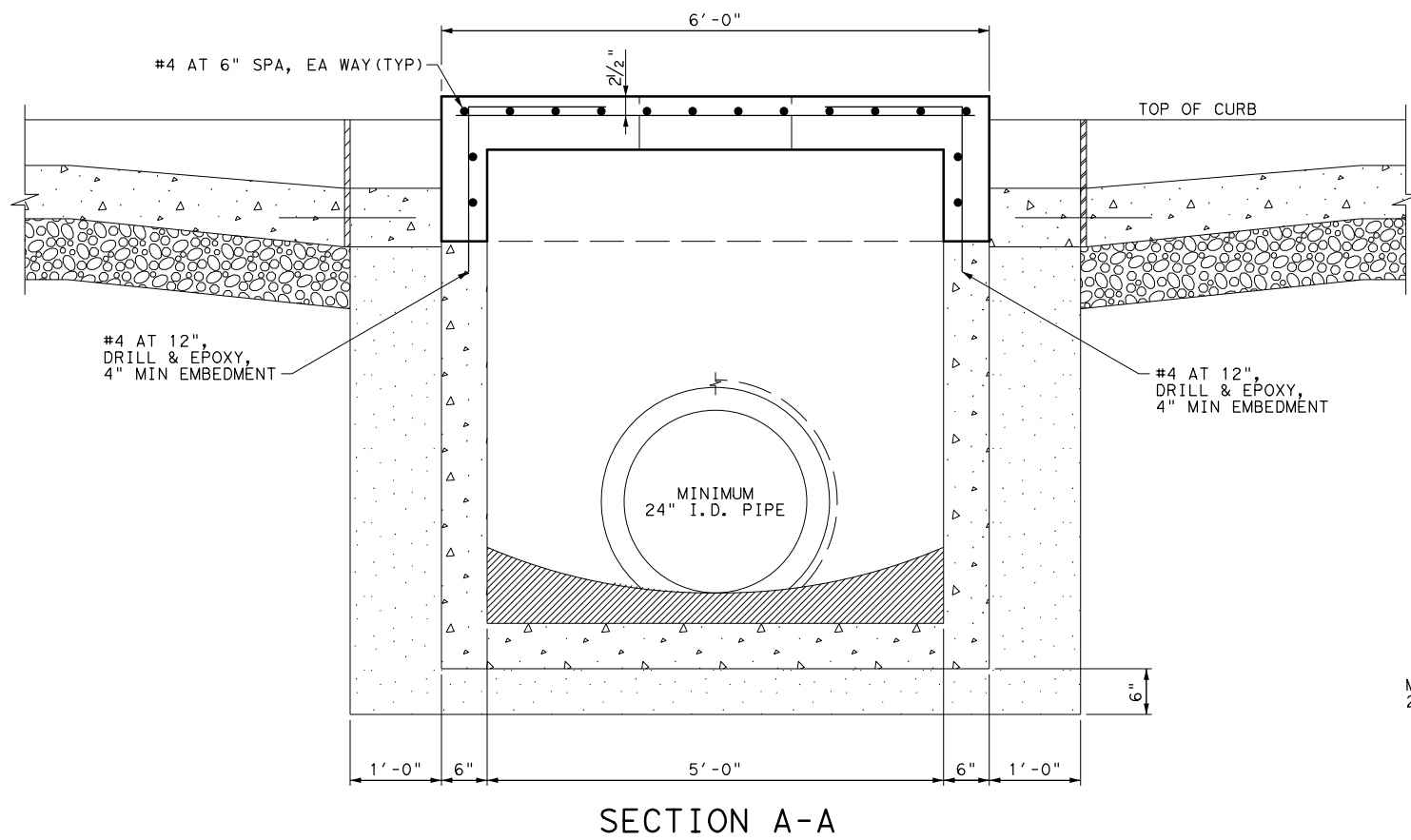
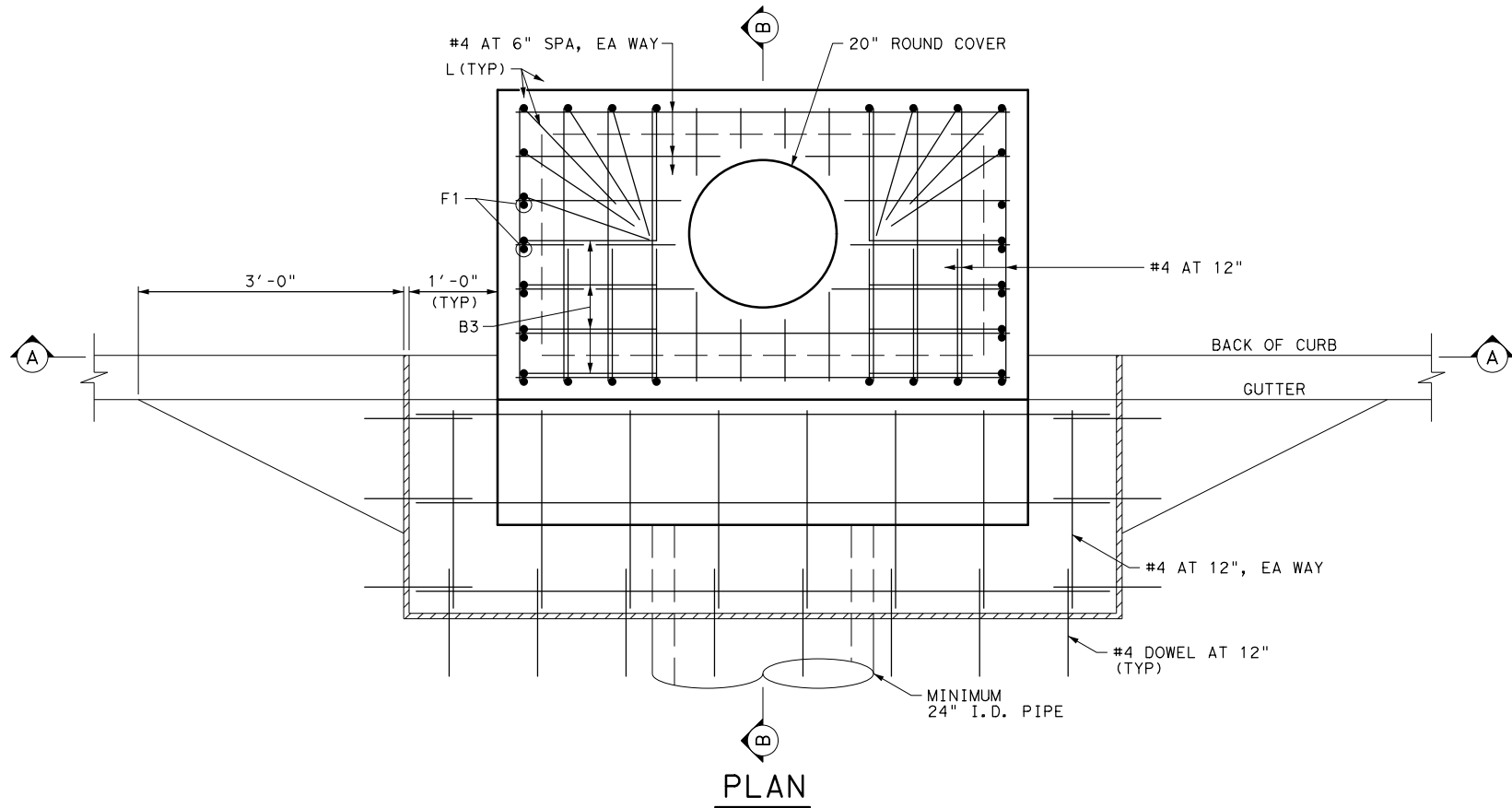
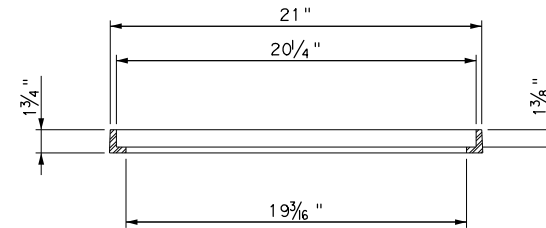


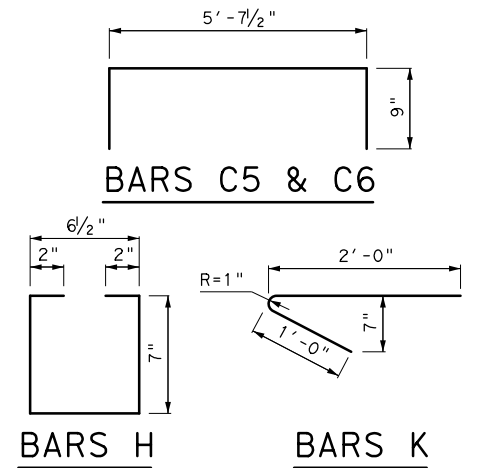
PLATE SECTION A-A



LEFT FRAME SECTION A-A
RIGHT FRAME IS OPPOSITE HAND

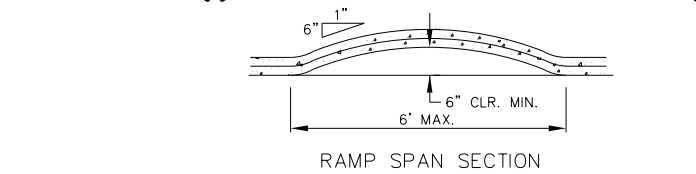
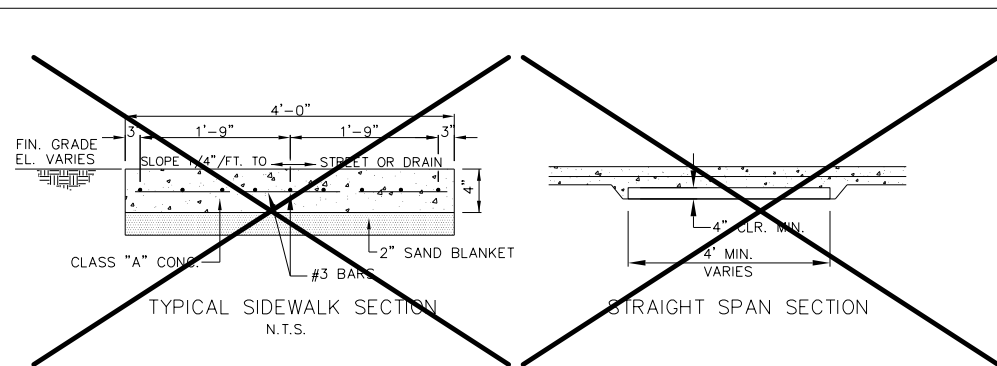
GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 466 "INLETS".
2. CONCRETE FOR INLET: MINIMUM 4,000 PSI IN 28 DAYS.
3. FRAME WITH EITHER SOLID PLATE OR GRATE SHALL BE EAST JORDAN IRON WORKS MODEL V-4243 OR APPROVED EQUAL.
4. IF THE ENGINEER OF RECORD SPECIFIES A CAST-IN-PLACE INLET, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A DETAILED DRAWING, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF TEXAS.

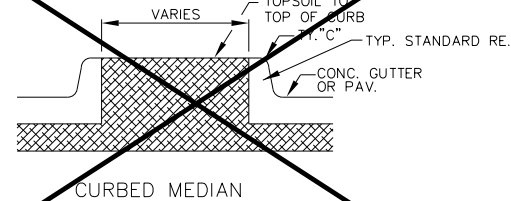
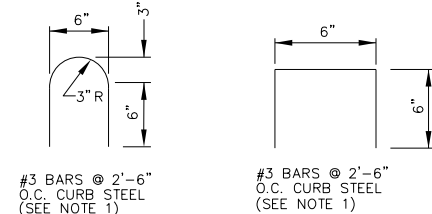
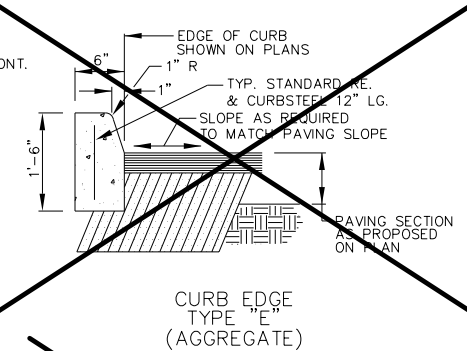
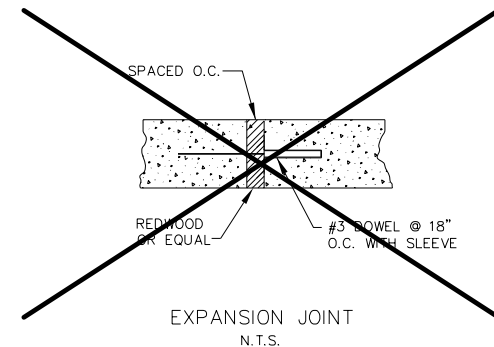


NO.	DATE	REVISION	APPROVED
 STATE OF TEXAS CHONG ZHOU 105229 PROFESSIONAL ENGINEER Chong Zhou 6/9/2025			
 Brazoria County Engineering Department 451 N Velasco, Suite 230 Angleton, Texas 77515 Binkley & Barfield, Inc. TxEng F-257 1710 Seamist Dr, Houston, TX 77008 713.869.3433 BinkleyBarfield.DCCM.com			
SILVERLAKE PAVEMENT REPAIRS			
INLET DETAILS			
SHEET 1 OF 1			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			40
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

... \INLET_DETAIL\INLET_DETAIL.dgn



WALKWAY TRENCH SECTION
BRIDGING DETAIL
N.T.S.



SPECIAL CURBS

NOTE:

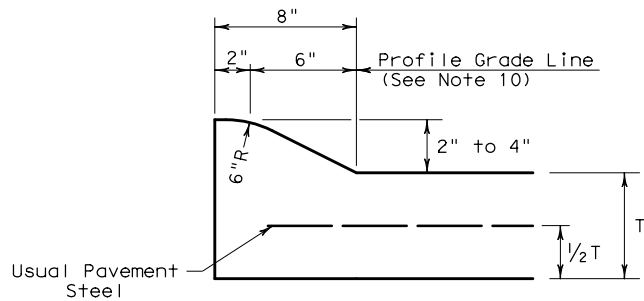
1. WHEN CONCRETE CURB IS TO BE PLACED ON EXISTING CONCRETE BASE #4 DEFORMED BARS, 7" LONG, 24" O.C. DOWELLED 4" MIN. AND SET IN EPOXY.
2. REDWOOD EXPANSION JOINTS SHALL BE INSTALLED AT ALL PAVEMENT EXPANSION JOINTS.

SIDEWALK PAVEMENT DETAILS
N.T.S.

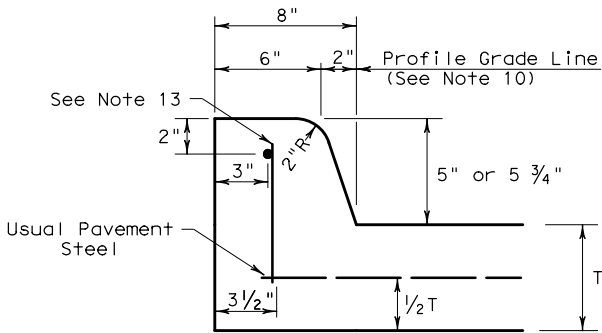
PAVEMENT CONSTRUCTION	
DRAWING DETAIL	
TYPICAL SIDEWALK DETAILS	
BRAZORIA COUNTY DEPARTMENT OF ENGINEERING	
DESIGN ENGINEER:	DATE:
SUBMITTED: SCALE: DATE:	SHEET 6 OF 8 41/66

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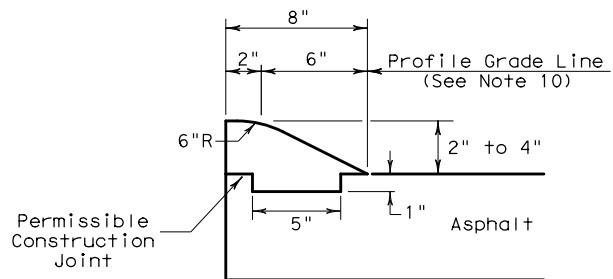
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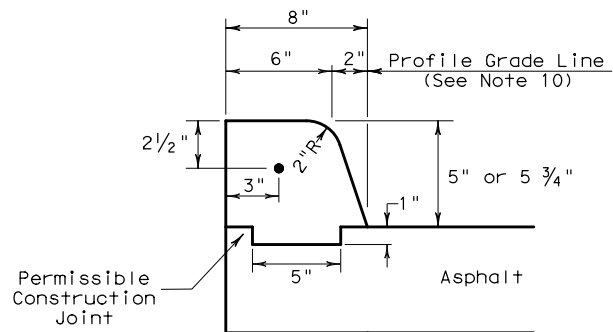
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



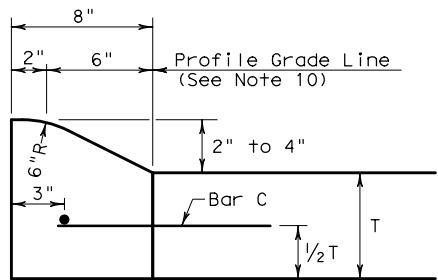
TYPE II CURB (MONOLITHIC)
5" - 5 3/4" HEIGHT



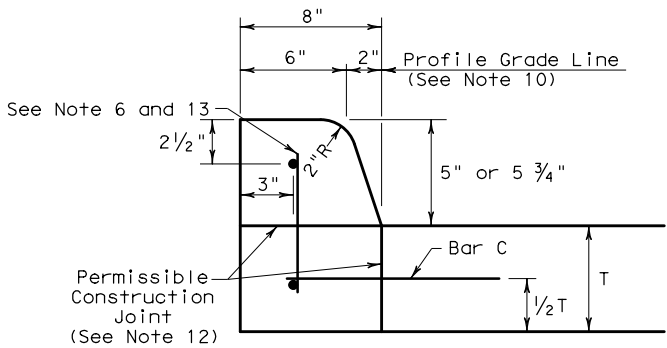
TYPE III CURB (KEYED)
2" - 4" HEIGHT



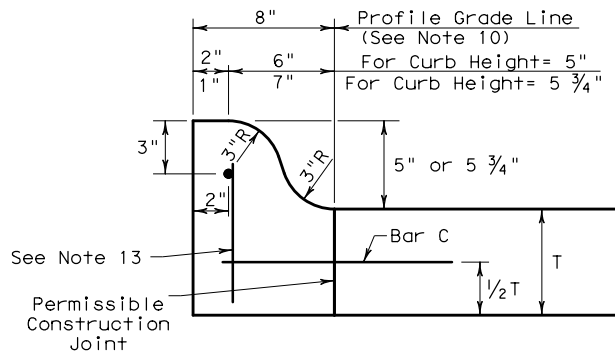
TYPE IV CURB (KEYED)
5" - 5 3/4" HEIGHT



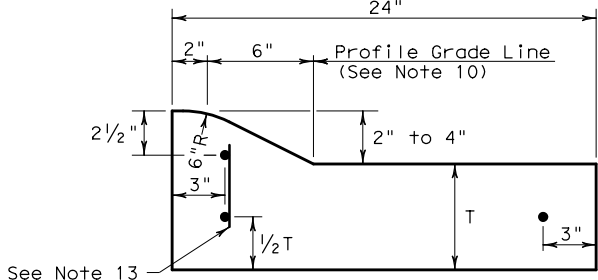
TYPE I CURB
2" - 4" HEIGHT



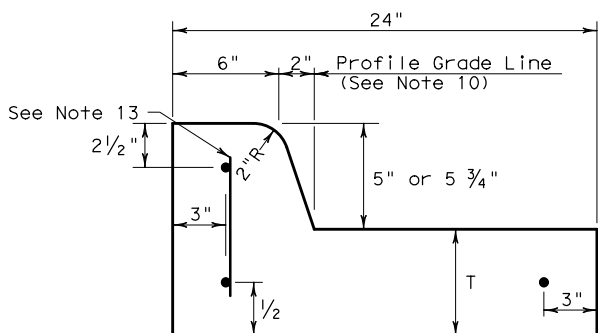
TYPE II CURB
5" - 5 3/4" HEIGHT



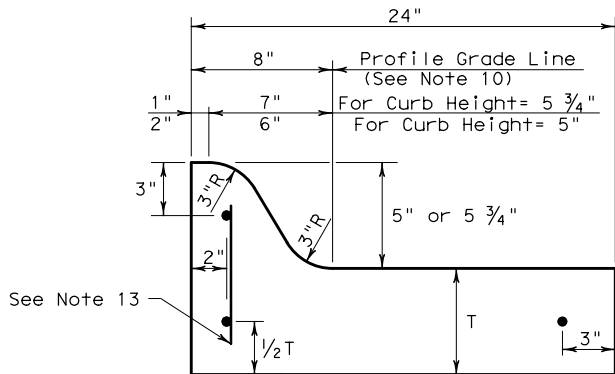
TYPE IIa CURB
5" - 5 3/4" HEIGHT



TYPE I CURB AND GUTTER
2" - 4" HEIGHT

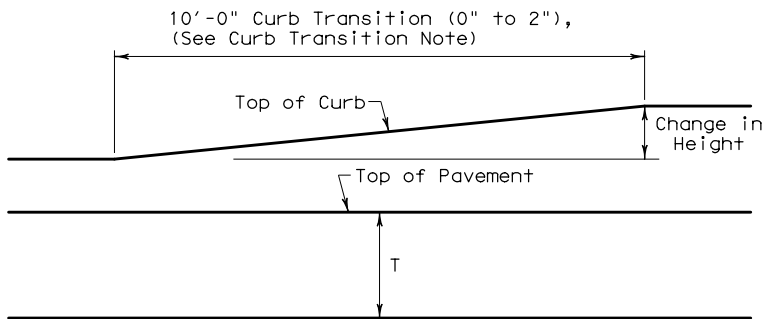


TYPE II CURB AND GUTTER
5" - 5 3/4" HEIGHT



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

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

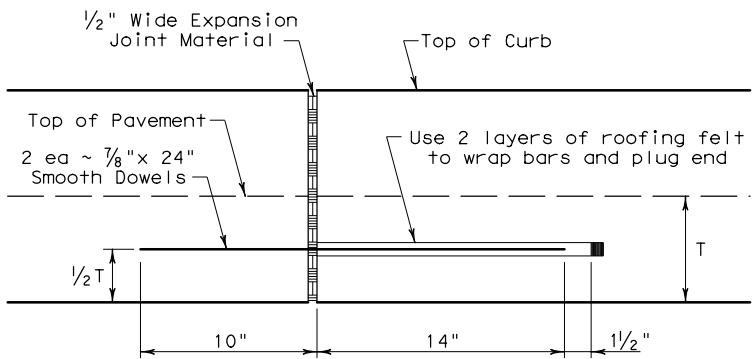
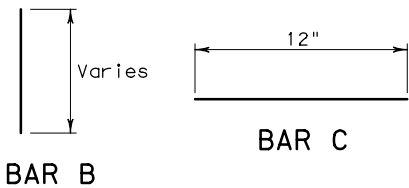


CURB TRANSITION

Note: To be paid for as Highest Curb

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.



EXPANSION JOINT DETAIL



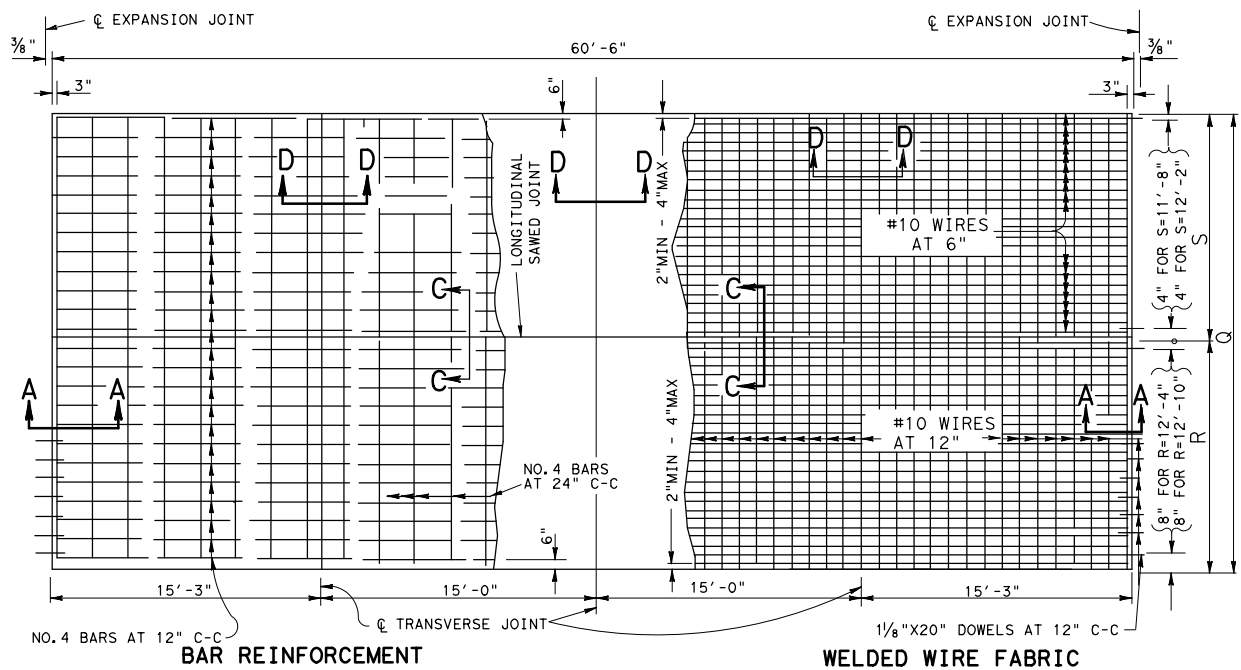
Texas Department of Transportation

Design Division Standard

CONCRETE CURB AND GUTTER

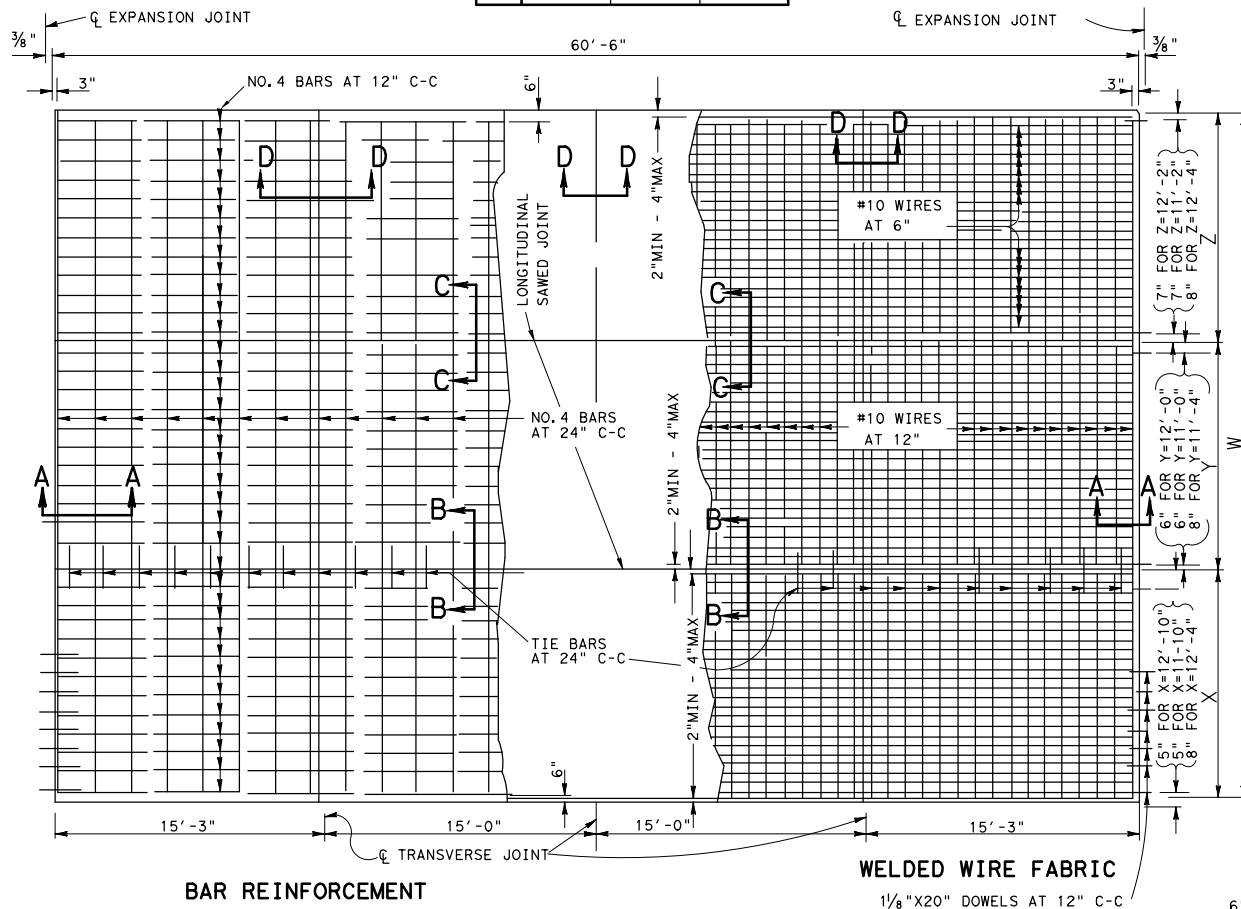
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FILE: cccg21.dgn	DN: TxDOT	CK: AN	DW: CS	CK: KM
© TxDOT: JUNE 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.
				42



TWO LANE PAVEMENT PLAN

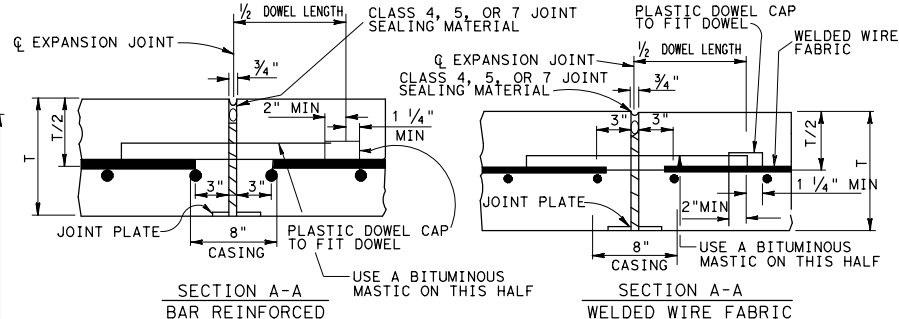
	WIDTH - Q		
	24'-0"	24'-6"	25'-0"
R	12'-4"	12'-4"	12'-10"
S	11'-8"	12'-2"	12'-2"



THREE LANE PAVEMENT PLAN

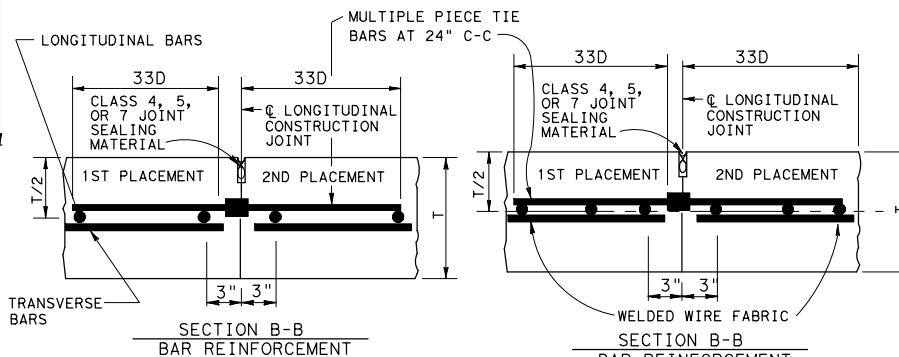
	WIDTH - W		
	37'-0"	36'-0"	34'-0"
X	12'-10"	12'-4"	11'-10"
Y	12'-0"	11'-4"	11'-0"
Z	12'-2"	12'-4"	11'-2"

D = DIAMETER
R = RADIUS
T = THICKNESS

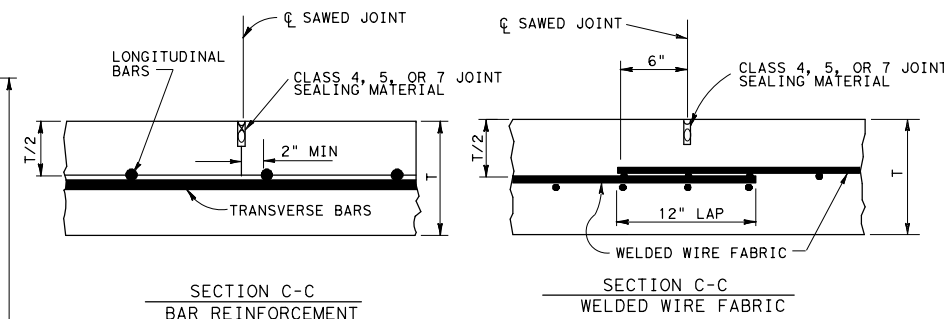


TRANSVERSE EXPANSION JOINTS

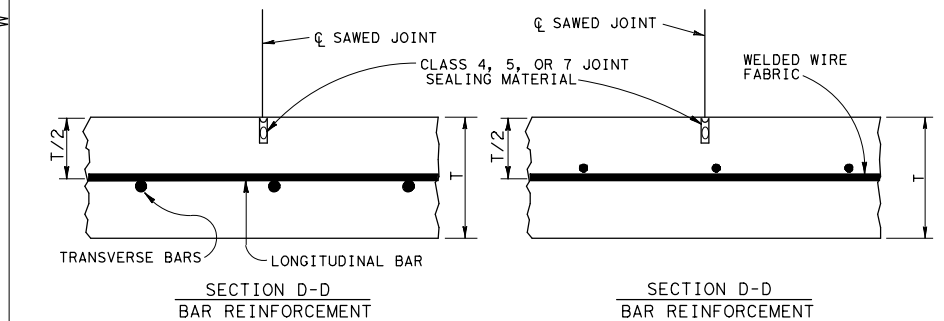
NOTE: DOWEL BARS CONFORMING TO ASTM A615 OR A616 GRADE 60 ARE ACCEPTABLE



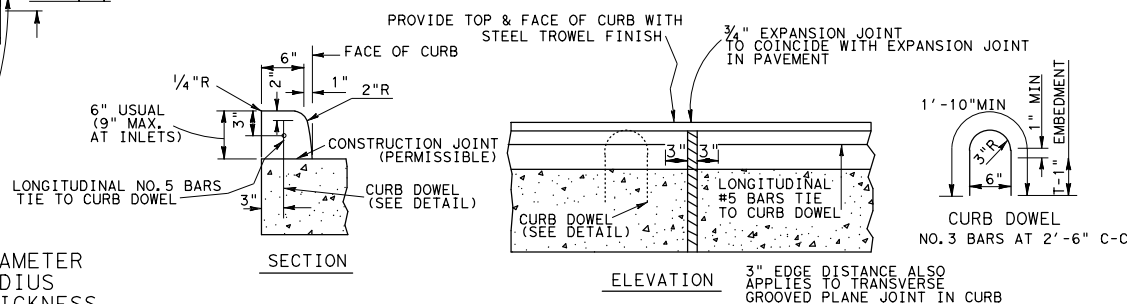
LONGITUDINAL CONSTRUCTION JOINTS



LONGITUDINAL SAWED JOINTS



TRANSVERSE SAWED JOINTS



TYPICAL 6" CURB (DETAIL)

GENERAL NOTES

- MULTIPLE PIECE TIE BARS ARE REQUIRED AT LONGITUDINAL CONSTRUCTION JOINTS. USE MULTIPLE PIECE TIE BAR ASSEMBLIES WITH STOP TYPE COUPLINGS AND WITH THREADS ON THE BARS. ENSURE THE MULTIPLE PIECE TIE BAR ASSEMBLIES DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1.25 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. USE DEFORMED REINFORCING BARS FOR TIE BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STANDARD MAY BE USED IF IT CAN BE PROVEN TO THE ENGINEER THAT THEY ARE IN EVERY RESPECT THE EQUAL OF THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, MAY BE REQUIRED.
- FORM CONSTRUCTION JOINTS WITH METAL OR WOOD FORMS EQUAL IN DEPTH TO THE NOMINAL DEPTH OF THE PAVEMENT OR BY OTHER MEANS APPROVED PRIOR TO THEIR USE.
- SAW LONGITUDINAL AND TRANSVERSE JOINTS AS SOON AS SAWING CAN BE ACCOMPLISHED WITHOUT DAMAGE TO THE PAVEMENT AND BEFORE 24 HOURS AFTER PLACING THE CONCRETE, THE EXACT TIME WILL BE APPROVED BY THE ENGINEER. PREFORMED JOINT WITH ASPHALT STRIP IS NOT ACCEPTABLE.
- LONGITUDINAL JOINTS ARE SHOWN OFFSET FOUR INCHES FROM THE THEORETICAL LANE LINE AND MAY BE OFFSET TO EITHER SIDE IF THE WIDTH OF THE WIRE FABRIC IS PROPERLY ADJUSTED.
- ONE OF THE LONGITUDINAL JOINTS OF PAVEMENT SLABS WIDER THAN TWO LANES MAY BE A CONSTRUCTION JOINT. FOR PAVEMENT SLABS WIDER THAN 15 FT. PROVIDE A LOGITUDINAL SAWED JOINT UNLESS OTHERWISE DIRECTED.
- FORM THE JOINT SEAL SPACE AT TRANSVERSE EXPANSION JOINTS BY USING A STRAIGHT FORM PLACED BEHIND THE LONGITUDINAL FLOAT. LOOSEN THE FORM AS SOON AS THE CONCRETE WILL RETAIN ITS SHAPE AND EDGE WITH AN APPROVED EDGING TOOL. TOOL BOTH EDGES OF LONGITUDINAL CONSTRUCTION JOINTS TO A 1/8 IN. RADIUS AT THE PAVEMENT SURFACE.
- DO NOT DISCHARGE CONCRETE FROM THE MIXER DIRECTLY ON TOP OF OR ON THE SIDES OF THE EXPANSION JOINT ASSEMBLIES.
- LAP TRANSVERSE EDGES OF SHEETS OF WELDED WIRE FABRIC 12 INCHES EXCEPT AT TRANSVERSE EXPANSION JOINTS. LAP LONGITUDINAL EDGES 6 INCHES EXCEPT AT LONGITUDINAL CONSTRUCTION JOINTS.
- DOWEL BARS MAY BE COATED WITH STAINLESS STEEL, MONEL METAL, OR IN ACCORDANCE WITH THE ITEM "REINFORCING STEEL" SECTION ON EPOXY COATING; WITH A WELDED DOWEL ASSEMBLY SUPPORT, AS APPROVED. ENSURE THE CASING CONFORMS TO THE REQUIREMENTS OF ONE OF THE GRADES OF ASTM A167-70 OR A176-71 AND IS NOT LESS THAN 0.010 INCH THICK. PROVIDE A CASING AT LEAST 8 INCHES LONG AND THAT COVERS THE MIDDLE 8 INCHES OF THE DOWEL.
- SECURE DOWELS PARALLEL TO THE PAVEMENT SURFACE AND PERPENDICULAR TO THE JOINT WITH THE AID OF APPROVED WELDED WIRE BASKET ARRANGEMENTS. ENSURE WELDED WIRE BASKET ARRANGEMENTS DO NOT CROSS THE EXPANSION JOINT. UNIFORMLY COAT DOWELS WITH A BITUMINOUS MASTIC ON THE END WITH THE DOWEL CAP.
- DO NOT BEND TIE BARS AND DOWEL BARS. TO PREVENT DISPLACEMENT OF WIRE FABRIC BY CONCRETE PLACEMENT, TIE THE FABRIC PANEL TOGETHER AND TIE THE INITIAL FABRIC PANELS OF EACH SLAB TO THE DOWEL BASKET OR AS DIRECTED.
- TOOL PAVEMENT EDGES TO A RADIUS OF 1/8 IN. WITH AN APPROVED EDGING TOOL.
- DETAILS FOR PAVEMENT WIDTH, PAVEMENT THICKNESS, AND CROWN-SLOPE ARE ELSEWHERE SHOWN ON THE PLANS.
- THE CONTRACTOR HAS THE OPTION OF USING WELDED WIRE FABRIC OR BAR REINFORCEMENT. LOCATE THE LONGITUDINAL STEEL AT THE CENTER OF THE SLAB. TAKE NECESSARY PRECAUTIONS TO INSURE THAT THE FINAL POSITION OF STEEL IS WITHIN 1/2 IN. OF THE SLAB CENTER. ENSURE THE LONGITUDINAL AND TRANSVERSE STEEL SPACING DOES NOT VARY MORE THAN ONE-TWELFTH OF SPACING SHOWN.
- LONGITUDINAL STEEL MAY BE SPLICED WITH 33 TIMES BAR DIAMETER LAPS.
- FOR LANE WIDTHS NOT SHOWN OR FOR VARIABLE PANEL LENGTHS AND WIDTHS, SPACE REINFORCING STEEL AND DOWELS AS DIRECTED.
- USE APPROVED BAR MAT CHAIRS. DO NOT EXCEED CHAIR SPACING OF 30 IN. C-C (TRANSVERSE) AND 48 IN. C-C (LONGITUDINAL). GALVANIZING THE CHAIRS IS NOT REQUIRED.
- OBTAIN BOARDS FOR EXPANSION JOINT FILLER FROM REDWOOD TIMBER.
- PROVIDE AND CONSTRUCT THE JOINT PLATE AS APPROVED.
- WHEN CURB IS PLACED SEPARATELY FROM THE CONCRETE PAVEMENT, PROVIDE THE REINFORCING STEEL AS SHOWN IN THE CURB DETAIL. THE CURB REINFORCING STEEL MAY BE OMITTED WHEN THE CURB IS PLACED MONOLITHICALLY.

(GENERAL NOTES CONTINUED ON SHEET 2 OF 2)

Texas Department of Transportation
Houston District

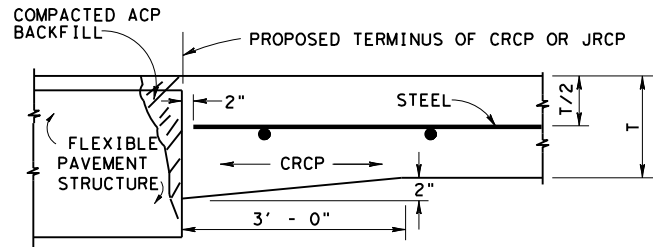
JOINTED REINFORCED CONCRETE PAVEMENT DETAILS
(FOR PAVEMENT THICKNESS 10 INCHES OR LESS)

JRPC SHEET 1 OF 2

FILE: STDB-2.dgn	DN:	CK:	DW:	CK:
© TxDOT MAR. 2004	DIST	FED REG	PROJECT NO.	SHEET
5/05 2004 SPECS	HOU	6		43
7/2010 ADDED NOTE	COUNTY	CONTROL	SECT	JOB
8/2015 MODIFIED NOTES				HIGHWAY

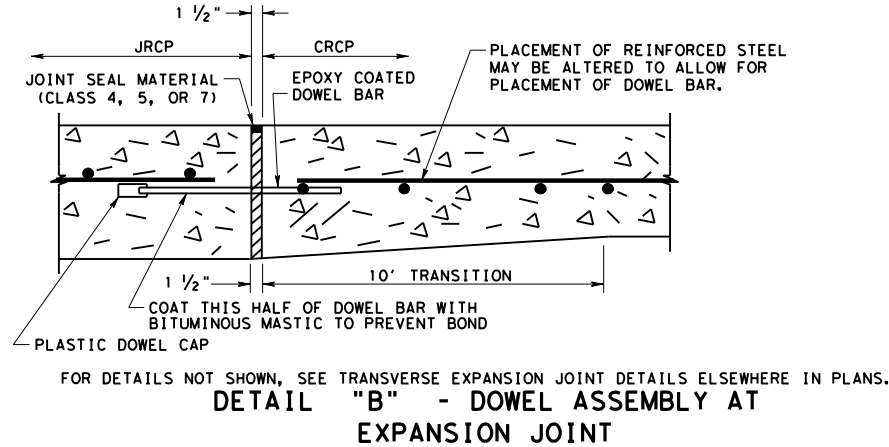
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DATE:
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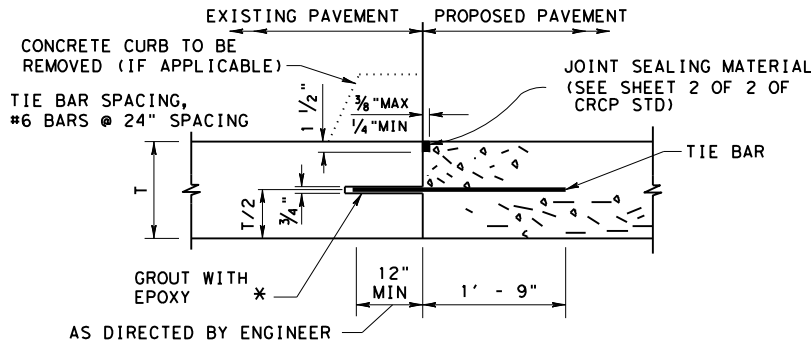
NOTE:
ADDITIONAL CONCRETE FOR THICKENED EDGE IS SUBSIDIARY TO VARIOUS BID ITEMS. BACKFILL DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT WITH ACP. THIS ACP IS SUBSIDIARY TO VARIOUS BID ITEMS.

JUNCTURE A & B - CRCP OR JRCP WITH FLEXIBLE TYPE PAVEMENT STRUCTURE



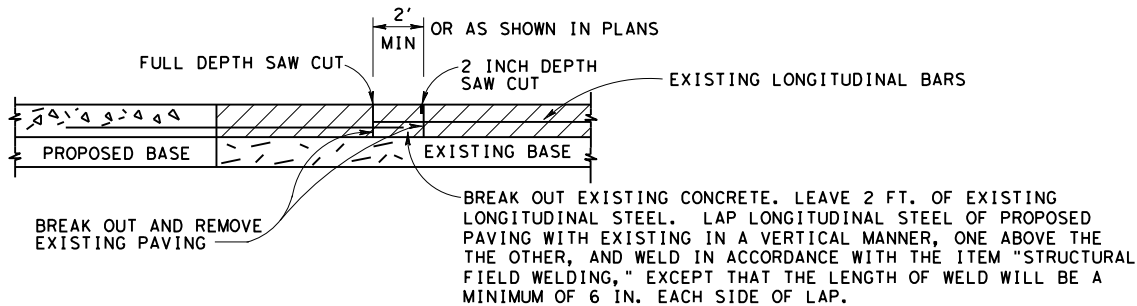
DOWEL BAR DATA			
SLAB THICKNESS (T)	6"-7.5"	8"-10"	10.5"-15"
DOWEL SIZE	1"	1 1/4"	1 1/2"
DOWEL LENGTH	18"	20"	22"
DOWEL BAR SPACING	12"	12"	12"

TABLE A - DOWEL BAR DATA



JUNCTURE D - TYPICAL CONNECTION TO EXISTING CONCRETE

*FOR EPOXY TYPE SEE ITEM 361.



JUNCTURE F - "BREAK BACK" CONCRETE CRCP WITH CRCP OR JRCP WITH JRCP

GENERAL NOTES

- FOR FURTHER INFORMATION REGARDING PLACING CONCRETE AND REINFORCEMENT, REFER TO THE GOVERNING SPECIFICATION FOR CONCRETE PAVEMENT.
- THE DESIGN REQUIREMENTS FOR THE PAVEMENT STRUCTURE, I.E. BAR SPACING, BAR SIZE LAP REQUIREMENTS, ETC., ARE SHOWN ON THE APPROPRIATE PAVEMENT DESIGN DETAIL.
- SLEEPER SLAB AND ADDITIONAL REINFORCING REQUIRED ON THIS DRAWING ARE INCIDENTAL TO THE VARIOUS BID ITEMS.
- USE THE SIZE, SPACING, AND LENGTH OF DOWEL BARS SHOWN IN TABLE "A".
- WHERE THERE WILL BE A JUNCTURE AND ADDITIONAL JRCP PAVING WILL BE PLACED AT A FUTURE DATE, MULTIPLE PIECE DOWEL BARS WILL BE PERMITTED AT THE JUNCTURE. PROVIDE MULTIPLE PIECE DOWEL BAR ASSEMBLIES WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 60.0 KIPS AND THAT HAVE SMOOTH EPOXY COATED BARS. ENSURE THE MULTIPLE PIECE DOWEL BAR ASSEMBLIES HAVE STOP TYPE COUPLINGS AND HAVE HAVE ROLLED THREADS ON THE BARS. DISMANTLE THE BAR AND FIT THE COUPLING PORTION USED IN CONSTRUCTION, WITH A PLASTIC CAP. FURNISH THE REMAINING PORTION OF THE BAR TO THE ENGINEER.
- WHERE THE PAVING IS CRCP AND A RAMP COMPOSED OF A FLEXIBLE PAVEMENT WILL BE USED AT THE JUNCTURE UNTIL FUTURE PAVING IS CONSTRUCTED, MULTIPLE PIECE TIE BARS MAY BE USED IF PERMITTED BY THE ENGINEER. IF USED, ENSURE THE MULTIPLE PIECE TIE BAR ASSEMBLIES HAVE STOP TYPE COUPLINGS AND ROLLED THREADS ON THE BARS. FURNISH MULTIPLE PIECE TIE BAR ASSEMBLIES THAT DEVELOP A MINIMUM ULTIMATE TENSILE STRENGTH EQUAL TO 1.25 TIMES THE YIELD STRENGTH OF THE TRANSVERSE BARS BEING JOINED. FOR TIE BARS, USE DEFORMED REINFORCING BARS. TIE BAR ASSEMBLIES MADE FROM STEELS OTHER THAN ASTM GRADE 60 AND WITH DEFORMATIONS OTHER THAN ASTM STD. MAY BE USED PROVIDED THEY PROVE SATISFACTORY TO THE ENGINEER AND ARE IN EVERY RESPECT THE EQUAL TO THE ASSEMBLIES SPECIFIED. LABORATORY TESTING OF THE PROPOSED ASSEMBLIES, AT THE CONTRACTOR'S EXPENSE, MAY BE REQUIRED. LAP AND WELD ONE PORTION OF THE TIE BAR ASSEMBLY TO EACH LONGITUDINAL BAR IN ACCORDANCE WITH THE ITEM "STRUCTURAL FIELD WELDING" AND THE OTHER PORTION INTO THE COUPLING PRIOR TO PAVING. ENSURE MULTIPLE PIECE TIE BAR LENGTHS CONFORM TO THE TIE BAR LENGTHS SHOWN ELSEWHERE IN THE PLANS. ADDITIONAL "SHEAR STEEL" WILL ALSO BE REQUIRED AND MAY BE USED WITH MULTIPLE PIECE ASSEMBLIES AS PREVIOUSLY DESCRIBED. USE ADDITIONAL STEEL BARS OF EQUAL DIAMETER AT A SPACING DOUBLE THAT OF THE LONGITUDINAL STEEL AND ENSURE THE LENGTH IS 66 TIMES THE TIE BAR DIAMETER.
- DO NOT SHEAR CUT DOWEL BARS.
- ENSURE DOWEL BAR EPOXY COATING CONFORMS TO ARTICLE 440.2.7., "EPOXY COATING".
- REPLACE ANY BENT LONGITUDINAL REINFORCING. IF THERE IS NOT SUFFICIENT EXPOSED REINFORCING TO PROVIDE A MINIMUM OF A 33 TIMES BAR DIAMETER LAP, REMOVE THE EXISTING PAVEMENT AND SUFFICIENTLY EXPOSE THE EXISTING REINFORCING TO PROVIDE A 33 TIMES BAR DIAMETER LAP. REPLACE ANY SHEAR BARS THAT ARE DISTURBED, BY DRILLING AND GROUTING AS REQUIRED BY NOTE 12 BELOW. PERFORM THIS CORRECTIVE ACTION AT NO EXPENSE TO THE DEPARTMENT.
- TIE BARS AND DOWEL BARS OMITTED, LOST, OR DAMAGED SHALL BE REPAIRED BY DRILLING AND EPOXY GROUTING AT NO EXPENSE TO THE DEPARTMENT.
- JUNCTURES A & B ARE ONLY SUITABLE FOR MINOR STREETS WITH LOW TRAFFIC VOLUMES.
- FURNISH ADDITIONAL SHEAR BARS (DIAMETER "D") OF THE SAME SIZE AS LONGITUDINAL BARS AND SPACE THEM MIDWAY BETWEEN ALTERNATE LONGITUDINAL BARS ALONG THE TRANSVERSE CONSTRUCTION JOINT FORMED AT THE LEAVE-OUT.

LEGEND

ACP - ASPHALT CONCRETE PAVEMENT
CRCP - CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
JRCP - JOINTED REINFORCED CONCRETE PAVEMENT
T - THICKNESS

SHEET 1 OF 2



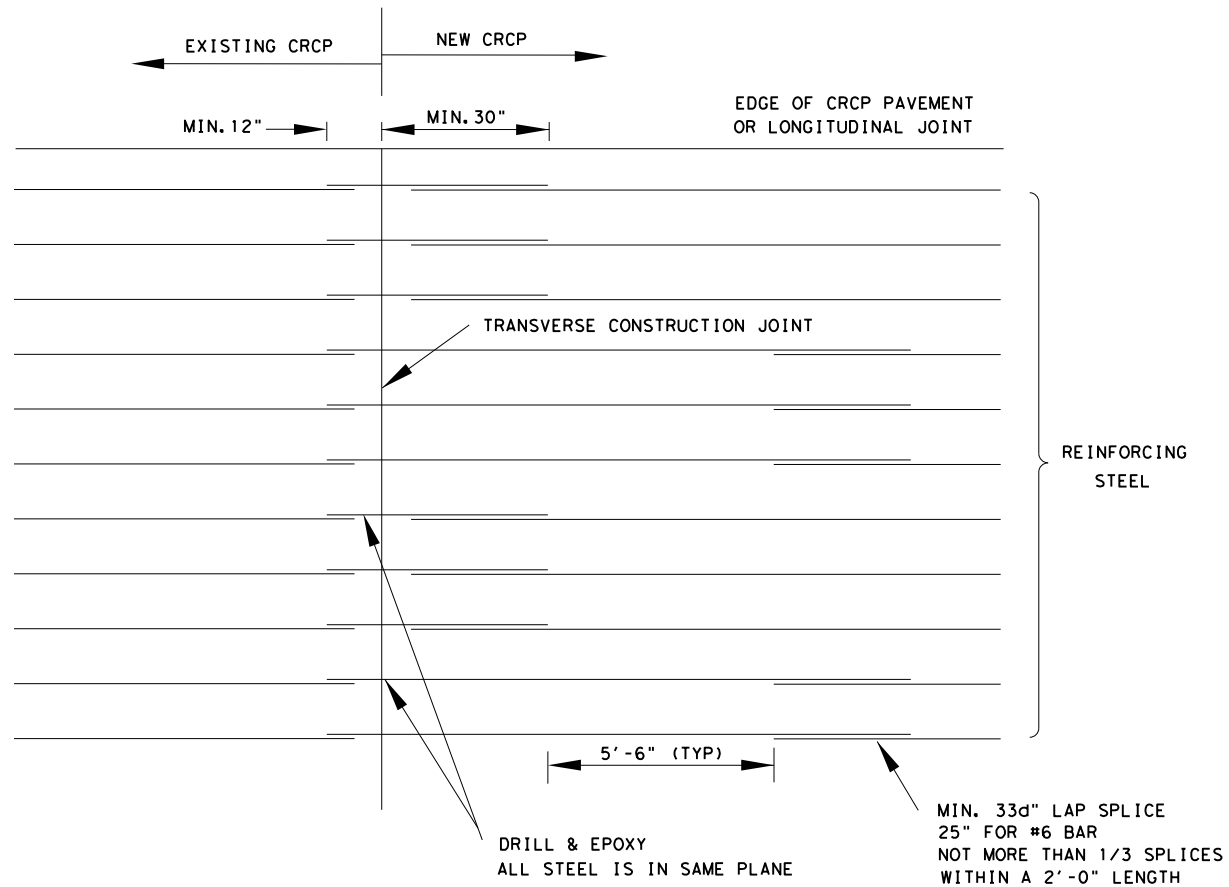
CONCRETE PAVEMENT JUNCTURES

CPJ-25 (HOU)

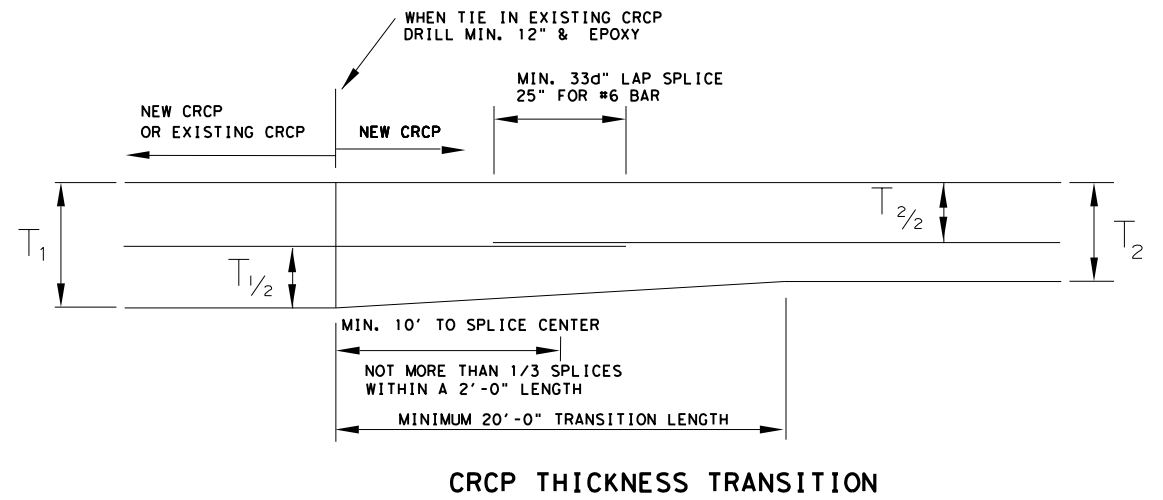
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©TxDOT February 2025	CONT	SECT	JOB	HIGHWAY
REVISIONS				
02-25: 2024 Spec Updates	DIST	COUNTY		SHEET NO.
				45

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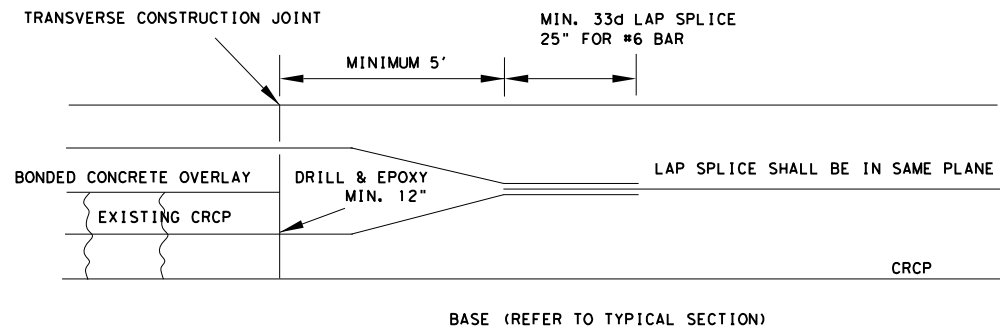
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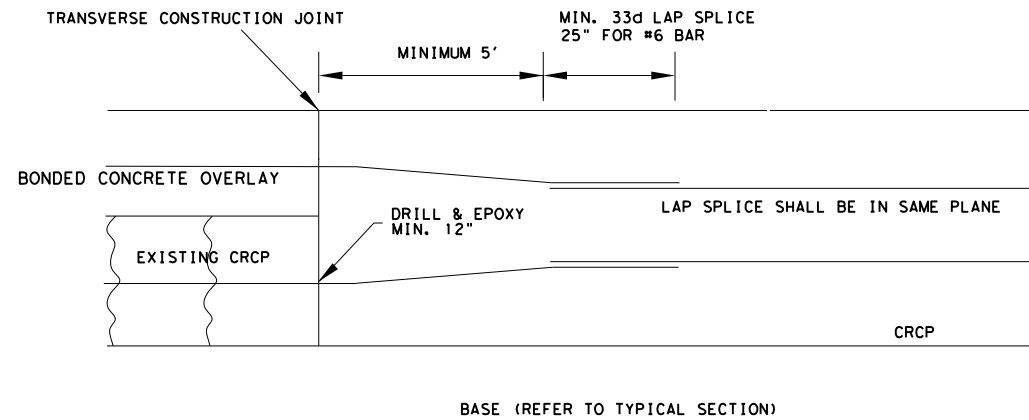
EXISTING CRCP TO NEW CRCP



CRCP THICKNESS TRANSITION



CRCP BONDED OVERLAY TO CRCP TRANSITION
(ONE LAYER STEEL)



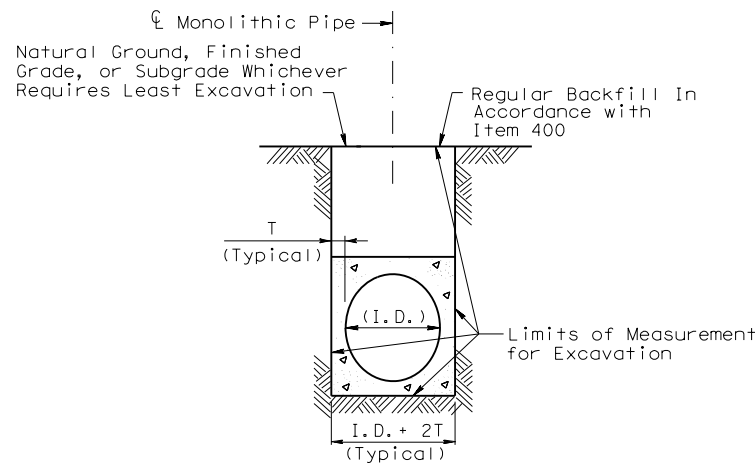
CRCP BONDED OVERLAY TO CRCP TRANSITION
(TWO LAYER STEEL)

SHEET 2 OF 2

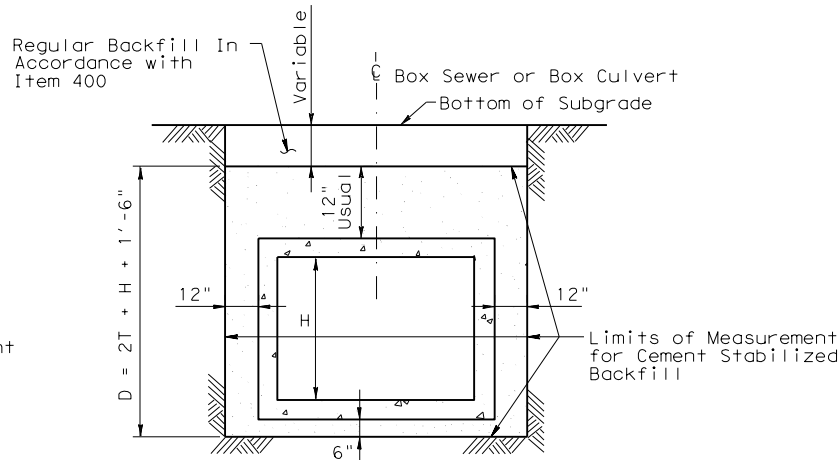
				Houston District Standard	
CONCRETE PAVEMENT JUNCTURES					
CPJ-25 (HOU)					
FILE: CPJ-25 (HOU).dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	
© TxDOT February 2025	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
02-25: 2024 Spec Updates	DIST	COUNTY			SHEET NO.
					46

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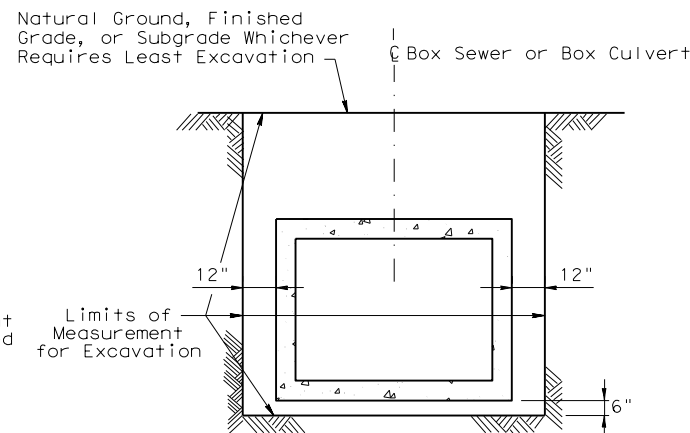
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FILE:



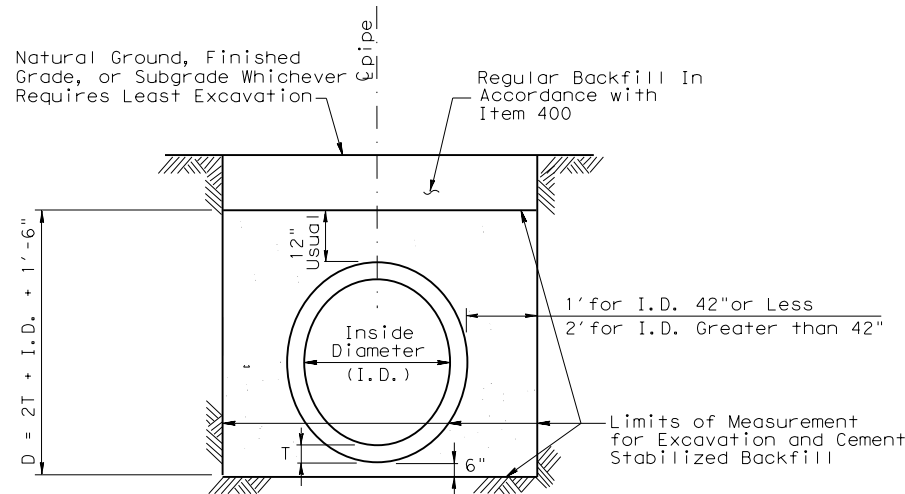
EXCAVATION DETAIL
MONOLITHIC PIPE
IN A PAVED OR GRADED AREA



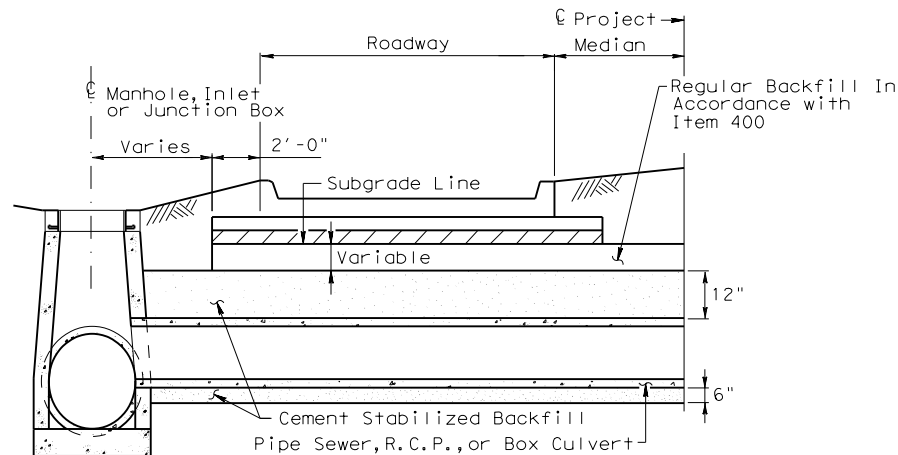
BACKFILL DETAIL
BOX CULVERTS
IN A GRADED OR PAVED AREA
INCLUDING DETOURS *



EXCAVATION DETAIL
BOX CULVERTS
IN A GRADED AREA



EXCAVATION & BACKFILL DETAIL
REINFORCED CONCRETE PIPE
& THERMOPLASTIC PIPE
IN A GRADED OR PAVED AREA
INCLUDING DETOURS



BACKFILL DETAIL
AT MANHOLE, INLET OR JUNCTION BOX

NOTE:

Cement stabilized backfill may be omitted in private driveways as indicated elsewhere in the plans.

Rubber gaskets shall be required for all joints on proposed cross drainage, pipe culverts and proposed storm sewer systems, unless otherwise shown in the plans.

* Backfill with cement stabilized material will be required for all structures under detours unless noted otherwise in the General Notes.

REINFORCED CONCRETE PIPE

EXCAVATION AND BACKFILL QUANTITIES

PIPE DIA. IN.	T FT.	CULVERT OR SEWER EXCAVATION IN A PAVED OR GRADED AREA C.Y. PER L.F. PER FT. OF DEPTH	CEMENT STABILIZED BACKFILL IN A PAVED OR GRADED AREA C.Y. PER L.F. OF PIPE
18	0.19	0.144	0.383
24	0.23	0.165	0.478
30	0.29	0.188	0.586
36	0.33	0.210	0.692
42	0.38	0.231	0.808
48	0.42	0.327	1.394
54	0.46	0.349	1.560
60	0.50	0.370	1.731
66	0.54	0.392	1.907
72	0.58	0.414	2.088
78	0.62	0.435	2.275
84	0.67	0.457	2.474

THERMOPLASTIC PIPE

EXCAVATION AND BACKFILL QUANTITIES

PIPE DIA. IN.	T FT.	CULVERT OR SEWER EXCAVATION IN A PAVED OR GRADED AREA C.Y. PER L.F. PER FT. OF DEPTH	CEMENT STABILIZED BACKFILL IN A PAVED OR GRADED AREA C.Y. PER L.F. OF PIPE
12	0.104	0.119	0.279
15	0.113	0.129	0.320
18	0.142	0.140	0.368
24	0.167	0.160	0.457
30	0.229	0.184	0.564
36	0.229	0.202	0.654
42	0.225	0.220	0.747
48	0.254	0.315	1.302
60	0.296	0.355	1.610

MONOLITHIC PIPE

EXCAVATION QUANTITIES

PIPE DIA. IN.	T FT.	EXCAVATION C.Y. PER L.F. PER FT. OF DEPTH
36	0.417	0.142
42	0.458	0.164
48	0.458	0.182
54	0.500	0.204
60	0.583	0.228
66	0.583	0.247
72	0.625	0.269
78	0.625	0.287
84	0.625	0.306

D = Depth
H = Height
T = Thickness
R = Radius
Dia = Diameter

SHEET 1 OF 2



**Houston
District
Standard**

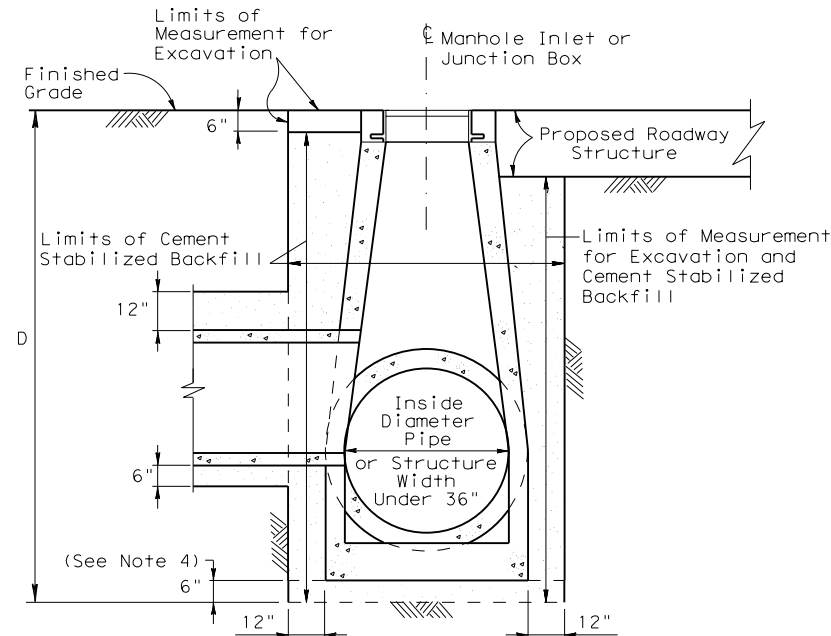
**EXCAVATION AND BACKFILL
DIAGRAMS**

E&BD-24 (HOU)

FILE: E&BD-24 (HOU).DGN	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TXDOT December 2024	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY	SHEET NO.	47

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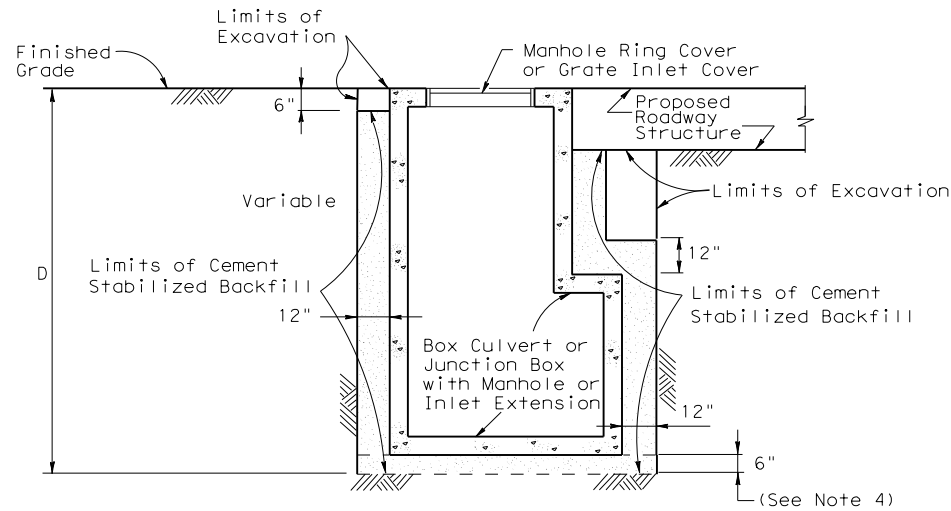
DATE: FILE:



EXCAVATION AND BACKFILL DETAIL

MANHOLES SMALLER THAN 36 IN.
IN A PAVED OR GRADED AREAS

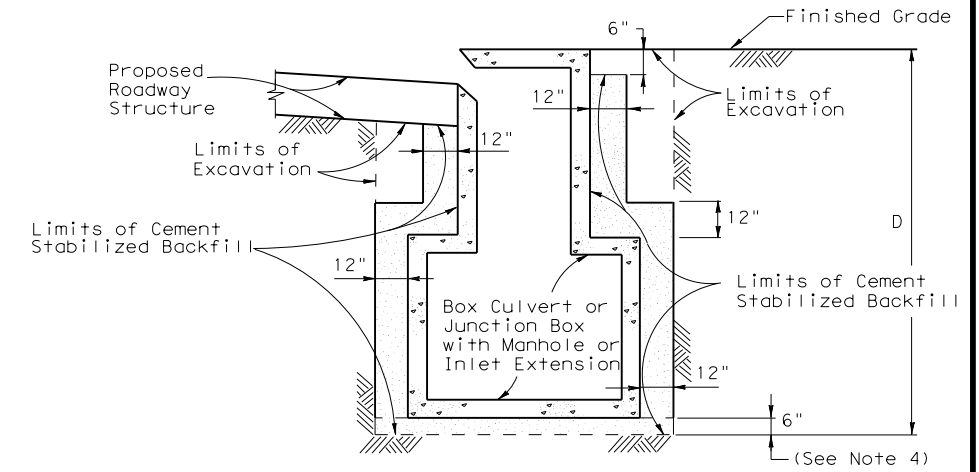
N. T. S.



EXCAVATION AND BACKFILL DETAIL

JUNCTION BOXES IN A
PAVED OR GRADED AREA

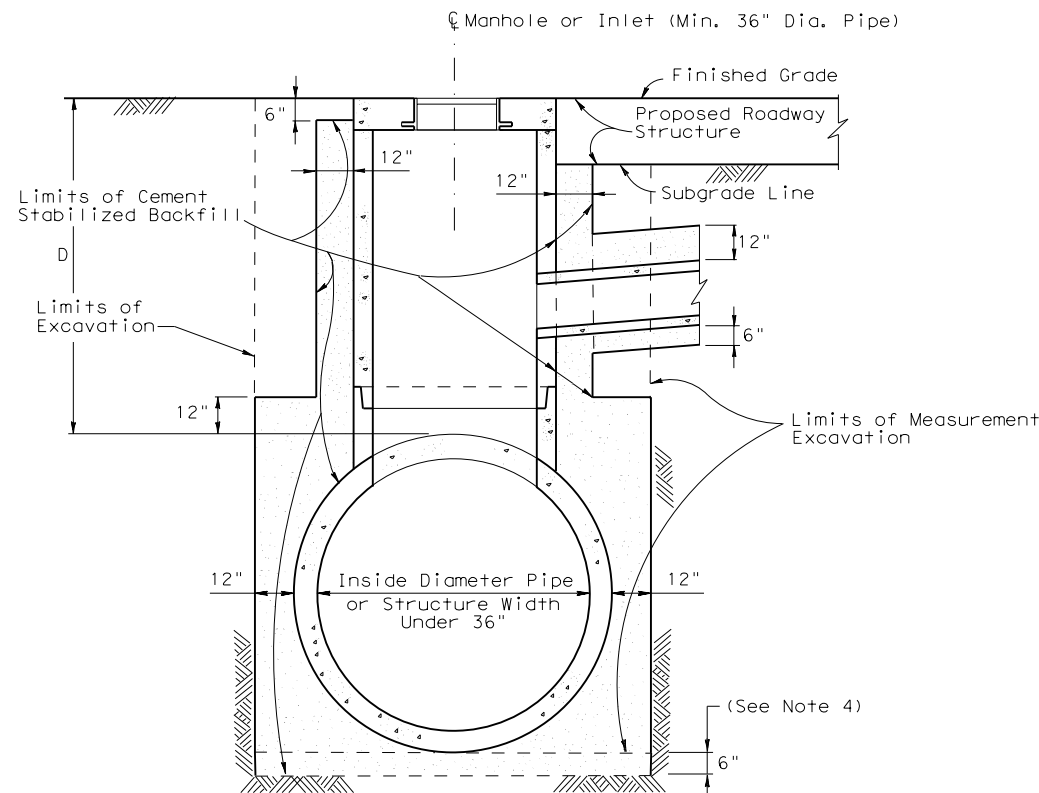
N. T. S.



EXCAVATION AND BACKFILL DETAIL

INLET EXTENSIONS ON A BOX CULVERT
IN A PAVED OR GRADED AREA

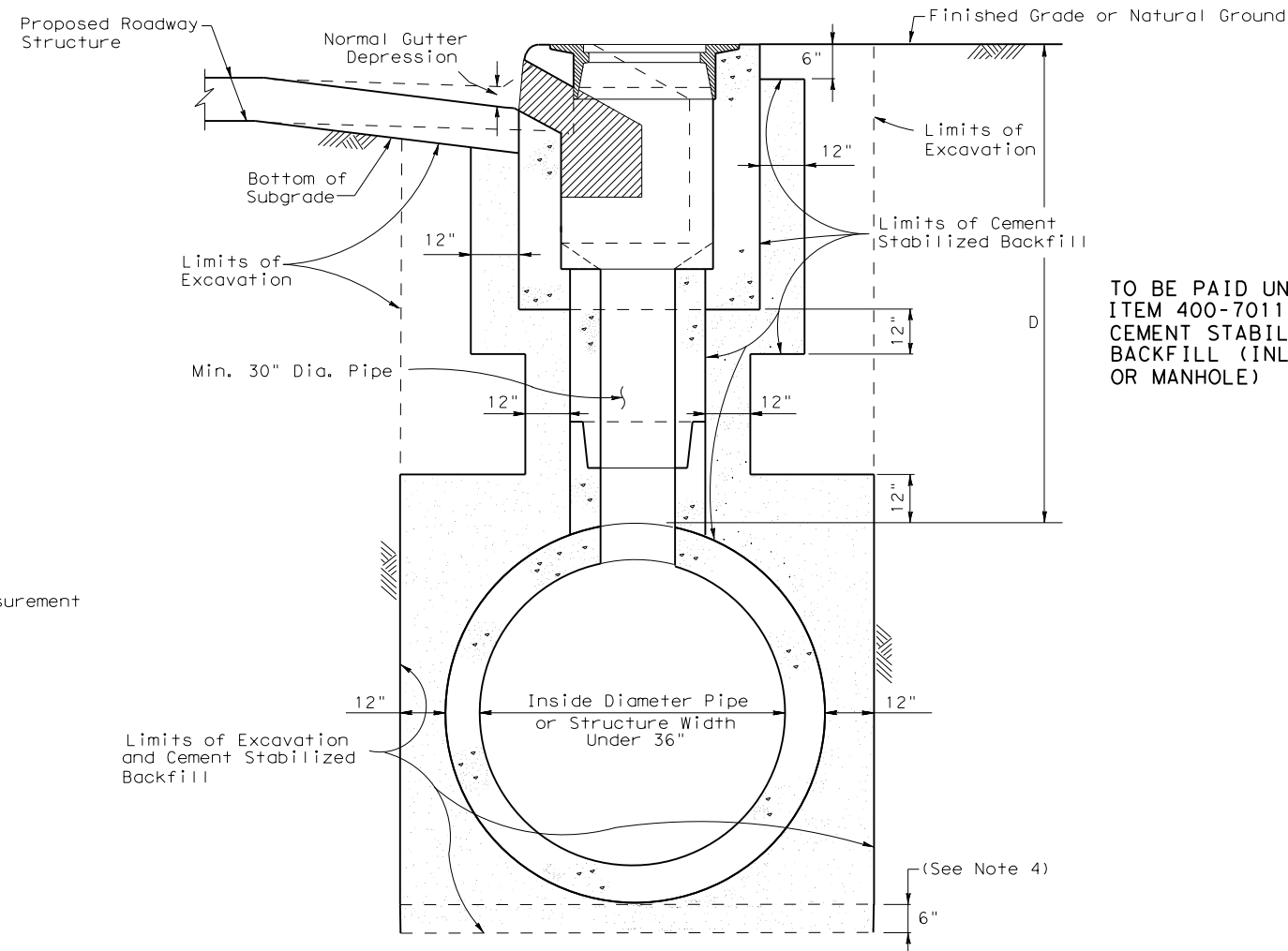
N. T. S.



EXCAVATION AND BACKFILL DETAIL

MANHOLES 36 IN. AND GREATER
IN A PAVED OR GRADED AREA

N. T. S.



EXCAVATION AND BACKFILL DETAIL

CURB INLETS IN A PAVED OR GRADED AREA

N. T. S.

TO BE PAID UNDER
ITEM 400-7011
CEMENT STABILIZED
BACKFILL (INLET
OR MANHOLE)

TABLE I	
SCHEDULE FOR PAY QUANTITIES OF CEMENT STABILIZED BACKFILL (SEE NOTE 1)	
MANHOLE OR INLET DEPTH (D) IN FEET	CEMENT STABILIZED BACKFILL IN CUBIC YARDS
0 through 5	5.75
> 5 through 10	8.25
greater than 10	12.75

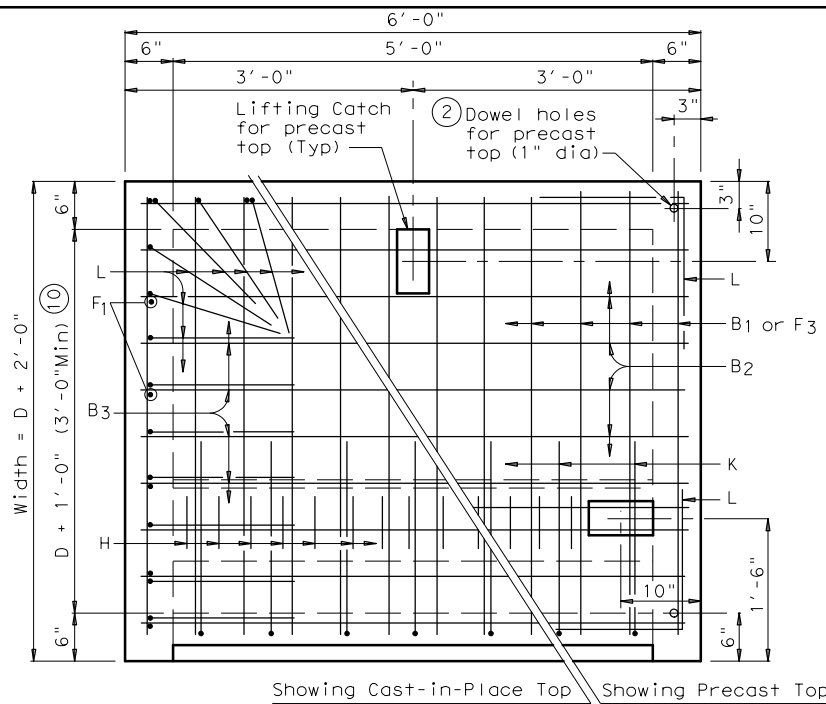
NOTES:

1. The Contractor is paid a fixed estimated amount for cement stabilized backfill based on depth (D) and Table. 1.
2. Proposed roadway structure includes pavement, base and any subgrade.
3. For backfill of intersecting pipes and box culverts, see "Excavation and Backfill Diagram for Pipes and Box Culverts."
4. 6" cement stabilized backfill will be required only for precast units.

SHEET 2 OF 2

		Houston District Standard	
EXCAVATION AND BACKFILL DIAGRAMS			
E&BD-24 (HOU)			
FILE: E&BD-24 (HOU).DGN	DN: TxDOT	CK: TxDOT	OW: TxDOT
© TxDOT December 2024	CONT	SECT	JOB
REVISIONS			HIGHWAY
	DIST	COUNTY	SHEET NO.
			48

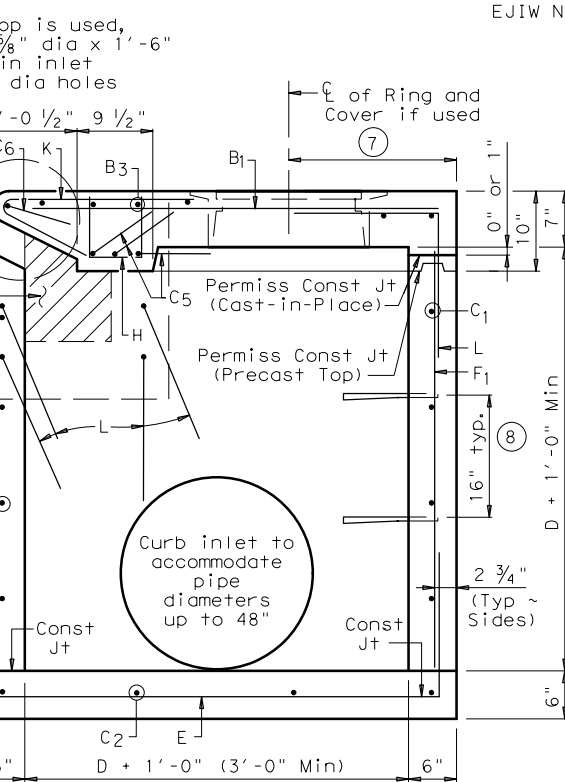
D = Depth
H = Height
T = Thickness
R = Radius
Dia = Diameter



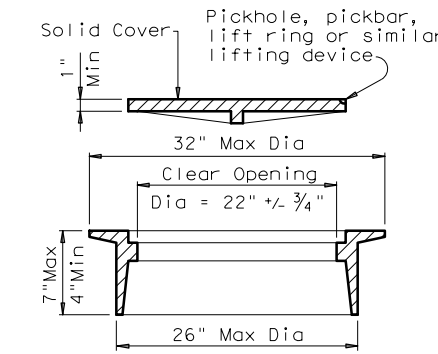
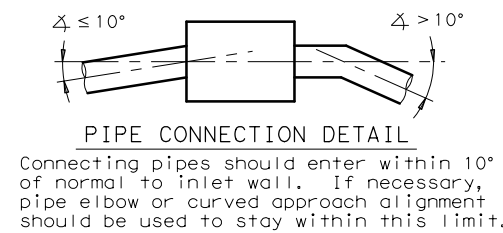
PLAN

PREFABRICATED INLET

⑥ For reinforcing steel and dimensions not shown, see fabricator's shop drawings. Structure shall be of the size required to accommodate size of pipe shown elsewhere in the plans. Length of inlet = 6'-0"

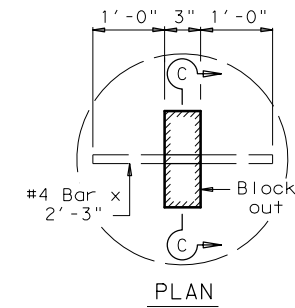


SECTION A-A

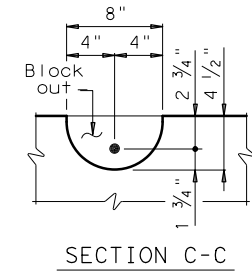


RING AND COVER DETAILS

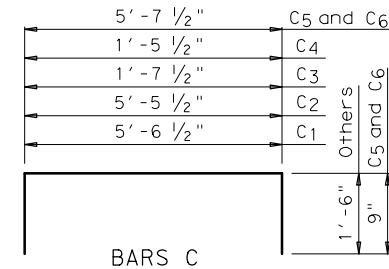
EJIW No V-1418 or Neenah No R5900-FTX



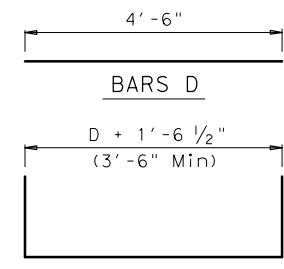
LIFTING CATCH



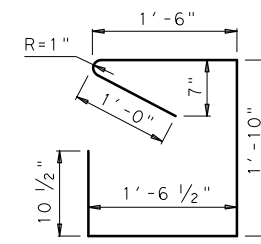
SECTION C-C



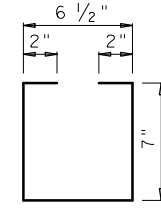
BARS C



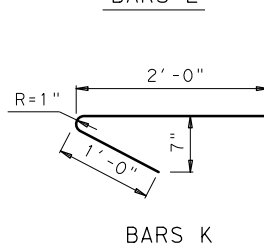
BARS D



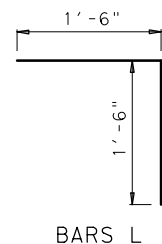
BARS G



BARS H



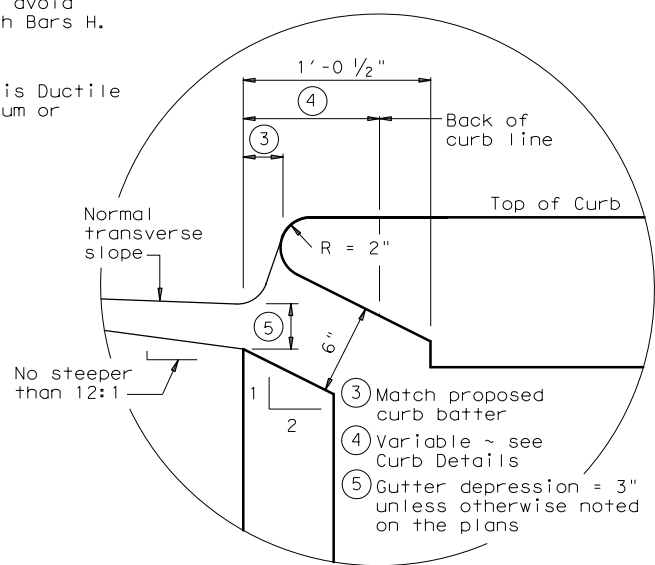
BARS K



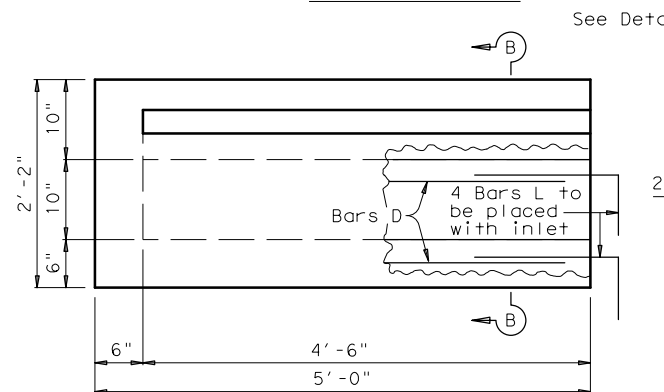
BARS L

GENERAL NOTES:

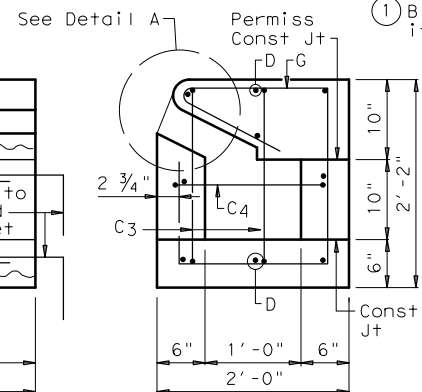
No alternate designs nor alternate details shall be permitted for precast or cast in place inlets.
Quantities shown herein are for Contractor's information only. Unless otherwise shown in the plans, payment will be made for each inlet of the type specified and for each extension. Each five foot curb opening of extension is considered "one extension" regardless of whether placed monolithically or precast. Extension length shall be in multiples of 5 feet.
Engineer has the option of specifying cast-in-place top with ring and cover or removable precast top as specified elsewhere in plans. Shop drawings are required for Precast Inlets.
In areas of conflict between reinforcing steel, blockouts, pipes, anchor bolts or other reinforcing steel, the reinforcement shall be bent or adjusted to clear as directed by the Engineer.
Ring and cover shall conform to the requirements of AASHTO M306, "Standard Specification for Drainage Structure Castings". Materials shall conform to ASTM A48, Class 35B for gray iron castings or ASTM A536, Grade 65-45-12 for ductile iron castings. Aluminum alloy castings shall not be permitted.



DETAIL A

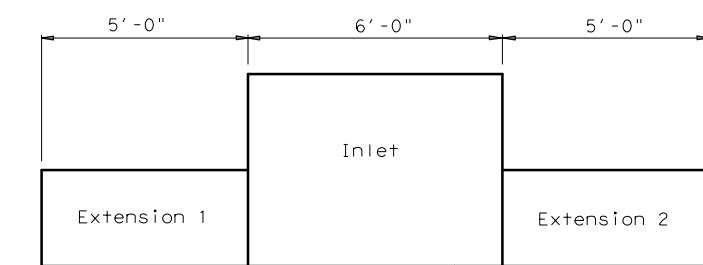


EXTENSION ELEVATION



SECTION B-B

① Block out to accommodate extension if used and to place 4 Bars L



Note: If more than one extension is required, they should be located as indicated above. No slope is required in flowline of extension.

EXTENSION PLACEMENT

INSTALL A 3 FT. (HORIZ.) x 6 IN. (VERT.) OPENING ON THE BACK OF THE INLET WHEN SPECIFIED ELSEWHERE ON THE PLANS. MOVE STEPS AS NEEDED. NO REINFORCING ON OPENING/ON 2 IN. ADJACENT TO OPENING.

DESIGNERS:
CLARIFY FLOWLINE OF OPENING AND INCLUDE OPENING IN HYDRAULIC CALCULATIONS.

D = Diameter
R = Radius

REINF STEEL

Bar	Size	Spacing
B1	#4	6"
B2	#5	6"
B3	#4	6"
C1-2	#4	12"
C3-4	#4	⑨
C5	#6	⑨
C6	#4	⑨
D	#4	⑨
E	#4	12"
F1-3	#4	12"
G	#4	6"
H	#3	4"
K	#4	9"
L	#4	6"

⑨ As shown

Texas Department of Transportation
Houston District

CURB INLET TYPE C (WITH OR WITHOUT EXTENSION)

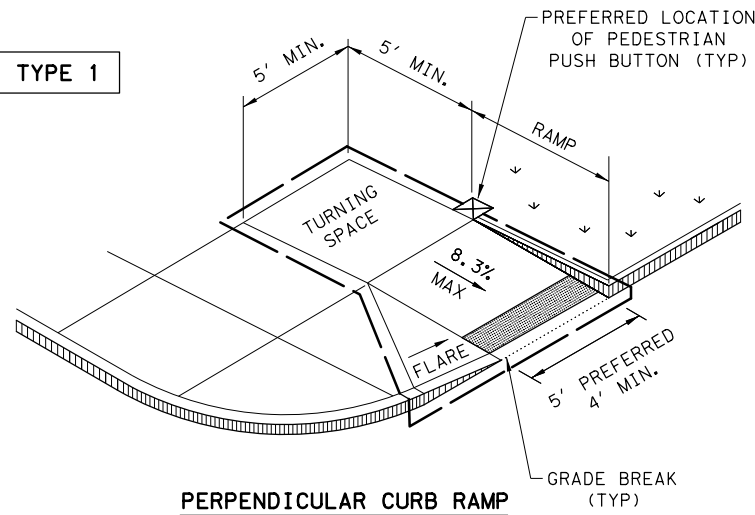
HIL-C

FILE: STDD1.DGN	DW: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT	STD:
© TxDOT Feb 2010	DIST	FED REG	PROJECT NO.		
REVISIONS	HOUS	6			
2/2010 Added note concerning opening on the back of inlet.					
10/2014 Removed Note 10					
COUNTY	CONTROL	SECT	JOB	HIGHWAY	

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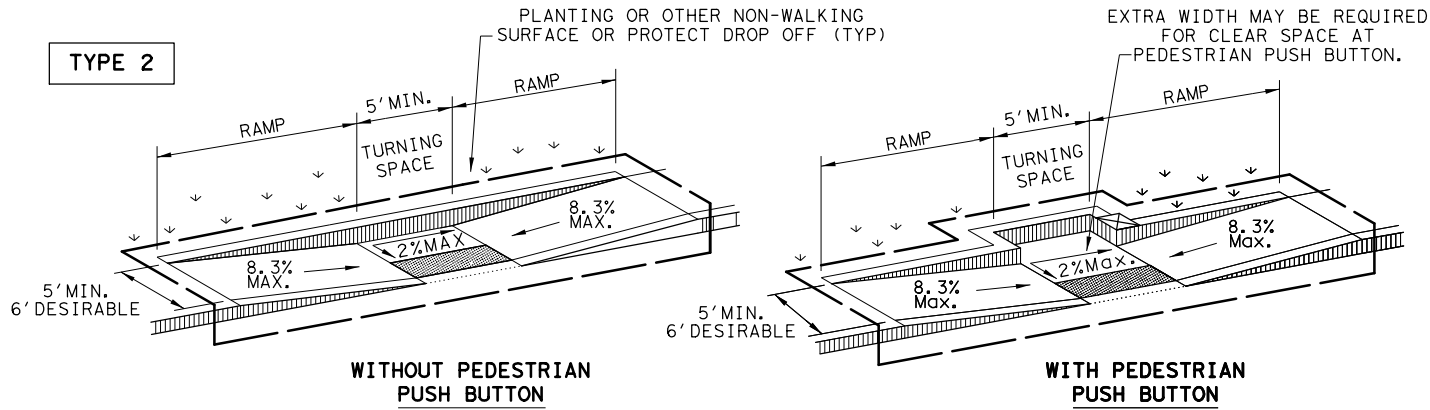
DATE: FILE:

TYPE 1



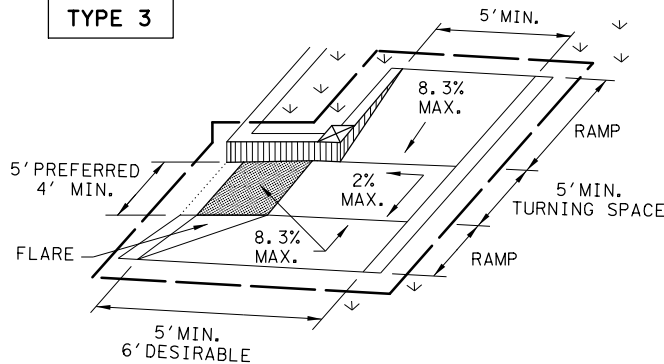
PERPENDICULAR CURB RAMP

TYPE 2

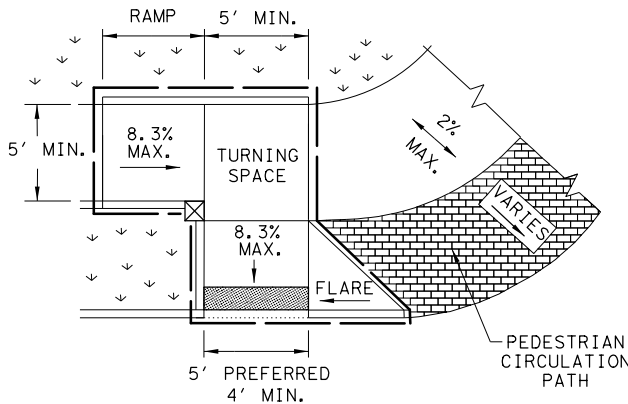


PARALLEL CURB RAMP

TYPE 3

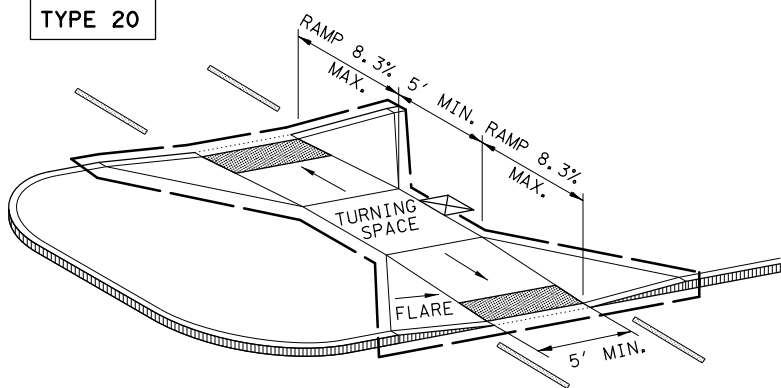


TYPE 6



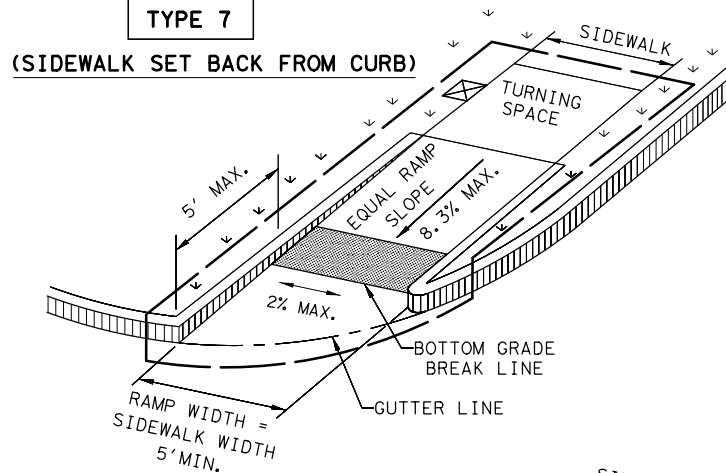
COMBINATION CURB RAMPS

TYPE 20

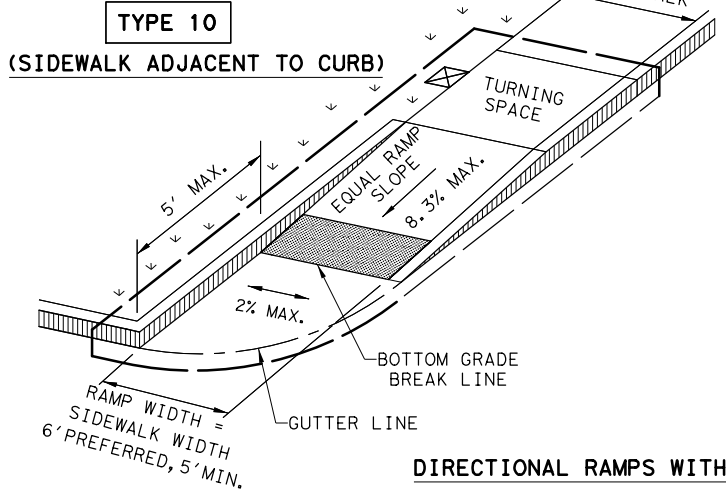


CURB RAMPS AT MEDIAN ISLANDS

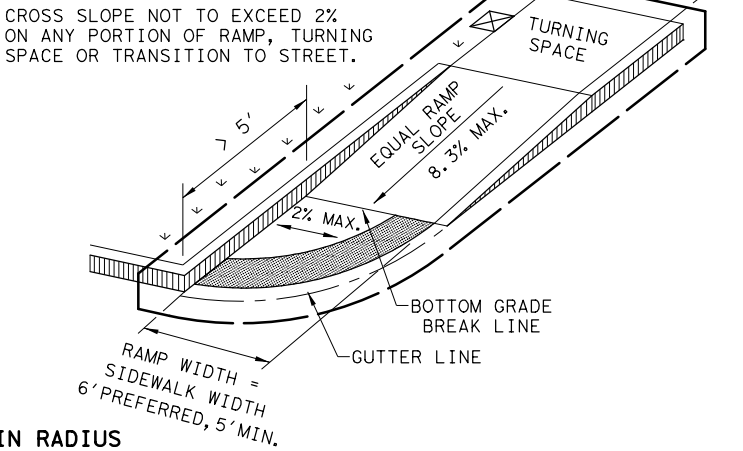
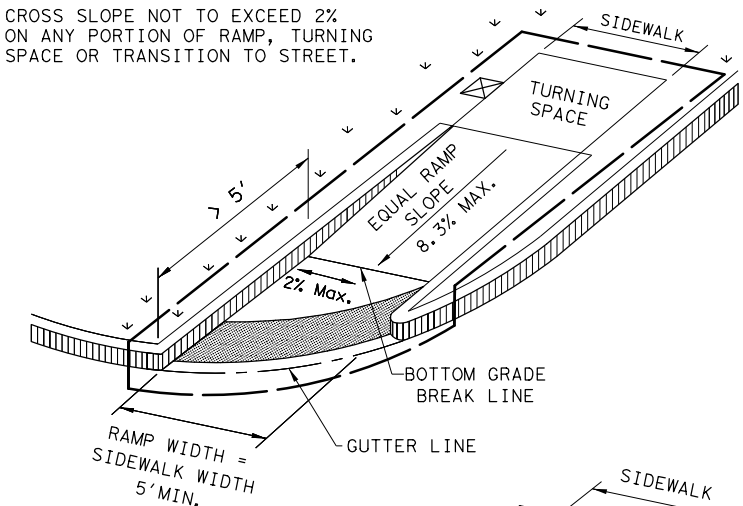
TYPE 7



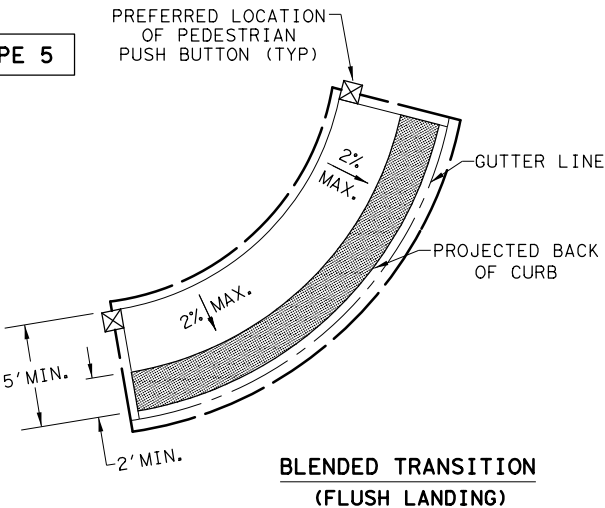
TYPE 10



DIRECTIONAL RAMPS WITHIN RADIUS



TYPE 5



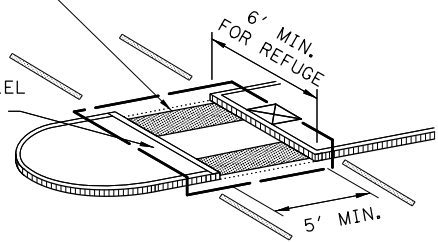
BLENDED TRANSITION (FLUSH LANDING)

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.

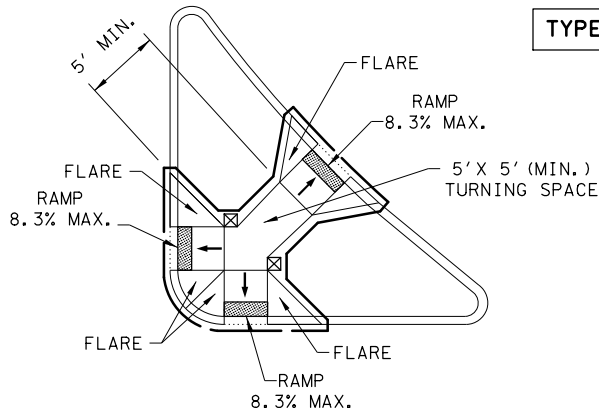
ALIGN CURB PARALLEL WITH CROSSWALK.

NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 21

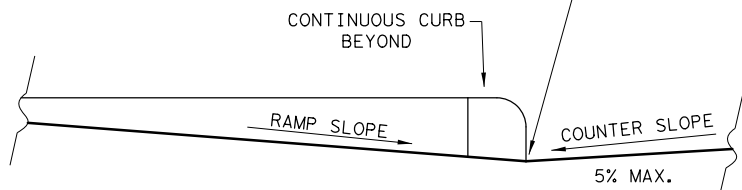


TYPE 22



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.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.



GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4



Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005				
REVISED 06, 2012				
REVISED 01, 2018				
DIST		COUNTY		SHEET NO.
				50

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DATE:
FILE:

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 applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

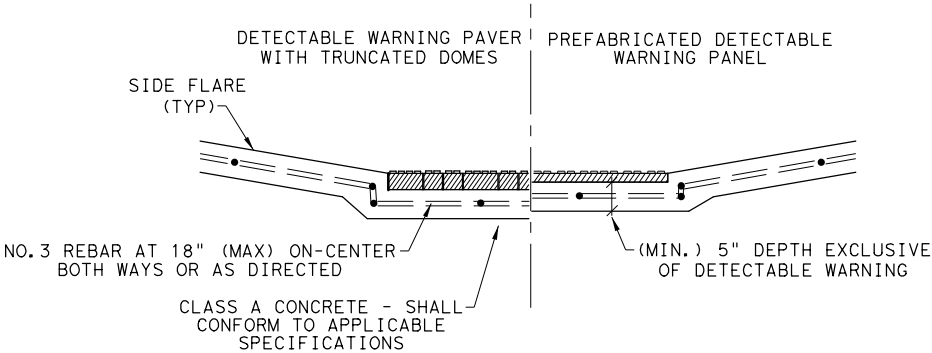
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

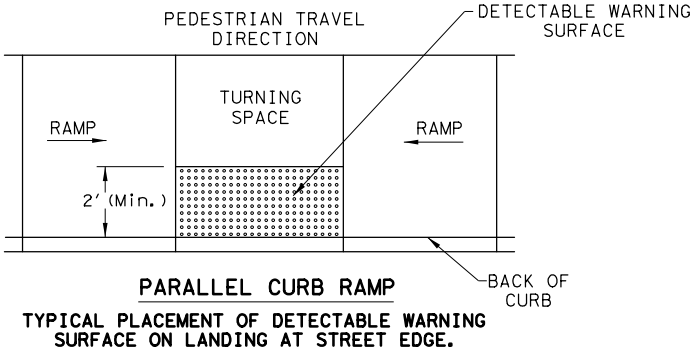
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

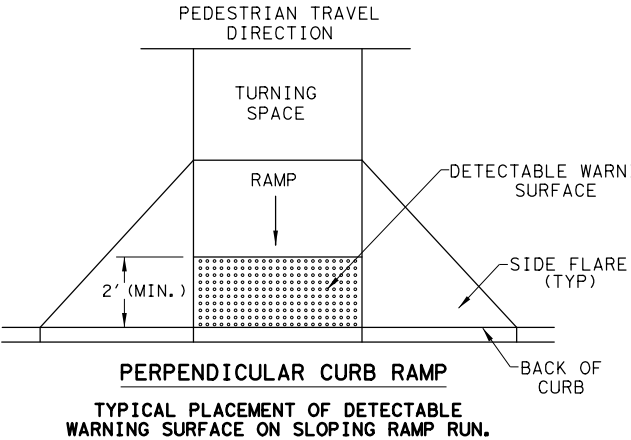


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

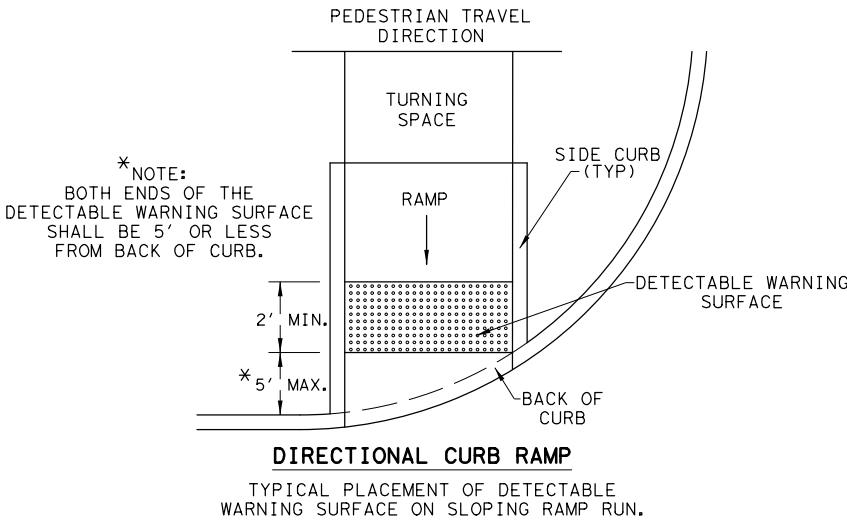
DETECTABLE WARNING SURFACE DETAILS



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



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



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

SHEET 2 OF 4



Design
Division
Standard

PEDESTRIAN FACILITIES
CURB RAMPS

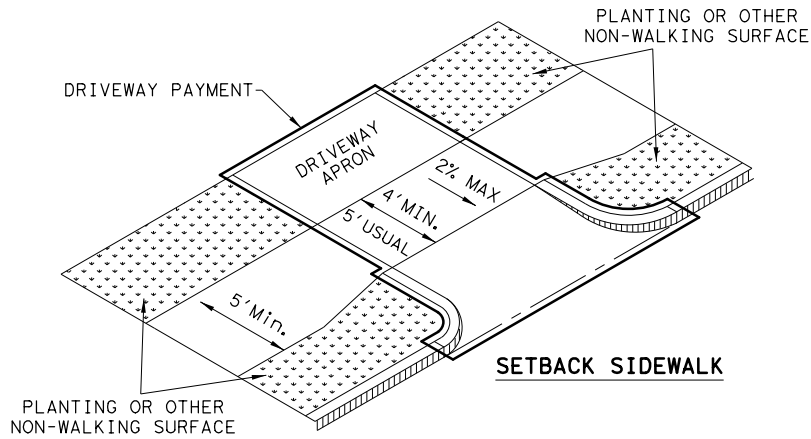
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005				
REVISED 06, 2012				
REVISED 01, 2018				
	DIST	COUNTY		SHEET NO.
				51

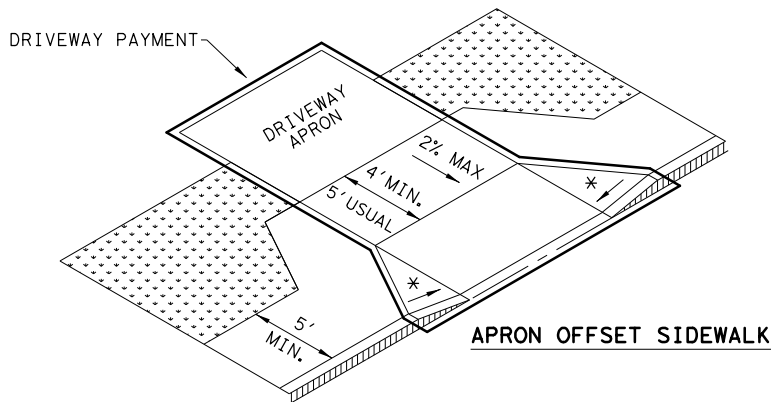
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DATE: FILE:

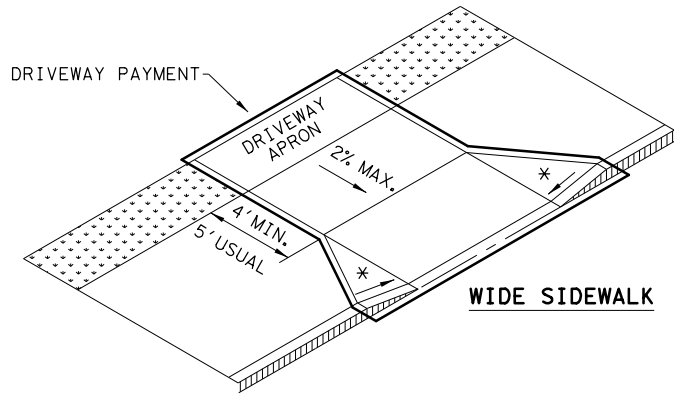
SIDEWALK TREATMENT AT DRIVEWAYS



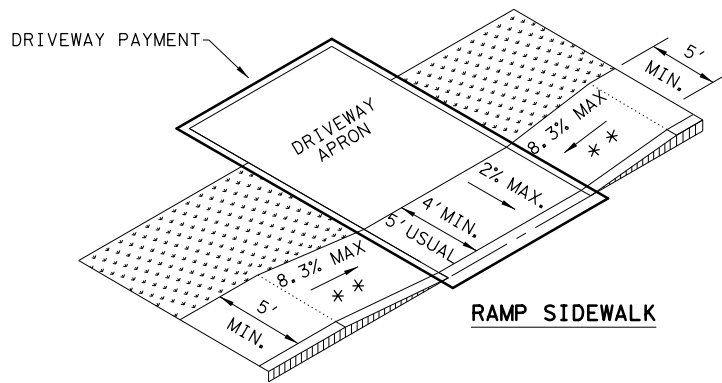
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

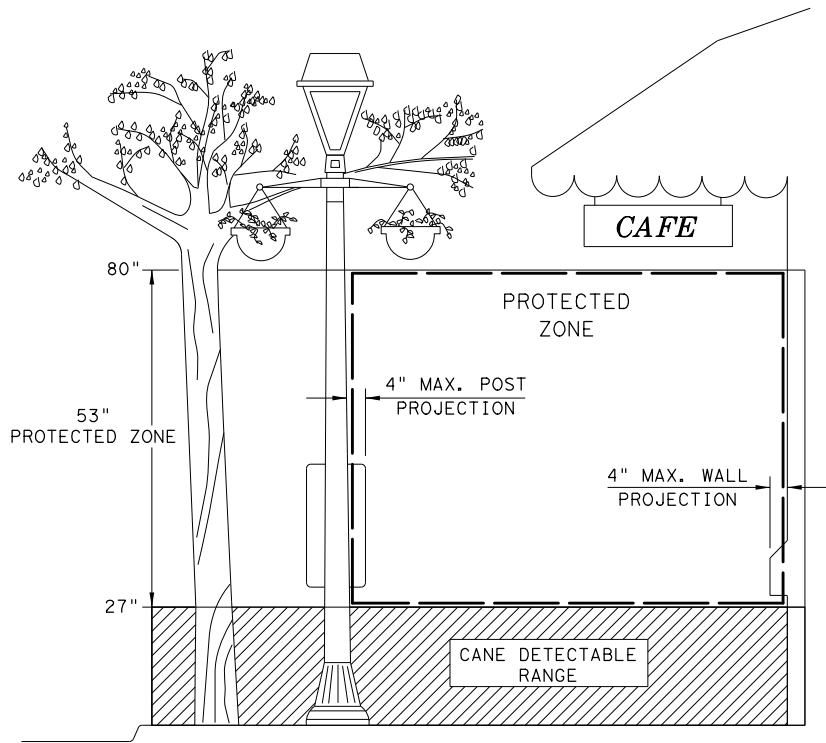


RAMP SIDEWALK

NOTES:

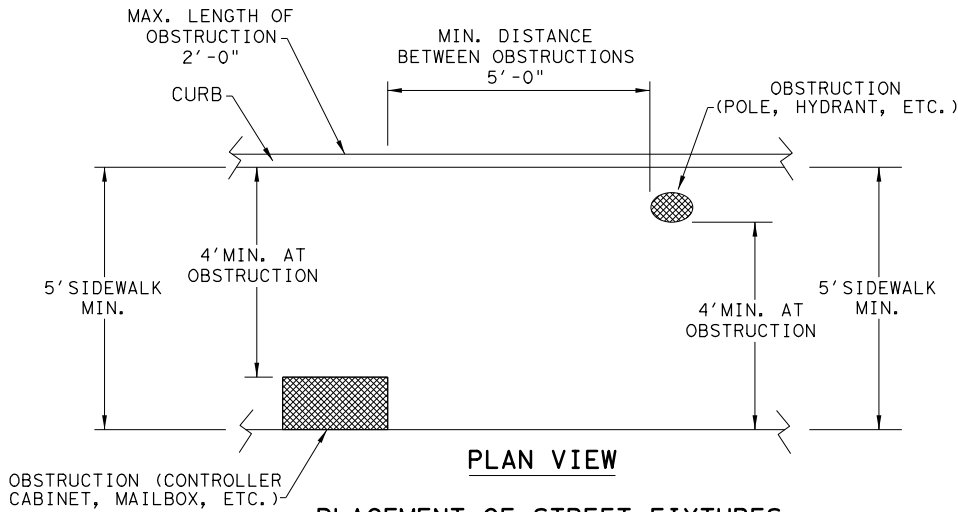
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * 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.

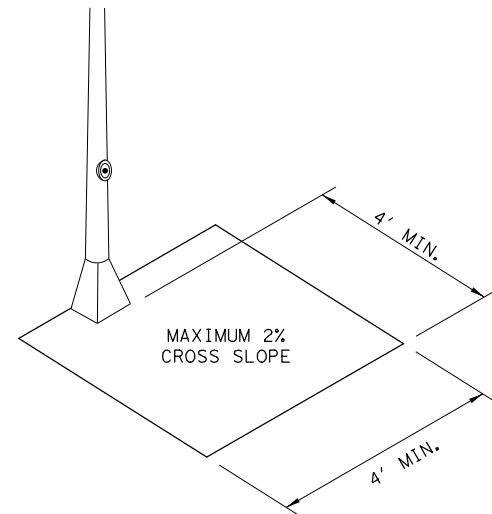


PLAN VIEW

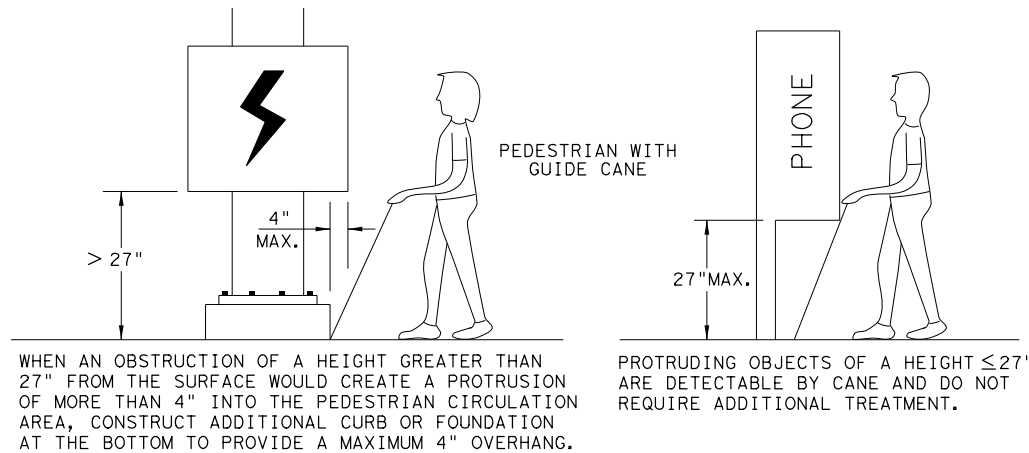
OBSTRUCTION (CONTROLLER CABINET, MAILBOX, ETC.)

PLACEMENT OF STREET FIXTURES

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



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

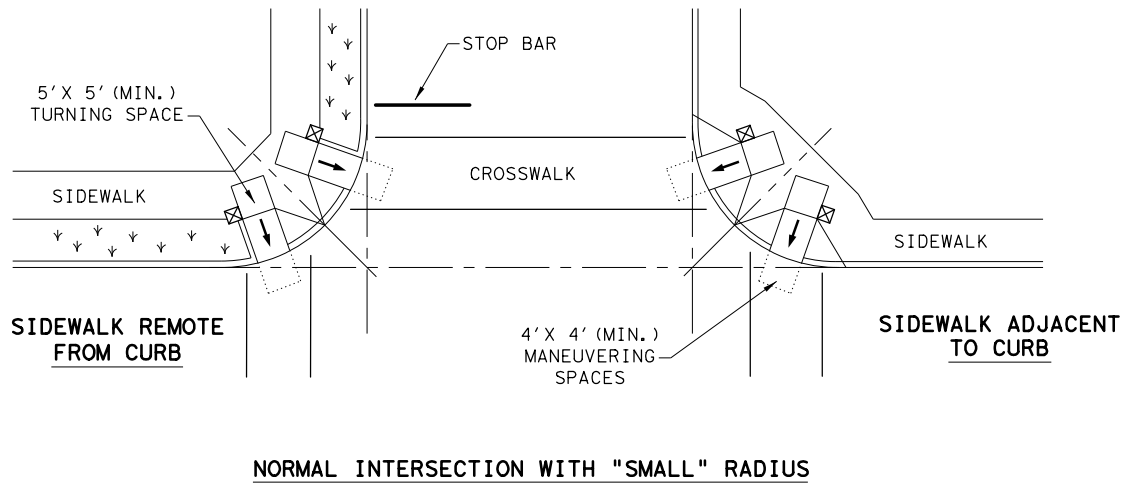
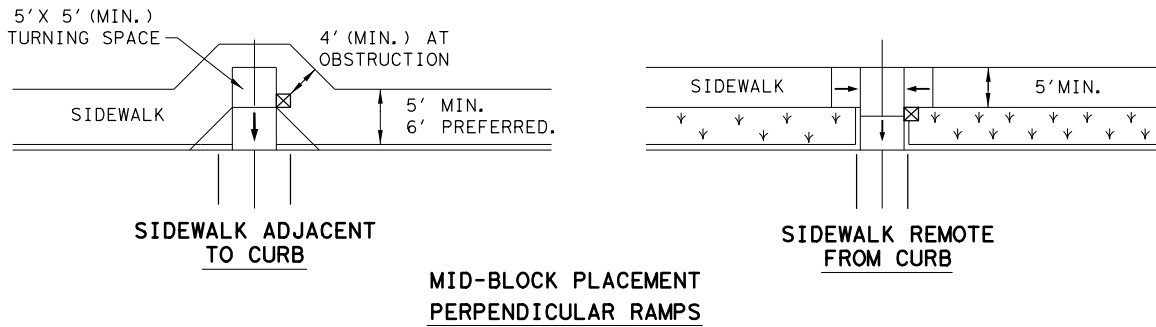
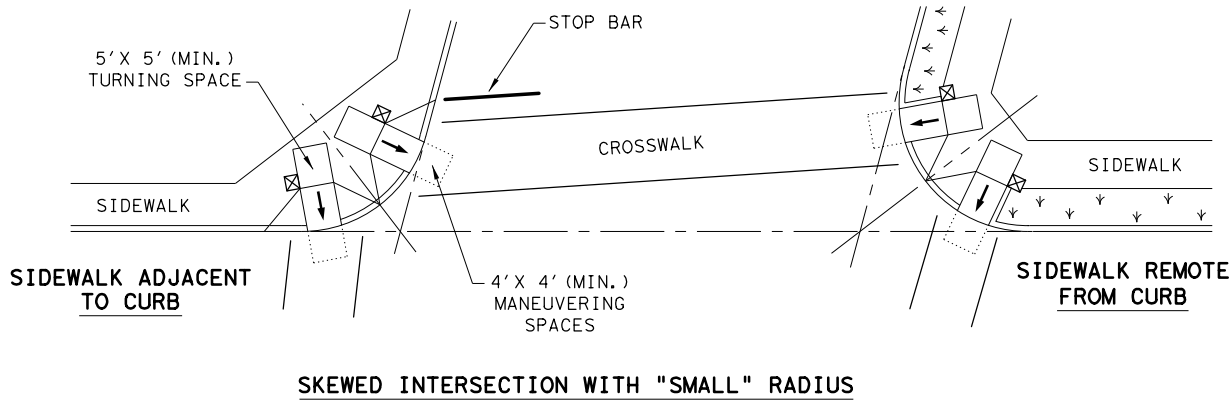
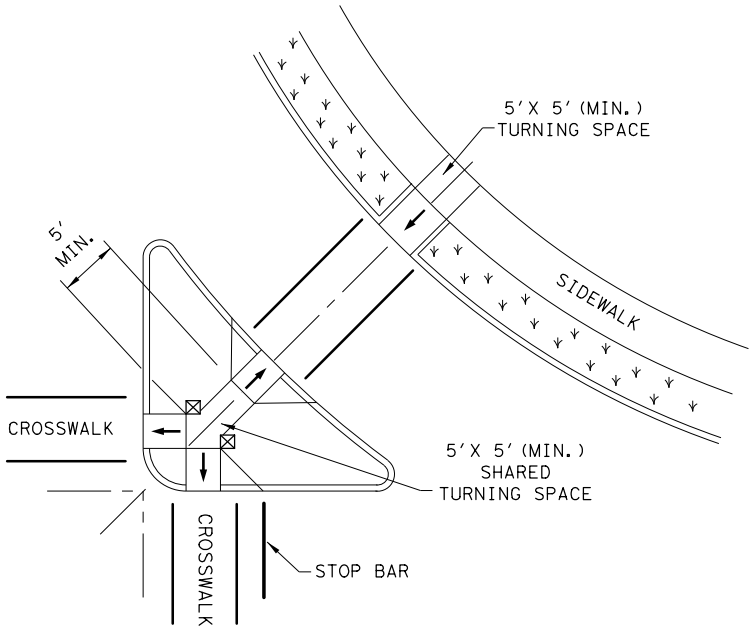
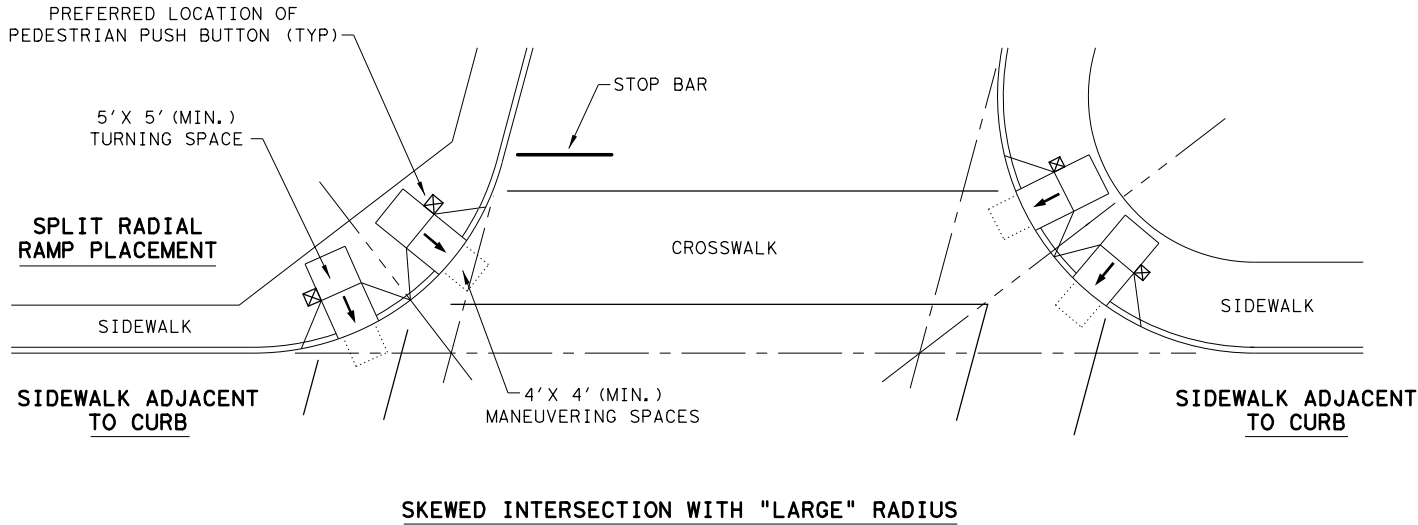
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005				
REVISED 06, 2012				
REVISED 01, 2018				
	DIST	COUNTY		SHEET NO.
				52

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DATE:
FILE:

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



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



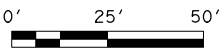
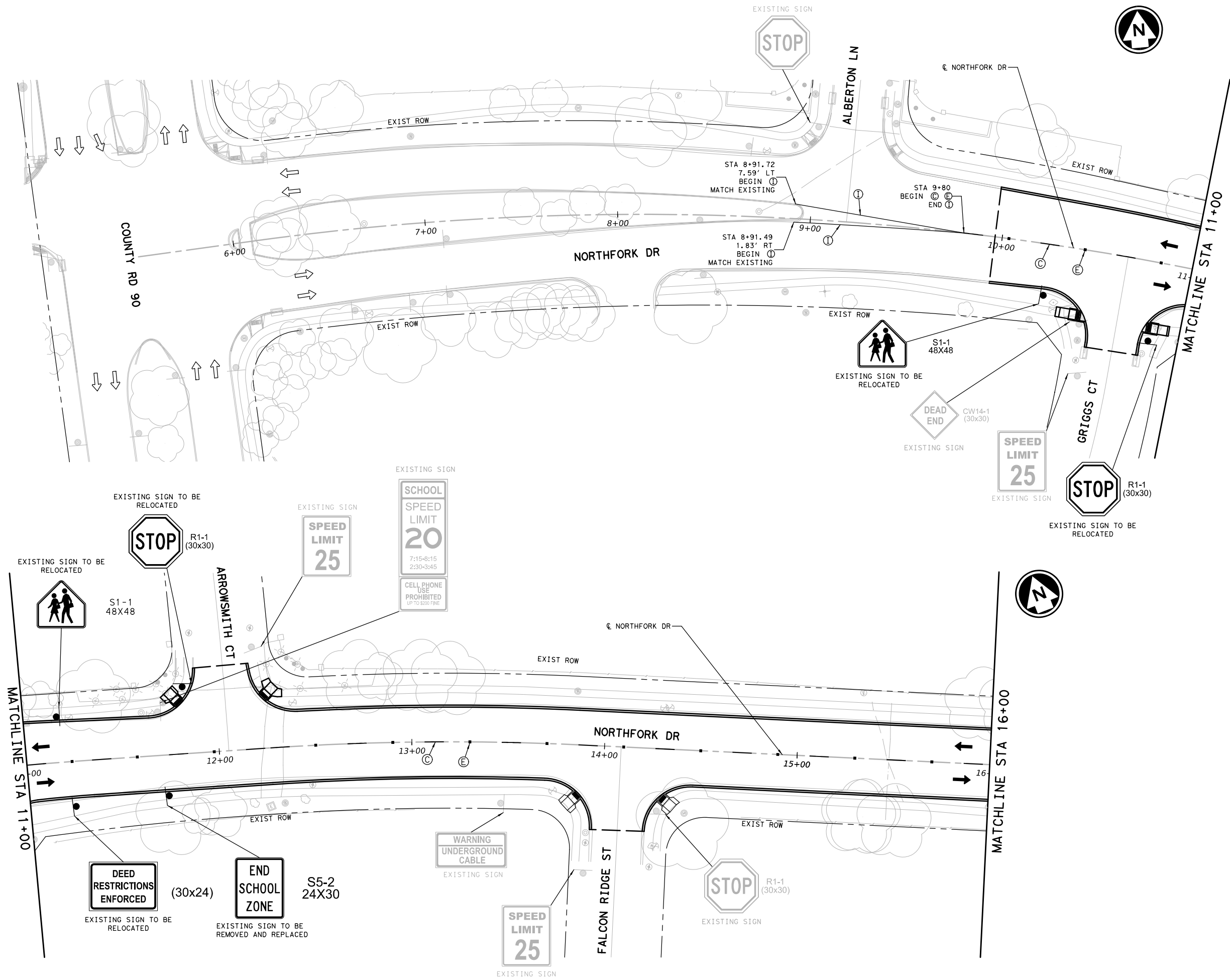
Design
Division
Standard

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	DIST	COUNTY	SHEET NO.	
REVISED 08, 2005			53	
REVISED 06, 2012				
REVISED 01, 2018				

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LEGEND:

- (C) REFL PAV MRK TY I (4") (Y) (BRK)
- (D) REFL PAV MRK TY I (24") (W) (SLD)
- (E) REFL PAV MRK TY II A-A
- (I) REFL PAV MRK TY I (4") (Y) (SLD)
- PROP SIGN

NO.	DATE	REVISION	APPROVED



Brazoria County Engineering Department
451 N Velasco, Suite 230
Angleton, Texas 77515

BinkleyBarfield | **DCCM** Binkley & Barfield, Inc. | TxEng F-257
1710 Seamlst Dr, Houston, TX 77008
713.869.3433 | BinkleyBarfield.DCCM.com

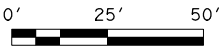
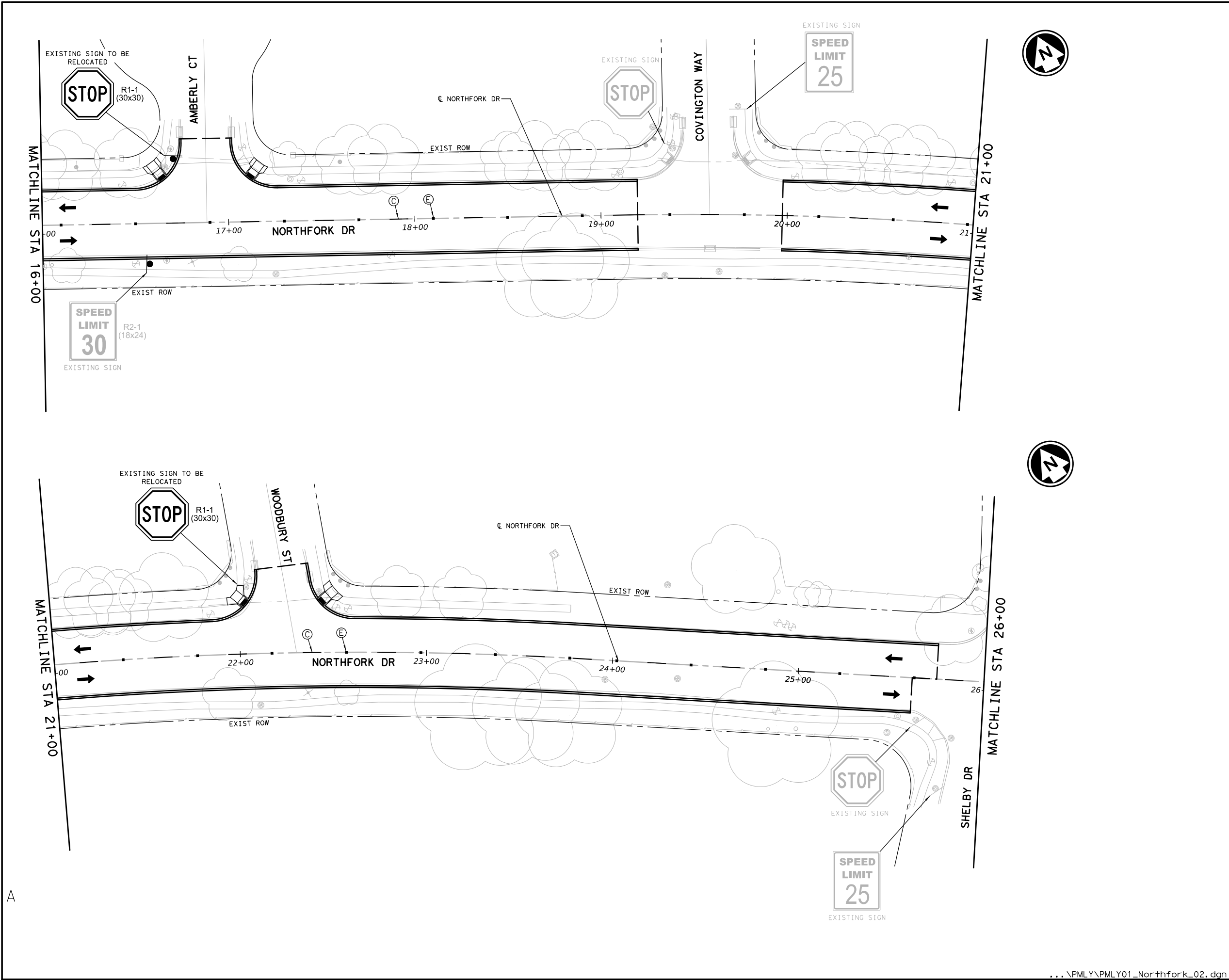
SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
SIGNING AND PAVEMENT
MARKING LAYOUT

SHEET 1 OF 3

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6		54
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

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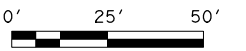
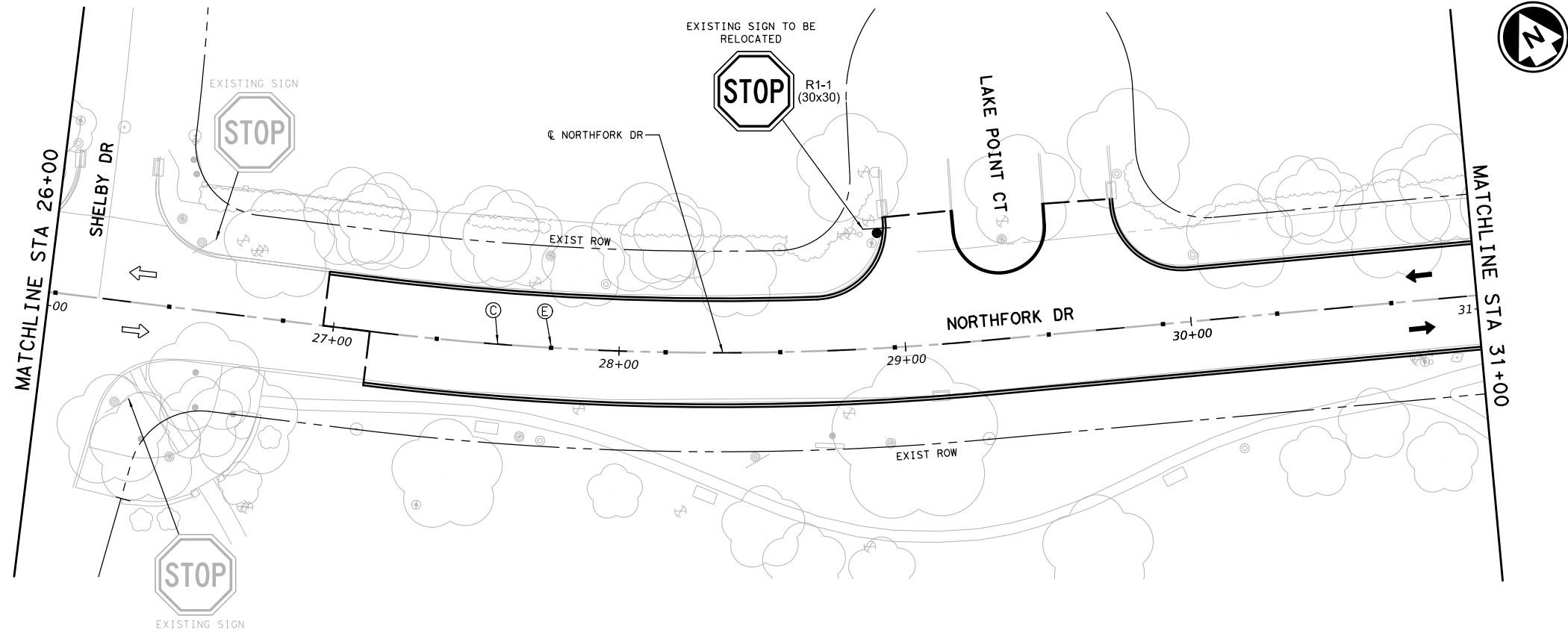


LEGEND:

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- (D) REFL PAV MRK TY I (24") (W) (SLD)
- (E) REFL PAV MRK TY II A-A
- (I) REFL PAV MRK TY I (4") (Y) (SLD)
- PROP SIGN

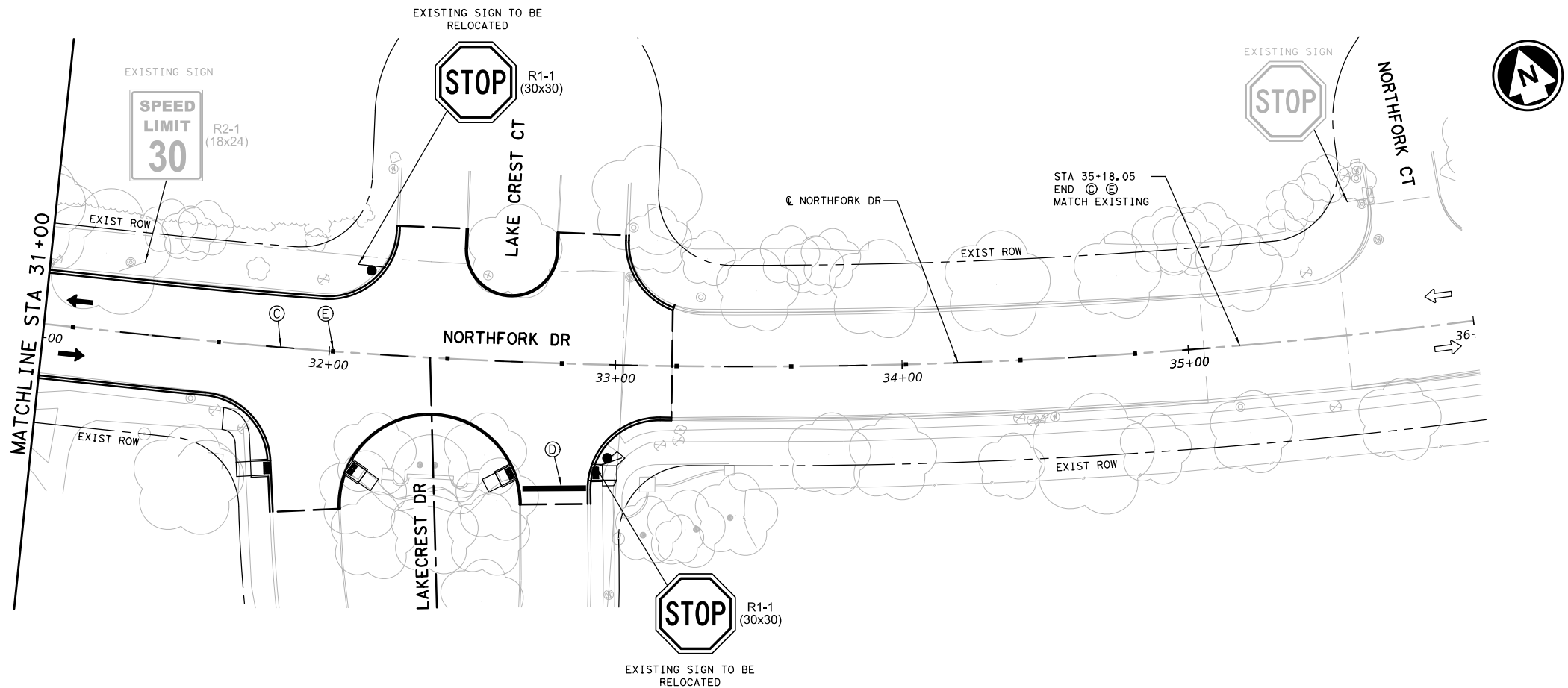
NO.	DATE	REVISION	APPROVED
 STATE OF TEXAS BENJAMIN HART 107379 PROFESSIONAL ENGINEER 6/9/2025			
 Brazoria County Engineering Department 451 N Velasco, Suite 230 Angeleton, Texas 77515 BinkleyBarfield DCCM Binkley & Barfield, Inc. TxEng F-257 1710 Seamlst Dr, Houston, TX 77008 713.869.3433 BinkleyBarfield.DCCM.com			
SILVERLAKE PAVEMENT REPAIRS NORTHFORK DR SIGNING AND PAVEMENT MARKING LAYOUT SHEET 2 OF 3			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
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TEXAS	HOUSTON	BRAZORIA	
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- (E) REFL PAV MRK TY II A-A
- (I) REFL PAV MRK TY I (4") (Y) (SLD)
- PROP SIGN



NO.	DATE	REVISION	APPROVED



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Angleton, Texas 77515

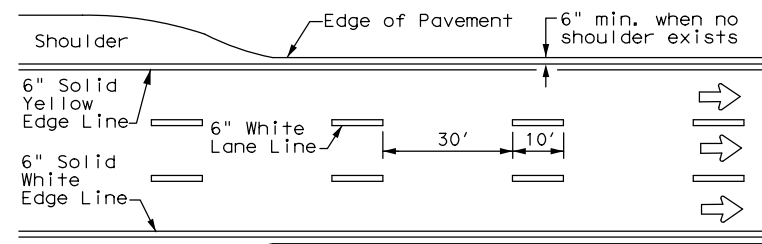
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1710 Seamlst Dr, Houston, TX 77008
713.869.3433 | BinkleyBarfield.DCCM.com

SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
SIGNING AND PAVEMENT
MARKING LAYOUT

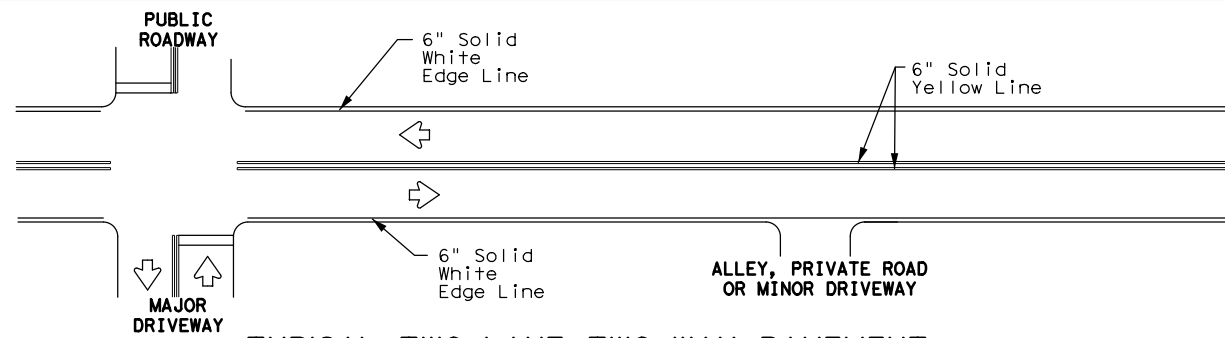
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TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

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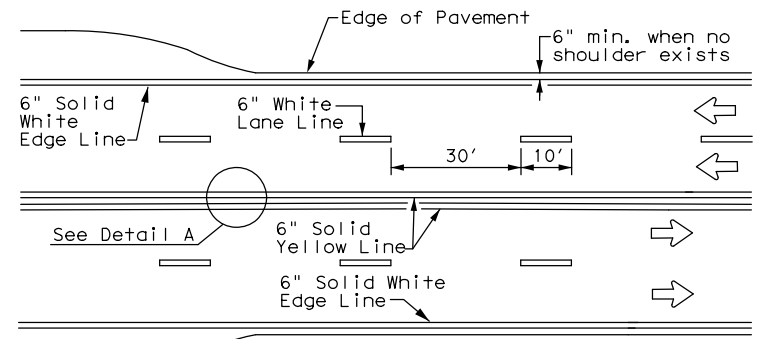
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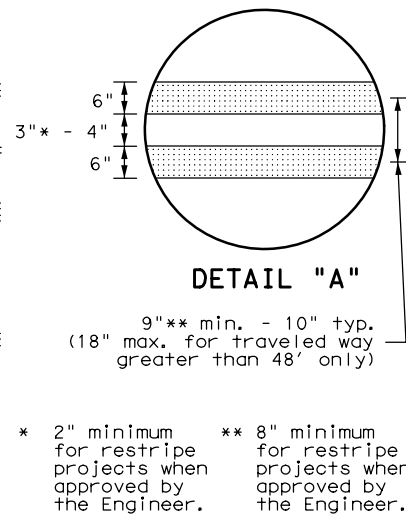
EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



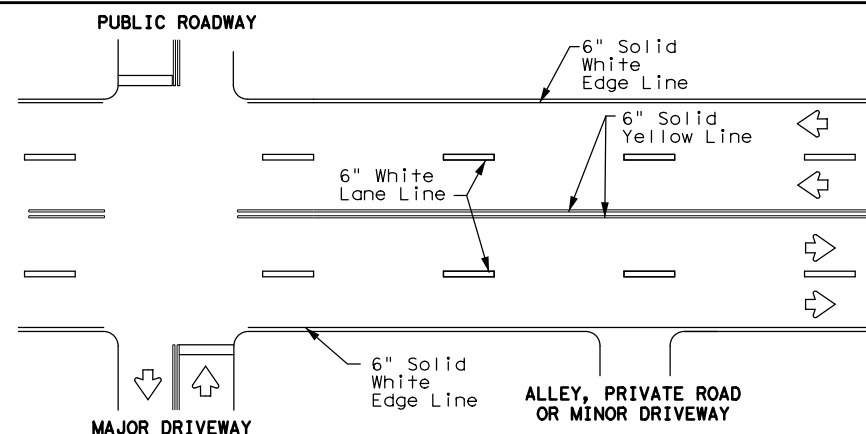
TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



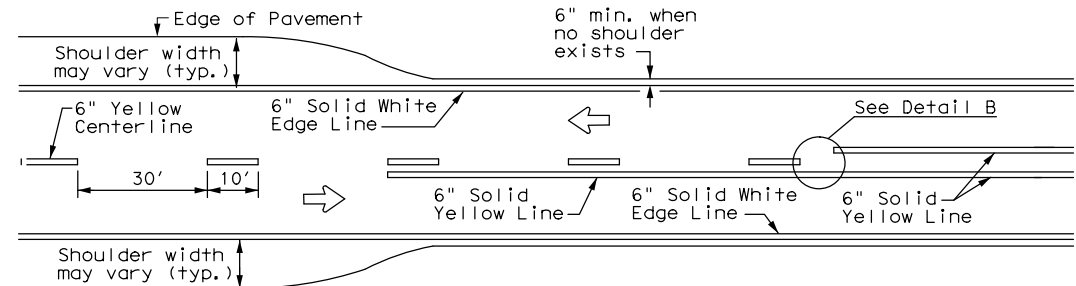
CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



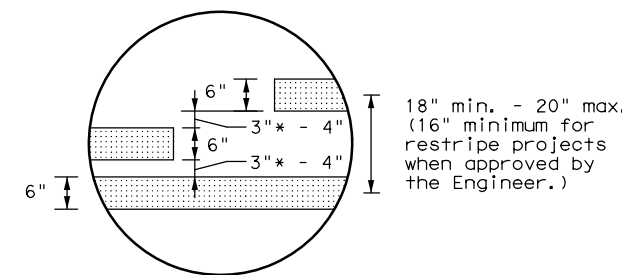
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.



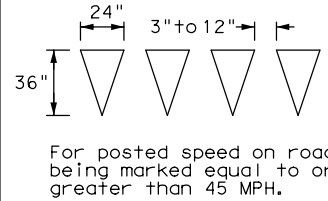
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS



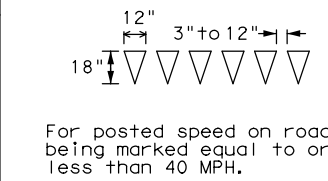
TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS



* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES



NOTES

- 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 and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

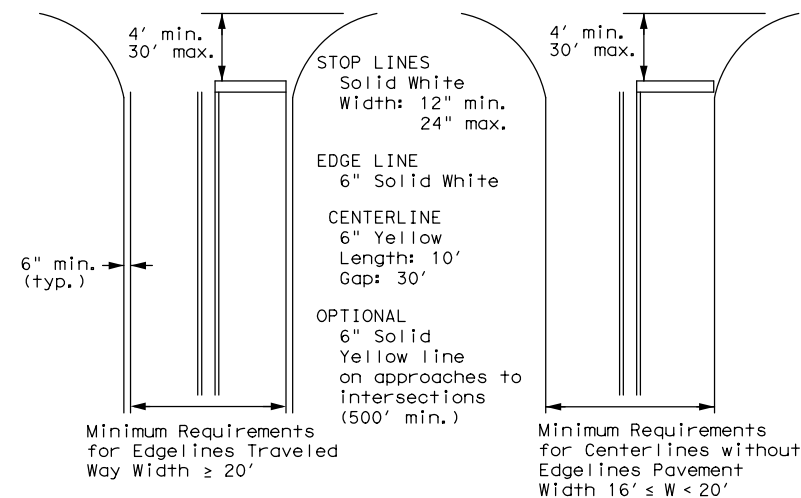
GENERAL NOTES

- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
- 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 center of edge line to the center of edge line 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.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths
for Undivided Roadways



TYPICAL STANDARD PAVEMENT MARKINGS

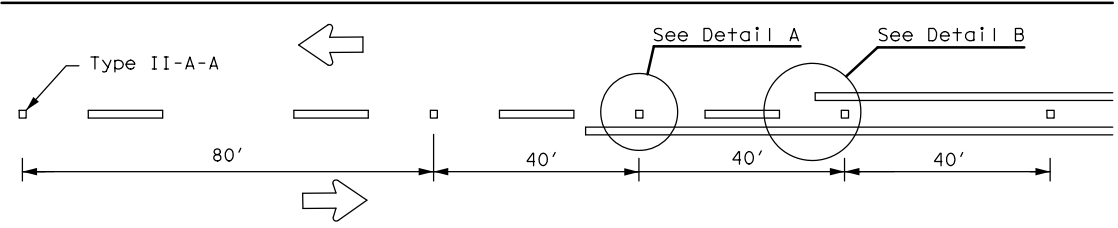
PM(1)-22

FILE: pml-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS				
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8-95 3-03 12-22				
5-00 2-12				
	DIST	COUNTY		SHEET NO.
				57

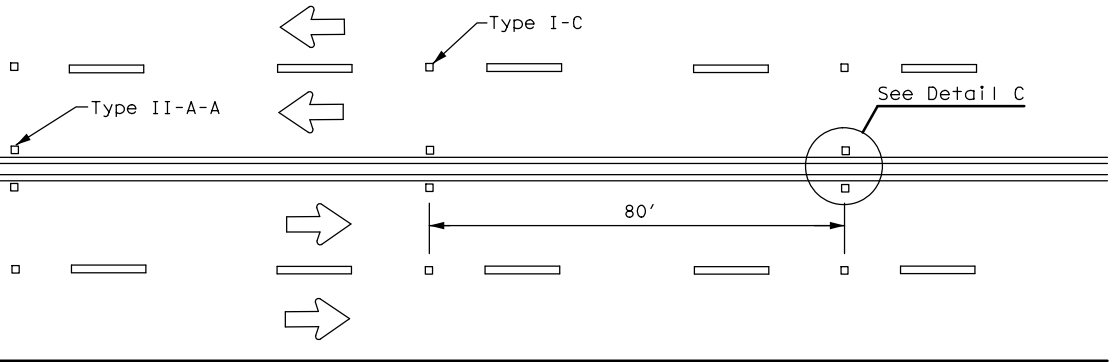
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DATE:
FILE:

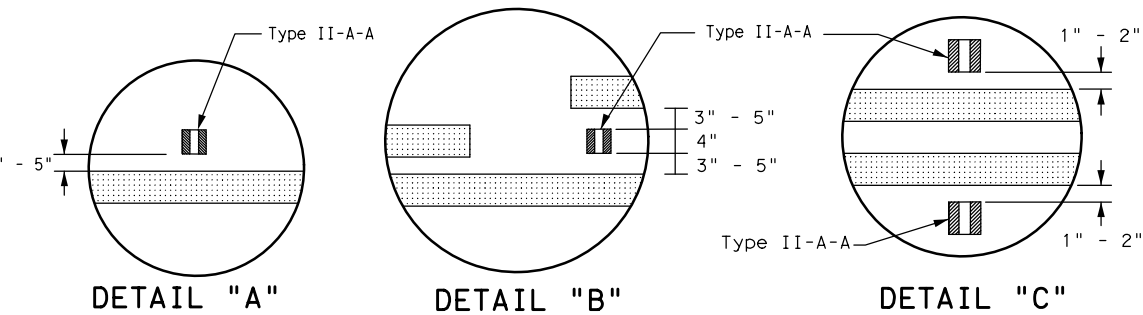
REFLECTIVE RAISED PAVEMENT MARKERS
FOR VEHICLE POSITIONING GUIDANCE



CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



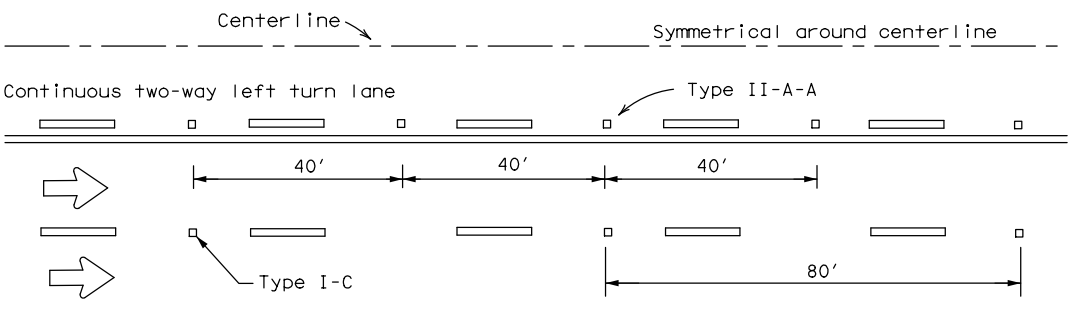
CENTERLINE & LANE LINES
FOR FOUR LANE TWO-WAY ROADWAYS



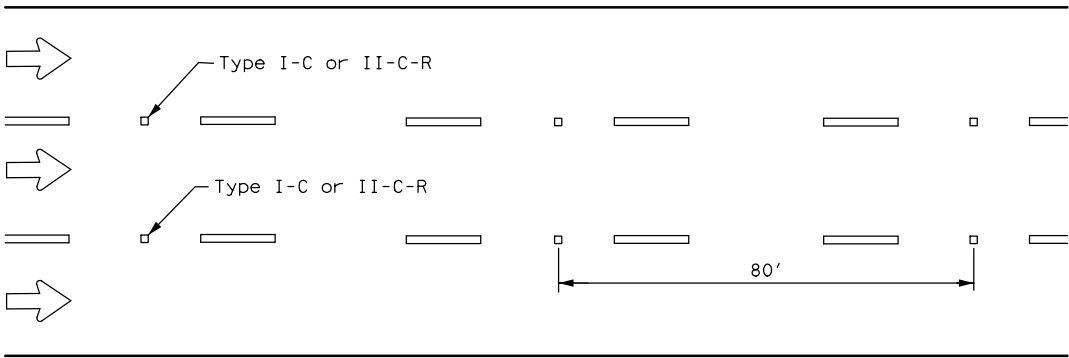
DETAIL "A"

DETAIL "B"

DETAIL "C"



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

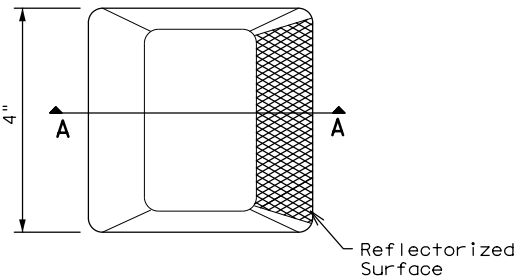


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

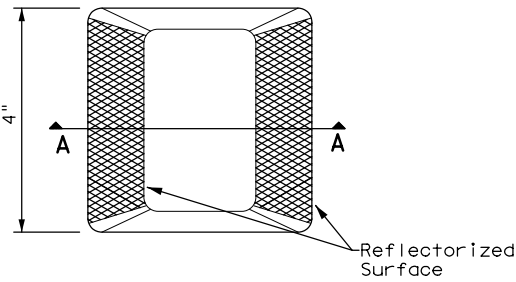
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

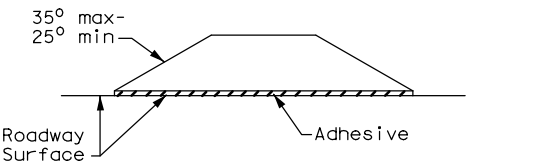
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

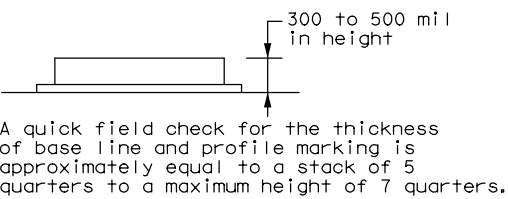


POSITION GUIDANCE USING
RAISED MARKERS
REFLECTORIZED PROFILE
MARKINGS
PM(2) - 22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
4-77 8-00 6-20	DIST	COUNTY	SHEET NO.	58
4-92 2-10 12-22				
5-00 2-12				

GENERAL NOTES

- All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
- On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
- Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

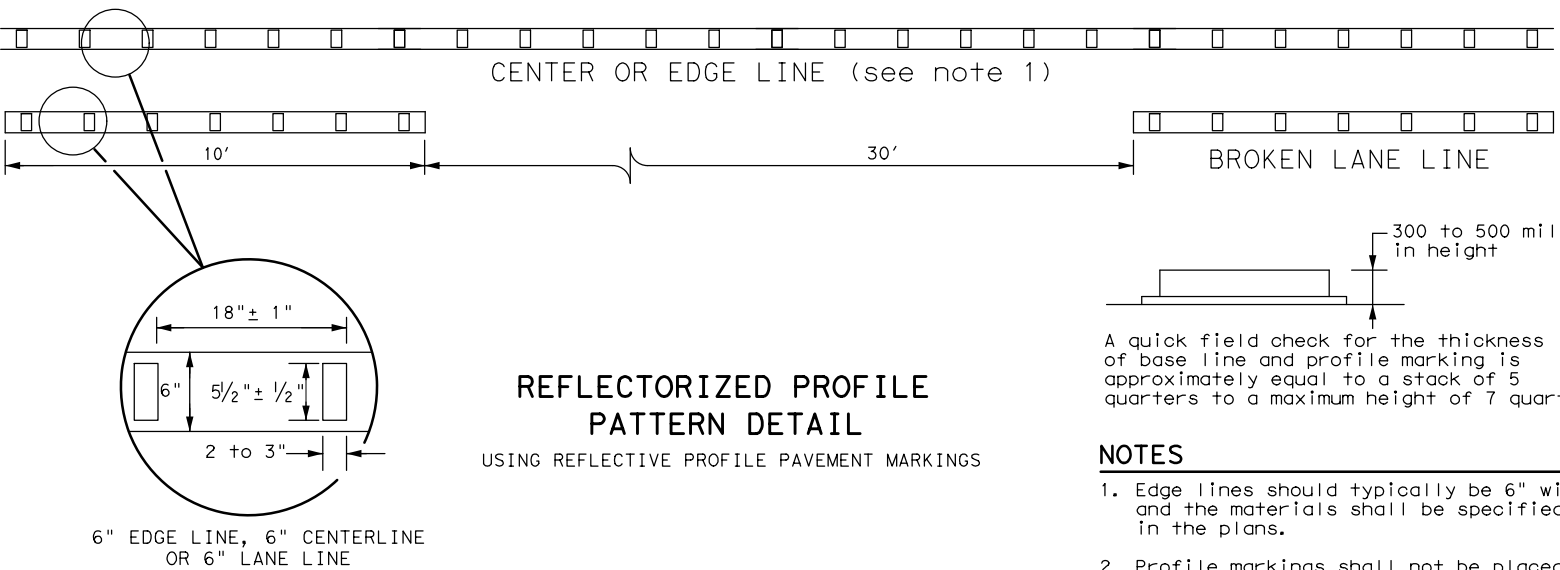


NOTES

- Edge lines should typically be 6" wide and the materials shall be specified in the plans.
- Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

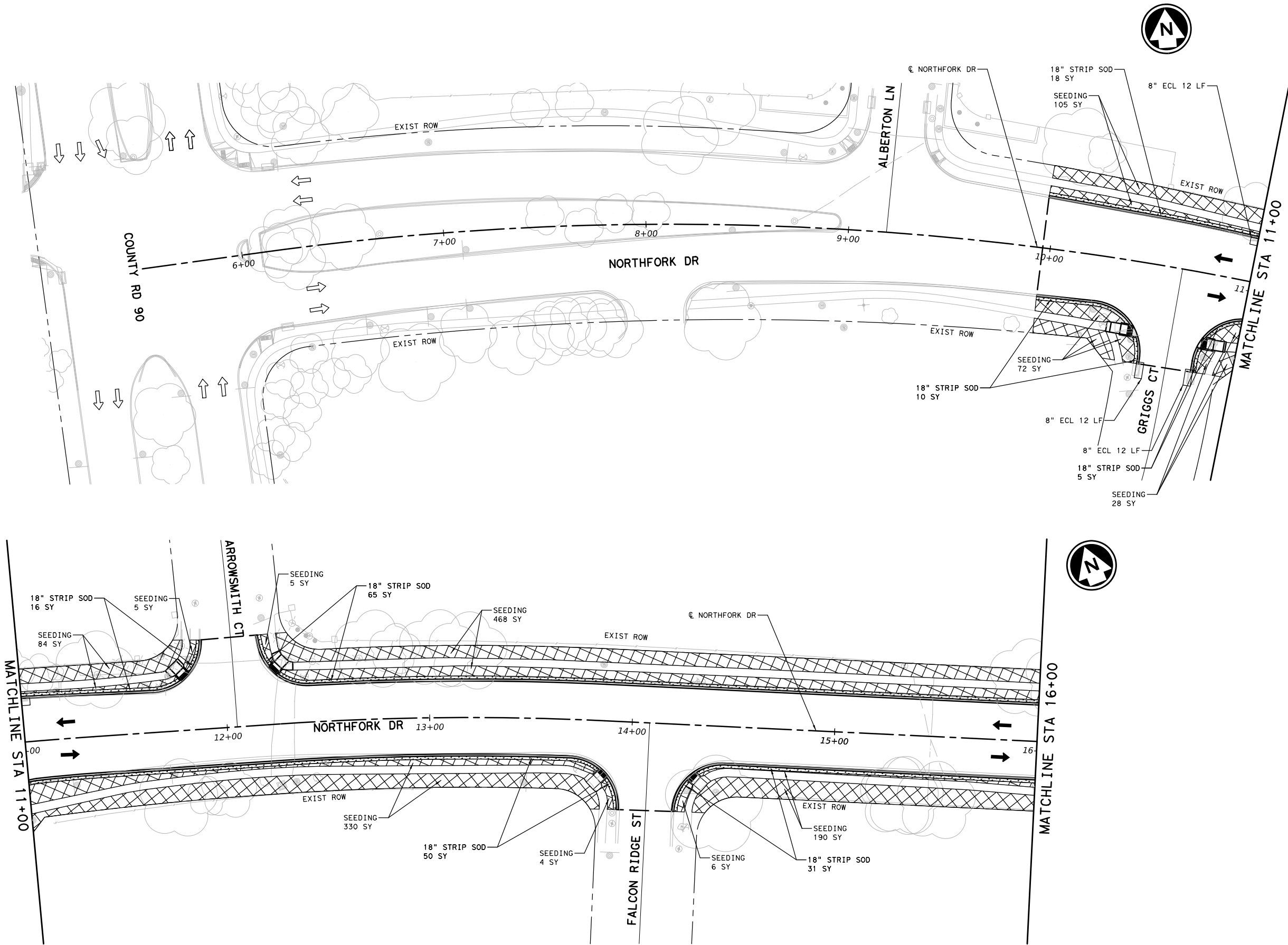
REFLECTORIZED PROFILE
PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



6" EDGE LINE, 6" CENTERLINE
OR 6" LANE LINE

DATE:6/9/2025 8:51:10 AM USER:User PLOTDRIVER: TxDOT_PDF_Gray.plt FILES:J:\BrazoriaCountyEng\2400000235.000_Silverlake Phase II\6.00-CADD\6.03-Drawings\6.03.1_Sheet_Files\RD3\RD3_01_Northfork_01.dgn



LEGEND:

- EROSION CONTROL LOG
- LIMITS OF TEMPORARY SEEDING
- SOD

NOTES:

1. THE CONTRACTOR SHALL USE CONSTRUCTION EXITS TO MINIMIZE DEBRIS ON PAVEMENT. TEMPORARY CONSTRUCTION EXITS ARE TO BE PLACED DURING EACH PHASE FOR EACH DISTURBED AREA. LOCATIONS TO BE SPECIFIED BY THE ENGINEER.

NO.	DATE	REVISION	APPROVED

STATE OF TEXAS
BENJAMIN HART
107379
PROFESSIONAL ENGINEER
6/9/2025

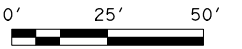
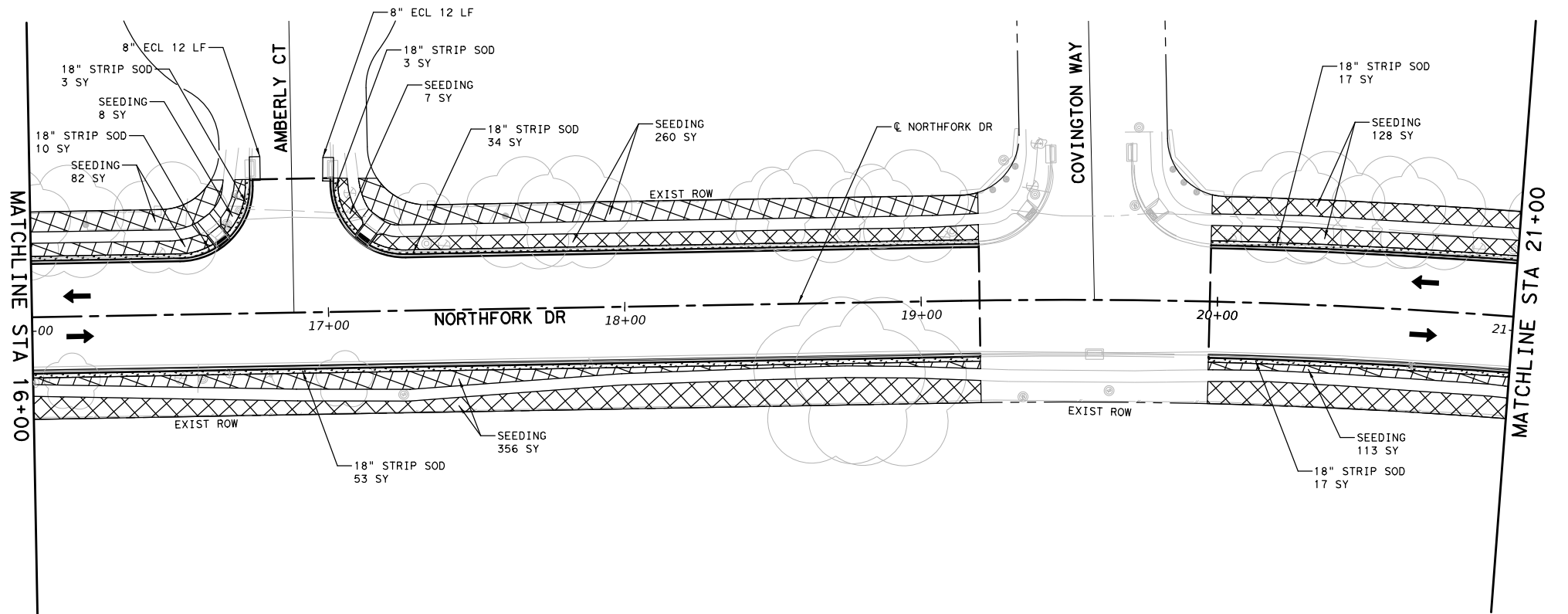
Brazoria County Engineering Department
451 N Velasco, Suite 230
Angleton, Texas 77515
BinkleyBarfield | DCCM Binkley & Barfield, Inc. | TxEng F-257
1710 Seamlst Dr, Houston, TX 77008
713.869.3433 | BinkleyBarfield.DCCM.com

SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
SWP3 LAYOUT

SHEET 1 OF 3

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.	
6		59	
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

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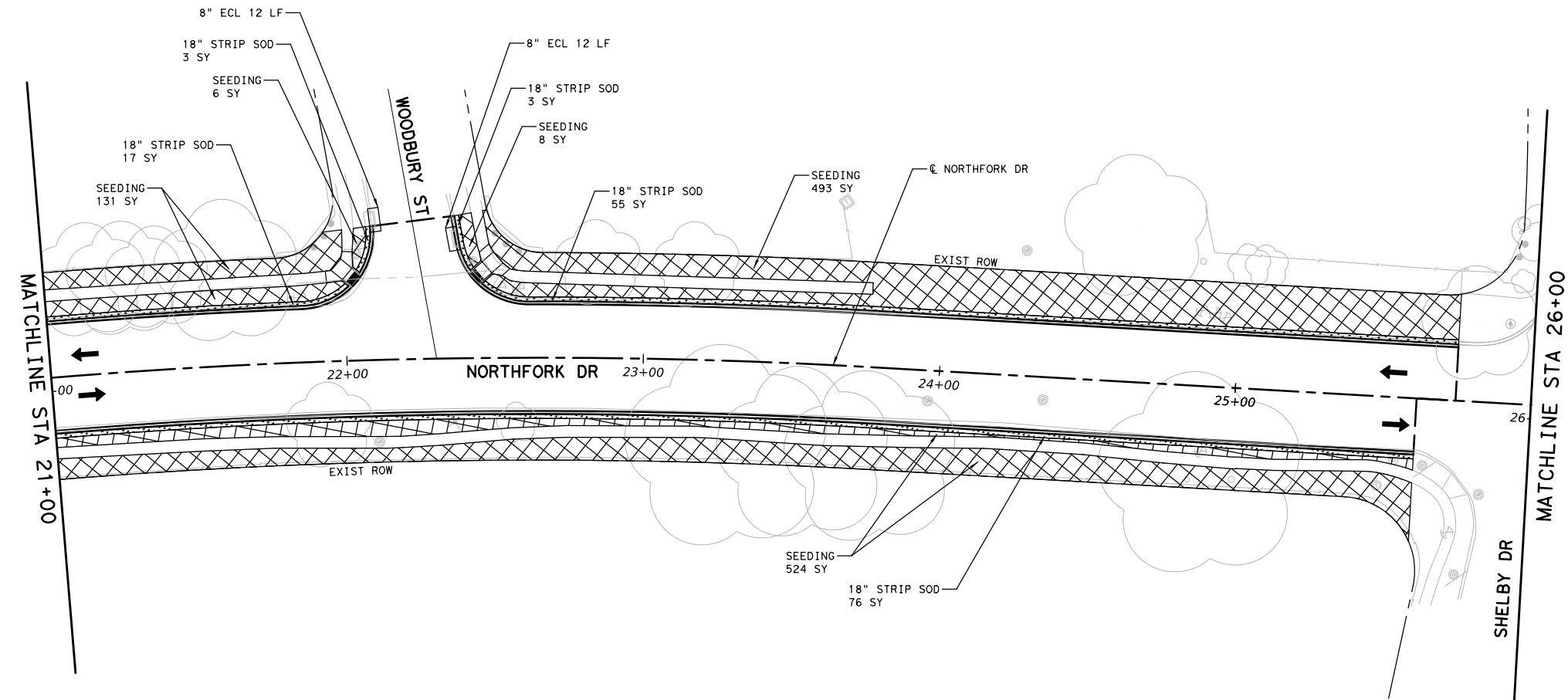


LEGEND:

	EROSION CONTROL LOG
	LIMITS OF TEMPORARY SEEDING
	SOD

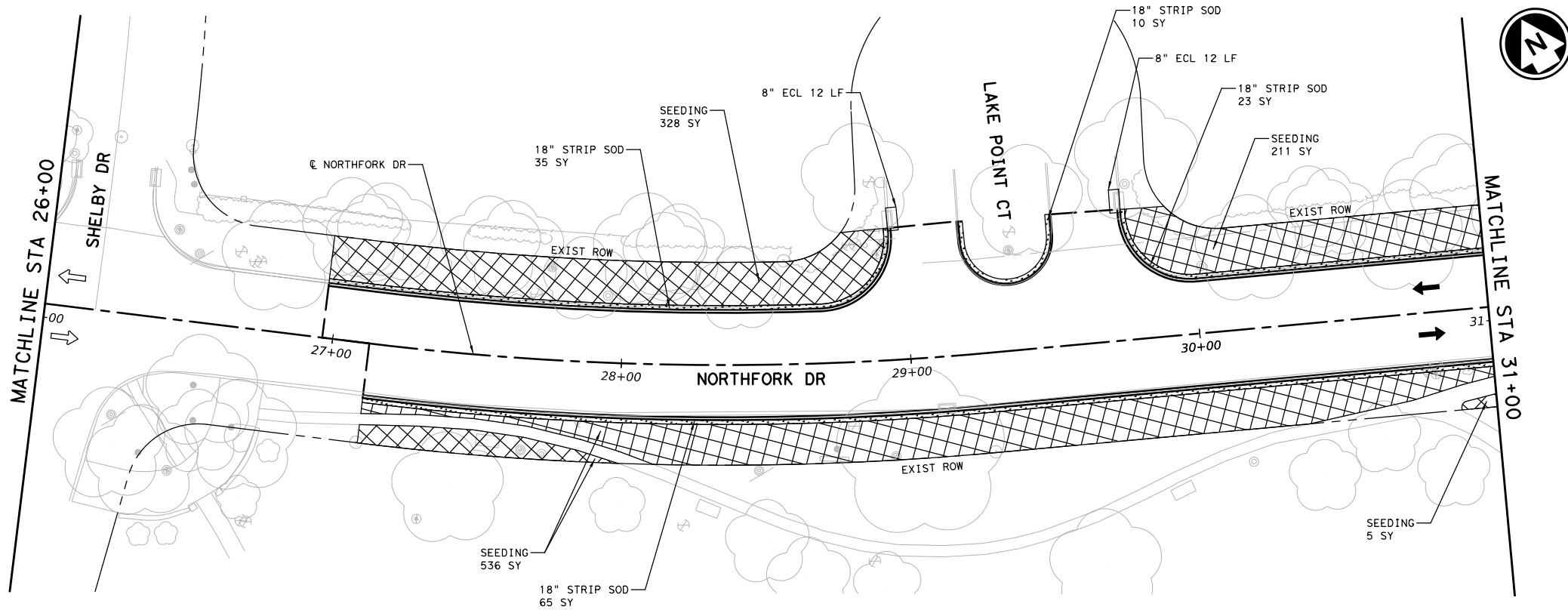
NOTES:

1. THE CONTRACTOR SHALL USE CONSTRUCTION EXITS TO MINIMIZE DEBRIS ON PAVEMENT. TEMPORARY CONSTRUCTION EXITS ARE TO BE PLACED DURING EACH PHASE FOR EACH DISTURBED AREA. LOCATIONS TO BE SPECIFIED BY THE ENGINEER.



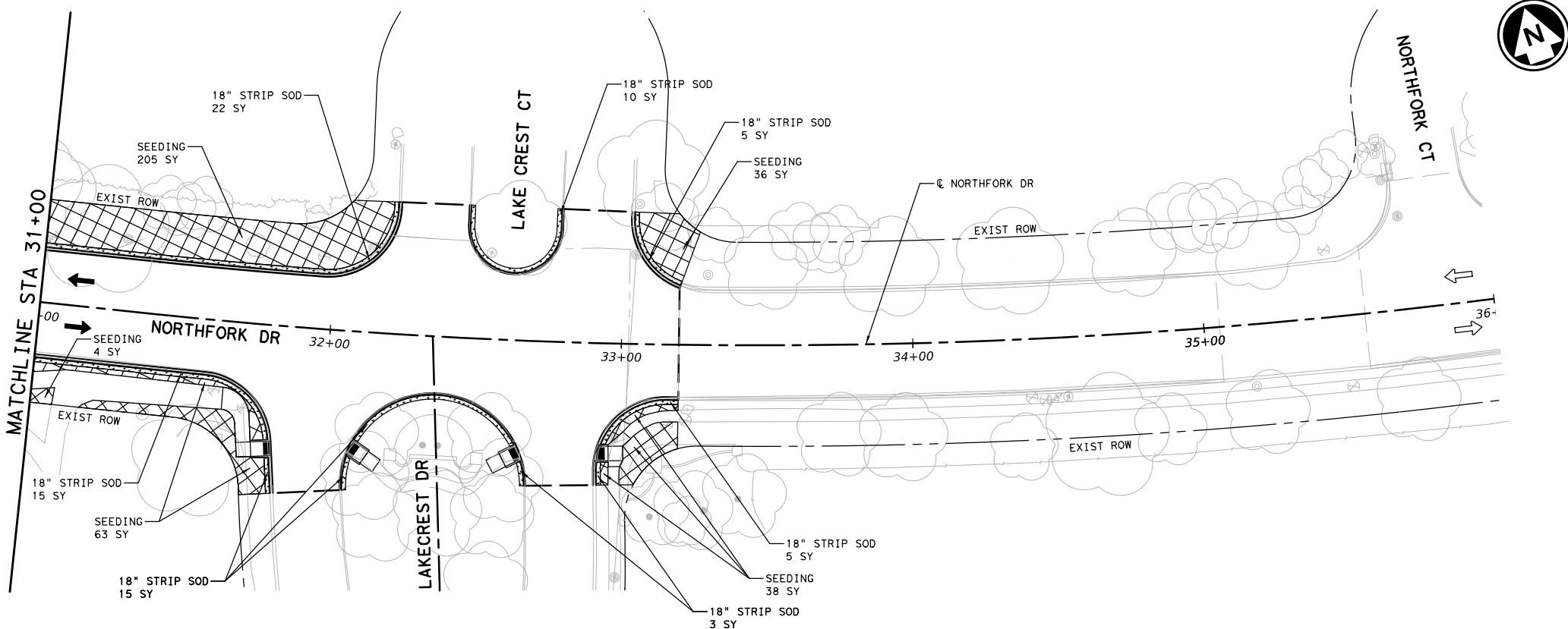
NO.	DATE	REVISION	APPROVED
 6/9/2025			
 Brazoria County Engineering Department 451 N Velasco, Suite 230 Angleton, Texas 77515			
 Binkley & Barfield, Inc. TxEng F-257 1710 Seamlst Dr, Houston, TX 77008 713.869.3433 BinkleyBarfield.DCCM.com			
SILVERLAKE PAVEMENT REPAIRS			
NORTHFORK DR			
SWP3 LAYOUT			
SHEET 2 OF 3			
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			60
STATE	DIST.	COUNTY	
TEXAS	HOUSTON	BRAZORIA	
CONT.	SECT.	JOB	HIGHWAY NO.

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- LEGEND:**
- EROSION CONTROL LOG
 - LIMITS OF TEMPORARY SEEDING
 - SOD

- NOTES:**
- THE CONTRACTOR SHALL USE CONSTRUCTION EXITS TO MINIMIZE DEBRIS ON PAVEMENT. TEMPORARY CONSTRUCTION EXITS ARE TO BE PLACED DURING EACH PHASE FOR EACH DISTURBED AREA. LOCATIONS TO BE SPECIFIED BY THE ENGINEER.



NO.	DATE	REVISION	APPROVED

6/9/2025

Brazoria County Engineering Department
451 N Velasco, Suite 230
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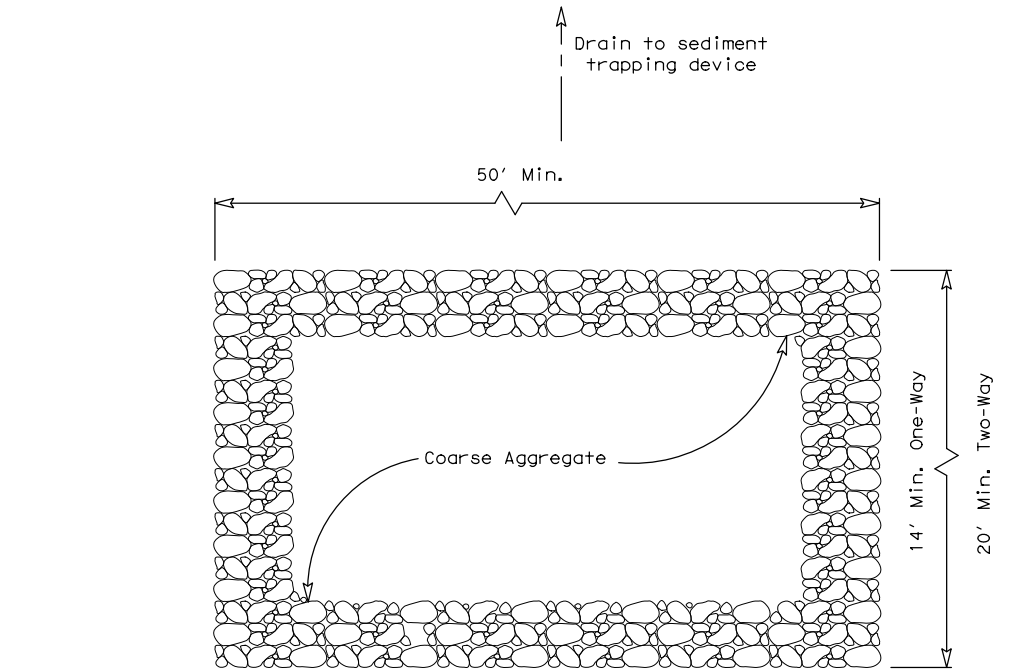
SILVERLAKE PAVEMENT REPAIRS
NORTHFORK DR
SWP3 LAYOUT

SHEET 3 OF 3

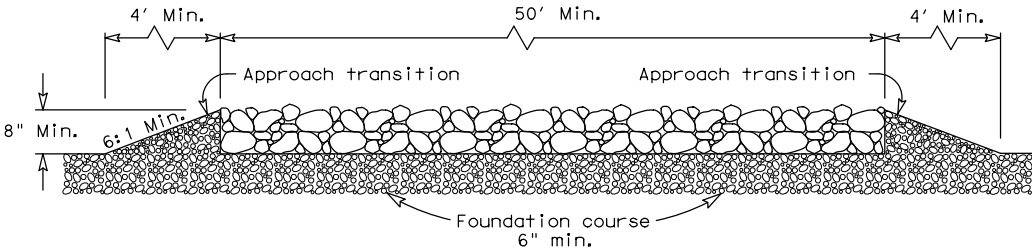
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6		61
STATE	DIST.	COUNTY
TEXAS	HOUSTON	BRAZORIA
CONT.	SECT.	JOB
		HIGHWAY NO.

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PLAN VIEW

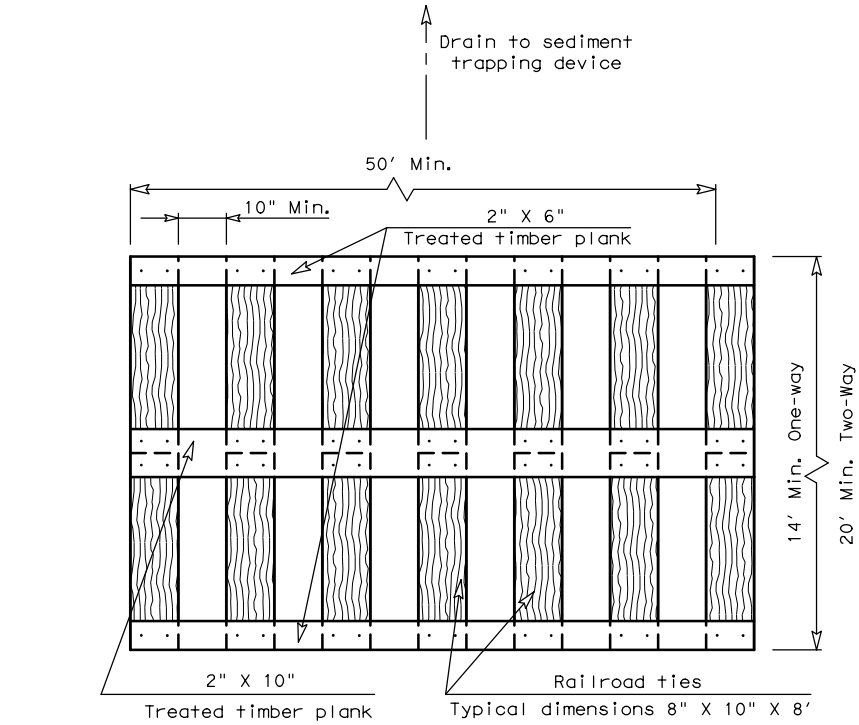


ELEVATION VIEW

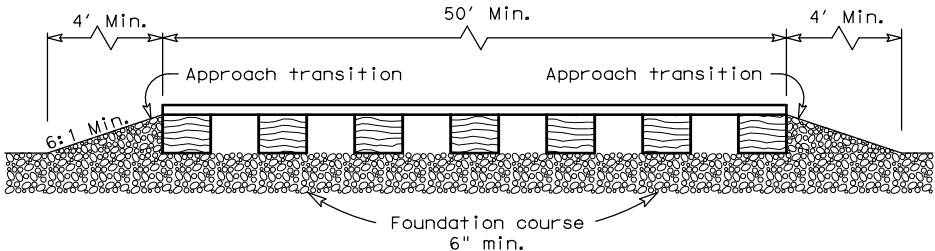
CONSTRUCTION EXIT (TYPE 1)
ROCK CONSTRUCTION (LONG TERM)

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 materials 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.



PLAN VIEW

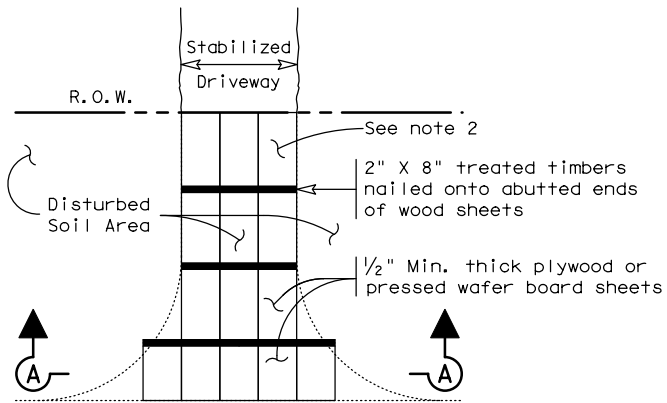


ELEVATION VIEW

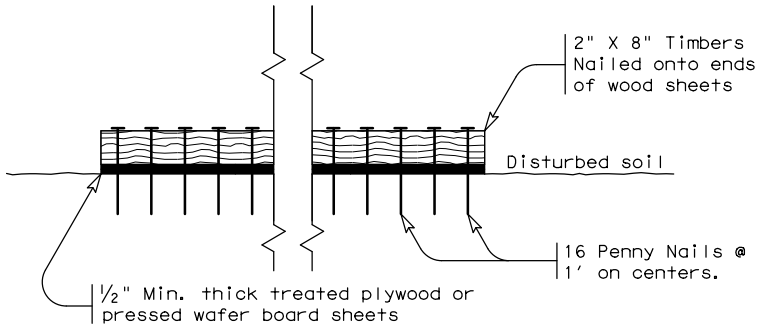
CONSTRUCTION EXIT (TYPE 2)
TIMBER CONSTRUCTION (LONG TERM)

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 1/2" 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.



PLAN VIEW



SECTION A-A
CONSTRUCTION EXIT (TYPE 3)
SHORT TERM

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.



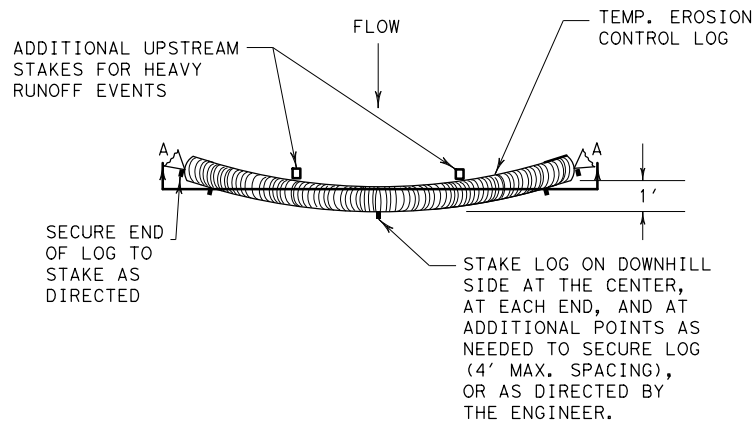
Design
Division
Standard

TEMPORARY EROSION,
SEDIMENT AND WATER
POLLUTION CONTROL MEASURES
CONSTRUCTION EXITS
EC(3)-16

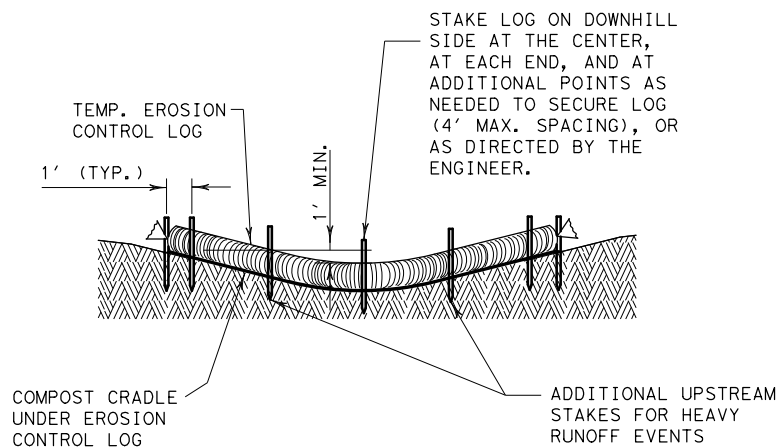
FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST		COUNTY		SHEET NO.
				62

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FILE:



PLAN VIEW



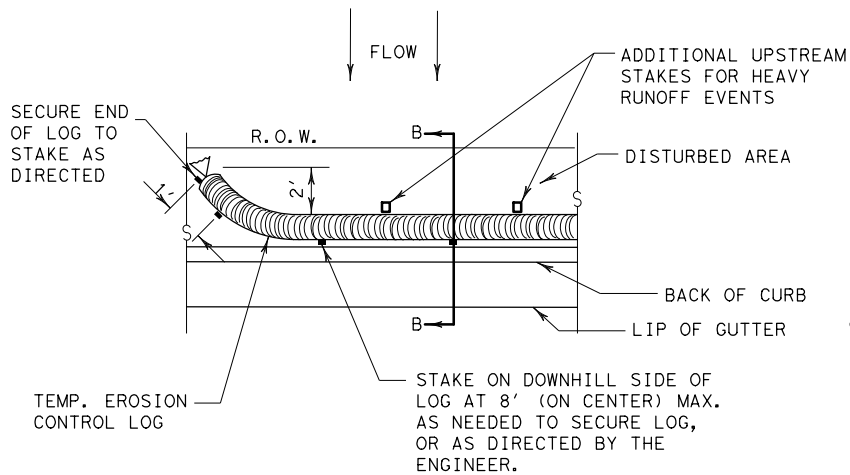
SECTION A-A

EROSION CONTROL LOG DAM

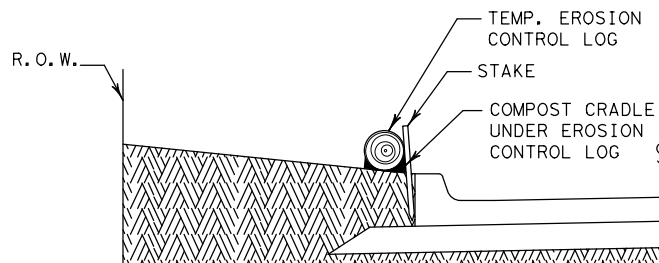
CL-D

LEGEND

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



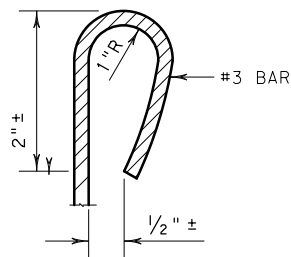
PLAN VIEW



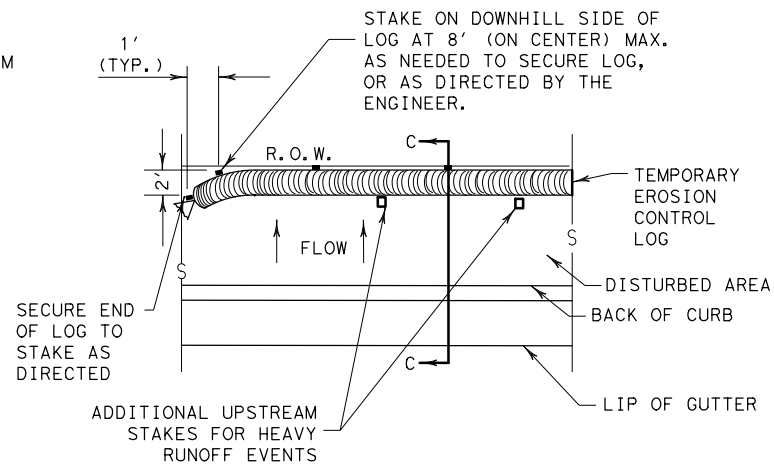
SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

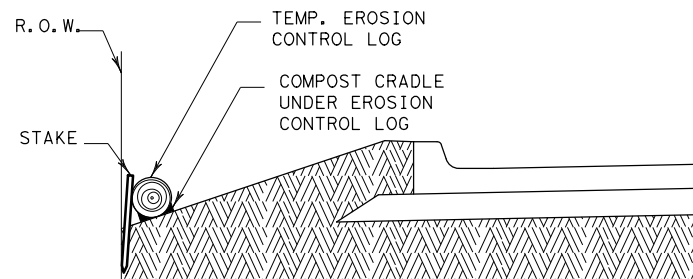
CL-BOC



REBAR STAKE DETAIL



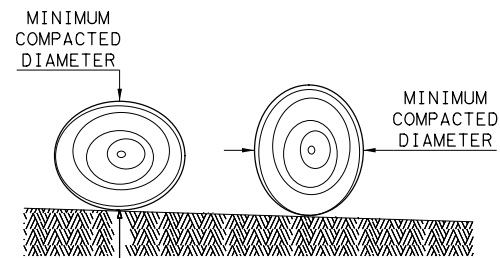
PLAN VIEW



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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
REVISIONS	DIST	COUNTY		SHEET NO.
				63

GENERAL NOTES:

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

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

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

Control logs should be placed in the following locations:

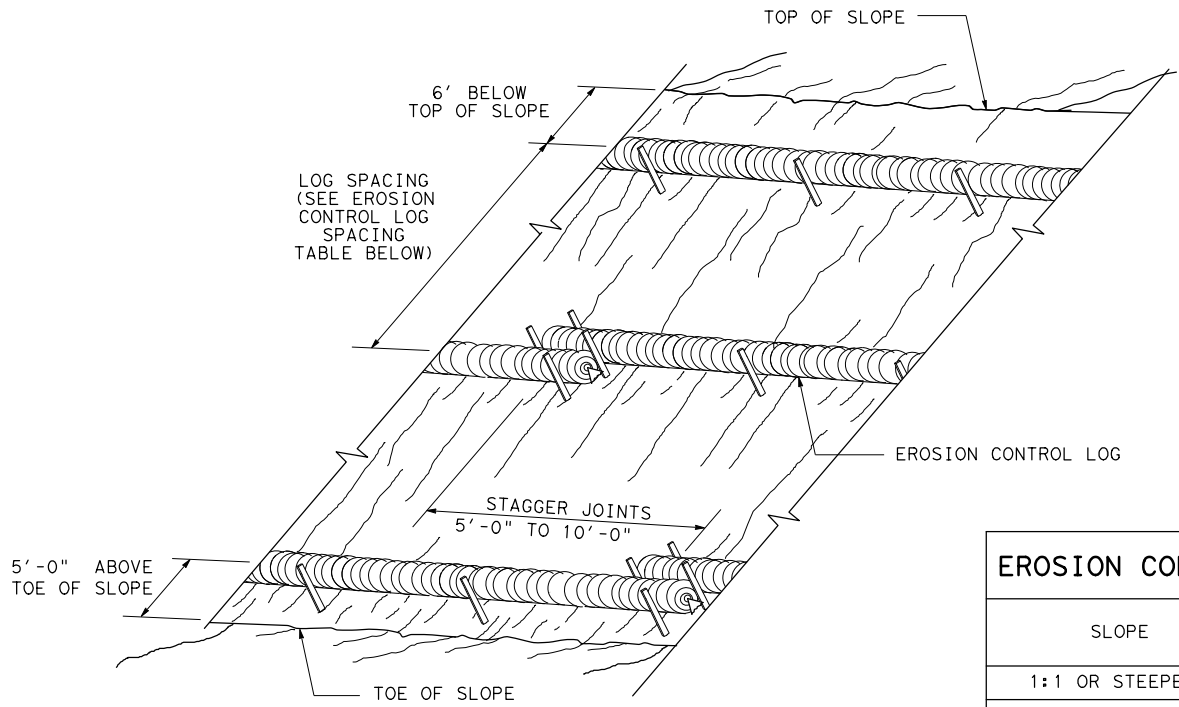
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows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

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

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

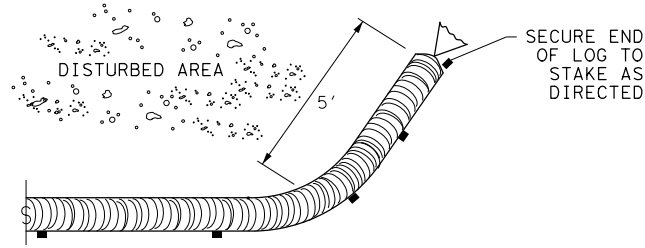
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DATE:
FILE:



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

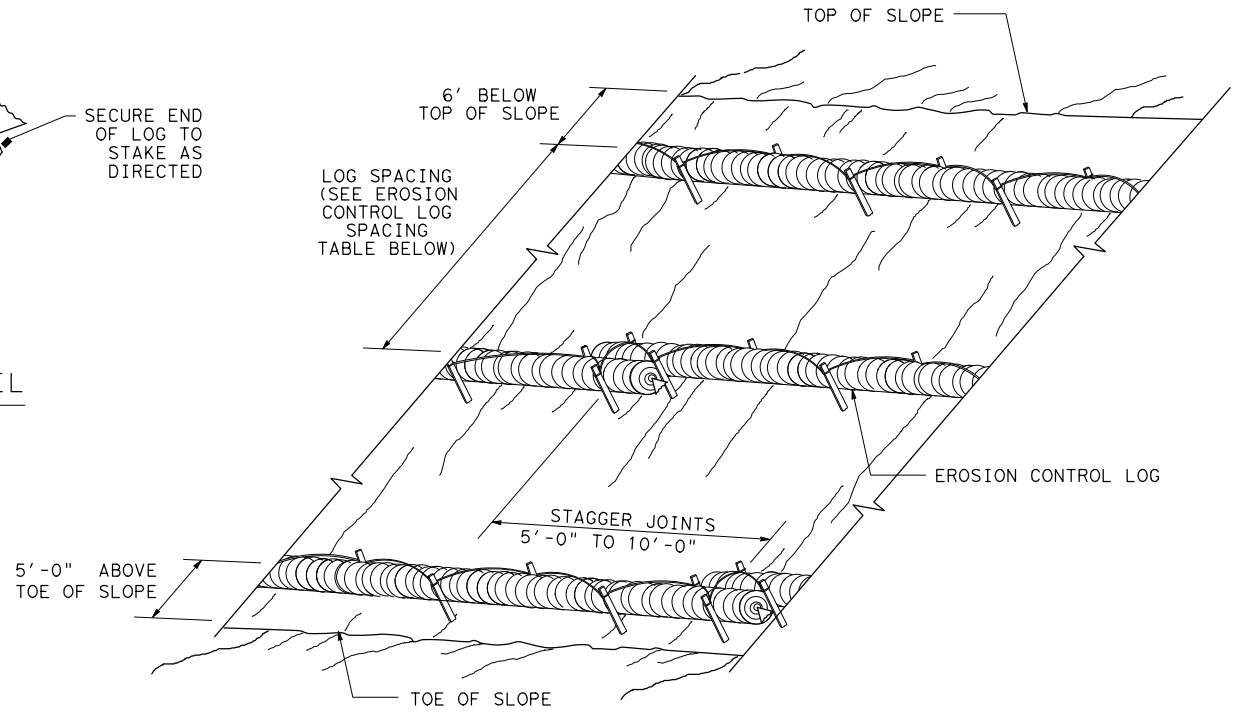
CL-SST



END SECTION RAP DETAIL

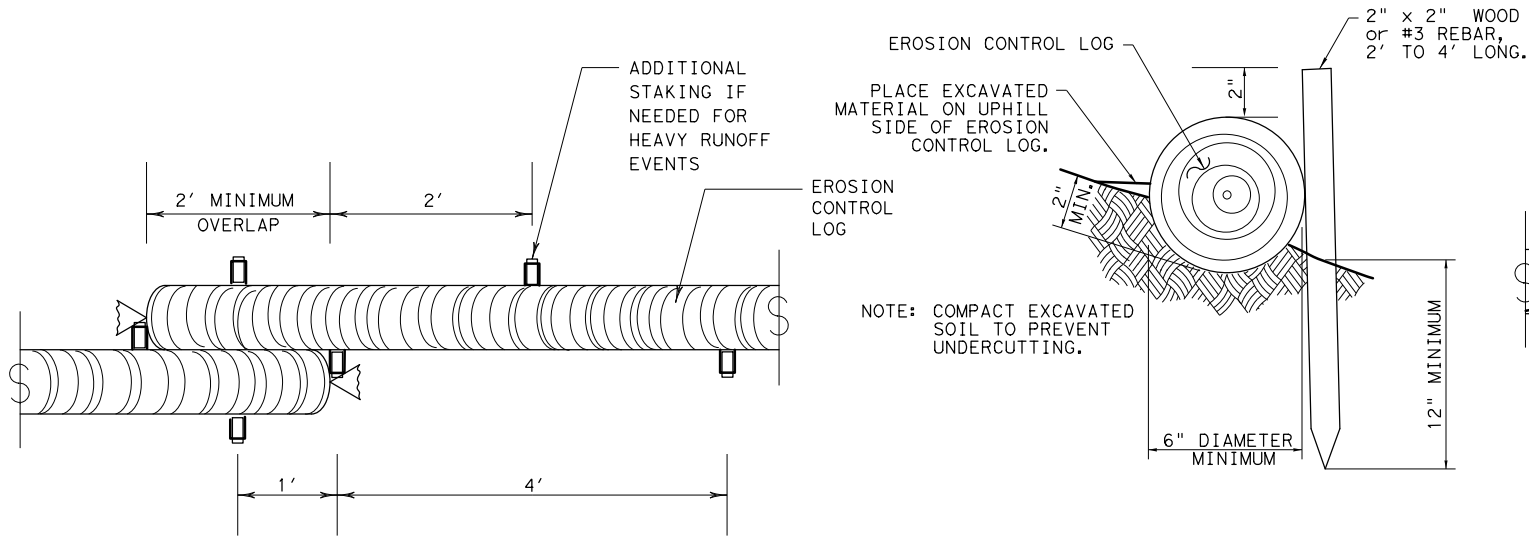
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* 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

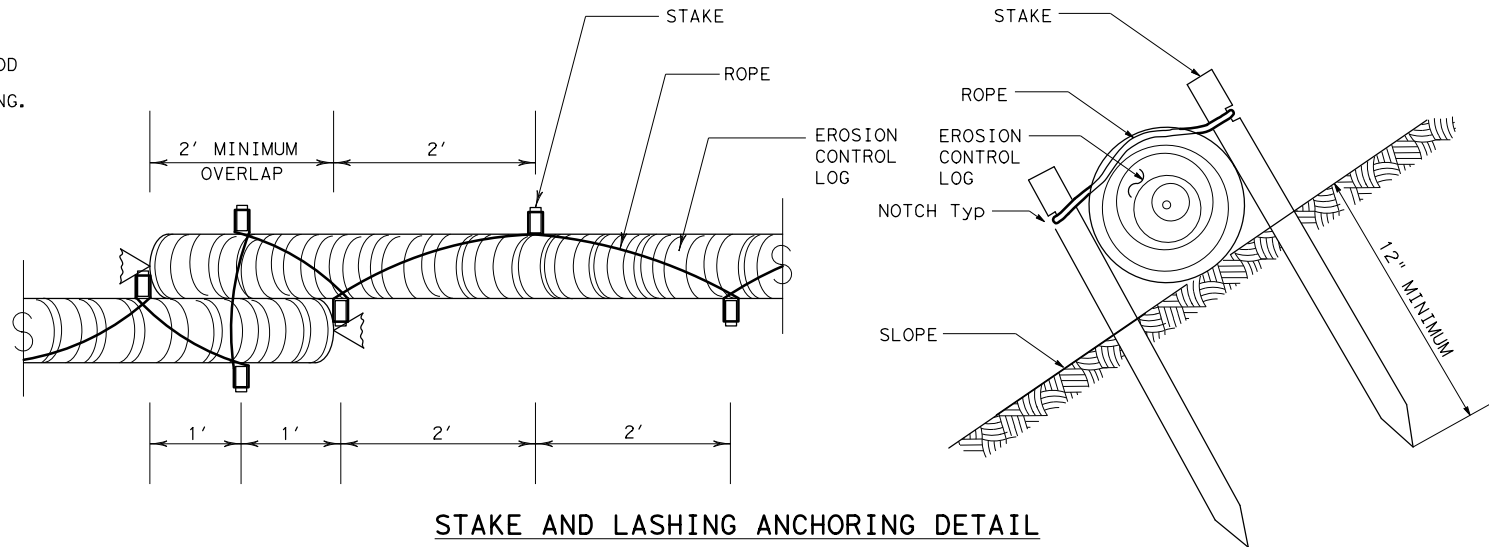
CL-SSL



STAKE AND TRENCHING ANCHORING DETAIL

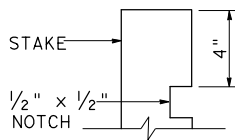
CL-SST

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



STAKE AND LASHING ANCHORING DETAIL

CL-SSL



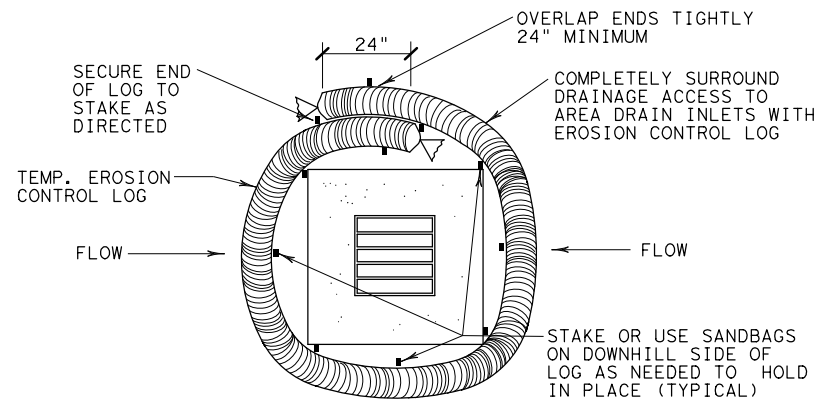
STAKE NOTCH DETAIL

SHEET 2 OF 3

		Design Division Standard	
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES			
EROSION CONTROL LOG			
EC(9) - 16			
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT
© TxDOT: JULY 2016	CONT	SECT	JOB
REVISIONS		DIST	COUNTY
		SHEET NO.	
		64	

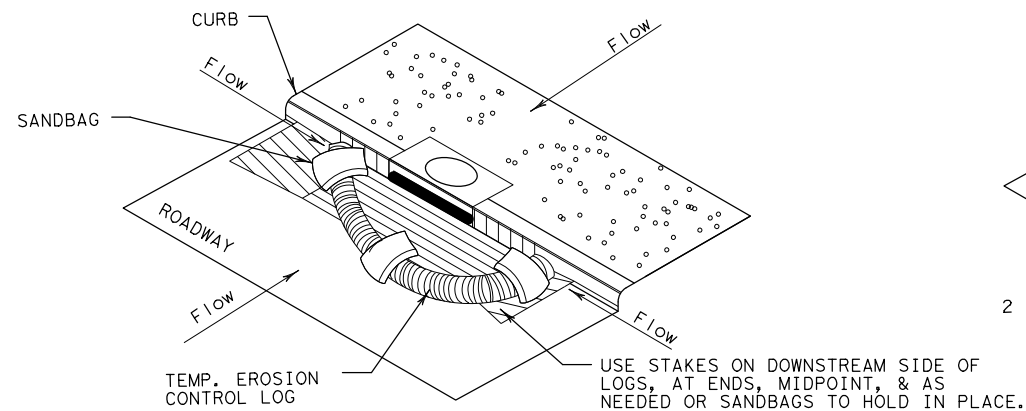
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DATE:
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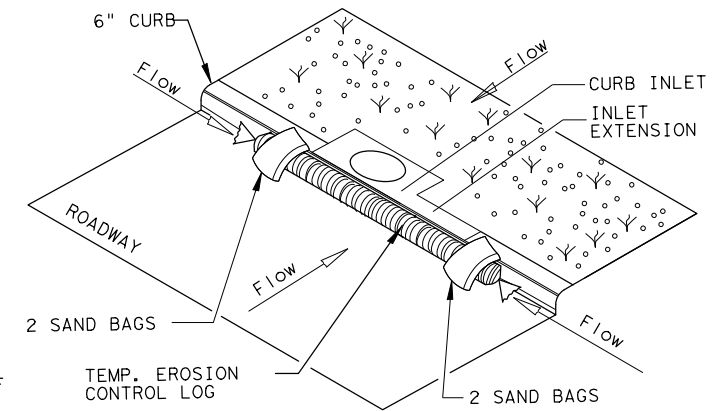
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

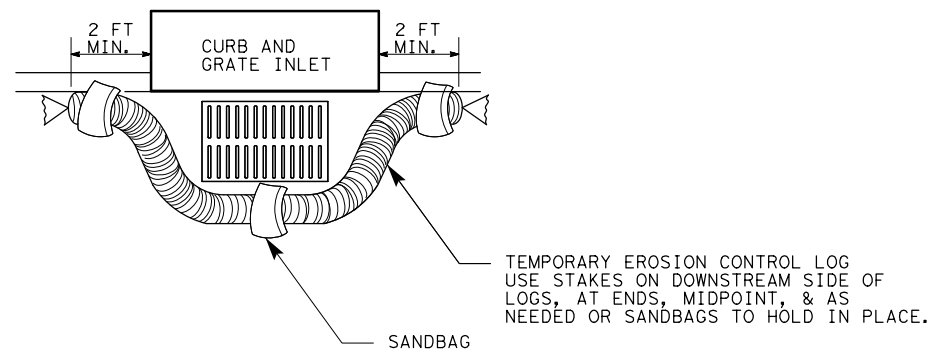
CL-CI



EROSION CONTROL LOG AT CURB INLET

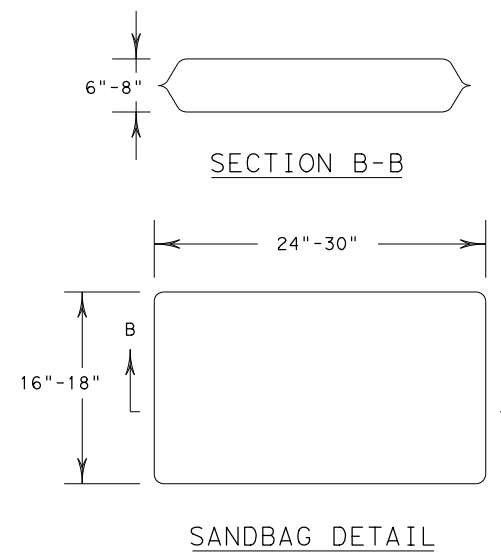
CL-CI

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



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

 <i>Texas Department of Transportation</i>				<i>Design Division Standard</i>	
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		DIST	COUNTY		SHEET NO.
					65

TYPE OF WORK

ITEMS AND REQUIREMENTS FOR EACH TYPE OF WORK

SODDING	PERMANENT SEEDING	TEMPORARY SEEDING	Reference Item 161, 162, 164, 166, 168 of the Texas Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges 2024 for specifications, dimensions, volumes and measurements that are not shown. Use latest Houston District, SpecialProvisions for those items indicated.		
	✓		161-7002 COMPOST MANUF TOPSOIL (4") SY	APPLICATION RATE Item 161.2.1. Compost Manufactured Topsoil (CMT)	Item 161.2. Materials Submit quality control(QC) documentation to the Engineer. Compost producer's STA certification must be dated to meet STA requirements (certification must be within 30 or 90 days per STA requirements). Lab analysis performed by an STA-certified lab must be dated within 30 days before delivery of the compost.
✓			162-7002 BLOCK SODDING SY	GRASS SPECIES Item 162.2. Materials Common Bermuda (Cynodon Dactylon)	Item 162.2.1. Block Sod Use block palletized or roll type sod. REMOVE PLASTIC BACKING FROM ROLL TYPE SOD. Place sod within 48 hours of delivery to site. No exceptions. Place sod with joints alternating on each row to prevent continuous joint lines. Peg sod as needed with wood pegs to hold sod in place. Pegging sod is subsidiary to Item 162.
	✓		164-7016 DRILL SEEDING (OPT1) SY Item 164.1. Description Provide and install seeding as shown on District Standard	PLANTING MONTH SEED MIX March, April, May, June, July, August, September, October Hulled - Bermudagrass (Cynodon dactylon).....40.0 lbs PLS/acre Foxtail Millet (Setaria italica).....34.0 lbs PLS/acre Green Sprangletop (Leptochloa dubia).....4.0 lbs PLS/acre Sideoats Grama (Bouteloua curtipendula).....3.2 lbs PLS/acre Little Bluestem (Schizachyrium scoparium).....1.4 lbs PLS/acre	Item 164.2.1. Seed Provide documentation of PLS (Pure Live Seed) requirements. Item 164.3. Construction Scarify the area to a depth of 4 inches before placing the seed unless otherwise directed. When performing permanent seeding after an established temporary seeding, scarify the seedbed to a depth of 4 inches or mow the area before placement of the permanent seed. Plant the seed and place the straw or hay mulch after the area has been completed to lines and grades as shown on the plans.
	✓		164-7008 BROADCAST SEED (OPT1) SY Item 164.1. Description Provide and install seeding as shown on District Standard	November, December, January, February, Unhulled - Bermudagrass (Cynodon dactylon).....40.0 lbs PLS/acre Oats (Avena sativa).....72.0 lbs PLS/acre Green Sprangletop (Leptochloa dubia).....4.0 lbs PLS/acre Sideoats Grama (Bouteloua curtipendula).....3.2 lbs PLS/acre Little Bluestem (Schizachyrium scoparium).....1.4 lbs PLS/acre	Item 164.3.2. Broadcast Seeding Use broadcast seeding method where site conditions prevent drill seeding method. Distribute the dry seed or dry seed mixture uniformly over the areas shown on the plans using hand or mechanical distribution on top of soil. HYDRO SEEDING NOT ALLOWED.
		✓	164-7015 DRILL SEED (TEMP_WARM_COOL) SY Item 164.1. Description Provide and install seeding as shown on District Standard	PLANTING MONTH SEED MIX March, April, May, June, July, August, September, October Foxtail Millet (Setaria italica).....34.0 lbs PLS/acre	Item 164.3.5. Drill Seeding Plant seed or seed mixture uniformly over the area shown on the plans at a depth of 1/4 to 1/3 inch using a cultipacker(turfgrass) type seeder. Plant seed along the contour of the slopes.
		✓	164-7007 BROADCAST SEED (TEMP_WARM_COOL) SY Item 164.1. Description Provide and install seeding as shown on District Standard	November, December, January, February, Oats (Avena sativa).....72.0 lbs PLS/acre	
	✓	✓	164-7065 STRAW OR HAY MULCH SY	APPLICATION RATE Immediately after planting the seed or seed mixture, apply straw or hay mulch uniformly over the seeded area. Apply straw or hay mulch at 2 tons per acre. Use tacking agent with straw or hay mulch as described on this sheet.	Use straw or hay mulch in conformance with Article 162.2.5. Mulch. Use biodegradable tacking agents only applied at a rate in accordance with manufacturer's recommendations. Use the following products or an approved equal(see note this sheet): Conweb/Contac Guar Gum, Profile Products Corporation, (307) 655-9565, Ramtec/Procol/Viscol Guar Gum, Ramtec Corporation, (800) 366-1180
✓	✓	✓	166-7001 FERTILIZER AC Item 166.2. Materials Use fertilizer as shown in District Standard	APPLICATION RATE Deliver and evenly distribute fertilizer at a rate of 4000 lbs/acre.	Use a NON-CHEMICAL fertilizer which meets all the following criteria: (1) BRAND NAME must be registered with the Texas State Chemist as a commercial fertilizer. (2) Meets USEPA guidelines for unrestricted use. (3) Derived from biological sources such as, but not limited to: sewage sludge, manures, vegetation, etc. (4) In granular form and essentially dust free. Submit proof of registration and nutrient source to Engineer. Use the following products or an approved equal(see note this sheet): Sigma, SIGMA AgriScience, 281-706-8171 Sustanite-standard grade, Automation Nation, Inc., 713-675-4999 Milorganite, MMSD, 800-287-9645
✓	✓	✓	168-7001 VEGETATIVE WATERING TGL	APPLICATION RATE Item 168.3. Construction 6 TGL (6000 gallons/acre per working day) x 20 consecutive working days = 120 TGL (120,000 gallons total/acre)	Begin watering immediately after installation of seed or sod. Replace, fertilize, and water any seed or sod in poor condition due to the failure to apply the specified amount of water within the time allowed at no expense to the Department.

SEQUENCE OF WORK

SODDING	PERMANENT SEEDING	TEMPORARY SEEDING
1. FERTILIZER 2. SCARIFY SOIL (ITEM 162.3) 3. BLOCK SOD 4. VEGETATIVE WATERING	1.FERTILIZER 2.COMPOST MANUFACTURED TOPSOIL (ITEM 161.2.1) 3.BLEND/SCARIFY SOIL (ITEMS 161.3.1 AND 164.3) 4.PERMANENT SEEDING 5.STRAW/HAY MULCH 6.VEGETATIVE WATERING	1.FERTILIZER 2.SCARIFY SOIL (ITEM 164.3) 3.TEMPORARY SEEDING 4.STRAW/HAY MULCH 5.VEGETATIVE WATERING



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HOUSTON DISTRICT

FERTILIZER, SEED, SOD,
STRAW, COMPOST, AND WATER

SHEET 1 OF 1

FSSSCW-15

REVISIONS		FILE:	FED DIV	STATE	PROJECT NUMBER			SHEET
10/2014 UPDATED TO 2014 SPECS	3/2015 MINOR CORRECTIONS		6	TEXAS				66
3/2023 ADDED SHEET ABBREVIATION	6/2024 UPDATED TO 2024 SPECS	ORIGINAL:	DIST	COUNTY	CONTROL	SECT	JOB	HIGHWAY
			12					

PAVEMENT REPAIRS FOR SILVERLAKE PHASE II

TxDOT TECHNICAL SPECIFICATIONS

The following specifications from the Texas Department of Transportation – 2024 Standard, Specifications for Construction and Maintenance of Highways, Streets and Bridges as currently amended shall govern those portions of the work:

An electronic version of TxDOT Specifications can be found at:

<https://www.txdot.gov/business/resources/txdot-specifications/2024-standard-specifications.html>

- 104. Removing Concrete
- 162. Sodding for Erosion Control
- 164. Seeding for Erosion Control
- 166. Fertilizer
- 168. Vegetative Watering
- 260. Lime Treatment (Road-Mixed)
- 360. Concrete Pavement
- 400. Excavation and Backfill for Structures
- 465. Junction Boxes, Manholes, and Inlets
- 479. Adjusting Manholes and Inlets
- 496. Removing Structures
- 500. Mobilization
- 502. Barricades, Signs, and Traffic Handling
- 506. Temporary Erosion, Sedimentation, and Environmental Controls
- 529. Concrete Curb, Gutter, and Combined Curb and Gutter
- 531. Sidewalks
- 644. Small Roadside Sign Assemblies
- 662. Work Zone Pavement Markings
- 666. Retroreflectorized Pavement Markings
- 672. Raised Pavement Markers
- 677. Eliminating Existing Pavement Markings and Markers
- 678. Pavement Surface Preparation for Markings

STATE OF TEXAS §
COUNTY OF BRAZORIA §

I further certify that all bills for labor, materials, and supplies going into the contract for which this Final Estimate is received have been paid in full.

Contractor PM

Notary Public in and for the State of Texas

COUNTY OF BRAZORIA §

I certify that the work has been performed in accordance with all contract and accepted, and all deductions in favor of the County have been made.

ASSISTANT COUNTY ENGINEER

Notary Public in and for the State of Texas

Item 104

Removing Concrete



1. DESCRIPTION

Break, remove, and salvage or dispose of existing hydraulic cement concrete.

2. CONSTRUCTION

Remove existing hydraulic cement concrete from locations shown on the plans. Avoid damaging concrete that will remain in place. Saw-cut and remove the existing concrete to neat lines. Replace any concrete damaged by the Contractor at no expense to the Department. Accept ownership and properly dispose of broken concrete in conformance with federal, state, and local regulations unless otherwise shown on the plans.

3. MEASUREMENT

Removing concrete pavement, floors, porches, patios, riprap, medians, foundations, sidewalks, driveways, and other appurtenances will be measured by the square yard (regardless of thickness) or by the cubic yard of calculated volume, in its original position.

Removing curb, curb and gutter, and concrete traffic barrier will be measured by the foot in its original position. The removal of monolithic concrete curb or dowelled concrete curb will be included in the concrete pavement measurement.

Removing retaining walls will be measured by the square yard along the front face from the top of the wall to the top of the footing.

This is a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

4. PAYMENT

The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Removing Concrete" of the type specified. This price is full compensation for breaking the concrete; loading, hauling, and salvaging or disposing of the material; and equipment, labor, tools, and incidentals.

Removing retaining wall footings will not be measured or paid for directly but will be subsidiary to this item.

Item 162

Sodding for Erosion Control



1. DESCRIPTION

Provide and install grass sod as shown on the plans or as directed.

2. MATERIALS

Use live, growing grass sod of the type specified on the plans. Use grass sod with a healthy root system and dense matted roots throughout the soil of the sod for a minimum thickness of 1 in. Do not use sod from areas where the grass is thinned out. Keep sod material moist from the time it is dug until it is planted. Grass sod with dried roots is unacceptable.

- 2.1. **Block Sod.** Use block, rolled, or solid sod free of noxious weeds, Johnson grass, other grasses, or any matter deleterious to the growth and subsistence of the sod.
- 2.2. **Mulch Sod.** Use mulch sod from an approved source, free of noxious weeds, Johnson grass, other grasses, or any matter deleterious to the growth and subsistence of the sod.
- 2.3. **Fertilizer.** Furnish fertilizer in accordance with Article 166.2., "Materials."
- 2.4. **Water.** Furnish water in accordance with Article 168.2., "Materials."
- 2.5. **Mulch.** Use straw mulch consisting of oat, wheat, or rice straw or hay mulch of either Bermudagrass or prairie grasses. Use straw or hay mulch free of Johnson grass and other noxious and foreign materials. Keep the mulch dry and do not use molded or rotted material.
- 2.6. **Tacking Methods.** Use a tacking agent applied in conformance with the manufacturer's recommendations or by a crimping method on all straw or hay mulch operations. Use tacking agents as approved or as specified on the plans.

3. CONSTRUCTION

Scarify the area to a depth of 4 in. before placing the sod. Plant the sod specified and mulch, if required, after the area has been completed to lines and grades as shown on the plans. Apply fertilizer uniformly over the entire area in accordance with Article 166.3., "Construction," and water in accordance with Article 168.3., "Construction." Plant between the average date of the last freeze in the spring and 6 weeks before the average date for the first freeze in the fall in accordance with the *Texas Almanac* for the project area.

- 3.1. **Sodding Types.**
 - 3.1.1. **Spot Sodding.** Use only Bermudagrass sod. Create furrows parallel to the roadway, approximately 5 in. deep and on 18-in. centers. Sod a continuous row not less than 3 in. wide in the two furrows adjacent to the roadway. Place 3-in. squares of sod on 15-in. centers in the remaining furrows. Place sod so that the root system will be completely covered by the soil. Firm all sides of the sod with the soil without covering the sod with soil.
 - 3.1.2. **Block Sodding.** Place sod over the prepared area. Roll or tamp the sodded area to form a thoroughly compacted, solid mat filling all voids in the sodded area with additional sod. Trim and remove all visible netting and backing materials. Keep sod along edges of curbs, driveways, and walkways trimmed until acceptance.

- 3.1.3. **Mulch Sodding.** Mow sod source to no shorter than 4 in., and rake and remove cuttings. Disk the sod in two directions, cutting the sod to a minimum of 4 in. Excavate the sod material to a depth of no more than 6 in. Keep excavated material moist, or it will be rejected. Distribute the mulch sod uniformly over the area to a depth of 6 in. loose, unless otherwise shown on the plans, and roll using a light roller or other suitable equipment.
- Add or reshape the mulch sod to meet the requirements of Section 162.3.2., "Finishing."
- 3.2. **Finishing.** Smooth and shape the area after planting to conform to the desired cross-sections. Spread any excess soil uniformly over adjacent areas or dispose of the excess soil as directed.
- 3.3. **Straw or Hay Mulch.** Apply straw or hay mulch for "Spot Sodding" and "Mulch Sodding" uniformly over the area as shown on the plans. Apply straw or hay mulch in accordance with Section 164.3.6., "Straw or Hay Mulching." Apply tack in accordance with Section 162.2.6., "Tacking Methods."

4. MEASUREMENT

"Spot Sodding," "Block Sodding," and "Straw or Hay Mulch" will be measured by the square yard in its final position. "Mulch Sodding" will be measured by the square yard in its final position or by the cubic yard in vehicles as delivered to the planting site.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Spot Sodding," "Block Sodding," "Straw or Hay Mulch," or "Mulch Sodding." This price is full compensation for securing a source, excavation, loading, hauling, placing, rolling, finishing, furnishing materials, equipment, labor, tools, supplies, and incidentals.

Fertilizer will not be paid for directly but will be subsidiary to this Item.

Water for irrigating the sodded area, when specified, will be paid for in accordance with Item 168, "Vegetative Watering." Water for maintaining and preparing the sod before planting will not be paid for directly but will be subsidiary to this Item.

Item 164

Seeding for Erosion Control



1. DESCRIPTION

Prepare the surface and provide and distribute temporary or permanent seeding for erosion control as shown on the plans or as directed.

2. MATERIALS

- 2.1. **Seed.** Provide seed from the previous season's crop meeting the requirements of the Texas Seed Law, including the testing and labeling for pure live seed (PLS = Purity × Germination). Furnish seed of the designated species in labeled unopened bags or containers to the Engineer before planting. Use within 12 mo. from the date of the analysis. When Buffalograss is specified, use seed that is treated with potassium nitrate (KNO_3) to overcome dormancy.

Use Tables 1–5 to determine the appropriate seeding mix and rates as shown on the plans. Include flower seeding mix in accordance with Table 5 with seeding mix shown in Table 1 and Table 2.

If a grass plant species is not available by the producers, the other grass plant species in the seeding mix will be increased proportionally by the percentage of the missing plant grass species. If a flower plant species is not available by the producers, the other flower species in the seeding mix will be increased proportionally by the percentage of the missing flower species. Substitute species and rates require approval of the Engineer before being incorporated into the seeding mx. The rates listed in the tables are for drill seeding. All other methods of placing seed will require a 25% increase in rate.

Table 1
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
1 (Paris)	Hooded Windmillgrass (Burnet)	15% 0.3	Hooded Windmillgrass (Burnet)	15% 0.3
	White Tridens (Guadalupe)	20% 0.4	Sand Dropseed (Taylor)	15% 0.3
	Little Bluestem (Coastal Plains)	20% 2.0	Little Bluestem (Coastal Plains)	20% 2.0
	Florida Paspalum (Harrison)	15% 2.25	Florida Paspalum (Harrison)	15% 2.25
	Sideoats Grama (Haskell)	05% 0.5	Splitbeard Bluestem (Neches)	10% 1.0
	Splitbeard Bluestem (Neches)	05% 0.5	Sand Lovegrass (Mason)	10% 0.4
	Sand Dropseed (Taylor)	05% 0.1	Green Sprangletop (Van Horn)	15% 0.6
	Canada Wildrye (Lavaca)	10% 2.0		
	Green Sprangletop (Van Horn)	05% 0.2		
2 (Fort Worth)	Hooded Windmillgrass (Burnet)	15% 0.3	Sand Dropseed (Taylor)	15% 0.3
	White Tridens (Guadalupe)	15% 0.3	Sideoats Grama (Haskell)	15% 1.5
	Sideoats Grama (Haskell)	10% 1.0	Little Bluestem (OK Select)	15% 1.05
	Little Bluestem (OK Select)	10% 0.7	Hairy Grama (Chaparral)	15% 0.6
	Buffalograss (Texoka)	10% 1.5	Green Sprangletop (Van Horn)	10% 0.2
	Silver Bluestem (Santiago)	10% 0.4	Hooded Windmillgrass (Burnet)	10% 0.2
	Green Sprangletop (Van Horn)	10% 0.4	Shortspike Windmillgrass (Welder)	10% 0.2
	Sand Dropseed (Taylor)	10% 0.2	Silver Bluestem (Santiago)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0		

Table 1 (continued)
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
3 (Wichita Falls)	Sideoats Grama (Haskell)	15% 1.5	Hooded Windmillgrass (Burnet)	10% 0.2
	Green Sprangletop (Van Horn)	10% 0.4	Sand Dropseed (Taylor)	15% 0.3
	Hooded Windmillgrass (Burnet)	10% 0.2	Green Sprangletop (Van Horn)	15% 0.6
	White Tridens (Guadalupe)	10% 0.2	Sideoats Grama (Haskell)	10% 1.0
	Little Bluestem (OK Select)	15% 1.05	Little Bluestem (OK Select)	10% 0.7
	Silver Bluestem (Santiago)	10% 0.4	Silver Bluestem (Santiago)	10% 0.4
	Buffalograss (Texoka)	10% 1.5	Hairy Grama (Chaparral)	10% 0.4
	Blue Grama (Hachita)	05% 0.2	Arizona Cottontop (La Salle)	10% 0.4
	Sand Dropseed (Taylor)	05% 0.1	Blue Grama (Hachita)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0		
4 (Amarillo)	Sideoats Grama (Haskell)	15% 1.5	Green Sprangletop (Van Horn)	15% 0.6
	Silver Bluestem (Santiago)	15% 0.6	Sideoats Grama (Haskell)	10% 1.0
	Buffalograss (Texoka)	15% 2.25	Sand Dropseed (Taylor)	10% 0.2
	Green Sprangletop (Van Horn)	10% 0.4	Silver Bluestem (Santiago)	10% 0.4
	Blue Grama (Hachita)	15% 0.6	Little Bluestem (OK Select)	15% 1.05
	Hooded Windmillgrass (Burnet)	05% 0.1	Arizona Cottontop (La Salle)	10% 0.4
	White Tridens (Guadalupe)	10% 0.2	Blue Grama (Hachita)	10% 0.4
	Western Wheatgrass (Barton)	10% 3.0	Sand Lovegrass (Mason)	10% 0.3
	Canada Wildrye (Lavaca)	05% 1.0	Hooded Windmillgrass (Burnet)	10% 0.2
5 (Lubbock)	Sideoats Grama (Haskell)	15% 1.5	Green Sprangletop (Van Horn)	15% 0.6
	Blue Grama (Hachita)	15% 0.6	Blue Grama (Hachita)	15% 0.6
	Silver Bluestem (Santiago)	15% 0.6	Sideoats Grama (Haskell)	10% 1.0
	Buffalograss (Texoka)	10% 1.5	Little Bluestem (OK Select)	10% 0.7
	White Tridens (Guadalupe)	10% 0.2	Hooded Windmillgrass (Burnet)	10% 0.2
	Green Sprangletop (Van Horn)	10% 0.4	Sand Dropseed (Taylor)	10% 0.2
	Hooded Windmillgrass (Burnet)	05% 0.1	Silver Bluestem (Santiago)	10% 0.4
	Galleta Grass (Viva)	05% 0.3	Arizona Cottontop (La Salle)	10% 0.4
	Western Wheatgrass (Barton)	10% 3.0	Sand Lovegrass (Mason)	10% 0.3
	Canada Wildrye (Lavaca)	05% 1.0		
6 (Odessa)	Whiplash Pappusgrass (Permian)	15% 0.9	Sand Dropseed (Taylor)	15% 0.3
	Green Sprangletop (Van Horn)	10% 0.4	Green Sprangletop (Van Horn)	10% 0.4
	Silver Bluestem (Santiago)	15% 0.6	Sideoats Grama (Brewster)	15% 1.5
	Sideoats Grama (Brewster)	10% 1.0	Whiplash Pappusgrass (Permian)	10% 0.6
	Sand Dropseed (Taylor)	10% 0.2	Hooded Windmillgrass (Burnet)	10% 0.2
	Alkali Sacaton (Saltalk)	10% 0.2	Blue Grama (Hachita)	10% 0.4
	Arizona Cottontop (La Salle)	10% 0.4	Hairy Grama (Chaparral)	10% 0.4
	Blue Grama (Hachita)	10% 0.4	Sand Lovegrass (Mason)	10% 0.3
	Galleta Grass (Viva)	10% 0.6	Little Bluestem (Pastura)	05% 0.5
			Galleta Grass (Viva)	05% 0.3
7 (San Angelo)	Sideoats Grama (Brewster)	15% 1.5	Sand Dropseed (Taylor)	15% 0.3
	Hooded Windmillgrass (Burnet)	10% 0.2	Green Sprangletop (Van Horn)	15% 0.6
	Silver Bluestem (Santiago)	10% 0.4	Hooded Windmillgrass (Burnet)	15% 0.3
	Sand Dropseed (Taylor)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	White Tridens (Guadalupe)	10% 0.2	Hairy Grama (Chaparral)	10% 0.4
	Whiplash Pappusgrass (Permian)	15% 0.9	Sand Lovegrass (Mason)	10% 0.3
	Texas Grama (Atascosa)	05% 0.5	Sideoats Grama (Brewster)	10% 1.0
	Green Sprangletop (Van Horn)	10% 0.4	Little Bluestem (OK Select)	10% 0.7
	Little Bluestem (OK Select)	05% 0.35	Whiplash Pappusgrass (Permian)	05% 0.3
	Blue Grama (Hachita)	05% 0.2		
	Galleta Grass (Viva)	05% 0.3		

Table 1 (continued)
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
8 (Abilene)	Sideoats Grama (Haskell)	10% 1.0	Sand Dropseed (Taylor)	15% 0.3
	Hooded Windmillgrass (Burnet)	10% 0.2	Green Sprangletop (Van Horn)	10% 0.4
	Buffalograss (Texoka)	10% 1.5	Hooded Windmillgrass (Burnet)	15% 0.3
	Blue Grama (Hachita)	10% 0.4	Silver Bluestem (Santiago)	10% 0.4
	Silver Bluestem (Santiago)	10% 0.4	Little Bluestem (OK Select)	10% 0.7
	White Tridens (Guadalupe)	15% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Little Bluestem (OK Select)	10% 0.7	Hairy Grama (Chaparral)	10% 0.4
	Green Sprangletop (Van Horn)	10% 0.4	Sand Lovegrass (Mason)	10% 0.3
	Whiplash Pappusgrass (Permian)	10% 0.6	Arizona Cottontop (La Salle)	10% 0.4
	Galleta Grass (Viva)	10% 0.6		
9 (Waco)	Sideoats Grama (Haskell)	15% 1.5	Hooded Windmillgrass (Burnet)	15% 0.3
	White Tridens (Guadalupe)	15% 0.3	Shortspike Windmillgrass (Welder)	10% 0.2
	Hooded Windmillgrass (Burnet)	10% 0.2	Hairy Grama (Chaparral)	10% 0.4
	Little Bluestem (OK Select)	10% 0.7	Sand Dropseed (Taylor)	15% 0.3
	Buffalograss (Texoka)	10% 1.6	Sideoats Grama (Haskell)	10% 1.0
	Halls Panicum (Oso)	05% 0.1	Little Bluestem (OK Select)	10% 0.7
	Silver Bluestem (Santiago)	10% 0.4	Green Sprangletop (Van Horn)	10% 0.4
	Sand Dropseed (Taylor)	05% 0.1	Texas Grama (Atascosa)	05% 0.15
	Green Sprangletop (Van Horn)	10% 0.4	Silver Bluestem (Santiago)	10% 0.4
	Canada Wildrye (Lavaca)	05% 1.0	Canada Wildrye (Lavaca)	05% 1.0
	Texas Grama (Atascosa)	05% 0.5		
10 (Tyler)	Hooded Windmillgrass (Burnet)	15% 0.3	Hooded Windmillgrass (Burnet)	15% 0.3
	White Tridens (Guadalupe)	15% 0.3	Sand Dropseed (Taylor)	10% 0.2
	Sand Dropseed (Taylor)	05% 0.1	Little Bluestem (Coastal Plains)	20% 2.0
	Little Bluestem (Coastal Plains)	20% 2.0	Florida Paspalum (Harrison)	15% 2.25
	Florida Paspalum (Harrison)	15% 2.25	Splitbeard Bluestem (Neches)	10% 1.0
	Splitbeard Bluestem (Neches)	10% 1.0	Green Sprangletop (Van Horn)	05% 0.2
	Green Sprangletop (Van Horn)	05% 0.2	Sand Lovegrass (Mason)	10% 0.4
	Sideoats Grama (Haskell)	05% 0.5	Red Lovegrass (Duval)	10% 0.2
	Canada Wildrye (Lavaca)	10% 2.0	Hairy Grama (Chaparral)	05% 0.2
11 (Lufkin)	Hooded Windmillgrass (Burnet)	15% 0.3	Hooded Windmillgrass (Burnet)	15% 0.3
	White Tridens (Guadalupe)	15% 0.3	Sand Dropseed (Taylor)	10% 0.2
	Little Bluestem (Coastal Plains)	20% 2.0	Little Bluestem (Coastal Plains)	20% 2.0
	Florida Paspalum (Harrison)	15% 2.25	Florida Paspalum (Harrison)	15% 2.25
	Green Sprangletop (Van Horn)	05% 0.2	Splitbeard Bluestem (Neches)	10% 1.0
	Sideoats Grama (Haskell)	05% 0.5	Green Sprangletop (Van Horn)	05% 0.2
	Splitbeard Bluestem (Neches)	10% 1.0	Red Lovegrass (Duval)	10% 0.2
	Sand Dropseed (Taylor)	05% 0.1	Sand Lovegrass (Mason)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0	Hairy Grama (Chaparral)	05% 0.2
12 (Houston)	White Tridens (Guadalupe)	10% 0.2	Hooded Windmillgrass (Mariah)	15% 0.3
	Hooded Windmillgrass (Mariah)	10% 0.2	Sand Dropseed (Nueces)	15% 0.3
	Shortspike Windmillgrass (Welder)	15% 0.3	Shortspike Windmillgrass (Welder)	10% 0.2
	Little Bluestem (Coastal Plains)	15% 1.5	Little Bluestem (Coastal Plains)	15% 1.5
	Florida Paspalum (Harrison)	15% 2.25	Red Lovegrass (Duval)	10% 0.2
	Red Lovegrass (Duval)	05% 0.1	Florida Paspalum (Harrison)	15% 2.25
	Halls Panicum (Oso)	10% 0.2	Splitbeard Bluestem (Neches)	10% 1.0
	Splitbeard Bluestem (Neches)	05% 0.5	Hairy Grama (Chaparral)	05% 0.2
	Sand Dropseed (Nueces)	05% 0.1	Green Sprangletop (Van Horn)	05% 0.2
	Canada Wildrye (Lavaca)	10% 2.0		

Table 1 (continued)
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
13 (Yoakum)	White Tridens (Guadalupe)	15% 0.3	Hairy Grama (Chaparral)	15% 0.6
	Shortspike Windmillgrass (Welder)	15% 0.3	Hooded Windmillgrass (Mariah)	15% 0.3
	Halls Panicum (Oso)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Sand Dropseed (Nueces)	10% 0.2
	Little Bluestem (Coastal Plains)	15% 1.5	Little Bluestem (Carrizo)	10% 1.5
	Sideoats Grama (South Texas)	05% 0.75	Red Lovegrass (Duval)	10% 0.2
	Texas Grama (Atascosa)	10% 1.0	Slender Grama (Dilley)	10% 1.0
	Hooded Windmillgrass (Mariah)	05% 0.1	Plains Bristlegrass (Catarina)	10% 0.4
	Sand Dropseed (Nueces)	05% 0.1	Green Sprangletop (Van Horn)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0		
14 (Austin)	Hooded Windmillgrass (Burnet)	20% 0.4	Hairy Grama (Chaparral)	15% 0.6
	White Tridens (Guadalupe)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Sideoats Grama (South Texas)	10% 1.5	Hooded Windmillgrass (Burnet)	10% 0.2
	Shortspike Windmillgrass (Welder)	10% 0.2	Red Lovegrass (Duval)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Sand Dropseed (Nueces)	10% 0.2
	Silver Bluestem (Santiago)	10% 0.4	Little Bluestem (Carrizo)	10% 1.5
	Little Bluestem (OK Select)	10% 0.7	Sideoats Grama (South Texas)	10% 1.5
	Halls Panicum (Oso)	05% 0.1	Silver Bluestem (Santiago)	10% 0.4
	Texas Grama (Atascosa)	05% 0.5	Plains Bristlegrass (Catarina)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0	Arizona Cottontop (La Salle)	05% 0.2
15 (San Antonio)	Sideoats Grama (South Texas)	15% 2.25	Slender Grama (Dilley)	15% 1.5
	White Tridens (Guadalupe)	15% 0.3	Hairy Grama (Chaparral)	15% 0.6
	Shortspike Windmillgrass (Welder)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Halls Panicum (Oso)	10% 0.2	Hooded Windmillgrass (Mariah)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Red Lovegrass (Duval)	10% 0.2
	False Rhodes Grass (Kinney)	05% 0.1	Sand Dropseed (Nueces)	10% 0.2
	Hooded Windmillgrass (Mariah)	05% 0.1	Pink Pappusgrass (Maverick)	05% 0.3
	Pink Pappusgrass (Maverick)	10% 0.6	Little Bluestem (Carrizo)	10% 1.5
	Texas Grama (Atascosa)	05% 0.5	Arizona Cottontop (La Salle)	05% 0.2
	Multiflower False Rhodes Grass (Hidalgo)	10% 0.2	Multiflower False Rhodes Grass (Hidalgo)	05% 0.1
	Arizona Cottontop (La Salle)	05% 0.2	Plains Bristlegrass (Catarina)	05% 0.2
16 (Corpus Christi)	Shortspike Windmillgrass (Welder)	15% 0.3	Slender Grama (Dilley)	15% 1.5
	Pink Pappusgrass (Maverick)	10% 0.6	Hairy Grama (Chaparral)	15% 0.6
	Halls Panicum (Oso)	10% 0.2	Hooded Windmillgrass (Mariah)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Red Lovegrass (Duval)	10% 0.2
	White Tridens (Guadalupe)	10% 0.2	Sand Dropseed (Nueces)	10% 0.2
	Multiflower False Rhodes Grass (Hidalgo)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Hooded Windmillgrass (Mariah)	10% 0.2	Pink Pappusgrass (Maverick)	10% 0.6
	Arizona Cottontop (La Salle)	05% 0.2	Multiflower False Rhodes Grass (Hidalgo)	10% 0.2
	Sand Dropseed (Nueces)	05% 0.1	Arizona Cottontop (La Salle)	05% 0.2
	Sideoats Grama (South Texas)	10% 1.5	Little Bluestem (Carrizo)	05% 0.75
	Texas Grama (Atascosa)	05% 0.5		
17 (Bryan)	White Tridens (Guadalupe)	15% 0.3	Sand Dropseed (Taylor)	10% 0.2
	Hooded Windmillgrass (Burnet)	15% 0.3	Shortspike Windmillgrass (Welder)	10% 0.2
	Little Bluestem (Coastal Plains)	15% 1.5	Little Bluestem (Coastal Plains)	15% 1.5
	Florida Paspalum (Harrison)	15% 2.25	Green Sprangletop (Van Horn)	05% 0.2
	Shortspike Windmillgrass (Welder)	10% 0.2	Florida Paspalum (Harrison)	15% 2.25
	Splitbeard Bluestem (Neches)	05% 0.5	Splitbeard Bluestem (Neches)	10% 1.0
	Green Sprangletop (Van Horn)	05% 0.2	Hooded Windmillgrass (Burnet)	15% 0.3
	Halls Panicum (Oso)	05% 0.1	Red Lovegrass (Duval)	10% 0.2
	Sand Dropseed (Taylor)	05% 0.1	Hairy Grama (Chaparral)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0		

Table 1 (continued)
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
18 (Dallas)	Sideoats Grama (Haskell)	15% 1.5	Shortspike Windmillgrass (Welder)	10% 0.2
	Hooded Windmillgrass (Burnet)	15% 0.3	Hairy Grama (Chaparral)	15% 0.6
	White Tridens (Guadalupe)	15% 0.3	Sand Dropseed (Taylor)	10% 0.2
	Little Bluestem (OK Select)	15% 1.05	Little Bluestem (OK Select)	15% 1.05
	Buffalograss (Texoka)	10% 1.5	Sideoats Grama (Haskell)	10% 1.0
	Silver Bluestem (Santiago)	05% 0.2	Green Sprangletop (Van Horn)	10% 0.4
	Green Sprangletop (Van Horn)	05% 0.2	Hooded Windmillgrass (Burnet)	10% 0.2
	Shortspike Windmillgrass (Welder)	05% 0.1	Sand Lovegrass (Mason)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0	Silver Bluestem (Santiago)	10% 0.4
	Sand Dropseed (Taylor)	05% 0.1		
19 (Atlanta)	White Tridens (Guadalupe)	15% 0.3	Hooded Windmillgrass (Burnet)	15% 0.3
	Hooded Windmillgrass (Burnet)	15% 0.3	Sand Dropseed (Taylor)	10% 0.2
	Little Bluestem (Coastal Plains)	20% 2.0	Little Bluestem (Coastal Plains)	20% 2.0
	Florida Paspalum (Harrison)	15% 2.25	Florida Paspalum (Harrison)	15% 2.25
	Sideoats Grama (Haskell)	10% 1.0	Splitbeard Bluestem (Neches)	10% 1.0
	Splitbeard Bluestem (Neches)	05% 0.5	Sand Lovegrass (Mason)	10% 0.4
	Green Sprangletop (Van Horn)	05% 0.2	Red Lovegrass (Duval)	10% 0.2
	Sand Dropseed (Taylor)	05% 0.1	Hairy Grama (Chaparral)	10% 0.4
	Canada Wildrye (Lavaca)	10% 2.0		
20 (Beaumont)	White Tridens (Guadalupe)	10% 0.2	Hooded Windmillgrass (Mariah)	15% 0.3
	Hooded Windmillgrass (Mariah)	10% 0.2	Sand Dropseed (Nueces)	15% 0.3
	Shortspike Windmillgrass (Welder)	15% 0.3	Shortspike Windmillgrass (Welder)	10% 0.2
	Little Bluestem (Coastal Plains)	15% 1.5	Little Bluestem (Coastal Plains)	15% 1.5
	Florida Paspalum (Harrison)	15% 2.25	Red Lovegrass (Duval)	10% 0.2
	Red Lovegrass (Duval)	05% 0.1	Florida Paspalum (Harrison)	15% 2.25
	Halls Panicum (Oso)	10% 0.2	Splitbeard Bluestem (Neches)	10% 1.0
	Splitbeard Bluestem (Neches)	05% 0.5	Hairy Grama (Chaparral)	05% 0.2
	Sand Dropseed (Nueces)	05% 0.1	Green Sprangletop (Van Horn)	05% 0.2
	Canada Wildrye (Lavaca)	10% 2.0		
21 (Pharr)	Shortspike Windmillgrass (Welder)	10% 0.2	Slender Grama (Dilley)	10% 1.0
	Halls Panicum (Oso)	10% 0.2	Hairy Grama (Chaparral)	10% 0.4
	White Tridens (Guadalupe)	10% 0.2	Shortspike Windmillgrass (Welder)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Red Lovegrass (Duval)	10% 0.2
	Pink Pappusgrass (Maverick)	10% 0.6	Sand Dropseed (Nueces)	10% 0.2
	Texas Grama (Atascosa)	10% 1.0	Hooded Windmillgrass (Mariah)	10% 0.2
	Multiflower False Rhodes Grass (Hidalgo)	05% 0.1	Pink Pappusgrass (Maverick)	10% 0.6
	Hooded Windmillgrass (Mariah)	10% 0.2	Whiplash Pappusgrass (Webb)	10% 0.6
	Arizona Cottontop (La Salle)	10% 0.4	Multiflower False Rhodes Grass (Hidalgo)	10% 0.2
	Sand Dropseed (Nueces)	05% 0.1	Arizona Cottontop (La Salle)	10% 0.4
	Whiplash Pappusgrass (Webb)	10% 0.6		
22 (Laredo)	Sideoats Grama (South Texas)	15% 2.25	Slender Grama (Dilley)	15% 1.5
	Pink Pappusgrass (Maverick)	10% 0.6	Hairy Grama (Chaparral)	15% 0.6
	Halls Panicum (Oso)	10% 0.2	Hooded Windmillgrass (Mariah)	10% 0.2
	Plains Bristlegrass (Catarina Blend)	10% 0.6	Red Lovegrass (Duval)	10% 0.2
	White Tridens (Guadalupe)	10% 0.2	Sand Dropseed (Nueces)	10% 0.2
	Whiplash Pappusgrass (Webb)	10% 0.6	Pink Pappusgrass (Maverick)	10% 0.6
	Shortspike Windmillgrass (Welder)	05% 0.1	Arizona Cottontop (La Salle)	10% 0.4
	Texas Grama (Atascosa)	10% 1.0	Little Bluestem (Carrizo)	05% 0.75
	False Rhodes Grass (Kinney)	10% 0.2	Sideoats Grama (South Texas)	10% 1.5
	Hooded Windmillgrass (Mariah)	10% 0.2	Shortspike Windmillgrass (Welder)	05% 0.1

Table 1 (continued)
Permanent Rural Seeding Mix

District	Clay Soils		Sandy Soils	
	Species, Percent, and Rate (lb. PLS per acre)		Species, Percent, and Rate (lb. PLS per acre)	
23 (Brownwood)	Sideoats Grama (Haskell)	15% 1.5	Green Sprangletop (Van Horn)	15% 0.6
	Hooded Windmillgrass (Burnet)	15% 0.3	Sand Dropseed (Taylor)	15% 0.3
	White Tridens (Guadalupe)	15% 0.3	Sideoats Grama (Haskell)	10% 1.0
	Texas Grama (Atascosa)	10% 1.0	Little Bluestem (OK Select)	15% 1.05
	Little Bluestem (OK Select)	10% 0.7	Silver Bluestem (Santiago)	10% 0.4
	Buffalograss (Texoka)	10% 1.5	Hooded Windmillgrass (Burnet)	10% 0.2
	Silver Bluestem (Santiago)	10% 0.4	Shortspike Windmillgrass (Welder)	10% 0.2
	Shortspike Windmillgrass (Welder)	05% 0.1	Hairy Grama (Chaparral)	10% 0.4
	Sand Dropseed (Taylor)	05% 0.1	Sand Lovegrass (Mason)	05% 0.2
	Green Sprangletop (Van Horn)	05% 0.2		
24 (El Paso)	Green Sprangletop (Van Horn)	10% 0.4	Sand Dropseed (Taylor)	20% 0.4
	Sideoats Grama (Brewster)	10% 1.0	Sideoats Grama (Brewster)	15% 1.5
	Whiplash Pappusgrass (Permian)	10% 0.6	Green Sprangletop (Van Horn)	15% 0.6
	Silver Bluestem (Santiago)	10% 0.4	Hooded Windmillgrass (Burnet)	10% 0.2
	Blue Grama (Hachita)	10% 0.4	Blue Grama (Hachita)	10% 0.4
	Galleta Grass (Viva)	10% 0.6	Hairy Grama (Chaparral)	05% 0.2
	Alkali Sacaton (Saltalk)	10% 0.2	Spike Dropseed (Potter)	10% 0.1
	Arizona Cottontop (La Salle)	10% 0.4	Little Bluestem (Pastura)	05% 0.5
	Plains Bristlegrass (Catarina Blend)	10% 0.4	Galleta grass (Viva)	10% 0.6
	False Rhodes Grass (Kinney)	10% 0.2		
25 (Childress)	Sideoats Grama (Haskell)	15% 1.5	Sideoats Grama (Haskell)	15% 1.5
	Hooded Windmillgrass (Burnet)	15% 0.3	Green Sprangletop (Van Horn)	10% 0.4
	Blue Grama (Hachita)	10% 0.4	Sand Dropseed (Taylor)	10% 0.2
	Buffalograss (Texoka)	10% 1.5	Hooded Windmillgrass (Burnet)	10% 0.2
	Galleta Grass (Viva)	10% 0.6	Arizona Cottontop (La Salle)	10% 0.4
	Silver Bluestem (Santiago)	15% 0.6	Blue Grama (Hachita)	10% 0.4
	White Tridens (Guadalupe)	10% 0.2	Little Bluestem (OK select)	10% 1.0
	Green Sprangletop (Van Horn)	05% 0.2	Galleta Grass (Viva)	10% 0.6
	Western Wheatgrass (Barton)	05% 1.5	Sand Lovegrass (Mason)	05% 0.15
	Canada Wildrye (Lavaca)	05% 1.0	Canada Wildrye (Lavaca)	10% 2.0

Table 2
Permanent Urban Seeding Mix

District	Clay Soils		Sandy Soils	
	Species and Rates (lb. PLS per acre)		Species and Rates (lb. PLS per acre)	
1 (Paris)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		
2 (Fort Worth)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	3.6	Sideoats Grama (El Reno)	3.6
	Bermudagrass	2.4	Bermudagrass	2.1
	Buffalograss (Texoka)	1.6	Sand Dropseed (Borden Co.)	0.3
3 (Wichita Falls)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	4.5	Sideoats Grama (El Reno)	3.6
	Bermudagrass	1.8	Bermudagrass	1.8
	Buffalograss (Texoka)	1.6	Sand Dropseed (Borden Co.)	0.4
4 (Amarillo)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	3.6	Sideoats Grama (El Reno)	2.7
	Blue Grama (Hachita)	1.2	Blue Grama (Hachita)	0.9
	Buffalograss (Texoka)	1.6	Sand Dropseed (Borden Co.)	0.4
5 (Lubbock)			Buffalograss (Texoka)	1.6
	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	3.6	Sideoats Grama (El Reno)	2.7
	Blue Grama (Hachita)	1.2	Blue Grama (Hachita)	0.9
	Buffalograss (Texoka)	1.6	Sand Dropseed (Borden Co.)	0.4
			Buffalograss (Texoka)	1.6

Table 2 (continued)
Permanent Urban Seeding Mix

District	Clay Soils Species and Rates (lb. PLS per acre)		Sandy Soils Species and Rates (lb. PLS per acre)	
6 (Odessa)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (Haskell)	3.6	Sideoats Grama (Haskell)	2.7
	Blue Grama (Hachita)	1.2	Sand Dropseed (Borden Co.)	0.4
	Buffalograss (Texoka)	1.6	Blue Grama (Hachita)	0.9
			Buffalograss (Texoka)	1.6
7 (San Angelo)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (Haskell)	7.2	Sideoats Grama (Haskell)	3.2
	Buffalograss (Texoka)	1.6	Sand Dropseed (Borden Co.)	0.3
			Blue Grama (Hachita)	0.9
			Buffalograss (Texoka)	1.6
8 (Abilene)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (Haskell)	3.6	Sand Dropseed (Borden Co.)	0.3
	Blue Grama (Hachita)	1.2	Sideoats Grama (Haskell)	3.6
	Buffalograss (Texoka)	1.6	Blue Grama (Hachita)	0.8
			Buffalograss (Texoka)	1.6
9 (Waco)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	1.8	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6	Bermudagrass	3.6
	Sideoats Grama (Haskell)	4.5	Sand Dropseed (Borden Co.)	0.4
10 (Tyler)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		
11 (Lufkin)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		
12 (Houston)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (Haskell)	4.5	Bermudagrass	5.4
	Bermudagrass	2.4		
13 (Yoakum)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	4.5	Bermudagrass	5.4
	Bermudagrass	2.4		
14 (Austin)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	4.8
	Sideoats Grama (South Texas)	3.6	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6		
15 (San Antonio)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	3.6	Bermudagrass	4.8
	Bermudagrass	2.4	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6		
16 (Corpus Christi)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	3.6	Bermudagrass	4.8
	Bermudagrass	2.4	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6		
17 (Bryan)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		
18 (Dallas)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	3.6	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6	Bermudagrass	3.6
	Bermudagrass	2.4	Sand Dropseed (Borden Co.)	0.4
19 (Atlanta)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		
20 (Beaumont)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Bermudagrass	2.4	Bermudagrass	5.4
	Sideoats Grama (Haskell)	4.5		

Table 2 (continued)
Permanent Urban Seeding Mix

District	Clay Soils		Sandy Soils	
	Species and Rates (lb. PLS per acre)		Species and Rates (lb. PLS per acre)	
21 (Pharr)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	3.6	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6	Bermudagrass	3.6
	Bermudagrass	2.4	Sand Dropseed (Borden Co.)	0.4
22 (Laredo)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	4.5	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6	Bermudagrass	3.6
	Bermudagrass	1.8	Sand Dropseed	0.4
23 (Brownwood)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (Haskell)	3.6	Buffalograss (Texoka)	1.6
	Bermudagrass	1.2	Bermudagrass	3.6
	Blue Grama (Hachita)	0.9	Sand Dropseed (Borden Co.)	0.4
24 (El Paso)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (South Texas)	3.6	Buffalograss (Texoka)	1.6
	Blue Grama (Hachita)	1.2	Sand Dropseed (Borden Co.)	0.4
	Buffalograss (Texoka)	1.6	Blue Grama (Hachita)	1.8
25 (Childress)	Green Sprangletop	0.3	Green Sprangletop	0.3
	Sideoats Grama (El Reno)	3.6	Sand Dropseed (Borden Co.)	0.4
	Blue Grama (Hachita)	1.2	Buffalograss (Texoka)	1.6
	Buffalograss (Texoka)	1.6	Bermudagrass	1.8

Table 3
Temporary Cool Seeding Mix

District	All Soils Species and Rates (lb. PLS per acre)
1 (Paris), 2 (Fort Worth), 3 (Wichita Falls), 4 (Amarillo), 5 (Lubbock), 6 (Odessa), 7 (San Angelo), 8 (Abilene), 18 (Dallas), 19 (Atlanta), 23 (Brownwood), 24 (El Paso), 25 (Childress)	Oats 30.0 Wheat 30.0 Little Barley 5.0 Western Wheatgrass 5.0
9 (Waco), 10 (Tyler), 11 (Lufkin), 12 (Houston), 13 (Yoakum), 14 (Austin), 15 (San Antonio), 16 (Corpus Christi), 17 (Bryan), 20 (Beaumont), 21 (Pharr), 22 (Laredo)	Oats 40.0 Little Barley 5.0

Table 4
Temporary Warm Seeding Mix

District	All Soils Species and Rates (lb. PLS per acre)
All	Brownton Millet 20.0

Table 5
Flower Seeding Mix

District	All Soils Species and Rates (lb. PLS per acre)
1 (Paris), 10 (Tyler), 11 (Lufkin), 12 (Houston), 17 (Bryan), 19 (Atlanta), 20 (Beaumont)	Herbaceous Mimosa (Crockett) 1.5
	Illinois Bundleflower (Sabine) 1.5
	Thickspike Gayfeather (Pineywoods) 1.5
	Purple Prairie Clover (Kaneb) 0.6
	Rio Grange Clammyweed (Zapata) 2.0
2 (Fort Worth), 3 (Wichita Falls), 4 (Amarillo), 5 (Lubbock), 6 (Odessa), 7 (San Angelo), 8 (Abilene), 9 (Waco), 18 (Dallas), 23 (Brownwood), 25 (Childress)	Engelmann Daisy (Eldorado) 1.5
	Awnless Bushsunflower (Plateau) 1.5
	Partridge Pea 1.5
	Illinois Bundleflower (Sabine) 1.5
	Rio Grande Clammyweed (Zapata) 2.0
13 (Yoakum), 14 (Austin), 15 (San Antonio), 16 (Corpus Christi), 21 (Pharr), 22 (Laredo), 24 (El Paso)	Indian Blanket (Fuego) 1.0
	Awnless Bushsunflower (Venado) 0.4
	Prostrate Bundleflower (Balli) 1.5
	Orange Zexmenia (Goliad) 0.4
	Rio Grande Clammyweed (Zapata) 2.0

- 2.2. **Fertilizer.** Use fertilizer in accordance with Article 166.2., "Materials."
- 2.3. **Water.** Use water in accordance with Article 168.2, "Materials."
- 2.4. **Highly Erodible Land (HEL).** Add Bermudagrass to the mix shown in Table 1 at 1.0 PLS per acre if shown on the plans.
- 2.5. **Mulch.**
 - 2.5.1. **Straw or Hay Mulch.** Use straw or hay mulch in accordance with Section 162.2.5., "Mulch."
 - 2.5.2. **Hydro Mulch.** Use mulches that are on the Approved Products List. Submit one full set of manufacturer's literature for the selected material. Keep mulch dry until applied. Do not use molded or rotted material.
- 2.6. **Tacking Methods.** Use a tacking agent applied in conformance with the manufacturer's recommendations or by a crimping method on all straw or hay mulch operations. Use tacking agents as approved or as shown on the plans.

3. CONSTRUCTION

Scarify the area to a depth of 4 in. before placing the seed, unless otherwise directed. Use approved equipment to vertically track the seedbed as shown on the plans or as directed. Scarify the seedbed to a depth of 4 in. or mow the area before placement of the permanent seed mix when performing permanent seeding after an established temporary seeding. Plant the seed mix specified and mulch, if required, after the area has been completed to lines and grades as shown on the plans.

Apply fertilizer in accordance with Article 166.3., "Construction." Grass seed, flower seed, and fertilizer may be distributed simultaneously during dry seeding operations, provided each component is applied at the specified rate. Do not combine fertilizer and seed in the same slurry during hydro mulch seeding operations. Apply half of the required fertilizer during the temporary seeding operation and the other half during the permanent seeding operation when temporary and permanent seeding are both specified for the same area.

Water the seeded areas at the rates and frequencies as shown on the plans or as directed.

Distribute the seed or seed mixture uniformly over the areas shown on the plans. Provide equipment with an agitator or method to maintain a uniform seed mixture during distribution.

- 3.1. **Planting Season.**
- 3.1.1. **Temporary Seed.** Plant cool seeding mix September 1–January 31. Plant warm seeding mix February 1–August 30.
- 3.1.2. **Permanent Seed.** End planting season for all Districts by May 15. Begin planting season for each District based on the following.
- **January 15.** 1 (Paris), 10 (Tyler), 11 (Lufkin), 12 (Houston), 13 (Yoakum), 15 (San Antonio), 16 (Corpus Christi), 17 (Bryan), 19 (Atlanta), 20 (Beaumont), 21 (Pharr), and 22 (Laredo).
 - **February 1.** 2 (Fort Worth), 3 (Wichita Falls), 6 (Odessa), 7 (San Angelo), 8 (Abilene), 9 (Waco), 14 (Austin), 18 (Dallas), 23 (Brownwood), 24 (El Paso), and 25 (Childress).
 - **February 15.** 4 (Amarillo) and 5 (Lubbock).
- 3.2. **Broadcast Seeding.** Use hand or mechanical distribution or hydro-seeding on top of the soil unless otherwise directed. Apply the mixture to the area to be seeded within 30 min. of placement of components in the equipment when seed and water are to be distributed as a slurry during hydro-seeding. Roll the planted area using a light roller or other suitable equipment. Roll sloped areas along the contour of the slopes.
- 3.3. **Straw or Hay Mulch Seeding.** Plant seed in accordance with Section 164.3.2., “Broadcast Seeding.” Apply straw or hay mulch uniformly over the seeded area immediately after planting the seed or seed mixture. Apply straw or hay mulch in accordance with Section 164.3.6., “Straw or Hay Mulching.” Apply tack in accordance with Section 164.2.6., “Tacking Methods.”
- 3.4. **Hydro Mulch Seeding.** Plant seed in accordance with Section 164.3.2., “Broadcast Seeding,” before placing mulch. Apply mulch uniformly over the seeded area immediately after planting the seed or seed mixture at the following rates.
- **Sandy Soils with Slopes of 3:1 or Less.** 2,500 lb. per acre.
 - **Sandy Soils with Slopes Greater than 3:1.** 3,000 lb. per acre.
 - **Clay Soils with Slopes of 3:1 or Less.** 2,000 lb. per acre.
 - **Clay Soils with Slopes Greater than 3:1.** 2,300 lb. per acre.
- Mulch rates are based on dry weight of mulch per acre. Mix mulch and water to make a slurry and apply uniformly over the seeded area using suitable equipment.
- 3.5. **Drill Seeding.** Plant at a depth of 1/4–1/3 in. using a pasture- or rangeland-type drill unless otherwise directed. Plant seed along the contour of the slopes.
- 3.6. **Straw or Hay Mulching.** Apply straw or hay mulch uniformly over the area as shown on the plans. Apply straw mulch at 2–2.5 ton per acre. Apply hay mulch at 1.5–2 ton per acre. Use a tacking method over the mulched area in accordance with Section 164.2.6., “Tacking Methods.”

4. MEASUREMENT

This Item will be measured by the square yard or by the acre.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Broadcast Seeding (Perm)” of the rural or urban seed mixture and sandy or clay soil specified, “Broadcast Seeding (Temp)” of warm or cool season specified, “Straw or Hay Mulch Seeding (Perm)” of the rural or urban seed mixture and sandy or clay soil specified, “Straw or Hay Mulch Seeding (Temp)” of warm or cool season specified, “Hydro Mulch Seeding (Perm)” of the rural or urban seed mixture and sandy or clay soil specified, “Hydro Mulch Seeding (Temp)” of warm or cool season specified, “Drill Seeding (Perm)” of the rural or urban seed mixture and sandy or clay soil

specified, "Drill Seeding (Temp)" of warm or cool season specified, and "Straw or Hay Mulching." This price is full compensation for furnishing materials, seeding mix, flower seeding mix, HEL seeding mix, water for hydro-seeding and hydro-mulching operations, mowing, tacking, labor, equipment, tools, supplies, and incidentals.

Fertilizer will not be paid for directly, but will be subsidiary to this Item.

Water for irrigating the seeded area, when specified, will be paid for under Item 168, "Vegetative Watering."

Item 166

Fertilizer



1. DESCRIPTION

Furnish and distribute fertilizer over areas specified on the plans.

2. MATERIALS

Use straight fertilizers or fertilizer-mixture containing nitrogen (N), phosphorus (P_2O_5), and potash (K_2O) nutrients unless otherwise specified on the plans. Ensure at least 50% of the nitrogen component is a slow-release granulated, sulfur-coated, or plastic-covered urea. Ensure that fertilizer-mixture or straight fertilizers are in an acceptable condition for distribution in containers labeled with the analysis data. The materials are subject to testing by the Texas A&M University Feed and Fertilizer Control Service in accordance with the Texas Commercial Fertilizer Control Act.

3. CONSTRUCTION

Furnish and distribute the fertilizer uniformly at a rate equal to 60 lb. of nitrogen per acre or at the analysis and rate specified on the plans.

Apply fertilizer as a dry material, and do not mix with water to form a slurry.

Incorporate fertilizer during seedbed preparation as specified on the plans.

4. MEASUREMENT

When fertilizer is specified on the plans to be a pay item, measurement will be by the acre of surface area covered or by the ton (2,000 lb.). Measurement by the ton will use guaranteed weight of bags or containers as shown by the manufacturer or certified scales meeting the requirements of Item 520, "Weighing and Measuring Equipment," unless otherwise approved.

5. PAYMENT

Unless otherwise specified on the plans, the work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly but will be subsidiary to pertinent bid items.

When fertilizer is specified on the plans to be a pay item, the work performed, and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Fertilizer." This price is full compensation for furnishing materials and performing operations.

Item 168

Vegetative Watering



1. DESCRIPTION

Provide and distribute water to promote growth of vegetation as directed.

2. MATERIALS

Use water that is clean and free of industrial wastes and other substances harmful to the growth of vegetation.

3. CONSTRUCTION

Apply water when directed. Furnish and operate equipment to distribute water at a uniform and controllable rate. Ensure that watering does not erode soil or plantings. Apply water in the required quantity where shown on the plans or as directed.

4. MEASUREMENT

This Item will be measured by the 1,000 gal. (TGL) of water as applied.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Vegetative Watering." This price is full compensation for furnishing and operating watering equipment and measuring devices and for furnishing and applying water, including hauling, equipment, labor, and incidentals.

Item 260

Lime Treatment (Road-Mixed)



1. DESCRIPTION

Mix and compact lime, water, and subgrade or base (with or without asphaltic concrete pavement) in the roadway.

2. MATERIALS

Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications. Notify the Engineer of the proposed material sources and of changes to material sources. Obtain verification from the Engineer that the specification requirements are met before using the sources. The Engineer may sample and test project materials at any time before compaction. Use material definitions in accordance with [Tex-100-E](#).

- 2.1. **Lime.** Furnish lime that meets the requirements of [DMS-6350](#), "Lime and Lime Slurry." When dry lime is required, provide dry quicklime. When lime slurry is required, provide commercial lime slurry or quicklime slurry. Do not use dry quicklime when sulfates are present in quantities greater than 3,000 parts per million (ppm). When furnishing quicklime, provide it in bulk.
- 2.2. **Subgrade.** The Engineer will determine the sulfate content of the subgrade in accordance with [Tex-145-E](#) and organic content in accordance with [Tex-148-E](#) before lime treatment begins. Suspend operations when material to be treated has a sulfate content greater than 7,000 ppm or an organic content greater than 2.0%, unless otherwise directed.
- 2.3. **Flexible Base.** Unless otherwise shown on the plans, furnish base material that meets the requirements of Item 247, "Flexible Base," for the type and grade shown on the plans, before the addition of lime. Unless otherwise shown on the plans, the compressive strength of the flexible base is waived.
- 2.4. **Water.** Furnish water free of industrial wastes and other objectionable material.
- 2.5. **Asphalt.** When asphalt or emulsion is permitted for curing purposes, furnish materials that meet the requirements of Item 300, "Asphalts, Oils, and Emulsions," as shown on the plans or as directed.
- 2.6. **Mix Design.** The Engineer will determine the target lime content and optimum moisture content in accordance with [Tex-121-E](#) or prior experience with the project materials. The Contractor may propose a mix design developed in accordance with [Tex-121-E](#). The Engineer will use [Tex-121-E](#) to verify the Contractor's proposed mix design before acceptance. Reimburse the Department for subsequent mix designs or partial designs necessitated by changes in the material or requests by the Contractor. Limit the amount of recycled asphalt pavement to no more than 50% of the mix, unless otherwise shown on the plans or directed.

3. EQUIPMENT

Provide machinery, tools, and equipment necessary for proper execution of the work. Provide rollers in accordance with Item 210, "Rolling." Provide proof rollers in accordance with Item 216, "Proof Rolling," when required.

- 3.1. **Storage Facility.** Store quicklime in closed, weatherproof containers.
- 3.2. **Slurry Equipment.** Use slurry tanks equipped with agitation devices to slurry quicklime on the project or other approved location. The Engineer may approve other slurring methods.

Provide a pump for agitating the slurry when the distributor truck is not equipped with an agitator. Equip the distributor truck with a sampling device in accordance with [Tex-600-J](#), Part I, when using commercial lime slurry.

- 3.3. **Hydrated Lime Distribution Equipment.** Provide equipment to spread lime evenly across the area to be treated. Provide equipment with a rotary vane feeder to spread lime, when shown on the plans.
- 3.4. **Pulverization Equipment.** Provide pulverization equipment that:
- cuts and pulverizes material uniformly to the proper depth using cutters that plane to a uniform surface over the entire width of the cut,
 - provides a visible indication of the depth of cut at all times, and
 - uniformly mixes the materials.

4. CONSTRUCTION

Construct each layer uniformly, free of loose or segregated areas, and with the required density and moisture content. Provide a smooth surface that conforms to the typical sections, lines, and grades shown on the plans or as directed.

- 4.1. **Preparation of Subgrade or Existing Base for Treatment.** Before treating, remove existing asphalt concrete pavement in accordance with Item 105, "Removing Treated and Untreated Base and Asphalt Pavement," when shown on the plans or as directed. Shape existing material in conformance with applicable bid items to conform to typical sections shown on the plans and as directed.

Unless otherwise approved, proof roll the roadbed in accordance with Item 216 before pulverizing or scarifying existing material. Correct soft spots as directed.

When material is imported from a borrow source, notify the Engineer of the location of the borrow source well in advance to allow time for testing and approval to avoid delay to the project. Stockpile as directed. The Engineer will test the borrow source and determine the sulfate and organic contents. When the borrow source has a sulfate content greater than 3,000 ppm or an organic content greater than 2.0%, proceed as directed.

When new base material is required to be mixed with existing base, deliver, place, and spread the new material in the required amount per station. Manipulate and thoroughly mix new base with existing material to provide a uniform mixture to the specified depth before shaping.

- 4.2. **Pulverization.** Pulverize or scarify existing material after shaping. If the material cannot be uniformly processed to the required depth in a single pass, excavate and windrow the material to expose a secondary grade to achieve processing to plan depth.

- 4.3. **Application of Lime.** Uniformly apply lime using dry or slurry placement as shown on the plans or as directed. Add lime at the percentage determined in accordance with Section 260.2.6., "Mix Design." Apply lime only on an area where mixing can be completed during the same working day.

Start lime application only when the air temperature is at least 35°F and rising or is at least 40°F. The temperature will be taken in the shade and away from artificial heat. Suspend application when the Engineer determines that weather conditions are unsuitable.

Minimize dust and scattering of lime by wind. Do not apply lime when wind conditions, in the opinion of the Engineer, cause blowing lime to become dangerous to traffic or objectionable to adjacent property owners. When pebble grade quicklime is placed dry, mix the material and lime thoroughly at the time of lime application. Use of quicklime can be dangerous. Inform users of the recommended precautions for handling and storage.

4.3.1. **Dry Placement.** Before applying lime, bring the prepared roadway to approximately two percentage points above optimum moisture content. When necessary, sprinkle in accordance with Item 204, "Sprinkling." Distribute the required quantity of pebble grade quicklime using approved equipment.

4.3.2. **Slurry Placement.** Provide slurry free of objectionable materials, at or above the minimum dry solids content, and with a uniform consistency that will allow ease of handling and uniform application. Deliver commercial lime slurry to the jobsite or use quicklime to prepare lime slurry at the jobsite or other approved location, as specified. When dry quicklime is applied as slurry, use 80% of the amount shown on the plans.

Distribute slurry uniformly by making successive passes over a measured section of roadway until the specified lime content is reached. Uniformly spread the residue from quicklime slurry over the length of the roadway being processed, unless otherwise directed.

4.4. **Mixing.** Begin mixing within 6 hr. of application of lime. Lime exposed to the open air for 6 hr. or more between application and mixing, or that experiences excessive loss due to washing or blowing, will not be accepted for payment. Thoroughly mix the material and lime using approved equipment. When treating subgrade, bring the moisture content above the optimum moisture content to ensure adequate chemical reaction of the lime and subgrade materials.

Ensure 100% of the material passes a 2-1/2 in. sieve, except rock, before mellowing. Allow the mixture to mellow for 1–4 days, as directed. When pebble grade quicklime is used, allow the mixture to mellow for 2–4 days, as directed. Sprinkle the treated materials during the mixing and mellowing operation, as directed, to achieve adequate hydration and proper moisture content. When the material to be treated has a sulfate content greater than 3,000 ppm but less than or equal to 7,000 ppm, mellow for a minimum of 7 days. Maintain in a continuously moist condition by sprinkling in accordance with Item 204. After mellowing, resume mixing until a homogeneous, friable mixture is obtained. After mixing, the Engineer may sample the mixture at roadway moisture and test in accordance with [Tex-101-E](#), Part III, to determine compliance with the gradation requirements shown in Table 1.

Table 1
Gradation Requirements (Min % Passing)

Sieve Size	Base	Subgrade
1-3/4"	100	100
3/4"	85	85
#4	–	60

4.5. **Strength Testing.** The Engineer will sample and test the lime-treated mixture for unconfined compressive strength in accordance with [Tex-117-E](#), Part II. The unconfined compressive strength must be greater than 50 psi for lime-treated subgrade and 150 psi for lime-treated flexible base or lime-treated flexible base with existing material, unless otherwise shown on the plans.

4.6. **Compaction.** Compact the mixture using density control, unless otherwise shown on the plans. Multiple lifts are permitted when shown on the plans or approved. Bring each layer to the moisture content directed. Sprinkle the treated material in accordance with Item 204, or aerate the treated material to adjust the moisture content during compaction so that it is no more than 1.0% below optimum and 2.0% above optimum as determined in accordance with [Tex-121-E](#).

Begin rolling longitudinally at the sides and proceed toward the center, overlapping on successive trips by at least one-half the width of the roller unit. On superelevated curves, begin rolling at the low side and progress toward the high side. Offset alternating trips of the roller. Operate rollers at a speed between 2 and 6 mph as directed.

Before final acceptance, the Engineer will select the locations of tests in each unit and measure the treated depth in accordance with [Tex-140-E](#). Correct areas deficient by more than 1/2 in. in thickness or more than 1/2% in target lime content by adding lime as required, reshaping, recompacting, and refinishing at the Contractor's expense.

Rework, recompact, and refinish material that fails to meet or that loses required moisture, density, stability, or finish before the next course is placed or the project is accepted. Continue work until specification requirements are met. Rework in accordance with Section 260.4.7., "Reworking a Section." Perform the work at no additional expense to the Department.

- 4.6.1. **Ordinary Compaction.** Roll using approved compaction equipment, as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing treated material as required, reshaping, and recompact.
- 4.6.2. **Density and Moisture Control.** Compact to at least 95% of the maximum density, and moisture content no more than 1.0% below optimum and 2.0% above optimum as determined in accordance with [Tex-121-E](#), unless otherwise shown on the plans. Provide the Engineer with the beginning and ending station numbers of the area completed for testing. The Engineer will determine roadway density and moisture content of completed sections in accordance with [Tex-115-E](#), Part I. The Engineer will determine random locations for testing in accordance with [Tex-115-E](#), Part IV.

When the density is less than 95% of the maximum dry density, the Engineer may perform additional testing to determine the extent of the area to correct. The Engineer may accept the section if no more than one of the five most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

- 4.7. **Reworking a Section.** When a section is reworked within 72 hr. after completion of compaction, rework the section to provide the required density. When a section is reworked more than 72 hr. after completion of compaction, add additional lime at 25% of the percentage determined in accordance with Section 260.2.6., "Mix Design." Reworking includes loosening, adding material or removing unacceptable material if necessary, mixing as directed, compacting, and finishing. When density control is specified, determine a new maximum density of the reworked material in accordance with [Tex-121-E](#), and compact to at least 95% of this density.

- 4.8. **Finishing.** Immediately after completing compaction of the final course, clip, skin, or tight-blade the surface of the lime-treated material using a maintainer or subgrade trimmer to a depth of approximately 1/4 in. Remove loosened material and dispose of at an approved location. Roll the clipped surface immediately using a pneumatic tire roller until a smooth surface is attained. Add small amounts of water as needed during rolling. Shape and maintain the course and surface in conformity with the typical sections, lines, and grades shown on the plans or as directed.

Finish grade of constructed subgrade to within 0.1 ft. in the cross-section and 0.1 ft. in 16 ft. measured longitudinally.

Correct grade deviations of constructed base greater than 1/4 in. in 16 ft. measured longitudinally or greater than 1/4 in. over the entire width of the cross-section in areas where surfacing is to be placed. Remove excess material, reshape, and roll using a pneumatic-tire roller. Correct as directed if material is more than 1/4 in. low. Do not surface patch. The 72-hr. time limit required for completion of placement, compaction, and finishing does not apply to finishing required just before applying the surface course.

- 4.9. **Miscellaneous and Small Areas.** Miscellaneous areas are those that typically involve handwork or discontinuous paving operations, such as temporary detours, driveways, mailbox turnouts, crossovers, gores, spot level-up areas, and other similar areas. Miscellaneous and small areas are not subject to density testing but may be tested as directed.
- 4.10. **Curing.** Cure for the minimum number of days shown in Table 2 by sprinkling in accordance with Item 204, or by applying an asphalt material at a rate of 0.05–0.20 gal. per square yard, as shown on the plans or as directed. Maintain moisture during curing. Upon completion of curing, maintain the moisture content in accordance with Section 132.3.5., "Maintenance of Moisture and Reworking," for subgrade and Section 247.4.5., "Curing," for bases before placing subsequent courses. Do not allow equipment on the finished course during curing except as required for sprinkling, unless otherwise approved. Apply seals or additional courses within 14 calendar days of final compaction.

Table 2
Min Curing Requirements before Placing Subsequent Courses¹

Untreated Material	Curing (Days)
PI ≤35	2
PI >35	5

1. Subject to approval. Proof rolling may be required as an indicator of adequate curing.

5. MEASUREMENT

- 5.1. **Lime.** When lime is furnished in trucks, the weight of lime will be determined on certified scales, or the Contractor must provide a set of standard platform truck scales at an approved location approved. Scales must meet the requirements of Item 520, "Weighing and Measuring Equipment."
- 5.1.1. **Commercial Lime Slurry.** Lime slurry will be measured by the ton (dry weight) as calculated from the minimum percent dry solids content of the slurry, multiplied by the weight of the slurry in tons delivered.
- 5.1.2. **Quicklime.**
- 5.1.2.1. **Dry.** Lime will be measured by the ton (dry weight) of the quicklime.
- 5.1.2.2. **Slurry.** Lime slurry will be measured by the ton (dry weight) of the quicklime used to prepare the slurry multiplied by a conversion factor of 1.28 to determine the quantity of equivalent hydrated lime, which will be the basis of payment.
- 5.2. **Lime Treatment.** Lime treatment will be measured by the square yard of surface area. The dimensions for determining the surface areas are established by the widths shown on the plans and the lengths measured at placement.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for in accordance with Section 260.6.1., "Lime," and Section 260.6.2., "Lime Treatment."

Furnishing and delivering new base will be paid for in accordance with Section 247.6.2., "Flexible Base (Roadway Delivery)." Mixing, spreading, blading, shaping, compacting, and finishing new or existing base material will be paid for under Section 260.6.2., "Lime Treatment." Removal and disposal of existing asphalt concrete pavement will be paid for in conformance with pertinent Items or in accordance with Article 4.4., "Changes in the Work."

Sprinkling and rolling, except proof rolling, will not be paid for directly, but will be subsidiary to this Item, unless otherwise shown on the plans. When proof rolling is shown on the plans or directed by the Engineer, it will be paid for in accordance with Item 216.

Where subgrade is constructed under this Contract, correction of soft spots in the subgrade or existing base will be at the Contractor's expense. Where subgrade is not constructed under this Contract, correction of soft spots in the subgrade or existing base will be paid for in accordance with pertinent Items or Article 4.4., "Changes in the Work."

Where subgrade to be treated under this Contract has sulfates greater than 7,000 ppm, work will be paid for in accordance with Article 4.4., "Changes in the Work."

Asphalt used solely for curing will not be paid for directly, but will be subsidiary to this Item. Asphalt placed for curing and priming will be paid for under Item 310, "Prime Coat."

Item 360

Concrete Pavement



1. DESCRIPTION

Construct hydraulic cement concrete pavement with or without curbs on the concrete pavement.

2. MATERIALS

Use materials from non-listed sources only when tested and approved by the Engineer before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

- 2.1. **Hydraulic Cement Concrete.** Provide hydraulic cement concrete in accordance with Item 421, "Hydraulic Cement Concrete." Use compressive strength testing unless otherwise shown on the plans. Provide Class P concrete designed to meet a minimum average compressive strength of 3,200 psi at 7 days or a minimum average compressive strength of 4,000 psi at 28 days. Test in accordance with [Tex-418-A](#).

Obtain written approval if the concrete mix design exceeds 520 lb. per cubic yard of cementitious material.

Use coarse aggregates for continuously reinforced concrete pavements to produce concrete with a rated coefficient of thermal expansion not more than 5.5×10^{-6} in./in./°F as listed in accordance with the *Concrete Rated Source Quality Catalog*.

Provide Class High Early Strength (HES) concrete designed to meet a minimum average compressive strength of 3,200 psi at 24 hr., for early opening of small pavement areas or leave-outs to traffic when shown on the plans or allowed. When opening of small pavement areas or leave-outs to traffic is less than 24 hr., design Class HES concrete to achieve a minimum average compressive strength of 1,800 psi at 8 hr.

- 2.2. **Reinforcing Steel.** Provide Grade 60 or above deformed steel for bar reinforcement in accordance with Item 440, "Reinforcement for Concrete." Provide positioning and supporting devices (baskets and chairs) capable of securing and holding the reinforcing steel in proper position before and during paving. Provide corrosion protection when shown on the plans.

- 2.2.1. **Dowels.** Provide dowel bars for concrete pavements in accordance with [DMS-7325](#), "Dowel Bars for Concrete Pavements" and the MPL for "Dowel Bars for Concrete Pavements." Provide dowel caps filled with a soft compressible material with enough range of movement to allow complete closure of the expansion joint.

- 2.2.2. **Tie Bars.** Provide straight deformed steel tie bars. Provide either multiple-piece tie bars or single-piece tie bars as shown on the plans. Furnish multiple piece tie bar assemblies from the list of approved multiple-piece tie bars that have been prequalified in accordance with [DMS-4515](#), "Multiple Piece Tie Bars for Concrete Pavement," when used. Multiple-piece tie bars used on individual projects must be sampled in accordance with [Tex-711-I](#), and tested in accordance with [Tex-712-I](#).

- 2.3. **Curing Materials.** Provide Type 2 membrane curing compound in accordance with [DMS-4650](#), "Hydraulic Cement Concrete Curing Materials and Evaporation Retardants." Provide asphaltic curing materials in accordance with Item 300, "Asphalts, Oils, and Emulsions," for concrete pavement to be overlaid with asphalt concrete, unless otherwise shown on the plans or approved. Provide materials for other methods of curing in accordance with Item 422, "Concrete Superstructures." When required, provide insulating blankets with a minimum thermal resistance (R) rating of 0.5 degree Fahrenheit square-foot per British Thermal Unit. Use insulating blankets that are free of tears and are in good condition.

- 2.4. **Epoxy.** Provide Type III, Class C epoxy in accordance with [DMS-6100](#), "Epoxies and Adhesives," for installing all drilled-in reinforcing steel. Submit a work plan and request approval for the use of epoxy types other than Type III, Class C.
- 2.5. **Evaporation Retardant.** Provide evaporation retardant in accordance with [DMS-4650](#).
- 2.6. **Joint Sealants and Fillers.** Provide Class 5 or Class 8 joint sealant materials and fillers unless otherwise shown on the plans or approved, and other sealant materials of the size, shape, and type shown on the plans in accordance with [DMS-6310](#), "Joint Sealants and Fillers."
- 2.7. **Repair Materials.** Provide concrete repair materials in accordance with [DMS-4655](#), "Concrete Repair Materials," or [DMS-6170](#), "Polymeric Materials for Patching Spalls in Concrete Pavement."

3. EQUIPMENT

Furnish and maintain all equipment in good working condition. Use measuring, mixing, and delivery equipment in accordance with Item 421. Obtain approval for other equipment used.

- 3.1. **Placing, Consolidating, and Finishing Equipment.** Provide self-propelled paving equipment that uniformly distributes the concrete with minimal segregation and provides a smooth machine-finished consolidated concrete pavement conforming to plan line and grade. Provide an automatic grade control system on slip-forming equipment. Provide mechanically operated finishing floats capable of producing a uniformly smooth pavement surface. Provide equipment capable of providing a fine, light water fog mist.

When using stringless paving equipment, use in accordance with Section 5.9.3., "Method C," and establish control points at maximum intervals of 500 ft. Use these control points as reference to perform the work.

Provide mechanically operated vibratory equipment capable of adequately consolidating the concrete. Provide immersion vibrators on the paving equipment at sufficiently close intervals to provide uniform vibration and consolidation of the concrete over the entire width and depth of the pavement and in conformance with the manufacturer's recommendations. Provide immersion vibrator units that operate at a frequency in air of at least 8,000 cycles per minute. Provide enough hand-operated immersion vibrators for timely and proper consolidation of the concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not covered by other vibratory equipment. Surface vibrators may be used to supplement equipment-mounted immersion vibrators. Provide tachometers to verify the proper operation of all vibrators.

For small or irregular areas or when approved, the paving equipment described in this Section is not required.

- 3.2. **Forming Equipment.**

- 3.2.1. **Pavement Forms.** Provide side forms of sufficient cross-section, strength, and rigidity to support the paving equipment and resist the impact and vibration of the operation without visible springing or settlement. Use forms that are free of detrimental kinks, bends, or warps that could affect ride quality or alignment. Provide bulkhead forms of sufficient cross-section, strength, and rigidity to support reinforcing steel and maintain alignment during concrete placement operations.

- 3.3. **Curb Forms.** Provide curb forms for separately placed curbs that are not slipformed that conform to the requirements of Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."

- 3.4. **Single-Piece Tie-Bar Inserting Equipment.** Provide inserting equipment that accurately inserts and positions reinforcing steel in the plastic concrete parallel to the profile grade and horizontal alignment as shown on the plans.

- 3.5. **Texturing Equipment.**
- 3.5.1. **Carpet Drag.** Provide a carpet drag mounted on a work bridge or a manual moveable support system. Provide a single piece of carpet of sufficient transverse length to span the full width of the pavement being placed and adjustable so that a sufficient longitudinal length of carpet is in contact with the concrete being placed to produce the desired texture. Obtain approval to vary the length and width of the carpet to accommodate specific applications.
- 3.5.2. **Tining Equipment.** Provide a self-propelled metal tine device equipped with steel tines with cross-section approximately 1/32 in. thick by 1/12 in. wide. Provide tines for longitudinal tining equipment spaced at approximately 3/4 in., center-to-center, or provide tines for transverse tining equipment spaced at approximately 1 in., center-to-center. Manual methods that produce an equivalent texture may be used when it is impractical to use self-propelled equipment, such as for small areas, narrow width sections, and emergencies due to equipment breakdown.
- 3.6. **Curing Equipment.** Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas, on narrow width sections, or in emergencies due to equipment breakdown.
- 3.7. **Sawing Equipment.** Provide power-driven concrete saws to saw the joints shown on the plans. Provide standby power-driven concrete saws during concrete sawing operations.
- 3.8. **Grinding Equipment.** Provide self-propelled powered grinding equipment that is specifically designed to smooth and texture concrete pavement using circular diamond blades when required. Provide equipment with automatic grade control capable of grinding at least a 3-ft. width longitudinally in each pass without damaging the concrete.
- 3.9. **Testing Equipment.** Provide testing equipment in accordance with Item 421, unless otherwise shown on the plans or specified. Maintain and calibrate all Contractor-supplied testing equipment in conformance with pertinent test methods. Provide calibration records of strength-testing equipment to the Engineer within 1 week after each calibration.
- 3.10. **Coring Equipment.** Provide coring equipment capable of extracting cores in accordance with [Tex-424-A](#) when required.
- 3.11. **Miscellaneous Equipment.** Furnish 10-ft. and 15-ft. steel or magnesium long-handled, standard straightedges. Furnish enough work bridges, long enough to span the pavement, for finishing and inspection operations.

4. CONSTRUCTION

Obtain approval for adjustments to plan grade-line to maintain thickness over minor subgrade or base high spots while maintaining clearances and drainage. Maintain subgrade or base in a smooth, clean, compacted condition in conformance with the required section and established grade until the pavement concrete is placed. Dampen subgrade or base with water before placing pavement concrete.

Adequately light the active work areas for all nighttime operations. Provide and maintain tools and materials to perform testing.

- 4.1. **Paving and Quality Control (QC) Plan.** Submit a paving and QC plan for approval before beginning pavement construction operations. Include details of all operations in the concrete paving process, including methods to construct transverse joints, methods to consolidate concrete at joints, longitudinal construction joint layout, sequencing, curing, lighting, early opening, leave-outs, sawing, inspection, contractor QC testing, testing for opening to traffic, construction methods, other details, and description of all equipment. List

certified personnel performing contractor QC testing and testing for opening to traffic. Submit revisions to the paving and QC plan for approval.

- 4.2. **Placing Reinforcing Steel for Continuously Reinforced Concrete Pavements.** Accurately place and secure in position all reinforcing steel as shown on the plans. Provide chairs in sufficient number to adequately support the reinforcing steel at the proper height as show on the plans. Secure reinforcing steel at alternate intersections with tie wires. Reinforcing steel intersections may be secured with locking support chairs instead of tie wires. Anchor pins used to prevent the reinforcing steel from shifting may remain in the final pavement. Stagger the lap locations so that no more than 1/3 of the longitudinal steel is spliced in any given 12-ft. width and 2-ft. length of the pavement. Tie all splices with tie wires.
- 4.3. **Joints.** Install formed joints as shown on the plans. Install transverse bulkhead forms to support extending reinforcing steel, shaped accurately to the cross-section of the pavement when placing of concrete is stopped.
- 4.3.1. **Placing Reinforcement at Joints.** Install reinforcing steel at transverse construction joints as shown on the plans. Use multiple-piece tie bars, drilled and epoxy-grouted tie bars, or mechanically inserted single-piece tie bars at longitudinal construction joints. Discontinue the use of mechanically inserted single-piece tie bars if this method results in steel misalignment or improper location, poor concrete consolidation, or other inadequacies. Protect the reinforcing steel immediately beyond the construction joint from damage, vibration, and impact.
- For drilled and epoxy-grouted tie bars, drill holes into the existing concrete at least 10 in. deep unless otherwise directed. Use a drill bit with a diameter that is 1/8 in. greater than that of tie bars. Clean the holes using a wire brush and compressed air to remove all the dust and moisture. Only cartridge or machine applicator epoxies are allowed. Follow the epoxy manufacturer's instructions to apply the epoxy. Insert the tip of the epoxy cartridge or the tip of the machine applicator to the end of the tie bar hole, and inject Type III, Class C, epoxy to fill the hole with the amount of epoxy recommended by the manufacture for the size of bar and depth of hole. Insert tie bars.
- 4.3.2. **Testing of Tie Bars.** Verify that tie bars that are drilled and epoxied or mechanically inserted into concrete at longitudinal construction joints develop a pullout resistance equal to at least 3/4 of the yield strength of the reinforcing steel. Test pullout resistance of mechanically inserted tie bars when the concrete pavement is at least 7 days old. Test pullout resistance of epoxy-grouted bars after the epoxy manufacturer's recommended final cure time. Test 15 bars in accordance with ASTM E488, except that alternate approved equipment may be used. All 15 tested bars must meet the required pullout strength. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.
- 4.3.3. **Testing of Epoxy-Grouted Longitudinal Bars in Continuously Reinforced Concrete Pavements.** When longitudinal reinforcing steel is drilled and epoxy-grouted in existing pavement, test each bar in accordance with ASTM E488, except that alternate approved equipment may be used. All bars must develop a pullout resistance equal to at least 3/4 of the yield strength of the steel. Test pullout resistance after the epoxy manufacturer's recommended final cure time. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.
- 4.3.4. **Transverse Construction Joints for Concrete Pavement Contraction Design (CPCD).** Install and rigidly secure a complete joint assembly and bulkhead in the planned transverse contraction joint location when the placing of concrete is intentionally stopped. Install a transverse construction joint either at a planned transverse contraction joint location or mid-slab between planned transverse contraction joints when the placing of concrete is unintentionally stopped. Install tie bars of the size and spacing used in the longitudinal joints for mid-slab construction joints.

Place dowels at mid-depth of the pavement slab, parallel to the surface. Place dowels for transverse contraction joints parallel to the pavement edge. Tolerances for location and alignment of dowels will be shown on the plans. For dowels used in a contraction joint, coat the entire length of the dowels with a thin

film of grease, wax, silicone, or other approved de-bonding material. For dowels used in an expansion joint, coat half the length with a thin film of grease, wax, silicone, or other approved de-bonding material; provide dowel caps on the coated half of each dowel bar.

4.4. **Curb Joints.** Construct curb joints in accordance with Item 529.

4.5. **Placing and Removing Forms.** Use clean and oiled forms. Secure forms on a base or firm subgrade that is accurately graded and that provides stable support without deflection and movement by formriding equipment. Pin every form at least at the middle and near each end. Tightly join and key form sections together to prevent relative displacement.

Set side forms far enough in advance of concrete placement to permit inspection. Check conformity of the grade, alignment, and stability of forms immediately before placing concrete, and make all necessary corrections. Use a straightedge or other approved method to test the top of forms to ensure that the ride quality requirements for the completed pavement will be met. Stop paving operations if forms settle or deflect more than 1/8 in. under finishing operations. Reset forms to line and grade, and refinish the concrete surface to correct grade.

Avoid damage to the edge of the pavement when removing side forms and bulkhead forms. Repair damage resulting from form removal with an approved repair material within 24 hr. after form removal unless otherwise approved. Chip excessively honeycombed areas to sound concrete, and repair with an approved repair material within 24 hr. after form removal unless otherwise approved. Clean joint face within 24 hr. after a bulkhead for a transverse construction joint has been removed unless otherwise approved. Promptly apply membrane curing compound to the edge of the concrete pavement when forms are removed before 72 hr. after concrete placement.

Forms that are not the same depth as the pavement but within 2 in. of that depth are permitted if the subbase is trenched or the full width and length of the form base are supported with a firm material to produce the required pavement thickness. Promptly repair the form trench after use. Use flexible or curved wood or metal forms for curves of 100-ft. radius or less.

4.6. **Concrete Delivery.** Clean delivery equipment as necessary to prevent accumulation of old concrete before loading fresh concrete. Use agitated delivery equipment for concrete designed to have a slump of more than 5 in. Segregated concrete is subject to rejection.

Begin the discharge of concrete delivered in agitated delivery equipment in accordance with Item 421. Place non-agitated concrete within 45 min. after batching. Reduce times as directed when hot weather or other conditions cause quick setting of the concrete.

4.7. **Concrete Placement.** Do not allow the pavement edge to deviate from the established paving line by more than 1/2 in. at any point. Place the concrete as near as possible to its final location, and minimize segregation and rehandling. Distribute concrete using shovels where hand spreading is necessary. Do not use rakes or vibrators to distribute concrete.

4.7.1. **Consolidation.** Consolidate all concrete using approved mechanical vibrators operated on the front of the paving equipment. Use immersion-type vibrators that simultaneously consolidate the full width of the placement when machine finishing. Keep vibrators from dislodging reinforcement. Use hand-operated vibrators to consolidate concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not accessible to the machine-mounted vibrators. Do not operate machine-mounted vibrators while the paving equipment is stationary. Vibrator operations are subject to review.

4.7.2. **Curbs.** Curbs will be in accordance with Item 529.

4.7.3. **Temperature Restrictions.** Place concrete that is between 40°F and 95°F when measured in accordance with [Tex-422-A](#) at the time of discharge, except that concrete may be used if it was already in transit when the temperature was found to exceed the allowable maximum. Take immediate corrective action or cease concrete production when the concrete temperature exceeds 95°F.

Do not place concrete when the ambient temperature in the shade is below 40°F and falling, unless approved. Concrete may be placed when the ambient temperature in the shade is above 35°F and rising or above 40°F. Protect the pavement with an approved insulating material capable of protecting the concrete for the specified curing period when temperatures warrant protection against freezing. Submit for approval proposed measures to protect the concrete from anticipated freezing weather for the first 72 hr. after placement. Repair or replace all concrete damaged by freezing.

- 4.8. **Spreading and Finishing.** Finish all concrete pavement using approved self-propelled equipment. Use power-driven spreaders, power-driven vibrators, power-driven strike-off screed, or approved alternate equipment to strike-off the surface of the concrete to the required section and grade without surface voids. Use float equipment for final finishing. Use concrete with a consistency that allows completion of all finishing operations without addition of water to the surface. Use the minimal amount of water fog mist necessary to maintain a moist surface. Reduce fogging if float or straightedge operations result in excess slurry.
- 4.8.1. **Finished Surface.** Perform sufficient checks using a minimum 10-ft. long straightedge on the plastic concrete to ensure the final surface is within the tolerances specified in Surface Test A in accordance with Item 585, "Ride Quality for Pavement Surfaces." Check with the straightedge parallel to the centerline.
- 4.8.2. **Maintenance of Surface Moisture.** Prevent surface drying of the pavement before application of the curing system by means that may include water fogging, the use of wind screens, or the use of evaporation retardants. Apply evaporation retardant at the manufacturer's recommended rate. Reapply the evaporation retardant as needed to maintain the concrete surface in a moist condition until curing system is applied. Do not use evaporation retardant as a finishing aid. Failure to take acceptable precautions to prevent surface drying of the pavement will be cause for shutdown of pavement operations.
- 4.8.3. **Surface Texturing.** Complete final texturing before the concrete has attained its initial set. Drag the carpet longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface. Prevent grout from plugging the carpet. Do not perform carpet dragging operations while there is excessive bleed water.
- A metal-tine texture finish is required unless otherwise shown on the plans. Provide longitudinal tining unless otherwise shown on the plans. Immediately following the carpet drag, apply a single coat of evaporation retardant, if needed, at the rate recommended by the manufacturer. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tining. Operate the metal-tine device to obtain grooves approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods to achieve similar results on ramps, small or irregular areas, and narrow width sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid or that is scheduled for blanket diamond grinding or shot blasting.
- Target a carpet drag texture of 0.04 in., as measured by [Tex-436-A](#), when carpet drag is the only surface texture required on the plans. Ensure adequate and consistent macro-texture is achieved by applying enough weight to the carpet and by keeping grout from plugging the carpet. Correct any location with a texture less than 0.03 in. by diamond grinding or shot blasting. The Engineer will determine the test locations at points located transversely to the direction of traffic in the outside wheel path.
- 4.8.4. **Small, Irregular Area, or Narrow Width Placements.** Use hand equipment and procedures that produce a consolidated and finished pavement section to the line and grade where machine placements and finishing of concrete pavement are not practical.
- 4.8.5. **Emergency Procedures.** Use hand-operated equipment for applying texture, evaporation retardant, and cure in the event of equipment breakdown.
- 4.9. **Curing.** Keep the concrete pavement surface from drying in accordance with Section 360.4.8.2., "Maintenance of Surface Moisture," until the curing material has been applied. Maintain and promptly repair damage to curing materials on exposed surfaces of concrete pavement continuously for at least 3 curing days. A curing day is defined as a 24-hr. period when either the temperature taken in the shade away from

artificial heat is above 50°F for at least 19 hr. or the surface temperature of the concrete is maintained above 40°F for 24 hr. Curing begins when the concrete curing system has been applied. Stop concrete paving if curing compound is not being applied promptly and maintained adequately. Other methods of curing in accordance with Item 422 may be used when specified or approved.

- 4.9.1. **Membrane Curing.** Spray the concrete surface uniformly with two coats of membrane curing compound at an individual application rate of no more than 180 sq. ft. per gallon. Apply the curing compound before allowing the concrete surface to dry.

Manage finishing and texturing operations to ensure placement of curing compound on a moist concrete surface, relatively free of bleed water, to prevent any plastic shrinkage from cracking. Time the application of curing compound to prevent plastic shrinkage from cracking.

Maintain curing compounds in a uniformly agitated condition, free of settlement before and during application. Do not thin or dilute the curing compound.

Apply additional compound at the same rate of coverage to correct damage where the coating shows discontinuities or other defects or if rain falls on the newly coated surface before the film has dried enough to resist damage. Ensure that the curing compound coats the sides of the tining grooves.

- 4.9.2. **Asphalt Curing.** Apply a uniform coating of asphalt curing at a rate of 90 sq. ft.–180 sq. ft. per gallon when an asphaltic concrete overlay is required. Apply curing immediately after texturing and once the free moisture (sheen) has disappeared. Obtain approval to add water to the emulsion to improve spray distribution. Maintain the asphalt application rate when using diluted emulsions. Maintain asphalt emulsions in a mixed condition during application.

- 4.9.3. **Curing Class HES Concrete.** Provide membrane curing in accordance with Section 360.4.9.1., “Membrane Curing,” or wet mat curing in accordance with Section 422.4.8., “Final Curing,” for all Class HES concrete.

- 4.10. **Sawing Joints.** Saw joints to the depth shown on the plans as soon as sawing can be accomplished without damage to the pavement, regardless of time of day or weather conditions. Some minor raveling of the saw-cut is acceptable. Use a chalk line, string line, sawing template, or other approved method to provide a true joint alignment. Provide enough saws to match the paving production rate to ensure sawing completion at the earliest possible time to avoid uncontrolled cracking. The Engineer will evaluate the cause of the uncontrolled cracking and direct any necessary repairs. Reduce paving production if necessary to ensure timely sawing of joints. Promptly restore membrane cure damaged within the first 72 hr. of curing.

The Engineer will check the depth of saw cuts in accordance with [Tex-423-A](#) within 24 hrs. after saw-cutting or before joints are sealed, whichever is sooner. Frequency of checks will be as follows:

- every 500 ft. or fraction thereof for all longitudinal contraction joints, and
- 10% of transverse contraction joints in CPCD for each daily placement.

Resaw contraction joints that are deficient in depth by more than 1/4 in. from plan depth within 24 hr. of depth checks.

- 4.11. **Cleaning and Sealing Joints.** Clean and seal joints in accordance with Item 438, “Cleaning and Sealing Joints.” Repair excessive spalling of the joint saw groove using an approved method before installing the sealant. Seal all joints before opening the pavement to all traffic. Joint sealants are not required on concrete pavement that is to be overlaid with asphaltic materials.

- 4.12. **Protection of Pavement.** Erect and maintain barricades and other standard and approved devices that will exclude all vehicles and equipment from the newly placed pavement for the periods specified. Protect the pavement from damage due to crossings using approved methods before opening to traffic. Where a detour is not readily available or economically feasible, an occasional crossing of the roadway with overweight equipment may be permitted for relocating equipment only, but not for hauling material. When an occasional

crossing of overweight equipment is permitted, temporary matting or other approved methods may be required.

Maintain an adequate supply of sheeting or other material to cover and protect fresh concrete surface from weather damage. Apply as needed to protect the pavement surface from weather.

- 4.13. **Opening to Traffic.** Testing for opening pavement to traffic is the responsibility of the Contractor unless otherwise shown on the plans or as directed. Before opening pavement to traffic:

- provide test results to the Engineer for review, if necessary,
- clean pavement,
- place stable material against pavement edges,
- seal joints, and
- perform all other traffic-safety related work.

- 4.13.1. **Opening Pavement to All Traffic.** Pavements can be open to all traffic:

- when the pavement is 7 days old,
- when 3-day curing is complete and the concrete has attained a compressive strength of 3,200 psi,
- after 24 hr. and the concrete has attained a compressive strength of 3,200 psi when Class HES concrete is used, or
- after the concrete has been cured for at least 8 hr. and attained a minimum compressive strength of 1,800 psi when Class HES concrete is used.

- 4.13.2. **Opening Pavement to Construction Equipment.** Unless otherwise shown on the plans, concrete pavement may be opened to concrete paving equipment and related delivery equipment after the concrete is at least 48 hr. old and has attained a compressive strength of 3,200 psi. Keep delivery equipment at least 2 ft. from the edge of the concrete pavement. Keep tracks of the paving equipment at least 1 ft. from the pavement edge. Protect textured surfaces from the paving equipment. Restore damaged membrane curing as soon as possible. Repair pavement damaged by paving or delivery equipment before opening to all traffic.

- 4.13.3. **Maturity Method.** Maturity method, in accordance with [Tex-426-A](#), may be used to estimate concrete strength for opening pavement to traffic. Install at least two maturity sensors for each day's placement in areas where the maturity method will be used for opening. Maturity sensors, when used, will be installed near the day's final placement for areas being evaluated.

The Engineer will test specimens to verify the strength-maturity relationship in accordance with [Tex-426-A](#). The strength-maturity relationship will be verified at least every 10 days of production after the first day. Establish a new strength-maturity relationship when the strength specimens deviate more than 10% from the maturity-estimated strengths. Suspend use of the maturity method for opening pavements to traffic when the strength-maturity relationship deviates by more than 10% until a new strength-maturity relationship is established.

The Engineer will determine the frequency of verification when the maturity method is used intermittently or for only specific areas.

- 4.13.4. **Emergency Opening to Traffic.** Open the pavement to traffic under emergency conditions, when the pavement is at least 72 hr. old, when directed in writing.

- 4.14. **Sampling and Testing of Concrete.** Unless otherwise specified, all fresh and hardened concrete is subject to testing as follows.

- 4.14.1. **Fresh Concrete.** Provide safe access and assistance to the Engineer during sampling. Fresh concrete will be sampled in accordance with [Tex-407-A](#).

4.14.2. **Testing Concrete.** The Engineer will test the fresh and hardened concrete in accordance with the following methods:

- **Slump.** [Tex-415-A](#), only for formed concrete pavement placements;
- **Air Content.** [Tex-414-A](#) or [Tex-416-A](#), only when air-entrained concrete is shown on the plans;
- **Temperature.** [Tex-422-A](#);
- **Making and Curing Strength Specimens.** [Tex-447-A](#);
- **Compressive Strength.** [Tex-418-A](#); and
- **Maturity.** [Tex-426-A](#).

Maturity specimens will be made only when maturity method is used or shown on the plans.

Concrete with slump less than minimum required after all addition of water withheld will be rejected, unless otherwise allowed by the Engineer. Concrete with slump exceeding maximum allowed may be used at the Contractor's option. If used, Engineer will make, test, and evaluate strength specimens in accordance with Section 360.4.15., "Acceptance of Concrete Pavement." Acceptance of concrete not meeting air content or temperature requirements will be determined by Engineer. Fresh concrete exhibiting segregation and excessive bleeding will be rejected.

4.14.2.1. **Strength Specimen Handling.** After strength test specimens are molded, protect and cure in conformance with pertinent test methods. When necessary, deliver Contractor-molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods. The Engineer will deliver Department-molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods.

4.15. **Acceptance of Concrete Pavement.** The Engineer will determine pay adjustments for deficient pavement thickness within 14 days after concrete pavement has been cored. The Engineer will determine structural adequacy of low concrete strengths within 7 days after design strength specimens or cores, if taken, are tested.

4.15.1. **Pavement Thickness.** The Engineer will check the thickness in accordance with [Tex-423-A](#) unless other methods are shown on the plans. The Engineer will perform one thickness test consisting of one reading at approximately the center of the paving equipment every 500 ft. or fraction thereof. Core where directed, in accordance with [Tex-424-A](#), to verify deficiencies. Do not core until pavement is at least 7 days old or has achieved design strength. Fill core holes using an approved concrete mixture and method.

4.15.1.1. **Assessing Payment Adjustments.** Limits for applying a payment adjustment for deficient pavement thickness are 500 ft. units of pavement in each lane. Lane width will be as shown on typical sections and in conformance with pavement design standards.

The limits for retaining deficient pavement without compensation or removing and replacing without additional compensation will be defined by coring or equivalent nondestructive means as determined by the Engineer. The remaining portion of the 500-ft. unit allowed for pay adjustment will be subject to the payment adjustment based on the average core thickness deficiency at each end of the 10-ft. interval investigation as determined by the Engineer.

Shoulders will be measured for thickness unless otherwise shown on the plans. Shoulders 6 ft. wide or wider will be considered as lanes. Shoulders less than 6 ft. wide will be considered part of the adjacent lane. Shoulders less than 6 ft. wide and placed separately from the adjacent lane will be considered as a lane.

Limits for applying payment adjustment for deficient pavement thickness for ramps, widenings, acceleration and deceleration lanes, and other miscellaneous areas are 500-ft. units. Areas less than 500-ft. units will be individually evaluated for payment adjustment based on the plan area.

- 4.15.1.2. **Verification of Thickness Deficiencies.** When any fresh depth test measured in accordance with [Tex-423-A](#) is deficient by more than 0.50 in. from the plan thickness, take one 4-in. diameter core at that location to verify the measurement.

When determining the average thickness deficiency for assessing a pay adjustment other than retaining pavement without compensation or remove and replace as shown in Table 1, take at least two additional cores from the unit, in accordance with Section 360.4.15.1.1., "Assessing Payment Adjustments," equidistantly spaced from the first core in each direction if the first core is deficient by more than 0.50 in. from the plan thickness. Measure the length of cores in accordance with [Tex-424-A](#). Determine the average thickness by averaging the lengths of the cores. Subtract the calculated average thickness from the plan thickness to determine the average thickness deficiency. In calculations of the average thickness, measurements exceeding the plan thickness by more than 0.2 in. will be considered as the plan thickness plus 0.2 in.

When determining the limits for retaining the deficient pavement without compensation or remove and replace without additional compensation, take additional cores at 10-ft. intervals in each direction parallel to the centerline to determine the boundary of the deficient area if the first core length deficiency is more than 1.00 in. for pavements less than 11 in. thick or more than 1.50 in. for pavements 11 in. or thicker. Continue taking cores at 10-ft. intervals until the core length deficiency is less than 1.00 in. for pavements less than 11 in. thick or less than 1.50 in. for pavements 11 in. or thicker.

- 4.15.2. **Strength of Concrete Pavement.** The Engineer will accept concrete pavement meeting a compressive strength of 3,200 psi at 7 days or meeting a compressive strength of 4,000 psi at 28 days for Class P concrete.

Concrete strength testing may be correlated to an age other than 7 days in accordance with [Tex-427-A](#) when approved.

The Engineer will accept concrete pavement using Class HES concrete based on the required strength and time.

Investigate the strength test procedures, the quality of materials, the concrete production operations, and other possible problem areas to determine the cause when a concrete strength test value is more than 10% below the required strength or when three consecutive strength values fall below the required strength. Take necessary action to correct the problem, including redesign of the concrete mix if needed. The Engineer may suspend concrete paving if the Contractor is unable to identify, document, and correct the cause of low-strength test values in a timely manner. The Engineer will evaluate the structural adequacy of the pavements if any strength is more than 15% below the required strength. Remove and replace pavements found to be structurally inadequate at no additional cost when directed.

- 4.15.3. **Ride Quality.** Measure and correct ride quality in accordance with Item 585, unless otherwise shown on the plans.

5. MEASUREMENT

This Item will be measured as follows.

- 5.1. **Concrete Pavement.** Concrete pavement will be measured by the square yard of surface area in place. The surface area includes the portion of the pavement slab extending beneath the curb.

6. PAYMENT

These prices are full compensation for materials, equipment, labor, tools, and incidentals.

- 6.1. **Concrete Pavement.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Concrete Pavement" of

the type and depth specified as adjusted in accordance with Section 360.6.2., "Deficient Thickness Adjustment."

6.2.

Deficient Thickness Adjustment. Where the average thickness of pavement is deficient in thickness, payment will be made using the adjustment factor in accordance with Table 1 applied to the bid price for the deficient area for each unit in accordance with Section 360.4.15.1.1., "Assessing Payment Adjustments." When pavement thickness investigation (coring) is conducted for three consecutive placements, remove and replace without additional compensation all pavement placed during these days if the average thickness deficiency from all cores taken from these consecutive placements is greater than 0.25 in.

Table 1
Deficient Thickness Price Adjustment Factor

Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness <11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.80
Over 0.75 through 1.00	0.60
Over 1.00 through 1.25	Retain pavement without compensation or Remove and Replace
Over 1.25	Remove and Replace
Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness ≥11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.90
Over 0.75 through 1.00	0.80
Over 1.00 through 1.50	0.60
Over 1.50 through 2.00	Retain pavement without compensation or Remove and replace
Over 2.00	Remove and replace

6.3.

Curb. All curbs will be paid for under Item 529.

Item 400

Excavation and Backfill for Structures



1. DESCRIPTION

Excavate for placement and construction of structures and backfill structures. Cut and restore pavement.

2. MATERIALS

Use materials that meet the requirements of the following.

- Item 401, "Flowable Backfill"
- Item 421, "Hydraulic Cement Concrete"
- [DMS-4600](#), "Hydraulic Cement"

3. CONSTRUCTION

3.1. Excavation.

- 3.1.1. **General.** Excavate to the lines and grades shown on the plans or as directed. Provide slopes, benching, sheeting, bracing, pumping, and bailing as necessary to maintain the stability and safety of excavations up to 5 ft. deep. Excavation protection for excavations deeper than 5 ft. is governed by Item 402, "Trench Excavation Protection," and Item 403, "Temporary Special Shoring." Use satisfactory excavated material as backfill or as embankment fill in accordance with Item 132, "Embankment." Dispose of material not incorporated into the final project off the right of way in conformance with federal, state, and local regulations.

Keep any topsoil that has been removed separate, and replace it, as nearly as feasible, in its original position when excavating for installation of structures across private property or beyond the limits of the embankment. Restore the area to an acceptable condition.

Excavate drilled shafts in accordance with Item 416, "Drilled Shaft Foundations."

- 3.1.1.1. **Obstructions.** Remove obstructions to the proposed construction, including trees and other vegetation, debris, and structures, over the width of the excavation to a depth of 1 ft. below the bottom of excavation. Remove as required to clear the new structure and plug in an approved manner if abandoned storm drains, sewers, or other drainage systems are encountered. Restore the bottom of the excavation to grade by backfilling after removing obstructions in accordance with this Item. Dispose of surplus materials in conformance with federal, state, and local regulations.

- 3.1.1.2. **Excavation in Streets.** Cut pavement and base to neat lines when structures are installed in streets, highways, or other paved areas. Restore pavement structure after completion of excavation and backfilling.

Maintain and control traffic in accordance with the approved traffic control plan and the TMUTCD.

- 3.1.1.3. **Utilities.** Comply with the requirements of Article 7.15., "Responsibility for Damage Claims." Conduct work with minimum disturbance of existing utilities, and coordinate work in or near utilities with the utility owners. Inform utility owners before work begins, allowing them enough time to identify, locate, reroute, or make other adjustments to utility lines.

Avoid cutting or damaging underground utility lines that are to remain in place. Promptly notify the utility company if damage occurs. Provide temporary flumes across the excavation while open if an active sanitary

sewer line is damaged during excavation and restore the lines when backfilling has progressed to the original bedding lines of the cut sewer.

- 3.1.1.4. **De-Watering.** Construct or place structures in the presence of water only if approved. Place precast members, pipe, and concrete only on a dry, firm surface. Remove water by bailing, pumping, well point installation, deep wells, underdrains, or other approved method.

Remove standing water in a manner that does not allow water movement through or alongside concrete being placed if structures are approved for placement in the presence of water. Pump or bail only from a suitable sump separated from the concrete work while placing structural concrete or for a period of at least 36 hr. thereafter. Pump or bail during placement of seal concrete only to the extent necessary to maintain a static head of water within the cofferdam. Pump or bail to de-water inside a sealed cofferdam only after the seal has aged at least 36 hr.

Place a stabilizing material in the bottom of the excavation if the bottom cannot be de-watered to the point the subgrade is free of mud or it is difficult to keep reinforcing steel clean. Use flexible base, cement-stabilized base or backfill, lean concrete, or other approved stabilizing material. Provide concrete with at least 275 lb. of cement per cubic yard, if lean concrete is used, and place to a minimum depth of 3 in. Stabilizing material placed for the convenience of the Contractor will be at the Contractor's expense.

- 3.1.2. **Bridge Foundations and Retaining Walls.** Do not disturb material below the bottom of footing grade. Do not backfill to compensate for excavation that has extended below grade. Fill the area with concrete at the time the footing is placed if excavation occurs below the proposed footing grade. Additional concrete placed will be at the Contractor's expense.

Take core samples to determine the character of the supporting materials if requested. Provide an intact sample adequate to judge the character of the founding material. Take these cores when the excavation is close to completion. Cores should be approximately 5 ft. deeper than the proposed founding grade.

Remove loose material if the founding stratum is rock or other hard material, and clean and cut it to a firm surface that is level, stepped, or serrated, as directed. Clean out soft seams, and fill with concrete when the footing is placed.

Place the foundation once the Engineer has inspected the excavation and authorized changes have been made to provide a uniform bearing condition if the material at the footing grade of a retaining wall, bridge bent, or pier is a mixture of compressible and incompressible material.

- 3.1.3. **Cofferdams.** The term "cofferdam" designates any temporary or removable structure constructed to hold surrounding earth, water, or both out of the excavation whether the structure is formed of soil, timber, steel, concrete, or a combination of these. Use pumping wells or well points for de-watering cofferdams if required.

Submit details and design calculations for sheet pile or other types of cofferdams requiring structural members bearing the seal, signature, and date of a licensed professional engineer for review before constructing the cofferdam. The Department reserves the right to reject designs. Design structural systems to comply with the *AASHTO Standard Specifications for Highway Bridges* or *AASHTO LRFD Bridge Design Specifications*. Interior dimensions of cofferdams must provide enough clearance for the construction, inspection, and removal of required forms and, if necessary, enough room to allow pumping outside the forms. Extend sheet pile cofferdams well below the bottom of the footings and make concrete seals as well-braced and watertight as practicable.

Use Class E concrete for foundation seals unless otherwise specified. Place concrete foundation seals in accordance with Item 420, "Concrete Substructures." Seals placed for the convenience of the Contractor will be at the Contractor's expense.

Make the excavation deep enough to allow for swelling of the material at the base of the excavation during pile-driving operations when the Engineer judges it to be impractical to de-water inside a cofferdam and a concrete seal is to be placed around piling driven within the cofferdam. Remove swelling material to the

bottom of the seal grade after driving the piling. Remove the foundation material to exact footing grades where it is possible to de-water inside the cofferdam without placing a seal after driving piling. Do not backfill a foundation to compensate for excavation that has been extended below grade; fill such areas below grade with concrete at the time the seals or footings are placed.

Remove cofferdams after completing the substructure without disturbing or damaging the structure unless otherwise provided.

- 3.1.4. **Culverts and Storm Drains.** When the design requires special bedding conditions for culverts or storm drains, an excavation diagram will be shown on the plans. Do not exceed these limits of excavation.

Construct pipe structures in an open cut with vertical sides extending to a point 1 ft. above the pipe unless otherwise shown on the plans. When site conditions or the plans do not prohibit sloping the cut, the excavation may be stepped or laid back to a stable slope beginning 1 ft. above the pipe. Maintain the stability of the excavation throughout the construction period.

Construct the embankment for pipe to be installed in fill above natural ground to an elevation at least 1 ft. above the top of the pipe, and then excavate for the pipe.

- 3.1.4.1. **Unstable Material.** Remove the material to a depth of no more than 2 ft. below the grade of the structure when unstable soil is encountered at established footing grade, unless the Engineer authorizes additional depth. Replace soil removed with stable material in uniform layers no greater than 8 in. deep (loose measurement). Each layer must have enough moisture to be compacted by rolling or tamping as required to provide a stable foundation for the structure.

Use special materials such as flexible base, cement-stabilized base, cement-stabilized backfill, or other approved material when it is not feasible to construct a stable foundation as outlined above.

- 3.1.4.2. **Incompressible Material.** Remove the incompressible material to 6 in. below the footing grade, backfill with an approved compressible material, and compact in accordance with Section 400.3.3., "Backfill," if rock, part rock, or other incompressible material is encountered at established footing grade while placing prefabricated elements.

- 3.2. **Shaping and Bedding.**

- 3.2.1. **General.** Place at least 2 in. of fine granular material for precast box sections on the base of the excavation before placing the box sections. Use bedding as shown in Figure 1 for pipe installations. Use Class C bedding unless otherwise shown on the plans. The Engineer may require the use of a template to secure reasonably accurate shaping of the foundation material. Undercut the excavation at least 4 in. where cement-stabilized backfill is shown on the plans and backfill with stabilized material to support the pipe or box at the required grade.

B_c - Outside diameter or horizontal dimension
 D - Inside diameter of pipe
 d - Min. bedding material below pipe

D	d
$\leq 27"$	3"
30" to 60"	4"
$\geq 66"$	6"

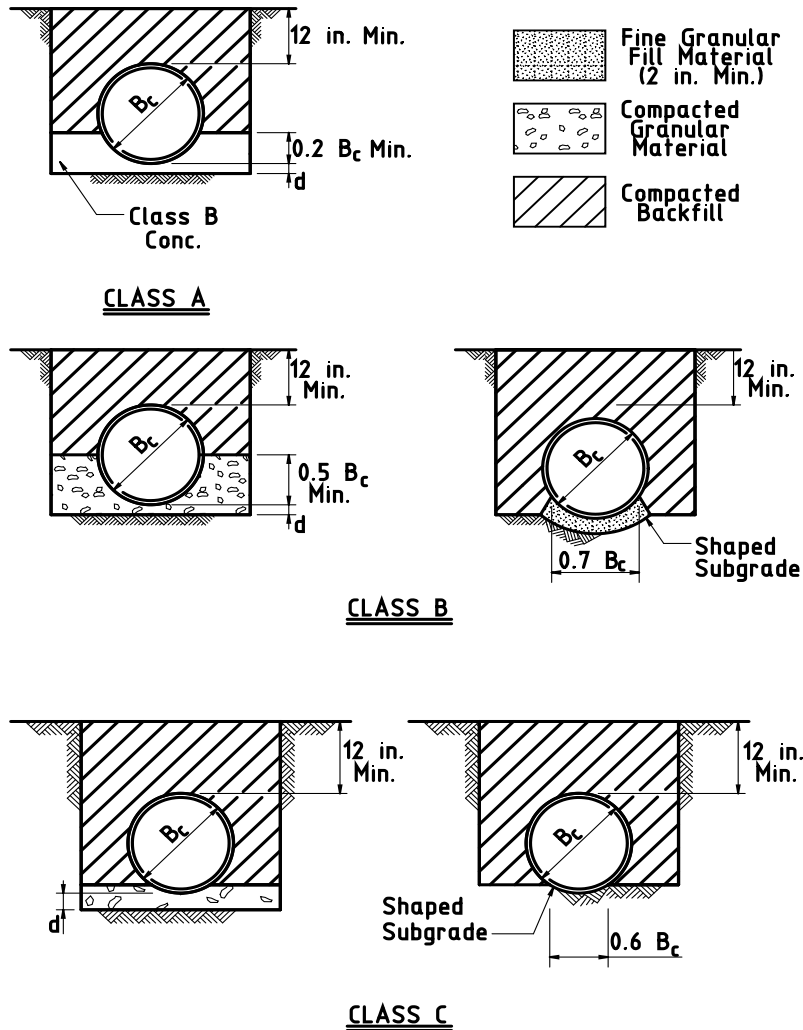


Figure 1
Bedding Diagrams

3.2.2. **Optional Shaping and Bedding for Precast Concrete Pipe.** For precast concrete pipe, the beddings in accordance with ASTM C1479 are permissible.

3.3. **Backfill.**

3.3.1. **General.** Backfill the excavation after placement of the permanent structure as soon as practical. Use backfill free of stones large enough to interfere with compaction; large or frozen lumps that will not break down readily under compaction; and wood or other extraneous material. Obtain backfill material from excavation or from other sources.

Place backfill in layers no greater than 10 in. deep (loose measurement) in areas not supporting a completed roadbed, retaining wall, or embankment. Place backfill in uniform layers no greater than 8 in. deep (loose measurement) in areas supporting a portion of a roadbed, retaining wall, or embankment. Compact each

layer to meet the density requirements of the roadbed, retaining wall, or embankment material, or as shown on the plans.

Bring each layer of backfill material to the moisture content needed to obtain the required density. Use mechanical tamps or rammers to compact the backfill. Rollers may be used to compact backfill if feasible.

Cohesionless materials may be used for backfilling. Use cohesionless materials that conform to the requirements shown in Table 1.

Table 1
Cohesionless Material Gradation Limits

Sieve Size	Percent Retained
3"	0
#10	Note 1
#200	90–100

1. No. 10 sieve requirements are 0–30% retained when used as aggregate for cement-stabilized backfill.

Compact cohesionless materials using vibratory equipment, water ponding, or a combination of both.

3.3.2. **Bridge Foundations, Retaining Walls, Manholes and Inlets, and Box Culverts.** Place backfill against the structure only after the concrete has reached the design strength required in Item 421.

Backfill retaining walls with material meeting the requirements of Item 423, "Retaining Walls." Backfill around bridge foundations, manholes and inlets, and culverts using material with particles no more than 4 in. in greatest dimension and a gradation that permits thorough compaction. Use rock or gravel mixed with soil if the percentage of fines is enough to fill all voids and ensure a uniform and thoroughly compacted mass of proper density.

Use mechanical tamps and rammers to avoid damage to the structure where backfill material is being placed too close to the structure to permit compaction with blading and rolling equipment.

Avoid wedging action of backfill against structures. Step or serrate slopes bounding the excavation to prevent such action. Place backfill uniformly around bridge foundations. Place backfill equally and in uniform layers along both sides of manholes and inlets and culverts.

The Engineer may require backfilling of structures excavated into hard, erosion-resistant material, and subject to erosive forces, with stone or lean concrete.

Box culverts may be opened to traffic as soon as enough backfill and embankment have been placed over the top to protect culverts against damage from heavy construction equipment. Repair damage to culvert caused by construction traffic at no additional expense to the Department.

3.3.3. **Pipe.** Bring backfill material to the proper moisture condition after installing bedding and pipe as required and place it equally along both sides of the pipe in uniform layers no greater than 8 in. deep (loose measurement). Compact each lift mechanically. Thoroughly compact materials placed under the haunches of the pipe to prevent damage or displacement of the pipe. Place backfill in this manner to the top-of-pipe elevation. Place and compact backfill above the top of the pipe in accordance with Section 400.3.3.1., "General."

The Engineer may reject backfill material containing more than 20% by weight of material retained on a 3-in. sieve with large lumps not easily broken down or that cannot be spread in loose layers. Material excavated by trenching machine must generally meet the requirements of this Section as long as large stones are not present.

Place and compact additional material where pipe extends beyond the toe of slope of the embankment and the depth of cover provided by backfill to the original ground level is less than the minimum required by the specifications for the type of pipe involved, until the minimum cover has been provided.

- 3.3.4. **Cement-Stabilized Backfill.** Backfill the excavation to the elevations shown with cement-stabilized backfill when shown on the plans. Use cement-stabilized backfill that contains aggregate conforming to the gradation limits shown in Table 1, water, and at least 7% hydraulic cement based on the dry weight of the aggregate, in accordance with [Tex-120-E](#).

Place cement-stabilized backfill equally along the sides of structures to prevent strain on or displacement of the structure. Fill voids when placing cement-stabilized backfill. Use hand-operated tampers, if necessary, to fill voids. Compact the mixture using density control unless otherwise shown on the plans. Place and compact the backfill within 2 hr. of mixing.

- 3.3.5. **Flowable Backfill.** Backfill the excavation with flowable backfill to the elevations indicated when shown on the plans. Prevent the structure from being displaced during the placement of the flowable fill, and prevent flowable fill from entering manholes and inlets, culverts, and drainage structures.

4. MEASUREMENT

This is a plans quantity measurement item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

- 4.1. **Structural Excavation.** Unless shown on the plans as a pay item, structural excavation quantities shown are for information purposes only.

When structural excavation is specified as a pay item, structural excavation for pipe headwalls, inlets, manholes, culvert or storm drain extensions less than 15 ft. long, bridge abutments, retaining walls, and side road and private entrance pipe culverts will not be measured. No allowance will be made for variance from plans quantity incurred by an alternate bid.

When specified as a pay item, structural excavation will be measured by the cubic yard as computed by the average end areas method or as shown on the plans. Excavation diagrams shown on the plans take precedence over the provisions of this Article.

- 4.1.1. **Boundaries of Measurement.**

- 4.1.1.1. **Pipe.**

- 4.1.1.1.1. **Pipe up to 42 Inches.** For pipe up to 42 in. nominal or equivalent diameter, no material outside vertical planes 1 ft. beyond and parallel to the horizontal projection of the outside surfaces of the pipe will be included.

- 4.1.1.1.2. **Pipe Larger than 42 Inches.** For pipes larger than 42 in. nominal or equivalent diameter, no material outside vertical planes located 2 ft. beyond and parallel to the horizontal projection of the outside surfaces of the pipe will be included.

Quantities for excavation in fill above natural ground include 1 ft. above the top of the pipe regardless of the height of completed fill. Excavation for pipe will be measured between the extreme ends of the completed structure, including end appurtenances as shown on the plans and from centerline to centerline of structures such as inlets and manholes.

- 4.1.1.2. **Footings, Walls, Boxes, and Other Excavation.** No material outside vertical planes 1 ft. beyond and parallel to the edges of the footings or outside walls will be included, whether a cofferdam or shoring is used. When plans provide the option of cast-in-place or precast boxes, measurement will be based on the cast-in-place option.

Where excavation in addition to that allowed for the footings is required for other portions of the structure, measurement for the additional excavation will be limited laterally by vertical planes 1 ft. beyond the face of the member and parallel to it, and vertically to a depth of 1 ft. below the bottom of the member.

- 4.1.1.3. **Excavation near Roadways and Channels.** At structure sites other than culverts and pipe excavations, the measurement of structural excavation will include only material below or outside the limits of the completed road or channel excavation. Roadway and channel excavation will be paid under Item 110, "Excavation." For culverts except side road and private entrance culverts, excavation within the limits of the structure and below or outside the limits of the completed roadway excavation will be measured as structural excavation.
- 4.1.2. **Falsework.** No measurement will be made for excavation necessary for placing forms or falsework that exceed the limits given in Section 400.4.1.1., "Boundaries of Measurement."
- 4.1.3. **Swelling.** Measurement will not include materials removed below footing grades to compensate for anticipated swelling due to pile driving, nor will it include material required to be removed due to swelling beyond the specified limits during pile-driving operations.
- 4.1.4. **Cave-Ins.** Measurement will not include additional volume caused by slips, slides, cave-ins, silting, or fill material resulting from the action of the elements or the Contractor's operation.
- 4.1.5. **Undercut.** Where rock or other incompressible or unstable material is undercut to provide a suitable foundation for pipe or box sections, such material below grade directed to be removed will be measured for payment.
- 4.1.6. **Grade Change.** Additional measurement will be made of the volume of excavation involved in the lowering or raising of the elevation of a footing, foundation, or structure unit, when such grade change is authorized.
- 4.2. **Cement-Stabilized Backfill.** Cement-stabilized backfill will be measured by the cubic yard as shown on the plans.
- 4.3. **Cutting and Restoring Pavement.** Cutting and restoring pavement will be measured by the square yard as shown on the plans. Excavation below pavement or base will be measured as structural excavation of the pertinent type.

5. PAYMENT

- 5.1. **Structural Excavation.** Unless specified as a pay item, structural excavation and backfill performed, and material furnished in accordance with this Item will not be paid for directly, but will be subsidiary to pertinent Items.

When structural excavation is specified as a pay item, the excavation and backfill work performed, and materials furnished will be paid for at the unit price bid for "Structural Excavation," "Structural Excavation (Box)," "Structural Excavation (Pipe)," and "Structural Excavation (Bridge)." This price includes concrete to compensate for excavation that has extended below grade for bridge foundations and retaining walls, and backfilling and compacting areas that were removed as part of structural excavation.

Cofferdams or other measures necessary for supporting excavations less than 5 ft. deep will not be measured or paid for directly, but will be subsidiary to the Contract.

Foundation seal concrete for cofferdams, when required, will be paid for as provided in the pertinent Items. If no direct method of payment is provided in the Contract, the work will be measured and paid for in accordance with Article 9.7., "Payment for Extra Work and Force Account Method." Seal placed for the convenience of the Contractor will not be paid for.

Unless otherwise provided, stone or lean concrete backfill around structures as provided for in Section 400.3.3.2., "Bridge Foundations, Retaining Walls, Manholes and Inlets, and Box Culverts," will be

measured and paid for as extra work in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

When structural excavation is specified as a pay item, a partial payment of 50% of the bid price will be made for structural excavation completed to the satisfaction of the Engineer but not backfilled. The remaining amount will be paid upon completion of backfilling. When the Contractor elects to excavate beyond plan requirements, no measurement will be made of the additional volume.

- 5.2. **Removal and Replacement of Unsuitable or Incompressible Material.** Removal and replacement of material will be paid for if directed. Removal and replacement of material or placement of special material made necessary by the softening of founding material due to the Contractor's sequence of work or operation will be at the Contractor's expense. Special material used or additional excavation made for the Contractor's convenience will not be paid for.

- 5.2.1. **Structural Excavation as a Pay Item.** Where special materials are not required or specified, payment for the removal and replacement of unstable or incompressible material will be made at a price equal to 200% of the unit price bid per cubic yard for "Structural Excavation." When the Contractor elects to remove and replace material deeper than directed, no measurement will be made on that portion below the directed elevation. This price is full compensation for removing the unstable or incompressible material; furnishing, hauling, placing, and compacting suitable replacement material; and equipment, labor, tools, and incidentals.

When shown on the plans or when directed, for the use of special materials such as flexible base, cement-stabilized base, cement-stabilized backfill, or other special material, payment for excavation below footing grades will be made at the unit price bid for "Structural Excavation." Payment for furnishing, hauling, placing, and compacting the flexible base, cement-stabilized base, cement-stabilized backfill, or other special materials will be made at the unit price bid for these items in the Contract, or, if the required material is not a bid item, in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

- 5.2.2. **Structural Excavation Not a Pay Item.** Where special materials for backfill are not required or specified, payment for the authorized removal and replacement of unstable or incompressible material will be measured and paid for at \$18 per cubic yard of material removed. This price is full compensation for removing the unstable or incompressible material; furnishing, hauling, placing, and compacting suitable replacement material; and equipment, labor, tools, and incidentals.

When shown on the plans or when directed, for the use of special materials such as flexible base, cement-stabilized base, cement-stabilized backfill, or other special material, excavation below the footing grades will be paid for at \$12 per cubic yard. Payment for furnishing, hauling, placing, and compacting the flexible base, cement-stabilized base, cement-stabilized backfill, or other special materials will be made at the unit price bid for these items, or, if the required material is not a bid item, in accordance with Article 9.7., "Payment for Extra Work and Force Account Method."

- 5.3. **Lowering of a Structure Foundation.** If the Engineer requires a structure foundation to be lowered to an elevation below the grade shown on the plans, overexcavation will be paid for in accordance with Table 2.

Table 2
Payment for Required Overexcavation

Variance of Revised Footing Grade from Plan Grade	Payment Terms	Variance of Revised Footing Grade from Plan Grade
	"Structural Excavation" is a Bid Item	"Structural Excavation" is Not a Bid Item
Up to and including 5 ft.	Unit price equal to 115% of unit price bid for "Structural Excavation"	\$12 per cubic yard
Over 5 ft. up to 10 ft.	Unit price equal to 125% of unit price bid for "Structural Excavation"	\$15 per cubic yard
Over 10 ft.	In accordance with Article 9.7., "Payment for Extra Work and Force Account Method."	

- 5.4. **Cement-Stabilized Backfill.** Cement-stabilized backfill will be paid for at the unit price bid for "Cement-Stabilized Backfill."

- 5.5. **Cutting and Restoring Pavement.** Cutting and restoring pavement will be paid for at the unit price bid for "Cutting and Restoring Pavement" of the type specified.

Work done to repair damage to base or pavement incurred outside the limits shown on the plans, or the limits authorized, will not be measured for payment.

The unit prices bid are full compensation for excavation, including removing obstructions and plugging drainage systems; bedding and backfilling, including placing, sprinkling, and compaction of material; soundings; cleaning and filling seams; constructing and removing cofferdams; de-watering, sheeting, or bracing excavations up to and including 5 ft. deep; pumps; drills; explosives; disposition of surplus material; cutting pavement and base to neat lines; and materials, hauling, equipment, labor, tools, and incidentals.

Flowable backfill will be paid for in accordance with Item 401. Protection methods for open excavations deeper than 5 ft. will be measured and paid for as required in accordance with Item 402 or Item 403.

Item 465

Junction Boxes, Manholes, and Inlets



1. DESCRIPTION

Construct junction boxes, manholes, and inlets, complete in place or to the stage detailed, including furnishing and installing frames, grates, rings, and covers.

2. MATERIALS

Furnish materials in accordance with the following.

- Item 420, "Concrete Substructures"
- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"
- Item 471, "Frames, Grates, Rings, and Covers"

Cast-in-place junction boxes, manholes, inlets, risers, and appurtenances are acceptable unless otherwise shown on the plans. Alternate designs for cast-in-place items must be acceptable to the Engineer and must conform to functional dimensions and design loading. Alternate designs must be designed and sealed by a licensed professional engineer.

- 2.1. **Concrete.** Furnish concrete in accordance with [DMS-7305](#), "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures," for formed and machine-made precast junction boxes, manholes, and inlets. Furnish Class C concrete for cast-in-place junction boxes, manholes, and inlets unless otherwise shown on the plans.
- 2.2. **Mortar.** Furnish mortar conforming to [DMS-4675](#), "Cementitious Grouts and Mortars for Miscellaneous Applications."
- 2.3. **Timber.** Provide sound timber that is at least 3-in. nominal thickness and reasonably free of knots and warps for temporary covers when used with Stage I construction. (Refer to Article 465.3., "Construction.")
- 2.4. **Other Materials.** Use commercial-type hardware as approved.

3. CONSTRUCTION

Construct all types of junction boxes, manholes, and inlets either complete or in two stages, described as Stage I and Stage II.

Construct the Stage I portion of junction boxes, manholes, and inlets as shown on the plans or as specified in this Item. Furnish and install a temporary cover as approved.

Furnish and install the storm drain pipe and a temporary plug for the exposed end of the storm drain pipe from the storm drain to a point below the top of curb indicated on the plans for Stage I construction of cast iron or steel inlet units.

Construct Stage II after the pavement structure is substantially complete, unless otherwise approved.

Construct the remaining wall height and top of junction box, manhole, or inlet for Stage II, and furnish and install any frames, grates, rings and covers, curb beams, or collecting basins required.

Construct cast-in-place junction boxes, manholes, and inlets in accordance with Item 420. Forms are required for all concrete walls. Outside wall forms for cast-in-place concrete may be omitted with approval if the surrounding material can be trimmed to a smooth vertical face.

- 3.1. **Precast Junction Boxes, Manholes, and Inlets.** Construct formed and machine-made precast junction boxes, manholes, and inlets in accordance with [DMS-7305](#) and as shown on the plans, except as otherwise specified in this Item.

Multi-project fabrication plants as defined in [DMS-7305](#) that produce junction boxes, manholes, and inlets will be approved by the Materials and Tests Division in accordance with [DMS-7305](#). The Department's MPL has a list of approved multi-project junction box, manhole, and inlet fabrication plants.

- 3.1.1. **Marking.** Clearly mark each precast junction box, manhole, and inlet unit with the following information:
- name or trademark of fabricator and plant location,
 - product designation,
 - ASTM designation (if applicable),
 - date of manufacture,
 - designation "TX" for precast units fabricated in accordance with [DMS-7305](#),
 - designated fabricator's approval stamp for each approved unit, and
 - designation "SR" for product meeting sulfate-resistant concrete plan requirements (when applicable).

- 3.1.2. **Defects and Repair.** Repair precast junction boxes, inlets, and manholes, if necessary, in accordance with the Annex of [DMS-7305](#). Precast junction boxes, inlets, and manholes may be rejected for any of the conditions stated in this Annex.

- 3.1.3. **Storage and Shipment.** Store precast units on a level surface. Do not ship units until design strength requirements have been met.

- 3.2. **Excavation, Shaping, Bedding, and Backfill.** Excavate, shape, bed, and backfill in accordance with Item 400, "Excavation and Backfill for Structures." Immediate backfilling is permitted for all junction box, manhole, and inlet structures where joints consist of rubber boots, rubber gaskets, or bulk or preformed joint sealant. Take precautions in placing and compacting the backfill to avoid any movement of junction boxes, manholes, and inlets. Remove and replace junction boxes, manholes, and inlets damaged by the Contractor at no expense to the Department.

- 3.3. **Junction Boxes, Manholes, and Inlets for Precast Concrete Pipe Storm Drains.** Construct junction boxes, manholes, and inlets for precast concrete pipe storm drains before completion of storm drain lines into or through the junction box, manhole, or inlet. Neatly cut all storm drains at the inside face of the walls of the junction box, manhole, or inlet.

- 3.4. **Junction Boxes, Manholes, and Inlets for Box Storm Drains.** Place bases or risers of junction boxes, manholes, and inlets for box storm drains before or in conjunction with placement of the storm drain. Backfill the junction box, manhole, or inlet and storm drain as a whole.

- 3.5. **Inverts.** Shape and route floor inverts passing out or through the junction box, manhole, or inlet as shown on the plans. Shape by adding and shaping mortar or concrete after the base is placed or by placing the required additional material with the base.

- 3.6. **Finishing Complete Junction Boxes, Manholes, and Inlets.** Complete junction boxes, manholes, and inlets as shown on the plans. Backfill to original ground elevation in accordance with Item 400.

- 3.7. **Finishing Stage I Construction.** Complete Stage I construction by constructing the walls to the elevations shown on the plans and backfilling to required elevations in accordance with Item 400.

- 3.8. **Stage II Construction.** Construct subgrade and base course or concrete pavement over Stage I junction box, manhole, or inlet unless otherwise approved. Excavate to expose the top of Stage I construction and complete the junction box, manhole, or inlet as shown on the plans and in accordance with these specifications, including backfill and cleaning of all debris from the bottom of the junction box, manhole, or inlet.
- 3.9. **Inlet Units.** Install cast iron or steel inlet units in conjunction with the construction of concrete curb and gutter. Set the inlet units securely in position before placing concrete for curb and gutter. Form openings for the inlets and recesses in curb and gutter as shown on the plans. Place and thoroughly consolidate concrete for curb and gutter adjacent to inlets and around the inlet castings and formed openings and recesses without displacing the inlet units.

4. MEASUREMENT

All junction boxes, manholes, and inlets satisfactorily completed as shown on the plans and in conformance with specifications will be measured by each junction box, manhole, or inlet complete, or by each junction box, manhole, or inlet completed to the stage of construction required by the plans.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for as follows.

- 5.1. **Complete Manholes.** Payment for complete manholes will be made at the unit price bid for "Manhole (Complete)" of the type specified.
- 5.2. **Complete Inlets.** Payment for inlets will be made at the unit price bid for "Inlet (Complete)" of the type specified.
- 5.3. **Complete Junction Boxes.** Payment for junction boxes will be made at the unit price bid for "Junction Box (Complete)" of the type specified.
- 5.4. **Manholes Stage I.** Payment for manholes, Stage I, will be made at the unit price bid for each "Manhole (Stage I)" of the type specified.
- 5.5. **Manholes Stage II.** Payment for manholes, Stage II, will be made at the unit price bid for each "Manhole (Stage II)" of the type specified.
- 5.6. **Inlets Stage I.** Payment for inlets, Stage I, will be made at the unit price bid for each "Inlet (Stage I)" of the type specified.
- 5.7. **Inlets Stage II.** Payment for inlets, Stage II, will be made at the unit price bid for each "Inlet (Stage II)" of the type specified.
- 5.8. **Junction Boxes Stage I.** Payment for junction boxes, Stage I, will be made at the unit price bid for each "Junction Box (Stage I)" of the type specified.
- 5.9. **Junction Boxes Stage II.** Payment for junction boxes, Stage II, will be made at the unit price bid for each "Junction Box (Stage II)" of the type specified.

These prices are full compensation for concrete, reinforcing steel, mortar, frames, grates, rings and covers, excavation, and backfill, and for all other materials, tools, equipment, labor, and incidentals.

Item 479

Adjusting Manholes and Inlets



1. DESCRIPTION

Adjust or cap existing manholes or inlets. Drainage junction boxes will be classified as manholes.

2. MATERIALS

Reuse removed manhole and inlet rings, plates, grates, and covers if they are in good condition as determined by the Engineer. Provide additional materials in accordance with Item 465, "Junction Boxes, Manholes, and Inlets," at no cost to the Department. Use single- or multiple-piece prefabricated metal, polymer, plastic, or rubber extension rings for the adjustment of manholes as approved. Limit the height of flexible extension rings to 3 in. Provide concrete that meets Item 421, "Hydraulic Cement Concrete."

Ensure frames and grates or rings and covers above grade are of single-piece cast iron manufactured in accordance with Item 471, "Frames, Grates, Rings, and Covers." Provide steel riser material compliant with ASTM A36. Provide steel adjustable risers that include a stainless steel adjustable stud with positive lock that adjusts the diameter $\pm 3/8$ in. Provide steel risers that include a minimum of three Allen head set screws that lock the riser to the manhole or catch basin frame. Ensure seating surfaces are flat and true and provide a non-rocking seating surface.

3. CONSTRUCTION

Perform all work in accordance with Item 465. Excavate and backfill in accordance with Item 400, "Excavation and Backfill for Structures." Carefully remove manhole and inlet rings, covers, plates, and grates to be reused. Clean mortar and grease from the contact areas of all reused items. Dispose of unused removed material as directed. Use construction methods described in Section 479.3.1., "Lowering the Top of a Manhole or Inlet," and Section 479.3.2., "Raising the Top of a Manhole or Inlet," unless otherwise shown on the plans.

3.1. **Lowering the Top of a Manhole or Inlet.** Remove a sufficient depth of brick courses or concrete to permit reconstruction on a batter not exceeding 1 in. horizontal to 2 in. vertical. Clean the mortar from the top course of brick where brickwork is present. Rebuild the manhole or inlet to the original top dimensions or to the dimensions shown on the plans. Install the manhole or inlet ring and the cover, plate, or grate to conform to the proposed new surface contour.

3.2. **Raising the Top of a Manhole or Inlet.** Clean the top surface of brick or concrete. Construct to the proper new elevation using new rubber extension rings, concrete rings, or Class A concrete. Provide rubber manhole and catch basin risers of minimum 80% by weight recycled rubber and minimum 10% by volume recycled resorcinol-formaldehyde-latex (RFL) coated fiber. Provide rubber manhole and catch basin adjustment risers that are of uniform quality, free of cracks, holes, and any other surface defects. Construction must be suitable for AASHTO H20 live loads. Load certifications for materials will be made available upon request. Install the manhole or inlet ring and the cover, plate, or grate to conform to the proposed new surface contour. Install prefabricated extension rings in conformance with manufacturer's instructions.

3.3. **Capping an Inlet or Manhole.** Remove the inlet or manhole to a minimum of 1 ft. below subgrade elevation or as shown on the plans. Cap as shown on the plans.

4. MEASUREMENT

Adjusted or capped manholes or inlets will be measured as each manhole or inlet adjusted.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Adjusting Manholes," "Adjusting Inlets," or "Adjusting Manholes and Inlets." This price is full compensation for materials, including backfill as required, and for excavation, tools, equipment, labor, and incidentals.

Item 496

Removing Structures



1. DESCRIPTION

Remove and either dispose of or salvage structures.

2. CONSTRUCTION

- 2.1. **Demolition Plans.** Follow the demolition sequence shown on the plans for bridge structures to be removed or submit a demolition plan if shown on the plans. Include in the required demolition plan the type and location of equipment to be used, the method and sequence of removal of the structural elements, and a narrative indicating the stability of the partially demolished structure is maintained throughout the demolition process. Have these plans signed and sealed by a licensed professional engineer when demolished structure intersects active roadways and as otherwise shown on the plans. Submit required demolition plans at least 14 days before starting work unless otherwise directed. Department approval of these plans is not required, but the Department reserves the right to request modifications to the plans when work could affect the safety of the traveling public and when around other transportation facilities to remain in place. Notify the Department 30 days before starting any bridge demolition work to allow for required notifications to other agencies.
- 2.2. **Removal.**
- 2.2.1. **Pipes.** Avoid damaging appurtenances determined by the Engineer to be salvageable.
- 2.2.2. **Concrete, Brick, or Stone Structures.** Portions of structures that will not interfere with the proposed construction may remain in place 2 ft. or more below the permanent ground line. Square off remaining structures and cut reinforcement flush with the surface of the concrete.
- 2.2.3. **Steel Structures.** Dismantle steel to be retained by the Department or re-erected by cold-cutting fastener heads and punching or drilling the remaining portion of the fastener, air-arc gouging welded connections, and flame-cutting beams along a straight line. The Engineer may approve other methods of cutting. Cut beams at the locations shown on the plans. Match-mark steel to be re-erected with paint in conformance with the erection drawings. Remove steel piles or cut off 2 ft. or more below the permanent ground line.
- 2.2.4. **Timber Structures.** Remove all fasteners from timber determined by the Engineer to be salvageable. Remove timber piles or cut off 2 ft. or more below the permanent ground line.
- 2.3. **Salvage.** Avoid damage to materials shown on the plans to be salvaged. Deliver materials to be retained by the Department to the location shown on the plans. Block up salvaged steel materials off the ground.
- 2.4. **Disposal.** Material removed that is not deemed to be salvageable is the property of the Contractor. Dispose of removed material off the right of way in conformance with federal, state, and local regulations.
- 2.5. **Backfill.** Backfill excavation and voids to the original ground line if resulting from the removal of structures. Place backfill that will support any portion of the roadbed or embankment to the same requirements for placing embankment. Backfill other areas in 10-in. layers, loose measurement, and compact to the density of adjacent undisturbed material.

3. MEASUREMENT

This Item will be measured by each structure or by the foot.

4.

PAYMENT

The work performed in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Removing Structures" of the type of structure specified. This price is full compensation for demolition plan preparation, loading, hauling, disposal, stockpiling, removal of appurtenances, excavation and backfill, equipment, labor, tools, and incidentals.

Item 500

Mobilization



1. DESCRIPTION

Establish and remove offices, plants, and facilities. Move personnel, equipment, and supplies to and from the project or the vicinity of the project site to begin work or complete work on Contract Items. Bonds and insurance are required for performing mobilization.

For Contracts with emergency mobilization, provide a person and method of contact available 24 hr. per day, 7 days per week, unless otherwise shown on the plans. The time of notice will be the transmission time of the written notice or notice provided orally by the Department's representative.

2. MEASUREMENT

This Item will be measured by the lump sum or each as the work progresses. Mobilization is calculated on the base bid only and will not be paid for separately on any additive alternate items added to the Contract.

3. PAYMENT

For this Item, the adjusted Contract amount will be calculated as the total Contract amount less the lump sum for mobilization. Material on hand will not be considered as a construction item earned when calculating mobilization payment. Except for Contracts with callout or emergency work, mobilization will be paid in partial payments as follows.

- Payment will be made upon presentation of a paid invoice for the payment or performance bonds and required insurance.
- Payment will be made upon verification of documented expenditures for plant and facility setup. The combined amount for all these facilities will be no more than 10% of the mobilization lump sum or 1% of the total Contract amount, whichever is less.
- When 1% of the adjusted Contract amount for construction Items is earned, 50% of the mobilization lump sum bid or 5% of the total Contract amount, whichever is less, will be paid. Previous payments under this Item will be deducted from this amount.
- When 5% of the adjusted Contract amount for construction Items is earned, 75% of the mobilization lump sum bid or 10% of the total Contract amount, whichever is less, will be paid. Previous payments under the Item will be deducted from this amount.
- When 10% of the adjusted Contract amount for construction Items is earned, 90% of the mobilization lump sum bid or 10% of the total Contract amount, whichever is less, will be paid. Previous payments under this Item will be deducted from this amount.
- Upon final acceptance, 97% of the mobilization lump sum bid will be paid. Previous payments under this Item will be deducted from this amount.
- Payment for the remainder of the lump sum bid for "Mobilization" will be made after all submittals are received, after final quantities have been determined, and when any separate vegetative establishment and maintenance, test, and performance periods provided for in the Contract have been successfully completed.

For projects with extended maintenance or performance periods, payment for the remainder of the lump sum bid for "Mobilization" will be made 6 mo. after final acceptance.

For Contracts with callout or emergency work, "Mobilization" will be paid as follows.

- Payment will be made upon presentation of a paid invoice for the payment of performance bonds and required insurance.
- Mobilization for callout work will be paid for each callout work request.
- Mobilization for emergency work will be paid for each emergency work request.

Item 502

Barricades, Signs, and Traffic Handling



1. DESCRIPTION

Provide, install, move, replace, maintain, clean, and remove all traffic control devices shown on the plans and as directed.

Temporary work zone (TWZ) traffic control devices manufactured after December 31, 2019, must have been successfully tested to the crashworthiness requirements of the 2016 edition of the *AASHTO Manual for Assessing Safety Hardware* (MASH). An exception to the manufacture date applies when, based on the project's date of letting, a category of MASH-2016 compliant TWZ traffic control devices was not approved, or was not self-certified. In such case, devices that meet NCHRP-350 or MASH-2009 may be used.

Temporary work zone (TWZ) traffic control devices manufactured on or before December 31, 2019, must at a minimum have been successfully tested to the crashworthiness requirements of NCHRP-350 or MASH-2009. These devices may continue to be used throughout their normal service lives.

Such TWZ traffic control devices include:

- portable sign supports,
- barricades,
- portable traffic barriers designated exclusively for use in TWZs,
- crash cushions designated exclusively for use in TWZs,
- longitudinal channelizers, and
- truck-mounted attenuators (TMAs) and trailer attenuators (TAs).

Category I devices (i.e., lightweight devices), such as cones, tubular markers, and drums without lights or signs attached, may be self-certified by the vendor or provider, with documentation provided to the Department, or as shown on Department's Compliant Work Zone Traffic Control Device List.

2. CONSTRUCTION

Comply with the requirements of Article 7.2., "Safety."

Implement the traffic control plan (TCP) shown on the plans.

Install traffic control devices straight and plumb. Make changes to the TCP only as approved. Minor adjustments to meet field conditions are allowed.

Submit Contractor-proposed TCP changes, signed and sealed by a licensed professional engineer, for approval. The Engineer may develop, sign, and seal Contractor-proposed changes. Changes must conform to guidelines established in the TMUTCD using approved products from the Department's Compliant Work Zone Traffic Control Device List.

Maintain traffic control devices by taking corrective action when notified. Corrective actions include, but are not limited to, cleaning, replacing, straightening, covering, and removing devices. Maintain the devices such that they are properly positioned and spaced, are legible, and have retroreflective characteristics that meet requirements day or night and in all weather conditions.

The Engineer may authorize or direct in writing the removal or relocation of project limit advance warning signs. When project limit advance warning signs are removed before final acceptance, provide traffic control in accordance with the TMUTCD for minor operations as approved.

Remove all traffic control devices upon completion of the work as shown on the plans or as directed.

3. MEASUREMENT

"Barricades, Signs, and Traffic Handling" will be measured by the month. Law enforcement personnel with patrol vehicles will be measured by the hour for each person.

4. PAYMENT

- 4.1. **Barricades, Signs, and Traffic Handling.** Except for Contracts with callout work and work orders, the work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Barricades, Signs, and Traffic Handling." This price is full compensation for installation, maintenance, adjustments, replacements, removal, materials, equipment, labor, tools, and incidentals.

When the plans establish pay items for particular work in the TCP, that work will be measured and paid for under pertinent Items.

TMA's and TA's will be paid for under Item 505, "Truck-Mounted Attenuator (TMA) and Trailer Attenuator (TA)." Portable changeable message signs will be paid for under Item 503, "Portable Changeable Message Sign." Portable traffic signals will be paid for under Item 510, "One-Way Traffic Control," unless otherwise shown on the plans.

In accordance with Section 7.2.3., "Safety Contingency," funds have been included in the project budget to improve the effectiveness of traffic handling and enhance safety during the course of this project.

- 4.1.1. **Initiation of Payment.** Payment for this Item will begin on the first estimate after barricades, signs, and traffic handling devices have been installed in accordance with the TCP.
- 4.1.2. **Paid Months.** Monthly payment will be made each succeeding month for this Item provided the barricades, signs, and traffic handling devices have been installed and maintained in accordance with the TCP until the Contract amount has been paid.
- If, within the timeframe established by the Engineer, the Contractor fails to provide or properly maintain signs and barricades in compliance with the Contract requirements, as determined by the Engineer, the Contractor will be considered in noncompliance with this Item. No payment will be made for the months in question, and the total final payment quantity will be reduced by the number of months the Contractor was in noncompliance.
- 4.1.3. **Maximum Total Payment Before Acceptance.** The total payment for this Item will not exceed 10% of the total Contract amount before final acceptance in accordance with Article 5.12., "Final Acceptance." The remaining balance will be paid in accordance with Section 502.4.1.5., "Balance Due."
- 4.1.4. **Total Payment Quantity.** The quantity paid under this Item will not exceed the total quantity shown on the plans, except as modified by change order and as adjusted in accordance with Section 502.4.1.2., "Paid Months." An overrun of the plans quantity for this Item will not be allowed for approving designs; testing; material shortages; closed construction seasons; curing periods; establishment, performance, test, and maintenance periods; failure to complete the work in the number of months allotted; or delays caused directly or indirectly by Contract requirements.

- 4.1.5. **Balance Due.** The remaining unpaid months of barricades less non-compliance months will be paid on final acceptance of the project, if all work is complete and accepted in accordance with Article 5.12., "Final Acceptance."
- 4.1.6. **Contracts with Callout Work and Work Orders.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be subsidiary to pertinent Items, except for federally funded Contracts.
- 4.2. **Law Enforcement Personnel.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid by Contractor force account for "Law Enforcement Personnel." This price is full compensation for furnishing all labor, materials, supplies, equipment, patrol vehicles, fees, and incidentals necessary to complete the work as directed.

Item 506

Temporary Erosion, Sedimentation, and Environmental Controls



1. DESCRIPTION

Install, maintain, and remove erosion, sedimentation, and environmental control measures to prevent or reduce the discharge of pollutants and protect environmental resources in accordance with the Stormwater Pollution Prevention Plan (SWP3) and environmental layout shown on the plans. Comply with Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) TXR150000 requirements. Control measures are defined as Best Management Practices (BMPs) used to prevent or reduce the discharge of pollutants and measures to protect environmental resources. Control measures include, but are not limited to, rock filter dams, temporary pipe slope drains, temporary paved flumes, construction exits, earthwork for erosion control, pipe, construction perimeter fence, sandbags, temporary sediment control fence, biodegradable erosion control logs, vertical tracking, temporary or permanent seeding, and other measures. Erosion and sediment control devices must be selected from the Erosion Control Approved Products List. Perform work in a manner to prevent degradation of receiving waters, protect environmental resources, facilitate project construction, and comply with applicable federal, state, and local regulations. Ensure the installation and maintenance of control measures are performed in conformance with the manufacturer's or designer's specifications.

2. MATERIALS

Furnish materials in accordance with the following.

- Item 161, "Compost"
- Item 432, "Riprap"
- Item 556, "Pipe Underdrains"

2.1. Rock Filter Dams.

2.1.1. **Aggregate.** Furnish aggregate with approved hardness, durability, cleanliness, and resistance to crumbling, flaking, and eroding. Provide the following.

- **Types 1, 2, and 4 Rock Filter Dams.** Use 3–6-in. aggregate.
- **Type 3 Rock Filter Dams.** Use 4–8-in. aggregate.

2.1.2. **Wire.** Provide minimum 20-gauge galvanized wire for the steel wire mesh and tie wires for Types 2 and 3 rock filter dams. Type 4 dams require:

- a double-twisted, hexagonal weave with a nominal mesh opening of 2-1/2 × 3-1/4 in.,
- minimum 0.0866-in. steel wire for netting,
- minimum 0.1063-in. steel wire for selvages and corners, and
- minimum 0.0866 in. for binding or tie wire.

2.1.3. **Sandbag Material.** Furnish sandbags meeting Section 506.2.8., "Sandbags," except that any gradation of aggregate may be used to fill the sandbags.

2.2. **Temporary Pipe Slope Drains.** Provide corrugated metal pipe, polyvinyl chloride (PVC) pipe, flexible tubing, watertight connection bands, grommet materials, prefabricated fittings, and flared entrance sections as shown on the plans. Recycled and other materials meeting these requirements are allowed if approved.

Furnish concrete in accordance with Item 432.

- 2.3. **Temporary Paved Flumes.** Furnish asphalt concrete, hydraulic cement concrete, or other comparable non-erodible material as shown on the plans. Provide rock or rubble with a minimum diameter of 6 in. and a maximum volume of 1/2 cu. ft. for the construction of energy dissipaters.
- 2.4. **Construction Exits.** Provide materials as shown on the plans and in accordance with this Section.
- 2.4.1. **Rock Construction Exit.** Provide crushed aggregate for long- and short-term construction exits. Furnish aggregates that are clean, hard, durable, and free of adherent coatings such as salt, alkali, dirt, clay, loam, shale, soft or flaky materials, and organic and injurious matter. Use 4–8-in. aggregate for Type 1. Use 2–4-in. aggregate for Type 3.
- 2.4.2. **Timber Construction Exit.** Furnish No. 2 quality or better railroad ties and timbers for long-term construction exits, free of large and loose knots and treated to control rot. Fasten timbers using nuts and bolts or lag bolts, of at least 1/2 in. diameter, unless otherwise shown on the plans or allowed. Provide plywood or pressed wafer board at least 1/2 in. thick for short-term exits.
- 2.4.3. **Foundation Course.** Provide a foundation course consisting of flexible base, bituminous concrete, hydraulic cement concrete, or other materials as shown on the plans or directed.
- 2.5. **Embankment for Erosion Control.** Provide rock, loam, clay, topsoil, or other earth materials that will form a stable embankment to meet the intended use.
- 2.6. **Pipe.** Provide pipe outlet material in accordance with Item 556 and as shown on the plans.
- 2.7. **Construction Perimeter Fence.**
- 2.7.1. **Posts.** Provide essentially straight wood or steel posts that are at least 60 in. long. Furnish soft wood posts with a minimum diameter of 3 in. or use nominal 2 × 4-in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/5 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
- 2.7.2. **Fence.** Provide orange construction fencing as approved.
- 2.7.3. **Fence Wire.** Provide 14-gauge or larger galvanized smooth or twisted wire. Provide 16-gauge or larger tie wire.
- 2.7.4. **Flagging.** Provide brightly colored flagging that is fade-resistant and at least 3/4 in. wide to provide maximum visibility both day and night.
- 2.7.5. **Staples.** Provide staples with a crown at least 1/2 in. wide and legs at least 1/2 in. long.
- 2.7.6. **Used Materials.** Previously used materials meeting the applicable requirements may be used if approved.
- 2.8. **Sandbags.** Provide sandbag material of polypropylene, polyethylene, or polyamide woven fabric with a minimum unit weight of 4 oz. per square yard, a Mullen burst-strength exceeding 300 psi, and an ultraviolet (UV) stability exceeding 70%.

Use natural coarse sand or manufactured sand meeting the gradation shown in Table 1 to fill sandbags. Filled sandbags must be 24–30 in. long, 16–18 in. wide, and 6–8 in. thick.

Table 1
Sand Gradation

Sieve Size	Retained (% by Weight)
#4	Maximum 3%
#100	Minimum 80%
#200	Minimum 95%

Aggregate may be used instead of sand for situations where sandbags are not adjacent to traffic. The aggregate size must not exceed 3/8 in.

- 2.9. **Temporary Sediment Control Fence.** Provide a net-reinforced fence using woven geotextile fabric. Logos visible to the traveling public will not be allowed.
- 2.9.1. **Fabric.** Provide fabric materials in accordance with [DMS-6230](#), "Temporary Sediment Control Fence Fabric."
- 2.9.2. **Posts.** Provide essentially straight wood or steel posts with a minimum length of 48 in., unless otherwise shown on the plans. Furnish soft wood posts at least 3 in. in diameter or use nominal 2 × 4-in. boards. Furnish hardwood posts with a minimum cross-section of 1-1/2 × 1-1/2 in. Furnish T- or L-shaped steel posts with a minimum weight of 1.25 lb. per foot.
- 2.9.3. **Net Reinforcement.** Provide net reinforcement of at least 12.5-gauge (Standard Wire Gauge) galvanized welded wire mesh, with a maximum opening size of 2 × 4 in., at least 24 in. wide, unless otherwise shown on the plans.
- 2.9.4. **Staples.** Provide staples with a crown at least 3/4 in. wide and legs 1/2 in. long.
- 2.9.5. **Used Materials.** Use recycled material meeting the applicable requirements if approved.
- 2.10. **Biodegradable Erosion Control Logs.**
- 2.10.1. **Core Material.** Furnish core material that is biodegradable or recyclable. Use compost, mulch, aspen excelsior wood fibers, chipped site vegetation, agricultural rice or wheat straw, coconut fiber, 100% recyclable fibers, or any other acceptable material unless specifically shown on the plans. Permit no more than 5% of the material to escape from the containment mesh. Furnish compost in accordance with Item 161.
- 2.10.2. **Containment Mesh.** Furnish containment mesh that is 100% biodegradable, photodegradable, or recyclable, such as burlap, twine, UV photodegradable plastic, polyester, or any other acceptable material.

Furnish biodegradable or photodegradable containment mesh when log will remain in place as part of a vegetative system.

Furnish recyclable containment mesh for temporary installations.
- 2.10.3. **Size.** Furnish biodegradable erosion control logs with diameters as shown on the plans or as directed. Stuff containment mesh densely so logs do not deform.

3. QUALIFICATIONS, TRAINING, AND EMPLOYEE REQUIREMENTS

- 3.1. **Contractor Responsible Person Environmental (CRPE) Qualifications and Responsibilities.** Provide and designate in writing at the preconstruction conference a CRPE and alternate CRPE who have overall responsibility for managing environmental compliance. The CRPE will implement stormwater and erosion control practices, oversee and observe stormwater control measure monitoring and management, oversee environmental compliance requirements, and monitor the project site daily and produce daily monitoring reports as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES CGP TXR150000. Take required training in accordance with Section 7.7.4.4, "Training."

Maintain daily monitor reports and make them available within 24 hr. upon request. During time suspensions when work is not occurring or on Contract non-work days, daily inspections are not required unless a rain event has occurred. The CRPE will provide recommendations on how to improve the effectiveness of control measures. Attend the Department's preconstruction conference for the project.

Ensure training is completed in accordance with Section 7.7.4.4., "Training," by all applicable personnel before employees work on the project. Document, maintain, and make available within 24 hr. of a request, a list, signed by the CRPE, of all applicable Contractor and subcontractor employees who have completed the training. Include the employee's name, the training course name, and the date the employee completed the training.

- 3.2. **Contractor Superintendent Qualifications and Responsibilities.** Provide a superintendent who is competent, has experience with and knowledge of stormwater management, and is knowledgeable of the requirements and the conditions of the TPDES CGP TXR150000. The superintendent will manage and oversee the day-to-day operations and activities at the project site, work with the CRPE to provide effective stormwater management at the project site, represent and act on behalf of the Contractor, and attend the Department's preconstruction conference for the project. Take training as required in Section 7.7.4.4., "Training."

4. CONSTRUCTION

- 4.1. **Contractor Responsibilities.** Implement the SWP3 for the project site in accordance with the plans and specifications, TPDES CGP TXR150000, and as directed. Coordinate stormwater management with all other work on the project. Develop and implement an SWP3 for project-specific material supply plants within and outside the Department's right of way in conformance with the specific or general stormwater permit requirements. Prevent water pollution from stormwater associated with construction activity from entering any surface water or private property on or adjacent to the project site.
- 4.2. **Implementation.** The CRPE, or alternate CRPE, must be accessible by telephone and able to respond to project-related stormwater management or other environmental emergencies 24 hr. per day.
- 4.2.1. **Commencement.** Implement the SWP3 as shown on the plans and as directed. Contractor-proposed recommendations for changes will be allowed as approved. Conform to the established guidelines in the TPDES CGP TXR150000 to make changes. Do not implement changes until approval has been received and changes have been incorporated into the plans. Minor adjustments to meet field conditions are allowed and will be recorded in the SWP3.
- 4.2.2. **Phasing.** Implement control measures before the commencement of activities that result in soil disturbance. Phase and minimize the soil disturbance to the areas shown on the plans. Coordinate temporary control measures with permanent control measures and all other work activities on the project to assure economical, effective, safe, and continuous water pollution prevention. Provide control measures that are appropriate to the construction means, methods, and sequencing allowed by the Contract. Exercise precaution throughout the life of the project to prevent pollution of ground waters and surface waters. Schedule and perform clearing and grubbing operations so that stabilization measures will follow immediately thereafter if project conditions permit. Bring all grading sections to final grade as soon as possible and implement temporary and permanent control measures at the earliest time possible. Implement temporary control measures when required by TPDES CGP TXR150000 or otherwise necessitated by project conditions.
- Do not prolong final grading and shaping. Preserve vegetation where possible throughout the project, and minimize clearing, grubbing, and excavation within stream banks, bed, and approach sections.
- 4.3. **General.**
- 4.3.1. **Temporary Alterations or Control Measure Removal.** Altering or removal of control measures is allowed when control measures are restored within the same working day.

- 4.3.2. **Stabilization.** Initiate stabilization for disturbed areas no more than 14 days after the construction activities in that portion of the site have temporarily or permanently ceased. Establish a uniform vegetative cover or use another stabilization practice in accordance with TPDES CGP TXR150000.
- 4.3.3. **Finished Work.** Remove and dispose of all temporary control measures upon acceptance of vegetative cover or other stabilization practice unless otherwise directed. Complete soil disturbing activities and establish a uniform perennial vegetative cover. A project will not be considered for acceptance until a vegetative cover of 70% density of existing adjacent undisturbed areas is obtained or equivalent permanent stabilization is obtained in accordance with TPDES CGP TXR150000. The Engineer may accept the work before vegetative cover of 70% density of existing adjacent undisturbed areas. An exception will be allowed in arid areas as defined in TPDES CGP TXR150000.
- 4.3.4. **Restricted Activities and Required Precautions.** Do not discharge onto the ground or into surface waters any pollutants such as chemicals, raw sewage, fuels, lubricants, coolants, hydraulic fluids, bitumens, or any other petroleum product. Operate and maintain equipment onsite to prevent actual or potential water pollution. Manage, control, and dispose of litter onsite such that no adverse impacts to water quality occur. Prevent dust from creating a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property. Wash out concrete trucks only as described in TPDES CGP TXR150000. Use appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water (i.e., dewatering). Immediately address chemical and hydrocarbon spills caused by the Contractor. Keep a spill kit onsite. Prevent discharges that would contribute to a violation of Edwards Aquifer Rules, water quality standards, the impairment of a listed water body, or other state or federal law.
- 4.4. **Installation, Maintenance, and Removal Work.** Perform work in accordance with the SWP3, in conformance with manufacturers' guidelines, and in accordance with TPDES CGP TXR150000. Install and maintain the integrity of temporary erosion and sedimentation control devices to accumulate silt and debris until soil disturbing activities are completed and permanent erosion control features are in place, or the disturbed area has been adequately stabilized as approved.

The Department will inspect and document the condition of the control measures at the frequency shown on the plans and will provide the Construction SWP3 Field Inspection and Maintenance Reports to the Contractor. Make corrections as soon as possible before the next anticipated rain event or within 7 calendar days after being able to enter the worksite for each control measure. The only acceptable reason for not accomplishing the corrections within the timeframe specified is when site conditions are considered "too wet to work." Take immediate action if a correction is deemed critical as directed. When corrections are not made within the established timeframe, all work will cease on the project and time charges will continue while the control measures are brought into compliance. Commence work once the Engineer reviews and documents the project is in compliance. Commencing work does not release the Contractor of the liability for noncompliance with the SWP3, the plans, or TPDES CGP TXR150000.

The Engineer may limit the disturbed area if the Contractor cannot control soil erosion and sedimentation resulting from the Contractor's operations. Implement additional controls as directed.

Remove devices upon approval or as directed. Finish-grade and dress the area upon removal. Stabilize disturbed areas in accordance with TPDES CGP TXR150000, and as shown on the plans or directed. Materials removed are considered consumed by the project. Retain ownership of stockpiled material and remove it from the project when new installations or replacements are no longer required.

- 4.4.1. **Rock Filter Dams for Erosion Control.** Remove trees, brush, stumps, and other objectionable material that may interfere with the construction of rock filter dams. Place sandbags as a foundation when required or at the Contractor's option.

Place the aggregate to the lines, height, and slopes specified, without undue voids for Types 1, 2, 3, and 5. Place the aggregate on the mesh and then fold the mesh at the upstream side over the aggregate and secure it to itself on the downstream side using wire ties, or hog rings for Type 2 and Type 3, or as directed.

Place rock filter dams perpendicular to the flow of the stream or channel unless otherwise directed. Construct filter dams in accordance with the following criteria unless otherwise shown on the plans.

- 4.4.1.1. **Type 1 (Non-Reinforced).**
- **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
 - **Top Width.** At least 2 ft.
 - **Slopes.** No steeper than 2:1.
- 4.4.1.2. **Type 2 (Reinforced).**
- **Height.** At least 18 in. measured vertically from existing ground to top of filter dam.
 - **Top Width.** At least 2 ft.
 - **Slopes.** No steeper than 2:1.
- 4.4.1.3. **Type 3 (Reinforced).**
- **Height.** At least 36 in. measured vertically from existing ground to top of filter dam.
 - **Top Width.** At least 2 ft.
 - **Slopes.** No steeper than 2:1.
- 4.4.1.4. **Type 4 (Sack Gabions).** Unfold sack gabions and smooth out kinks and bends. Connect the sides by lacing in a single-loop-double-loop pattern on 4–5-in. spacing for vertical filling. Pull the end lacing rod at one end until tight, wrap around the end, and twist four times. Fill with stone at the filling end, pull the rod tight, cut the wire with approximately 6 in. remaining, and twist wires four times.
- Place the sack flat in a filling trough, fill with stone, connect sides, and secure ends as described above for horizontal filling.
- Lift and place without damaging the gabion. Shape sack gabions to existing contours.
- 4.4.1.5. **Type 5.** Provide rock filter dams as shown on the plans.
- 4.4.2. **Temporary Pipe Slope Drains.** Install pipe with a slope as shown on the plans or as directed. Construct embankment for the drainage system in 8-in. lifts to the required elevations. Hand-tamp the soil around and under the entrance section to the top of the embankment as shown on the plans or as directed. Form the top of the embankment or earth dike over the pipe slope drain at least 1 ft. higher than the top of the inlet pipe at all points. Secure the pipe with hold-downs or hold-down grommets spaced at most 10 ft. on center. Construct the energy dissipaters or sediment traps as shown on the plans or as directed. Construct the sediment trap using concrete or rubble riprap in accordance with Item 432, when shown on the plans.
- 4.4.3. **Temporary Paved Flumes.** Construct paved flumes as shown on the plans or as directed. Provide excavation and embankment (including compaction of the subgrade) of material to the dimensions shown on the plans unless otherwise indicated. Install a rock or rubble riprap energy dissipater, constructed from the materials specified above, to a minimum depth of 9 in. at the flume outlet to the limits shown on the plans or as directed.
- 4.4.4. **Construction Exits.** Prevent traffic from crossing or exiting the construction site or moving directly onto a public roadway, alley, sidewalk, parking area, or other right of way areas other than at the location of construction exits when tracking conditions exist. Construct exits for either long- or short-term use.
- 4.4.4.1. **Long-Term.** Place the exit over a foundation course as required. Grade the foundation course or compacted subgrade to direct runoff from the construction exits to a sediment trap as shown on the plans or as directed. 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.
- 4.4.4.1.1. **Type 1.** Construct to a depth of at least 8 in. using crushed aggregate as shown on the plans or as directed.

- 4.4.4.1.2. **Type 2.** Construct using railroad ties and timbers as shown on the plans or as directed.
- 4.4.4.2. **Short-Term.**
- 4.4.4.2.1. **Type 3.** Construct using crushed aggregate, plywood, or wafer board. This type of exit may be used for daily operations where long-term exits are not practical.
- 4.4.4.2.2. **Type 4.** Construct as shown on the plans or as directed.
- 4.4.5. **Earthwork for Erosion Control.** Perform excavation and embankment operations to minimize erosion and to remove collected sediments from other erosion control devices.
- 4.4.5.1. **Excavation and Embankment for Erosion Control Features.** Place earth dikes, swales, or combinations of both along the low crown of daily lift placement, or as directed, to prevent runoff spillover. Place swales and dikes at other locations as shown on the plans or as directed to prevent runoff spillover or to divert runoff. Construct cuts with the low end blocked with undisturbed earth to prevent erosion of hillsides. Construct sediment traps at drainage structures in conjunction with other erosion control measures as shown on the plans or as directed.
- Create a sediment basin, where required, providing 3,600 cu. ft. of storage per acre drained, or equivalent control measures for drainage locations that serve an area with 10 or more disturbed acres at one time, not including offsite areas.
- 4.4.5.2. **Excavation of Sediment and Debris.** Remove sediment and debris when accumulation affects the performance of the devices, after a rain, and when directed.
- 4.4.6. **Construction Perimeter Fence.** Construct, align, and locate fencing as shown on the plans or as directed.
- 4.4.6.1. **Installation of Posts.** Embed posts 18 in. deep or adequately anchor in rock, with a spacing of 8–10 ft.
- 4.4.6.2. **Wire Attachment.** Attach the top wire to the posts at least 3 ft. from the ground. Attach the lower wire midway between the ground and the top wire.
- 4.4.6.3. **Flag Attachment.** Attach flagging to both wire strands midway between each post. Use flagging at least 18 in. long. Tie flagging to the wire using a square knot.
- 4.4.7. **Sandbags for Erosion Control.** Construct a berm or dam of sandbags that will intercept sediment-laden stormwater runoff from disturbed areas, create a retention pond, detain sediment, and release water in sheet flow. Fill each bag with sand so that at least the top 6 in. of the bag is unfilled to allow for proper tying of the open end. Place the sandbags with their tied ends in the same direction. Offset subsequent rows of sandbags 1/2 the length of the preceding row. Place a single layer of sandbags downstream as a secondary debris trap. Place additional sandbags as necessary or as directed for supplementary support to berms or dams of sandbags or earth.
- 4.4.8. **Temporary Sediment Control Fence.** Provide temporary sediment control fence near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the fence into erosion control measures used to control sediment in areas of higher flow. Install the fence as shown on the plans, in accordance with this Section, or as directed.
- 4.4.8.1. **Installation of Posts.** Embed posts at least 18 in. deep or adequately anchor, if in rock, with a spacing of 6–8 ft., and install on a slight angle toward the runoff source.
- 4.4.8.2. **Fabric Anchoring.** Dig trenches along the uphill side of the fence to anchor 6–8 in. of fabric. Provide a minimum trench cross-section of 6 × 6 in. Place the fabric against the side of the trench and align approximately 2 in. of fabric along the bottom in the upstream direction. Backfill the trench, then hand-tamp.

4.4.8.3. **Fabric and Net Reinforcement Attachment.** Attach the reinforcement to wooden posts using staples, or to steel posts using T-clips, in at least four places equally spaced unless otherwise shown on the plans. Sewn vertical pockets may be used to attach reinforcement to end posts. Fasten the fabric to the top strand of reinforcement using hog rings or cord every 15 in. or less.

4.4.8.4. **Fabric and Net Splices.** Locate splices at a fence post with a minimum lap of 6 in. attached in at least six places equally spaced unless otherwise shown on the plans. Do not locate splices in concentrated flow areas.

Requirements for installation of used temporary sediment control fence include the following:

- fabric with minimal or no visible signs of biodegradation (weak fibers),
- fabric without excessive patching (more than one patch every 15–20 ft.),
- posts without bends, and
- backing without holes.

4.4.9. **Biodegradable Erosion Control Logs.** Install biodegradable erosion control logs near the downstream perimeter of a disturbed area to intercept sediment from sheet flow. Incorporate the biodegradable erosion control logs into the erosion measures used to control sediment in areas of higher flow. Install, align, and locate the biodegradable erosion control logs as specified below, as shown on the plans, or as directed.

Secure biodegradable erosion control logs in a method adequate to prevent displacement resulting from normal rain events, to prevent damage to the logs, and as approved, such that flow is not allowed under the logs. Temporarily removing and replacing biodegradable erosion logs to facilitate daily work is allowed at the Contractor's expense.

4.4.10. **Vertical Tracking.** Perform vertical tracking on slopes to temporarily stabilize soil. Provide equipment with a track undercarriage capable of producing a linear soil impression measuring at least 12 in. long × 2–4 in. wide × 1/2–2 in. deep. Do not exceed 12 in. between track impressions. Install continuous linear track impressions where the 12-in. length impressions are perpendicular to the slope. Vertical tracking is required on projects where soil disturbing activities have occurred, unless otherwise approved.

4.5. **Monitoring and Documentation.** Monitor the control measures daily as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES CGP TXR150000. During time suspensions when work is not occurring or contract non-work days, daily inspections are not required unless a rain event has occurred. Monitoring will consist of, but is not limited to, observing, inspecting, and documenting site locations with control measures and discharge points to provide maintenance and inspection of controls in accordance with the SWP3. Keep written records of daily monitoring. Document in the daily monitoring report the control measure condition, the date of inspection, required corrective actions, the responsible person for making the corrections, and the date corrective actions were completed. Maintain records of all monitoring reports at the project site or at an approved place. Provide copies within 7 days. Together, the CRPE and an Engineer's representative will complete the Construction Stage Gate Checklist periodically as directed.

5. MEASUREMENT

5.1. **Rock Filter Dams.** Installation or removal of rock filter dams will be measured by the foot or by the cubic yard. The measured volume will include sandbags, when used.

5.1.1. **Linear Measurement.** When rock filter dams are measured by the foot, measurement will be along the centerline of the top of the dam.

5.1.2. **Volume Measurement.** When rock filter dams are measured by the cubic yard, measurement will be based on the volume of rock computed by the method of average end areas.

5.1.2.1. **Installation.** Measurement will be made in final position.

- 5.1.2.2. **Removal.** Measurement will be made at the point of removal.
- 5.2. **Temporary Pipe Slope Drains.** Temporary pipe slope drains will be measured by the foot.
- 5.3. **Temporary Paved Flumes.** Temporary paved flumes will be measured by the square yard of surface area. The measured area will include the energy dissipater at the flume outlet.
- 5.4. **Construction Exits.** Construction exits will be measured by the square yard of surface area.
- 5.5. **Earthwork for Erosion and Sediment Control.**
- 5.5.1. **Equipment and Labor Measurement.** Equipment and labor used will be measured by the actual number of hours the equipment is operated and the labor is engaged in the work.
- 5.5.2. **Volume Measurement.**
- 5.5.2.1. **In Place.**
- 5.5.2.1.1. **Excavation.** Excavation will be measured by the cubic yard in its original position and the volume computed by the method of average end areas.
- 5.5.2.1.2. **Embankment.** Embankment will be measured by the cubic yard in its final position by the method of average end areas. The volume of embankment will be determined between:
- the original ground surfaces or the surface upon which the embankment is to be constructed for the feature and
 - the lines, grades, and slopes of the accepted embankment for the feature.
- 5.5.2.2. **In Vehicles.** Excavation and embankment quantities will be combined and paid for under "Earthwork (Erosion and Sediment Control, In Vehicle)." Excavation will be measured by the cubic yard in vehicles at the point of removal. Embankment will be measured by the cubic yard in vehicles measured at the point of delivery. Shrinkage or swelling factors will not be considered in determining the calculated quantities.
- 5.6. **Construction Perimeter Fence.** Construction perimeter fence will be measured by the foot.
- 5.7. **Sandbags for Erosion Control.** Sandbags will be measured as each sandbag or by the foot along the top of sandbag berms or dams.
- 5.8. **Temporary Sediment Control Fence.** Installation or removal of temporary sediment control fence will be measured by the foot.
- 5.9. **Biodegradable Erosion Control Logs.** Installation or removal of biodegradable erosion control logs will be measured by the foot along the centerline of the top of the control logs.
- 5.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly, but will be subsidiary to this Item.

6. PAYMENT

The following will not be paid for directly, but will be subsidiary to pertinent Items:

- erosion control measures for Contractor project-specific locations (PSLs) inside and outside the right of way (e.g., construction and haul roads, field offices, equipment and supply areas, plants, and material sources);
- removal of litter, unless a separate pay item is shown on the plans;
- repair to devices and features damaged by Contractor operations;

- added measures and maintenance needed due to negligence, carelessness, lack of maintenance, and failure to install permanent controls;
- removal and reinstallation of devices and features needed for the convenience of the Contractor;
- finish grading and dressing upon removal of the device; and
- minor adjustments including but not limited to plumbing posts, reattaching fabric, minor grading to maintain slopes on an erosion embankment feature, or moving small numbers of sandbags.

Stabilization of disturbed areas will be paid for under pertinent Items except vertical tacking, which will be subsidiary.

Furnishing and installing pipe for outfalls associated with sediment traps and ponds will not be paid for directly, but will be subsidiary to the excavation and embankment under this Item.

6.1. **Rock Filter Dams.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.

6.1.1. **Installation.** Installation will be paid for as "Rock Filter Dams (Install)" of the type and slope as specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

6.1.2. **Removal.** Removal will be paid for as "Rock Filter Dams (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.

When the Engineer directs that the rock filter dam installation or portions thereof be replaced, payment will be made at the unit price bid for "Rock Filter Dams (Remove)" and for "Rock Filter Dams (Install)" of the type specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.

6.2. **Temporary Pipe Slope Drains.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Pipe Slope Drains" of the size specified. This price is full compensation for furnishing materials, removal and disposal, furnishing and operating equipment, labor, tools, and incidentals.

Removal of temporary pipe slope drains will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the pipe slope drain installation or portions thereof be replaced, payment will be made at the unit price bid for "Temporary Pipe Slope Drains" of the size specified, which is full compensation for the removal and reinstallation of the pipe drain.

Earthwork required for the pipe slope drain installation, including construction of the sediment trap, will be measured and paid for under "Earthwork for Erosion and Sediment Control."

Riprap concrete or stone, when used as an energy dissipater or as a stabilized sediment trap, will be measured and paid for in accordance with Item 432.

6.3. **Temporary Paved Flumes.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Temporary Paved Flume (Install)" or "Temporary Paved Flume (Remove)." This price is full compensation for furnishing and placing materials, removal and disposal, equipment, labor, tools, and incidentals.

When the Engineer directs that the paved flume installation or portions thereof be replaced, payment will be made at the unit prices bid for "Temporary Paved Flume (Remove)" and "Temporary Paved Flume (Install)." These prices are full compensation for the removal and replacement of the paved flume and for equipment, labor, tools, and incidentals.

Earthwork required for the paved flume installation, including construction of a sediment trap, will be measured and paid for under "Earthwork for Erosion and Sediment Control."

- 6.4. **Construction Exits.** Contractor-required construction exits from off right of way locations or on right of way PSLs will not be paid for directly, but will be subsidiary to pertinent Items.

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" for construction exits needed on right of way access to work areas required by the Department will be paid for at the unit price bid for "Construction Exits (Install)" of the type specified or "Construction Exits (Remove)." This price is full compensation for furnishing and placing materials, excavating, removal and disposal, cleaning vehicles, labor, tools, and incidentals.

When the Engineer directs that a construction exit or portion thereof be removed and replaced, payment will be made at the unit prices bid for "Construction Exit (Remove)" and "Construction Exit (Install)" of the type specified. These prices are full compensation for the removal and replacement of the construction exit and for equipment, labor, tools, and incidentals.

Construction of sediment traps used in conjunction with the construction exit will be measured and paid for under "Earthwork for Erosion and Sediment Control."

- 6.5. **Earthwork for Erosion and Sediment Control.**

- 6.5.1. **Initial Earthwork for Erosion and Sediment Control.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Excavation (Erosion and Sediment Control, In Place)," "Embankment (Erosion and Sediment Control, In Place)," "Excavation (Erosion and Sediment Control, In Vehicle)," "Embankment (Erosion and Sediment Control, In Vehicle)," or "Earthwork (Erosion and Sediment Control, In Vehicle)."

This price is full compensation for excavation and embankment, including hauling; disposal of material not used elsewhere on the project; embankments including furnishing material from approved sources and construction of erosion control features; and equipment, labor, tools, and incidentals.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 6.5.2. **Maintenance Earthwork for Erosion and Sediment Control for Cleaning and Restoring Control Measures.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid under a Contractor Force Account Item from invoice provided to the Engineer.

This price is full compensation for excavation, embankment, and re-grading, including dewatering for removal of accumulated sediment, and the removal of accumulated sediment in various erosion control installations as directed, hauling, and disposal of material not used elsewhere on the project; excavation for construction of erosion control features; embankments, including furnishing material from approved sources and construction of erosion control features; and equipment, labor, tools, and incidentals.

Earthwork needed to remove and obliterate erosion control features will not be paid for directly, but will be subsidiary to pertinent Items unless otherwise shown on the plans.

Sprinkling and rolling required by this Item will not be paid for directly, but will be subsidiary to this Item.

- 6.6. **Construction Perimeter Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Construction Perimeter Fence." This price is full compensation for furnishing and placing the fence; digging, fence posts, wire, and flagging; removal and disposal; and materials, equipment, labor, tools, and incidentals.

Removal of construction perimeter fence will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the perimeter fence installation or portions thereof be removed and replaced, payment will be made at the unit price bid for "Construction Perimeter Fence," which is full compensation for the removal and reinstallation of the construction perimeter fence.

- 6.7. **Sandbags for Erosion Control.** Sandbags will be paid for at the unit price bid for "Sandbags for Erosion Control" (of the height specified when measurement is by the foot). This price is full compensation for materials, placing sandbags, removal and disposal, equipment, labor, tools, and incidentals.
- Removal of sandbags will not be paid for directly, but will be subsidiary to the installation Item. When the Engineer directs that the sandbag installation or portions thereof be replaced, payment will be made at the unit price bid for "Sandbags for Erosion Control," which is full compensation for the reinstallation of the sandbags.
- 6.8. **Temporary Sediment Control Fence.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.
- 6.8.1. **Installation.** Installation will be paid for as "Temporary Sediment-Control Fence (Install)." This price is full compensation for furnishing and operating equipment, finish backfill and grading, lacing, proper disposal, labor, materials, tools, and incidentals.
- 6.8.2. **Removal.** Removal will be paid for as "Temporary Sediment-Control Fence (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 6.9. **Biodegradable Erosion Control Logs.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid as follows.
- 6.9.1. **Installation.** Installation will be paid for as "Biodegradable Erosion Control Logs (Install)" of the size specified. This price is full compensation for furnishing and operating equipment, finish backfill and grading, staking, proper disposal, labor, materials, tools, and incidentals.
- 6.9.2. **Removal.** Removal will be paid for as "Biodegradable Erosion Control Logs (Remove)." This price is full compensation for furnishing and operating equipment, proper disposal, labor, materials, tools, and incidentals.
- 6.10. **Vertical Tracking.** Vertical tracking will not be measured or paid for directly, but will be subsidiary to this Item.

Item 529

Concrete Curb, Gutter, and Combined Curb and Gutter



1. DESCRIPTION

Construct hydraulic cement concrete curb, gutter, and combined curb and gutter.

2. MATERIALS

Furnish materials in accordance with the following.

- Item 360, "Concrete Pavement"
- Item 420, "Concrete Substructures"
- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"

Use Class A concrete or material specified on the plans. Use Grade 8 coarse aggregate for extruded Class A concrete. Use other grades if approved. When curbs are monolithically placed with the concrete pavements, use the same class of concrete as the concrete pavement.

Use of fibers in accordance with [DMS-4550](#), "Fibers for Concrete," to replace reinforcing steel in Class A concrete is allowed unless otherwise shown on the plans. Dose fibers in accordance with the Department's MPL of pre-qualified fibers for concrete.

3. CONSTRUCTION

Provide finished work with a well-compacted mass and a surface free of voids and honeycomb, in the required shape, line, and grade. Round exposed edges using an edging tool of the radius shown on the plans. Mix, place, and cure concrete in accordance with Item 420. Construct joints at locations shown on the plans. Cure for at least 72 hr.

Furnish and place reinforcing steel in accordance with Item 440 unless fiber reinforced concrete is used.

Set and maintain a guideline that conforms to alignment data shown on the plans, with an outline that conforms to the details shown on the plans. Ensure that changes in curb grade and alignment do not exceed 1/4 in. between any two contacts on a 10-ft. straightedge.

- 3.1. **Conventionally Formed Concrete.** Shape and compact subgrade, foundation, or pavement surface to the line, grade, and cross-section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement.

Pour concrete into forms, and strike off with a template 1/4–3/8 in. less than the dimensions of the finished curb unless otherwise approved. After initial set, plaster surface with mortar consisting of one part hydraulic cement and two parts fine aggregate. Brush exposed surfaces to a uniform texture.

Place curbs, gutters, and combined curb and gutters in 50-ft. maximum sections unless otherwise approved.

- 3.2. **Extruded or Slipformed Concrete.** Shape and compact subgrade, foundation, or pavement surface to the line, grade, and cross-section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement. Provide clean surfaces for concrete placement. Coat cleaned

surfaces, if required, with approved adhesive or coating at the rate of application shown on the plans or as directed. Place concrete using approved self-propelled equipment.

The forming tube of the extrusion machine or the form of the slipform machine must be easily adjustable vertically during the forward motion of the machine to provide variable heights necessary to conform to the established gradeline.

Attach a pointer or gauge to the machine so that a continual comparison can be made between the extruded or slipform work and the grade guideline. Other methods may be used when approved.

Finish surfaces immediately after extrusion or slipforming.

- 3.3. **Curb Joints for Concrete Pavements.** Provide transverse expansion and contraction joints in the curb of the same type and location as the adjacent or underlying pavement. Use expansion joint material of the same thickness and type required for the pavement. Extend expansion joints through the curb. Place reinforcing steel for non-monolithic curb construction joints as shown on the plans, unless otherwise approved. Form or saw the contraction joint through the full depth of the monolithic curb.

4. MEASUREMENT

This Item will be measured by the foot.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Concrete Curb," "Concrete Curb (Mono)," or "Concrete Curb and Gutter" of the type specified. This price is full compensation for surface preparation of curb foundation, equipment, labor, materials, tools, and incidentals.

Item 531

Sidewalks



1. DESCRIPTION

Construct hydraulic cement concrete sidewalks, Americans with Disabilities Act ramps, and steps.

2. MATERIALS

Furnish materials in accordance with the following.

- Item 360, "Concrete Pavement"
- Item 420, "Concrete Substructures"
- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"

Use Class A concrete unless otherwise shown on the plans. Use Grade 8 coarse aggregate for extruded Class A concrete. Use other grades if approved.

Use of fibers meeting the requirements of [DMS-4550](#), "Fibers for Concrete," to replace reinforcing steel in Class A concrete is allowed unless otherwise shown on the plans. Dose fibers in accordance with the Department's MPL of prequalified fibers for concrete.

Furnish detectable warning material in accordance with [DMS-4350](#), "Detectable Warning Material."

3. CONSTRUCTION

Shape and compact subgrade, foundation, or pavement surface to the line, grade, and cross-section shown on the plans. Lightly sprinkle subgrade or foundation material immediately before concrete placement. Hand-tamp and sprinkle foundation when placement is directly on subgrade or foundation materials. Remove and dispose of existing concrete in accordance with Item 104, "Removing Concrete." Provide a clean surface for concrete placement directly on the surface material or pavement.

Furnish and place reinforcing steel in accordance with Item 440 unless fiber reinforced concrete is used.

Mix and place concrete in conformance with the pertinent Items. Hand-finishing is allowed for any method of construction. Finish exposed surfaces to a uniform transverse broom finish surface. Curb ramps must include a detectable warning surface and conform to details shown on the plans. Install joints as shown on the plans. Ensure that abrupt changes in sidewalk elevation do not exceed 1/4 in., sidewalk cross slope does not exceed 2%, curb ramp grade does not exceed 8.3%, and flares adjacent to the ramp do not exceed 10% slope measured parallel to the curb line. Ensure that the sidewalk depth and reinforcement are not less than the driveway cross-sectional details shown on the plans where a sidewalk crosses and is part of the concrete driveway.

Use construction methods in conformance with manufacturers' recommendations when installing detectable warning surface. Install detectable warning surface as shown on the plans.

Provide finished work with a well-compacted mass, a surface free of voids and honeycomb, and the required true-to-line shape and grade. Cure for at least 72 hr. in accordance with Item 420.

- 3.1. **Conventionally Formed Concrete.** Provide pre-molded or board expansion joints of the thickness shown on the plans for sidewalk section lengths greater than 8 ft. but less than 40 ft., unless otherwise directed. Terminate workday production at an expansion joint.
- 3.2. **Extruded or Slipformed Concrete.** Provide any additional surface finishing immediately after extrusion or slipforming as shown on the plans. Construct joints at locations as shown on the plans or as directed.

4. MEASUREMENT

Sidewalks will be measured by the square yard of surface area. Curb ramps will be measured by the square yard of surface area or by each. A curb ramp consists of the ramp, landing or turning space, adjacent flares or side curb, and detectable warning surface as shown on the plans. Steps will be measured by the square yard of horizontal surface area.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Concrete Sidewalks" of the depth specified, "Concrete Sidewalk (Steps)," and "Curb Ramps" of the type specified. This price is full compensation for surface preparation of sidewalk foundation; materials; removal and disposal of existing concrete; excavation, hauling, and disposal of excavated material; drilling and doweling into existing concrete curb, sidewalk, and pavement; repair of adjacent street or pavement structure damaged by these operations; and equipment, labor, materials, tools, and incidentals.

Sidewalks that cross and are part of the concrete driveways or turnouts will be measured and paid for in accordance with Item 530, "Intersections, Driveways, and Turnouts."

Item 644

Small Roadside Sign Assemblies



1. DESCRIPTION

- 1.1. **Installation.** Furnish, fabricate, and erect small roadside sign assemblies or bridge-mounted clearance sign assemblies consisting of the signs, sign supports, foundations (when required), and associated mounting hardware.
- 1.2. **Relocation.** Relocate existing small roadside sign assemblies or bridge-mounted clearance sign assemblies and furnish and fabricate material as required.
- 1.3. **Removal.** Remove existing small roadside sign assemblies or bridge-mounted clearance sign assemblies.

2. MATERIALS

Furnish all materials unless otherwise shown on the plans. Furnish only new materials. Furnish and fabricate materials in accordance with the following Items and as shown on the plans.

- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"
- Item 441, "Steel Structures"
- Item 442, "Metal for Structures"
- Item 445, "Galvanizing"
- Item 636, "Signs"
- Item 656, "Foundations for Traffic Control Devices"

Use galvanized steel, stainless steel, dichromate sealed aluminum, or other materials shown on the plans for pipe, bolts, nuts, washers, lock washers, screws, and other sign assembly hardware. When dissimilar metals are used, select or insulate metals to prevent corrosion.

3. CONSTRUCTION

Construct foundations in accordance with Item 656. Plumb sign supports. Do not spring or rake posts to secure proper alignment. Use established safety practices when working near underground or overhead utilities. Consult the appropriate utility company before beginning work.

- 3.1. **Fabrication.** Fabricate sign supports in accordance with Item 441. Ensure all components fit properly.
- Verify the length of each post for each sign before fabrication to meet field conditions and sign-mounting heights shown on the plans.
- Hot-dip galvanize fabricated parts in accordance with Item 445. Punch or drill any holes in steel parts or members before galvanizing. Repair galvanizing for any steel part or member damaged during assembly, transit, or erection, or for any steel part or member welded, when permitted, after galvanizing. Perform all galvanizing repairs in accordance with Section 445.3.4., "Repairs."
- 3.2. **Installation.** Locate and install sign supports as shown on the plans, unless directed to shift the sign supports within design guidelines to secure a more desirable location or avoid conflict with utilities and underground appurtenances. Stake sign support locations for verification by the Engineer.

Install stub posts of the type, spacing, orientation, and projection shown on the plans. Remove and replace posts damaged during installation at the Contractor's expense.

Connect the upper post sections to the stub post sections as shown on the plans. Torque connection bolts as shown on the plans.

Attach signs to supports in conformance with the plans and pertinent Items.

- 3.3. **Relocation.** Reuse the existing signs as required unless otherwise shown on the plans. Furnish and install new stub posts in new foundations for relocated sign assemblies. Erect the new supports on the new stub posts and attach the existing signs to the supports in conformance with the plans and pertinent Items. Remove existing foundations to be abandoned in accordance with Section 644.3.4., "Removal."
- 3.4. **Removal.** Remove abandoned concrete foundations to 2 ft. below finished grade unless otherwise shown on the plans. Cut off and remove steel protruding from the remaining concrete. Backfill the remaining hole with material equal in composition and density to the surrounding area. Replace any surfacing with like material to equivalent condition.
- 3.5. **Handling and Storage.** Handle and store existing signs or portions of signs removed so they are not damaged. Store all signs to be reused off the ground and in a vertical position until erected. Prevent any damage to the various sign assembly components. Replace any portion of the sign damaged by the Contractor designated for reuse or salvage, including messages removed.
- Store all new signs off the ground and in a vertical position until erected. Store new sheet aluminum substrate signs in a weatherproof building. Extruded aluminum substrate signs may be stored outdoors.
- Stockpile all removed sign components that will be reused or become the property of the Department at designated locations. Accept ownership of unsalvageable materials and dispose of them in conformance with federal, state, and local regulations.
- 3.6. **Cleaning.** Wash the entire sign after installation using a biodegradable cleaning solution acceptable to the sign face materials manufacturer to remove dirt, grease, oil smears, streaks, finger marks, and other foreign materials.

4. MEASUREMENT

This Item will be measured as each small roadside assembly or bridge-mounted clearance sign assembly installed, removed, or relocated.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Install Small Roadside Sign Assemblies" of the type specified, "Install Bridge-Mounted Clearance Sign Assemblies" of the type specified, "Relocate Small Roadside Sign Assemblies" of the type specified, "Relocate Bridge-Mounted Clearance Sign Assemblies" of the type specified, "Remove Small Roadside Sign Assemblies," or "Remove Bridge-Mounted Clearance Sign Assemblies."

- 5.1. **Installation.** This price is full compensation for furnishing, fabricating, galvanizing, and erecting the supports; constructing foundations, including concrete (when required); furnishing complete signs, including sign connections and all hardware; attaching the signs to the supports; preparing and cleaning the signs; and materials, equipment, labor, tools, and incidentals.
- 5.2. **Relocation.** This price is full compensation for removing existing sign assemblies and related materials; furnishing and installing new stub posts and new sign supports; constructing foundations, including concrete (when required); new hardware; reinstallation of signs; preparing and cleaning the signs; salvaging; disposal

of unsalvageable materials; removing existing foundations, backfilling, and surface placement; and materials, equipment, labor, tools, and incidentals.

- 5.3. **Removal.** This price is full compensation for removing existing sign assemblies and related materials; salvaging; disposal of unsalvageable materials; removing existing foundations, backfilling, and surface placement; and materials, equipment, labor, tools, and incidentals.

Item 662

Work Zone Pavement Markings



1. DESCRIPTION

Furnish, place, and maintain work zone pavement markings.

2. MATERIALS

Provide thermoplastic, paint and beads, raised pavement markers (RPMs), prefabricated pavement markings, temporary flexible reflective roadway marker tabs, or other approved materials for work zone pavement markings.

Supply materials in accordance with the following.

- [DMS-4200](#), "Pavement Markers (Reflectorized)"
- [DMS-4300](#), "Traffic Buttons"
- [DMS-8200](#), "Traffic Paint"
- [DMS-8220](#), "Hot Applied Thermoplastic"
- [DMS-8240](#), "Permanent Prefabricated Pavement Markings"
- [DMS-8241](#), "Temporary (Removable) Prefabricated Pavement Markings"
- [DMS-8242](#), "Temporary Flexible, Reflective Roadway Marker Tabs"
- [DMS-8290](#), "Glass Traffic Beads"

- 2.1. **Nonremovable Markings.** Use hot-applied thermoplastic, paint and beads, or permanent prefabricated pavement markings for nonremovable markings. Furnish Type II glass beads in accordance with [DMS-8290](#) for thermoplastic and paint and bead pavement markings.
- 2.2. **Removable and Short-Term Markings.** Use RPMs, traffic buttons, removable prefabricated pavement markings, temporary flexible reflective roadway marker tabs, or other approved materials for removable and short-term markings. Do not use hot-applied thermoplastic, multipolymer pavement markings, or traffic paint for removable markings. Use removable prefabricated pavement markings on the final pavement surface when the plans specify removable markings.

3. CONSTRUCTION

Apply pavement markings in accordance with the following Items.

- Item 666, "Retroreflectorized Pavement Markings"
- Item 668, "Prefabricated Pavement Markings"
- Item 672, "Raised Pavement Markers"

- 3.1. **Placement.** Install longitudinal markings on pavement surfaces before opening to traffic. Maintain lane alignment traffic control devices and operations until markings are installed. Install markings in proper alignment in accordance with the TMUTCD and as shown on the plans. Short-term markings will be allowed when standard markings (removable or nonremovable) cannot be placed before opening to traffic, if shown on the plans or directed.

When short-term markings are allowed for opening to traffic, place standard longitudinal markings no later than 14 calendar days after the placement of the surface. When inclement weather prohibits placement of markings, the 14-day period may be extended until weather permits proper application.

Place standard longitudinal markings no sooner than 3 calendar days after the placement of a surface treatment, unless otherwise shown on the plans.

Apply thermoplastic markings to a minimum thickness of 0.060 in. (60 mils). When paint and beads are allowed, apply to a minimum dry thickness of 0.012 in. (12 mils).

Place short-term markings in proper alignment with the location of the final pavement markings. Remove and replace short-term markings not in alignment at the Contractor's expense.

For removable placements, use of RPMs to simulate longitudinal markings is at the Contractor's option. Use side-by-side RPMs to simulate longitudinal lines wider than 4 in. Do not use RPMs for words, symbols, shapes, or diagonal or transverse lines.

- 3.2. **Marking Removal.** Remove markings that conflict with succeeding markings in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers." Remove short-term markings that interfere or conflict with final marking placement immediately before placing final pavement markings, unless otherwise directed. Remove the remainder of the short-term markings before final acceptance.

Remove all temporary markings with minimal damage to the roadway to the satisfaction of the Engineer.

- 3.3. **Performance Requirements.** Ensure all markings are in accordance with [Tex-828-B](#) and are visible from a distance at least 320 ft. (eight skiplines) in daylight conditions and at least 160 ft. (four skiplines) in nighttime conditions when illuminated by automobile low-beam headlights. Determine visibility distances using an automobile traveling on the roadway under dry conditions.

Maintain the markings for 30 calendar days after installation. The end of the 30-day maintenance period does not relieve the Contractor from the performance deficiencies requiring corrective action identified during the 30-day period. Remove and replace markings at the Contractor's expense if they fail to meet the requirements of this Item during the 30-day period. The 30-calendar day performance requirement will begin again after replacement of the markings.

Ensure daytime and nighttime reflected color of the markings are distinctly white or yellow. Ensure markings exhibit uniform retroreflective characteristics.

4. MEASUREMENT

This Item will be measured by the foot or each word, shape, symbol, or temporary flexible reflective roadway marker tab. Each stripe will be measured separately. RPMs used to simulate a marking will be measured by the foot of marking or each RPM.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Work Zone Pavement Markings" of the type and color specified and the shape, width, and size specified as applicable. This price is full compensation for furnishing, placing, maintaining, and removing work zone pavement markings and for materials, equipment, labor, tools, and incidentals.

Elimination of nonremovable markings will be paid for under Item 677. Removal of short-term and removable markings will not be paid for directly, but will be subsidiary to this Item.

Type II work zone pavement markings (paint and beads) used as a sealer for Type I pavement markings (thermoplastic) will be paid for under this Item.

Item 666

Retroreflectorized Pavement Markings



1. DESCRIPTION

Furnish and place retroreflectorized or non-retroreflectorized (shadow) pavement markings.

2. MATERIALS

- 2.1. **Type I Marking Materials (Thermoplastic).** Furnish in accordance with [DMS-8220](#), "Hot Applied Thermoplastic."
- 2.2. **Type II Marking Materials (Traffic Paint).** Furnish in accordance with [DMS-8200](#), "Traffic Paint."
- 2.3. **Type III Marking Materials (Multipolymer).** Furnish in accordance with [DMS-8230](#), "Multipolymer Pavement Markings."
- 2.4. **Glass Traffic Beads.** For Type I, Type II, and Type III pavement markings, furnish drop-on glass beads in accordance with [DMS-8290](#), "Glass Traffic Beads," to meet the specified retroreflective performance requirements for all permanent, longitudinal pavement markings.
- 2.5. **Labeling.** To sample material, use clearly marked containers that indicate material type, color, mass, manufacturer, and batch number.

3. EQUIPMENT

- 3.1. **General Requirements.** Use pavement marking equipment that:
- is maintained in satisfactory condition;
 - meets or exceeds the requirements of the National Board of Fire Underwriters and the Texas Railroad Commission for this application;
 - applies beads by an automatic bead dispenser attached to the pavement marking equipment such that the beads are dispensed uniformly and almost instantly upon the marking as the marking is being applied to the road surface. The bead dispenser must have an automatic cut-off control, synchronized with the cut-off of the pavement marking equipment;
 - has an automatic cut-off device with manual operating capabilities to provide clean marking with square ends;
 - can produce the types and shapes of profiles specified; and
 - can provide continuous mixing and agitation of the pavement marking material. The use of pans, aprons, or similar appliances that the die overruns will not be permitted for longitudinal striping applications exceeding a project length of 2,000 ft., unless otherwise approved.

When placing multipolymer pavement markings (MPM), use equipment designed for pavement preparation and the application of selected type of MPM material.

Provide a handheld thermometer capable of measuring the temperature between 300°F and 450°F to measure the temperature of marking material in the field, when applying Type I material.

- 3.1.1. **Measuring Retroreflectivity.** Use a mobile retroreflectometer approved by the Materials and Tests Division and certified by the Texas A&M Transportation Institute (TTI) Mobile Retroreflectometer Certification Program.

Use a portable retroreflectometer that:

- uses 30-meter geometry and meets the requirements described in ASTM E1710;
- has either an internal Global Positioning System (GPS) or the ability to be linked with an external GPS with a minimum location accuracy of 16.5 ft., in accordance with the Circular Error Probability (CEP) method (CEP is the radius of the circle with its origin at a known position that encompasses 50% of the readings returned from the GPS instrument); and
- can record and export the GPS location and retroreflectivity reading for each measurement.

3.2.

Material Placement Requirements. Use equipment that can place:

- a minimum length of 30,000 ft. for 6-in. solid or broken non-profile markings per working day at the specified thickness, unless otherwise approved;
- a minimum length of 15,000 ft. of solid or broken profile pavement markings per working day at the specified thickness;
- linear non-profile markings up to 8 in. wide in a single pass;
- non-profile pavement markings other than solid or broken lines at an approved production rate;
- a centerline and no-passing barrier-line configuration (consisting of one broken line and two solid lines simultaneously) to the alignment, spacing, and thickness for non-profile pavement markings shown on the plans;
- solid and broken lines simultaneously;
- white line from both sides;
- lines with clean edges, reasonably square ends, uniform width with a tolerance of $\pm 1/8$ in., and uniform thickness;
- skip lines between 10 and 10.5 ft., a stripe-to-gap ratio of 10 to 30, and a stripe-gap cycle between 39.5 ft. and 40.5 ft., automatically; and
- beads uniformly and almost instantly on the marking as the marking is applied.

For Type I markings, equipment must be capable of providing uniform heating of striping materials to temperatures exceeding 390°F (199°C). Ensure that the material is not heated to a temperature above the maximum temperature recommended by the manufacturer.

For Type I markings, equipment must be capable of maintaining the thermoplastic striping material in a plastic state in all mixing and conveying parts, including the line dispensing device, until applied.

4.

CONSTRUCTION

Place markings before opening to traffic unless short-term or work zone markings are allowed.

4.1.

General. Obtain approval for the sequence of work and estimated daily production. Minimize interference to roadway operations when placing markings on roadways open to traffic. Use traffic control as shown on the plans or as approved. Protect all markings placed under open-traffic conditions from traffic damage and disfigurement. Replace markings when more than 5% of the markings are damaged or disfigured.

Establish guides to mark the lateral location of pavement markings as shown on the plans or as directed and have guide locations verified. Use material for guides that will not leave a permanent mark on the roadway.

Apply markings on completely dry pavement that passes the following tests.

- **Type I Marking Application.** Place a sample of Type I marking material on a piece of tarpaper placed on the pavement. Allow the material to cool to ambient temperature, then inspect the underside of the tarpaper in contact with the pavement. Pavement will be considered dry if there is no condensation on the tarpaper.

- **Type II and Type III Marking Application.** Place a 1-sq. ft. piece of clear plastic on the pavement and weigh down the edges. The pavement is considered dry if, when inspected after 15 min., no condensation has occurred on the underside of the plastic.

Apply markings:

- using personnel skilled and experienced in installation of pavement markings;
- that meet the requirements of [Tex-828-B](#);
- that meet minimum retroreflectivity requirements;
- using widths and colors shown on the plans;
- at locations shown on the plans;
- in proper alignment with the guides without deviating from the alignment more than 1 in. per 200 ft. of roadway or more than 2 in. maximum;
- without abrupt deviations;
- free of blisters and with no more than 5% holes or voids (percent by area);
- with uniform cross-section, density, and thickness;
- with clean and reasonably square ends; and
- that are retroreflectorized with drop-on glass beads.

Remove all applied markings that are not in alignment or sequence as shown on the plans or in accordance with the specifications at the Contractor's expense, in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment.

- 4.2. **Spot Striping.** Perform spot striping on a callout basis with a minimum callout quantity as shown on the plans.
- 4.3. **Surface Preparation.** Prepare surfaces in accordance with this Section unless otherwise shown on the plans.
 - 4.3.1. **Surface Cleaning for Pavement Marking Applications on New Asphalt Surfaces with No Existing Pavement Markings and for Retracing of Existing Pavement Markings on All Surfaces.** Use air blast or broom to clean the pavement surface to remove loose material unless otherwise shown on the plans. A sealer for Type I markings is not required unless otherwise shown on the plans. If cleaning is needed beyond what is specified, Engineer can use force account to compensate for the extra effort. This is mainly applied when the pavement is covered with thick layer of dirt or mud or there is grass growing on the pavement.
 - 4.3.2. **Surface Cleaning for All Concrete Surfaces and Asphalt Surfaces Only When Specified in the Plans (Excludes New Asphalt Surfaces with No Existing Pavement Markings and Retracing).** Clean surfaces in accordance with Item 678, "Pavement Surface Preparation for Markings," to remove curing membrane, dirt, grease, existing loose and flaking construction markings, and other forms of contamination.
 - 4.3.3. **Sealer for Type I Markings.** Apply a pavement sealer when shown on the plans. Pavement sealers are recommended for old asphalt surfaces (more than 3 yr. old) and for all concrete surfaces before placing Type I markings on locations that do not have existing markings. The pavement sealer may be either a Type II marking or an acrylic or epoxy sealer as recommended by the Type I marking manufacturer, unless otherwise shown on the plans. Follow the manufacturer's directions for application of acrylic or epoxy sealers. Clean the surface of sealer that becomes dirty after placement by washing or in accordance with Section 666.4.3.1., "Surface Cleaning for Pavement Marking Applications on New Asphalt Surfaces with No Existing Pavement Markings and for Retracing of Existing Pavement Markings on All Surfaces," as directed. Place the sealer in the same configuration and color (unless clear) as the Type I markings unless otherwise shown on the plans.
- 4.4. **Application.** Apply markings during favorable weather unless otherwise directed. If markings are placed at Contractor option when inclement weather is impending and the markings are damaged by subsequent precipitation, the Contractor is responsible for all required replacement costs.

- 4.4.1. **Type I Markings.** Place all Type I markings after the sealer cures. Apply within the temperature limits recommended by the material manufacturer. Flush the spray head if spray application operations cease for 5 min. or longer, by spraying marking material into a pan or similar container until the material being applied is at the recommended temperature.

Apply on clean, dry pavement passing the moisture test in accordance with Section 666.4.1., "General," and with a surface temperature above 50°F when measured in accordance with [Tex-829-B](#).

The Engineer will measure thickness of markings in accordance with [Tex-854-B](#).

- 4.4.1.1. **Non-Profile Pavement Markings.** Apply Type I non-profile markings with a minimum thickness of:

- 0.100 in. (100 mils) for new markings and retracing water-based markings on surface treatments involving Item 316, "Seal Coat,"
- 0.060 in. (60 mils) for retracing on thermoplastic pavement markings, or
- 0.090 in. (90 mils) for all other Type I markings.

- 4.4.1.2. **Profile Pavement Markings.** Apply Type I profile markings with a minimum thickness of 0.090 in. (90 mils) for the longitudinal stripe portion.

In addition, at a longitudinal spacing shown on the plans, the markings must be profiled in a vertical manner such that the profile is transverse to the longitudinal marking direction. The profile must not be less than 0.30 in. (300 mils) nor greater than 0.41 in. (410 mils) in height when measured from the normal top surface plane of the base marking to the top of the raised profile marking. The transverse width of the profile must not be less than 5.25 in. and the longitudinal width not less than 2 in., when measured at the top surface plane of the profile bar. The profile may be either a one or two transverse bar profile. When the two transverse bar profile is used, the spacing between the bases of the profile bars must not exceed 0.50 in. The above dimensions for transverse bars are for 6-in. wide longitudinal marking.

The raised profile markings must be uniform in size, appearance, and spacing. When profile markings are applied in a two-step process, the raised profile markings must be applied first and then the stripe applied over them. The raised profile markings in a two-step process may be circular in shape. The circular profile markings must be uniform in diameter and the diameter must not be less than 5.25 in. The height of the apex must not be less than 0.30 in. (300 mils) nor greater than 0.41 in. (410 mils) when measured from the normal top surface of the base marking to the top of the raised profile marking.

- 4.4.1.3. **Type I All-Weather Pavement Markings.** Apply Type I all-weather markings to at least 100-mil film thickness.

- 4.4.2. **Type II Markings.** Apply on surfaces with a minimum surface temperature of 50°F when measured in accordance with [Tex-829-B](#). Apply at least 30 gal. per mile on concrete and asphalt surfaces and at least 33 gal. per mile on surface treatments for a solid 6-in. line. Adjust application rates proportionally for other widths. When Type II markings are used as a sealer for Type I markings, apply at least 22-1/2 gal. per mile using Type II drop-on beads.

Apply Type II all-weather markings to at least 25-mil wet film thickness.

- 4.4.3. **Type III Markings.** Apply in conformance with the manufacturer's recommendations.

- 4.4.4. **Bead Coverage and Embedment.** Provide a uniform distribution of beads across the surface of the stripe with 40–60% bead embedment.

- 4.4.5. **Durability.** Provide markings that do not lose more than 5% of the striping material in any 1-ft. section of stripe during their performance period in accordance with Section 666.4.8., "Performance Period." Measure the durability in accordance with ASTM D913.

4.5. **Retroreflectivity Requirements.** Retroreflectivity requirements are not required for Contracts with less than 20,000 total ft. of longitudinal pavement markings, callout work, black shadow markings, or work zone pavement markings. Retroreflectivity requirements are for dry conditions unless otherwise specified.

4.5.1. **Type I Markings.** All Type I markings, including profile markings, must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings.

- **White Markings (ASTM E1710).** 250 millicandelas per square meter per lux (mcd/m²/lx).
- **Yellow Markings (ASTM E1710).** 175 mcd/m²/lx.

Collect retroreflectivity measurement for markings applied on pavement surface other than seal coat after 10 days but not later than 30 days from the time of application. For markings applied on seal coat, measure retroreflectivity after 3 days but not later than 10 days from the time of application.

4.5.2. **Type I High-Performance Markings.** Type I high-performance markings must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings when measured any time after 30 days but not later than 60 days from the time of application.

- **White Markings (ASTM E1710).** 400 mcd/m²/lx.
- **Yellow Markings (ASTM E1710).** 250 mcd/m²/lx.

4.5.3. **Type I All-Weather Markings.** Type I all-weather markings must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings when measured any time after 30 days but not later than 60 days from the time of application.

- **White Markings Dry (ASTM E1710).** 400 mcd/m²/lx.
- **Yellow Markings Dry (ASTM E1710).** 250 mcd/m²/lx.
- **White Markings Wet Continuous (ASTM E2832).** 150 mcd/m²/lx.
- **Yellow Markings Wet Continuous (ASTM E2832).** 125 mcd/m²/lx.

4.5.4. **Type II Markings.** Type II markings must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line, markings.

- **White Markings.** 175 mcd/m²/lx.
- **Yellow Markings.** 125 mcd/m²/lx.

Collect retroreflectivity measurement for markings applied on pavement surface other than seal coat after 10 days but not later than 30 days from the time of application. For markings applied on seal coat, measure retroreflectivity after 3 days but not later than 10 days from the time of application.

4.5.5. **Type II All-Weather Markings.** Meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings.

- **White Markings Dry (ASTM E1710).** 250 mcd/m²/lx.
- **Yellow Markings Dry (ASTM E1710).** 150 mcd/m²/lx.
- **White Markings Wet Continuous (ASTM E2832).** 100 mcd/m²/lx.
- **Yellow Markings Wet Continuous (ASTM E2832).** 75 mcd/m²/lx.

Collect retroreflectivity measurement for markings applied on pavement surface other than seal coat after 10 days but not later than 30 days from the time of application. For markings applied on seal coat, measure the retroreflectivity after 3 days but not later than 10 days from the time of application.

4.5.6. **Type III Markings.** Type III markings must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings when measured any time after 30 days but not later than 60 days from the time of application.

- **White Markings.** 400 mcd/m²/lx.
- **Yellow Markings.** 250 mcd/m²/lx.

4.5.7. **Type III All-Weather Markings.** Type III all-weather markings must meet the following minimum retroreflectivity values for all longitudinal edgeline, centerline, no-passing barrier line, and lane line markings when measured any time after 30 days but not later than 60 days from the time of application.

- **White Markings Dry (ASTM 1710).** 400 mcd/m²/lx.
- **Yellow Markings Dry (ASTM 1710).** 250 mcd/m²/lx.
- **White Markings Wet Continuous (ASTM 2832).** 150 mcd/m²/lx.
- **Yellow Markings Wet Continuous (ASTM 2832).** 125 mcd/m²/lx.

4.6. **Retroreflectivity Measurements.** Use a mobile retroreflectometer to measure the retroreflectivity of markings for Contracts with more than 50,000 total ft. of longitudinal pavement markings, unless otherwise shown on the plans. For Contracts between 20,000 and 50,000 total ft. of longitudinal pavement markings, mobile or portable retroreflectometers may be used at the Contractor's discretion. Coordinate with and obtain authorization from the Engineer before starting any retroreflectivity data collection.

Use a portable retroreflectometer for measuring the wet continuous retroreflectivity in accordance with ASTM E2832. Notify the Department when wet retroreflectivity measurements are to be taken. The Department will observe the wet retroreflectivity readings.

4.6.1. **Mobile Retroreflectometer Measurements.** Provide mobile measurement averages for every 0.1 mi. unless otherwise specified or approved. Take measurements on each section of roadway for each series of markings (e.g., edgeline, center skip line, and each line of a double line) and for each direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions). Furnish measurements in accordance with Item 667, "Mobile Retroreflectivity Data Collection for Pavement Markings," unless otherwise approved. The Engineer may require a field comparison check using a calibrated portable retroreflectometer for verification and to ensure accuracy. Use all equipment in conformance with the manufacturer's recommendations and directions. Inform the Engineer and TTI at least 24 hr. before taking any measurements.

A marking meets the retroreflectivity requirements if:

- the combined average retroreflectivity measurement for a 1-mi. segment meets the minimum retroreflectivity values specified and no more than 30% of the retroreflectivity measurement values are below the minimum retroreflectivity requirements value within that 1-mi. segment; or
- the combined average retroreflectivity measurement for a 1-mi. segment does not meet the minimum retroreflectivity values specified, but no more than 20% of the retroreflectivity measurements within that 1-mi. segment are below the minimum retroreflectivity requirement.

The 1-mi. segment will start from the beginning of the data collection and end after a mile's worth of measurements have been taken. Each subsequent mile of measurements will be a new segment. Centerlines with two stripes (either solid or broken) will result in 2 mi. of data for each mile segment. Each centerline stripe must be tested for compliance as a stand-alone stripe.

Restripe at the Contractor's expense if the markings fail retroreflectivity requirements. Take retroreflectivity measurements of all restriped markings following the time interval allowed based on the type of marking and the pavement surface for the latest application.

For all Type I markings, if the restripe application does not meet minimum retroreflectivity requirements or the initial stripe combined with the restripe exceeds 0.180 in. (180 mils), the Engineer may require:

- removal of all existing markings,
- a new application as initially specified, and
- a repeat of the application process until minimum retroreflectivity requirements are met.

For all Type III markings, if the first application does not meet minimum retroreflectivity requirements, the Engineer may require removal of all existing markings, a new application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.

- 4.6.2. **Portable Retroreflectometer Measurements.** For non-all-weather markings, provide portable measurement averages for every 1.0 mi. unless otherwise specified or approved. Using a portable reflectometer, take at least 20 measurements for each 1-mi. section of roadway for each series of markings (e.g., edgeline, center skip line, and each line of a double line) and direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid lines in both directions and measure all center skip lines in both directions). The spacing between each measurement must be at least 100 ft. The Engineer may decrease the mileage frequency for measurements if the previous measurements provide satisfactory results. The Engineer may resume the original number of measurements if concerns arise.

For all-weather markings, take at least three measurements for each series of markings (e.g., edgeline, center skip line, and each line of a double line) and direction of traffic flow and average the three measurements for each marking. The spacing between each measurement must be at least 100 ft. If the average of the three measurements taken on an individual marking falls below the minimum acceptable retroreflectivity value, take at least six additional measurements on that individual marking and average them. These six additional measurements must also be spaced at least 100 ft. apart. If the average of these six measurements falls below the minimum acceptable retroreflectivity value, the marking does not meet the performance requirements.

Restripe at the Contractor's expense if the averages of these measurements fail. Retake portable retroreflectometer measurements of all restriped markings following the time interval allowed based on the type of marking and the pavement surface for the latest application.

- 4.7. **Traffic Control.** Provide traffic control, as required, when taking portable retroreflectivity measurements after marking application. For the minimum traffic control requirements on low-volume roadways (as shown on the plans), refer to "Temporary Road Closure" in Part 6 of the TMUTCD. For all other roadways, the minimum traffic control requirements will be as shown on the Traffic Control Plan (TCP) standard sheets TCP (3-1) and TCP (3-2). The lead vehicle will not be required on divided highways. The TCP and traffic control devices must meet the requirements listed in Item 502, "Barricades, Signs, and Traffic Handling." Time restrictions that apply during striping application will also apply during the retroreflectivity inspections, except when using the mobile retroreflectometer, unless otherwise shown on the plans or approved.

- 4.8. **Performance Period.** All longitudinal markings must meet the minimum retroreflectivity requirements within the timeframe specified. All markings must meet all other performance requirements in accordance with this Item for at least 30 calendar days after installation. Unless otherwise directed, remove pavement markings that fail to meet requirements and replace them at the Contractor's expense. Replace failing markings within 30 days of notification. All replacement markings must also meet all requirements in accordance with this Item for at least 30 calendar days after installation.

5. MEASUREMENT

This Item will be measured by the foot; by each word, symbol, or shape; or by any other unit shown on the plans. Each stripe will be measured separately.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

Acrylic or epoxy sealer, or Type II markings when used as a sealer for Type I markings, will be measured by the foot; by each word, symbol, or shape; or by any other unit shown on the plans.

Profile pavement markings will be measured as a marking consisting of both the pavement marking stripe and the raised profile, regardless of the installation method used.

PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pavement Sealer" of the size specified; "Pavement Sealer (Call Out)" of the size specified; "Retroreflectorized Pavement Markings" of the type, color, shape, width, size, and thickness specified; "Non-Retroreflectorized Shadow Pavement Markings" of the type, width, size, and thickness specified; "Type I High Performance Pavement Markings" of the color, width, size, and thickness specified; "All-Weather Pavement Markings" of the type, color, shape, width, and thickness specified; "Pavement Marking (Call Out)" of the type, color, width, size, and thickness specified; or "Retroreflectorized Profile Pavement Markings" of the color, shape, size, and width specified.

This price is full compensation for application of pavement markings, materials, equipment, labor, tools, and incidentals.

Surface cleaning for all concrete surfaces and asphalt surfaces only when shown on the plans (excludes new asphalt surfaces with no existing pavement markings and retracing) will be paid for under Item 678. Surface cleaning for pavement marking applications on new asphalt surfaces with no existing pavement markings and for retracing of existing pavement markings on all surfaces will not be paid for directly, but will be subsidiary to this Item. If cleaning is needed beyond regular brooming and blowing compressed air, the Engineer may use force account to compensate for the extra effort. This is mainly applied when the pavement is covered with a thick layer of dirt or mud or grass is growing on the pavement.

Surface preparation of any surface where pavement markings are being retraced, except for sealing, will not be paid for directly, but will be subsidiary to this Item.

If the Engineer requires that markings be placed in inclement weather, repair or replacement of markings damaged by the inclement weather will be paid for in addition to the original plans quantity.

Item 672

Raised Pavement Markers



1. DESCRIPTION

Furnish and install raised pavement markers (RPMs).

2. MATERIALS

2.1. **Markers.** Furnish RPMs in accordance with the following.

- **Reflectorized Pavement Markers.** [DMS-4200](#), "Pavement Markers (Reflectorized)," Types I-A, I-C, I-R, II-A-A, II-C-C, and II-C- R
- **Traffic Buttons.** [DMS-4300](#), "Traffic Buttons," W, Y, and B. Round or oval unless otherwise shown on the plans
- **Plowable Reflectorized Pavement Markers.** [DMS-4210](#), "Snowplowable Pavement Markers," Types I-A, I-C, I-R, II-A-A, II-C-C, and II-C- R

The following are descriptions for each type of RPM.

- **Type I-A.** The approach face must retroreflect amber light. The body, other than the retroreflective face, must be yellow.
- **Type I-C.** The approach face must retroreflect white light. The body, other than the retroreflective face, must be white or silver-white.
- **Type I-R.** The trailing face must retroreflect red light. The body, other than the retroreflective face, must be white or silver-white, except for I-R plowable markers, which may be black.
- **Type II-A-A.** The two retroreflective faces (approach and trailing) must retroreflect amber light. The body, other than the retroreflective faces, must be yellow.
- **Type II-C-R.** Contains two retroreflective faces with an approach face that must retroreflect white light and a trailing face that must retroreflect red light. The body, other than the retroreflective faces, must be white or silver-white.
- **Type II-C-C.** Contain two retroreflective faces (approach and trailing) that retroreflect white light. The body, other than the retroreflective face, must be white or silver-white.
- **Type W.** Must have a white body and no reflective faces.
- **Type Y.** Must have a yellow body and no reflective faces.
- **Type B.** Must have a black body and no reflective faces.

2.2. **Adhesives.** Furnish adhesives in accordance with the following.

- [DMS-6100](#), "Epoxies and Adhesives," Type II—Traffic Marker Adhesives
- [DMS-6130](#), "Bituminous Adhesive for Pavement Markers"

The Contractor may propose alternate adhesive materials for consideration and approval.

2.3. **Sampling.** The Engineer will sample in accordance with [Tex-729-I](#).

3. CONSTRUCTION

Remove existing RPMs in accordance with Item 677, "Eliminating Existing Pavement Markings and Markers," except for measurement and payment. Furnish RPMs for each class from the same manufacturer. Prepare all surfaces in accordance with Item 678, "Pavement Surface Preparation for Markings," when shown on the

plans. Ensure the bond surfaces are free of dirt, curing compound, grease, oil, moisture, loose or unsound pavement markings, and any other material that would adversely affect the adhesive bond.

Establish pavement marking guides to mark the lateral location of RPMs as shown on the plans and as directed. Do not make permanent marks on the roadway for the guides.

Place RPMs in proper alignment with the guides. Acceptable placement deviations are shown on the plans.

If necessary, remove and replace RPMs placed out of alignment or sequence, as shown on the plans or in accordance with this Item, at the Contractor's expense in accordance with Item 677 (except for measurement and payment).

Use the following adhesive materials for placement of reflectorized pavement markers and traffic buttons, unless otherwise shown on the plans:

- standard or flexible bituminous adhesive for applications on bituminous pavements, and
- epoxy adhesive or flexible bituminous adhesive for applications on hydraulic cement concrete pavements.

Use epoxy adhesive for plowable reflectorized pavement markers.

Apply enough adhesives to:

- ensure that 100% of the bonding area of RPMs is in contact with the adhesive, and
- ensure that RPMs, except for plowable markers, are seated on a continuous layer of adhesive and not in contact with the pavement surface.

Apply adhesives in conformance with manufacturer's recommendations unless otherwise required by this Article. Apply bituminous adhesive only when pavement temperature and RPM temperature are 40°F or higher. Do not heat bituminous adhesive above 400°F. Machine agitate bituminous adhesive continuously before application to ensure even heat distribution.

Machine-mix epoxy adhesive. Apply epoxy adhesive only when pavement temperature is 50°F or higher.

Furnish RPMs free of rust, scale, dirt, oil, grease, moisture, and contaminants that might adversely affect the adhesive bond.

Place RPMs immediately after the adhesive is applied and ensure proper bonding. Do not use adhesives or any other material that impairs the functional retroreflectivity of the RPMs.

All RPMs must meet performance requirements for at least 30 calendar days after installation.

Replace all missing, broken, or non-reflective RPMs. Visual evaluations will be used for these determinations. Upon request, the Engineer will allow a Contractor representative to accompany the Engineer on these evaluations.

The Engineer may exclude RPMs from the replacement provisions of the performance, provided the Engineer determines the failure is a result of causes other than defective material or inadequate installation procedures. Examples of outside causes are extreme wear at intersections, damage by snow or ice removal, and pavement failure.

Replace all missing or non-reflective RPMs identified during the performance period within 30 days after notification. The end of the performance period does not relieve the Contractor from the performance deficiencies requiring corrective action identified during the performance period.

4. MEASUREMENT

This Item will be measured by each RPM.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Reflectorized Pavement Marker," "Traffic Button," or "Plowable Reflectorized Pavement Marker" of the types specified. This price is full compensation for removing existing markers; furnishing and installing RPMs; and materials, equipment, labor, tools, and incidentals.

No additional payment will be made for replacement of RPMs failing to meet the performance requirements.

Item 677

Eliminating Existing Pavement Markings and Markers



1. DESCRIPTION

Eliminate existing pavement markings and raised pavement markers (RPMs).

2. MATERIALS

Furnish surface treatment materials in accordance with the following Items.

- Item 300, "Asphalts, Oils, and Emulsions"
- Item 302, "Aggregates for Surface Treatments"
- Item 315, "Fog Seal"
- Item 316, "Seal Coat"

Use approved patching materials for repairing damaged surfaces.

Use a commercial abrasive blasting medium capable of producing the specified surface cleanliness. Use potable water when water is required.

3. EQUIPMENT

Furnish and maintain equipment in good working condition. Use moisture and oil traps in air compression equipment to remove all contaminants from the blasting air and prevent the deposition of moisture, oil, or other contaminants on the roadway surface.

4. CONSTRUCTION

Eliminate existing pavement markings and markers on both concrete and asphaltic surfaces such that color and texture contrast of the removed area and surrounding pavement surface will be held to a minimum. Remove all markings and markers with minimal damage to the roadway to the satisfaction of the Engineer. Repair damage to asphaltic surfaces such as spalling and shelling greater than 1/8 in. deep resulting from the removal of pavement markings and markers. Dispose of markers in conformance with federal, state, and local regulations. Use any of the following methods unless otherwise shown on the plans. Refer to the *Pavement Marking Handbook* for additional information on removal types and best practices.

- 4.1. **Surface Treatment Method.** Apply surface treatment material at the rates shown on the plans, or as directed. Place a surface treatment at least 2 ft. wide to cover the existing marking. Place a surface treatment, thin overlay, or microsurfacing at least one lane in width in areas where directional changes of traffic are involved or other areas as directed.
- 4.2. **Burn Method.** Use an approved burning method. For thermoplastic pavement markings or prefabricated pavement markings, heat may be applied to remove the bulk of the marking material before blast cleaning. When using heat, avoid spalling pavement surfaces. Ensure the burning heads are not left in one place too long to prevent pavement damage. Sweeping or light blast cleaning may be used to remove minor residue.
- 4.3. **Blasting Method.** Use a blasting method such as high-pressure water blasting, abrasive blasting, water abrasive blasting, shot blasting, slurry blasting, water-injected abrasive blasting, or brush blasting as approved. Use high-pressure water blasting for removal of pavement markings for lane shifts on concrete surfaces.

- 4.4. **Mechanical Method.** Use any mechanical method except grinding. Do not use flail milling on grooved concrete or porous asphalt.
- 4.5. **Corrective Actions.** Whenever removed markings on asphalt surfaces continue to simulate pavement markings to an extent determined by the Engineer to cause driver confusion, apply a fog seal or slurry at least 2 ft. wide over the area where pavement markings were removed as approved.

5. MEASUREMENT

This Item will be measured by each word, symbol, or shape eliminated; by the foot of marking eliminated; or by any other unit shown on the plans.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Eliminating Existing Pavement Markings and Markers" of the type and width as applicable. This price is full compensation for the elimination method used and materials, equipment, tools, labor, and incidentals. Removal of RPMs will not be paid for directly, but will be subsidiary to pertinent Items.

Item 678

Pavement Surface Preparation for Markings



1. DESCRIPTION

Prepare pavement surface areas before placement of pavement markings and raised pavement markers (RPMs). Item 677, "Eliminating Existing Pavement Markings and Markers," governs removal of existing markings.

2. MATERIALS

When abrasive blasting is used, use a commercial abrasive blasting medium capable of producing the specified surface cleanliness. Use potable water when water is required.

3. EQUIPMENT

Furnish and maintain equipment in good working condition. Use moisture and oil traps in air compression equipment to remove all contaminants from the blasting air and prevent the deposition of moisture, oil, or other contaminants on the roadway surface.

4. CONSTRUCTION

Prepare enough pavement surface for the pavement markings or RPMs shown on the plans. Remove all contamination and loose material. Avoid damaging the pavement surface. Remove loose and flaking material when existing pavement markings are present. Approved pavement surface preparation methods are sweeping, air blasting, flail milling, and blasting methods in accordance with Section 677.4.3., "Blasting Method," unless otherwise shown on the plans.

Air blast concrete pavement surfaces, in addition to the above, after the removal of contamination or existing material and just before placing the stripe. Perform air blasting using a compressor capable of generating compressed air at a minimum of 150 cu. ft. per minute and 100 psi using 5/16-in. or larger hosing.

Contaminants up to 0.5 sq. in. may remain if they are not removed by the following test, performed just before application of markings.

- **Step 1.** Air blast the surface to be tested, to simulate blasting during application of markings.
- **Step 2.** Firmly press a 10-in. long, 2-in. wide strip of monofilament tape onto the surface, leaving approximately 2 in. free.
- **Step 3.** Grasp the free end and remove the tape with a sharp pull.

5. MEASUREMENT

This Item will be measured by the foot for each width specified; by each word, shape, or symbol; or by any other unit except lump sum.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

6.

PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Pavement Surface Preparation for Markings" of the type and width as applicable. This price is full compensation for the cleaning method used, materials, equipment, labor, tools, and incidentals.

Item 680

Highway Traffic Signals



1. DESCRIPTION

- **Installation.** Install highway traffic signals.
- **Upgrade.** Modify or change existing traffic signals as shown on the plans.
- **Removal.** Remove, store, and salvage traffic signals.

2. MATERIALS

Ensure electrical materials and construction methods conform to the NEC and additional local utility requirements.

Furnish new materials as shown on the plans. Ensure all materials and construction methods are as shown on the plans and in accordance with this Item and the following Items.

- Item 450, "Railing"
- Item 610, "Roadway Illumination Assemblies"
- Item 618, "Conduit"
- Item 620, "Electrical Conductors"
- Item 621, "Tray Cable"
- Item 625, "Zinc-Coated Steel Wire Strand"
- Item 628, "Electrical Services"
- Item 636, "Signs"
- Item 656, "Foundations for Traffic Control Devices"
- Item 682, "Vehicle and Pedestrian Signal Heads"
- Item 684, "Traffic Signal Cables"
- Item 686, "Traffic Signal Pole Assemblies"
- Item 687, "Pedestrian Pole Assemblies"
- Item 688, "Pedestrian and Vehicle Detectors"

Provide controller assemblies in accordance with [DMS-11170](#), "Fully Actuated, Solid-State Traffic Signal Controller Assembly," and as shown on the plans. When shown on the plans, anti-graffiti coating will be in accordance with [DMS-8111](#), "Anti-Graffiti Coatings."

Provide devices in accordance with [DMS-11171](#), "Malfunction Management Unit (MMU)," and as shown on the plans.

Provide controllers in accordance with [DMS-11172](#), "Preemption Controller," and as shown on the plans.

Provide controllers in accordance with [DMS-11173](#), "Traffic Controller," and as shown on the plans.

Provide prequalified controller assemblies from the Department's MPL.

Provide flasher assemblies in accordance with [DMS-11160](#), "Flasher Controller Assembly," and as shown on the plans.

Provide prequalified flasher assemblies from the Department's MPL.

Sampling and testing of traffic signal controller assemblies and internal devices will be in accordance with [Tex-1170-T](#).

3. CONSTRUCTION

3.1. **Installation.** Install traffic signal controller foundations in accordance with Item 656.

3.1.1. **Electrical Requirements.**

3.1.1.1. **Electrical Services.** Arrange for electrical services and install and supply materials not provided by the utility company as shown on the plans. Install 120V, single-phase, 60-Hz AC electrical service unless otherwise shown on the plans.

3.1.1.2. **Conduit.** Install conduit and fittings of the sizes and types shown on the plans. Conduit of larger diameter size than that shown on the plans may be used with no additional compensation, providing the same diameter size is used for the entire length of the conduit run. Extend conduit in concrete foundations 2–3 in. above the concrete. Seal the ends of each conduit with approved sealant, after all cables and conductors are installed.

3.1.1.3. **Wiring.** Furnish stranded XHHW conductors as shown on the plans. If a size is not shown on the plans, use a minimum No. 14 AWG. Install aboveground cables and conductors in rigid metal conduit, except for span wire suspended cables and conductors, drip loops, and electrical wiring inside signal poles, unless otherwise shown on the plans. Make power entrances to ground-mounted controllers through underground conduit. Wire each signal installation to operate as shown on the plans.

Attach ends of wires to properly sized self-insulated solderless terminals. Attach terminals to the wires using a ratchet-type compression crimping tool properly sized to the wire. Place pre-numbered identification tags of plastic or tape around each wire adjacent to wire ends in the controller and signal pole terminal blocks.

Do not strip traffic signal cable until it has passed into the location that requires termination.

Splices will not be permitted except as shown on the plans, unless each individual splice is approved in writing. Make all allowed splices watertight.

Ensure both neutral buses are located with one on the left and one on the right bonded together. Relocate neutral bus if not oriented in the cabinet in this manner.

Ensure gauge of wire size used to connect electrical equipment inside the cabinet is sized appropriately for amperage load for the specific device, circuit breaker, or duplex receptacle in accordance with the NEC.

Install Category 6 Ethernet communication cables in accordance with Special Specification, “Networking Intelligent Transportation System (ITS) Communication Cable,” and connect networked equipment inside the controller cabinet assembly to field Ethernet switch following the color scheme and assignment information as follows.

- **White.** Ethernet switch (1-ft. patch cord).
- **Blue.** Traffic signal controller.
- **Green.** Malfunction monitor unit (MMU).
- **Red.** Battery backup unit (BBU).
- **Yellow.** Accessible pedestrian system.
- **Black.** Detection (e.g., radar and video).
- **Purple.** Pan, tilt, and zoom (PTZ) camera.
- **Orange.** Other.
- **Gray.** Other.
- **Pink.** Broadband radio.

A standard bundle of cables provided by the cabinet vendor is identified in [DMS-11170](#). Additional CAT 6 Ethernet cables, provided as necessary, must follow the color scheme and assignment above to connect additional networked equipment.

Railroad connection between traffic cabinet and bungalow must be a minimum No. 14 AWG 15-conductor and follow the color code chart shown in Table 1.

Table 1
Railroad Preemption Color Code and Functional Connection

Conductor	Color Code	Railroad Interface Field Terminal Connections	Conductor Identification
1	Black	HLTH-	Health Status DC-
2	White	—	Spare
3	Red	HLTH+	Health Status DC+
4	Green	—	Spare
5	Orange	XR IN	Simultaneous DC-
6	Blue	TCR IN	Advance DC-
7	White/black stripe	—	Spare
8	Red/black stripe	GD/ISLD IN	Gate Down/Island
9	Green/black stripe	APP OUT	Advance Pedestrian Preemption
10	Orange/black stripe	XR OUT	Simultaneous
11	Blue/black stripe	TCR OUT	Advance Primary
12	Black/white stripe	—	Spare
13	Red/white stripe	GD/ISLD OUT	Gate Down/Island DC-
14	Green/white stripe	APP IN	Advance Pedestrian Preemption DC -
15	Blue/white stripe	SUPR	Advance Secondary

- 3.1.1.4. **Grounding and Bonding.** Ground and bond conductors in accordance with the NEC. Ensure the resistance from the grounded point of any equipment to the nearest ground rod is less than 1 ohm.

Install a continuous bare or green insulated stranded copper wire (equipment ground) throughout the electrical system that is the same size as the neutral conductor. If a size is not shown on the plans, use a minimum No. 8 AWG. Connect the equipment ground to all metal conduit, signal poles, controller housing, electrical service ground, ground rods, and all other metal enclosures and raceways. Inside the controller cabinet assembly, jumper between neutral bus and ground bus is not required. Remove jumper if provided by cabinet manufacturer.

Provide stranded copper wire bonding jumpers that are minimum No. 8 AWG.

- 3.1.2. **Controller Assemblies.** Construct controller assembly foundations in accordance with Item 656. Immediately before mounting the controller assembly on the foundation, apply a bead of exterior rated penetrating sealant to the cabinet base or cabinet riser. Seal any space between conduit entering the controller assembly and the foundation with exterior rated penetrating sealant.

Stake cabinet foundation forms and underground conduit entering the foundation before installation and secure Department approval before pouring foundation. Cabinet location may vary from that shown on the plans to accommodate field conditions as approved. For controller cabinet assemblies installed on a slope, ensure the cabinet primary door faces and opens to the low side of the slope. If safety rail is required as shown on the plans, it must be in accordance with Item 450. Furnish anchor bolts to mount the cabinet or cabinet riser to the foundation. Manufacturer to determine the appropriate size and type of anchor bolt by cabinet type and foundation size. Provide appropriate mounting plates and any other necessary hardware to mount the cabinet on a foundation.

Coordinate with the Department on delivery of cabinet keys. Place the instruction manual and wiring diagrams for all equipment in the controller cabinet inside the controller cabinet.

- 3.1.3. **Preservation of Sod, Shrubbery, and Trees.** Replace sod, shrubbery, and trees damaged during the Contract.

- 3.1.4. **Removal and Replacement of Curbs and Walks.** Obtain approval before cutting into or removing walks or curbs not shown on the plans to be removed or replaced. Restore any curbs or walks removed equivalent to original condition after work is completed, to the satisfaction of the Engineer.
- 3.1.5. **Intersection Illumination.** Install luminaires on signal poles as shown on the plans.
- 3.1.6. **Signal Timing Plan.** The traffic signal timing plan will be provided by the Department or local entity.
- 3.1.7. **Test Period.** Operate completed traffic signal installations continuously for at least 30 days in a satisfactory manner. Designate in writing a sufficiently skilled individual responsible for maintenance and operation of the traffic signals who is available 24 hr. per day, and able to be onsite within 24 hr. of notification by the Engineer, unless otherwise shown on the plans. If any Contractor-furnished equipment fails during the 30-day test period, repair or replace that equipment. This repair or replacement, except lamp replacement, will start a new 30-day test period.
- Replace materials that are damaged or have failed before acceptance. Replace failed or damaged existing signal system components when caused by the Contractor. The Department will relieve the Contractor of maintenance responsibilities upon passing a 30-day performance test of the signal system and acceptance of the Contract.
- 3.2. **Upgrade.** Remove the existing items and install new items as shown on the plans or as directed. For newly installed items, refer to Section 680.3.1., "Installation." Ensure items designated for salvage are removed in a manner to avoid undue stress or damage. When the removed item leaves an opening, cover the opening with similar material to an equivalent condition. When the removed item leaves an unused signal cable, remove the cable. When the removed item leaves unused conductors within a signal cable still in use, trim back and tape off to ensure no electrical shorts by unused conductors. Store items designated for reuse or salvage at locations shown on the plans or as directed.
- 3.3. **Removal.** Remove existing electrical services, pedestal poles, strain poles, mast arm pole assemblies, luminaires, signal heads, vehicle detector equipment, controllers, cables, and other accessories. Remove materials so damage does not occur. Remove and store items designated for reuse or salvage at locations shown on the plans or as directed.
- Remove abandoned concrete foundations, including steel, to a point 2 ft. below final grade. Backfill holes with material equal in composition and density to the surrounding area. Replace surfacing material with similar material to an equivalent condition.
- Accept ownership and dispose of unsalvageable materials in conformance with federal, state, and local regulations.

4. MEASUREMENT

This Item will be measured by each traffic signal installed, upgraded, or removed. A traffic signal is a signalized intersection controlled by a single traffic signal controller.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Installation of Traffic Signals" of the type (traffic signal or flashing beacon) specified, or "Removing Traffic Signals."

- 5.1. **Installation.** This price is full compensation for furnishing, installing, and testing the completed installation of the traffic signal controller and associated equipment with network cabling, controller assembly, foundations, luminaires, damping plates, mounting hardware, and Department-provided items; preservation and replacement of damaged sod, shrubbery, and trees; removal and replacement of curbs and walks; and

materials, equipment, labor, tools, and incidentals. The Department will pay for electrical energy consumed by the traffic signal.

New drilled shaft foundations for traffic signal poles will be paid for under Item 416, "Drilled Shaft Foundations." New safety rail will be paid for under Item 450. New sidewalks or pedestrian ramps will be paid for under Item 531, "Sidewalks." New conduit will be paid for under Item 618. New electrical conductors will be paid for under Item 620. New ground boxes will be paid for under Item 624, "Ground Boxes." New span wire will be paid for under Item 625. Wire lashing or cable ties required to secure aerial cables to the messenger wire will be subsidiary. New electrical services will be paid for under Item 628. New signs will be paid for under Item 636. New internally illuminated signs will be paid for under Special Specification. New vehicle and pedestrian signal heads will be paid for under Item 682. New traffic signal cables will be paid for under Item 684. New traffic signal pole assemblies will be paid for under Item 686. New traffic signal detectors will be paid for under Item 688 or Special Specification.

If the design of the intersection control spans more than one intersection, such as a restricted crossing U-turn (RCUT), and requires more than one traffic signal cabinet, this Item will be measured by each traffic signal cabinet installed.

- 5.2. **Upgrade.** This price is full compensation for removing the various traffic signal components; removing the controller foundations; disposal of unsalvageable materials; hauling; and materials, equipment, labor, tools, and incidentals, as shown on the plans or as directed. This price is full compensation for furnishing, installing, and testing the completed installation, controller and associated equipment, controller foundations, luminaires, damping plates, and mounting hardware; preservation and replacement of damaged sod, shrubbery, and trees; removal and replacement of curbs and walks; and materials, equipment, labor, tools, and incidentals. The Department will pay for electrical energy consumed by the traffic signal.

New drilled shaft foundations for traffic signal poles will be paid for under Item 416. New sidewalks or pedestrian ramps will be paid for under Item 531. New conduit will be paid for under Item 618. New electrical conductors will be paid for under Item 620. New ground boxes will be paid for under Item 624. New span wire will be paid for under Item 625. Wire lashing or cable ties required to secure aerial cables to the messenger wire will be subsidiary. New electrical services will be paid for under Item 628. New signs will be paid for under Item 636. New internally illuminated signs will be paid for under Special Specification. New vehicle and pedestrian signal heads will be paid for under Item 682. New traffic signal cables will be paid for under Item 684. New traffic signal pole assemblies will be paid for under Item 686. New traffic signal detectors will be paid for under Item 688 or Special Specification.

- 5.3. **Removal.** This price is full compensation for removing the various traffic signal components; removing the controller foundations; disposal of unsalvageable materials; hauling; and materials, equipment, labor, tools, and incidentals.