BRAZORIA COUNTY

PURCHASING DEPARTMENT

SUSAN P. SERRANO, CPPO, CPPB
Purchasing Director

NOTICE TO PROCEED

October 8, 2025

Texas Materials Group, Inc.
Attn: Kevin Guy
3003 Kilgore Parkway
Baytown, TX 77523
kevin@texasmaterials.com

RE: Notice to Proceed for RFP# 25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792

Dear Mr.Guy:

Your company is approved to commence the work in accordance with the above referenced project on Monday, October 20, 2025 with a completion date of 75 calendar days. Please Contact the Brazoria County Project Manager to schedule work.

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: Texas Materials Group, Inc.

this 13th day of October, 2025.

Printed Name and Title: Kevin Guy - Estimating Manager

Signature: _____

BRAZORIA COUNTY

PURCHASING DEPARTMENT

SUSAN P. SERRANO, CPPO, CPPB
Purchasing Director

August 15, 2025

Texas Materials Group, Inc.
Attn: Kevin Guy
3003 Kilgore Parkway
Baytown, TX 77523
kevin@texasmaterials.com

Re: Award for RFP# 25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792

Dear Mr. Guy:

Brazoria County is pleased to inform you that on August 12, 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 names 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,

Natasha Stulberg, CPPB
Brazoria County Assistant Purchasing Director

BRAZORIA COUNTY
CONTRACT SHEET

THE STATE OF TEXAS
COUNTY OF BRAZORIA

This memorandum of agreement made and entered into on the 12th 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 Texas Materials Group, Inc.

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 #25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792** as stated in the Request to 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 #25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792**
- 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 19th day of August 2025.

By: _____
County Judge Signature

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

By: _____
Signature of Vendor

By: Kevin Guy, Estimator
Printed Name and Title

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
CERTIFICATION OF FILING

Certificate Number:
2025-1351120

Date Filed:
08/18/2025

Date Acknowledged:
8/19/2025

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
Texas Materials Group, Inc.
Baytown, 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.
RFP #25-57
Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Texas Materials Group, Inc.	Baytown, TX United States		X

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is Kevin Guy, and my date of birth is 6/24/1970.

My address is 3003 Kilgore Parkway, Baytown (city), TX (state), 77523 (zip code), USA (country).

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

Executed in Chambers County, State of Texas, on the 18th day of August (month), 20 25 (year).

Signature of authorized agent of contracting business entity
(Declarant)

Stephanie Gross
Assistant Vice President - Surety

Marsh USA Inc.
500 Dallas Street, STE 1500

Houston, TX 77002
757-876-0133
Stephanie.gross@marsh.com
www.marsh.com

MARSH

August 19, 2025

Brazoria County
237 E. Locust Street, STE 406
Angleton, TX 77515

Subject: Texas Materials Group, Inc. – Bond no. 014263043

TO WHOM IT MAY CONCERN:

We hereby give our authorization to date the above referenced Performance and Payment bonds for the RFP #25-57 Widening for Right Turn Deceleration Lane along NB FM 523 to EB CR 792 Project attached Power of Attorney to correspond with the date of the agreement.

Sincerely,

Stephanie Gross
Attorney-In-Fact for Liberty Mutual Insurance Company

Document A312™ – 2010

Conforms with The American Institute of Architects AIA Document 312

Performance Bond

Bond Number: 014263043

CONTRACTOR:
(Name, legal status and address)

Texas Materials Group, Inc.
3003 Kilgore Pkwy Bldg A
Baytown, TX 77523-9917

SURETY:
(Name, legal status and principal place of business)
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116
State of Inc: Massachusetts

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
Brazoria County
237 E. Locust Street, STE 406
Angleton, TX 77515

CONSTRUCTION CONTRACT
Date:

Amount: $275,052.55

Description: *(Name and location)*

RFP #25-57 Widening for Right Turn Deceleration Lane along NB FM 523 to EB CR 792

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $275,052.55

Modifications to this Bond: [✔] None [ ] See Section 16

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*
Texas Materials Group, Inc.

Signature:
Name Kevin Guy
And Title: Estimator

SURETY
Company: *(Corporate Seal)*
Liberty Mutual Insurance Company

Signature:
Name Stephanie Gross, Attorney-in-Fact
And Title:

(Any additional signatures appear on the last page of this Performance Bond)

(FOR INFORMATION ONLY – Name, address and telephone)

AGENT or BROKER:
Marsh

Marsh USA LLC
500 Dallas Street, Suite 1500
Houston, TX 77002

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ **1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ **2** If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ **3** If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ **4** Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ **5** When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ **5.1** Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ **5.2** Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ **5.3** Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ **5.4** Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ **6** If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ **7** If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ **8** If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ **9** The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ **10** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ **11** Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ **12** Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ **13** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ **14 Definitions**

§ **14.1 Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made. including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ **14.2 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ **14.3 Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ **14.4 Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ **14.5 Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ **15** If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ **16** Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

Signature: _____

Name and Title:

Address

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and Title:

Address

Document A312™ – 2010

Conforms with The American Institute of Architects AIA Document 312

Payment Bond

Bond Number: 014263043

CONTRACTOR:
(Name, legal status and address)
Texas Materials Group, Inc.
3003 Kilgore Pkwy Bldg A
Baytown, TX 77523-9917

SURETY:
(Name, legal status and principal place of business)
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116
State of Inc: Massachusetts

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
Brazoria County
237 E. Locust Street, STE 406
Angleton, TX 77515

CONSTRUCTION CONTRACT
Date:

Amount: $275,052.55

Description: *(Name and location)*
RFP #25-57 Widening for Right Turn Deceleration Lane along NB FM 523 to EB CR 792

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $275,052.55

Modifications to this Bond: ☑ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*
Texas Materials Group, Inc.

Signature:
Name Kevin Guy
And Title: Estimator

SURETY
Company: *(Corporate Seal)*
Liberty Mutual Insurance Company

Signature:
Name Stephanie Gross, Attorney-in-Fact
And Title:

(Any additional signatures appear on the last page of this Payment Bond)

(FOR INFORMATION ONLY – Name, address and telephone)

AGENT or BROKER:
Marsh USA LLC
500 Dallas Street, Suite 1500
Houston, TX 77002

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ **1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ **2** If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ **3** If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ **4** When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ **5** The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ **5.1** Claimants, who do not have a direct contract with the Contractor,

- **.1** have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- **.2** have sent a Claim to the Surety (at the address described in Section 13).

§ **5.2** Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ **6** If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ **7** When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ **7.1** Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ **7.2** Pay or arrange for payment of any undisputed amounts.

§ **7.3** The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ **8** The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ **9** Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this bond, subject to the Owner's priority to use the funds for the completion of the work.

§ **10** The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any

Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ **11** The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ **12** No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ **13** Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ **14** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ **15** Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ **16 Definitions**

§ **16.1 Claim.** A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ **16.2 Claimant.** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to Furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of the Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ **16.3 Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ **16.4 Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ **16.5 Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ **17** If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ **18** Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature: _____		Signature: _____	
Name and Title:		Name and Title:	
Address		Address	

Docusign Envelope ID: 1018FC92-99B8-4DF9-86CB-52D51E7CC710

ACTION BY WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
OF
TEXAS MATERIALS GROUP, INC.

The undersigned, being all of the members of the Board of Directors of Texas Materials Group, Inc., a Delaware corporation (the "***Corporation***"), do hereby, pursuant to applicable Delaware statute, give this written consent to the taking of the following actions, such actions to have the same force and effect had a meeting been duly called and held:

I. ELECTION OF OFFICERS

RESOLVED, that effective June 19, 2025, all previous elections of officers are terminated, and the following persons be, and hereby are, elected to serve as officers of the Corporation (each individually, an ***"Officer"*** and collectively, the ***"Officers"***) in the capacities set forth opposite their respective names until such time as their successors shall be elected and qualified:

Aaron Price	President
Martin Merx	Treasurer & Secretary
Derek Angel	Vice President/Assistant Secretary
Kal A. Kincaid	Vice President/Assistant Secretary
John Shogren	Vice President/Assistant Secretary
Mike Brown	Vice President/Assistant Secretary
Lonnie Schaub	Vice President/Assistant Secretary
Wayne Sweet	Vice President/Assistant Secretary
Bryan Kalbfleisch	Vice President/Assistant Secretary
David M. Toolan	Admin. Vice President/Assistant Secretary
Jessica Aldrich	Assistant Secretary/Assistant Treasurer
Kristin Davis	Assistant Secretary
Dejan Mandic	Assistant Secretary
Scott Frazier	Assistant Secretary
Therese Leon Guerrero	Assistant Secretary
Robert Checkley	Assistant Secretary
Derek Schluterman	Assistant Secretary
Robin Jennings	Assistant Secretary
Angela Kvarme	Assistant Secretary
Linda Lancaster	Assistant Secretary

FURTHER RESOLVED, that the Officers be, and each of them hereby is, authorized to execute and deliver agreements, contracts, documents, certificates, and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business, including without limitation, selling products and securing construction work, and to take such other action, as they may deem necessary, advisable, convenient, or appropriate to carry out and fully perform duties incident to the office or offices so appointed, and such other duties as may be prescribed by the Board of Directors from time to time;

Docusign Envelope ID: 1018FC92-99B8-4DF9-86CB-52D51E7CC710

FURTHER RESOLVED, that the following persons are hereby designated Officers solely for the purpose of attesting signatures of other Officers signing on behalf of the Corporation, and for executing and attesting various corporate documents, tax returns, affidavits, and other instruments as may be necessary from time to time:

Tim P. George	Assistant Secretary
William P. Jones	Assistant Secretary

II. APPOINTMENT OF AUTHORIZED EMPLOYEES

RESOLVED, that effective June 19, 2025 all previous appointments of authorized employees are terminated, and that the following persons be and each of them hereby is appointed to serve as an authorized employee of the Corporation, which persons shall be authorized to execute and deliver such agreements, contracts, documents, certificates and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business including, without limitation, selling products and securing construction work:

Adam Newsom
Bobby Daggett
Brach Whitman
Brian Ridlon
Bryan Cummings
Carlton Golden
Chris Michael
Clayton Truitt
Danny Schnyder
David Moore
David Reese
Dean Donnellan
Dean W. Buchanan
Donald Blackburn
Ed Farris
Geno Carrier IV
Geronimo Mitchell
Jacob Trim
Jake Kilgore
James A. Connor
Jared Dean
Jason (Thad) Traverse
Jeffery Goretski
Johnathan Murphy
John Stenbom
Jose Armenta
Josh King
Kaylon Page
Keith Pierson
Kelly Andrews
Kevin Guy
Kevin Kipp
Kyle Lewis
Lance Phillips
Lisa Roberts
Nicholas Bockoven
Nik Arikidis
Phillip King
Preston Bassinger
Robert Banks
Robert Brown
Robert Dunlap
Ron Stinson
Ryan Malone
Scott Blanchard
TJ Brown
Trey Golden
Troy Rakes
Zach Marshall

Docusign Envelope ID: 1018FC92-99B8-4DF9-86CB-52D51E7CC710

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, appoint other persons to serve as authorized employees, or remove any individuals from this capacity, and to direct those appointed to take such action, as he may deem necessary, advisable, convenient or appropriate to carry out and fully perform the duties incident to the office of President.

III. AUTHORIZATION OF TRADE NAMES

RESOLVED, that the activities and operations of the Corporation may be carried on in any of the following manners or styles as may from time-to-time be deemed necessary or appropriate:

East Texas Asphalt, A CRH Company
Gulf Coast, A CRH company
Moore Brothers Construction, A CRH Company
Texas Bit, A CRH company
Texas Concrete, A CRH company
Texas Materials, A CRH company
Texas Materials Group Production Asset Company LLC
Few Ready Mix, A CRH Company
Builders Supply, A CRH Company

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, authorize the use of additional trade names, and to deem unauthorized any trade name previously authorized, as he may deem necessary, advisable, convenient or appropriate.

IV. MISCELLANEOUS

RESOLVED, that all actions previously taken by any Officer of the Corporation appointed hereunder in his/her capacity as such Officer be, and each of them hereby is, adopted, ratified, confirmed and approved in all respects as the authorized acts and deeds of the Corporation;

FURTHER RESOLVED, that each undersigned agrees that electronic signatures, whether digital or encrypted, of the Board of Directors are intended to authenticate this consent and to have the same force and effect as manual signatures. As used in the previous sentence, the term "electronic signatures" means any electronic sound, symbol or process attached to or logically associated with this consent and executed and adopted by a member of the Board of Directors with the intent to sign such consent, including, but not limited to, e-mail electronic signatures executed through DocuSign Services; and

FURTHER RESOLVED, that this Consent, following execution by all of the members of the Board of Directors, be filed in appropriate order in the minute book of the Corporation.

Docusign Envelope ID: 1018FC92-99B8-4DF9-86CB-52D51E7CC710

Signed by:
9945E30E1BD4459...

Nathan Creech

Signed by:
John Rothering
596E90AE2FBA4D0...

John Rothering

Liberty Mutual SURETY

POWER OF ATTORNEY

Certificate No: 8204866

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Stephanie Gross

all of the city of Houston, state of TX each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of July, 2024.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 1st day of July, 2024, before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-infact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 19th day of August, 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Liberty Mutual
SURETY

Figure: 28 TAC § 1.601(a)(2)(B)

Have a complaint or need help?

If you have a problem with a claim or your premium, call your insurance company or HMO first. If you can't work out the issue, the Texas Department of Insurance may be able to help.

Even if you file a complaint with the Texas Department of Insurance, you should also file a complaint or appeal through your insurance company or HMO. If you don't, you may lose your right to appeal.

Liberty Mutual Insurance Company

To get information or file a complaint with your insurance company or HMO:

Call: Liberty Mutual Surety Claims **at** 206-473-6210
Online: www.LibertyMutualSuretyClaims.com
Email: HOSCL@libertymutual.com
Mail: P.O. Box 34526 Seattle, WA 98124

The Texas Department of Insurance

To get help with an insurance question or file a complaint with the state:

Call with a question: 1-800-252-3439
File a complaint: www.tdi.texas.gov
Email: ConsumerProtection@tdi.texas.gov
Mail: MC 111-1A, P.O. Box 149091, Austin, TX 78714-9091

¿Tiene una queja o necesita ayuda?

Si tiene, un problema con una reclamación o con su prima de seguro, llame primero a su compañía de seguros o HMO. Si no puede resolver el problema, es posible que el Departamento de Seguros de Texas (Texas Department of Insurance, por su nombre en inglés) pueda ayudar.

Aun si usted presenta una queja ante el Deparamento de Seguros de Texas, también debe presentar una queja a través del proceso de quejas o de apelaciones de su compañía de seguros o HMO. Si no lo hace, podría perder su derecho para apelar.

Liberty Mutual Insurance Company

Para obtener información o para presentar una queja ante su compañía de seguros o HMO:

Llame a: Liberty Mutual Surety Claims **al** 206-473-6210

En línea: www.LibertyMutualSuretyClaims.com

Correo electrónico: HOSCL@libertymutual.com

Dirección postal: P.O. Box 34526 Seattle, WA 98124

El Departamento de Seguros de Texas

Para obtener ayuda con una pregunta relacionada con los seguros o para presentar una queja ante el estado:

Llame con sus preguntas al: 1-800-252-3439

Presente una queja en: www.tdi.texas.gov

Correo electrónico: ConsumerProtection@tdi.texas.gov

Dirección postal: MC 111-1A, P.O. Box 149091, Austin, TX 78714-9091

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, Kevin Guy (Person name), the undersigned representative of (Company or Business Name) Texas Materials Group, Inc. (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

August 18, 2025
DATE

SIGNATURE OF COMPANY REPRESENTATIVE

N/A

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.**

Texas Materials Group, Inc.

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.**

None

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.**

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

August 18, 2025

Date

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 8/18/2025

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
Liberty Mutual Insurance Co. National Insurance East
500 N 3rd St, Suite 300
Wausau, WI 54403

www.LibertyMutual.com

CONTACT NAME: Valerie Reece
PHONE (A/C, No, Ext): 513-867-3822 **FAX (A/C, No):**
E-MAIL ADDRESS: Oldcastle.certs@LibertyMutual.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Liberty Mutual Fire Insurance Company	23035
INSURER B : Liberty Insurance Corporation	42404
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Texas Materials Group, Inc. (211-BAY)
3003 Kilgore Parkway
Baytown TX 77523

COVERAGES **CERTIFICATE NUMBER:** 86731583 **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	✓	✓	TB2-C81-004095-114	9/1/2024	9/1/2025	EACH OCCURRENCE	$ 2,000,000
	☐ CLAIMS-MADE ✓ OCCUR			XCU Coverage Included			DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300,000
	✓ Primary/Non-Contributory						MED EXP (Any one person)	$ 50,000
	✓ Separation of Insured						PERSONAL & ADV INJURY	$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	☐ POLICY ✓ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	☐ OTHER:							$
A	AUTOMOBILE LIABILITY	✓	✓	AS2-C81-004095-124	9/1/2024	9/1/2025	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	✓ ANY AUTO						BODILY INJURY (Per person)	$
A	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS			AS2-C81-054502-524	9/1/2024	9/1/2025	BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY			Physical Damage only:			PROPERTY DAMAGE (Per accident)	$
				Comprehensive Ded $10,000				$
				Collision Ded $10,000				
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A	✓	WA7-C8D-004095-024	9/1/2024	9/1/2025	✓ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N			All except OH, ND, WA, WY			E.L. EACH ACCIDENT	$ 1,000,000
B	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below			WC7-C81-004095-014 WI, MN	9/1/2024	9/1/2025	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)

RE: RFP #25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792.
Brazoria County is listed as additional insured with regards to the general liability and automobile liability policies, where required by written contract.
Waiver of subrogation is included in favor of the additional insured, where required by written contract, and where applicable by law.
30-day Notice of Cancellation.

CERTIFICATE HOLDER

Brazoria County
237 E. Locust
Angleton TX 77515

CANCELLATION

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
Valerie P. Reece
Valerie Reece

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Policy Number: AS2-C81-004095-124, AS2-C81-054502-524
Issued by: Liberty Mutual Fire Insurance Co.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED INSURED - NONCONTRIBUTING

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM
GARAGE COVERAGE FORM
MOTOR CARRIERS COVERAGE FORM
TRUCKERS COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

This endorsement identifies person(s) or organization(s) who are "insureds" under the Who Is An Insured Provision of the Coverage Form. This endorsement does not alter coverage provided in the Coverage form.

Schedule

Name of Person(s) or Organizations(s):
Any person or organization where the Named Insured has agreed by written contract to include such person or organization

Regarding Designated Contract or Project:
Any

Each person or organization shown in the Schedule of this endorsement is an "insured" for Liability Coverage, but only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured Provision contained in Section II of the Coverage Form.

The following is added to the **Other Insurance Condition:**

If you have agreed in a written agreement that this policy will be primary and without right of contribution from any insurance in force for an Additional Insured for liability arising out of your operations, and the agreement was executed prior to the "bodily injury" or "property damage", then this insurance will be primary and we will not seek contribution from such insurance.

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US (WAIVER OF SUBROGATION)

This endorsement modifies insurance provided under the following:

AUTO DEALERS COVERAGE FORM
BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

SCHEDULE

Name(s) Of Person(s) Or Organization(s):
Any person or organization for whom you perform work under a written contract if the contract requires you to obtain this agreement from us, but only if the contract is executed prior to the injury or damage occurring.
Premium: $ INCL
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The **Transfer Of Rights Of Recovery Against Others To Us** condition does not apply to the person(s) or organization(s) shown in the Schedule, but only to the extent that subrogation is waived prior to the "accident" or the "loss" under a contract with that person or organization.

© Insurance Services Office, Inc., 2011

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

POLLUTION LIABILITY – BROADENED COVERAGE FOR COVERED AUTOS – BUSINESS AUTO AND MOTOR CARRIER COVERAGE FORMS

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM
MOTOR CARRIER COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by the endorsement.

A. Covered Autos Liability Coverage is changed as follows:

1. Paragraph **a.** of the **Pollution** Exclusion applies only to liability assumed under a contract or agreement.

2. With respect to the coverage afforded by Paragraph **A.1.** above, Exclusion **B.6. Care, Custody Or Control** does not apply.

B. Changes In Definitions

For the purposes of this endorsement, Paragraph **D.** of the **Definitions** Section is replaced by the following:

D. "Covered pollution cost or expense" means any cost or expense arising out of:

1. Any request, demand, order or statutory or regulatory requirement that any "insured" or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of "pollutants"; or

2. Any claim or "suit" by or on behalf of a governmental authority for damages because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to or assessing the effects of "pollutants".

"Covered pollution cost or expense" does not include any cost or expense arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of "pollutants":

a. Before the "pollutants" or any property in which the "pollutants" are contained are moved from the place where they are accepted by the "insured" for movement into or onto the covered "auto"; or

b. After the "pollutants" or any property in which the "pollutants" are contained are moved from the covered "auto" to the place where they are finally delivered, disposed of or abandoned by the "insured".

Paragraphs **a.** and **b.** above do not apply to "accidents" that occur away from premises owned by or rented to an "insured" with respect to "pollutants" not in or upon a covered "auto" if:

(1) The "pollutants" or any property in which the "pollutants" are contained are upset, overturned or damaged as a result of the maintenance or use of a covered "auto"; and

(2) The discharge, dispersal, seepage, migration, release or escape of the "pollutants" is caused directly by such upset, overturn or damage.

Premium: INCL

© Insurance Services Office, Inc., 2011

Policy Number: AS2-C81-004095-124, AS2-C81-054502-524, TB2-C81-004095-114
Issued By: Liberty Mutual Fire Insurance Co.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

NOTICE OF CANCELLATION TO THIRD PARTIES

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE PART
MOTOR CARRIER COVERAGE PART
GARAGE COVERAGE PART
TRUCKERS COVERAGE PART
EXCESS AUTOMOBILE LIABILITY INDEMNITY COVERAGE PART
SELF-INSURED TRUCKER EXCESS LIABILITY COVERAGE PART
COMMERCIAL GENERAL LIABILITY COVERAGE PART
EXCESS COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART

Schedule

Name of Other Person(s)/ Organization(s):	Email Address or mailing address:	Number Days Notice:
Where required by written contract	Where required by written contract	90

A. If we cancel this policy for any reason other than nonpayment of premium, we will notify the persons or organizations shown in the Schedule above. We will send notice to the email or mailing address listed above at least 10 days, or the number of days listed above, if any, before the cancellation becomes effective. In no event does the notice to the third party exceed the notice to the first named insured.

B. This advance notification of a pending cancellation of coverage is intended as a courtesy only. Our failure to provide such advance notification will not extend the policy cancellation date nor negate cancellation of the policy.

All other terms and conditions of this policy remain unchanged.

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with its permission.

POLICY NUMBER: TB2-C81-004095-114

COMMERCIAL GENERAL LIABILITY
CG 25 03 05 09

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED CONSTRUCTION PROJECT(S) GENERAL AGGREGATE LIMIT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under Section **I** – Coverage **A**, and for all medical expenses caused by accidents under Section **I** – Coverage **C**, which can be attributed only to ongoing operations at a single designated construction project shown in the Schedule below:

1. A separate Designated Construction Project General Aggregate Limit applies to each designated construction project, and that limit is equal to the amount of the General Aggregate Limit shown in the Declarations.
2. The Designated Construction Project General Aggregate Limit is the most we will pay for the sum of all damages under Coverage **A**, except damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard", and for medical expenses under Coverage **C** regardless of the number of:
   a. Insureds;
   b. Claims made or "suits" brought; or
   c. Persons or organizations making claims or bringing "suits".
3. Any payments made under Coverage **A** for damages or under Coverage **C** for medical expenses shall reduce the Designated Construction Project General Aggregate Limit for that designated construction project. Such payments shall not reduce the General Aggregate Limit shown in the Declarations nor shall they reduce any other Designated Construction Project General Aggregate Limit for any other designated construction project shown in the Schedule below.
4. The limits shown in the Declarations for Each Occurrence, Damage To Premises Rented To You and Medical Expense continue to apply. However, instead of being subject to the General Aggregate Limit shown in the Declarations, such limits will be subject to the applicable Designated Construction Project General Aggregate Limit.

B. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under Section **I** – Coverage **A,** and for all medical expenses caused by accidents under Section **I** – Coverage **C,** which cannot be attributed only to ongoing operations at a single designated construction project shown in the Schedule below:

1. Any payments made under Coverage **A** for damages or under Coverage **C** for medical expenses shall reduce the amount available under the General Aggregate Limit or the Products-completed Operations Aggregate Limit, whichever is applicable; and
2. Such payments shall not reduce any Designated Construction Project General Aggregate Limit.

C. When coverage for liability arising out of the "products-completed operations hazard" is provided, any payments for damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard" will reduce the Products-completed Operations Aggregate Limit, and not reduce the General Aggregate Limit nor the Designated Construction Project General Aggregate Limit.

D. If the applicable designated construction project has been abandoned, delayed, or abandoned and then restarted, or if the authorized contracting parties deviate from plans, blueprints, designs, specifications or timetables, the project will still be deemed to be the same construction project.

E. The provisions of Section **III** – Limits Of Insurance not otherwise modified by this endorsement shall continue to apply as stipulated.

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SCHEDULE

Designated Construction Project(s):

All Projects.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	**Location(s) Of Covered Operations**
Any owner, lessee, or contractor for whom you have agreed in writing prior to a loss to provide liability insurance	Any location listed in such agreement

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location And Description Of Completed Operations
Any owner, lessee, or contractor for whom you have agreed in writing prior to a loss to provided liability insurance	Any location listed in such agreement
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and

2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

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Policy Number TB2-C81-004095-114
Issued by: Liberty Mutual Fire Insurance Company

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

OTHER INSURANCE AMENDMENT – SCHEDULED ADDITIONAL INSURED

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART

Schedule

Name of Person(s) or Organization(s): Any person or organization for which such coverage is required by written contract prior to a loss

If you are obligated under a written agreement to provide liability insurance on a primary, excess, contingent, or any other basis for any person(s) or organization(s) shown in the Schedule of this endorsement that qualifies as an additional insured on this Policy, this Policy will apply solely on the basis required by such written agreement and Paragraph **4. Other Insurance** of **Section IV – Conditions** will not apply. Where the applicable written agreement does not specify on what basis the liability insurance will apply, the provisions of Paragraph **4. Other Insurance** of **Section IV – Conditions** will apply. However, this insurance is excess over any other insurance available to the additional insured for which it is also covered as an additional insured for the same "occurrence", claim or "suit".

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WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us of Section IV – Conditions:**

We waive any right of recovery we may have against the person or organization shown in the Schedule below because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule below.

SCHEDULE

Name Of Person Or Organization:

As required by written contract or agreement entered into prior to loss.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

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NOTICE OF CANCELLATION TO THIRD PARTIES

A. If we cancel this policy for any reason other than nonpayment of premium, we will notify the persons or organizations shown in the Schedule below. We will send notice to the email or mailing address listed below at least 10 days, or the number of days listed below, if any, before cancellation becomes effective. In no event does the notice to the third party exceed the notice to the first named insured.

B. This advance notification of a pending cancellation of coverage is intended as a courtesy only. Our failure to provide such advance notification will not extend the policy cancellation date nor negate cancellation of the policy.

Schedule

Name of Other Person(s) / Organization(s):	Email Address or mailing address:	Number Days Notice:
Schedule on file with the Company	Schedule on file with the Company	90

All other terms and conditions of this policy remain unchanged.

Issued by Liberty Insurance Corporation 21814

For attachment to Policy No. WA7-C8D-004095-024 Effective Date Premium $

Issued to CRH Americas, Inc.

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WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Not applicable in Alaska, Kentucky, New Hampshire, New Jersey

Schedule

Any person or organization for which the employer has agreed by written contract, executed prior to loss, may execute a waiver of subrogation. However, for purposes of work performed by the employer in Missouri, this waiver of subrogation does not apply to any construction group of classifications as designated by the waiver of right to recover from others (subrogation) rule in our manual.

Where required by contract or written agreement prior to loss and allowed by law.

In the states of Connecticut, Florida, Iowa, Maryland, Nebraska and Oregon, the premium charge is 1% of the total manual premium, subject to a minimum premium of $250 per policy.

In the states of Alabama, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Georgia, Idaho, Illinois, Indiana, Kansas, Maine, Michigan, Mississippi, Missouri, Montana, Nevada, New Mexico, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Vermont and West Virginia, the premium charge is 2% of the total manual premium, subject to a minimum premium of $100 per policy.

In the states of New York and Tennessee, the premium charge is 2% of the total manual premium, subject to a minimum premium of $250 per policy.

In the state of Virginia, the premium charge is 5% of the total manual premium, subject to a minimum premium of $250 per policy.

In the state of Hawaii, the premium charge is $250 and determined as follows: The premium charge for this endorsement is 1% of the total manual premium, subject to a minimum premium of $250 per policy.

In the state of Louisiana, the premium charge is 2% of the total standard premium, subject to a minimum premium of $250 per policy.

In the state of Massachusetts, the premium charge is 1% of the total

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manual premium.

Issued by Liberty Insurance Corporation 21814

For attachment to Policy No. WA7-C8D-004095-024 Effective Date Premium $

Issued to CRH Americas, Inc. Endorsement No.

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TEXAS WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

This endorsement applies only to the insurance provided by the policy because Texas is shown in Item 3.A. of the Information Page.

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule, but this waiver applies only with respect to bodily injury arising out of the operations described in the Schedule where you are required by a written contract to obtain this waiver from us.

This endorsement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

The premium for this endorsement is shown in the Schedule.

Schedule

1. ( ) Specific Waiver
   Name of person or organization

   (X) Blanket Waiver
   Any person or organization for whom the Named Insured has agreed by written contract to furnish this waiver.

2. Operations:
   All Texas Operations

3. Premium:
   The premium charge for this endorsement shall be 2 percent of the premium developed on payroll in connection with work performed for the above person(s) or organization(s) arising out of the operations described.

4. Advance Premium:

Issued by Liberty Insurance Corporation 21814

For attachment to Policy No. WA7-C8D-004095-024 Effective Date Premium $

Issued to CRH Americas, Inc. Endorsement No.

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BRAZORIA COUNTY

PURCHASING DEPARTMENT

SUSAN P. SERRANO, CPPO, CPPB

Purchasing Director

July 1, 2025

Texas Materials Group, Inc.
Attn: Kevin Guy
3003 Kilgore Parkway
Baytown, TX 77523
Sent Via Email: kevin@texasmaterials.com

RE: RFP#25-57 Widening for Right Turn Deceleration Lane Along NB FM 523 to EB CR 792

Dear Mr. Guy:

This Letter of Intent is made on Tuesday, July 1, 2025 between Brazoria County and Texas Materials Group, Inc., of Baytown, Texas in order to enter into negotiations for Brazoria County's above referenced project.

A member of the evaluation team will be reaching out in the near future to schedule a conference call to begin negotiations with your team.

In addition, if Brazoria County and Texas Materials Group, Inc., are unable to reach an agreement, your company will be notified of the intent by Brazoria County to end negotiations.

Please feel free to contact me in the meantime with any questions you may have. We look forward to receiving your proposal.

Very truly yours,

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

FM 523 AT CR 792 RIGHT TURN LANE

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
100	6002	STA	PREPARING ROW	8.00	$ 850.00	$ 6,800.00
105	6108	SY	RMV STAB BASE & ASPH PV (17")	100	$ 25.00	$ 2,500.00
110	6001	CY	EXCAVATION (ROADWAY)	75	$ 162.00	$ 12,150.00
132	6003	CY	EMBANKMENT (FINAL)(ORD COMP)(TY B)	150	$ 61.00	$ 9,150.00
160	6003	SY	FURNISHING AND PLACING TOPSOIL (4")	1,000	$ 8.00	$ 8,000.00
164	6021	SY	HYDRO MLCH SEED(PERM)	1,000	$ 4.00	$ 4,000.00
292	6002	TON	ASPHALT STAB BASE (GR2)(PG 64)	678	$ 157.00	$ 106,446.00
354	6041	SY	PLANE ASPH CONC PAV (1.5")(TO REMOVE EXIST RUMBLE STRIP)	65	$ 80.00	$ 5,200.00
400	6005	CY	CEM STABIL BKFL	25	$ 56.00	$ 1,400.00
464	6005	LF	RC PIPE (CL III)(24 IN)	52	$ 218.00	$ 11,336.00
467	6395	EA	SET (TY II)(24 IN)(RCP)(6:1)(P)	3	$ 2,150.00	$ 6,450.00
500	6001	LS	MOBILIZATION	1	$ 42,300.00	$ 42,300.00
502	6001	MO	BARRICADES, SIGNS AND TRAFFIC HANDLING	2	$ 705.00	$ 1,410.00
506	xxxx	LS	SW3P & TEMP EROSION CONTROL (ALL INCLUSIVE)(SPECIAL)(2%)	1	$ 5,000.00	$ 5,000.00
530	6016	SY	DRIVEWAYS (BASE)(6 IN)	75	$ 74.00	$ 5,550.00
644	6027	EA	IN SM RD SN SUP&AM TYS80(1)SA(P)	4	$ 710.00	$ 2,840.00
644	6075	EA	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	2	$ 105.00	$ 210.00

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
644	6076	EA	REMOVE SM RD SN SUP&AM	2	$ 105.00	$ 210.00
666	6174	LF	REFL PAV MRK TY II (W) 6" (SLD)	881	$ 1.00	$ 881.00
666	6178	LF	REFL PAV MRK TY II (W) 8" (SLD)	617	$ 1.65	$ 1,018.05
666	6184	EA	REFL PAV MRK TY II (W) (ARROW)	4	$ 90.00	$ 360.00
666	6192	EA	REFL PAV MRK TY II (W) (WORD)	4	$ 96.00	$ 384.00
672	6007	EA	REFL PAV MRKR TY I-C	31	$ 7.00	$ 217.00
677	6001	LF	ELIM EXT PAV MRK & MRKS (4")	789	$ 0.50	$ 394.50
678	6002	LF	PAV SURF PREP FOR MRK (6")	881	$ 0.10	$ 88.10
678	6004	LF	PAV SURF PREP FOR MRK (8")	617	$ 0.10	$ 61.70
678	6009	EA	PAV SURF PREP FOR MRK (ARROW)	4	$ 8.40	$ 33.60
678	6016	EA	PAV SURF PREP FOR MRK (WORD)	4	$ 8.40	$ 33.60
3076	6043	TON	D-GR HMA TY-D PG 70-22 (LEVEL-UP)	73	$ 252.00	$ 18,396.00
3076	6066	GAL	TACK COAT	106	$ 5.00	$ 530.00
3076	6076	TON	D-GR HMA TY-D SAC A PG70-22 (EXEMPT)(INCL RUMBLE STRIP FILL)	78	$ 259.00	$ 20,202.00
6001	6001	DAY	PORTABLE CHANGEABLE MESSAGE SIGN	28	$ 52.00	$ 1,456.00
6185	6002	DAY	TMA (STATIONARY)	45	$ 1.00	$ 45.00
				PROJECT TOTAL	$	275,052.55

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

BRAZORIA COUNTY
RESPONDENT CERTIFICATION FORM

Texas Materials Group, Inc.
LEGAL NAME OF CONTRACTING COMPANY

58-1401466
FEDERAL I.D. # (Company or Corporation)

039939236
DUN & BRADSTREET D-U-N-S NUMBER

281-421-5721
TELEPHONE NUMBER

N/A
FACSIMILE NUMBER

Kevin Guy
CONTACT PERSON

Estimator
TITLE

3003 Kilgore Parkway
COMPLETE MAILING ADDRESS

Baytown, Texas
CITY & STATE

77523
ZIP CODE

3003 Kilgore Parkway
COMPLETE STREET ADDRESS

Baytown, Texas
CITY & STATE

77523
ZIP CODE

kevin@texasmaterials.com
EMAIL ADDRESS

CERTIFICATION

By my signature hereon, I certify that the Goods and/or Services that I propose to furnish will meet or exceed every specification contained herein, and that I have read each and every page of the Specifications/Statement of Work, other requirements, as well as, the Standard Terms & Conditions and Bid Table. Further, I agree that if my offer is accepted, I shall perform as required in these Contract documents. I am aware that, once accepted by Brazoria County, my offer becomes a binding Contract in accordance with the provisions herein of the aforementioned Contract documents, and that I will not be permitted to attempt enforcement of any other Contract or Contract provisions.

SIGNATURE
"must be authorized to execute on behalf of company"

June 24, 2025
DATE

Kevin Guy
Typewritten or Printed Name

Estimator
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 an 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 No19 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 Texas Materials Group, Inc.

Signature of Company Official Authorizing the Bid/Offer _____ Date June 24, 2025

Company Official (Printed Name) Kevin Guy

Official's Position Estimator

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 #25-57 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

June 24, 2025

DATE

Kevin Guy

Typewritten or Printed Name

Estimator

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

Kevin Guy, Estimator

Typed Name and Title

Texas Materials Group, Inc.

Applicant / Organization

June 24, 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

No Lobbying Activities to Disclose

Approved by OMB

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: a. contract ____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	**Status of Federal Action:** a. bid/offer/application _____ b. initial award c. post-award	**Report Type:** a. initial filing _____ b. material change
Name and Address of Reporting Entity: ____ Prime _____ Subawardee Tier_____, if Known: **Congressional District, if known:**	**If Reporting Entity in No. 4 is Subawardee,** Enter Name and Address of Prime: **Congressional District, if known:**	
Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____	
Federal Action Number, *if known:*	**9. Award Amount**, *if known:* **$**	
10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*	
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:** Kevin Guy **Title:** Estimator **Telephone No.:** 281-421-5721 **Date:** 6/24/2025	
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)

__✓__ **Company <u>does not</u> 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 Kevin Guy 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 Texas Materials Group, Inc. ("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.

Kevin Guy, Estimator

Name Title

SWORN TO AND SUBSCRIBED BEFORE ME by the said Kevin Guy, this 24th day of June, 20 25, to certify which witness my hand and seal of office.

Kelly Reynolds

NOTARY PUBLIC in and for

State of Texas

Printed Name: Kelly Reynolds

My Commission Expires: April 15, 2026

KELLY REYNOLDS NOTARY PUBLIC STATE OF TEXAS ID 12824222-1 EXP. 04-15-2026

BID BOND

VENDOR TO INSERT COPY OF BID BOND HERE

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bond Number: 69453-LIB-25-214

Bid Bond

CONTRACTOR:
(Name, legal status and address)
Texas Materials Group, Inc.
3003 Kilgore Pkwy Bldg A
Baytown, TX 77523-9917

SURETY:
(Name, legal status and principal place of business)
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116
State of Inc: Massachusetts

OWNER:
(Name, legal status and address)
Brazoria County
237 E. Locust Street, STE 406
Angleton, TX 77515

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: Five Percent of Amount Bid (5%)

PROJECT:
(Name, location or address, and Project number, if any)
RFP #25-57 Widening for Right Turn Deceleration Lane along NB FM 523 to EB CR 792

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner 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. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 18th day of June , 2025

Kelly Reynolds
(Witness)

Texas Materials Group, Inc.
(Principal) *(Seal)*

(Title) Kevin Guy, Estimator

Liberty Mutual Insurance Company
(Surety) *(Seal)*

(Witness) Al Gonzalez, Surety Witness

Misty Witt
(Title) Misty Witt, Attorney-in-Fact

Docusign Envelope ID: AA9F1132-D0E1-480C-B66A-39A5066D5E87

ACTION BY WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
OF
TEXAS MATERIALS GROUP, INC.

The undersigned, being all of the members of the Board of Directors of Texas Materials Group, Inc., a Delaware corporation (the "***Corporation***"), do hereby, pursuant to applicable Delaware statute, give this written consent to the taking of the following actions, such actions to have the same force and effect had a meeting been duly called and held:

I. ELECTION OF OFFICERS

RESOLVED, that effective February 10, 2025, all previous elections of officers are terminated, and the following persons be, and hereby are, elected to serve as officers of the Corporation (each individually, an ***"Officer"*** and collectively, the ***"Officers"***) in the capacities set forth opposite their respective names until such time as their successors shall be elected and qualified:

Aaron Price	President
Martin Merx	Secretary/Treasurer
Derek Angel	Vice President/Assistant Secretary
Kal A. Kincaid	Vice President/Assistant Secretary
John Shogren	Vice President/Assistant Secretary
Mike Brown	Vice President/Assistant Secretary
Rodney McCarn	Vice President/Assistant Secretary
Wayne Sweet	Vice President/Assistant Secretary
Bryan Kalbfleisch	Vice President/Assistant Secretary
David M. Toolan	Admin. Vice President/Assistant Secretary
Jessica Aldrich	Assistant Secretary/Assistant Treasurer
Kristin Davis	Assistant Secretary
Dejan Mandic	Assistant Secretary
Scott Frazier	Assistant Secretary
Therese Leon Guerrero	Assistant Secretary
Robert Checkley	Assistant Secretary
Derek Schluterman	Assistant Secretary
Robin Jennings	Assistant Secretary
Angela Kvarme	Assistant Secretary
Tom Hershberger	Assistant Secretary
Linda Lancaster	Assistant Secretary

FURTHER RESOLVED, that the Officers be, and each of them hereby is, authorized to execute and deliver agreements, contracts, documents, certificates, and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business, including without limitation, selling products and securing construction work, and to take such other action, as they may deem necessary, advisable, convenient, or appropriate to carry out and fully perform duties incident to the office or offices so appointed, and such other duties as may be prescribed by the Board of Directors from time to time;

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FURTHER RESOLVED, that the following persons are hereby designated Officers solely for the purpose of attesting signatures of other Officers signing on behalf of the Corporation, and for executing and attesting various corporate documents, tax returns, affidavits, and other instruments as may be necessary from time to time:

Michael F. Deaton	Assistant Secretary
Tim P. George	Assistant Secretary
William P. Jones	Assistant Secretary

II. APPOINTMENT OF AUTHORIZED EMPLOYEES

RESOLVED, that effective February 10, 2025 all previous appointments of authorized employees are terminated, and that the following persons be and each of them hereby is appointed to serve as an authorized employee of the Corporation, which persons shall be authorized to execute and deliver such agreements, contracts, documents, certificates and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business including, without limitation, selling products and securing construction work:

Adam Newsom	Josh King
Bobby Daggett	Kaylon Page
Brach Whitman	Keith Pierson
Brian Ridlon	Kelly Andrews
Carlton Golden	Kevin Guy
Chris Michael	Kevin Kipp
Clayton Truitt	Kyle Lewis
Danny Schnyder	Lance Phillips
David Moore	Lisa Roberts
David Reese	Nicholas Bockoven
Dean Donnellan	Nik Arikidis
Dean W. Buchanan	Phillip King
Donald Blackburn	Preston Bassinger
Ed Farris	Robert Banks
Geno Carrier IV	Robert Brown
Jacob Trim	Robert Dunlap
Jake Kilgore	Ron Stinson
James A. Connor	Sam Davis
Jared Dean	Scott Blanchard
Jason (Thad) Traverse	TJ Brown
Johnathan Murphy	Trey Golden
Jose Armenta	Troy Rakes

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, appoint other persons to serve as authorized employees, or remove any individuals from this capacity, and to direct those

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appointed to take such action, as he may deem necessary, advisable, convenient or appropriate to carry out and fully perform the duties incident to the office of President.

III. AUTHORIZATION OF TRADE NAMES

RESOLVED, that the activities and operations of the Corporation may be carried on in any of the following manners or styles as may from time-to-time be deemed necessary or appropriate:

East Texas Asphalt, A CRH Company
Gulf Coast, A CRH company
Moore Brothers Construction, A CRH Company
Texas Bit, A CRH company
Texas Concrete, A CRH company
Texas Materials, A CRH company
Texas Materials Group Production Asset Company LLC
Few Ready Mix, A CRH Company
Builders Supply, A CRH Company

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, authorize the use of additional trade names, and to deem unauthorized any trade name previously authorized, as he may deem necessary, advisable, convenient or appropriate.

IV. MISCELLANEOUS

RESOLVED, that all actions previously taken by any Officer of the Corporation appointed hereunder in his/her capacity as such Officer be, and each of them hereby is, adopted, ratified, confirmed and approved in all respects as the authorized acts and deeds of the Corporation;

FURTHER RESOLVED, that each undersigned agrees that electronic signatures, whether digital or encrypted, of the Board of Directors are intended to authenticate this consent and to have the same force and effect as manual signatures. As used in the previous sentence, the term "electronic signatures" means any electronic sound, symbol or process attached to or logically associated with this consent and executed and adopted by a member of the Board of Directors with the intent to sign such consent, including, but not limited to, e-mail electronic signatures executed through DocuSign Services; and

FURTHER RESOLVED, that this Consent, following execution by all of the members of the Board of Directors, be filed in appropriate order in the minute book of the Corporation.

Signed by:
F877D38C11274ED...
Aaron Price

DocuSigned by:
John J. Keating
6DBD0A4A9D404EA...
John J. Keating

POWER OF ATTORNEY

Certificate No: 8204866

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Misty Witt

all of the city of Houston, state of TX each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of July, 2024.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: _____
Nathan J. Zangerle, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 1st day of July, 2024, before me personally appeared Nathan J. Zangerle, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2029
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS: Section 12. Power of Attorney.
Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Nathan J. Zangerle, Assistant Secretary to appoint such attorneys-infact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 18th day of June, 2025.

By: _____
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Liberty Mutual
SURETY

Figure: 28 TAC § 1.601(a)(2)(B)

Have a complaint or need help?

If you have a problem with a claim or your premium, call your insurance company or HMO first. If you can't work out the issue, the Texas Department of Insurance may be able to help.

Even if you file a complaint with the Texas Department of Insurance, you should also file a complaint or appeal through your insurance company or HMO. If you don't, you may lose your right to appeal.

Liberty Mutual Insurance Company

To get information or file a complaint with your insurance company or HMO:

Call: Liberty Mutual Surety Claims **at** 206-473-6210
Online: www.LibertyMutualSuretyClaims.com
Email: HOSCL@libertymutual.com
Mail: P.O. Box 34526 Seattle, WA 98124

The Texas Department of Insurance

To get help with an insurance question or file a complaint with the state:

Call with a question: 1-800-252-3439
File a complaint: www.tdi.texas.gov
Email: ConsumerProtection@tdi.texas.gov
Mail: MC 111-1A, P.O. Box 149091, Austin, TX 78714-9091

¿Tiene una queja o necesita ayuda?

Si tiene, un problema con una reclamación o con su prima de seguro, llame primero a su compañía de seguros o HMO. Si no puede resolver el problema, es posible que el Departamento de Seguros de Texas (Texas Department of Insurance, por su nombre en inglés) pueda ayudar.

Aun si usted presenta una queja ante el Deparamento de Seguros de Texas, también debe presentar una queja a través del proceso de quejas o de apelaciones de su compañía de seguros o HMO. Si no lo hace, podría perder su derecho para apelar.

Liberty Mutual Insurance Company

Para obtener información o para presentar una queja ante su compañía de seguros o HMO:

Llame a: Liberty Mutual Surety Claims **al** 206-473-6210

En línea: www.LibertyMutualSuretyClaims.com

Correo electrónico: HOSCL@libertymutual.com

Dirección postal: P.O. Box 34526 Seattle, WA 98124

El Departamento de Seguros de Texas

Para obtener ayuda con una pregunta relacionada con los seguros o para presentar una queja ante el estado:

Llame con sus preguntas al: 1-800-252-3439

Presente una queja en: www.tdi.texas.gov

Correo electrónico: ConsumerProtection@tdi.texas.gov

Dirección postal: MC 111-1A, P.O. Box 149091, Austin, TX 78714-9091

N/A

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.**

Texas Materials Group, Inc.

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.**

None

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.**

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

June 24, 2025

Date

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 11/30/2015

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 Texas Materials Group, Inc. that is believed to be an immediate threat to human health or the environment.

(Company/Contractor)

Contractor Signature

June 24, 2025
Date

Kevin Guy
Printed Name

Estimator
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"

June 24, 2025
DATE

Kevin Guy
Typewritten or Printed Name

Estimator
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.

N/A

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.

_____
COMPANY NAME

_____
SIGNATURE OF COMPANY REPRESENTATIVE

_____
PRINTED NAME

_____
TITLE

_____
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: Kevin Guy

Title: Estimator

Email Address: kevin@texasmaterials.com

Phone Number: 713-410-2892

Name: TJ Brown

Title: VP Construction

Email Address: tjbrown@texasmaterials.com

Phone Number: 254-379-4056

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):

N/A
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 _____%

BRAZORIA COUNTY
VENDOR DATA SHEET

☐ New Vendor ☐ Business Name Change ☐ Address Change ☐ Tax Info Change (W-9) ☑ Other (Bid)

VENDOR NAME: Texas Materials Group, Inc.

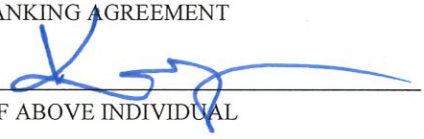
COMPLETED BY: Kevin Guy DATE FORM COMPLETED: June 24, 2025

SAM.GOV: VENDOR D & B DUNS NUMBER: 039939236/SAM.gov ID F8HFSQYTF6X7 CAGE CODE: 3VJW5

Is vendor incorporated? ☑ Yes ☐ No; If incorporated: How incorporated: _____ Where incorporated: Delaware

Has Name Changed in past two (2) years? ☐ Yes ☑ No If Yes, When N/A

FORMER NAME: N/A

3003 Kilgore Parkway PHYSICAL STREET ADDRESS (Cannot be P.O. Box)	Baytown CITY	Texas 77523 STATE / ZIP
Kevin Guy PRIMARY PERSON AUTHORIZED TO EXECUTE A FINANCIAL/BANKING AGREEMENT	Estimator TITLE	(281) 421-5721 TELEPHONE #
 SIGNATURE OF ABOVE INDIVIDUAL	kevin@texasmaterials.com EMAIL ADDRESS	
_____ SECONDARY PERSON AUTHORIZED TO EXECUTE A FINANCIAL/BANKING AGREEMENT	_____ TITLE	( ) TELEPHONE #
_____ SIGNATURE OF ABOVE INDIVIDUAL	_____ EMAIL ADDRESS	
www.texasmaterials.com WEBSITE ADDRESS		

REMITTANCE INFORMATION

REMIT TO NAME (If different from above)

P. O. Box 845198 REMIT TO ADDRESS	Dallas CITY	Texas 75284 STATE / ZIP
_____ CONTACT PERSON/TITLE	512-861-7100 TELEPHONE #	_____ FACSIMILE #
txrnoreplyar@na.crh.com EMAIL ADDRESS	Is this the only remit address you have? ☑ Yes ☐ No If no, please provide information:	

PLEASE COMPLETE THE W-9 FORM & RETURN IT WITH THE VENDOR DATA SHEET
(NOTE: 1099 FORMS WILL BE SENT TO THE ADDRESS ON THE W-9)

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

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

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

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

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

		–						

Part II Certification

Under penalties of perjury, I certify that:

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

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

Sign Here | **Signature of U.S. person ▶** | **Date ▶**

General Instructions

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

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and

4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

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

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

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

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

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

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

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

2. The treaty article addressing the income.

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

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

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

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

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

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

Payments you receive will be subject to backup withholding if:

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

2. You do not certify your TIN when required (see the Instructions for Part II for details),

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

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

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

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

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

Penalties

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

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

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

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

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

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

2—The United States or any of its agencies or instrumentalities

3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

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

5—A corporation

6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession

7—A futures commission merchant registered with the Commodity Futures Trading Commission

8—A real estate investment trust

9—An entity registered at all times during the tax year under the Investment Company Act of 1940

10—A common trust fund operated by a bank under section 584(a)

11—A financial institution

12—A middleman known in the investment community as a nominee or custodian

13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over $600 required to be reported and direct sales over $5,000[1]	Generally, exempt payees 1 through 5[2]
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

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

[2] However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

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

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

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

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at *www.SSA.gov*. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at *www.irs.gov/Businesses* and clicking on Employer Identification Number (EIN) under Starting a Business. Go to *www.irs.gov/Forms* to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to *www.irs.gov/OrderForms* to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

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

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

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

Part II. Certification

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

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

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

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

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

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

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

What Name and Number To Give the Requester

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

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

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

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

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

*__Note:__ The grantor also must provide a Form W-9 to trustee of trust.

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

Secure Your Tax Records From Identity Theft

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

To reduce your risk:

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

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

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

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

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

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

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

If you receive an unsolicited email claiming to be from the IRS, forward this message to *phishing@irs.gov*. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at *spam@uce.gov* or report them at *www.ftc.gov/complaint*. You can contact the FTC at *www.ftc.gov/idtheft* or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see *www.IdentityTheft.gov* and Pub. 5027.

Visit *www.irs.gov/IdentityTheft* to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

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

EXHIBIT B – VENDOR RESPONSE

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

- BID FORM 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 FORM

VENDOR TO INSERT COMPLETED BID FORM HERE

Bid Sheet **FM 523 AT CR 792 RIGHT TURN LANE**

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
100	6002	STA	PREPARING ROW	8.00	$903.00	$7224.00
105	6108	SY	RMV STAB BASE & ASPH PV (17")	100	$26.00	$2600.00
110	6001	CY	EXCAVATION (ROADWAY)	75	$170.00	$12,750.00
132	6003	CY	EMBANKMENT (FINAL)(ORD COMP)(TY B)	150	$64.00	$9,600.00
160	6003	SY	FURNISHING AND PLACING TOPSOIL (4")	1,000	$9.00	$9,000.00
164	6021	SY	HYDRO MLCH SEED(PERM)	1,000	$4.00	$4,000.00
292	6002	TON	ASPHALT STAB BASE (GR2)(PG 64)	678	$163.00	$110,514.00
354	6041	SY	PLANE ASPH CONC PAV (1.5")(TO REMOVE EXIST RUMBLE STRIP)	65	$83.00	$5,395.00
400	6005	CY	CEM STABIL BKFL	25	$58.00	$1,450
464	6005	LF	RC PIPE (CL III)(24 IN)	52	$230.00	$11,960.00
467	6395	EA	SET (TY II)(24 IN)(RCP)(6:1)(P)	3	$2,250.00	$6,750.00
500	6001	LS	MOBILIZATION	1	$40,000.00	$40,000.00
502	6001	MO	BARRICADES, SIGNS AND TRAFFIC HANDLING	2	$735.00	$1,470.00
506	xxxx	LS	SW3P & TEMP EROSION CONTROL (ALL INCLUSIVE)(SPECIAL)(2%)	1	$5,000.00	$5,000.00
530	6016	SY	DRIVEWAYS (BASE)(6 IN)	75	$77.00	$5,775.00
644	6027	EA	IN SM RD SN SUP&AM TYS80(1)SA(P)	4	$740.00	$2,960.00
644	6075	EA	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	2	$110.00	$220.00

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
644	6076	EA	REMOVE SM RD SN SUP&AM	2	$110.00	$220.00
666	6174	LF	REFL PAV MRK TY II (W) 6" (SLD)	881	$1.00	$881.00
666	6178	LF	REFL PAV MRK TY II (W) 8" (SLD)	617	$2.00	$1,234.00
666	6184	EA	REFL PAV MRK TY II (W) (ARROW)	4	$95.00	$380.00
666	6192	EA	REFL PAV MRK TY II (W) (WORD)	4	$100.00	$400.00
672	6007	EA	REFL PAV MRKR TY I-C	31	$8.00	$248.00
677	6001	LF	ELIM EXT PAV MRK & MRKS (4")	789	$0.50	$394.50
678	6002	LF	PAV SURF PREP FOR MRK (6")	881	$0.10	$88.10
678	6004	LF	PAV SURF PREP FOR MRK (8")	617	$0.10	$61.70
678	6009	EA	PAV SURF PREP FOR MRK (ARROW)	4	$9.00	$36.00
678	6016	EA	PAV SURF PREP FOR MRK (WORD)	4	$9.00	$36.00
3076	6043	TON	D-GR HMA TY-D PG 70-22 (LEVEL-UP)	73	$265.00	$19,345.00
3076	6066	GAL	TACK COAT	106	$5.00	$530.00
3076	6076	TON	D-GR HMA TY-D SAC A PG70-22 (EXEMPT)(INCL RUMBLE STRIP FILL)	78	$270.00	$21,060.00
6001	6001	DAY	PORTABLE CHANGEABLE MESSAGE SIGN	28	$54.00	$1,512.00
6185	6002	DAY	TMA (STATIONARY)	45	$1.00	$45.00
				PROJECT TOTAL	*$283,139.30*	

VENDOR TO INSERT RESPONSE HERE

(Include the information below in the specified order)

SECTION 1

VENDORS GENERAL EXPERIENCE & QUALIFICATIONS

General Contractors Name: Texas Materials Group, Inc.

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 Delaware

__ Partnership

__ Sole Proprietorship

__ Joint Venture

b. Specify: In continuous business since: 1945

c. Specify:

✓ Large Business (100 or more employees)

__ Small Business (fewer than 100 employees)

__ Other _____

III. Experience

a. Normally performs 90 % of work with own forces.

b. Proposing to perform 90 % of work for this project with own forces.

i. List Trades To be subcontracted:

Hydro Mulch Seed

Signs, Pavement Markings and Traffic Control

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.

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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
Please see attached Completed Projects Five Year History				

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
Rashaan Sanders	15	Various Projects - See both
		Current and Completed Projects

Superintendent	Years Experience	Projects
Toby Smith	30	Various Projects - See both
		Current and Completed Projects

Scheduler	Years Experience	Projects
Toby Smith	30	Various Projects - See both
		Current and Completed Projects

Quality Control Person	Years Experience	Projects
Toby Smith	30	Various Projects - See both
		Current and Completed Projects

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: IDV Kilgore, LLC on behalf of Chambers County Improvement District No. 3
   Address: c/o Quiddity Engineering, LLC, 2322 W. Grand Parkway North, Suite 150, Katy, Texas 77449
   Contact Name: Maxwell Dennis, P.E.
   Phone Number: 832-913-4000
   $ amount of project / contract: $1,564,741.69
   Contract / Project dates: FM 565 Turn Lanes at FM 3180/Complete May 2025

2. Name of government or agency: Harris County Toll Road Authority
   Address: 7701 Wilshire Place Drive, Houston, Texas 77040
   Contact Name: Victoria Guerra, P.E.
   Phone Number: 713-587-7107
   $ amount of project / contract: $1,488,147.22
   Contract / Project dates: SH 249 Emergency Repairs at SH 99/Complete February 2025

3. Name of government or agency: City of Plum Grove
   Address: c/o LJA Engineering, Inc., 2615 Calder Avenue, Suite 500 Beaumont, Texas 77702
   Contact Name: Manuel Mendoza, Jr., PM
   Phone Number: 409-833-3363
   $ amount of project / contract: $275,703.12
   Contract / Project dates: Plum Grove Road Improvements Community Block Grant 2021 CDV21-0283; Complete March 2024

4. Name of government or agency: City of Bastrop
   Address: c/o Walker Partners, 2700 Earl Rudder Freeway, Suite 1600 College Station, Texas 77845
   Contact Name: R. Alan Munger, P.E., CFM
   Phone Number: 979-599-9870
   $ amount of project / contract: $1,490,107.00
   Contract / Project dates: Old Austin Highway Pavement Rehabilitation (ENG 2023-01)/Complete September 2023

5. Name of government or agency: Galveston County

Address: 722 Moody Avenue, Galveston, Texas 77550

Contact Name: Lee Crowder, Road Administrator

Phone Number: 281-534-4152

$ amount of project / contract: $638,530.80

Contract / Project dates: Cemetery Road Maintenance Overlay (B221017)/ Complete September 2022

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
	Please see attached Work in Progress			

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

Number 55 $ 521,822,008

c. Largest single contract amount currently in progress:

Project Name: Harris County FM 1960 (1685-03-058)

Projected Completion Date : December 2025

Dollar Amount $ 63,153,665.96

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
Please see attached Completed Projects Five Year History			

b. Volume of work completed over last 5 years:

$ Confidential

$ Confidential

$ Confidential

$ Confidential

$ Confidential

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: e as a eria s Gr as a ivisi n as ine e

e inc rrec e ee r ec i n as a ne r c ncre e cr s ing an s

e as a eria s ns c i n ivisi n as n een ine

_____

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 0.55

2023 0.62

2022 0.57

2021 0.57

2020 0.52

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	14	23	22	5	2
Number of lost time accidents	2	3	1	0	2
Number of recordable cases	14	23	12	5	2
Number of fatalities	0	0	0	0	0
Number of employee direct hire fixed hours (round to 1,000's)	1,650,000	1,937,000	2,112,000	1,282,600	600,000

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? Project Managers, Managers, Safety Representatives

How often? Daily

Who is required to attend? All TxMAT employees are required to attend daily Safety meetings

c. Does your organization have a written safety program?

✓ 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?

✓ yes

__ no

For employees promoted to Field Supervisor?

__ yes

✓ no Quarterly Safety Training is scheduled for all employees

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

Safety work practices	✓ yes	__ no
Tool box safety meetings	✓ yes	__ no
First aid procedures	✓ yes	__ no
Accident investigation	✓ yes	__ no
Fire protection	✓ yes	__ no
New worker's orientation	✓ yes	__ no

SECTION 8

SUBCONTRACTOR LIST

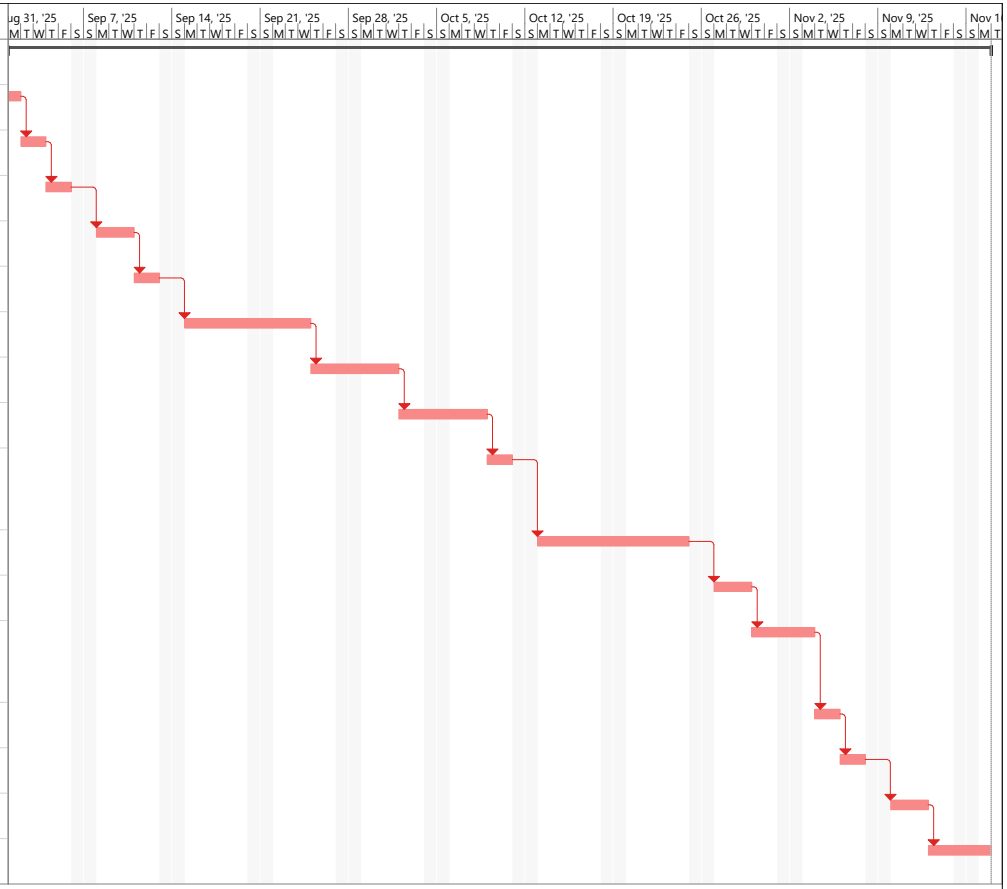
The Offerer shall provide a list of subcontractors your firm intends to contract with for services for each trade included in your offer.

SUBCONTRACTOR	TRADE
ra ic Signs an ines	S ri ing signs ra ic c n r arrice es
Green Sage Services	S er si n c n r

Section 9

VENDOR TO INSERT PROJECT SCHEDULE HERE

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Brazoria 25-57 FM 523 Widening RT Deceleration Lane**	**56 days**	**Mon 9/1/25**	**Mon 11/17/2**	
2		SET BARRICADES	1 day	Mon 9/1/25	Mon 9/1/25	
3		MOBILIZATION	2 days	Tue 9/2/25	Wed 9/3/25	2
4		PREP ROW	2 days	Thu 9/4/25	Fri 9/5/25	3
5		RC PIPE (CL III)(24 IN)	3 days	Mon 9/8/25	Wed 9/10/25	4
6		SET (TY II)(24 IN)(RCP)(6:1)(P)	2 days	Thu 9/11/25	Fri 9/12/25	5
7		REMOVE BASE/ASPH PAVING	8 days	Mon 9/15/25	Wed 9/24/25	6
8		EXCAVATION	5 days	Thu 9/25/25	Wed 10/1/25	7
9		EMBANKMENT	5 days	Thu 10/2/25	Wed 10/8/25	8
10		PLANE ASPH CONC PAV (1.5")(TO REMOVE EXIST RUMBLE STRIP)	2 days	Thu 10/9/25	Fri 10/10/25	9
11		ASPHALT STAB BASE (GR2)(PG 64)	10 days	Mon 10/13/2	Fri 10/24/25	10
12		D-GR HMA TY-D PG 70-22 (LEVEL-UP)	3 days	Mon 10/27/2	Wed 10/29/2	11
13		D-GR HMA TY-D SAC A PG70-22 (EXEMPT)(INCL RUMBLE STRIP FILL)	3 days	Thu 10/30/25	Mon 11/3/25	12
14		DRIVEWAYS (BASE)(6 IN)	2 days	Tue 11/4/25	Wed 11/5/25	13
15		SIGNS	2 days	Thu 11/6/25	Fri 11/7/25	14
16		PAVEMENT MARKINGS	3 days	Mon 11/10/2	Wed 11/12/2	15
17		PROJECT CLOSEOUT/DEMOBILIZATION	3 days	Thu 11/13/2	Mon 11/17/2	16



Project: Project1
Date: Wed 6/25/25

Task	Project Summary	Manual Task	Start-only	Deadline	Manual Progress
Split	Inactive Task	Duration-only	Finish-only	Critical
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Critical Split
Summary	Inactive Summary	Manual Summary	External Milestone	Progress

***9/1/2025 is just an approximate start date.**

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

__✓__ Company <u>does not</u> 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

N/A

SIGNED ADDENDUMS (IF APPLICABLE)

VENDOR TO INSERT SIGNED ADDENDUMS HERE

JM

Jim Mintern
Group Chief Executive Officer
19 / **62679**

RGL

Randall G Lake
Chief Operating Officer
9 / **61963**

NBC

Nathan Bradley Creech
President - CRH Americas
10 / **36663**

SP

Scott Parson
President, Americas Materials
13 / **28230**

BKB

Barnes K Barton
President, AMAT South Division
10 / **7735**

AP

Aaron Price
President - Texas Region
13 / **2698**

DA

Derek Angel
President - Texas Materials Gulf Coast
5 / **621**

TDB

Terry D Brown
VP Construction Gulf Coast Area
7 / **354**

TES

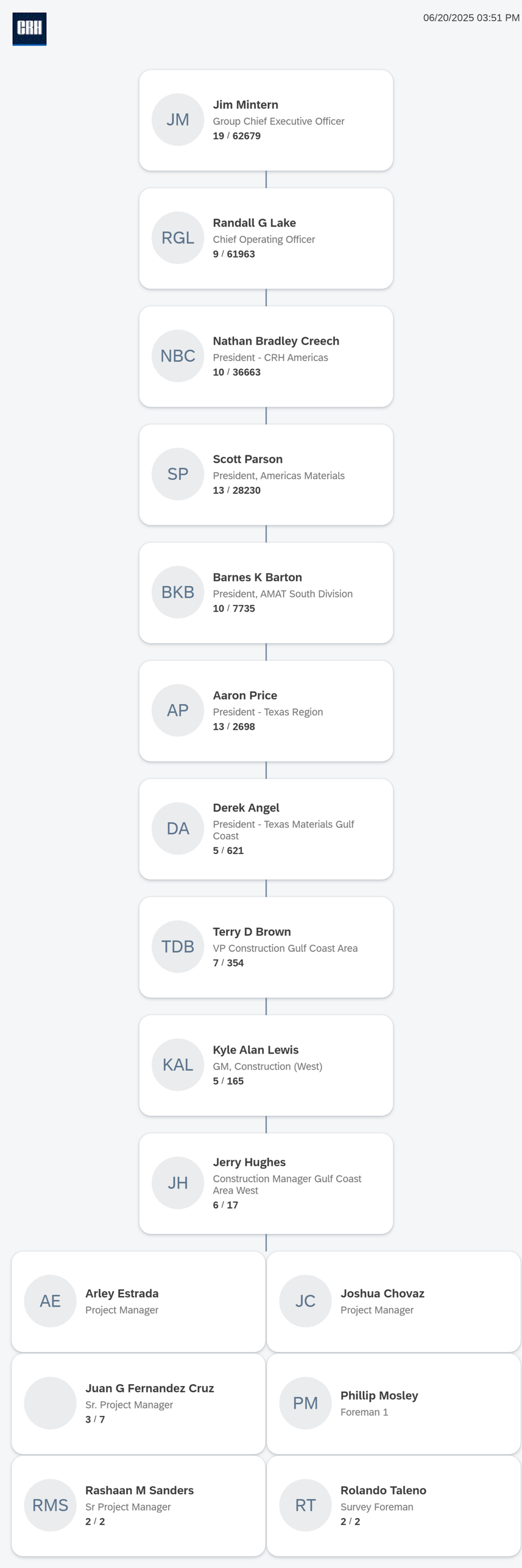
Toby E Smith
Asphalt Operations Manager
2 / **94**

AMR

Aaron M Rowell
Superintendent
2 / **24**

RR

Ramon Rojas
Asphalt Superintendent Gulf Coast Area West
7 / **68**


JM
Jim Mintern
Group Chief Executive Officer
19 / 62679
RGL
Randall G Lake
Chief Operating Officer
9 / 61963
NBC
Nathan Bradley Creech
President - CRH Americas
10 / 36663
SP
Scott Parson
President, Americas Materials
13 / 28230
BKB
Barnes K Barton
President, AMAT South Division
10 / 7735
AP
Aaron Price
President - Texas Region
13 / 2698
DA
Derek Angel
President - Texas Materials Gulf Coast
5 / 621
TDB
Terry D Brown
VP Construction Gulf Coast Area
7 / 354
KAL
Kyle Alan Lewis
GM, Construction (West)
5 / 165
JH
Jerry Hughes
Construction Manager Gulf Coast Area West
6 / 17
AE
Arley Estrada
Project Manager
JC
Joshua Chovaz
Project Manager
Juan G Fernandez Cruz
Sr. Project Manager
3 / 7
PM
Phillip Mosley
Foreman 1
RMS
Rashaan M Sanders
Sr Project Manager
2 / 2
RT
Rolando Taleno
Survey Foreman
2 / 2

Texas Materials Group, Inc.
Gulf Coast Area
3003 Kilgore Parkway
Baytown, Texas 77523
P 281-421-5721
F 281-421-5796

Corporate Office
1320 Arrow Point Drive, Suite 600
Cedar Park, Texas 78613
512-861-7100

Branches
3003 Kilgore Parkway
Baytown, Texas 77523
281-421-5721

12907 Highway 90
Beaumont, Texas 77713
409-866-1444

23990 State Highway 6
Navasota, Texas 77868
936-825-0118

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ACTION BY WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
OF
TEXAS MATERIALS GROUP, INC.

The undersigned, being all of the members of the Board of Directors of Texas Materials Group, Inc., a Delaware corporation (the "***Corporation***"), do hereby, pursuant to applicable Delaware statute, give this written consent to the taking of the following actions, such actions to have the same force and effect had a meeting been duly called and held:

I. ELECTION OF OFFICERS

RESOLVED, that effective February 10, 2025, all previous elections of officers are terminated, and the following persons be, and hereby are, elected to serve as officers of the Corporation (each individually, an ***"Officer"*** and collectively, the ***"Officers"***) in the capacities set forth opposite their respective names until such time as their successors shall be elected and qualified:

Aaron Price	President
Martin Merx	Secretary/Treasurer
Derek Angel	Vice President/Assistant Secretary
Kal A. Kincaid	Vice President/Assistant Secretary
John Shogren	Vice President/Assistant Secretary
Mike Brown	Vice President/Assistant Secretary
Rodney McCarn	Vice President/Assistant Secretary
Wayne Sweet	Vice President/Assistant Secretary
Bryan Kalbfleisch	Vice President/Assistant Secretary
David M. Toolan	Admin. Vice President/Assistant Secretary
Jessica Aldrich	Assistant Secretary/Assistant Treasurer
Kristin Davis	Assistant Secretary
Dejan Mandic	Assistant Secretary
Scott Frazier	Assistant Secretary
Therese Leon Guerrero	Assistant Secretary
Robert Checkley	Assistant Secretary
Derek Schluterman	Assistant Secretary
Robin Jennings	Assistant Secretary
Angela Kvarme	Assistant Secretary
Tom Hershberger	Assistant Secretary
Linda Lancaster	Assistant Secretary

FURTHER RESOLVED, that the Officers be, and each of them hereby is, authorized to execute and deliver agreements, contracts, documents, certificates, and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business, including without limitation, selling products and securing construction work, and to take such other action, as they may deem necessary, advisable, convenient, or appropriate to carry out and fully perform duties incident to the office or offices so appointed, and such other duties as may be prescribed by the Board of Directors from time to time;

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FURTHER RESOLVED, that the following persons are hereby designated Officers solely for the purpose of attesting signatures of other Officers signing on behalf of the Corporation, and for executing and attesting various corporate documents, tax returns, affidavits, and other instruments as may be necessary from time to time:

Michael F. Deaton	Assistant Secretary
Tim P. George	Assistant Secretary
William P. Jones	Assistant Secretary

II. APPOINTMENT OF AUTHORIZED EMPLOYEES

RESOLVED, that effective February 10, 2025 all previous appointments of authorized employees are terminated, and that the following persons be and each of them hereby is appointed to serve as an authorized employee of the Corporation, which persons shall be authorized to execute and deliver such agreements, contracts, documents, certificates and other instruments, under the seal of the Corporation if required, for the purpose of conducting the Corporation's business including, without limitation, selling products and securing construction work:

Adam Newsom	Josh King
Bobby Daggett	Kaylon Page
Brach Whitman	Keith Pierson
Brian Ridlon	Kelly Andrews
Carlton Golden	Kevin Guy
Chris Michael	Kevin Kipp
Clayton Truitt	Kyle Lewis
Danny Schnyder	Lance Phillips
David Moore	Lisa Roberts
David Reese	Nicholas Bockoven
Dean Donnellan	Nik Arikidis
Dean W. Buchanan	Phillip King
Donald Blackburn	Preston Bassinger
Ed Farris	Robert Banks
Geno Carrier IV	Robert Brown
Jacob Trim	Robert Dunlap
Jake Kilgore	Ron Stinson
James A. Connor	Sam Davis
Jared Dean	Scott Blanchard
Jason (Thad) Traverse	TJ Brown
Johnathan Murphy	Trey Golden
Jose Armenta	Troy Rakes

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, appoint other persons to serve as authorized employees, or remove any individuals from this capacity, and to direct those

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appointed to take such action, as he may deem necessary, advisable, convenient or appropriate to carry out and fully perform the duties incident to the office of President.

III. AUTHORIZATION OF TRADE NAMES

RESOLVED, that the activities and operations of the Corporation may be carried on in any of the following manners or styles as may from time-to-time be deemed necessary or appropriate:

East Texas Asphalt, A CRH Company
Gulf Coast, A CRH company
Moore Brothers Construction, A CRH Company
Texas Bit, A CRH company
Texas Concrete, A CRH company
Texas Materials, A CRH company
Texas Materials Group Production Asset Company LLC
Few Ready Mix, A CRH Company
Builders Supply, A CRH Company

FURTHER RESOLVED, that the President of the Corporation may, from time to time, without further action by the Board of Directors, authorize the use of additional trade names, and to deem unauthorized any trade name previously authorized, as he may deem necessary, advisable, convenient or appropriate.

IV. MISCELLANEOUS

RESOLVED, that all actions previously taken by any Officer of the Corporation appointed hereunder in his/her capacity as such Officer be, and each of them hereby is, adopted, ratified, confirmed and approved in all respects as the authorized acts and deeds of the Corporation;

FURTHER RESOLVED, that each undersigned agrees that electronic signatures, whether digital or encrypted, of the Board of Directors are intended to authenticate this consent and to have the same force and effect as manual signatures. As used in the previous sentence, the term "electronic signatures" means any electronic sound, symbol or process attached to or logically associated with this consent and executed and adopted by a member of the Board of Directors with the intent to sign such consent, including, but not limited to, e-mail electronic signatures executed through DocuSign Services; and

FURTHER RESOLVED, that this Consent, following execution by all of the members of the Board of Directors, be filed in appropriate order in the minute book of the Corporation.

Signed by:
F877D38C11274ED...
Aaron Price

DocuSigned by:
John J. Keating
6DBD0A4A9D404EA...
John J. Keating

Kevin L. Guy
6300 Bayou Blvd.
Baytown, Texas 77521
(713) 410-2892
kevin@texasmaterials.com

Objective:
To obtain a leadership position within a team-oriented management group.

Education:
Texas A&M University, College Station, TX
BS in Construction Science May 1997

Experience:
May 1997 - Present

Estimator / Project Manager, Texas Materials Group, Inc. (formerly Angel Brothers Holdings Corp.)

- Prepare lump sum & unit price proposals for a variety of civil projects, experienced in public, private & industrial projects. ($100,000.00 - $50,000,000.00)
- Manage construction of projects successfully bid / negotiated, the company has a "cradle to grave" project management ideology.

June 1996 – August 1996

Assistant Estimator / Project Manager Angel Brothers Enterprises, Ltd.

- Fulfilled degree requirement for 12-week internship in construction related field.
- Helped with quantity take-offs (manual & computer aided)
- Worked closely with a project manager in preparing a successful proposal for an industrial site-work package for Bayer Chemical.

Related Skills:

- Surveying
- Detour & Construction Traffic Control (MUTCD) Design & Implementation
- Technical Writing; Legal Agreements, Professional Proposals, Etc.
- Excavation volume calculations and the utilization of a variety excavation related software packages.
- AutoCAD design work ranging from traffic control plans to a multi-million dollar oval track facility.

Computer Related Skills:

- AutoCAD
- Agtek Earthwork 3D & Highway Sections
- Spectra Precision Paydirt / Site Work package
- Spectra Precision Terramodel
- Microsoft Office Suite (Word, Excel, Publisher, Access, Project)
- Primavera
- Microsoft Project

Jes Ripley Allen
4630 Wild Bluebonnet Way
Houston, TX 77084
(979) 571-5898

Education:

Texas A&M University College Station, TX May 2011
Bachelor of Science, Construction Science

Experience:

Texas Materials Group, Inc. Houston, TX November 2021 - Present

Construction Superintendent

- Planning, scheduling and overseeing crews across the Houston Metropolitan area. Projects include Texas Department of Transportation and other public entities in addition to private jobs. Assist project managers in scheduling, cost review, and project completion on schedule.

Pulice Construction Midland, TX March 2021 – November 2021
Texas Department of Transportation – IH 20 Reconstruction and Overpass
Contract Total: $51,000,000

Drainage & Structures Superintendent

- Planning work for drainage crews and subcontractors to complete the necessary drainage work per the schedule and to review cost.
- Pre-Construction planning for the Bridge Construction on IH 20. Other duties included planning and performing concrete work associated with drainage tie ins, concrete lined channels, Concrete CIP Walls.

Zachry Construction Corporation Houston, TX February 2017- March 2021
Harris County Toll Road - Beltway 8 Contract 338 & 346
Contract Total: $170,000,000

Field Engineer for Structures and Various Subcontractors

- Maintained coordination and Interface between ZCC and HCTRA with regards to the schedule, design issues, and other issues that affect the project.
- Assisted Superintendent and Crews to make sure necessary tools, supplies, and long lead items are ordered for the work to progress.

Drainage & ITS Superintendent

- Planning work for two drainage crews to complete the necessary drainage work per the schedule and to review cost.
- Communication with the ITS Subcontractor to determine the critical work to be able to complete the necessary fiber cut overs to be able to progress the project forward. Coordination with HCTRA and other entities to schedule outages for fiber cut overs.

Structure & Traffic Control Superintendent

- Planning work for 7 crews to complete the Structures work per the schedule and to review cost & schedule impacts.
- Planning work for two traffic control crews to perform major & minor traffic switches, daily lane closures, and other necessary items with the assistance of the field engineer & other discipline superintendents.

Zachry Construction Corporation Statesville, NC February 2016- February 2017
I-40/I-77 Statesville, NC
Contract Total: $89,000,000.00

- Project Engineer Interface between ZCC and NCDOT with regards to the schedule, design issues, and other issues that affect the project. Review monthly pay estimates and review accuracy of monthly pay quantities.

Structure Superintendent

- Planning work for 5 crews to complete the Structures work per the schedule and to review cost & schedule impacts.

Zachry-Odebrecht Parkway Builders Houston, TX November 2012-Febuary 2016
SH 99 Grand Parkway Segments F1, F2, G
Contract Total: $1,083,000,000.00
ROW Engineer

- Weekly review of sub-consultants progress and then reporting the progress to the project schedule and review of the schedule with regards to missing progress or changes to the critical path.
- Daily interaction and interface between the ROW and the Segment Managers with regards to progress, ROW update, Current Release for Construction Dates, and other ROW issues between ROW and the Segments. Additionally, constant interface with sub-consultants to aid in ROW acquisition, issues with design, issues with TxDOT, and management of necessary resources.

SH 99 Grand Parkway Segment G
Field Engineer- Walls & Misc.

- Daily/Weekly/Monthly review & tracking of several subcontractors progress and then reporting the progress to the project schedule and review of the schedule with regards to missing progress or changes to the critical path. Monthly review and reconciliation of quantities to make sure subcontractors are paid based off of work performed.
- Daily progress tracking, time card review of 7-10 ZOPB Foremen including review of crew progress, performance, and updating tracking sheets & project quantity tracking program.

SH 99 Grand Parkway Segment G
Superintendent- General

- Planning work for 5-7 crews to complete the work on the Grand Parkway per the schedule and to report the progress to the project schedule and review of the schedule with regards to missing progress or changes to the critical path.

- Main focus on concrete operations, frontage road paving and intersections, with totals nearing 14,000 Cubic Yards placed by hand.

Zachry Construction Corp San Antonio, TX March 2012- November 2012
Estimator Level 1

- Quantity take-offs for approximately six billion dollars of work that we were estimating with a concentration in earthwork operations.
- Determination of production, crew composition, and duration based on quantities determined in the take-offs
- Review of estimates and quantities with President, Vice President, and Chief Estimator to determine if the productions and crew composition was correct.
- Participation in Joint Venture estimates and reviews to include the following projects each estimated at over one billion dollars in cost.

Schieffer Construction & TKM Solutions College Station, TX May 2007 - November 2012

Skills and Knowledge:

Operation of heavy equipment: Track hoes, loaders, mixers, farm tractor scrapers, dozers, motor graders
10 and 30 hour OSHA Certification, ACI certification, First Aid & CPR Trained
Competent Person in Trench Safety
JLG Certified to train on Man lifts and Forklifts
Survey Equipment: Trimble GPS, Topcon Total Station, Topcon and Trimble machine control.
Computer Programs: Excel, Hard Dollar, AutoCAD, Bluebeam, MicroStation, and Terramodel, & SAP.
ROW Acquisition and Condemnation in the State of Texas

Joshua Chovaz

6302 Bayou Blvd. Baytown, Tx
(361)935-3474
Jchovaz24@yahoo.com

I'm seeking opportunities to expand my construction knowledge with a team of motivated individuals. My years of site experience have given me perspective on how to properly layout and execute construction processes and activities for optimum outcome.

Skills

- Data Analysis
- Vendor Relations
- Document Management
- Construction Turnover
- Database Management
- Client Relations
- Microsoft Office
- Bluebeam
- GDMS
- Sharepoint
- Fusion
- Orbit

Experience

2020 – PRESENT

Project Manager / Texas Materials, Baytown Tx.

- Manage day to day site operations for multiple projects around the greater Houston area
- Submit and maintain records of all change orders and RFIs for projects.
- Coordinate activities with subcontractors on site.
- Track daily quantities to incorporate into monthly pay estimates.
- Approve crew time daily.
- Communicate equipment and trucking needs with office personnel.

2019 – 2020

Site Document Control / Clough, Pasadena Tx.

- Develop the site document control procedure for proper handling and storage of construction records and drawings.
- Maintain registers to track drawing revisions, site redlines, Technical Queries and various other turnover documentation.
- Manage all hard copy construction books for site to ensure all parties are using the most up to date drawings.
- Assist subcontractors with the turnover of Manufacturers Data Report as their work is completed.
- Incorporate Manufacturers Data Report into the Project Data Book that will be part of the final turnover to client.
- Develop site redline/markup procedure to be implemented on current and future projects.
- Support engineering with processing Technical Queries in a timely manner.
- Upload and transmit new revisions, as well as, redlines into the document management system (Fusion) and ensure they are making it to all necessary construction personnel.

2017 – 2019

Document Control Manager / Linde, La Porte Tx.

- Establish procedural framework for identifying, collecting, distributing and filing the controlled documents for the project. This involves writing and maintaining document control procedures and participating in the development and roll-out of document control tools, such as scanning hardware, and computer software.
- Assist in creating project procedures for check records and inspection documentation by creating procedures and flowcharts.
- Interface with IT support for Document Control issues, which includes process enhancements to existing software, developing recommendations for new hardware and/or software that may benefit the Document Control Environment. In general, identify trends and recommend "best practices."
- Manage subcontractor Technical Queries to ensure timely responses.
- Ensure the information and management control system is implemented in compliance with the Client's standard; and is updated to reflect revisions to those standards.
- Coordinate document submissions and retrievals with our international offices using Global Document Management System (GDMS).
- Maintain & update site documentation – including but not limited to Requests for Inspections, Submittals, Technical Queries & Mechanical Completion handover documentation.
- Develop and prepare Mechanical Completion package turnover procedure as well as final documentation for the project.
- Transmit documents to subcontractors from the Engineering Department using (GDMS).
- Develop and execute reporting procedures.
- Utilize Grip software to assist the Scheduling Department in coordinating and tracking direct employees' arrival and duration on site.

2013 – 2017

Document Control / Lauren Engineers

- Maintained & updated physical site documents for all departments, including field workbooks.
- Managed master weld tracker for end of job turnover.
- Built work packages and organized material in accordance with task needs.
- Processed all transmittals to and from site, including turnover of all final documentation.
- Developed turnover books for project completion.
- Performed weekly audits of all site construction documents.
- Notify discipline leads of any drawing revisions that impact their area of the construction process.

2016 – 2017

Shipping & Receiving Supervisor / Lauren Engineers

- Developed plans of action for both anticipated and unexpected logistical issues during the transport of material.
- Staged all material in laydown yard based on storage requirements and sequence in the construction process.
- Planned and implemented warehouse safety programs.
- Conferred with department heads to coordinate warehouse activities in accordance with daily construction processes.
- Maintained reports and logistical data needed for end of job documentation and turnover.

2014 – 2015

Site Procurement Coordinator / Lauren Engineers

- Prepared and processed purchase orders for materials and equipment, with follow-up on expedited items
- Ensured all necessary documentation for purchases were provided, including Material Safety Data Sheets and country or origin requirements.
- Developed relationships with local and regional vendors/suppliers to ensure the most competitive pricing available.
- Performed monthly inventory reconciliation.
- Maintained rental logs of all material and equipment on site.

Education

2010

B.S. Communications / Florida Southern College

Group Affiliations

- American Society of Safety Professionals (ASSP)
- Energy Professional – Oil, Gas, Solar, LNG, Nuclear, Tidal, Renewables
- Industrial Construction Professionals

TEXAS MATERIALS
A CRH COMPANY

GULF COAST AREA – BAYTOWN/NAVASOTA
WORK IN PROGRESS

Project:	**Jefferson County – US 69 (CSJ 0065-07-062)** (Asphalt Paving)
Owner:	TxDOT
Contact:	David Collins, P.E., 409-924-6521
Contract Amount:	$24,913,683.82
% Complete:	99%

Project:	**Road Construction at Cullen Boulevard (Segment B) (20/0124)** (Concrete Paving, Drainage, Utilities)
Owner:	Harris County, Precinct 1
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$11,784,096.68
% Complete:	99%

Project:	**Harris County – FM 1960 (CSJ 1685-03-058)** (Asphalt and Concrete Paving, Drainage)
Owner:	TxDOT
Contact:	Phil Garlin, P. E., 281-319-6400
Contract Amount:	$63,153,665.96
% Complete:	99%

Project:	**Austin County – FM 109 (CSJ 0716-01-047)** (Asphalt Restoration)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$10,268,057.96
% Complete:	99%

Project:	**Brazoria County – FM 2004 (CSJ 2523-02-068)** (Asphalt Paving, Drainage, Bridge)
Owner:	TxDOT
Contact:	Maria Aponte, P.E., 979-864-8500
Contract Amount:	$29,793,189.54
% Complete:	99%

Project:	**Road Construction at Hufsmith Road (20/0332)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 4
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$4,527,783.50
% Complete:	80%

Project:	**Galveston County – FM 518 (CSJ 0976-03-105)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$5,745,830.69
% Complete:	79%

Project:	**Fayette County – BS 71 (CSJ 0266-01-086)** (Asphalt Paving)
Owner:	TxDOT
Contact:	Covey Morrow, P.E., 361-293-4387
Contract Amount:	$3,853,852.00
% Complete:	99%

Project:	**Galveston County – FM 2004 (CSJ 2523-01-026)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$7,957,768.57
% Complete:	99%

Project:	**Kilgore Parkway** (Concrete Paving, Drainage)
Owner:	Chambers County
Contact:	Cory Taylor, County Engineer, 409-267-2708
Contract Amount:	$11,804,748.92
% Complete:	99%

Project:	**NASA Parkway Roadway Improvements (22-05)** (Concrete Paving)
Owner:	City of Webster
Contact:	David Glasco, Manager Engineering & Construction, 281-316-4139
Contract Amount:	$7,510,635.85
% Complete:	99%

Project:	**Burleson County – CR (CSJ 0917-30-059, Etc.)** (Bridge Replacement)
Owner:	TxDOT
Contact:	James Kreamer, P.E., 979-836-9359
Contract Amount:	$1,929,531.60
% Complete:	99%

Project:	**Jefferson County – SH 124 (CSJ 0368-02-046)** (Bridge Replacement)
Owner:	TxDOT
Contact:	David Collins, P.E., 409-924-6521
Contract Amount:	$7,294,249.50
% Complete:	71%

Project:	**Hardin County, Etc. – US 69 (CSJ 0065-06-070, Etc.)** (Asphalt Paving)
Owner:	TxDOT
Contact:	David Collins, P.E., 409-924-6521
Contract Amount:	$11,748,747.09
% Complete:	99%

Project:	**Washington County, Etc. – SH 105, Etc. (CSJ 0315-07-040, Etc.)** (Asphalt Paving)
Owner:	TxDOT
Contact:	James Kreamer, P.E., 979-836-9359
Contract Amount:	$4,465,436.69
% Complete:	99%

Project:	**Street Rehabilitation - Tanglewood/Briarwood Phase 1A, Street Realignment – Dallas & Roberson Intersection, Fire Station 8-Presswood, Southmore Drive, Fire Station 6 (2019-10, 2021-12, 2022-32, 2023-05)** (Asphalt and Concrete Paving, Drainage)
Owner:	City of Conroe
Contact:	Chris Bogert, City Engineer, 936-522-3100
Contract Amount:	$2,996,749.22
% Complete:	99%

Project:	**Walker County – IH 45 (CSJ 6439-34-001)** (Asphalt Base Repair)
Owner:	TxDOT
Contact:	Delmy Reyes, P.E., 936-295-3462
Contract Amount:	$6,822,031.70
% Complete:	66%

Project:	**Brazos County – FM 2818, Etc. (CSJ 2851-01-051, Etc.)** (Asphalt Paving)
Owner:	TxDOT
Contact:	James Robbins, P.E., 979-778-6233
Contract Amount:	$2,289,660.27
% Complete:	99%

Project: **Galveston County – FM 646 (CSJ 2523-03-014, Etc.)** (Asphalt Paving)
Owner: TxDOT
Contact: David Lazaro, P.E., 409-978-2500
Contract Amount: $18,314,979.15
% Complete: 19%

Project: **Burleson County – FM 975 (CSJ 1129-01-028)** (Asphalt Paving, Drainage)
Owner: TxDOT
Contact: James Kreamer, P.E., 979-836-9359
Contract Amount: $5,362,049.10
% Complete: 39%

Project: **Harris County – IH 10 (CSJ 0271-07-324)** (Asphalt Overlay)
Owner: TxDOT
Contact: Hamoon Bahrami, P.E., 713-934-5900
Contract Amount: $2,017,828.55
% Complete: 99%

Project: **Montgomery County – FM 1791 (CSJ 1706-02-008)** (Asphalt Overlay)
Owner: TxDOT
Contact: Abraham Guzman, P.E., 936-538-3300
Contract Amount: $1,131,462.94
% Complete: 99%

Project: **Montgomery County – FM 1375 (CSJ 1402-03-012)** (Asphalt Overlay)
Owner: TxDOT
Contact: Abraham Guzman, P.E., 936-538-3300
Contract Amount: $3,056,327.16
% Complete: 99%

Project: **Brazos County – FM 60 (CSJ 0506-01-123)** (Traffic Control)
Owner: TxDOT
Contact: James Robbins, P.E., 979-778-6233
Contract Amount: $1,034,835.32
% Complete: 93%

Project: **Barrett Station Subdivision (Phase 2) Drainage Improvements (23/0337)** (Asphalt Paving, Water Line)
Owner: Harris County, Precinct 3
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $12,399,472.60
% Complete: 89%

Project:	**Chambers County – SH 124 (CSJ 0368-01-093)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$4,922,946.70
% Complete:	99%

Project:	**Shadowlake Subdivision Asphalt Roadway Reconstruction (23/0358)**
Owner:	Harris County, Precinct 1
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$3,962,466.00
% Complete:	79%

Project:	**Harris County – US 90 (CSJ 0028-02-099)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Phillip Garlin, P.E., 281-319-6451
Contract Amount:	$18,356,840.75
% Complete:	99%

Project:	**Austin County – CR (CSJ 0913-20-092, Etc.)** (Bridge Replacement)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$4,082,425.50
% Complete:	67%

Project:	**Liberty County – FM 1008 (CSJ 0952-01-062)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$2,560,494.45
% Complete:	98%

Project:	**Harris County – US 90 (CSJ 0028-02-098)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Phillip Garlin, P.E., 281-319-6451
Contract Amount:	$13,386,580.89
% Complete:	99%

Project:	**Liberty County – SH 146 (CSJ 0388-03-083)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$6,530,008.21
% Complete:	49%

Project: **Liberty County – FM 160 (CSJ 0787-02-022)**
(Asphalt Paving)
Owner: TxDOT
Contact: Roberto Rodriguez, P.E., 936-336-2244
Contract Amount: $4,052,991.96
% Complete: 90%

Project: **Harris County – IH 610 (CSJ 6462-24-001)**
(Asphalt Pavement Repair)
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $1,437,440.26
% Complete: 99%

Project: **Asphalt Streets Mill and Overlay (RW2011)**
Owner: City of Baytown
Contact: Frank Simoneaux, P.E., Dir. of PW & Eng., 281-420-6545
Contract Amount: $6,288,195.34
% Complete: 99%

Project: **Two Step Boulevard – Onsite Segment**
(Asphalt Paving, Drainage, Bridge)
Owner: Montgomery County Municipal Utility District No. 123
c/o Halff Associates, Inc.
Contact: Kurt Russell, P.E., 936-777-6400
Contract Amount: $7,979,381.25
% Complete: 34%

Project: **Two Step Boulevard – Offsite Segment**
(Asphalt Paving, Drainage, Bridge)
Owner: Montgomery County Municipal Utility District No. 123
c/o Halff Associates, Inc.
Contact: Kurt Russell, P.E., 936-777-6400
Contract Amount: $6,625,594.45
% Complete: 25%

Project: **Chambers County – FM 1406 (CSJ 6463-97-001)**
(ACP Overlay)
Owner: TxDOT
Contact: Roberto Rodriguez, P.E., 936-336-2244
Contract Amount: $981,449.36
% Complete: 99%

Project: **Chambers County, Etc. – SH 73**
(CSJ 0508-03-114, Etc.) (Asphalt Overlay)
Owner: TxDOT
Contact: David Collins, P.E., 409-924-6521
Contract Amount: $23,504,060.54
% Complete: 96%

Project:	**Two Step Boulevard – Mound Creek Segment** (Asphalt Paving, Drainage, Bridge)
Owner:	Montgomery County Municipal Utility District No. 123 c/o Halff Associates, Inc.
Contact:	Kurt Russell, P.E., 936-777-6400
Contract Amount:	$15,418,537.25
% Complete:	10%

Project:	**Milam County – US 190 (CSJ 0185-03-033)** (Asphalt Paving)
Owner:	TxDOT
Contact:	James Kreamer, P.E., 979-836-9359
Contract Amount:	$3,219,619.90
% Complete:	42%

Project:	**Asphalt Pavement Rehabilitation (24-067)**
Owner:	Fort Bend County
Contact:	Stacy Slawinski, County Engineer, 281-633-7500
Contract Amount:	$4,977,649.50
% Complete:	99%

Project:	**Harris County – IH 10 (CSJ 0508-01-391)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$18,314,585.41
% Complete:	38%

Project:	**Santa Fe North Road Improvements (COSFTX-RFP2024-0822N)** (Asphalt Paving)
Owner:	City of Santa Fe
Contact:	Alun Thomas, City Manager, 409-925-6412
Contract Amount:	$617,138.20
% Complete:	98%

Project:	**Santa Fe South Road Improvements (COSFTX-RFP2024-0822S)** (Asphalt Paving)
Owner:	City of Santa Fe
Contact:	Alun Thomas, City Manager, 409-925-6412
Contract Amount:	$1,547,683.30
% Complete:	91%

Project:	**GLO CDBG-MIT Street and Drainage Improvements (GLO Contract No. 22-085-068-D326)** (Asphalt Paving, Drainage)
Owner:	City of Bedias c/o Quiddity Engineering, LLC
Contact:	Brian Dobiyanski, P.E., 979-731-8000
Contract Amount:	$3,153,801.10
% Complete:	17%

Project:	**Ralston Acres Subdivision (2018) Drainage Improvements (CDBG-MIT/GLO) (24/0368)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 1
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$15,848,087.20
% Complete:	1%

Project:	**Main Street (Crosby-Lynchburg Road) Asphalt Overlay from I-10 to Thorn Street (Package 2024-1) (CDBG) (24/0374)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$3,897,869.00
% Complete:	24%

Project:	**Galveston County – SH 87 (CSJ 0367-06-067)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$7,342,374.25
% Complete:	0%

Project:	**Harris County – IH 69 (CSJ 0027-13-237)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Hamoon Bahrami, P.E., 713-934-5900
Contract Amount:	$45,141,589.31
% Complete:	0%

Project:	**Harris County – SH 225 (CSJ 0502-01-229)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$21,982,369.40
% Complete:	0%

Project:	**IH 10 at Sjolander Road Intersection Improvement Project (TR2106)** (Asphalt Paving, Drainage)
Owner:	City of Baytown
Contact:	Frank Simoneaux, P.E., Dir. of PW & Eng., 281-420-6545
Contract Amount:	$1,124,054.10
% Complete:	0%

Project:	**Austin County – SH 36 (CSJ 0187-03-078)** (Asphalt Paving/Restoration)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$4,364,003.24
% Complete:	0%

Project:	**Austin County – SH 36 (CSJ 0187-02-073)** (Asphalt Paving/Rehab)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$6,157,668.01
% Complete:	0%

Project:	**CR 30 N Road and Drainage Improvements for CDBG-Plan SET III GLO** (Asphalt Paving, Drainage)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$1,866,427.70
% Complete:	0%

GULF COAST AREA – BAYTOWN/NAVASOTA
COMPLETED PROJECTS FIVE (5) YEAR HISTORY

Project:	**Asphalt Overlay for Various Roadways (Package 2023-2) (23/0293)**
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$7,640,265.48
Complete:	May 2025
Project:	**FM 565 Turn Lanes at FM 3180** (Asphalt Paving, Drainage)
Owner:	IDV Kilgore, LLC on behalf of Chambers County Improvement District No. 3 c/o Quiddity Engineering, LLC
Contact:	Maxwell Dennis, P.E., 832-913-4000
Contract Amount:	$1,564,741.69
Complete:	May 2025
Project:	**Montgomery County – FM 2854 Etc. (CSJ 2744-01-032 Etc.)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Abraham Guzman, P.E., 936-538-3300
Contract Amount:	$13,710,247.66
Complete:	April 2025
Project:	**Jasper County – FM 2246 (CSJ 2120-01-028)**
Owner:	TxDOT
Contact:	Bryce Broussard, P.E., 409-883-3476
Contract Amount:	$11,325,687.29
Complete:	April 2025
Project:	**Wade North Area Various Roads for the BetterStreets2Neighborhoods Community Program (23/0344)**
Owner:	Harris County, Precinct 2
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$9,456,616.82
Complete:	April 2025

Project:	**Liberty County – FM 834 (CSJ 1146-01-029)** (Asphalt Paving)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$5,109,369.37
Complete:	March 2025

Project:	**Liberty County – SH 105 (CSJ 0951-01-068)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$2,282,058.65
Complete:	March 2025

Project:	**Liberty County – SH 105 (CSJ 6442-45-001)** (ACP Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$1,459,823.23
Complete:	March 2025

Project:	**Chambers County – FM 3246 (CSJ 6413-57-001)** (Asphalt Rehabilitation)
Owner:	TxDOT
Contact:	Roberto Rodriguez, Jr., P.E., 936-336-2244
Contract Amount:	$1,420,917.34
Complete:	March 2025

Project:	**Chambers County – FM 1724 (CSJ 6420-79-001)** (Asphalt Paving)
Owner:	TxDOT
Contact:	Roberto Rodriguez, Jr., P.E., 936-336-2244
Contract Amount:	$1,317,386.46
Complete:	March 2025

Project:	**Washington County – PR 12 (CSJ 6414-36-001)** (Asphalt Paving)
Owner:	TxDOT
Contact:	James Kreamer, P.E., 979-836-9359
Contract Amount:	$991,939.41
Complete:	March 2025

Project:	**Harris County – IH 610 (CSJ 0271-16-167)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$947,480.66
Complete:	March 2025

Project:	**Montgomery County – FM 2090 (CSJ 1912-01-022)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Abraham Guzman, P.E., 936-538-3300
Contract Amount:	$9,002,022.69
Complete:	February 2025

Project:	**Grimes County – SH 105 (CSJ 0315-04-083)** (Asphalt Paving)
Owner:	TxDOT
Contact:	James Robbins, P.E., 979-778-6233
Contract Amount:	$2,020,111.89
Complete:	February 2025

Project:	**HCTRA SH 249 Emergency Repairs at SH 99** (Asphalt Paving)
Owner:	Harris County, Harris County Toll Road Authority
Contact:	Victoria Guerra, P.E., 713-587-7107
Contract Amount:	$1,488,147.22
Complete:	February 2025

Project:	**Colorado County – CS (CSJ 0913-26-065)**
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$420,723.11
Complete:	February 2025

Project:	**Oak Street Bridge Replacement (CDV21-0074)**
Owner:	Chambers County
Contact:	Cory Taylor, County Engineer, 409-267-2708
Contract Amount:	$776,395.00
Complete:	January 2025

Project:	**Galveston County – FM 3005 (CSJ 0051-09-024)** (Asphalt Overlay, Drainage)
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$34,884,980.38
Complete:	November 2024

Project:	**Austin County – FM 2502 (CSJ 0315-09-011)** (Safety Improvements)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$1,427,178.65
Complete:	November 2024

Project:	**Clay Road (21/0357)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$5,218,706.87
Complete:	October 2024

Project:	**Harris County – FM 865 (CSJ 0976-01-043)** (Asphalt Rehabilitation)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$4,287,775.15
Complete:	October 2024

Project:	**Chambers Commons** (Concrete Paving, Drainage, Utilities)
Owner:	KM 146 Partners, LLC c/o KM Realty Advisors, LLC
Contact:	Randall D. Keith, Manager, 713-275-2600
Contract Amount:	$12,418,885.00
Complete:	September 2024

Project:	**Old Reliance Road Phase 1 Reconstruction (23-580)** (Asphalt Paving, Drainage)
Owner:	Brazos County
Contact:	Prarthana Banerji, County Engineer, 979-822-2127
Contract Amount:	$4,762,372.69
Complete:	September 2024

Project:	**Wharton County – FM 3086 (CSJ 3173-01-004)** (Restore Existing Roadway)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$3,428,287.98
Complete:	September 2024

Project:	**Wharton County – US 59 (CSJ 0089-06-093)** (Asphalt Paving)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$2,260,846.49
Complete:	September 2024

Project:	**Hastings Phase I – Infrastructure Fund Grant Program 2020 (24-12)** (Asphalt Paving)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$1,093,243.79
Complete:	September 2024

Project:	**Liberty County – SH 146 (CSJ 0389-01-044)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, Jr., P.E., 936-336-2244
Contract Amount:	$10,682,147.68
Complete:	August 2024

Project:	**Asphalt Overlay for Various Roadways (Package 2023-1) (23/0143)**
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$6,225,059.56
Complete:	August 2024

Project:	**CR 305 Subgrade and Surface Improvements (2024-317)** (Stabilization, Seal-Coating)
Owner:	Leon County
Contact:	Kyle Workman, Commissioner, 903-512-2316
Contract Amount:	$107,491.50
Complete:	August 2024

Project:	**Fayette County – BS 71-E (CSJ 0265-14-008)** (Bridge Replacement)
Owner:	TxDOT
Contact:	Covey Morrow, P.E., 361-293-4387
Contract Amount:	$13,448,782.29
Complete:	July 2024

Project:	**Montgomery County – FM 1314 (CSJ 1986-01-067)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Abraham Guzman, P.E., 936-538-3300
Contract Amount:	$4,786,833.24
Complete:	July 2024

Project:	**Needlepoint Road South Paving and Drainage Improvements** (Concrete Paving, Drainage)
Owner:	Chambers County
Contact:	Cory Taylor, County Engineer, 409-267-2708
Contract Amount:	$1,170,093.90
Complete:	May 2024

Project:	**Plum Grove Road Improvements** **Community Block Grant 2021 CDV21-0283** (Asphalt Paving)
Owner:	City of Plum Grove c/o LJA Engineering, Inc.
Contact:	Manuel Mendoza, Jr., PM, 409-833-3363
Contract Amount:	$275,703.12
Complete:	March 2024

Project:	**Harris County – IH 10 (CSJ 0508-01-354)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$6,915,461.22
Complete:	February 2024

Project:	**Fisher Road – Phase 2** (Concrete Paving, Drainage)
Owner:	Cedar Port Navigation and Improvement District c/o Jacobs Engineering Group, Inc.
Contact:	Aniruddha Dutta, P.E., 281-721-8400
Contract Amount:	$5,830,058.64
Complete:	February 2024

Project:	**Colorado County – FM 102 (CSJ 0027-03-073)**
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$4,030,810.66
Complete:	February 2024

Project:	**Twinwood Parkway Phase 1B, Segment C-D** (Asphalt Paving, Drainage)
Owner:	Fort Bend County Municipal Utility District No. 213 c/o LJA Engineering, Inc.
Contact:	Steven Boyd, P.E., 713-953-5200
Contract Amount:	$3,124,261.64
Complete:	February 2024

Project:	**Fort Bend County – US 90A (CSJ 0027-07-032)** (Concrete Paving, Drainage, Utilities, Bridge)
Owner:	TxDOT
Contact:	Carlos Zepeda, Jr., P.E., 281-238-7900
Contract Amount:	$6,637,842.40
Complete:	January 2024

Project:	**Harris County – SH 3 (CSJ 0051-02-101)**
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$14,440,718.62
Complete:	November 2023

Project:	**Road and Drainage Improvements for CDBG – Plan Set I (23-19)** (Asphalt Paving, Drainage)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$4,919,490.90
Complete:	November 2023

Project:	**Tall Pines Addition Subdivision Road and Drainage Improvements (21/0328)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$3,854,215.60
Complete:	November 2023

Project:	**Fort Bend Grand Parkway Toll Road (SH 99) (Peek Road to south of River Park Drive)** (Asphalt Overlay, Concrete Repair)
Owner:	Fort Bend Grand Parkway Toll Road Authority c/o BGE, Inc.
Contact:	Gary Gehbauer, P.E., 281-558-8700
Contract Amount:	$2,532,375.82
Complete:	November 2023

Project:	**Harris County – SH 3 (CSJ 0051-06-018)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$2,430,729.34
Complete:	November 2023

Project:	**Road and Drainage Improvements for CDBG – Plan Set II (23-20)** (Asphalt Paving, Drainage)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$1,513,068.38
Complete:	November 2023

Project:	**Galveston County – SH 87 (CSJ 0051-04-067)** (Asphalt and Concrete Paving, Drainage)
Owner:	TxDOT
Contact:	David Lazaro, P.E., 409-978-2500
Contract Amount:	$12,272,925.06
Complete:	October 2023

Project:	**A. Myers Road Extension** (Concrete Paving, Drainage)
Owner:	Fort Bend County Municipal Utility District No. 184 c/o Quiddity
Contact:	Justin M. Au, P.E., 281-363-4039
Contract Amount:	$2,258,544.70
Complete:	October 2023

Project:	**Pedregal Section 3** (Concrete Paving, Drainage, Utilities)
Owner:	LPI Property Management, LLC on behalf of City of League City c/o Dannenbaum Engineering Corporation
Contact:	Kyle Kern, P.E., 713-520-9570
Contract Amount:	$9,552,678.45
Complete:	September 2023

Project:	**DeWitt County – FM 766 (CSJ 1113-01-028)**
Owner:	TxDOT
Contact:	Covey Morrow, P.E., 361-293-4387
Contract Amount:	$9,170,452.07
Complete:	September 2023

Project:	**Asphalt Street Rehabilitation Various Streets – RE1704G Package 6 – Mobility**
Owner:	City of League City
Contact:	Scott Tuma, PMP., 281-554-1000
Contract Amount:	$4,550,510.39
Complete:	September 2023

Project:	**Caldwell County – US 183 (CSJ 0152-03-062)**
Owner:	TxDOT
Contact:	Diana Schulze, P.E., 512-321-2195
Contract Amount:	$1,778,911.14
Complete:	September 2023

Project:	**Old Austin Highway Pavement Rehabilitation (ENG 2023-01)** (Asphalt Paving)
Owner:	City of Bastrop c/o Walker Partners
Contact:	R. Alan Munger, P.E., CFM, 979-599-9870
Contract Amount:	$1,490,107.00
Complete:	September 2023

Project:	**Egremont Court Drainage Improvements (23-037)**
Owner:	City of College Station
Contact:	Melissa Thomas, P.E., LEED AP, 979-764-6324
Contract Amount:	$254,808.50
Complete:	September 2023

Project:	**Chambers County – FM 563 (CSJ 1023-01-035)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$5,513,051.50
Complete:	August 2023
Project:	**Montgomery County – FM 1097 (CSJ 1259-01-042)** (Asphalt Paving, Drainage)
Owner:	TxDOT
Contact:	Abraham Guzman, P.E., 936-538-3300
Contract Amount:	$19,201,163.91
Complete:	July 2023
Project:	**Old Houston Road Construction (21-06)** (Asphalt Paving, Drainage)
Owner:	Montgomery County
Contact:	Jeff Johnson, County Engineer, 936-539-7833
Contract Amount:	$5,676,675.42
Complete:	July 2023
Project:	**Asphalt Concrete Pavement Overlay, Base Repair of Various Roads (21/0243)**
Owner:	Harris County, Precinct 1
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$3,054,014.80 (through Renewal #2)
Complete:	July 2023
Project:	**Austin County – FM 2429 (CSJ 2320-01-011)** (Bridge)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3143
Contract Amount:	$2,047,212.24
Complete:	July 2023
Project:	**ARP Supplemental Roads 2021 Package II (22-56)** (Asphalt Paving)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$1,707,841.20
Complete:	July 2023
Project:	**Sedona Section 7** (Concrete Paving)
Owner:	West FM 517, Ltd. on behalf of City of League City c/o Dannenbaum Engineering Corporation
Contact:	Kyle Kern, P.E., 713-520-9570
Contract Amount:	$1,071,948.30
Complete:	July 2023

Project:	**Liberty County – SH 321 (CSJ 6384-22-001)** (ACP Overlay)
Owner:	TxDOT
Contact:	Roberto Rodriguez, P.E., 936-336-2244
Contract Amount:	$2,964,299.36
Complete:	June 2023

Project:	**ARP Supplemental Roads 2021 Package I (22-55)** (Asphalt Paving)
Owner:	Brazoria County
Contact:	Matt Hanks, County Engineer, 979-864-1265
Contract Amount:	$1,223,177.70
Complete:	June 2023

Project:	**Western League City Water & Sanitary Sewer Facilities**
Owner:	West FM 517, Ltd. on behalf of City of League City c/o Dannenbaum Engineering Corp.
Contact:	Steve Sheldon, P.E., 713-520-9570
Contract Amount:	$11,154,690.00
Complete:	May 2023

Project:	**Asphalt Overlay (Package 2021-2) (21/0248)**
Owner:	Harris County, Precinct 4
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$6,287,859.02
Complete:	May 2023

Project:	**Harris County – IH 610 (CSJ 0271-17-175)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Hamoon Bahrami, P.E., 713-934-5900
Contract Amount:	$2,275,255.85
Complete:	May 2023

Project:	**Brazoria County – VA (CSJ 0912-31-310)** (Bicycle Infrastructure)
Owner:	TxDOT
Contact:	Maria Aponte, P.E., 979-864-8500
Contract Amount:	$1,967,008.35
Complete:	May 2023

Project:	**Eisenhower Park Roadway Reconstruction (22/0092)** (Asphalt Paving, Drainage)
Owner:	Harris County, Precinct 1
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$2,524,440.75
Complete:	April 2023

Project: **Bastrop County – US 290 (CSJ 0114-05-037)**
Owner: TxDOT
Contact: Diana Schulze, P.E., 512-321-2195
Contract Amount: $37,138,730.80
Complete: March 2023

Project: **Mulberry Farms Section 1 and Entry Road** (Concrete Paving)
Owner: Mulberry Farms, LLC
c/o LJA Engineering, Inc.
Contact: Jorge Gonzalez, P.E., 713-953-5200
Contract Amount: $1,493,954.50
Complete: March 2023

Project: **Brazoria County – SH 35 (CSJ 0179-03-034)** (Asphalt Overlay)
Owner: TxDOT
Contact: Maria Aponte, P.E., 979-864-8500
Contract Amount: $5,666,904.34
Complete: February 2023

Project: **FM 1409 Overpass at IH-10 (CSJ 0762-03-021)**
Owner: Chambers County
Contact: Cory Taylor, County Engineer, 409-267-2708
Contract Amount: $5,187,910.35
Complete: February 2023

Project: **River Ranch Boulevard Phase One, River Ranch Estates Section 1, and River Ranch Meadows Section 1** (Concrete Paving, Drainage, Utilities)
Owner: River Ranch Holdings, LLC on behalf of River Ranch M.U.D. No. 3 and River Ranch Improvement District
c/o LJA Engineering, Inc.
Contact: Piyali Chatterjee, CAG-Project Coordinator, 713-953-5200
Contract Amount: $7,804,548.60
Complete: December 2022

Project: **Galveston County – PR 66 (CSJ 6381-09-001)** (Asphalt Base Repair, Overlay)
Owner: TxDOT
Contact: David Lazaro, P.E., 409-978-2500
Contract Amount: $3,568,678.21
Complete: December 2022

Project: **Hot Mix Asphaltic Concrete (HMAC) Pavement Installation**
Owner: Waller County
Contact: J. Ross McCall, County Engineer, 979-826-7670
Contract Amount: $2,608,313.39
Complete: December 2022

Project: **Harris County – SH 6 (CSJ 1685-05-115)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Hamoon Bahrami, P.E., 713-934-5900
Contract Amount: $1,967,141.76
Complete: December 2022

Project: **Harris County – FM 1960 (CSJ 1685-01-110)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Hamoon Bahrami, P.E., 713-934-5900
Contract Amount: $3,476,712.47
Complete: October 2022

Project: **Encino Estates Section 5** (Asphalt Paving)
Owner: Encino Estates, Ltd.
Contact: Pat Baker, 832-797-6187
Contract Amount: $511,715.94
Complete: October 2022

Project: **HMAC Installation**
Owner: Waller County
Contact: J. Ross McCall, County Engineer, 979-826-7670
Contract Amount: $1,669,988.70
Complete: September 2022

Project: **Alvin 2021 Asphalt Pavement Project (B-21-17)**
Owner: City of Alvin
Contact: Michelle Segovia, City Engineer, 281-388-4284
Contract Amount: $1,617,056.70
Complete: September 2022

Project: **Cemetery Road Maintenance Overlay (B221017)**
Owner: Galveston County
Contact: Lee Crowder, Road Administrator, 281-534-4152
Contract Amount: $638,530.80
Complete: September 2022

Project: **Bastrop County – US 290 (CSJ 0114-06-029)**
Owner: TxDOT
Contact: Diana Schulze, P.E., 512-321-2195
Contract Amount: $16,136,394.54
Complete: August 2022

Project:	**Construction of Bridges at Louetta Road and Little Cypress Creek (20/0136)** (Concrete Paving, Drainage, Utilities)
Owner:	Harris County, Precincts 3 and 4
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$8,586,702.14
Complete:	August 2022

Project:	**49th Street Improvements (COG-CON-19-117)** (Asphalt Paving, Drainage, Utilities)
Owner:	City of Galveston
Contact:	Trina Jankowski, P.M., 409-797-3966
Contract Amount:	$3,627,021.15
Complete:	August 2022

Project:	**Rollingbrook Drive Reconstruction** (Concrete Paving, Drainage)
Owner:	City of Baytown
Contact:	Frank Simoneaux, P.E., Dir. of PW & Eng., 281-420-6545
Contract Amount:	$2,664,629.66
Complete:	August 2022

Project:	**Garth Road Paving & Drainage Facilities** (Concrete Paving, Drainage)
Owner:	Lennar Homes of Texas, L.P. obo Harris County M.U.D. No. 213-A c/o Jones & Carter, Inc.
Contact:	Brian Geier, P.E., 713-777-5337
Contract Amount:	$3,417,003.93
Complete:	July 2022

Project:	**Rankin Road Paving, Drainage, and Water Line Improvements Project (20-05)** (Asphalt Paving)
Owner:	City of Humble c/o ARKK Engineers
Contact:	Doug Bradford, P.E., 713-400-2755
Contract Amount:	$3,021,741.69
Complete:	July 2022

Project:	**Harris County – FM 1093 (CSJ 1258-04-063)**
Owner:	TxDOT
Contact:	Hamoon Bahrami, P.E., 713-934-5900
Contract Amount:	$16,502,349.06
Complete:	June 2022

Project:	**Bastrop County – SH 304 (CSJ 0573-01-032)**
Owner:	TxDOT
Contact:	Diana Schulze, P.E., 512-321-2195
Contract Amount:	$5,705,974.61
Complete:	June 2022

Project: **Friendswood Lakes Boulevard (B201029)**
(Concrete Paving, Drainage, Utilities)
Owner: Galveston County
c/o Terra Associates, Inc.
Contact: A.G.A.N. Nanayakkara, P.E., 713-993-0333
Contract Amount: $4,299,674.64
Complete: June 2022

Project: **Hurricane Harvey Round 1 – Infrastructure Improvements (GLO 20-065-095-C264)**
(Asphalt Paving)
Owner: Liberty County
Contact: David Douglas, Engineering Administrator, 936-336-4560
Contract Amount: $3,591,149.46
Complete: June 2022

Project: **Encino Estates Section 4** (Asphalt Paving, Drainage)
Owner: Encino Estates, Ltd.
Contact: Pat Baker, 832-797-6187
Contract Amount: $956,218.50
Complete: June 2022

Project: **City Wide Overlay Package #22 (N-321037-0071-4)**
Owner: City of Houston
Contact: Steven Loo, P.E., 832-395-2151
Contract Amount: $6,063,065.51
Complete: May 2022

Project: **Brazos County – FM 158 (CSJ 0212-03-062)**
Owner: TxDOT
Contact: James Robbins, P.E., 979-778-6233
Contract Amount: $5,262,559.78
Complete: May 2022

Project: **Brazoria County – SH 288 (CSJ 0598-02-126)**
(Concrete Paving, Drainage)
Owner: TxDOT
Contact: Maria Aponte, P.E., 979-864-8500
Contract Amount: $2,827,733.41
Complete: May 2022

Project: **Asphaltic Pavement Overlay Services for Public Works (S89-L29376)**
Owner: City of Houston
Contact: Larius Hassen, P.M., 832-395-4703
Contract Amount: $2,763,056.01
Complete: May 2022

Project:	**Laneview Road Widening (GLO 20-065-062-C180)** (Asphalt Paving)
Owner:	Waller County
Contact:	J. Ross McCall, County Engineer, 979-826-7670
Contract Amount:	$1,740,155.20
Complete:	May 2022

Project:	**Harris County – IH 10 (CSJ 0508-01-346, etc.)**
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$23,271,304.70
Complete:	April 2022

Project:	**Chambers County – FM 565 (CSJ 1024-01-042)** (Asphalt Paving, Drainage)
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$5,083,673.38
Complete:	April 2022

Project:	**Harris County – SH 35 (CSJ 0178-01-036)**
Owner:	TxDOT
Contact:	Jamal Elahi, P.E., 281-464-5500
Contract Amount:	$2,489,363.92
Complete:	April 2022

Project:	**Concrete & Asphalt Restoration (S-MA1000-0007-4; File No. WA11142-09)**
Owner:	City of Houston
Contact:	Steven Loo, P.E., 832-395-2151
Contract Amount:	$2,326,970.65
Complete:	April 2022

Project:	**San Jacinto – SH 150 (CSJ 0395-02-041, etc.)**
Owner:	TxDOT
Contact:	Clint Jones, P.E., 936-327-8981
Contract Amount:	$12,210,063.22
Complete:	March 2022

Project:	**Langston Boulevard Extension, Phase 1 (RD-020)** (Concrete Paving, Drainage & Utilities)
Owner:	City of Mont Belvieu
Contact:	Ricardo Villagrand, P.E., City Engineer, 281-576-2213
Contract Amount:	$8,629,302.82
Complete:	March 2022

Project:	**Chambers County Logistics Terminal North Entrance** (Concrete Paving, Drainage)
Owner:	Katoen Natie Engineering USA, Inc.
Contact:	Hans D'hooghe, 281-470-5439
Contract Amount:	$4,254,925.85
Complete:	March 2022

Project:	**River Farms Sections 5 & 6** (Concrete Paving, WS&D)
Owner:	Lanai, LLLP. c/o GC Engineering, Inc.
Contact:	Umesh KC, P.E., 281-412-7008
Contract Amount:	$1,985,390.00
Complete:	March 2022

Project:	**Brazoria County – FM 1459 (CSJ 1413-01-018)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Maria Aponte, P.E., 979-864-8500
Contract Amount:	$1,566,164.74
Complete:	March 2022

Project:	**Chambers County – SH 61 (CSJ 6349-21-001)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$560,567.52
Complete:	March 2022

Project:	**Perry Avenue Extension Project (RD-021)** (Concrete Paving, Drainage & Utilities)
Owner:	City of Mont Belvieu
Contact:	Ricardo Villagrand, P.E., City Engineer, 281-576-2213
Contract Amount:	$11,153,240.04
Complete:	February 2022

Project:	**Cedar Port Parkway – Phase 2** **East Fisher Road – Phase 1** **SH 99 @ Cedar Port Parkway** (Concrete Paving & Drainage)
Owner:	Chambers County Improvement District No. 1
Contact:	Brock Lewis, P.E., 832-603-2261
Contract Amount:	$5,413,484.84
Complete:	February 2022

Project:	**Nita Way Roadway** (Concrete Paving)
Owner:	Chambers County Improvement District No. 1
Contact:	Brock Lewis, P.E., 832-603-2261
Contract Amount:	$2,714,122.15
Complete:	February 2022

Project: **Langston Boulevard Phase 2 Water Line (RD-020)**
Owner: City of Mont Belvieu
Contact: Ricardo Villagrand, P.E., City Engineer, 281-576-2213
Contract Amount: $1,377,301.00
Complete: February 2022

Project: **Rain Tree Section 3** (Concrete Paving)
Owner: Lanai, LLLP.
c/o GC Engineering, Inc.
Contact: Umesh KC, P.E., 281-412-7008
Contract Amount: $1,080,197.75
Complete: February 2022

Project: **Asphalt Overlay (Package 2021-2) (21/0248)**
Owner: Harris County, Precinct 3
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $576,837.50
Complete: February 2022

Project: **NRG Park Parking Lot Repairs & Improvements (18/0339)** (Asphalt & Concrete Paving & Drainage)
Owner: Harris County
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $5,240,892.57
Complete: January 2022

Project: **Asphalt Overlay of Various Roads (Package 2020-2) (20/0310)**
Owner: Harris County, Precinct 3
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $4,703,203.26
Complete: December 2021

Project: **2018 Annual Mill & Overlay Project** (w/Two Renewals)
Owner: City of Baytown
Contact: Frank Simoneaux, P.E., Dir. of PW & Eng., 281-420-6545
Contract Amount: $2,575,166.29
Complete: November 2021

Project: **Harris County – IH 10 (CSJ 6366-19-001)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Melody Galland, P.E., 281-464-5500
Contract Amount: $843,019.57
Complete: November 2021

Project: **Beinhorn Road Reconstruction** (Asphalt Paving)
Owner: City of Hunters Creek Village
Contact: James Stewart, Director of Public Works, 713-465-2150
Contract Amount: $476,935.25
Complete: October 2021

Project: **Southwinds Section 3** (Concrete Paving)
Owner: Baytown-45 Residential Development
c/o CobbFendley
Contact: Iraida Tang, P.E., 713-462-3242
Contract Amount: $1,075,853.90
Complete: September 2021

Project: **Galveston County – FM 270 (CSJ 3312-02-017)**
(Asphalt Paving)
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $578,358.28
Complete: September 2021

Project: **West Bay Road Overlay**
Owner: Chambers County
Contact: Cory Taylor, County Engineer, 409-267-8379
Contract Amount: $446,963.00
Complete: September 2021

Project: **Galveston County – CR (CSJ 0912-73-183)**
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $9,231,610.20
Complete: August 2021

Project: **Repair of Various Roads in the Crosby and East Aldine Camp Areas for the BetterStreets2Neighborhoods Community Program (20/0261)**
Owner: Harris County, Precinct 2
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $3,124,793.26
Complete: July 2021

Project: **Rain Tree Section 2** (Concrete Paving, Utilities)
Owner: Lanai, LLLP.
c/o GC Engineering, Inc.
Contact: Umesh KC, P.E., 281-412-7008
Contract Amount: $974,614.75
Complete: July 2021

Project:	**Wharton County – US 59 (CSJ 0089-06-081)**
	(Concrete Paving)
Owner:	TxDOT
Contact:	Ryan Simper, P.E., 979-532-3141
Contract Amount:	$19,748,295.60
Complete:	June 2021

Project:	**City Wide Overlay Package #21 (N-321037-0070-4)**
Owner:	City of Houston
Contact:	Steven Loo, P.E., 832-395-2151
Contract Amount:	$3,659,343.56
Complete:	June 2021

Project:	**Harris County – SL 8 (CSJ 3256-02-095)**
Owner:	TxDOT
Contact:	John Elam, P. E., 281-319-6400
Contract Amount:	$2,016,882.10
Complete:	June 2021

Project:	**Liberty County – SH 105 (CSJ 6347-85-001)**
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$1,868,408.37
Complete:	May 2021

Project:	**Santa Fe Various Street Improvements (B201032)**
	(Asphalt Paving)
Owner:	Galveston County
Contact:	Michael Shannon, County Engineer, 409-770-5453
Contract Amount:	$1,141,206.18
Complete:	May 2021

Project:	**East Kennings Road (20/0222)**
	(Asphalt Paving & Drainage)
Owner:	Harris County, Precinct 2
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$1,498,944.30
Complete:	April 2021

Project:	**City of Arcola Various Roads (19-088)**
	Bond Project 17120x
	(Asphalt Paving & Drainage)
Owner:	Fort Bend County
Contact:	Stacy Slawinski, County Engineer, 281-342-3411
Contract Amount:	$1,415,476.66
Complete:	April 2021

Project: **Deer Pines Section 2 Asphalt Paving**
Owner: Deer Pines, Ltd.
Contact: Pat Baker, 281-290-1900
Contract Amount: $352,500.00
Complete: April 2021

Project: **Washington County – FM 389 (CSJ 0315-08-037)**
Owner: TxDOT
Contact: Eric Bennett, P.E., 979-836-9359
Contract Amount: $5,555,121.93
Complete: March 2021

Project: **Rain Tree Section 1** (Concrete Paving, WS&D)
Owner: Lanai, LLLP.
c/o GC Engineering, Inc.
Contact: Umesh KC, P.E., 281-412-7008
Contract Amount: $5,490,009.40
Complete: March 2021

Project: **Waller County – FM 359 (CSJ 0543-01-065)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Carlos Zepeda, Jr., P.E., 281-238-7900
Contract Amount: $1,686,465.13
Complete: March 2021

Project: **Lakeway Subdivision** (Concrete Paving, WS&D)
Owner: Dutton Lake, LLC
c/o GC Engineering, Inc.
Contact: Umesh KC, P.E., 281-412-7008
Contract Amount: $1,294,828.50
Complete: March 2021

Project: **South Main Street Drainage Improvements (DR2002) (19-076-002-B351)**
(Concrete Paving & Drainage)
Owner: City of Baytown
Contact: Frank Simoneaux, P.E., Dir. of PW & Eng., 281-420-6545
Contract Amount: $1,199,359.65
Complete: March 2021

Project: **Repairs & New Construction of Asphalt Parking Lots, Roads, & Hike & Bike Trails (16/0318-2) (Renewal #2)**
Owner: Harris County, Precinct 2
Contact: Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount: $5,667,301.51
Complete: February 2021

Project:	**City Wide Overlay Package #24 (N-321037-0075-4)**
Owner:	City of Houston
Contact:	Steven Loo, P.E., 832-395-2151
Contract Amount:	$5,386,921.56
Complete:	January 2021

Project:	**FY2019 Roadway Rehabilitation/Overlay Package #1 (N-321040-0018-4)** (Asphalt & Concrete Paving)
Owner:	City of Houston
Contact:	Steven Loo, P.E., 832-395-2151
Contract Amount:	$4,845,779.58
Complete:	January 2021

Project:	**FY2019 Pavement Repair & Rehab Work Orders No. 2 (N-321040-0010-4)**
Owner:	City of Houston
Contact:	Steven Loo, P.E., 832-395-2151
Contract Amount:	$4,411,398.71
Complete:	January 2021

Project:	**2019-2020 Street Maintenance Program (ST2019)** (Asphalt & Concrete Paving)
Owner:	City of Friendswood
Contact:	Tuan Nguyen, P.M., 281-996-3200
Contract Amount:	$4,352,863.75
Complete:	January 2021

Project:	**Asphalt Reconstruction Package 4, Shellside Area (RE-1704D)**
Owner:	City of League City
Contact:	Scott Tuma, P.M., 713-554-1000
Contract Amount:	$3,347,736.07
Complete:	January 2021

Project:	**Chambers County – SH 124 (CSJ 0367-01-070)** (Asphalt Overlay)
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$2,919,245.10
Complete:	January 2021

Project:	**Liberty County – FM 1008 (CSJ 0952-01-060)**
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$3,365,432.07
Complete:	December 2020

Project: **Harris County – FM 1093 (CSJ 1258-04-062)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Hamoon Bahrami, P.E., 713-934-5900
Contract Amount: $2,080,400.84
Complete: December 2020

Project: **KTN Storm Sewer Pellet Collector Screen II**
Owner: Katoen Natie Gulf Coast Inc.
Contact: Hans D'hooghe, 281-470-5439
Contract Amount: $2,000,456.76
Complete: December 2020

Project: **Waller County – FM 1489 (CSJ 1418-01-012)**
Owner: TxDOT
Contact: Carlos Zepeda, Jr., P.E., 281-238-7900
Contract Amount: $1,631,135.17
Complete: December 2020

Project: **Galveston County – FM 518 (CSJ 6354-42-001)**
(Asphalt Overlay)
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $1,376,766.25
Complete: December 2020

Project: **Fort Bend County – FM 762 (CSJ 0543-03-076)**
Owner: TxDOT
Contact: William Semora, Jr., P.E., 281-238-7900
Contract Amount: $845,830.35
Complete: December 2020

Project: **Blue Heron, Section 1** (Concrete Paving, WS&D)
Owner: Snowberry Development, LLC
c/o Hutchison & Associates
Contact: Jerry Crouch, P.E., 281-422-8213
Contract Amount: $412,847.25
Complete: December 2020

Project: **Colorado County – IH 10 (CSJ 6327-53-001)**
Owner: TxDOT
Contact: Ryan Simper, P.E., 979-532-3141
Contract Amount: $343,249.13
Complete: December 2020

Project: **Galveston County – SH 87 (CSJ 0367-03-037)**
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $10,203,335.82
Complete: November 2020

Project:	**Asphalt Overlay of Various Roads (Old Town of Hockley 2018 – Package 2) (20/0002)**
Owner:	Harris County, Precinct 3
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$3,138,154.14
Complete:	November 2020

Project:	**Harris County – IH 10 (CSJ 6352-03-001)** (Emergency Retaining Wall Repair)
Owner:	TxDOT
Contact:	Mark Wooldridge, P. E., 713-802-5000
Contract Amount:	$2,955,070.95
Complete:	November 2020

Project:	**Harris County – IH 610 (CSJ 0271-15-090)** (Upgrade Storm Sewer)
Owner:	TxDOT
Contact:	Melody Galland, P.E., 281-464-5500
Contract Amount:	$1,407,317.63
Complete:	November 2020

Project:	**Sedona Section 6** (Concrete Paving, WS&D)
Owner:	Bay Colony West Municipal Utility District c/o Dannenbaum Engineering Corp.
Contact:	Bobby Heck, P.E., 713-520-9570
Contract Amount:	$10,246,356.90
Complete:	October 2020

Project:	**Harris County – FM 865 (CSJ 0976-01-039)**
Owner:	TxDOT
Contact:	Melody Galland, P.E., 281-464-5500
Contract Amount:	$2,332,438.01
Complete:	October 2020

Project:	**Chambers County – FM 565 (CSJ 1024-01-076)**
Owner:	TxDOT
Contact:	Noel Salac, P.E., 936-336-2244
Contract Amount:	$1,150,291.31
Complete:	October 2020

Project:	**Lower Greens Bayou Regional Detention Embankment & Control Structure Improvements For the Harris County Flood Control District Project ID #P500-01-00-E001 (18/0319)**
Owner:	Harris County/Harris County Flood Control District
Contact:	Brandie Johnson, P.E., CFM, 713-684-4134
Contract Amount:	$2,314,368.61
Complete:	September 2020

Project: **Galveston County – SH 3 (CSJ 0051-03-111)**
Owner: TxDOT
Contact: Jamal Elahi, P.E., 281-464-5500
Contract Amount: $1,854,284.55
Complete: September 2020

Project: **Goose Creek Reserve Section 4** (Concrete Paving)
Owner: D.R. Horton – Texas, Ltd.
c/o LJA Engineering, Inc.
Contact: Melony Gay, P.E., 713-953-5200
Contract Amount: $1,696,069.89
Complete: September 2020

Project: **FY2020 Asphalt Reconstruction & Overlay (20012)**
Owner: City of La Porte
Contact: Ray Mayo, Public Works Director, 281-471-9650
Contract Amount: $581,291.63
Complete: September 2020

Project: **Harris County – FM 521 (CSJ 0111-01-092)**
Owner: TxDOT
Contact: Melody Galland, P.E., 281-464-5500
Contract Amount: $3,331,755.45
Complete: August 2020

Project: **Harris County – FM 2920 (CSJ 2941-02-055)**
Owner: TxDOT
Contact: John Elam, P. E., 281-319-6400
Contract Amount: $6,284,610.95
Complete: July 2020

Project: **Crown Colony Paving & Drainage (RD-017)**
(Asphalt Paving & Drainage)
Owner: City of Mont Belvieu
Contact: Ricardo Villagrand, P.E., City Engineer, 281-576-2213
Contract Amount: $4,026,957.32
Complete: July 2020

Project: **Montgomery County – FM 1488 (CSJ 0523-08-014)**
Owner: TxDOT
Contact: Adam Galland, P.E., 936-538-3300
Contract Amount: $3,564,728.71
Complete: July 2020

Project: **Lynnwood Section 4** (Concrete Paving, WS&D)
Owner: Grohman Venture W-1 LTD
c/o GC Engineering, Inc.
Contact: Bharath Devineni, P.E., 281-412-7008
Contract Amount: $984,470.36
Complete: July 2020

Project:	**Harris County – IH 69 Etc. (CSJ 0177-11-154, etc.)**
Owner:	TxDOT
Contact:	Frank Leong, P.E., 713-934-5900
Contract Amount:	$2,791,549.78
Complete:	June 2020
Project:	**Seawall Boulevard (COG-CON-19-098)** (Asphalt Overlay)
Owner:	City of Galveston
Contact:	Trina Jankowski, P.M., 409-797-3966
Contract Amount:	$1,121,918.71
Complete:	June 2020
Project:	**Tropical Storm Imelda 2019 Removal & Replacement of Storm Damaged Bridge (19/0350)**
Owner:	Harris County, Precinct 2
Contact:	Rich Elwood, Director PID-CPD, 713-274-1531
Contract Amount:	$1,108,646.74
Complete:	June 2020
Project:	**San Jacinto Boulevard Phase II Project** (Concrete Paving, Drainage & Utilities)
Owner:	City of Baytown
Contact:	Frank Simoneaux, P.E. Dir. of PW & Eng., 281-420-6545
Contract Amount:	$7,447,208.74
Complete:	May 2020
Project:	**Lakes of Champions Boulevard Improvements** (Asphalt & Concrete Paving)
Owner:	City of Mont Belvieu c/o Binkley & Barfield Consulting Engineers
Contact:	Tommy Cromer, P.E., 713-869-3433
Contract Amount:	$3,438,761.11
Complete:	May 2020
Project:	**BAWA FM 1405 16" Waterline Project**
Owner:	Baytown Area Water Authority c/o Engineering Coordinator's Office Baytown Municipal Service Center
Contact:	Frank Simoneaux, P.E. Dir. of PW & Eng., 281-420-6545
Contract Amount:	$1,315,008.51
Complete:	May 2020
Project:	**Hunt Road Expansion** (Concrete Paving, Drainage & Utilities)
Owner:	City of Baytown
Contact:	Frank Simoneaux, P.E. Dir. of PW & Eng., 281-420-6545
Contract Amount:	$8,043,878.21
Complete:	April 2020

Texas Region Health and Safety Manual



Risk Assessment


Equipment Safety



Isolation of Operating Machinery and Electrical Safety


Machinery Guarding


Confined Space Entry


Working at Heights


Lifting Operations


Underground and Overhead Utility Dangers


Use of Personal Protective Equipment (PPE)



Safety of Materials Under Pressure


Blasting Operations


Work Zone Safety


Employee Engagement


Contractor Safety Management

CRH

TEXAS REGION SAFETY PROGRAM STANDARDS

1. MESSAGE FROM LEADERSHIP	2. SAFETY CORE VALUES
3. MANAGEMENT & SUPERVISOR RESPONSIBILITY	4. EMPLOYEE RESPONSIBILITIES
5. GENERAL SAFETY RULES	6. ACCIDENT/INCIDENT CLASSIFICATION AND REPORTING
7. DRUG AND ALCOHOL TESTING	8. FLEET SAFETY PROGRAM a. Driver Qualification Policy
9. Emergency Action Plan	10. CRH Life Saving Rules
RISK ASSESSMENT ○ RISK ASSESSMENT POLICY	EQUIPMENT SAFETY ○ MOBILE DEVICE POLICY ○ TIRE POLICY ○ BACKER SPOTTER POLICY
ISOLATION OF OPERATING MACHINERY AND EQUIPMENT ○ LOTO POLICY ○ ELECTRICAL SAFETY PROGRAM	MACHINERY GUARDING
CONFINED SPACES ENTRY ○ CONFINED SPACES POLICY	WORKING AT HEIGHTS ○ FALL PROTECTION POLICY
LIFTING OPERATIONS	UNDERGROUND AND OVERHEAD UTILITY DANGERS
USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE) ○ PPE POLICY	SAFETY OF MATERIALS UNDER PRESSURE
BLASTING OPERATIONS ○ DRILLING AND BLASTING GUIDELINES	WORKZONE SAFETY
EMPLOYEE ENGAGEMENT	CONTRACTOR SAFETY MANAGEMENT ○ CONTRACTOR SAFETY MANAGEMENT GUIDELINES ○ CONTRACT TRANSPORT SAFETY MANAGEMENT

MESSAGE FROM MANAGEMENT

The Texas Region is committed to providing a safe, healthful workplace for our employees and subcontractors. Safety is at the forefront when designing, planning, and executing all work activities. Our goal is always to ensure consistent, effective management of safety and health matters through the use of a structured approach which includes:

- Demonstrating management commitment to Human and Organizational Performance Principles
- Integrating EHS considerations into all our business decisions
- Promoting line management responsibility for EHS performance
- Evaluating performance against established, measurable objectives
- Engaging in continuous improvement activities
- Utilizing best management practices to minimize environmental impacts
- Correcting conditions and behaviors that create unnecessary risk
- Providing training to reduce potential for injuries and environmental damage
- Meeting or exceeding all applicable regulatory requirements
- Promoting individual engagement and contribution of all employees to EHS
- Selecting subcontractors who are committed to and aligned with this policy
- Providing appropriate resources to implement this policy
- Communicating this policy to all employees, subcontractors, and stakeholders

The Texas Region firmly believes this commitment adds value to our customers, employees, and neighboring communities.

SAFETY CORE VALUES

CRH Americas Materials has identified three safety core values that we believe drive world class safety performance. At a minimum, every CRH Americas Materials Company safety program shall include these safety core values.

- Eliminate Serious Harm
- Become a Learning Organization
- Cultivate an Employee Driven Safety Culture

Eliminate Serious Harm

Provide our employees, contractors, visitors, and the motoring public with a workplace/work zone free of recognized hazards. The primary system driving this initiative is the CRH AMAT Life Saving Rules.

Become a Learning Organization

Become a safer organization through building trust, being fair and just, engaging all employees, and creating greater capacity to succeed utilizing systems that are more error tolerant and allow employees to fail safely.

Cultivate an Employee Driven Safety Culture

Create a workplace where employees actively participate and feel ownership in the safety program.

MANAGEMENT AND SUPERVISOR RESPONSIBILITIES

Responsibilities for safety and health include the establishment and maintenance of an effective communication system between workers, supervisors, and management teams. Specific safety and health responsibilities for Company personnel are as follows:

Leadership Teams – Active participation in and support of safety and health programs is essential. Management teams will engage in safety and health matters at every opportunity. Managers will participate in the safety and health committee meetings, accident investigations, incident reviews, etc. relevant to their line of business. Each manager is responsible for communicating the safety and health policies of the Company and monitoring their overall effectiveness to prevent the occurrence of occupational injuries and illnesses.

Supervisors – The safety and health of the employees they supervise are primary responsibilities of the supervisors. How well each supervisor carries out this responsibility is an important measure of his/her ability to perform their operational duties.

To accomplish our safety objectives, Supervisors will:

- Assure that safety and health rules, regulations, policies, and procedures are understood and observed.
- Require the proper care and use of all needed protective equipment.
- Identify and eliminate job hazards promptly by completing thorough risk assessments prior to assigning or conducting tasks.
- Receive and take initial action on employee suggestions and concerns.
- Conduct and/or observe and actively participate in safety meetings on a weekly basis.
- Train employees (new and experienced) in safe and efficient methods of accomplishing each job or task as necessary.
- Report all accidents and injuries to safety teams as per Incident and Injury Reporting Policy.
- Participate in investigations and inspections.
- Promote employee participation and engagement in the safety and health program.
- Actively follow the progress of injured workers and display an interest in their rapid recovery and return to work.

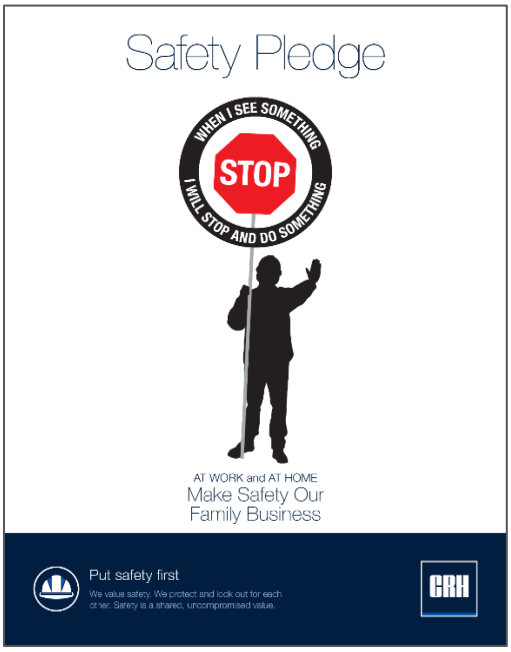
EMPLOYEE RESPONSIBILITIES

Each member of the Texas Region has the following responsibilities:

- Understand and observe all Company safety and health rules and apply the principles of accident prevention in day-to-day duties such as using proper safety devices and personal protective equipment as required by the Company.
- Reporting any job-related injury, illness, or property damage to a supervisor as soon as possible following the Incident and Injury Reporting Policies.
- Promptly reporting hazardous conditions (unsafe equipment, materials, etc.) to a supervisor or safety representative.
- Do not report to work under the influence of alcoholic beverages or drugs.
- Refrain from fighting, horseplay, or distracting fellow workers.
- No employee shall take on a task or operate equipment unless trained and qualified to do so.
- Seat belts must always be worn by all people in all vehicles and equipment. The driver is responsible to ensure that all passengers are wearing seat belts prior to putting the vehicle in motion.
- Actively support and participate in the Company's safety program.

WHEN I SEE SOMETHING, I WILL STOP AND DO SOMETHING

We all play a role in the safety of our fellow employees. Throughout the day there may be times when you encounter hazards, unsafe conditions, or people working in an unsafe manner. We are responsible in those situations to do the right thing and make sure that the hazard is corrected. We are all human and sometimes lose our situational awareness as we perform our tasks. In the event a fellow co-worker may be in danger, we ask that you speak up and bring the hazard or risk to their attention. Leaving a hazard unaddressed instead of correcting the unsafe condition could mean the difference between someone going home to their family or not.



REVISED: FEB2023

GENERAL SAFETY RULES

The following Safety Rules apply to ALL persons working for CRH Texas Region Companies:

- All safety standards and procedures will be followed at all times.
- All injuries and incidents shall be reported to the Supervisor as soon as possible following the Texas Region Incident and Injury Reporting Guidelines.
- No employee shall knowingly be permitted to work while his/her abilities or alertness are impaired by excessive fatigue, illness or other causes (i.e. prescribed medication).
- Risk assessments must be conducted prior to performing tasks to reduce the potential for injuries and accidents.
- All posted safety signs shall be obeyed.
- Personal protective equipment (PPE) will be worn in areas where it is required and as appropriate for the task(s) being conducted.
- Safety Data Sheets (SDS) should be reviewed before handling any unfamiliar chemicals to understand hazards and related PPE that may be required.
- Use of improper or defective tools or equipment is prohibited.
- When not in use, vehicles and equipment should be secured with ignition keys removed to prevent unauthorized use or theft.

REPORTING REQUIREMENTS AND CLASSIFICATIONS

Incident Reporting Procedures

Prompt reporting of workplace incidents, injuries, near-misses, etc. is a key element toward continuous improvement of the safety of our operations, facilities and processes. The following types of events must be captured and reported to ensure that steps are taken to appropriately respond and address the event.

- Workplace Injury
- Fleet Incidents
- Yellow Iron Incident
- General Liability Incidents
- Work Zone Incidents
- Utility Strikes
- Near-Misses
- See, Stop, Do Events

WORKPLACE INJURIES

WORKPLACE INJURY AND ILLNESS REPORTING POLICY

It is important that all workplace injuries and illnesses that occur during an employee's course of work are reported to management as soon as reasonably possible. Prompt reporting allows for identification and correction of hazards and immediate medical attention for injuries if such attention is required. In some instances, an employee may not immediately realize that he or she has been injured or made ill. In such circumstances, the employee must report the injury or illness as soon as reasonably possible after becoming aware of the injury or illness.

The following policy applies to workplace injury and illness reporting:

1. An employee who is at work when he or she becomes aware that they have sustained an injury or illness must report it as soon as reasonably possible, but in no event later than prior to leaving the plant, jobsite, or facility or within 8 hours after becoming aware of the injury or illness, whichever is earlier. The report must be made to the employee's immediate supervisor. If the immediate supervisor cannot be reached, the injury must be reported to the employees next level supervisor or manager, or the safety department. If emergency medical attention is needed emergency services should be contacted immediately.

2. An employee who is not at work when he or she becomes aware of an injury or illness that occurred while at work must report the injury or illness as soon as reasonably possible, but in no event later than 8 hours after becoming aware of the injury or illness. The employee must report the injury or illness directly to his or her immediate supervisor. If the employee's immediate supervisor cannot be reached, the injury must be reported to the employees next level supervisor or manager, or the safety department.

3. Supervisors and/or managers who have been made aware of a workplace injury or illness reported to them by their employees must report it to the Company's safety manager immediately, regardless if it does not require immediate medical attention.

No Retaliation

No employee who makes a good-faith effort to comply with this policy will be disciplined for promptly reporting a Workplace Injury.

Supervisors and managers must not interfere with or attempt to discourage reporting under this policy.

LIGHT DUTY PROGRAM

In the event that an employee sustains an injury at work in which a medical professional assigns work restrictions, the Company will make every attempt at finding a suitable temporary alternate duty job if the employee is unable to perform their regular job function. This temporary assignment will conform to all medical restrictions/limitations placed on the employee by the treating physician and employees are required to report to the workplace and perform these assignments. A bona fide offer outlining temporary light duty responsibilities and requirements must be completed for all employees before beginning a light duty assignment. During this temporary alternate duty assignment period, the employee's regular pay and benefit contribution will remain unchanged. Management must ensure that assignments given are within the employee's restrictions/limitations given by the treating physician. If the employee is assigned tasks outside of their prescribed limitations, the employee should notify their supervisor and their Safety Department immediately.

Bona Fide Offer Letter

Texas Region
CRH Americas Materials

Date:

Employee Name:

Employee Address:

Dear EMPLOYEE

Texas Region is in receipt of a report DATE from DOCTOR NAME at the HOSPITAL/CLINIC NAME relating to your current medical condition and your ability to work. A copy of the report is enclosed with this letter. Texas Region has used guidelines provided by your physician to identify an appropriate modified duty position for you. Texas Region hereby extends to you a bona fide offer of employment pursuant to TWCC rule 129.6

You will be expected to return to work DATE at LOCATION ADDRESS for a LIGHT DUTY WORK DESCRIPTION. This work assignment is in accordance with DOCTOR NAME 's physical restrictions. Your work schedule will be as follows:

Monday - Friday (7:00 am through 3:30 PM).

You will be allowed a thirty (30) minute lunch break from 11:30 am to 12:00 pm. In addition, there will be two (2) fifteen (15) minute breaks that can be taken at 9:30 am and 2:00 pm. Your wage shall remain the same at WAGE.

Your restrictions set forth by DOCTOR NAME'S requirements are listed below:

✓

Please be assured that Texas Region will only assign you tasks consistent with your physician's restrictions, physical abilities, your knowledge and skill.

If you accept this offer, please indicate by signing and dating your name below and returning this to the undersigned. If you choose to decline the offer, please sign and date in the declination section.

Initial Page one: _____

ACCEPTANCE OF BONIFIED OFFER

Signature_____ Date: _____

EMPLOYEE NAME

++

DENIAL OF BONIFIED OFFER

Signature_____ Date: _____

EMPLOYEE NAME

Please contact me with any questions or concerns you may have.

Sincerely,

Safety Manager Name and Contact Information

Enclosure: Medical Report from DOCTOR AND DATE.

NON-INJURY WORKPLACE EVENTS

NON-INJURY WORKPLACE INCIDENT REPORTING POLICY

It is important that workplace incidents that do not involve injury, as defined in this policy, are reported to management as soon as reasonably possible after they occur. Prompt reporting of workplace incidents allows for identification and correction of hazards.

The following policy applies to non-injury workplace incidents:

- Workplace Incident without Injury Defined
- A Workplace Incident without Injury is defined as "an unexpected and undesirable workplace event that results in damage to equipment, facilities, or property."

Incidents involving workplace injuries and illnesses are exclusively governed by the Workplace Injury and Illness Reporting Policy.

Reporting Requirement

Employees are required to report all Workplace Incidents without Injury in which they are involved, observe, or are aware of. Such Incidents must be reported as soon as reasonably possible, but in no event later than prior to leaving the plant, jobsite, or facility.

Reports must be made to the employee's immediate supervisor. If the employee's immediate supervisor cannot be reached, the Workplace Incident, without injury, must be reported to the employees next level supervisor or manager, or the safety department. If emergency response is needed (fire and rescue, etc.), call 911 immediately.

Supervisors and/or managers who have been made aware of a workplace incident reported to them by their employees must report the incident to the Company's safety manager immediately.

No Retaliation

No employee who makes a good-faith effort to comply with this policy will be disciplined for promptly reporting a Workplace Incident without Injury.

Supervisors and managers must not interfere with or attempt to discourage reporting under this policy.

FLEET RELATED INCIDENT GUIDELINES

Preventable Vehicle Incidents

A “preventable” vehicle incident is defined as any occurrence involving a registered company-owned/ company leased/rented company vehicle (for which we are gathering mileage information) that results in property damage and/or personal injury, in which the employee driver failed to do everything reasonably expected to avoid or prevent the occurrence regardless of who was injured, what property is damaged, and to what extent, or where the incident occurred. The cost to repair or satisfy a claim is not a factor in determining if an incident is preventable. In many cases a driver will be charged with a preventable incident even though he/she is found not to be at fault in a police report. All preventable incidents involving vehicles that are owned/leased/rented to the company will be reported on the CRH Americas Materials safety report according to the Preventable Vehicle Incident definition.

A “preventable” incident might occur on a public roadway, on company property, or on other property such as a construction jobsite or vendor property.

To be considered “preventable”, an incident must occur resulting from the motion of the vehicle while the employee is responsible for the vehicle’s position.

When the driver is out of a stationary vehicle and engaged in operating and maneuvering auxiliary equipment such as a mechanic’s crane or a mixer chute, damage caused by these pieces of auxiliary equipment shall not be reported as a preventable vehicle incident. These types of incidents should be reported as “yellow iron” (equipment damage) incidents.

If a preventable incident occurs while the employee is commuting to and from work, the incident should be reported on the company monthly safety report. A commute begins when the employee/driver exits a jobsite or company facility and enters onto a public roadway with the understanding that he/she is off work (not doing work for the company).

If a preventable incident occurs in a company vehicle while the employee driver was not in the scope of employment, the incident should be reported on the company monthly safety report. Scope of employment should be determined by whether the company benefits from the use of the vehicle at the time of the incident. Additional travel between alternate job sites, plants, and meetings is travel “for” the job, not “to” the job.

If a company allows its employee to utilize a company vehicle to travel to lunches or breaks, the employee driver is responsible for the vehicle. If a preventable incident occurs during travel related to lunches or any type of break during the workday, it should be reported on the monthly safety report.

To be deemed “preventable”, an incident may occur because of the following (Note: there may be other incidents not cited here that could deem an incident preventable):

Intersections: An incident can be judged preventable despite complex traffic movements, blind intersections, or failure of another driver to conform to the law or the failure of traffic control devices.

Backing: Practically all-backing incidents are avoidable. Check clearances before moving.

Spotting: The driver is ultimately responsible for the vehicle he/she is operating. If a spotter is needed, the driver is responsible for conducting a risk assessment and leading a discussion with the spotter to identify hazards, clarify hand signals, assure clear communication, and emphasis the importance of good spotting. The driver is responsible for stopping in the event the spotter becomes misplaced or the area hazards change. If the driver has properly identified and discussed all hazards and the spotter has a clear understanding of the hazards, the spotter can be held responsible for improperly backing the vehicle if an incident occurs. If the driver has followed all proper procedures the driver should not be charged with a preventable incident.

Front-end Collisions: A driver must be prepared for obstructions on the roadway. Night speed should permit the vehicle to stop within the distance illuminated by the headlights.

Rear-end Collisions: Drivers must maintain safe following distances.

Passing: Incidents occurring when passing are usually avoidable.

Lane Encroachment: Entrapment in merging traffic and blind spots are not valid excuses for lane changing incidents. Squeezes involving parked cars / other objects are avoidable.

Railroad Grade Crossings: Collisions with fixed-rail vehicles are avoidable.

Turning: Failure to properly signal, check mirrors, check pedestrian crosswalks, or take other defensive measure should be weighed.

Pedestrians: Incidents involving pedestrians are generally avoidable. Reduce speeds in school zones, shopping areas, residential streets, and special pedestrian areas.

Weather: Adverse weather conditions never cause incidents. Adjust to weather conditions.

Fixed Objects: Collisions with fixed objects are avoidable. Check and judge clearances and use spotter(s) when necessary.

Parking: Unconventional parking locations, such as double parking or failure to put out warning devices, will generally be sufficient evidence for finding an incident avoidable.

Mechanical Failure / Pre-Trip Inspections: Drivers are responsible to report mechanical problems particularly when continued operation might result in an incident. Drivers must perform daily checks of tire condition, brake operation, lights, and other vehicle systems. USDOT mandated vehicle inspections must be performed as required. Only unforeseeable failure after a thorough vehicle inspection is justification for not declaring an incident preventable.

Non-collision: Incidents, such as overturns and running off the road, may result from emergency actions by the driver to avoid a collision. The key in evaluating these situations is judging if the

driver made errors or failed to drive defensively prior to the involvement.

Securing of Cargo: Projecting loads, objects falling from the vehicle, loose tarpaulins or chains, door swinging open, etc., resulting in damage to the vehicle, cargo or other is avoidable.

Towing: Items being towed, including light towers, trailers, etc., are considered part of the mobile equipment and damage to, or caused by, the towed object would be considered preventable. If items fall from vehicle while towing due to improper load securement, the incident should be reported as a preventable incident.

Police Ticketing: Preventability is not the same as fault. Our internal investigations are in many cases more thorough that those done by the police. Failure of a police officer to ticket a driver does NOT preclude the incident from being declared "preventable". Our standards of accountability and reporting are in many cases higher than the local authorities. The fact that police have failed to issue a ticket, assign blame, ticket another party or comment as to responsibility should not be a factor in our determination of whether an incident is preventable. In many cases a driver will be charged with a preventable incident even though he/she is found not to be at fault in a police report.

A skilled defensive driver is one who:

- commits no driving errors,
- makes allowances for the driving practices of others,
- adjusts his/her driving practices to compensate for weather, road and traffic conditions,
- is not trapped into an incident by the unsafe actions of pedestrians and other drivers,
- is alert to incident-inducing situations, recognizes the need for preventive action in advance and takes precautions to avoid the incident, and
- knows when it is necessary to slow down, stop, or yield the right-of-way.

Decisions based on these guidelines should be considered when making determinations on preventability. The standard should be the equivalent of a trained, skilled defensive driver and MUST be consistent with these guidelines. Determining "preventability" is not dependent upon any degree of damage or loss. It is based upon the presumed responsibility and expected skillfulness of the Company's employee to operate the vehicle in a manner in which he/she has been trained that minimizes or eliminates the potential for an incident.

Local management is responsible for reviewing the "preventability" of any vehicle-related incident and applying these guidelines consistently to determine preventability. With the goal of "world-class" fleet safety performance, we must uphold the highest standards for determining whether an incident is preventable and/or unavoidable. When determining if an incident is preventable or not, no individual or review committee shall use guidelines other than those detailed or ignore the intent of these guidelines to fairly evaluate and apply consistent standards for reporting.

We cannot legislate fairness. **We must rely on the integrity of our employees serving on Safety Committees, Incident Review Boards, Fleet Managers, Safety Directors, and others charged with determining "preventability".**

AUTOMOBILE ACCIDENTS

Auto accidents will be handled like general liability incidents unless they involve a Company vehicle. If a Company vehicle is involved in an accident, an “on-the-spot” report must be filled out and the safety manager will be contacted immediately. The safety managers will notify the Company president and general manager when an incident or accident occurs. Employees will have to provide the following information for a report:

- Name, address and phone numbers of all individuals, including passengers, involved in the accident
- Take photos of the accident scene and damage to all vehicles
- Obtain registration and insurance information from all drivers involved in the accident
- Call the police regardless of the amount of damage done to vehicles or property
- Get a copy of the police report as soon as possible
- Attempt to find out where disabled vehicles were taken
- If an accident involves injuries, find out where the injured people were taken
- If possible, obtain witness statements
- Complete the supervisory accident report property damage section

Following an accident, all materials related to it must be provided to the safety manager within **12 hours**.

NEAR MISS REPORTING

A “near miss” is a close call event that under slightly different conditions and/or timing could have resulted in an injury, property damage, and/or had a detrimental effect to the environment.

Near Miss cards or forms will be supplied for all employees to use to report incidents they are involved in or witness. The employee will provide the following information:

- Hazards observed and addressed
- Location, time, date
- What action can be taken as a result of the event to prevent reoccurrence
- Optional information

Near Misses must be reviewed by supervisors, EHS, and management teams to ensure that any necessary control improvements are made. Information will be distributed to the OpCo, Region and Division teams to share learnings from the event.

INCIDENT AND EVENT REVIEWS

RECORDABLE / PREVENTABLE / SIF / NEAR-MISS REVIEW PROTOCOL

To support our efforts toward continued improvements in our safety culture the following process will be utilized to review all Recordable Injuries, Preventable Fleet Incidents and Significant Near Misses and SIF events experienced by Texas Region Companies. This process will ensure that we effectively review all significant events in order to identify opportunities for improvement and to help prevent incident reoccurrence. To ensure that these reviews are effective and consistent the following guidelines should be followed:

GENERAL EVENT REVIEW INFORMATION:

- Local Company management should review each Recordable Injury, Preventable Fleet and significant Near Miss within 72 hours after the event to learn about each incident and identify potential improvements to prevent reoccurrence. All Recordable injuries and Preventable Fleet incidents should be reported to the Regional Safety and Health Manager.
- Where applicable, Learning Teams should be assembled for complex or serious events to maximize learning.
- OpCo incident reviews should take place weekly, bi-weekly or at a minimum monthly to ensure that events are reviewed in a timely manner so that lessons learned can be put into action and communicated promptly across the Region and shared with Division.
- During these reviews, the immediate supervisor of the affected/injured employee(s) and their next-level manager should review the details of the event, to include lessons learned and recommended improvements.
- SIF and SIF(P) Incidents will be reviewed with the Region President
- Lost-Time Injuries will be reviewed with the Regional President and South Division President
- Additional review calls may be held as needed based on the nature, severity, or potential severity of the event.

REVIEW PARTICIPANTS:

- Company Reviews: Managers and immediate supervisors of the affected/involved or injured employee, Company President, Company Safety Manager.
- Regional Review Calls: Company President/GM, Manager/Supervisor of injured/involved employee, Company Safety Manager, Regional President, Regional Safety Manager.
- Division LTI Review Calls: Company President/GM, Regional President, Regional Safety Manager, Division President, Division VP, Safety.

KEY INFORMATION DISCUSSED:

- Company, Regional and Division reviews should focus on 4 main areas of information:
    - Overview of the incident / accident / injury – focus on the facts of the event
    - Information about the affected employee(s) – Condition / time in service / training / other accidents, etc.
    - What We Learned from the event – specific findings and discoveries by review team and/or Learning Team
    - What corrective actions/improvements were identified including the plan for implementation of the suggested improvements?

RECOMMENDATIONS FOR AN EFFECTIVE REVIEW CALL:

- *Explain* the event and the details of what happened - Do not simply read the incident report
- Speak directly to the issues at hand and be concise
- Be candid. Do not withhold information
- Include feedback and information from Learning Team (*if utilized*)
- The corrective actions should include a plan for implementation and follow-up to gauge effectiveness along with person(s) responsible for the effort.

Drug and Alcohol Testing Procedure

Texas Materials Group, Inc. prohibits the use, sale, distribution, and possession of alcohol and drugs by employees, contractors or any other personnel performing work on Company property, on Company project sites or operating Company equipment. Texas Materials Group, Inc. also prohibits employees and contractors from reporting to work, being present on Company property or job sites and operating Company equipment while under the influence of alcohol and/or drugs. **Violation or Refusal of this policy will result in immediate termination of employment.**

Testing Requirements: Texas Materials Group, Inc. enforces a comprehensive alcohol and drug abuse program that includes alcohol and drug testing under the following circumstances.

1. Pre- employment
   All applicants for employment are required to submit to a drug test prior to commencing employment at a Company approved clinic
   a. Non-DOT employee – Regulated UDS collect Preplacement;
   b. DOT employee – Regulated DOT Physical Preplacement; DOT Breath Alcohol Test
2. Reasonable Suspicion
   All employees may be required to submit to an alcohol and/or drug test based on reasonable suspicion.
   a. Reasonable suspicion testing must be based on specific, contemporaneous, articulable observations concerning:
      i. Appearance
      ii. Behavior
      iii. Speech
      iv. Body odors
   b. Alcohol/Controlled substances
      i. Observations shall be made by a trained supervisor or Company official
         1. Trained in accordance with 49 CFR 382.603 and 49 CFR 382.307
      ii. Test must be administered within 2 hours
         1. Non-DOT employee – Regulated collect; Rapid mCup/10 Panel UDS with Breath Alcohol Test Reasonable Suspicion
         2. DOT employee – Regulated collect; Rapid mCup/10 Panel UDS with Breath Alcohol Test Reasonable Suspicion
         3. If not administered within 8 hours, all attempts will cease
      iii. Inconclusive/Positive Tests on Rapid
         1. Diluted, Temperature, pH, Positive Test
            a. Employee put on leave until results from Regulated collect
      iv. Records
         1. Supervisor/Company official making the observations must fill out the form in Appendix A (Observed Behavior-Reasonable Suspicion Record)
            a. Signed by Observer within 24 hours of the observed behavior or before the results of the test are released, whichever is earlier, and maintained by Safety and HR
         2. If Testing is not done within 2 hours a record must be prepared stating why it was not properly administered, then maintained by Safety and HR
         3. If Testing is not administered within 8 hours a record must be prepared stating why it was not properly administered, then maintained by Safety and HR

3. Post Accident
   A drug and alcohol test will be required for any employee who operates a Company vehicle or piece of equipment and has an accident involving one or more of the following criteria:
   a. Non-DOT employee – Employee on leave until results from Rapid, if rapid is non-negative the employee will continue to be on leave until results from MRO
      i. Regulated UDS Collect Post Accident and Breath Alcohol Test Post Accident and Rapid mCup/10panel
         1. Fatality
         2. Catastrophe
         3. Serious injury
      ii. Non Regulated UDS Collect Post Accident and Rapid m Cup/10 panel
         1. All other preventable/non-serious incidents
   b. DOT employee –
      i. DOT Regulated UDS Collect Post Accident with Breath Alcohol Test Post Accident – Employee on leave until results from MRO
         1. Accident results in fatality
         2. Any vehicle/equipment is towed from the scene
         3. Medical attention is required away from the scene (transported by ambulance)
      ii. Non-Regulated UDS Collect Post Accident and Rapid m Cup/10 panel - Employee on leave until results from Rapid, if rapid is non-negative the employee will continue to be on leave until results from MRO
         1. All other preventable incidents
   c. Non-Preventable – fleet incidents in which our employee is not at fault
      i. Case by case basis
         1. No drug screen required
4. Random
   a. Non-DOT employee – 10 % of non-DOT employee will be subject to Random Alcohol and Drug Testing every quarter
      i. Random List provided by third party
      ii. Tests must be conducted within 2 hours of the supervisor notifying the employee
         1. Supervisors have 24 hours to coordinate testing for employees
         2. If testing clinic distance poses a time constraint, supervisor must communicate with Safety Team to allow for extended time
         3. Non Regulated UDS Collect Random with Rapid mCup/10 panel
   b. DOT employee –All employees who possess a CDL license and drive a Company vehicle shall be subject to random and unannounced alcohol and/or drug testing in accordance with the Department of Transportation (DOT) Federal Motor Carrier Safety Regulations (10 % Alcohol and 50% Drug).
      i. Random List provided by third party
      ii. Tests must be conducted within 2 hours of the supervisor notifying the employee
         1. Supervisors have 24 hours to coordinate testing for employees
         2. If testing clinic distance poses a time constraint, supervisor must communicate with Safety Team to allow for extended time
      iii. DOT Regulated UDS Collection Random
      iv. Inconclusive/Positive Tests on Rapid
         1. Diluted, Temperature, pH, Positive Test
            a. Employee put on leave until results from Regulated collect

5. Return to Work
   Any employee who has participated in a course of treatment for alcohol and/or drug dependency will be required to submit to an alcohol and/or drug test prior to returning to work. Employees who return to work shall be subject to unannounced testing up to six (6) times over a period of twelve (12) to sixty (60) months, or pursuant to recommendations made by the designated Substance Abuse Professional (SAP).
   a. Rapid mCup/10 panel UDS and Breath Alcohol Follow up
   b. Rapid mCup/10 panel UDS and Breath Alcohol Periodic

6. Client Specific Testing
   a. If a client requests additional or specific testing requirements the Company will abide by the most stringent

Reasonable Suspicion Form

OBSERVED BEHAVIOR-REASONABLE SUSPICION RECORD

Employee: **Name:** _____

Identification Number: _____

Observation: **Date:** _____ **Time: (from** _____ **am/pm: to** _____ **am/pm)**

Location: _____
(Street) (City) (State) (Zip)

CAUSE FOR SUSPICION

1. Presence of Drugs, Alcohol, and/or Paraphernalia (*specify*):

2. Appearance:

- ☐ Normal
- ☐ Flushed
- ☐ Puncture Marks
- ☐ Disheveled
- ☐ Bloodshot Eyes
- ☐ Inappropriate use of sunglasses
- ☐ Dilated/Constricted Pupils
- ☐ Profuse Sweating
- ☐ Tremors
- ☐ Dry-mouth Symptoms
- ☐ Runny Nose/Sores
- ☐ Body Odor
- ☐ Other _____

3. Behavior

Speech:

- ☐ Normal
- ☐ Incoherent
- ☐ Slurred
- ☐ Silent
- ☐ Confused
- ☐ Slowed
- ☐ Whispering
- ☐ Other

Awareness:

- ☐ Normal
- ☐ Confused
- ☐ Mood Swings
- ☐ Euphoria
- ☐ Lethargic
- ☐ Uncoordinated
- ☐ Paranoid
- ☐ Disoriented
- ☐ Other _____

4. Motor Skills

Balance:

- ☐ Normal
- ☐ Swaying
- ☐ Falling
- ☐ Staggering
- ☐ Other _____

Walking & Turning:

- ☐ Normal
- ☐ Swaying
- ☐ Arms Raised for Balance
- ☐ Stumbling
- ☐ Falling
- ☐ Reaching for Support
- ☐ Other _____

5. Other Observed Action or Behavior (*specify*): _____

_____

_____

Witnessed by: (*must be a supervisor or company official trained in physical, behavioral, speech, and performance indicators of probably alcohol misuse and use of controlled substances*)

_____
(Signature) (Title) (Date) (Time)

_____
(Optional 2nd Signature) (Title) (Date) (Time)

This document must be prepared and signed by the witness within 24 hours of observed behavior or before the results of the test are released, whichever is earlier (49 CFR 382.307(f)).

Proper Testing Administration Form

- ☐ If Testing is not done within 2 hours of observations
- ☐ If Testing is not completed within 8 hours of observations

Record Statement of why testing was not properly administered:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name	Signature	Title	Date	Time

FLEET SAFETY PROGRAM

Defensive Driving

Defensive driving is driving so as to prevent accidents, in spite of the actions of other drivers, or the presence of adverse driving conditions. Remember that the Company vehicle that you operate probably is considerably different in size and complexity than your private vehicle. Understand that it probably does not have the same capabilities as your personal vehicle does and take into account these characteristics.

1. Only Texas Materials Group, Inc. employees are authorized to operate Company owned or leased vehicles.

2. Only licensed and trained drivers who have successfully completed and are current in defensive driver training will operate Company vehicles.

3. Drivers and passengers shall wear seat belts at all times.

4. Drivers must comply with all traffic laws and regulations. Citations received by Company vehicles will become the responsibility of the individual driver.

5. Obey all posted speed limits.

6. If a Company vehicle is left unattended, the vehicle must be in a parked position; the parking brake must be on.

7. Prior to driving away, walk to the back/front of the vehicle. This will give you a clear picture of the area behind your vehicle in case you have to back up without someone assisting you (delivery vehicles). Incorporate **Get Out And Look** (GOAL).

8. If another employee is assigned to ride in the vehicle that you are operating, use this employee to guide you in backing up operations or close quarters driving. It will prevent accidents.

9. Know the condition of your vehicle before starting the day's operations in it. Check all the special operating conditions such as wipers, brakes and brake lights, headlights, fuel, oil, tires, and steering.

10. Promptly report all vehicle deficiencies to your supervisor. Vehicle operator shall insure the vehicle is properly maintained and will schedule PM Service when mileage or hours indicate service is due.

11. When refueling, leave the motor off and do not smoke in the vicinity of the fuel island. Closely follow the fueling procedures.

12. Complete your daily vehicle condition report and forward this report to your supervisor.

13. Keep your vehicle neat and clean. Remove trash from the beds and trailers daily to prevent losing debris out of your vehicle onto a road and causing damage to another vehicle.

14. Many of you drive large trucks while performing Company business. Included in your defensive-driving procedure is the fact that large trucks take longer to stop. Be aware that small cars cut in front of large trucks all of the time. Be alert for this circumstance. Remember that while driving large trucks in neighborhoods to be alert for children darting into the streets after toys and be alert for pedestrians and bicyclists. Driving large trucks requires patience and much more skill.

15. All Company owned/employee allowance vehicles MUST back into spaces provided, when backing is permitted.

Driver Qualification Policy

This Policy applies to all employees who operate, or may operate, a licensed Company vehicle on public roadways.

I. GENERAL

A. The following minimum qualifications must be met to establish authorization to operate a registered Company motor vehicle.

1. Driver must be an active employee.

2. Driver must hold a current and valid operator's license for the vehicle type in question.

3. Driver must have received training in Smith System® space cushion driving technique.

4. Driver must not be disqualified from driving a Company vehicle as outlined in this chapter.

II. NEW EMPLOYEE DRIVER QUALIFICATION

A. Each applicant for a position which will require operation of a licensed motor vehicle shall produce a valid motor vehicle operator's license for the applicable type(s) of vehicle(s). Each applicant will in addition provide a copy of their operator's license to HR/Safety Department.

B. A motor vehicle report (MVR) will be ran to review license status, previous driving violations and risk score.

C. An applicant shall not be considered eligible for a job, which requires driving if disqualified by Section IV below.

II. CONTINUING DRIVER QUALIFICATION

A. Charges or convictions for all moving violations must be reported to the EH&S Department in writing immediately.

B. Annually, an MVR will be run to evaluate driving record.

C. Annually, or upon request, employees in a position requiring operation of a licensed motor vehicle will complete a "Driving Record Certification". Any omissions or inaccuracies may result in disciplinary actions up to and/or including termination.

D. All employees involved in a preventable fleet collision are required to attend a full Smith System Driving class within five (3) workdays of having their fleet collision determined to be preventable. The employee cannot drive for the Company after this period until the training is completed. Any division driving restrictions will still apply.

III. COMMERCIAL DRIVERS

A. All employees driving a vehicle governed by the Federal Motor Carrier Safety Regulations are required to meet all applicable provisions of those regulations in addition to the requirements of this chapter.

B. Drivers of Company trucks which fall under the Federal Motor Carrier's Safety Regulations shall do a pre-trip inspection per 396.13 and a written post-trip inspection at the end of the shift per 396.11

C. Additional information can be referenced in the Employee Handbook.

IV. DISQUALIFICATION

A. All charges and convictions for moving violations must be reported to the EH&S Department immediately in writing. The employee's record shall be reviewed following any accident, charge, or conviction.

B. Any Employee who is charged with eight (8) points or higher from the schedule below in any 24 month period shall be disqualified from driving a Company owned vehicle until there are fewer than eight (8) points within the preceding 24 month period, or longer if deemed necessary by the Company President. Points accrued while operating personal vehicles will apply. Reinstatement will be at the discretion of the Company President.

C. When more than one violation is cited in a single incident, only the one violation with the greater number of points shall be charged to the driver's record.

Speeding 5-15 MPH over limit	2 Points
Speeding 16-30 MPH over limit	3 Points
Speeding over 30 MPH over limit	4 Points
Other Moving Violations	3 Points
Preventable Fleet Accident	3 Points
DWI	Termination

V. DISCIPLINARY ACTION

Nothing in this policy shall be interpreted to prevent Management from providing stronger disciplinary action up to and including termination when such action is deemed appropriate.

VI. OPERATION OF VEHICLES

A. GENERAL

1. Safe operation and accident prevention is our NUMBER ONE PRIORITY.

2. Company motor vehicles shall be operated in compliance with all Federal and State Laws, County and City Ordinances, and procedures established by the manufacturer. DO NOT EXCEED or make exceptions to these limits.

3. Operate Company vehicles in a manner that is courteous and represents the Company in a positive way.

4. Keys should not be left in unattended vehicles or equipment.

B. SEAT BELTS

Each driver shall insure that he or she uses a seat belt at all times while operating a Company motor vehicle and shall insure that all passengers use seat belts.

C. HEADLIGHTS

All vehicles owned, leased, reimbursed, or rented shall be operated with the headlights on while the vehicle is in motion. This includes operation during the daylight hours and applies both on and off public roadways. New vehicles shall be ordered with the automatic daytime running lights option if available.

D. ACCIDENTS

Fleet accidents shall be reported promptly, from the scene if possible, to the drivers' immediate supervisor and EH&S Department.

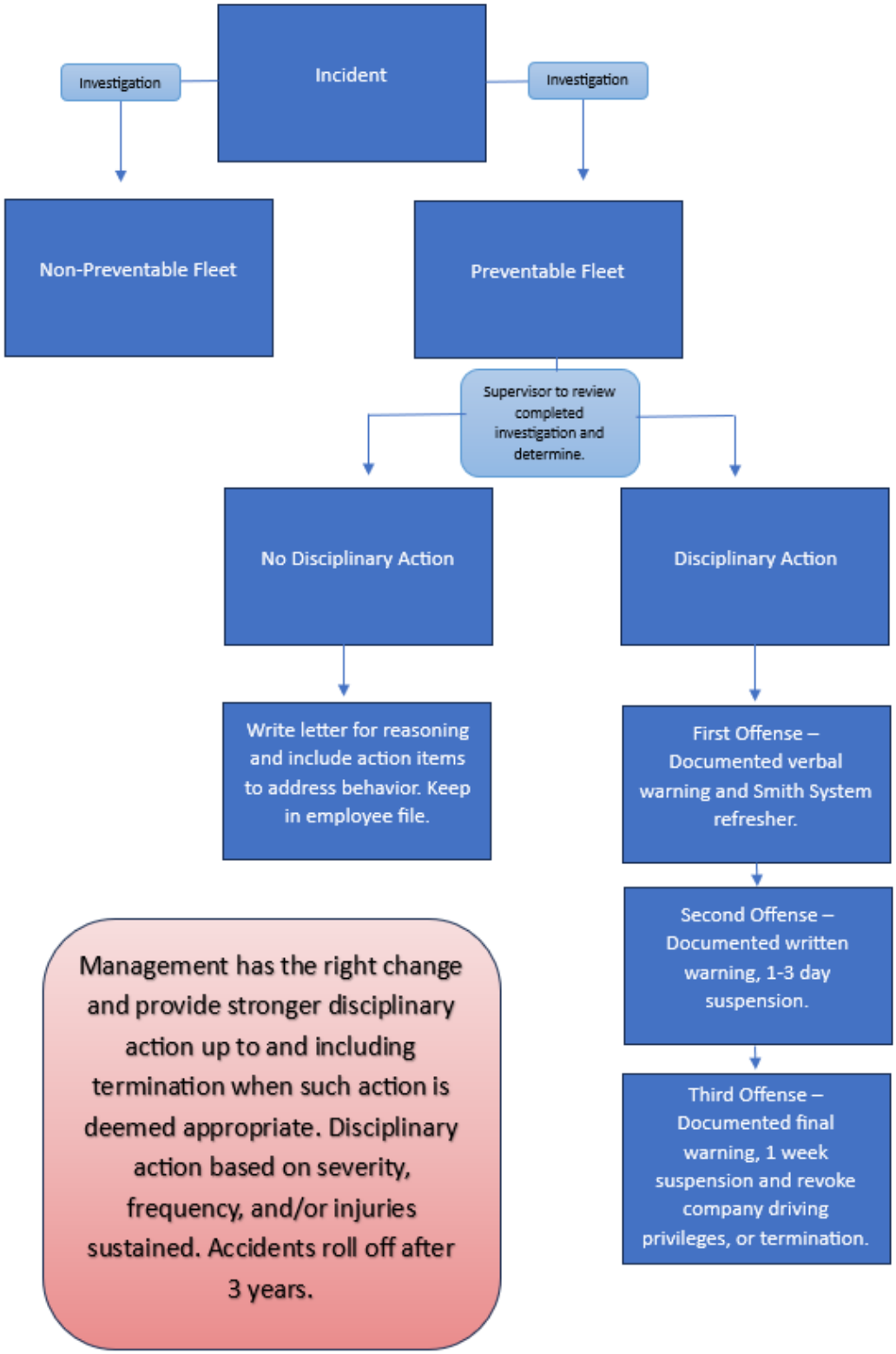
Police will investigate all fleet accidents, where applicable. Drivers should make every effort to obtain a report number from police, as well as driver and vehicle information on other vehicles involved in the accident.

All Company vehicles should have a copy of the vehicle registration, proof of insurance, phone cameras, accident incident report and any applicable Hazmat documentation in the vehicle at all times.

E. MAINTENANCE

Vehicle preventive maintenance (servicing, oil change, coolant, tire pressure, etc.) is the responsibility of the assigned driver. Drivers shall maintain, monitor and inspect vehicles for proper operation of safety devices, unusual noise, or handling characteristics, and items that are subject to sudden failure i.e.; tire, hitches, load, etc. Repairs and tire purchases are to be authorized by the Fleet Operations Office. Vehicles are to be kept clean and free from debris

Preventable Fleet Disciplinary Guidance Document



Emergency Action Plan

This Policy applies to all employees and contractors in or around our workplace including roadways.

I. Medical Emergency
   a. Minor Injury – include injuries that can be treated by first aid alone
      i. Call the Occupational Nurse
   b. Major Injury – include injuries that require greater treatment than first aid
      i. If individual is unconscious call 911
      ii. If individual is conscious and:
         1. Requests an ambulance call 911 along with the Occupational Nurse
         2. Does not request an ambulance call Occupational Nurse for guidance
   c. In all cases notify the appropriate supervisor and EHS team and prepare and Injury/Illness report

II. Fire Emergency
   a. If a fire is discovered activate the fire alarm system to alert all personnel
   b. From a safe location call 911
      i. Do not hang up until 911 staff have already hung up
   c. Evacuate the building to the muster area for a headcount
   d. Do not leave the property until advised to do so

III. Severe Weather
   a. Tornado
      i. f indoors seek shelter in a central room with no windows
      ii. If outdoors lie flat in the nearest depression, such as ditch or ravine

IV. Active Shooter
   a. Run
      i. Have an escape route plan in mind
      ii. Leave your belongings behind
      iii. Keep your hands visible
   b. Hide
      i. Hide in an area out of the shooter's view
      ii. Block entry to your hiding place and lock the doors
      iii. Hide behind furniture if possible
      iv. Silence your cell phone
   c. Fight
      i. If confronted directly and as a last resort when your life is in imminent danger
      ii. Attempt to incapacitate the shooter
      iii. Act with physical aggression, throw items at the shooter, yell loudly and commit to the effort
      iv. Moving people are harder to shoot
   d. When law enforcement arrive
      i. Remain calm and follow instructions
      ii. Put down any items in your hands
      iii. Raise hands and spread fingers
      iv. Keep hands visible at all times
      v. Avoid quick movements toward officers
      vi. Avoid pointing, screaming, or yelling
      vii. Do not stop to ask officers for help or direction when evacuating

V. Media – No one is allowed to talk to the media on behalf of the Company without prior approval from the Regional President. A Designated spokesperson from each area is assigned to speak to the media on behalf of the Company. All statements on behalf of the Company to the press shall be released through the President's office.

Risk Assessment

- Each Company must have a policy in place and it must be communicated to all locations (D)
- Policies must specifically address non-routine tasks, work carried out by contractors and temporary employees, construction work and off-site delivery procedures (P)
- Each Company must have a process in place to evaluate activities identified as having increased risk (D)

Equipment Safety

- Each location must have site transport rules in place, that at a minimum, address: (D)
  - Vehicle-pedestrian segregation
  - Edge protection for slope/benches
  - Driver training rules and assessment
  - Vehicle rules for speed limit and visual/audible waning systems
- All drivers must be trained and regularly assessed, this includes completing daily pre-trip inspections for Company vehicles used on and off-site
- A mobile electronic device usage policy must be in place (P) (D)
- All loads must be secured and within weight limits
- Seat belts must be worn by all drivers on-site and off-site

Isolation of Operating Machinery and Electrical Safety

Lockout/Tagout/Verify

- Each location must implement and train employees based on a Lockout/Tagout/Verify policy (P) (D) (A)
- Each machine component must have machine-specific written procedures for the safe Lockout/Tagout/Verify isolation of energy sources and all authorized employees must be trained (D) (A)
- All authorized employees must be observed conducting a task involving Lockout/Tagout/Verify at least annually by an authorized and designated competent employee to ensure system isolation of energy sources as per policy (D)
- All machine-specific procedures must be inspected for correctness to ensure equipment additions and/or changes have been reviewed and implemented at least annually (D)
- Written procedures should be developed for Close Proximity Maintenance (CPM) tasks which include a Job Safety Analysis (JSA) outlining the planned CPM procedures
- Sufficient numbers of locks, tags, hasps, etc. must be maintained on-site to conduct all anticipated maintenance activities (A)
- Electrical and machine/equipment switches cannot be locked in an “ON” position

Electrical Safety - NFPA 70E

- Arc Flash surveys must be completed by a qualified person for each facility with the corresponding electrical labels installed
- Prior to starting work, all electrical contractors must provide a letter of certification confirming that the attending electrician(s) are properly National Fire Protection Association (NFPA 70E) trained to work around the respective voltage
- All employees who troubleshoot electrical systems, perform voltage testing, operate circuit breakers with covers off or are otherwise exposed to live or potentially live circuits have must be trained in NFPA 70E
- All qualified and/or affected employees must wear appropriate arc-rated Personal Protective Equipment (PPE) during electrical tasks
- All authorized employees and contractors who work on electrical equipment must perform Lockout/Tagout/Verify on the energy source and verify disconnection through use of a voltage tester

Machinery Guarding

- Each location must maintain a system for regular checking of machinery guarding
- No machinery can be operated without all tail pulleys, pinch points, exposed shafts and exposed moving parts properly guarded
- Pad-mounted electrical transformers, tanks, tank and containment valves, gas lines, gas containers/cylinders must be located away from travel ways and adequately protected by bollard, barrier or other measures so they cannot be struck by trucks and/or mobile equipment
- Conveyor return rollers within 7-feet of the ground (or an adjacent working surface) where workers may work or travel under the belt must be guarded

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- Guards must be secured in a way that a tool is required to remove them



Confined Space Entry

- All locations must have a confined space entry policy and supporting rules and safe entry procedure for each confined space identified on-site D
- Employees must seek prior authorization to enter a confined space, and each location must have safe entry procedures for confined space entry D
- All affected employees at each Company location must be trained in confined space entry rules
- All permit-required confined spaces must have signs posted at the entryway indicating “Permit- Required Confined Space – Do Not Enter”
- Permits must be used for safe entry into permit required confined spaces, including but not limited to, baghouses, cold feed bins, mixer drums, tanks, silos, etc.



Working at Heights

- Each location must have a Fall Protection policy in place and posted P D A
- All employees who may work at heights must be trained in the Fall Protection policy, as well as all applicable means and methods, for preventing falls at their location D
- A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the Fall Protection policy
- Employees should be aware of the various tools and devices that can be used to help them achieve 100% fall protection such as fall protection systems, retractable lanyards, beam straps, double lanyards, etc. and these devices must be available
- Fall harnesses/lanyards inspections must be conducted as per manufacturer specifications D
- A “ladders last” approach must be always applied
- All ladders must have a visible capacity rating, be in good condition and be used appropriately
- “Three Points of Contact” stickers or signage must be positioned at ladder ways or access points of all plants and mobile equipment



Lifting Operations

- Employees using lifting devices of any capacity (including excavators and loaders) must receive training from a designated competent person in the use of each specific device (including rigging and lifting)
- Specific areas must be designated as “out of bounds” to personnel when lifting operations take place
- All lifting equipment and implements (straps, cables and chains) must have their safe working load limit identified on the lifting device
- If chains are used for lifting, they must be visually inspected before each use and monthly thereafter with a documented inspection record which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain that was inspected D
- Never use chains to tow vehicles or equipment (i.e. stuck in the mud) – use tow ropes, recovery straps or other devices of sufficient strength designed for this purpose



Underground and Overhead Utility Dangers

- Risk assessments for underground and overhead work must be in place D
- A site survey for utility lines and underground pipes must be conducted before work is carried out on a project D
- All employees and operators should stay a minimum of 10-feet away from power lines and spotters must be used in situations where power lines are nearby to observe and warn operators



Use of Personal Protective Equipment (PPE)

- A PPE policy must be in place for all areas of operations/tasks P D
- Daily visual inspections of PPE use must be carried out at each location
- No employee or contractor will be permitted to work without the required PPE

Safety of Materials Under Pressure

- Employees must be trained on all applicable safe operating procedures (i.e. loading/unloading)
- Regular checks of pressure relief systems on pressurized conveying systems must be conducted by a designated competent person (D)
- Compressed gas tanks must be separated and stored properly
- Compressed air must not be used for cleaning (personnel or clothing), compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 PSI
- Pressurized systems must be fitted with proper relief systems including check valves, etc.

Blasting Operations

- A Blasting policy must be implemented (P)
- All employees on-site must have training on the site-specific blasting rules (D)
- All personnel carrying out blasting operations must have training (D)
- Blasting records must be maintained
- Pre-blast reviews must be conducted (D)

Work Zone Safety

- All work zone personnel must be properly trained for their specific roles and all work zone employees must receive work zone awareness training
- A copy of the most current Manual on Uniform Traffic Control Devices (MUTCD) state/local/project specific traffic control standards must be readily available for review on all projects (A)
- All reverse systems, echo location systems, back up alarms (including those of contractors) must be working properly
- An Internal Traffic Control Plan (ITCP) must be created and be in use to minimize backing and control internal movement of equipment, vehicles and personnel
- Employees must be aware of the 10-foot rule when working around/operating equipment
- All road crews must have knowledge of and understand the Backer Spotter policy (P)
- Maintenance of Traffic (MOT) personnel and flaggers must be trained according to their duties
- All equipment must be outfitted with sufficient retro-reflective tape that can be seen at night, the tape must be clean and in working order
- All equipment operating in a work zone must be equipped with flashing lights as required
- All work zone traffic control must be inspected and documented by a designated competent person
- Work zone employees must be familiar with the Best Practices for Mitigating the Effects of Work Zone Intrusions manual

Employee Engagement

- Employee groups must participate in problem solving and risk reduction tasks to foster employee engagement
- Engagement opportunities such as near-miss reporting, behavior observations and mentoring of others, etc. must be implemented

Contractor Safety Management

- Contractors must be evaluated using a contractor safety management guide/checklist
- Contractors must be included and participate in daily safety huddles (i.e. T5s) and risk assessments
- Contractors must receive a safety induction and have appropriate oversight when working at facilities or on jobsites
- Contractors must be informed of and follow all PPE requirements

Legend for Specific LSR Requirements
(P) **Policy:** A dedicated policy is required
(D) **Documented:** Requirement for policy, training, implementation, etc. to be documented

A Accessible: Requirement for policy to be accessible to employees (i.e. posted or displayed in some way)

Risk Assessment

- Each Company must have a policy in place and it must be communicated to all locations D
- Policies must specifically address non-routine tasks, work carried out by contractors and temporary employees, construction work and off-site delivery procedures P
- Each Company must have a process in place to evaluate activities identified as having increased risk D

All employees must be trained in the approved risk-assessment and risk-reduction processes. The risk-assessment process is designed to help employees identify, analyze and reduce/eliminate the risk associated with each task. This includes constant awareness of our surroundings, environment which can often change during the course of work.

RISK ASSESSMENT POLICY

Risk Assessment Requirements:

It is essential that all jobs, tasks, and work assignments are planned to either eliminate risks or reduce risks to an acceptable level. Texas Region Companies utilize several methods of conducting and communicating Risk Assessments.

T5'S

Every shift will start with a T5. T5 stands for "Take Five for Safety". Typically, these layout the day's schedule but also evaluate the risks associated with that day's tasks. It's important for the entire crew to be involved in this process as any change could affect the safety of the crew.

- Determine the tasks of the Job – What are we going to do and how are we going to do it?
- Identify the safety concerns – What are the risks and what might go wrong?
- Discuss solutions that will minimize or eliminate the concerns – What tools do we need, procedures to follow, etc.?
- Assign persons responsible for addressing each of the solutions – Who is responsible for each task?
- As the task or conditions change, STOP and re-evaluate!

Non-Routine Tasks:

Non-routine tasks involving significant or elevated risks, and/or complex job requirements should be pre-planned. Such pre-planning should include development of a Job Safety Analysis (JSA). Many JSA's have been developed and are available on the Company intranet. For tasks where JSAs have been created, these documents should be reviewed prior to beginning the task. Where JSAs have not been developed, supervisors should involve safety in the planning process to assist in developing a JSA to document the proper procedures for performing that task.

Prior to performing non-routine tasks, a focused discussion of applicable risks and precautions must be conducted with all relevant employees. This can often be accomplished as part of a T-5 process. While T-5's must be conducted at the start of each shift, they should also be conducted at any time during the shift when non-routine tasks are performed, or when work conditions change. The affected individual(s) shall take appropriate time to think the task through to completion and determine if it is safe to perform the task (i.e. risks mitigated, appropriate PPE available, etc.). Such risk assessments are essential to establishing the safety expectations for non-routine tasks.

Weekly Safety Topics:

Weekly safety meetings are utilized to communicate safety information to all employees. Weekly safety meetings are required and should be performed at the beginning of the first shift of the week and must include a focused discussion of the designated topic with all office, plant, quarry, project, and crew personnel as applicable.

CRH TASKS THAT KILL

Ninety percent of severe incidents are caused by a breakdown in the risk assessment process. For this reason, being proactive and identifying the risks associated with our particular jobs can help eliminate these risks – protecting not just ourselves but our family on the job.

The Tasks that Kill assessment process works as described below and must take place before the task begins.

- Identify the Tasks that Kill for each line of business.

- Discuss how these risks can be eliminated or reduced with those involved in performing the task.
- Communicate the action needed to everyone involved.
- Take the necessary action(s) to eliminate and/or reduce the risks.
- Document and retain this information to use this again.

CRH TASKS THAT KILL BY LINE OF BUSINESS

Aggregates	Ready Mix Concrete	Hot Mix Asphalt	Construction	Shop & Equipment
Rigging and Lifting	Hopper Work	Maintenance & LOTO	Interstate Work	Work Away from Shop
Working at Heights	Chipping the Drum	Electrical & Arc Flash	Night Work	Suspended Loads
Clearing Chutes & Bins	Backing Trucks	AC Exposure	Flagging	Working on Hydraulics
Blasting	VPS Planning	Elevated Work	Cell Phone Use	Working at Heights

Risk Assessment Compliance Review
Documented Risk Assessment Policy in place and accessible to all employees.
Risk Assessment Process addresses non-routine and high hazard tasks.
Evidence that the Risk Assessment Program is being followed.
Specific Risk Assessment Process for off-site delivery (if applicable).
Weekly toolbox talks / safety topics discussed and a copy of this documentation kept at your site/local office.
Site safety briefings conducted and documented with contractors when they arrive at facility.
Temporary personnel training is provided commensurate with the risks and this training is documented.
The Company have a process in place to evaluate "Tasks that Kill".
Diesel fuel or gasoline IS NOT allowed to be used for any cleaning purposes at any time.
The Safety Data Sheet for CRH AMAT manufactured products accompanies each load.
Tanks are properly labeled.
Fire extinguishers are inspected regularly with a current annual inspection.
First aid kits stocked with current products.

Equipment Safety

- Each location must have site transport rules in place, that at a minimum, address: D
  - Vehicle-pedestrian segregation
  - Edge protection for slope/benches
  - Driver training rules and assessment
  - Vehicle rules for speed limit and visual/audible waning systems
- All drivers must be trained and regularly assessed, this includes completing daily pre-trip inspections for Company vehicles used on and off-site
- A mobile electronic device usage policy must be in place P D
- All loads must be secured and within weight limits
- Seat belts must be worn by all drivers on-site and off-site

A majority of our business depends on the safe operation of vehicles and equipment, especially construction. With this area having one of the highest fatality occurrences, we need to make sure that we are well prepared for the hazards and risks associated with our use of the equipment.

WHAT IS EQUIPMENT SAFETY?

Mobile Plant Safety refers to Equipment Safety and related procedures & policies. All locations and jobsites must have documented site transport rules in place which address at a minimum: Vehicle-Pedestrian segregation, edge protection for slopes/benches (berms/barricades), driver training rules, and vehicle rules. Our ITCPs that we discussed in Risk Assessment are a tool we use to address these rules.

EQUIPMENT BLIND SPOTS

Large equipment and trucks have several visual blind spots to the operator. This is especially true in backing scenarios, but in reality there is a halo around all equipment where it is difficult to see. You need to be aware of the blind spots and observe the following.

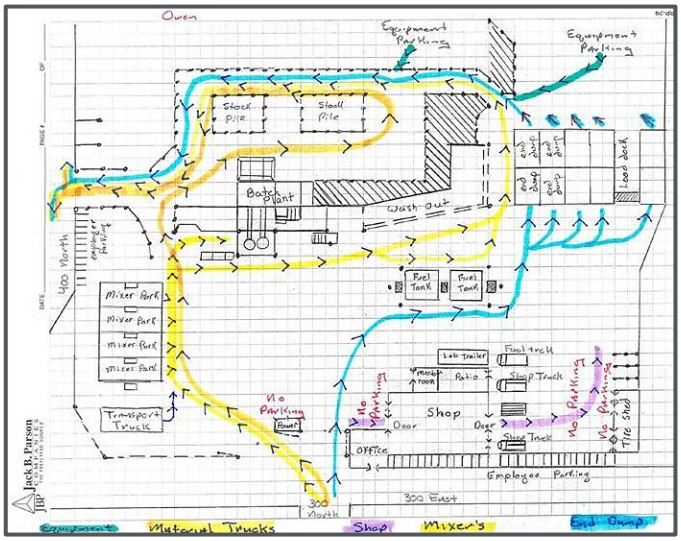
- Identify places on the ground where an equipment operator cannot see ground personnel for each piece of equipment.
- Avoid blind spots whenever possible.
- Never abruptly enter a blind spot. Always make the equipment operator or truck driver aware you are entering their blind spot with eye contact and verbal communication when possible.
- Be aware that poor lighting can increase blind spots.
- Equipment or truck grouping create new blind spots.
- Always be alert and aware around equipment and trucks and never assume the driver/operator sees you.

VEHICLE-PEDESTRIAN SEGREGATION

The goal of Vehicle-Pedestrian Segregation (VPS) is to keep the pedestrian traffic and vehicle traffic as separate as possible. It should remove confusion and create needed communication.

The plan should include all of the following: Rules of the Job Site regarding visitors, customers, & employees.





REVISED: FEB2023

HIGH VISIBILITY APPAREL POLICY

As a Texas Region employee it is important to understand the role that High Visibility PPE plays in keeping us all safe from traffic on our jobsites.

The following are minimum requirements that apply where employees work outside of an office environment. Each site may choose to go above and beyond these minimum requirements based on site specific procedures and/or hazards.

ANSI CLASS 3 GARMENTS

All Texas Region personnel exposed to vehicle or equipment traffic on construction sites, plants or other facilities are required to wear an ANSI approved Class 3 vest, t-shirt, or jacket.

USE AND CARE OF HIGH-VISIBILITY GARMENTS

- The vest, t-shirt, or jacket should be the outermost garment at all times.
- All hi-vis apparel should be worn correctly and properly fastened.
- Employees will be responsible for the upkeep of their garments. In the event that your garment(s) become damaged or their effectiveness is impaired, let your supervisor know.
- The Company will furnish ANSI approved Class 3 vests to all employees exposed to vehicle or equipment traffic.

NIGHTTIME ROAD WORK

- All employees will wear an ANSI approved Class 3 vest, t-shirt, or jacket, AND Class E pants or Class E gaiters.

FLAGGING OPERATIONS

- All employees conducting flagging operations during the day must wear an ANSI approved Class 3 vest
- Employees conducting night shift flagging operations must wear an ANSI approved Class 3 vest, AND Class E pants or gaiters









DEFENSIVE DRIVING

A key component of Equipment Safety is having a program for driver training. All Texas Region employees who operate Company vehicles must successfully complete defensive driver training. Once an employee receives their initial training, they will be required each year to have a refresher class. Additional details explaining the Texas Region Fleet Safety Program can be found on page 11 of this handbook.

PRE-SHIFT EQUIPMENT INSPECTION REPORT

In order to maintain equipment in a safe operating condition, it is important that thorough pre-operational inspections are completed. If safety defects are identified during the inspection the defects should be documented on the inspection form and reported to the equipment department. Equipment that is found to have defects that affect the safe operation of the machine should be removed from service until the defect can be repaired.

HYDROGEN SULFIDE (H2S) SAFETY FOR HMA OPERATIONS

Certain Asphalt Cement (AC) products can release Hydrogen Sulfide (H2S) gas in amounts that may be higher than other AC liquids. In some cases, the amount of H2S released can exceed the OSHA ceiling level (20 ppm) or maximum peak exposure limit (50 ppm) in a worker's breathing zone when they are opening AC tank lids for the purpose of taking manual tank measurements (i.e. sticking the tank) or for other reasons.

Guidance and Control Strategies for H2S

1. Minimize or eliminate the manual measurement of AC tanks whenever possible or opening tank lids for any reason. Mechanical AC gauges often stick in the thick liquid creating the need for manual measurements in order to determine liquid levels. Radar gauges have also been unreliable. As a result, TEXAS REGION companies should consider using pressure gauges in place of mechanical and radar gauges.

Pressure gauges measure the head pressure of the liquid in the tank and can be added to most AC tanks. These gauges appear to be more reliable than mechanical and radar gauges.

2. General Dilution Ventilation is very effective at dissipating H2S and directing all vapors/fumes away from the worker. The use of an outdoor industrial fan affixed near the lid and blowing near perpendicular across the surface away from the worker is an effective means to dissipate and reduce H2S in the worker's breathing zone.

3. A wind sock or flag should be available in close proximity to the tank or containment area so workers are aware of wind direction and can work in concert with a fan, as necessary, to steer vapors/fumes away from the worker.

4. A Hydrogen Sulfide (H2S) meter should be worn by all workers while taking AC liquid measurements. As an alternative, a confined space meter with H2S capability can be used. Ensure the device is properly functioning and calibrated per the manufacturer's instructions. Device should preferably be worn near the worker's breathing zone (1 to 2 foot radius around the nose and mouth) but at a minimum it should be at the beltline or higher.

5. If AC tank lids must be opened, use a 3 foot crowbar or similar to maximize the distance from the opening lid to your breathing zone as the lid is opened.

6. When initially opening the lid, first crack it an inch or two with the crowbar and step back for a minute. This allows head space vapors including H2S to dissipate. Assess your personal alarm to ensure no H2S levels above 10 ppm are present. If H2S is below 10 ppm, proceed to fully open the lid.

7. If the presence of H2S is detected at or above 10 ppm, immediately move away from the lid and stop the operation. Evacuate the area and notify management for directions on how to proceed.

8. Any alarm event at or above 10 ppm should be used as an early warning of potentially hazardous concentrations of H2S and should be reported to the facility manager/supervisor and investigated by area management and the local Safety Professional.

9. Only trained and knowledgeable workers in the risks of H2S exposure and all applicable control measures are allowed to access the tops of AC tanks and perform lid opening procedures.

Safety Best Practices / Guidelines for Vehicle/Pedestrian Segregation

Repositioning/Backing equipment on job sites (Paving, Milling, etc.)

General safety guidelines when repositioning for next pull:

1. Avoid backing up equipment and vehicles whenever possible.
   - In the pre-project planning stage, evaluate and develop a work plan that minimizes/eliminates resetting equipment and trucks.
   - Work to schedule repositioning/resetting activities at the beginning or end of shifts when trucks are not on the site.
   - "Racetrack" projects whenever possible in order to eliminate the need the reposition/reset.
   - When repositioning is required, direct the trucks from the job site in a forward direction then circle the trucks to re-enter the job site where the paver, milling machine, or materials transfer device has been repositioned. Field supervisors should evaluate job site conditions and use this method if it will reduce overall risk to the project.
2. A risk assessment shall be conducted prior to any movement of equipment, vehicles or personnel. Some of the important points of discussion are listed below.
   - This risk assessment shall include all personnel involved with the repositioning process (Company personnel, subcontractor employee, third-party hired haulers, DOT personnel, and third-party employees such as engineers, quality control technicians, etc.).
   - The personnel shall discuss the means by which pedestrian and vehicle segregation will be accomplished at the job site.
   - No personnel shall be allowed in the travel way of the equipment or vehicles.
   - Take precautions to eliminate any personnel traveling by foot to the reset position. Personnel should be safely transported to the reset position. Any ground personnel on foot (spotting for the machine when repositioning) shall be required to remain to the immediate side of the reversing machine (paver, shuttle buggy, milling machine, material transfer device, etc., not a reversing truck), in clear view of the equipment operator, and out of the travel way of any vehicle and equipment traffic.
   - No work is permitted in the travel way of vehicles or equipment during the repositioning process (quality control work, installation of temporary striping, measurements, inspections, etc.).
   - The personnel shall discuss traffic control and make any necessary adjustments to the traffic control set up during the risk assessment. All personnel should be advised of the points of access and egress of the delineated work zone. If possible, the personnel should discuss the number and time of all anticipated repositioning activities.
3. All personnel, equipment, and vehicles in the work zone area must be accounted for before any equipment or vehicles begin the repositioning process. Headsets are not to be used during this activity.
4. Once the repositioning process is ready to begin, no equipment or vehicle shall be moved until directed by a designated person. When permitted, the sounding of an air horn should be utilized by the designated person to inform others on the job site that the repositioning process is about to begin. Once the equipment or vehicle operator has been directed to reposition, the vehicle horn should be sounded twice along with the usage of the appropriate hand signals.

5. All personnel on job site must be clearly visible to others.
   - The required high visibility clothing and other PPE must be utilized at all times.
   - Additional measures shall be taken to achieve proper visibility at night (Class III clothing, lights attached to hard hats, reflective ankle and wrist bands, reflective tape on hard hats, etc.).
   - Adequate lighting of the work zone, including the vehicle travel way, shall be provided for night work.
6. All equipment and vehicles shall be equipped with properly working backup alarms, reversing lights, and horns. The use of backup cameras, echo location sensing devises, etc. should be used as available. For night work, additional devices such as rotating beacons, flashers, light bars, reflective conspicuity tape, etc. should be used on the job site. An escort vehicle equipped with lights should accompany any equipment that is not equipped with lights to the reset position.
7. **If any person is observed in the travel way of any equipment or vehicle, the person making that observation must immediately take action to stop the operation. If a vehicle or equipment operator observes someone in his/her travel way, he/she must immediately stop his/her equipment or vehicle. The supervisor must be informed of this violation as soon as possible.**
8. Once the repositioning process (including any staging of trucks) is complete, the designated Backer/Spotter will be responsible for directing the trucks into position to unload or load for the repositioned machine (paver, milling machine, material transfer device, etc.).
9. This policy shall be frequently communicated and reinforced by CRH Americas Materials personnel with all persons associated with the project. (CRH Americas Materials personnel, subcontractor employees, third-party hired haulers, DOT personnel, and third-party employees such as engineers, quality control technicians, etc.).
10. Violation of these applicable guidelines will result in disciplinary action which may include termination.

Best Practices for Backers/Spotters

We will have a spotter available for any operation involving a truck that is required to back up to a paver, material transfer device, milling/grinding machine, or any area where there are ground personnel and/or hazards inherent to the backing and unloading/loading process.

Each crew will be equipped with a spotter's kit containing:

- Green batons or gloves
- Coned flashlight w/ holster
- Hand signal cards (available for rental trucks with inexperienced drivers)

The person spotting the truck will identify him/herself to the driver upon arrival to the jobsite. As a spotter, ensure you have a complete understanding of the potential hazards on the jobsite.

When there are unusual, complicated or high-risk circumstances involved, review these with the driver before attempting to complete the backing and unloading/loading process.

Confirm with the driver he/she has knowledge of our standard hand signals you will be using. Ensure you have eye contact with the driver while spotting for them.

Be sure to maintain a safe distance between the truck and yourself at all times. Maintain focus on the backing and unloading/loading process while acting as a spotter.

If, at any time a pedestrian enters the path of the backing truck, immediately stop the truck until they are clear of potential harm. Advise the foreman of this situation as soon as possible.

If at any time you divert your attention to anything other than spotting, stop the driver, then restart when you are able to resume spotting.

Be conservative; understand there may be differences in equipment and personnel.

You have a responsibility to ensure all trucks on our jobsites and properties have working backup alarms, if they don't notify your supervisor and ask them not to return until they are functioning properly.

When using hand signals, realize the need for the driver to frequently check other areas surrounding his/her truck for safety. That is, they may not see your hand signals if they are looking out another mirror or towards the side of the truck while backing. Signals need to be slow and decisive.

If at any time you feel the driver is not paying proper attention to you, stop and speak with the driver, then resume after a clear understanding of your requirements as a spotter have been communicated.

During night deliveries use a spotter's flashlight for signals.

Whenever you, as a driver, are required to back up to a paver, material transfer device, milling/grinding machine, or where backing is required around personnel or other potential hazards, a spotter will be available

to assist you.

The spotter will identify him/herself to you upon arrival. He/she may be equipped with a green baton during daytime hours and will be equipped with a flashlight at night.

Knowledge of standard hand signals is expected before backing commences.

Functioning back up alarms is required on all trucks.

Ensure you have eye contact with the spotter before proceeding with backing.

Avoid distractions while being backed and or spotted.

Communicate any abnormalities in equipment that may hinder safe and efficient backing and unloading/loading of material on jobsite/properties.

If you lose sight of your spotter at any time, stop until you regain sight and eye contact with him/her. When instructed to stop, do not proceed until signaled to proceed.

If, at any time, a pedestrian enters your work zone while backing, stop until they are clear of potential harm.

During night work, the spotter will have a spotter's flashlight to signal with.

Ensure mirrors are adjusted, tightened, and clean before delivery. Utilize mirror check station, if available.

If there are circumstances inhibiting you from backing safely, stop and communicate those concerns with your spotter.

If multiple people attempt to back or spot you with conflicting signals, stop and clarify who your designated spotter is.

NOTE:

These are minimum standards. You may add any action that will improve the safety of the backing and unloading/loading process.

Equipment Safety - Ten Foot Rule

Operators shall use extreme caution at all times to remain aware of the presence of any personnel on foot in the area of their equipment, and to operate the equipment so as not to pose a hazard to those employees. When operating equipment such as backhoes, loaders, motor graders, milling machines, compactors, or similar equipment, the operator should take an additional precaution upon approaching an employee within 10 feet who is engaged in work directly or not directly involved with the work that operator is performing. The operator must engage the horn or otherwise attract the attention of the employee to gain eye contact before s/he proceeds any closer to the employee. If eye contact is not gained, the operator should cease travel until s/he has made contact.

Tire Policy

900 Ashwood Parkway
Suite 700
Atlanta, GA 30338

To: AMAT Division Presidents

CC: Randy Lake, John Parson, John Keating, Charlie Brown, Lee Cole, Chris Willis.

Re: CRH Americas Materials Tire Policy

Date: November 28, 2012 *NPC revision March 9, 2017*

As part of our continued drive for improved Safety and Performance the Equipment / Shop National Performance Committee has, with the assistance of our vendor partners and industry experts, developed the following tire management policy. The goal is to ensure that certain key components of a tire management program are currently in place. This policy will enhance the safety of our vehicles as well as improve the overall performance of our fleet. Additional appendices that support the policy will be posted on *Interchange* under the Tire Policy section on the Equipment Services home page. If you have any questions in regard to this policy, please contact your equipment manager or National Performance Committee representative.

1. **Inspections**

a) All tires in operation must be inspected on a regularly scheduled basis with the time period between inspections specified by tire product category as follows:

Light Vehicles – PMA service requirement. Tire inspection performed as part of Preventative Maintenance, basic service interval.

On-Road (Class 5-8 Trucks) – Quarterly minimum with monthly recommended

OTR (Off-Road Equipment) – Quarterly minimum with monthly recommended

Plant – Inspections required prior to asset relocation /

- *Wheeled stacker conveyors to be inspected monthly*
- *If a wheeled conveyor or wheeled plant is moved on a public road it immediately becomes classified as an on-road DOT vehicle and must comply will all aspects of the CRH AMAT Tire Policy*

Tire Inflation - Monthly

Inventory – All tires in inventory are subject to quarterly inspection.

b) Tire inspections will record, by unique identifier or by asset number and tire position, each of the following:

Tread Depth

Any tire found to be within 10% of the pull point, per OEM guidelines, will be taken out of service. The tire may be inspected by your third-party vendor for retread consideration.

Age at the time of inspection

Any tire that is more than ten years old must be removed from service.

Inflation pressure

Any tire that is found to be 20% or more underinflated will be considered "flat" and must be removed and inspected by your third-party vendor.

- If pressure is within acceptable range and, after making visual inspection to insure no deficiencies are detected, CRH Company employee with proper tools and training can adjust air to desired pressure.
    - See section 2 & 3 of this document for inflation and training details.
- The underinflated tire will be pulled and inspected at the earliest opportunity

Any tire found to be greater than 10 psi over the recommended (cold) inflation pressure is considered to be "over inflated" and must be adjusted by vendor or Company personal with proper tools and training.

- See section 2 & 3 of this document for inflation and training details

General visual condition of the tread, both inner and outer sidewalls with notation of any defects such as; Cuts, Bruises, Cracks, Bulges, Penetrations or Rim Damage. If such deficiencies exist, have the tire inspected by your 3rd party tire vendor.

2. Inflation

a) Visual Inspection is not an acceptable method of measuring proper inflation
b) All locations will install and maintain a Master Air Pressure Gauge that complies with established industry standards for each tire product classification. Master Air Pressure Gauge will serve as calibration tool for all tire gauges currently in operation.
c) Air pressures should be tested before the tire has been run and before the tire has been exposed to radiant heat.
d) Upon inspection, any tire found to be 20% or greater underinflated will be considered "flat" and removed for inspection.
e) All TPMS (Tire Pressure Monitoring Systems) equipped vehicles must have the systems in good working order and warning lights reset after rotations and any warnings.

3. Training & Certification

Any employee or 3rd party vendor that breaks down a tire will have knowledge of and adhere to MSHA, OHSA and DOT requirements as well as the standards set forth by the Tire Industry Association (TIA) for all procedures relating to tire and wheel repair and maintenance. TIA 300 Level Certification is the minimum requirement for any employee or 3rd party vendor that breaks down tires within CRH Americas Materials. Mounting a fully assembled tire does not require 300 Level Certification but does require knowledge of MSHA, OHSA and DOT requirements as well as Tire Industry Association recommended procedures.

Inspection Certification Required

1. Light Vehicles – Comply with Vehicle Manufacturer requirements.
2. On-Road (Class 5-8 Trucks) – TIA 300 (CTS) Level Certification required.
3. OTR (Off-Road) – TIA *200* (ETS) Level Certification required.
4. Plant – Required certification corresponds with tire product classification.
5. Inventory – TIA 300 Level Certification.

4. Maintenance, Service & Repair

a) All inspection data, air pressure logs and documentation of disposal must be maintained throughout the commercial life of the tire and made available for audit by CRH EHS staff, Equipment Management staff and/or Regulatory agencies upon request.

b) *Two Piece Wheels* – These units are readily identified as a wheel which comes apart in the middle at the base of the wheel. These types of wheels are extremely unsafe when being serviced and have been taken out of production. Replacement parts are not available. Mounting, dismounting or inflation of any commercial tire on a two-piece wheel assembly must not be attempted. Two-piece wheels must be removed from service and scrapped as service is required. Under no condition should these wheels be allowed to return to the stream of commerce.

c) *Safety Cages* – OSHA regulation 1910.177 require the use of some form of "restraining device" such as a cage, rack, or other device that will constrain all rim wheel components during an explosive separation of a multi-piece rim wheel, or during the sudden release of the contained air of a single piece rim wheel. Safety cages are mandatory for any/all tire mounting and dismounting operations. This applies to all OHSA, MSHA and DOT operations.

5. Storage & Handling

a) Do not store tires in direct sunlight.
b) Avoid storing tires near a heat source or in the path of a direct flow of forced air.
c) Do not store tires near petroleum products, chemicals or near electric motors or generators which produce ozone.
d) Vertical stacking of tires will be limited to four (4) feet in height for DOT tires. Off-Road (OTR) tires, only when required, must be stacked on level solid ground.
e) Inventory tire inspections will be performed by a TIA 300 certified tire technician. Inventory tires will be inspected prior to operational installation. Inventory tires require quarterly inspections.

6. Casing Management

a) In no case will a tire be in service 10 years after the casing's date of manufacture
b) In no case will a tire be in service 7 years from date of the first retread
c) All casings are subject to a maximum of three (3) retreads.
d) Tires that are candidates for repair and or retread must be visually and tactilely inspected. Casings will be subjected to an electronic inspection to detect and locate any tire punctures. Tires will also be subjected to X-ray, ultra-sonic or Shearographic (non-destructive) inspection to confirm that the tire casing is intact and durable, and a candidate for repair and or retread.
e) Retreads may never be deployed on steer axles for DOT steering wheel controlled On-Road vehicles. This includes bridge or trailing steerable axles and trailers with steerable axles.
f) If a tire casing fails to meet any of the casing management criteria or is deemed to be unserviceable by your third-party service agent, the tire must be removed from service and disposed of in accordance with the CRH corporate responsibility guidelines.

Policy Effective Date – January 1, 2013

NPC Revision March 2017

Definitions

Light Vehicles – Any vehicle weighing from 0 to 16,000 lbs. GVW (Gross Vehicle Weight).

Class 5-8 Vehicles – Vehicles weighing from 16,001 lbs. to vehicles 33,000 lbs. and above.

OTR – Off- Road Tire, construction & quarry equipment tires are referenced by this classification.

PMA – Viewpoint nomenclature references basic vehicle service interval.

Plant – Asphalt plants, aggregate plants, including portable screening and crushing components, ready-mix plant components.

Pull Point – Tread depth measurement at which tire is considered to be "worn out."

TIA Certification

300 Level - Certified Technician Series

After one year of experience is reached, technicians can participate in a training program to prepare for the TIA Certification Exam. Taught by a TIA Certified Instructor, the 300 Level Certified Technician seminar offers hands-on training whenever necessary or applicable. In-depth materials developed by TIA, the industry and manufacturers become references following the training.

TIA Certified Technicians receive the most comprehensive safety training in the industry. Employee safety is stressed during each module, and students are given the necessary instruction to protect themselves during every step of the process. Component inspection guidelines, installation and repair procedures are thoroughly covered in the curriculum to ensure that the tire and wheel assemblies will perform properly, and safely, once the vehicle is returned to service. TIA Certified Technicians are also taught to recognize potential hazards before they result in accidents.

The ultimate goal of TIA 300 Level Programs is to ensure that tire and wheel assemblies are continuously serviced in a safe and professional manner. By providing technicians with the most comprehensive and thorough education, employers can begin to take the necessary steps to guarantee their customers' vehicles will be safe upon return to service. They also take significant steps toward limiting their own liability by creating an environment where safety and training remain the top priorities through technician recertification every two years.

200 Level - Basic Training Series

Both new hires and experienced employees require documented training. TIA's 200 Level Training and Certificate Programs provide basic safety training on every aspect of the tire and wheel assembly being serviced. The curriculum is intended to provide students with a level of instruction that enables them to achieve the minimum necessary skills. By centering on basic principles and simple step-by-step instructions, 200 Level Programs help new hires become productive shortly after completing the training.

The Training and Certificate option allows the employer to receive documentation from TIA for each student. By returning the necessary paperwork, which includes a Skills Demonstration Form signed by the supervisor, TIA will issue a Certificate of Completion to each technician that successfully completes the final test. 200 Level Programs focus on basic safety guidelines and practices that protect the employee during servicing, as well as the driver of the vehicle once the assembly is returned to service.

100 Level - Orientation Series

In those instances where only an orientation is necessary, TIA provides introductory programs for the most common types of tire and wheel service. Employees that service automotive, commercial, earthmover/ OTR, agricultural and industrial tires have access to valuable safety information related to the general servicing of the assemblies. A standard self-study video or CD-ROM accompanies a student workbook that can be used as a reference following the training.

SEAT BELT POLICY

The seat belt policy applies to employees, visitors, customers, contractors, or other persons who operate equipment or vehicles on Texas Region property, projects, or work sites.

Wearing seat belts is a mandatory requirement in the following circumstances:

- When operating Company owned, leased, or rented equipment and vehicles in which seat belts are provided
- Traveling in a vehicle on property that is owned, leased, or rented by The Company
- Performing business on behalf of The Company

All licensed over-the-road vehicles shall be equipped with seat belts that meet *Federal Motor Vehicle Safety Standards.* Approved stamps that exhibit compliance with the standard are:

- FMVSS
- FMV-209
- FMV-302

All off road vehicles or machines described in **30 CFR & 56.14130** and **56.14131**, including off-road trucks, shall be equipped with seat belts that comply with the requirements of **SAE J386**.

- Applicability of “point of attachment” tethers shall be confirmed with the equipment manufacturer and documented in each respective equipment file. If required, tethers shall be installed and maintained in accordance with standards.
- Motor Grader operators in the standing position shall wear a safety harness and line while the machine is in motion. When seated, motor grader operators shall wear seat belts that comply with requirements of **SAE J386**.

SEAT BELT MAINTENANCE

Vehicle and equipment operators are responsible for inspecting and ensuring each personal restraint system (seat belts and tethers) is maintained, easily accessible and in good working condition. All worn or damaged seat belts shall be replaced with those meeting the requirements of **SAE J386** and OEM standards. Vehicles or equipment with damaged seat belts shall be tagged and removed from service until they are replaced in accordance with Manufactures Guidelines.

SEAT BELT MONITORING AND ENFORCEMENT

Managers, superintendents, and/or supervisors will monitor and enforce this policy. Employees who refuse to adhere to the requirements of The Company Seat Belt Policy will be subject to termination.

ELECTRONIC MOBILE DEVICE AND CELL PHONE POLICY

We understand that mobile phones and certain electronic devices are important tools, but there are situations when use must be restricted to keep ourselves and those around us safe. Cell phone use or the use of any electronic device, as described herein, must not distract you from your duties while on the job. Apart from the obvious conversation, cell phone usage also includes text messaging and/or emailing. Electronic devices include, but are not limited to, laptop computers, any music players that require head phones (such as iPOD's), and any personal handheld devices such as a Blackberry, etc.

While business communications are essential to our work, there are times when we should not use the cell phone, personal handheld device, laptop computer, and/or any music playing devices as described above. These times include:

- While driving a Company vehicle at any time, or a personal vehicle used in the line of business.

  Note: Certain cell phone conversations may be allowed while driving a vehicle, if a hands-free device is utilized. If the conversation cannot be terminated in a timely manner or postponed to a time when driving is not necessary, then the driver should pull the vehicle over to a safe position and discontinue driving until the call can be terminated.

- While operating equipment.
- While engaged in safety sensitive work.
- Any time a distraction is a potential hazard.

Under the FMCSA, a rule was issued that the following guidelines for Commercial Vehicle Drivers are prohibited by law:

- Reaching for, dialing, or holding a mobile telephone while driving.
- Initiating a call on a mobile telephone while driving, unless initiation of a call can be made by voice activation without the pushing of more than one button.
- Texting, emailing, messaging, and accessing a World Wide Web page or any application on a mobile telephone while driving.
- Answering a call on any mobile telephone while driving that requires the pushing of more than one button.

Commercial Motor Vehicle Mobile Telephone Usage Policy

Purpose: This policy implements the Federal Motor Carrier Safety Administration's (FMCSA) rule restricting the use of hand-held mobile telephones by drivers of commercial motor vehicles* (CMV).

Scope: All drivers of CMVs.

Policy: All drivers of CMVs are prohibited from:

- Reaching for, dialing, or holding a mobile telephone while driving
- Initiating a call on a mobile telephone while driving, unless initiation of a call can be made by voice activation without the pushing of more than one button
- Texting, emailing, messaging, and accessing a World Wide Web page or any application on a mobile telephone while driving
- Answering a call on any mobile telephone while driving that requires the pushing of more than one button

Driving is defined as operating a CMV on a highway, including while temporarily stationary because of traffic, a traffic control device, or other momentary delays. Driving does not include operating a CMV when the driver has moved the vehicle to the side of, or off, a highway and has halted in a location where the vehicle can remain safely stationary. A mobile telephone is defined as a mobile communication device that falls under or uses any commercial mobile radio service as defined by the FCC and does not include two-way or CB radios.

The use of a hands free-device is allowed only if the hands-free headset is within reach while the driver is properly restrained by a seat belt. In addition, the push-to-talk feature is permitted to be used only if the mobile telephone is mounted in a cradle or similar device near the driver, or there is a remote push-to-talk button near the vehicle controls that allows the driver to communicate without reaching for, dialing, or holding the actual mobile telephone in his/her hands while driving.

When one of the above-referenced exceptions applies, all mobile telephone communications while driving must still be limited to business communications that are essential to the job and must be limited in duration so as to allow only for the transmission of necessary information.

Emergency exception: Using a hand-held mobile telephone is allowed when necessary to communicate with law enforcement officials or other emergency services.

Violation of this policy may result in discipline up to and including termination. Drivers may also be subject to penalties, including fines or suspensions, and/or driver disqualification assessed by law enforcement and the FMSCA.

All CMV drivers must also follow any state or local laws regarding mobile telephone usage. This policy shall take precedence over any less stringent state or local regulations.

* A CMV is defined as a vehicle used on a highway to transport passengers or property that has a gross weight rating or gross combination weight rating, or gross vehicle weight rating or gross combination weight of 4,536 kg (10,001 pounds) or more, whichever is greater; or is designed to transport more than 8 passengers, including the driver, for compensation; or is designed to transport more than 15 passengers, including the driver, not for compensation; or is transporting hazardous

REVISED: FEB2023

Equipment Safety Compliance Review Questions
Pedestrian / Vehicle Segregation measures have been implemented at this Site / Facility and it is adequately signed to provide direction regarding pedestrian walkways, traffic patterns, parking areas, prohibited conduct, etc.
Do you have the following at your facility:
a) Sign indicating where mobile phones are allowed or not allowed**.**
b) Sign prohibiting trucks from either entering or leaving the facility overloaded.
c) Sign(s) indicating vehicle travel routes, designated parking areas, pedestrian crossings, etc.
d) Sign indicating speed limit are posted near the entrance to the property.
e) If an asphalt plant, a sign is posted listing the required PPE during the loading/offloading of liquid asphalt cement.
f) If an asphalt plant, a sign is in place to warn of H2S hazards and are measures in place to protect against it.
Mobile Equipment
a) All equipment operators are adequately task trained prior to operating mobile equipment.
b) Daily or pre-use inspections are documented on all equipment and off road vehicles prior to use.
c) Powered industrial truck (lift truck / forklift / moffett) operator training is current for all qualified operators. *Trained in accordance with OSHA 1910.178 prior to operation of a forklift and at least once every 3 years.*
e) "Flexible steps" on equipment are sturdy/durable.
f) Seat belts are current.
Company Vehicles
a) All drivers are trained in Company safe driving program (i.e. Smith System) before they drive and at least annually.
b) Motor vehicle records (MVR's) are reviewed prior to a new employee driving and at least annually.
c) Do drivers have a current proof of insurance card and vehicle registration?
DOT regulated vehicles (Below are federal regulations which most states have adopted. Check to ensure that these are applicable in the State(s) of the audit.)
a) Daily or post trip inspections are documented on all DOT regulated vehicles (>10,000lbs).
b) If over 10,001, drivers have a current medical card and annual inspection.
c) If over 26,001, fire extinguisher is charged with a current annual inspection.
The CRH AMAT Tire Policy is being adhered to.
Seat belts are used by all contractors and operators, drivers and passengers of Company vehicles and equipment.
Keys are removed from all vehicles/equipment?
3-point of contact decal is in place on steps on equipment.
At MSHA regulated facilities, equipment/vehicle tires are chocked when not in use.
Ramps are of adequate height and edges are adequately protected.
CRH AMAT drivers have been trained in tie down / load securement requirements for the loads they carry, as applicable.
Employees understand and comply with mobile phone policy.
CRH AMAT drivers know where to find and/or how to determine the maximum weight of the vehicles they operate, as applicable, and maximum weights are strictly complied with.
The Plant Operator can demonstrate that trucks cannot be overloaded.
Vehicle weights are periodically checked to ensure that loads are within vehicle weight limits (CRH AMAT operated vehicles).

Isolation of Operating Machinery and Electrical Safety

Lockout/Tagout/Verify

- Each location must implement and train employees based on a Lockout/Tagout/Verify policy P D A
- Each machine component must have machine-specific written procedures for the safe Lockout/Tagout/Verify isolation of energy sources and all authorized employees must be trained D A
- All authorized employees must be observed conducting a task involving Lockout/Tagout/Verify at least annually by an authorized and designated competent employee to ensure system isolation of energy sources as per policy D
- All machine-specific procedures must be inspected for correctness to ensure equipment additions and/or changes have been reviewed and implemented at least annually D
- Written procedures should be developed for Close Proximity Maintenance (CPM) tasks which include a Job Safety Analysis (JSA) outlining the planned CPM procedures
- Sufficient numbers of locks, tags, hasps, etc. must be maintained on-site to conduct all anticipated maintenance activities A
- Electrical and machine/equipment switches cannot be locked in an “ON” position



Electrical Safety - NFPA 70E

- Arc Flash surveys must be completed by a qualified person for each facility with the corresponding electrical labels installed
- Prior to starting work, all electrical contractors must provide a letter of certification confirming that the attending electrician(s) are properly National Fire Protection Association (NFPA 70E) trained to work around the respective voltage
- All employees who troubleshoot electrical systems, perform voltage testing, operate circuit breakers with covers off or are otherwise exposed to live or potentially live circuits have must be trained in NFPA 70E
- All qualified and/or affected employees must wear appropriate arc-rated Personal Protective Equipment (PPE) during electrical tasks
- All authorized employees and contractors who work on electrical equipment must perform Lockout/Tagout/Verify on the energy source and verify disconnection through use of a voltage tester

The following information is provided to clarify the expectations of Texas Region employees working on or around our equipment. Using the Lock Out/Tag Out process will eliminate the employee’s exposure to hazardous energy sources. By isolating equipment or materials from energy source(s) and rendering the equipment inoperative prior to servicing and/or maintenance, the employee will be protected from the unexpected start up or release of stored energy that could cause injury.

EXAMPLES OF STORED ENERGY:



Electrical

Pneumatic

Hydraulic Pump

Hydraulic Line

Water

Gas

Chemical or Coolant

Steam

When it comes to Lock Out/Tag Out, there are two designations for employees: Authorized and Affected.

Affected Employee

During the lockout of a piece of equipment, all employees are considered Affected that work **near** that equipment, except for those who are actually locking out the equipment and those in the locked out area. An affected employee does not perform servicing and/or maintenance on equipment and the affected employee is not responsible for implementing the energy control procedure.

Affected employees are prohibited from entering lockout areas. (Lockout areas are those areas that would require energy isolation prior to entry due to lack of protection from energized equipment.)

Authorized Employee

An employee who performs servicing and/or maintenance on equipment. The Lock Out/Tag Out program is to be used by this employee for his/her own protection.

Authorized employees are individuals that have been trained, met the requirements and been granted permission to lock out a piece of equipment. **Only Authorized employees may Lock Out**. Those in the act of Lock Out/Tag Out are considered Authorized, while everyone else around the equipment are considered Affected.

To be authorized to perform Lock Out/Tag Out, the employee must be able to understand the purpose of the program, have the ability to successfully perform Lock Out/Tag Out consistently, complete the pre-authorization training, pass the written exam with a score of 100% (can be verbally administered), demonstrate hands-on proficiency exercise, and complete the authorized training outlined below. All Authorized employees shall be trained in all applications relevant to their work area(s).

Capable of Being Locked Out

An energy-isolating device is considered capable of being locked out if it meets one of the following requirements: (1) designed with a hasp to which a lock can be attached, (2) designed with an integral part to which a lock can be affixed, (3) designed with a built-in locking mechanism, or (4) it can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capacity.

Energized

Equipment is energized when (1) it is connected to an energy source or (2) it contains residual or stored energy.

Energy-Isolating Device

Any mechanical device that physically prevents the release or transmission of energy. These include, but are not limited to: manually-operated circuit breakers, disconnect switches, line valves, and blocks.

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, gravity, thermal, or other energy.

Energy Control Procedure

A written document that contains the information an Authorized employee needs to know to safely control hazardous energy sources during servicing and/or maintenance of equipment.

Energy Control Program

A program intended to prevent the unexpected energizing or release of stored energy in equipment through the use of energy control procedure(s), employee training programs, and periodic inspections.

Lockout

The placement of a lockout device on an energy-isolating device, in accordance with an established energy control procedure, ensuring that the energy-isolating device and the equipment cannot be operated until the lockout device is removed.

Lockout Device

Any device, such as a lock, that uses positive means to hold an energy-isolating device in a safe position, preventing the energizing of equipment.

Qualified Electrical Person

One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk. Specifically, the Qualified Electrical Person shall be trained in the processes, procedures and safety-related work practices contained in NFPA 70E.

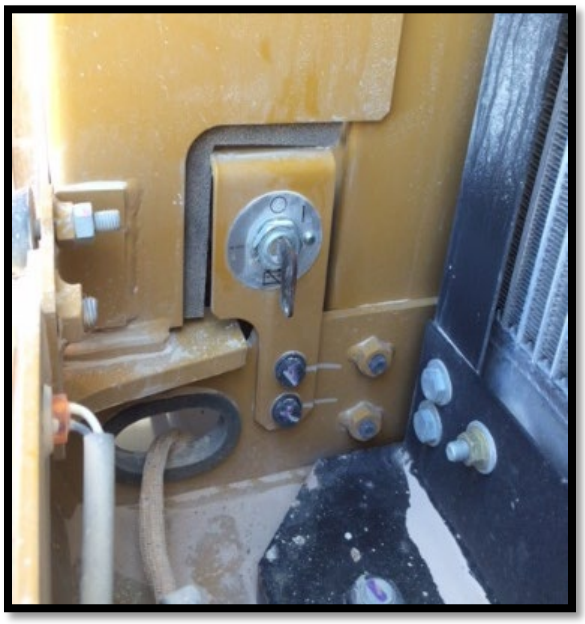
Training

CRH does not recognize lockout authorization training that was received prior to employment at CRH.

Lock Out/Tag Out training will be provided to all Affected and Authorized employees (including temporary workers) before they begin work. The training will explain the purpose of lockout, what lockout locks look like, the limitations of tags, the prohibition of performing lockout without authorization and what would constitute a lockout situation.

Refresher training shall also be provided annually to all employees or whenever there is a significant change to the lockout program (e.g., change of lock color).

Equipment specific LOTO procedures are required for each vehicle and piece of mobile equipment at CRH locations, you will receive training on your Company's local equipment specific procedures.



Master Switch



Key Removed from Equipment



Breaker Tag



Steering Wheel Cover

LOCK OUT / TAG OUT POLICY

Purpose:

At CRH we value employees as our most valuable resource. Energized equipment (for purposes of this manual, "equipment" will refer to equipment, machinery and mobile equipment) is one of the greatest hazards they face on a daily basis. To assure that we protect our employees, it is necessary to de-energize the equipment that employees work on or around. This is commonly known as locking out and is required for any servicing and most maintenance activities.

The objective of the Lock Out/Tag Out Policy & Procedures Manual is to clarify the expectations of CRH in order to assure protection of our employees around our equipment.

The Lock Out/Tag Out Program will eliminate the employee's exposure to hazardous energy sources (electrical, mechanical, hydraulic, pneumatic, gravity, or thermal). By isolating equipment or materials from energy source(s) and rendering the equipment inoperative prior to servicing and/or maintenance, the employee will be protected from the unexpected start up or release of stored energy that could cause injury.

Definitions

When it comes to Lock Out/Tag Out, there are two designations for employees: Authorized and Affected.

Affected Employee

During the lockout of a piece of equipment, all employees are considered Affected that work **near** that equipment, except for those who are actually locking out the equipment and those in the locked out area. An affected employee does not perform servicing and/or maintenance on equipment and the affected employee is not responsible for implementing the energy control procedure.

Affected employees are prohibited from entering lockout areas. (Lockout areas are those areas that would require energy isolation prior to entry due to lack of protection from energized equipment.)

Authorized Employee

An employee who performs servicing and/or maintenance on equipment. The Lock Out/Tag Out program is to be used by this employee for his/her own protection.

Authorized employees are individuals that have been trained, met the requirements and been granted permission to lock out a piece of equipment. **Only Authorized employees may Lock Out**. Those in the act of Lock Out/Tag Out are considered Authorized, while everyone else around the equipment are considered Affected.

To be authorized to perform Lock Out/Tag Out, the employee must be able to understand the purpose of the program, have the ability to successfully perform Lock Out/Tag Out consistently, complete the pre-authorization training, pass the written exam with a score of 100% (can be verbally administered), demonstrate hands-on proficiency exercise, and complete the authorized training outlined below. All Authorized employees shall be trained in all applications relevant to their work area(s).

Authorized List

A plant is required to have a list of employees and the equipment they are trained and authorized on. Where the plant authorizes employees by department or entire plant (all components), this should be explicitly stated on the authorization list. This list will be maintained by the plant management.

Capable of Being Locked Out

An energy-isolating device is considered capable of being locked out if it meets one of the following requirements: (1) designed with a hasp to which a lock can be attached, (2) designed with an integral part to which a lock can be affixed, (3) designed with a built-in locking mechanism, or (4) it can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capacity.

Energized

Equipment is energized when (1) it is connected to an energy source or (2) it contains residual or stored energy.

Energy-Isolating Device

Any mechanical device that physically prevents the release or transmission of energy. These include, but are not limited to: manually-operated circuit breakers, disconnect switches, line valves, and block

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, gravity, thermal, or other energy.

Energy Control Procedure

A written document that contains the information an Authorized employee needs to know to safely control hazardous energy sources during servicing and/or maintenance of equipment.

Energy Control Program

A program intended to prevent the unexpected energizing or release of stored energy in equipment through the use of energy control procedure(s), employee training programs, and periodic inspections.

Lockout

The placement of a lockout device on an energy-isolating device, in accordance with an established energy control procedure, ensuring that the energy-isolating device and the equipment cannot be operated until the lockout device is removed.

Lockout Device

Any device, such as a lock, that uses positive means to hold an energy-isolating device in a safe position, preventing the energizing of equipment.

Qualified Electrical Person

One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk. Such persons shall also be trained in the specific electrical tasks they are asked to perform. Each task shall be recorded on his/her training record as proof of proper training. For further training requirements, see NFPA 70E 110.2.

Responsibilities

The Facility Manager or Safety Professional is responsible for:

1. To ensure the implementation of the Lock Out/Tag Out program at each facility;
2. Assisting supervisors and foremen with the development of equipment Lock Out/Tag Out energy control procedures;
3. Providing lockout devices for employees to effect a lockout;
4. Providing and/or assisting with annual training for authorized and affected employees;
5. Ensuring the proper maintenance of accurate records for proper administration of the Lock Out/Tag Out program; and
6. Assisting supervisors and foremen with periodic inspections, at least annually, to ensure the effectiveness of the Lock Out/Tag Out program.

Supervisors and Foremen are responsible for:

1. Developing energy/component-specific control procedures;
2. Ensuring that employees effect a lockout during servicing and/or maintenance activities;
3. Counseling employees on the Lock Out/Tag Out program requirements during servicing and/or maintenance activities;
4. Maintaining an inventory of lockout devices for use in the Lock Out/Tag Out program;
5. Conducting periodic inspections, at least annually, to ensure the effectiveness of the Lock Out/Tag Out program;
6. Providing and/or assisting with Lock Out/Tag Out training; and
7. Identifying energy sources that need to be relocated.

Employees are responsible for:

1. Only Authorized employees shall implement energy control procedures during servicing and/or maintenance activities;
2. Authorized employees shall inform Affected employees of the lockout during servicing and/or maintenance activities;
3. Authorized and affected employees shall recognize the lockout and not make any attempts to defeat the lockout;
4. Safeguarding the key to their lockout device;
5. Notifying supervisors or foremen of the need to repair or replace energy- isolating devices; and
6. Notifying supervisors of any unsafe act in relation to the Lock Out/Tag Out procedures

Training

CRH does not recognize lockout authorization training that was received prior to employment at CRH.

Applicable Lock Out/Tag Out training shall be provided to all Affected and Authorized employees (including temporary workers) before they begin work. Refresher training shall also be provided annually to all employees or whenever there is a significant change to the lockout program (e.g., change of lock color). The training shall explain the purpose of lockout, what lockout locks look like, the limitations of tags, the prohibition of performing lockout without authorization and what would constitute a lockout situation (e.g., bypassing a guard, point of operation, danger zone).

1. Employers must provide initial training and retraining as necessary and must certify that such training has been given to all employees covered by the Lock Out/Tag Out program.
2. The training certification must include the employee's name and dates of training.
3. Affected employee training must include the following information:
    a. Recognize when the energy control procedure is being implemented
    b. Understand the purpose of the energy control procedure
    c. Must not attempt to start-up or use the equipment that has been locked out
4. Authorized training is in-depth training that includes all aspects of the affected employee training, as well as the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the method and means necessary for energy isolation and control (included in pre-authorization training). It shall also include hands-on training on the proper steps to lockout equipment following the equipment-specific procedures. This training shall be performed prior to the first time an employee ever locks out a piece of equipment and annually to all authorized employees.
5. The hands-on training shall include a demonstration of how Lock Out/Tag Out is to be performed and the trainee satisfactorily demonstrating the lockout procedure for a supervisor. It is recommended that employees review the Lock Out/Tag Out program with the supervisor within a week of authorization to assure full understanding of Lock Out/Tag Out. If employees have questions about what to do, they should ask their supervisor or reference the equipment-specific procedures.

    After completing the pre-authorization training and being authorized to lockout certain pieces of equipment, the applications that employees are responsible for locking out may be expanded. Before adding additional lockout-specific responsibilities, the employee is required to receive a review of how the task is completed. They must then satisfactorily demonstrate their proficiency in performing the Lock Out/Tag Out procedure to a competent person before being authorized on that application.

(For the purposes of this document, the term “application” includes a group of common equipment such as conveyors, motors, silos, feeders, etc.)

Authorized employee training must include the following information:

1. Details about the type and magnitude of hazardous energy sources present in the workplace.
2. The energy control procedures needed to isolate and control those hazardous energy sources.

NOTE: If authorized employees are to use voltage testing equipment to troubleshoot and/or verify zero energy, then proper training and qualification on the use and hazards of that equipment (i.e.: volt meter) shall be included in this training. The authorized employee must also have received specific task training to qualify them on the voltage level involved in the test (i.e. 480V, 600V, 4160V).

6. Retraining will be provided for all authorized and affected employees when there is a:

    - Change in their job assignment
    - Change in equipment or processes that present a new hazard
    - Change in the energy control procedures
    - Deviation from or inadequacies in the employee's knowledge or use of the energy control procedures
    - Annually - Annual refresher training will be provided for all Authorized and Affected employees. At a minimum, refresher training for authorized employees will require proof of proficiency for all applications (common equipment) for which the authorized employee is responsible.

7. Retraining will be provided whenever a periodic inspection identifies a deficiency or inadequacy in the Lock Out/Tag Out program.

Lockout

Lockout is the de-energizing of equipment to ensure the health and welfare of our employees. It is required when:

- A piece of equipment is repaired, serviced, lubricated, cleaned, unjammed, adjusted, or otherwise maintained.
- A guard or other safety device is removed or bypassed in order to perform work or maintenance on a machine or piece of equipment.
- An employee places any part of his or her body in contact with a point of operation where it could be caught or trapped by moving equipment parts.
- An employee places any part of his or her body into a danger zone associated with the operation of a machine or piece of equipment.

Lockout can only be performed by authorized employees. When performed, it requires verification of the energy isolation, better known as "Verification" or "Test."

Lockout Procedures

It is important to ensure the electrical control devices are located in close proximity to their respective components, thereby making Lock Out/Tag Out as convenient as possible for the authorized employees. The following are the proper steps for locking out a piece of equipment; Positioning – Adjust & Repeat Steps (if necessary):

Note: If at any time there is a change in personnel, the environment, risks or requirements of the work task (i.e. additional repair, removal/adjustment of additional equipment, broken tool/device, etc.), the work must stop and a new risk assessment shall be completed. The new risk assessment shall verify whether the current lockout and risk assessment are adequate to protect employees from the hazards involved. If not, the assessment shall be updated to reflect the additional identified risks. This process shall be completed any time an unplanned change in the work task occurs (see Addendum 1 - "LOTOTO Change Management").

1. Preparation for Shutdown - The authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the means to control the energy before they turn off the piece of equipment. If the employee has any questions, they should review the Equipment Specific Procedures.
2. Notification - Make sure affected employees are aware the equipment is going to be locked out.
3. Equipment Shutdown - The equipment shall be shut down using established procedures.
4. Equipment Isolation - All energy-isolating devices shall be physically located and operated in such a manner as to isolate the equipment from the energy source(s). These include blanks, covers, valves, etc.
5. Lock Out/Tag Out Device Application - Lock Out/Tag Out devices shall be affixed to each energy-isolating device by authorized employees in a "safe" or "off" position.
6. Securely attach properly completed tag or other identifying devices.
7. Release of Stored Energy - Following the application of the Lock Out/Tag Out device(s), all potential hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe.
8. Verification of Isolation – Also known as "Test," Authorized employee shall verify that isolation and de-energizing of the equipment have been accomplished before starting work on the equipment. C R H recommends that this verification be witnessed by another authorized employee. (See Verification section below) This shall include the locks, disconnects on panels and operator controls. Verification of isolation shall be maintained until the servicing or maintenance is completed.
9. Release from Lock Out/Tag Out - Before removal of Lock Out/Tag Out devices, the work area shall be inspected to ensure the equipment components are operationally intact. It shall also ensure that all employees have been notified and safely positioned or removed.
10. Lock Out/Tag Out Removal - Each Lock Out/Tag Out shall be removed from each energy-isolating device by the employee who applied the device. If the employee is not present at the facility, the designated supervisor may remove the Lock Out/Tag Out device after attempting to locate the lock's owner (see Lock Removal) and completing a Lock/Tag Removal Authorization Form.
11. Positioning of Equipment - This includes moving or testing the equipment to check if the work was done correctly. If the equipment requires further service under lockout, perform the adjustment and repeat the lockout steps (if necessary).

Testing/Verification

Testing the security of your Lock Out/Tag Out is imperative to assure the integrity of the de-energizing. **To emphasize the importance of this step, many companies have changed Lock Out/Tag Out to read Lock Out/Tag Out/Test or Try Out.**

After you have attached your lock/tag and /or isolating device at the designated location(s), you must attempt to energize the equipment by attempting to throw the breaker, turn the valve, press the on button, etc. This checks the integrity of the lockout that the lock cannot be bypassed and it verifies that the de-energizing has been effective.

NOTE: For electrical repair (work inside an electric motor starter, replacing breakers, connecting and disconnecting electrical equipment, etc.), verification of de-energizing must be confirmed through the use of a volt meter by an authorized employee. De-energizing must be determined at the point of the electrical source for that component. This type of verification can only be conducted by an authorized employee who has been properly trained and qualified in the use and hazards of using a volt meter at the voltage level involved in the test (i.e. 480V, 600V, 4160V).

Test instruments, related equipment and their accessories shall be properly rated for the circuits and equipment to which they will be connected and shall be designed for the environment in which they will be used.

All verification of de-energizing must be conducted by an authorized employee only. C R H recommends that all verification be witnessed by another authorized employee. Some exceptions may include electricians, mechanics or other maintenance employees working alone in the field.

Each individual Company must implement a procedure to ensure this recommendation is met.

If problems occur during the testing portion of the Lock Out/Tag Out (e.g. you can throw the switch around the lock), notify your supervisor immediately so the problem can be corrected. We shall notify all authorized and affected employees of the situation until it can be corrected. It may be necessary to post an attendant at the faulty location until it can be replaced. A controlled operator situation should be used until the problem can be fully corrected. The lockout procedure may need to be modified/updated.

Group Lockout

There will be Lock Out/Tag Out situations that will require more than one individual to complete. During group lockout operations, each authorized employee must attach a personal lockout device to the group device with the servicing and/or maintenance coordinated by the senior employee. In these situations, it is vital that everyone's safety is assured. This is only accomplished by everyone putting their lock on. **Make sure that every employee involved puts their lock(s) on every energy-isolating device during lockout situation, even if the equipment is already locked out by another individual**. There are hasps available to assure that every employee has a spot to lockout during group lockout situations. Also, employees should remove their lock when they are no longer working on the equipment.

In group lockout situations, there must be one individual who is directly responsible for the actions of the group. The lockout leader shall organize and direct the actions of the group and will help to ensure the safety of everyone involved. They shall use group lockout devices to accommodate all locks, ensure that everyone has a lock on and that each employee removes their lock when they are finished.

A lockbox can be used in this situation to accommodate all locks, with the lockout leader having his/her lock on the lockbox and the lockbox lock on the disconnect. The employees participating in the lockout during a lockbox situation shall verify that the key for the lock on the disconnect is present in the lockbox. Every authorized employee involved must still place their lock on the outside of the lockbox.

If servicing and/or maintenance will continue for extended periods or another shift, the original lockout must be removed, and the incoming shift employee must complete a lockout from the initial step to ensure continuity.

Tagout

Tags function in similar fashion to locks, and when utilized, the procedure is called tagout as opposed to lockout. Tagout is used when lockout is not possible or when it is proven that tagout provides the same protection as locking out. **Anything that can be locked out shall be locked out**. (See Close Proximity Maintenance Tasks for exception.)

Tags

Because multiple limitations exist when using tags (tagout), lockout shall be used whenever possible. Tags fail to provide the physical restraint that locks do, can be removed more easily, and to provide effective protection every employee must understand that tags are utilized as an energy device. Due to these limitations, tagout shall be limited to equipment that cannot be locked out. If tags are utilized, make sure they are substantial, attached at a conspicuous location (e.g. ignition), and contain one of the following captions;

- Do Not Start
- Do Not Open
- Do Not Close
- Do Not Energize
- Do Not Operate

See example of an appropriate tag in the Examples and Pictures Section.

All other requirements for using a tag are similar to using a lock. This includes; following the standardization, identification, de-energizing procedures, removal procedures, Zero Tolerance, etc. Standardized tags mean they should be the same in print and format.

All authorized and affected employees shall be instructed on the limitations of tags. Tags and the limitations of their use include:

- Tags do not provide a physical restraint
- Tags may not be removed without authorization and may never be bypassed, ignored or defeated
- Tags must be legible
- Tags must be durable
- Tags may evoke a false sense of security
- Tags must be securely attached to energy-isolating devices so they cannot be inadvertently detached during use

NOTE: Tags cannot be used as a replacement for locks.

Component and Energy Specific Procedures

The different components of equipment at our locations are all unique; from conveyors to dryer drums, from burners to mixers, from baghouses to augers, from hot oil systems to feeder bins, from central mix to dry batch concrete plants, from architectural products processing to glass block manufacturing equipment, from cement and lime production to clay, ceramic, precast and pipe products, and different types of mobile equipment. Therefore, we must identify the different hazards that are present with this equipment and ensure employees know how to abate these issues.

Component and energy-specific procedures are required for a systematic isolation and de-energizing for each piece of energized equipment. These procedures shall detail the specific hazards (including all energy types), the proper sequence and placement of isolation equipment for application and removal of lockout equipment and testing procedures to assure isolation of all related energy sources. (See attachment for examples)

These procedures identify the steps necessary to effectively Lock Out/Tag Out a piece of equipment, as well as indicate any special hazards that must be taken into consideration.

Contractor Lockout Safety

From time to time, it may be required to have contractors perform work at our facilities. To assure the safety of our employees, contractors are required to comply with our lockout program, as well as other safety programs.

Outside contractors and the on-site employer must inform each other of their respective energy control programs. Each employer must ensure that his/her personnel comply with the other employer's energy control program.

Locks

Every employee must be fully aware when a lockout procedure is taking place. Therefore, all locks/tags shall be singularly identified and only used for locking/tagging out. Locks shall be durable, standardized, substantial and identifiable. Durable and substantial means they are adequate to hold up in the environment they are exposed to and strong enough to not be easily removed. Standardized relates to the look and design of the locks and relate to color, shape or size. As a best practice, it is recommended that the locks are all the same size and by the same manufacturer.

The OSHA lockout regulation describes singularly identified locks. C R H has taken this to mean that no more than one name per lock is to be used. It also means that there is only one key in existence for that lock.

Identifiable refers to the ownership of the lock, and the locks should provide a clear indicator of who the lock belongs to. Tags (with name), etched locks (with name), names taped to the locks and locks with pictures (including name) are all allowable as an indicator. As a best practice, it is recommended that a system is used that identifies the employee by name and/or picture on/with the lock.

Locks can be shared by department as long as they use a proper method for identifying who is using the lock at any time (e.g., tags). Although allowable, it is recommended that the facility issue locks to individual persons instead of by department. If locks are issued to individual employees, the lock belongs to that employee only. Personal locks should never be loaned to anyone. Because it protects the lives of our employees, **employees can never give their keys to anyone who asks for them, no matter who it is.**

Examples of lockout devices are found in the Example/Picture Section of the Lock Out/Tag Out Notebook.

Removing Locks

In rare circumstances, there may be times when a piece of equipment that is locked out needs to be put back into operation. For whatever reason (employee illness, negligence, loss of key, etc.), it is necessary to remove a lock by an alternate means than using the key. **Locks may only be removed by the lock's owner or cut off by a supervisor using the lock removal procedures outlined below.**

If a lock needs to be removed, notify your supervisor of the situation and of whose lock it is. The supervisor shall make every attempt to locate the owner of the lock. If it is determined that the lock owner is no longer on the premises, and that it is impractical or impossible for them to return to remove it in person, the manager must be notified. If the manager is not present, all appropriate means must be made to contact the manager. If it is determined that the manager cannot be reached, the next in the chain of command should be contacted. This shall continue until someone in a supervisory role is reached, never to go past the shift supervisor at the location. If the person contacted to control the situation is not on site, they may authorize someone to remove the lock at their discretion. It is recommended that two people be present during lock removal as an added insurance to avoid any instance. The lock owner shall be notified of the lock removal prior to them resuming work in the facility.

The lock shall be removed using bolt cutters. No secondary key is allowed, we adhere to the "one lock, one key" system. Complete the Lock/Tag Removal Authorization document.

The lock is the only thing that stands in the way of employees and the possibility of injury. Therefore, it is essential that all employees understand they are not allowed to remove any lock but their own, except under the direction of the available ranking manager. Failure to follow these requirements will result in termination.

Keys

CRH **requires** a "one lock, one key" system. This means that there is only one key in existence for each lock issued. Locks typically come with more than one key. Each key should be matched to the lock via some indication so they can be matched easily.

This is typically done with stenciling. If keys are lost or the employee who has the key is not present when lock removal is required, locks will be cut off following proper procedures (see lock removal).

Shift Changes

Some locations often run multiple shifts or staggered schedules that results in equipment continuing to be locked out through shift changes. When this occurs, it is necessary for the shift coming on to lock out the equipment prior to the shift going off completely removing their locks. In group lockout situations, it is recommended that the lockout leader from the shift going off be the last one to remove his/her lock, and only after the oncoming lockout leader has placed their lock on the hasp.

Labeling

At a minimum, each disconnecting means for motors and appliances and each service, feeder, and branch circuit at its disconnecting means or overcurrent device shall be legibly marked to indicate its purpose, unless it is located and arranged so that the purpose is evident. Labels should also include voltage, current, wattage, or other ratings as necessary and either the available incident energy or the required level of PPE. In addition to this information, CRH requires that a "Warning" or "Danger" label also be affixed to the component/equipment/device which states the following:



Hazardous Energy Sources

There are six primary hazardous energy sources that you must be aware of prior to performing a lockout. They include:

- Electrical
- Mechanical
- Thermal
- Hydraulic
- Pneumatic
- Gravity

Electrical is probably the most prevalent hazardous energy source that employees are going to face. This includes voltages 110V, 240V, and 480V single phase, 240V & 480V three phase, and sometimes higher. To ensure employee safety when dealing with electrical energy, employees must lock the source breakers or disconnects, discharge all capacitors after locking out and use non-conductive tools.

Note: 600 volts shall be the maximum voltage that a trained Authorized employee may be exposed to. The following guidelines must be followed:

- **For Mechanical Work - Trained Authorized CRH employees may disconnect and properly lock out power containing voltages greater than 480V, ONLY through the use of switches (panel or pole) located outside an electrical enclosure (box, panel, etc.), then test the appropriate equipment (by attempting to re-energize the component) to verify that it is has been reduced to a zero state of energy. At that point, mechanical work only (NOT electrical work) may be performed on the equipment that is properly locked and tagged out.**

- **For Electrical Work - Electrical work (e.g. breaker, transformer, switch or wire repair or replacement) performed in and around voltages greater than 600V, including the disconnection, reconnection or voltage testing of any voltage circuit greater than 600V, shall only be conducted by a QUALIFIED electrical person who performs Lock Out/Tag Out on the energy source AND verifies disconnection through the use of a voltage test appropriate to the equipment voltage. Prior to performing any work, the supervisor shall require the QUALIFIED electrical person, whether third-party contractor or CRH employee, provide a valid record of training confirming that the attending electrician(s) are properly trained (NFPA70E) in the specific task AND to work around the respective voltage.**

Only after Lock Out/Tag Out and verification of the absence of voltage on circuits greater than 600V has been achieved by the use of voltage testing by the QUALIFIED electrical person shall trained Authorized CRH employees be allowed to perform either electrical or mechanical work on the de-energized circuits or equipment prior to re-connection of power by the QUALIFIED electrical person.

NOTE: Under no circumstances are CRH authorized employees that are not QUALIFIED electrical persons allowed to use "hot sticks" on an energized component. "Hot sticks" are only allowed to be used with an appropriate voltage tester by a QUALIFIED electrical person for the absence of voltage test above 600V. Any other use of hot sticks by CRH employees, whether qualified or not, is strictly prohibited.

Energized electrical work is NOT permitted unless one of the following conditions is met:

- **De-energizing the equipment introduces additional hazards or increased risk (e.g. life support systems, fire suppression, ventilation, etc.)**
- **The task is infeasible in a de-energized state (e.g. diagnostics, testing, troubleshooting, etc.)**
- **The task involves less than 50 volts**
- **Equipment is in a "Normal Operating Condition" (see NFPA 70E 130.1 (A)(4) or CSA Z462 4.3.2.2)**

Under NO circumstance is energized electrical work above 600V permitted to be performed by a CRH employee (with the exception of the absence of voltage test by a Qualified Electrical Person that has been specifically qualified at the voltage involved).

An authorized employee may activate and/or deactivate a switch located outside an electrical enclosure if he/she is equipped with the proper PPE and properly trained in Arc Flash Protection.

NOTE: Each CRH Company should have an Arc Flash Protection Program which includes the required training that complies with the current NFPA 70E standards.

Mechanical Energy comes in two types, kinetic and potential. Kinetic is the energy of something in motion. For example, a moving mixer has a lot of kinetic energy. Potential energy is stored energy that can be released. For example, a jaw crusher has its motion stopped by a rock. Once the rock is removed, the moveable plate on the jaw will continue its rotation to its resting position. This energy must be controlled by blocks, chocks, chains, or other immobilizing devices.

Thermal energy deals with transfer of energy through temperature adjustments. Both hot and cold possibilities can cause harm. Employees must allow equipment to reach a safe operating temperature before starting work, and ensure there is no chance for a quick release of compressed gases or liquids.

Hydraulic energy deals with fluids under pressure. Pressure, or lack thereof, can cause equipment to move. Release hydraulic energy slowly and block equipment if hydraulic fluid kept the equipment aloft when energized.

Pneumatic energy deals with gases under pressure. Uncontrolled release can cause injury and rapid de-pressurization could create extremely low temperatures. Properly vent all systems before starting work.

Gravity deals with stored energy that has the potential to release, such as the reversing movement of a conveyor belt or falling/sliding material.

Periodic Inspections

CRH performs periodic inspections to ensure the Lock Out/Tag Out program procedures are being followed. An inspection shall be conducted by an authorized employee (employees who utilize the energy control procedures cannot be included on the inspection team). The periodic inspection will be used to correct any deviations or deficiencies in the Lock Out/Tag Out program and ensure employees are following energy control procedures. The periodic inspection will include an interview with the employees utilizing the Lock Out/Tag Out program and energy control procedures.

The periodic inspection will be certified with the following information:

a. Date of Inspection;
b. Equipment on which the energy control procedure was being utilized;
c. Employees interviewed or included in the inspection; and
d. Name(s), Title(s), and Signature(s) of person(s) performing the inspection.

All machine-specific procedures shall be inspected *at least annually*. The inspections shall be performed by an authorized employee who typically does not lockout that piece of equipment. The auditing employee shall be of sufficient knowledge and ability to determine if the procedures provide adequate de-energizing and protection for the employee. The auditing employee also shall have the authority to ensure corrections for incorrect procedures are made. The goal is to assure that the component and energy specific procedures are correct and provide adequate protection.

Mobile Equipment

CRH requires the use of lockout if the equipment is capable of being locked out. Tagout is only allowable in circumstances where the equipment cannot be locked out. The tag shall be located at point(s) that shall prevent accidental start up (e.g., ignition point).

The policies and procedures regarding proper Lock Out/Tag Out also apply to all mobile equipment. The person/s performing the maintenance and/or troubleshooting must ensure that all mobile equipment is inoperable and safe to repair, alter, clean, inspect, and or disassemble. The diversity and complexity of such equipment make it difficult to adopt a single set of procedures. Please refer to the Component and Energy Specific Examples Section of this manual for machine-specific procedures regarding proper Lock Out/Tag Out for a variety of equipment.

Close Proximity Maintenance (Troubleshooting/Adjustments)

Lockout/Tagout (LOTO) procedures are the default procedures to be used in any maintenance situation. LOTO procedures must be followed where possible. By using proper LOTO procedures, equipment is completely de-energized, eliminating the risk of injury or death the unexpected release of stored energy would cause. OSHA recognizes the need to test or position machinery/equipment/components. In situations in which lockout or tagout devices must be temporarily removed from the energy-isolating device and the machine or equipment energized to test or position the machinery/equipment/component, the following sequence of actions shall be followed:

1. Clear the machine or equipment of tools and materials;
2. Remove employees from the machine or equipment area;
3. Remove the lockout or tagout devices;
4. Energize and proceed with testing or positioning;
5. De-energize all systems, reapply energy control measures, and verify that the component has been reduced to zero energy state prior to continuing the servicing and/or maintenance.

CRH has established **Close Proximity Maintenance ("CPM")** procedures to provide protection for employees when it is necessary for a component to be energized and personnel to be near the operating equipment to conduct the necessary troubleshooting.

This type of activity involves situations where equipment must be energized and maintenance personnel must be near the operating equipment (including by bypassing guarding or safety curtains) to conduct necessary troubleshooting or maintenance. For example:

- When tracking a conveyor belt, the belt may have to be in operation for adjustments to be made.
- If an unexplained sound is heard in a machine, the machine must be in operation in order to locate the source of the sound.
- If a machine may have an electrical short, the machine must be energized so that the location of the short can be found.

To ensure the utmost safety for employees authorized to perform CPM procedures, effective immediately, each CRH facility will adopt the following safety procedures, which will be strictly enforced:

1. All CPM tasks must be approved by the supervisor on duty and all employees must be authorized.
2. This CPM exception is limited to a **maximum** of four authorized employees (including the operator) for one CPM task at a time.
3. For a two (2) person operation to conduct a CPM task, the operator must have visual contact at all times with the authorized employee performing the CPM task. If constant visual contact cannot be achieved, Lock Out / Tag Out is required.
4. Emergency stops for designated equipment must be tested before engaging in CPM.
5. When anyone is in close proximity to energized equipment, a dedicated operator must be stationed on that equipment's control panel the entire time. Except as provided in #3 above (two- person operation in which visual contact must be achieved at all times), communication with the dedicated operator may be achieved through radio contact for a four (4) authorized employee operation only.

Individuals who violate this policy by failing to follow these procedures during CPM or by using CPM as a shortcut for LOTO, will be immediately terminated.

Any questions should be directed to the Operations Manager.

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The plant's list of CPM tasks will list all instances when CPM procedures are acceptable. All CPM tasks specific to a plant must have a complete Job Safety Analysis (JSA) outlining the planned step-by-step procedure. These JSAs must be reviewed and approved by plant/operations management and a safety representative before the task is performed. Once a procedure is approved and in place, the task can be carried out on an as-needed basis by authorized employees. This list is exclusive. If a particular task is not on the list of approved CPM procedures, LOTO is required.

Energy Control Program for Cord and Plug Connected Equipment

Electrical cords are considered energized when plugged in; therefore, the energy of this type of equipment must be isolated. OSHA considers the energy source isolated if you can maintain enough control by observing the plug. CRH recommends the best practice of using lockable isolating devices, even if the plug can be controlled. If the cord passes through a wall, under, through or around something, or a significant distance so that it is not easily identifiable, then lockout is required.

If the following conditions are met, then the Lock Out/Tag Out standard does not apply to servicing and/or maintaining cord and plug connected equipment:

1. Hazardous energy sources are controlled by unplugging the equipment from the energy source.
2. The plug must be under the exclusive control of the employee performing the servicing and/or maintenance.

Program

The Lock Out/Tag Out program must be in writing and reviewed annually.

It is recognized that power companies will often times increase the voltage over and above the standard 600 Volts to compensate for the draw down caused by industrial equipment. Although the above referenced CRH Americas Materials LOTO policy limits exposure to any electrical devices with voltage greater than 600V, an exception can be made for specific situations such as the following:

1. Plants that are located a long distance from the utility substation may be fed from power lines that have voltage compensators that regulate the voltage during loaded periods. These devices generally respond slowly, so as not to be constantly switching. The result can be when a plant load decreases the voltage, it may swell for a time until these devices regulate the voltage back down. Many times, these devices are reacting to loads that are not associated to your plant.
2. Many plants, and the power lines that feed them, have static capacitor banks that serve to increase power factor and improve energy delivery due to long distances or low power factor. Because these capacitors are on line all of the time, when the load decreases, the voltage will increase.
3. Transformer tap settings may be set to high, either by the owner or the utility, causing unusual high operating voltages. Many times, these taps are set up (higher) to compensate for low utility supply voltage or an increase in plant loads.

It is common for variation in utility voltages to be as high as +5% or more above 600V L-L.

This exception means that testing can be performed to verify a positive Lock Out/Tag Out on loads up to 600 Volts + 5% by authorized employees. However, this does not allow anyone to perform actual work on a device that operates with continuous voltage greater than 600V.

Zero Tolerance

Employee safety is so important at CRH that we would rather terminate an employee than expose them to a potentially harmful situation involving a disregard or misuse of a Lock Out/Tag Out procedure. Therefore, we have implemented a Zero Tolerance Program, which results in the termination of all Lock Out/Tag Out violators. "**IF EMPLOYEES KNOWINGLY VIOLATE A LOCK OUT / TAG OUT PROCEDURE, THEY WILL BE TERMINATED!"** Given the weight of this policy, employees should ask any questions during training or any time afterward. It is better to ask, "What should I do?" rather than, "What should I have done?"

If a possible violation of the Zero Tolerance policy is reported, the employee in question will be suspended until a full investigation can be completed and a determination is made. The supervisor may also receive disciplinary action, up to and including termination, if it is determined that they did not properly train employees, knowingly allowed, or contributed to the violation of the Lock Out / Tag Out program by an employee.

When a violation is deemed to have occurred in accordance with the Zero Tolerance policy, following a suspension and review, the employee will be terminated and will not be eligible for rehire by any CRH Company, or through an employment service or temporary labor agency, for a **minimum of one year. The rehiring of this employee after one year will be at the discretion of the Hiring Manager**.

Employees who discover violations of CRH's LOTO policy must immediately act to remove workers from the unsafe situation, then must immediately report the violation(s) through normal management levels. Management must assure all employees reporting violations do so without fear of retaliation, and must assure that all appropriate actions are taken to review the situation, re-train and/or discipline as appropriate, and provide the highest possible level of support to the LOTO program. In the event management fails to properly address the situation as reported by the employee, he/she should call CRH's Hotline (1-800-220-755) to report the violation.

Conclusion:

CRH Americas Materials values safe production. This policy is in place to help provide direction and support for 100% lock out for every activity in which it is required. The protection of human life must never be sacrificed or compromised. Since this policy may not cover every lock out tag out situation, it is the responsibility of each employee, supervisor and Company representative to understand exactly how to lock out any equipment or process they work on. It is the foreman's responsibility to ensure that lock-out points are placed at convenient locations that eliminate worker fatigue as an excuse for failure to use proper Lock Out /Tag Out procedures.

Proper use of Lock out/Tag Out is an expectation which requires the employee to be in control of safely performing their activities. If an employee is not sure how, or when, to lock out a system or equipment, they MUST NOT proceed with work and ASK for help! Lock Out/Tag Out is a zero tolerance policy. Failure to properly lock out and tag equipment will result in termination of the responsible employees.

Lock Out/Tag Out procedures are a critical part of our operations. It is the goal of the Company to ensure a safe working environment where people are not at risk for injury or death from inadvertent and unexpected energizing, start up, movement, or release of energy to equipment or machines while they are being serviced, maintained, or repaired.

ADDENDUM 1

Objectives

- There has been a number of fatal and serious accidents relating to LOTOTO in recent years.
  - A feature of some of these accidents has been a change in the nature of the originally planned task, i.e. maintenance teams started on a Task, for which they completed a risk assessment.
  - During the task unplanned issues arise such as an additional repair, a piece of machinery has to be removed unexpectedly.
  - These changes or variations introduce additional risks which were not covered in the original task risk assessment.

Items to be covered in each LOTOTO procedure / risk assessment form		
1	A statement at the beginning and end of each procedure and risk assessment form which highlights the risk of change or variation. Possible text *"Where additional tasks or work arise during the course of this procedure, which were not expected or planned for, then the work must stop and the risk assessment completed again".*	
2	If servicing and/or maintenance will continue into the following shift, then the padlock of the LOTOTO owner must be replaced by the personal padlock of the LOTOTO owner of the next shift and a handover done explaining the ongoing work and LOTOTO procedure. The incoming shift of employees and/or contractor employees involved in the work must all apply their personal padlocks.	
3	During group lockout / tagout procedures, each authorized employee must attach a personal lockout / tagout device to the group's lockout / tagout device with the servicing and /or maintenance coordinated by the senior employees of the contractor and operating Company.	
4	Issues 1, 2 and 3 must be covered in the site safety induction for contractors whose work involves LOTOTO.	
5	Safety audit templates in use within companies must now include a requirement for the safety auditor to seek evidence that the change management requirements around LOTOTO have been communicated and are understood by frontline people involved in such work.	

LOTO PROGRAM FORMS

Lockout / Tag-out Periodic Inspection

Company: _____

Location: _____

Authorized Employee:

Name (Print) _____

The equipment(s) or machine(s) utilized by LO/TO procedures:

1. _____
2. _____
3. _____
4. _____
5. _____

Any deviations or inadequacies identified:

_____
_____
_____
_____
_____
_____

Authorized employee:

Signature: _____ Date_____

I certify that this inspection/training has been conducted:

Signature: _____ Date_____

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Lock / Tag Removal Authorization Form

Facility:	
Supervisor:	
Current Date:	
Lock/Tag Removal Date:	

Absent Employee Name:

Reason lock / tag needs removal:

Employee is absent due to: (Check One)

☐Vacation / Illness

☐Quit / Resigned

☐Termination

☐Other (Please specify) _____

Attempt 1:	Contact attempted via: ☐ Phone ☐ Mail ☐ Fax	Date	Time	Contact Made	Initials
Attempt 2:	Contact attempted via: ☐ Phone ☐ Mail ☐ Fax	Date	Time	Contact Made	Initials
Attempt 3:	Contact attempted via: ☐ Phone ☐ Mail ☐ Fax	Date	Time	Contact Made	Initials

A copy of this document must be retained for one (1) year after the removal date.

I have made all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed. If the authorized employee is expected to return to work, I will ensure he/she has this knowledge before he/she resumes work at this facility.

_____ _____

Signed Date

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Certification of Hazardous Energy Control Training

Employee Name (Print)	
Job Title:	
Company:	
Location:	
Instructor Name (Print):	
Instructor Name (Signature):	
Training Date:	_____ / _____ / _____

Complete either the INITIAL or REFRESHER training sections below:

☐ INITIAL TRAINING

Required for both affected and authorized employees:

Overview of site's hazardous energy control program provided? ☐ Yes ☐ No

Required for authorized employees only:

Reviewed applicable equipment-specific lockout procedures? ☐ Yes ☐ No ☐ N/A

Completed verification of proficiency? ☐ Yes ☐ No ☐ N/A

☐ REFRESHER TRAINING

Reason for refresher training:

☐ Change in job assignments

☐ Change in the equipment-specific lockout procedures

☐ Deficiencies identified during a lockout procedure inspection

☐ Deficiencies identified during a lockout verification of proficiency

☐ Other

Content of refresher training:

Multiple Energy Source Lockout Form

I certify that the following energy sources that have been isolated, locked and verified as

being locked out on _____ _____ _____.

Date Time Signature (Authorized Employee)

_____.

Signature (Witness)

This activity has been done in preparation for performing the following maintenance or service work.

Describe:

	Name of Component	Source(s) of Energy	Energy Isolation Device(s)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10			
Comments:			

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PRODUCTION/MAINTENANCE LOCKOUT LOG

TIME INSTALLED	EQUIPMENT	LOCATION OF EQUIPMENT	ENERGY SOURCE	VOLT KV	INSTALLED BY:	Verified BY:	REASON Maintenance/Problem/Other	DAT RET

Electrical Safety Program

Purpose:

The purpose of this program is to protect human life and reduce potential occupational exposure to electricity through arc flash/blast and electric shock. This program provides guidance on work practices and methods to ensure that adequate safeguards have been established that will identify and control all hazards encountered in testing, maintenance, service and other work involving exposure to live electrical parts.

Scope:

This program applies to qualified and non-qualified employees and contractors who are exposed to electricity as part of their work with Oldcastle.

Electrical Work – General Requirements:

The most important principle of electrical safety is to assume all electric circuits are energized unless each involved worker ensures they are not. Every circuit and conductor must be tested every time work is done on them. Proper PPE must be worn until the equipment is proven to be de-energized.

Qualified employees and contractors will use lockout/tagout (LOTO) procedures on all electrical equipment while completing maintenance work. *LOTO requirements are found in CRH Lockout Tagout Program.*

Electrical work tasks such as **testing, trouble-shooting, voltage measuring, circuit breaker operation and visual and infrared inspections** are permitted on exposed energized equipment provided that personnel are appropriately qualified and wearing electrically rated PPE as required.

Electrical work tasks beyond those listed in the paragraph above, must be performed with the electrical equipment in a de-energized condition and under LOTO unless one of the following conditions apply:

a. De-energizing introduces additional or increased hazards
b. De-energizing is not possible due to equipment design or operational limitations
c. Live parts are operating at 50V or less and there is no increased exposure to electrical hazards

Under conditions “a” and “b” above, an Energized Electrical Work Permit (EEWP) must be utilized. *See Appendix A for example EEWP. Consideration should be given to hiring a qualified electrical contractor to perform work requiring an EEWP.*

Always perform a risk assessment before performing electrical work. The risk assessment should include reviewing electrical labels for information regarding the incident energy of a potential arc flash, required arc flash boundary, safety related work practices and PPE to be used for the task.

Plan your work to **minimize time** spent working on or near energized electrical circuits and to **maximize distance** from any energized parts.

Oldcastle employees should not perform work tasks on or near exposed electrical equipment with voltages greater than 480V. *See TEXAS REGION LOTO program for details*

Electrical Work – Arc Flash Risk Assessment

Each asphalt plant, quarry, concrete plant, shop or other TEXAS REGION industrial facility will conduct an arc flash risk assessment to include an electrical system analysis which determines the present degree of arc flash hazard, incident energy and provides for labeling equipment accordingly.

The arc flash risk assessment must be reviewed at least every 5 years or whenever a major modification occurs.

Responsibilities:

Supervisors and Managers are responsible for implementation of the Electrical Safety Program. This includes ensuring that equipment is labeled appropriately to provide warning of electrical hazards and arc flash potentials. Additionally, they must ensure that labels are updated when physical changes are made that affect arc flash potentials.

Supervisors and Managers are responsible to ensure that employees receive the necessary safety and technical training to perform their assigned duties and that only Qualified employees perform work on or near exposed energized equipment.

Supervisors and Managers are responsible for monitoring the electrical safety practices of personnel under their direction and to hold thorough task briefings prior to electrical work being performed.

Qualified persons are responsible to use their knowledge, skills and experience to perform electrical tasks in a safe manner and follow established procedures.

The Safety Manager is responsible for auditing the electrical safety program principles and training and ensuring that this program is kept up to date.

References:

OSHA 29 CFR 1910.301-399 *Electrical Standards for General Industry*

MSHA *30 CFR 56.12004, 57.12004, 75.513, 75.513-1, 77.503, and 77.503-1 Electrical Conductors*

NEC *National Electrical Code*

NFPA *70E* *Electrical Safety in the Workplace*

Oldcastle Technical Bulletin – *Arc-Flash and Shock Hazard Fundamentals* *See Appendix D*

Key Definitions:

The following terms are defined in order to allow a better understanding of this program

Qualified Person: A qualified person is one who has received training and has demonstrated skills and knowledge in the construction and operation of electric equipment and in recognizing and avoiding electrical hazards. *A person can be considered qualified in respect to certain tasks, equipment and methods and still be unqualified for others.*

Unqualified Persons: Persons who might be exposed to electrical hazards and must be trained to understand how the exposure could occur and how to avoid injury that could result from the exposure. Unless qualified, all employees are considered unqualified persons.

On or Near: In personal contact with electrical parts, including contact by tools or materials, or near enough to them to expose the employee to any hazard they present.

Electrical Contractors

Third party electrical contractors must be qualified to perform work at Oldcastle locations. This includes meeting the steps outlined in Oldcastle's contractor management process

Prior to performing any work, the contractor shall provide a letter of certification (or other appropriate documentation) confirming that the attending electrician(s) are properly trained (NFPA70E) to work around the respective voltage.

Electrical work performed in and around voltages greater than 480V, including the disconnection, reconnection or voltage testing of any voltage circuit greater than 480V, shall only be conducted by a third party certified electrical contractor who performs Lock Out / Tag Out on the energy source AND verifies disconnection through the use of a voltage test.

Whenever outside servicing personnel (i.e. contractors) are to be engaged in work on or near energized electrical conductors or circuit parts, Texas Region employees, and the outside contractor have a responsibility to inform each other of any applicable hazards or special conditions, and the precautions which must be taken. *See Appendix C Electrical Work Briefing Document for an example communication strategy*

Energized Electrical Work Permit (EEWP)

An EEWP must be utilized for electrical work tasks other than **testing, trouble-shooting, voltage measuring, circuit breaker operation and visual and infrared inspections,** where de-energizing introduces additional hazards or is not possible due to equipment design or operational limitations.

Close Proximity Maintenance (CPM) procedures may also apply to work involving an EEWP.

See CRH LOTO program for details regarding CPM and see Appendix A for example permit and instructions.

Training

Qualified Workers: At a minimum, qualified workers must be trained on the following:

- The hazards associated with electrical equipment
- Electrical safety practices and procedures
- Safe work practices that must be followed when working around or with electrical tools or equipment
- How to distinguish exposed live parts from other parts of electrical equipment
- How to properly inspect and use the appropriate PPE
- The location of the electrical breaker panels and fuse boxes

Unqualified Workers: Unqualified workers will receive general electrical safety awareness training on how to recognize, evaluate and avoid electrical hazards as well as training covering this safety program and the Texas Regions electrical safety practices.

Training Documentation: A requirement is to have a list or appropriate documentation of qualified employees and the electrical work tasks that they are trained and authorized to perform. This documentation will be maintained by the Site Supervisor. *See Appendix B for example documentation*

Training will occur before an employee begins work in areas which will expose them to electrical equipment and when an employee does not comply with safe work practices.

Retraining should occur every 3 year

Enclosures, Protection and Guarding

All electrical systems must be guarded to prevent contact with live conductors. The following requirements will be adhered to at all times:

- All electrical distribution panels, breakers, disconnects, switches and junction boxes will be completely enclosed.
- Live parts to electrical equipment operating at 50 volts or more must be guarded to prevent inadvertently touching or approach nearer than a safe distance by a person and to prevent damage.
- All electrical receptacles and cover plates will be kept intact and in good condition.
- All electrical panels should be easily accessible at all times and a minimum of three feet of clearance shall be maintained on all sides.
- Electrical rooms and closets must be closed at all times. Only competent or qualified employees are allowed into electrical rooms and closets. Nothing should be stored in rooms or closets designated for electrical equipment.
- No Oldcastle employee will open or remove covers or access panels of high voltage electrical distribution panels or transformers >480V.
- Safety signs which warn employees about any electrical hazards shall be displayed prominently on the door of the room or closet.

General Protective Equipment, Tools and Techniques

Ground Fault Circuit Interrupter (GFCI) protection will be provided and used where an employee is operating or using cord and plug connected tools related to maintenance and construction activity supplied by a premise wiring system. The GFCI can be a device installed as part of the premise wiring system or a listed portable GFCI device.

When working near exposed energized conductors or circuit parts, employees will use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts.

Protective shields, protective barriers, or insulating materials will be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.

When normally enclosed live parts are exposed for maintenance or repair, they will be guarded to protect unqualified persons from contact with their live parts.

Alerting Techniques: The following alerting techniques shall be used to warn and protect employees from hazards which could cause injury due to electric shock, burns, or failure of electric equipment parts:

- **Safety Signs and Tags:** Safety signs, safety symbols, or accident prevention tags will be used where necessary to warn employees about electrical hazards which may endanger them.
- **Barricades:** Barricades will be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts. Conductive barricades may not be used where they might cause an electrical contact hazard.
- **Attendants:** If signs and barricades do not provide sufficient warning and protection form electrical hazards, an attendant will be stationed to warn and protect employees.

Testing Equipment

Only use multimeters rated as CAT III or CAT IV, as appropriate, and ensure voltage and/or ampacity rating of meter is rated for the work being done.

Inspect test meters/devices and leads for damage before use.

Verify that test meters/devices are operating properly and that appropriate settings are used.

It is recommended that the meter/device is tested on a known voltage source before and after an absence of voltage test is performed.

Personal Protective Equipment (PPE)

All employees will be provided with, and will use, arc rated clothing/PPE prior to entering a boundary where there are energized, or potentially energized, conductors.

Arc rated clothing should be worn in accordance with the hazard ratings of the equipment being worked on. It shall be visually inspected before each use.

Avoid using apparel made of polyester, nylon, polypropylene and other synthetic fabrics when working on or near energized components. Such clothing can melt to the user in the presence of an arc fault.

Electrical PPE is not required when performing non-electrical work or when simply traveling by electrical equipment where covers/doors are securely in place. Use normal PPE for the surrounding work environment.

Once a determination has been made through testing that there is no electrical hazard present, workers may remove their electrical PPE.

Voltage Phase-Phase	Fuse/Circuit Breaker Size	Hazard/Risk Category	Flash Protection Boundary
<208 Volts	<100 amps	0	N/A
<208 Volts	≥100 amps	1	4 Feet
≥208 Volts	≥200 amps	2	4 Feet
480-600 Volts	ANY	2	10 Feet
>601 Volts	ANY	3	20 Feet

HAZARD/RISK CATEGORY	**0**	**1**	**2**	**3**
Hard Hat	X	X	X	X
Safety Glasses	X	X	X	X
Leather Gloves	X	X	X	X
Long Sleeve Shirt	X			
Long Pants	X	X		X
FR Long Sleeve Shirt		X	X	X
Voltage Rated Gloves		X	X	X
T-Shirt			X	X
FR Pants			X	X
FR Coveralls In Lieu Of FR Shirt & Pants		RATED AT 4 CAL/CM2	RATED AT 8 CAL/CM2	RATED AT 25 CAL/CM2
ARC Rated Face shield			X	X
Hearing Protection			X	X
MINIMUM ARC RATING OF PPE (cal/cm2)	**N/A**	**4**	**8**	**25**

Inspections and Maintenance of Electrical Equipment

Inspections of electrical systems must be performed by a competent person. Employees who perform maintenance on electrical equipment and installations must be qualified persons familiar with the specific maintenance procedures and tests required.

An inspection of electrical testing equipment, cords and plugs, electrical hand tools and PPE is required prior to their use. Equipment must be taken out of service until repaired if pre-use inspection identifies a safety problem with the equipment (i.e. frayed electrical cords, pulled strain reliefs, damaged plug, etc.)

Annual visual inspections of the following equipment should be conducted as follows:

Equipment	Inspection criteria
Electrical enclosures	Functioning, clear of debris, insulators in place, line side of disconnect is insulated, covers are in place, labeling is in place and is legible.
Equipment disconnects	No exposed wires, no burning evidence, no discoloration, connections are tight, clearances are met, labels on cabinets still intact, lockable disconnect is functioning and verify lockout isolation points are still accurate.
Safety Interlocks	Interlock is in place and functioning. Hinged guards or barrier guard gates firmly in place and provide effective guarding
Equipment cabinets /branch circuits/bus/step	Circuitry is identified, no openings, labels are still intact, clearances are met, cover fastened and closed per OEM specifications
Main transformers	Ensure airflow, free from debris, no vegetation, clearances are met, labels are intact

Appendix A

ENERGIZED ELECTRICAL WORK PERMIT (EEWP) PROCEDURE

For electrical work tasks other than **testing, trouble-shooting, voltage measuring, circuit breaker operation and visual and infrared inspections**, the following procedures apply to all work on, or in proximity to exposed and energized electrical conductors or circuit parts. Additional procedures may be needed for specific tasks.

1. Employees must exhaust every reasonable effort to perform work de-energized.
2. To work on energized devices as identified in this program you must be:
    - Trained on the Electrical Safety Program, and
    - A qualified person as defined in this program, or
    - A Licensed Electrician by Authority Having Jurisdiction.
3. Every electrical conductor or circuit part must be considered energized until proven otherwise.
4. The qualified person must participate in any decision to carry out work on energized electrical parts and sign permits.
5. The qualifications and the number of employees that will be involved in the work will be established and qualified persons will be selected for the work.
6. The work hazards and the extent of the risk must be thoroughly examined.
7. The EEWP will be completed, and approved. This form will be reviewed by each employee performing the work and will be maintained in the immediate work area.
8. Ensure the appropriate personal protective equipment has been obtained.
9. Manufacturer's instructions and equipment details must be consulted prior to any work being performed.
10. All available electrical plans/drawings must be consulted prior to any work being performed.
11. Appropriate barricades, signs and warning tape must be employed in order to restrict the area to unqualified personnel as well as create safe working space for qualified persons.

Energized Electrical Work Permit (EEWP)

Part 1: To be completed by requester:

1. Description of circuit/equipment, job location and nominal voltage:

_____

_____

2. Describe task(s) to be performed:

_____

_____

_____

3. Justification for why the circuit/equipment cannot be de-energized: (CHECK ALL THAT APPLY)
   - ❑ Will deactivate emergency warning devices such as caution lights or audible alarms.
   - ❑ Will deactivate electrically interlocked guards or presence sensing devices.
   - ❑ Will deactivate hazardous atmosphere ventilation or detection devices
   - ❑ Circuit is integral part of a continuous process that will deactivate other equipment
   - ❑ De-energization poses other additional or increased hazards (Briefly Explain):

_____

_____

Part 2: To be completed by Qualified Person Performing Work:

1. Safe work practices utilized to protect nearby workers and yourself:

_____

_____

_____

2. Required PPE:

_____

_____

_____

3. Means of restricting area: (Alerting Technique)
❑ Warning signs ❑ Cones & caution tape ❑ Attendant

4. Job Safety Briefing has been conducted ❑ Yes ❑ No

5. Do you agree the described work can be done safely? ❑ Yes ❑ No (If NO, explain and return to requester):

_____

_____

Electrically Qualified Person:_____ Date: _____

TEXAS REGION Authorized Supervisor / Competent Person:_____ Date: _____

Appendix B

TRAINING/RECORDKEEPING

Training Requirements:

All TEXAS REGION employees will receive training in how to recognize, prevent, and avoid hazards associated with electricity typical to their environment.

All qualified personnel at facilities will receive training in NFPA 70E Electrical Safety requirements.

Anyone who performs electrical work tasks including circuit breaker operation, electrical system testing, troubleshooting or measuring voltage or who may otherwise be exposed to live or potentially live energized electrical conductors will receive task training specific to that activity.

When to Conduct the Training:

Initial training in electrical hazard awareness should be conducted for all new hires prior to being assigned to work in any area with electrical exposures/hazards.

Qualified personnel at facilities will receive training before performing work tasks which expose them to energized conductors. Qualified personnel must also demonstrate the ability to perform the task safely.

Recommended Sessions:

Initial Training – Electrical Hazard Awareness (All)

Initial Training – NFPA 70e (Qualified Personnel)

Task Training – Specific to the task being performed (Qualified Personnel)

Learning Objectives:

- AWARENESS: Understand the hazards of electricity in the workplace. Understand the how electricity is used specifically at the plant, office or jobsite. Learn Oldcastle and OSHA requirements for safe use of electrical equipment and tools. Understand inspection requirements for electrical cords, tools, and panels and what to do if found defective or damaged. Learn what a Ground Fault Circuit Interrupter is and how it works, etc.
- NFPA 70e: Understand NFPA 70e requirements as they pertain to TEXAS REGION facilities and operations; What is an arc flash, causes and prevention strategies; Learn the PPE requirements for working on or near exposed energized conductors; Understand the Flash Protection Boundary (FPB); Arc flashlabeling, etc.

Trainer: A Competent Person in Electrical Safety / NFPA 70e as it pertains to TEXAS REGION Operations. *The instructor needs to be competent in teaching methods, trade practices, and knowledge on the subjects presented. The instructor could be an engineer, teacher or supervisor with knowledge of the procedures, or an experienced worker.*

Training Program Content & Resources:

Trainer should review the **TEXAS REGION LOTO Policy and Electrical Safety Program** prior to conducting the training and have it available for review & explanation. Both classroom and on the job training instruction should be used. For example:

Hands-on Demonstrations can include putting on electrical safety PPE and performing electrical tasks safely.

Classroom training can be accomplished through PowerPoint presentations, videos or other training methods determined adequate by the Safety Manager. Classes & Seminars from third parties are available for more in- depth electrical training for supervisors and qualified persons.

Electrical Training Verification & Task Qualification Form

NAME OF EMPLOYEE:_____ DATE _____

TITLE_____ PLANT NAME/NUMBER _____

CRH (TEXAS REGION) employees can only be qualified to perform electrical work on equipment up to 480V. Electrical work tasks such as testing, trouble-shooting, voltage measuring, circuit breaker operation and visual and infrared inspections are permitted on energized equipment without an EEWP provided that personnel are appropriately qualified and wearing electrically rated PPE as required.

Employee Qualified or Unqualified With Respect to Electrical Work *Determine whether this worker is Qualified or Unqualified based on training received and demonstration of competency. A worker can be considered qualified with respect to certain equipment and methods, but unqualified for others. In this case, choose "Qualified" and then identify the tasks for which the worker is qualified in the Task Qualification section.*	Yes	N/A	Determination Made By: LEADER'S INITIALS	EMPLOYEE'S INITIALS
Unqualified Worker: The named employee is currently an unqualified electrical worker. *Since he/she may work near electrical equipment in the work environment, they must receive general electrical hazard awareness training.*				
Qualified Worker: The named employee is a qualified electrical worker. *Therefore, they have received both general electrical hazard awareness training and training in NFPA 70E commensurate with their exposure or work on or near energized electrical equipment.* In addition, worker must be trained and authorized with respect to TEXAS REGION's Lockout/Tagout policy to apply LOTO to electrical systems in the work environment.				
Task Qualification - Panelboards or Other Electrical Equipment Rated up to 480V *This worker is Qualified to perform the following electrical tasks. Check "Yes" & initial only those electrical tasks for which the Qualified worker has received task training and demonstrated competency as specified below.*	Yes	N/A	Task Trained By: TRAINER'S INITIALS	EMPLOYEE'S INITIALS
Circuit breaker (CB), fused switch or starter operation with covers on				
CB, fused switch or starter operation with covers off and energized parts exposed				
Perform non-contact inspections of energized parts including infrared thermography				
Is trained and authorized with respect to TEXAS REGION's Lockout/Tagout policy to apply LOTO to electrical systems in the work environment				
Demonstrates competency in the understanding and use of assigned test instrument *(multi-meter)* including inspecting the instrument before use				
Removal of bolted covers or opening hinged covers (to expose bare, energized, electrical conductors and circuit parts)				
Use instrument to test/verify de-energization of conductors and circuit parts. *This includes testing the instrument on a known voltage before and after an absence of voltage test is performed*				
Work on energized electrical conductors and circuit parts including troubleshooting, voltage measuring, etc.				
Install and maintain wiring, control, and lighting systems				
Remove/Install CBs or fused switches				
Other electrical tasks:				
Other electrical tasks:				
Other electrical tasks:				

COMMENTS:				

Appendix C

CONTRACTOR ELECTRICAL WORK BRIEFING

Whenever outside servicing personnel (i.e. contractors) are to be engaged in work on or near energized electrical conductors or circuit parts, the on-site employer, CRH (TEXAS REGION), and the outside contractor have a responsibility to inform each other of any applicable hazards or special conditions, and the precautions which must be taken.

Part I: TO BE DISCUSSED WITH THE CONTRACTOR:

(1) Each contractor Company is responsible for having Company specific training, procedures and equipment prior to performing electrical work at CRH (TEXAS REGION).
(2) All electrical work shall be performed in compliance with all applicable rules and regulations including, but not limited to, OSHA 29 CFR, Subpart S on Electrical Systems, NFPA 70 E, Standard for Electrical Safety in the Workplace, and NFPA 70 National Electric Code (NEC)
(3) All electrical work must be performed by "Qualified persons" as defined in the above referenced standards, who have the skills and knowledge necessary to perform the work in a safe manner.
(4) All equipment must be put in an electrically safe work condition prior to maintenance unless the contractor can demonstrate that de-energization increases the hazard or is infeasible.
(5) In the event that the electrical work must be performed on or near energized electrical conductors or circuit parts, the safety related work practices contained in NFPA 70 E, including completion of an Energized Electrical Work Permit (EEWP), must be followed.

Part II: SPECIFIC REQUIREMENTS APPLICABLE TO THE WORK BEING PERFORMED:

(1) Will the work include ONLY electrical conductors or parts placed in an electrically safe work condition or ONLY tasks such as testing, troubleshooting, voltage measuring, etc.?

If YES, you will need a job briefing but not an EEWP YES ☐ NO ☐

(2) Will the electrical work involve work on or near energized electrical parts

If YES, a job briefing must be conducted and your work will require a EEWP YES ☐ NO ☐

Part III: JOB BRIEFING:

Check When Complete

(1) Discuss electrical equipment included in the work and existing hazards: ☐
Comments:

(2) Discuss Personal Protective Equipment (PPE) Requirements: ☐
Comments:

(3) Discuss applicable safe work practice procedures: ☐
Comments:

(4) Discuss any emergency/evacuation procedures applicable to the work ☐
Comments:

Part IV: APPROVAL(S) TO PERFORM THE WORK:

_____ _____ _____ _____

Electrically Qualified Person(s) Date Electrically Qualified Person(s) Date

_____ _____

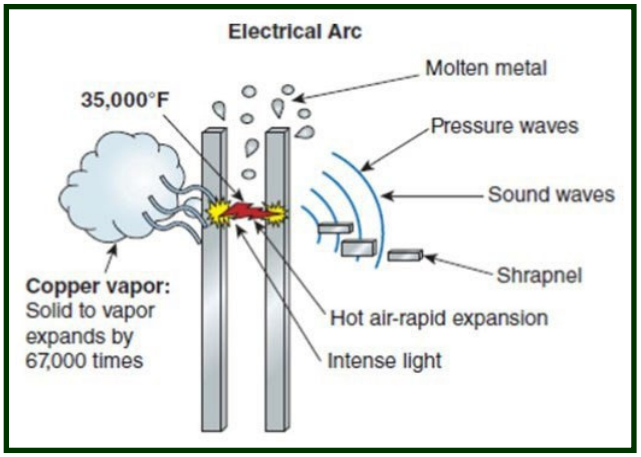
TEXAS REGION Approving Supervisor/Competent Person Date

CRH Technical Bulletin

Arc-Flash and Shock Hazard Fundamentals

Bulletin EM-012016

What are Arc-Flash and Shock Hazard and why is it important to know safe procedures when working around energized equipment?



Effects of an Electrical Arc

The dictionary describes an electric arc as “a luminous bridge formed in a gap between two electrodes.” An arc-flash occurs during a fault, or short circuit condition, which passes through this gap.

In the last 10 years, the U.S. Bureau of Labor Statistics reports 2,000 fatal and more than 24,000 non-fatal electrical injuries such as those sustained from an arc-flash event. The arc-flash can be initiated through accidental contact, equipment which is underrated for the available short circuit current, contamination or tracking over insulated or uninsulated surfaces, deterioration or corrosion of equipment or parts, as well as other causes.

An arc-flash event can expel large amounts of deadly energy. The arc causes an ionization of the air, and arc-flash temperatures can reach as high as 35,000 degrees Fahrenheit.

This is hotter than the surface of the sun, and, can set fire to clothing and severely burn human skin in a fraction of a second and at a significant distance from the event. The heat can also result in ignition of any nearby combustible materials.

Arc-flash temperatures can also liquefy or vaporize metal parts in the vicinity of the event such as copper and aluminum conductors or steel equipment parts. The superheated material rapidly expands in volume as it changes state from a solid to vapor, resulting in explosive pressures and sound waves (shock hazard). The explosive pressure is a potential hazard as the force can cause employees to lose their balance or fall from ladders. It can even throw them across the room against walls or other equipment.

The sound blast has the potential to rupture eardrums resulting in temporary or permanent hearing loss. Molten metal can be sprayed by the blast throughout the vicinity. Solid metal debris and other loose objects, such as tools, can be turned into deadly projectiles by the explosion. The bright flash from the event can result in temporary or permanent blindness. The effects of arc-flash are real and all will most likely result in personnel injury or death as well as equipment damage.

What codes set the standards for addressing arc-flash potential of our equipment?

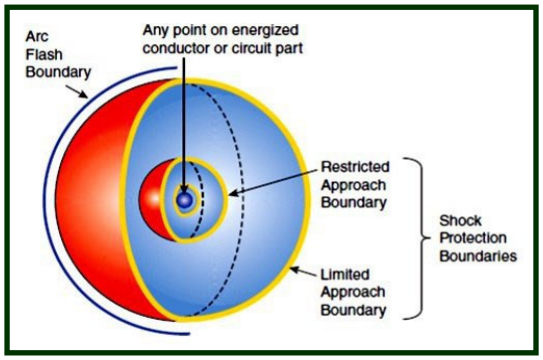
The National Fire Protection Association (NFPA) ***70 - National Electric Code***, ***70E - Standard for Electrical Safety in the Workplace*** and ***70B - Recommended Practice for Electrical Equipment Maintenance*** require electrical equipment be marked to warn qualified personnel of potential arc-flash hazards. In order to accurately evaluate the dangers associated with arc-flash we must quantify the hazard. ***Incident energy*** is the measure which has been developed to assess arc-flash events. This is the energy measured on a surface at a specified working distance from the arc-flash location.



MAKE SAFETY OUR FAMILY BUSINESS

Who should conduct an arc-flash risk assessment?

In order to identify the specific arc-flash hazard at a given piece of equipment within a facility, an arc-flash risk assessment must be performed by a ***qualified professional electrical engineer*** licensed in that state with at least 3 years of experience as a lead engineer or equivalent (this would be on top of 2-4 years as a junior engineer doing arc-flash studies). NFPA 70E requires a minimum of 5 to 7 years in power system studies: short circuit, equipment duty, coordination, and arc-flash studies to perform the assessments.



In order to perform the arc-flash risk assessment a short circuit and coordination risk assessment must first be performed or the results of these studies must be available to the engineer performing the arc-flash risk assessment.

The result of the arc-flash risk assessment will categorize the hazard at specific equipment based on the incident energy, as well as identify the ***Arc-Flash Protection Boundary*** (this is the closest approach allowed before personal protective equipment must be worn). Inside the Arc-Flash Protection Boundary a worker must be wearing the proper clothing and ***Personal Protective Equipment (PPE)***. The main objective of the PPE is to limit the burns to the body resulting from an arc-flash event, to a survivable level (i.e., 2nd degree or less).

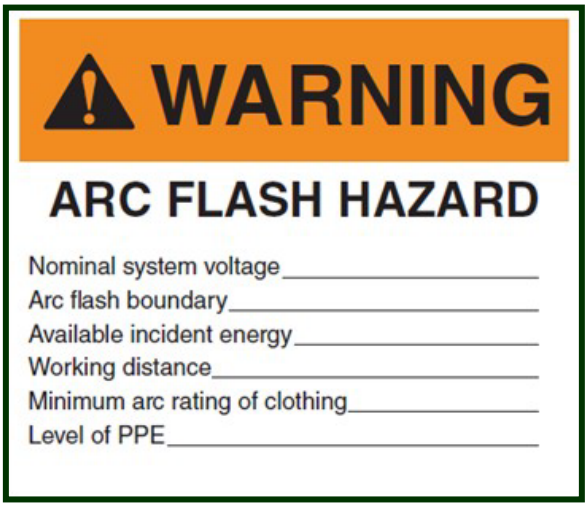
What should we be looking for in a comprehensive arc-flash risk assessment of a plant? NFPA 70E

Article 130.5 states:

An arc-flash risk assessment shall be performed and shall determine if an arc-flash hazard exists. If an arc-flash hazard exists, the risk assessment shall determine:

a. Appropriate safety-related work practices
b. The arc-flash boundary
c. The PPE to be used within the arc-flash boundary

The goal is to have all electrical equipment labeled and ***Qualified People*** able to understand the labels and what the safety related work practices are.



What is required to keep an arc-flash risk assessment of a facility current?

NFPA 70E requires the arc-flash risk assessment be reviewed whenever major modification or renovations are made to the system, or at most, every five years. The review is nearly identical to the initial risk assessment. The main difference is the model only needs to be verified instead of created. Verification of the utility information is also required. When updating the model based on changes/modifications to the system, the verification process can be conducted based on an interview with a qualified person that has knowledge of the system otherwise the system would require more time to validate. The extent of validation would be based on site specifics.

Further NFPA 70E requires a written Electrical Safety Program that covers all areas of the Company's electrical safety practices. The program is required to be audited on a three-year cycle to assure continued compliance of the policies and procedures to the standard.

Who should do this?

The person that reviews the arc-flash risk assessment for a facility should be similarly qualified as for the initial first risk assessment.

What training and documentation is required to comply with NFPA requirements? NFPA 70E Article 110.1 Electrical Safety Program, 110.2 Training

Electrical Safety Program Procedures
- Training
- Job briefing
- Establishing an electrically safe working condition
- Test before touch
- Working while exposed to electrical hazards (justification: energized electrical work permit)
- Auditing (program and field work)
- Program controls (metrics)

Occupational Health & Safety Risk Management Program Hierarchy of Risk Controls
- Elimination
- Substitution
- Engineering Controls
- Awareness (Warning)
- Administrative Controls & PPE
- Mitigation: Emergency Procedures

Occupational Health & Safety Management Program
- Management Commitment Policy
- Planning
- Implementation & Operation
- Evaluation & Corrective Action
- Management Review

Requirements, and 110.3 Host and Contract Employer's Responsibilities state:

- The employer shall implement and document an Electrical Safety Program for the facility/Company that directs activity appropriate to the risk associated with electrical hazards and addresses the following: maintenance, awareness and self- discipline, electrical safety program principles, electrical safety program controls, electrical safety program procedures, risk assessment procedures, job briefing, and electrical safety auditing.
- Every person exposed to an electrical hazard when the risk associated with that hazard is not reduced to a safe level by the applicable electrical installation requirements must be trained to understand the specific hazards associated with electrical energy, in safety-related work practices and procedural requirements to provide protection from the electrical hazards associated with their job or task assignments, and to identify and understand the relationship between electrical hazards and possible injury as well as the requirements of the Electrical Safety Program.
- Employees exposed to shock hazards shall be trained in methods of safe victims from contact with exposed energized electrical conductors annually.
- Employees responsible for responding to medical emergencies requiring first aid, emergency response, and resuscitations shall be trained in the proper procedures annually.
- All training must be documented.
- Every person on site at a facility will be categorized as Qualified or Unqualified (see 110.2(D)(1) and (D)(2))
    - A qualified employee must understand the construction and operation of the equipment or circuit associated with the planned task and that energized electrical work is permitted only under specified conditions as outlined in NFPA 70E. A qualified person must have the ability to recognize all electrical hazards that might be associated with the work task being considered and must be able to react appropriately to all hazards associated with the task.
    - An unqualified employee is someone who has not received the specific training to perform a task, to recognize that an electrical hazard exists and how to avoid that hazard. Unqualified persons must be trained in electrical safety-related practices necessary for their safety.
    - An employee could be qualified to perform one work task and not qualified to perform a different task. An employee could be qualified to work on one piece of equipment but not another similar piece of equipment.
- Retraining intervals shall not exceed 3 years (but earlier may be required based on failure to comply, new technology/processes changes, or if employee is doing something new).
- Host employers must document meetings that communicate information about known hazards to contract employers and shall report observed contract employer-related violations of the NFPA 70E standard to the contract employer.

What are the equipment labeling requirements?

Provisions were added to **NFPA 70** and **NFPA 70E** requiring labels on electrical equipment convey an important safety message to employees who have to examine, adjust, service or maintain energized electrical equipment. Reading those labels is akin to a consumer reading a product label: They tell you what you are getting, or, in the case of energized electrical conductors and circuit parts, what you are getting into.

The labeling requirements in the two codes differ. **NFPA 70** Sections 110.16 Arc-Flash Hazard Warning and 110.21 (B) Field-Applied Hazard Markings require labels that warn an arc-flash hazard exists to tell employees to proceed with caution if energized work is to be performed. These labels must comply with ANSI Z535.4 and should covey the following: nature of the hazard, consequence of interaction with the hazard, how to avoid the hazard, and seriousness level of the hazard.

NFPA 70E recognizes certain types of electrical equipment is likely to require examination, adjustment, servicing, or maintenance while energized, therefore it requires the completed installation bear a label that warns qualified persons the potential for arc-flash hazards exists. The label must be visible so the qualified person can read it before undertaking any task that will expose him or her to the arc-flash hazard, defined in **NFPA 70E** as "a dangerous condition associated with the possible release of energy caused by an electric arc." The NFPA 70E labels take the next step in ensuring that employees can safely proceed with the task at hand once the decision to work on energized equipment has been made, validated, and documented by requiring information on the risk associated with a specific piece of equipment.

NFPA 70E Article 130.5(D) Equipment Labeling states:

"(D) Equipment Labeling. Electrical equipment such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are in other than dwelling units and that are likely to require examination, adjustment, servicing, or maintenance while energized, shall be field-marked with a label containing all the following information:

1. Nominal system voltage
2. Arc-flash Boundary
3. At least one of the following:
   a. Available incident energy and the corresponding working distance, or the arc-flash PPE category in Table 130.7(C)(15)(A)(b) or 130.7 (C)(15)(B) for the equipment, but not both
   b. Minimum arc rating of clothing
   c. Site-specific level of PPE"



Label Meets NFPA 70E Minimum

That is for the Arc-flash Hazard. The Shock Hazard is a separate hazard, but is usually addressed on the Arc-flash label as well by listing the Voltage and Limited Approach and Restricted Approach boundaries.

How should we be labeling our equipment?

At a minimum arc-flash labels used on equipment at CRH facilities will include the following:

- **Nominal System Voltage -** *a rated or named value, stating the available input or output voltage of a piece of equipment or system.*
- **Arc-flash Boundary** - *is a safe approach distance from energized equipment. No arc-flash specific PPE is required outside of this boundary.*
- **Limited Approach** - *an approach limit at a distance from an exposed live part where a shock hazard exists. It is the minimum distance from the energized item where unqualified personnel may safely stand.*
- **Restricted Approach** - *an approach limit at a distance from an exposed live part which there is an increased risk of shock. Only qualified persons wearing the appropriate PPE and using voltage rated tools may cross this boundary.*

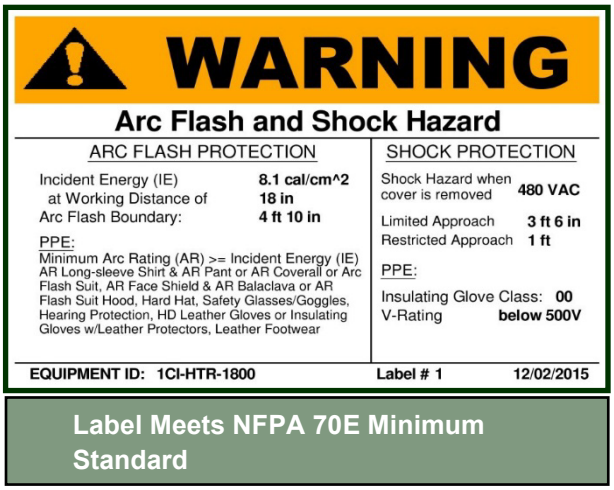
And either (Working Distance and Available Incident Energy) or Level of PPE, but not both

- **Working Distance** - *the distance between the possible arc point and the head and body of the worker positioned in place to perform the assigned task.*
- **Available Incident Energy -** *is a measure of thermal energy at a working distance from an arc fault, the unit of incident energy is cal/cm^2. The incident energy is a function of system voltage, available short-circuit current, arc current, and the time required for circuit protective devices to open.*
- **Level of PPE** - *the potential severity of arc-flash determines the level of PPE required to be worn. The hazard risk categories range from 1 to 4. Category 1 requires arc-rated clothing with a minimum rating of 4 cal/cm^2, Category 2 requires clothing rated for 8 cal/cm^2, Category 3 requires clothing rated for 25 cal/cm^2, and Category 4 requires clothing rated for 40 cal/cm^2.*

Additional information which may be included on arc-flash labels but is not required includes:

- **Prohibited Approach** - *the distance from an exposed part which is considered the same as making contact with the live part, only qualified personnel wearing appropriate PPE, having specified training to work on energized conductors or components, and a documented plan justifying*

  the need to perform this work may cross this boundary (this term has been removed from NFPA 70E, but may still be shown on some labels in use across CRH).
- **Required PPE List** - *a complete list of the PPE required for working on a specific piece of equipment*
- **Minimum Arc Rating of Clothing** - *rating is based on the amount of energy necessary to pass through any given fabric to cause a second degree burn, the higher the arc rating the greater the protection.*



Label Meets NFPA 70E Minimum Standard

What PPE should we have?

The PPE required depends on the available incident energy for the component being worked on. **NFPA 70E Article**

130.7 (C)(16) states

Category 1	Category 2
• Arc-rated clothing, minimum arc rating of 4 cal/cm^2 • Arc-rated long-sleeve shirt and pants *or* arc-rated coverall • Arc-rated face shield (wrap-around guarding for fore-head, ears and neck) or arc flash suit hood • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) • Hard hat • Safety glasses *or* safety goggles • Hearing protection (ear canal inserts) • Heavy duty leather gloves or rubber insulating gloves with leather protectors • Leather footwear (as needed)	• Arc-rated clothing, minimum arc rating of 8 cal/cm^2 • Arc-rated long-sleeve shirt and pants or arc-rated coverall • Arc-rated face shield (wrap-around guarding for fore-head, ears and neck) and arc-rated balaclava or arc flash suit hood • Arc-rated jacket, parka, rainwear, or hard hat liner (as needed) • Hard hat • Safety glasses or safety goggles • Hearing protection (ear canal inserts) • Heavy duty leather gloves or rubber insulating gloves with leather protectors • Leather footwear
Category 3 (available incident energy rating less than 25 cal/cm^2)	**Category 4 (available incident energy rating less than 40 cal/cm^2)**
• Arc-rated clothing selected so that the system arc-rating meets the required minimum arc-rating of 25 cal/cm^2 • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated arc-flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need-ed) • Hard hat • Safety glasses or safety goggles • Hearing protection (ear canal inserts) • Leather footwear	• Arc-rated clothing selected so that the system arc-rating meets the required minimum arc-rating of 40 cal/cm^2 • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need-ed) • Hard hat • Safety glasses or safety goggles • Hearing protection (ear canal inserts) • Leather footwear

Keep in mind arc-rated clothing or equipment indicates that it has been tested for exposure to an electric arc. **All arc- rated clothing is also flame-resistant, but, not all flame-resistant clothing is arc-rated.**

Does this PPE have a shelf-life?

PPE that has a testing requirement based on time are the rubber gloves used with the leather protectors, every six months based on OSHA's 1910.269. Everything else is acceptable to use based on visual inspection that the piece is free of defect, holes, fraying, contamination, etc. If there is any defect, the piece has to be pulled from rotation and fixed or discarded.

Should our employees have access to special tools when working on electrical issues?

Category and Voltage rated tools and testing equipment (voltage meters, current meters, etc.) should be available for use when working on electrical equipment. All testing equipment used at our plants has to be UL listed and CAT 3 or higher. The equipment should be tested on known voltage before and after an absence of voltage test is performed.

Voltage meters will only be able to meet its specifications when it is within a certain environment. Conditions such as temperature, humidity and the like will have impact on the performance. Also conditions such as line voltage can affect the performance. The manufacturer's literature for the voltage meter should be reviewed to ensure the voltage meter is used within the recommended operating conditions. Additionally, the manufacturer's literature should state the required calibration period for the voltage meter. The most usual calibration period is a year, but some voltage meters may state a 90-day calibration period. Follow manufacturer recommendations to recalibrate a voltage meter.

Isolation of Operating Machinery and Electrical Safety Compliance Review Questions
CRH AMAT lock-out/tag-out policy in place. *Posted or accessible to all employees.*
Machine specific lock-out/tag-out procedures or isolation rules in place. *Accessible to all employees.*
Sufficient numbers of locks, tags, hasps, etc. on site to conduct all anticipated maintenance activities. *Accessible to all authorized employees.*
All authorized or affected employees have been trained in the lock-out/tag-out or isolation policy and this training is documented.
A list of Close Proximity Maintenance (CPM) procedures specific to your facility has been created, as applicable.
If CPM is used, a Job Safety Analysis (JSA) has been created outlining the planned step by step procedure.
Electrical Safety - NFPA 70E
a) An arc flash survey been completed by a qualified person for this facility. Electrical labels warning of arc flash (and containing all other required information) have been installed on electrical enclosures, as applicable.
b) All work over 600 volts is performed by a third party certified electrical contractor.
c) Prior to working, all electrical contractors provide a letter of certification confirming that the attending electrician(s) are properly trained (NFPA 70E) to work around the respective voltage.
d) All employees who troubleshoot electrical systems, perform voltage testing, operate circuit breakers with covers off or are otherwise exposed to live or potentially live circuits have been trained in NFPA 70E.
e) All qualified and/or affected employees wear appropriate arc rated PPE during electrical tasks.
f) All Authorized employees *and contractors* who work on electrical equipment perform lock-out / tag-out on the energy source AND verify disconnection through the use of a voltage testing?.
g) All electrically authorized employees have or have access to a voltage tester for verification of electrical LOTO.
LOTO Annual Integrity
All LOTO authorized employees are observed at least annually by a competent person who watches them conduct a task involving lock-out/tag-out or isolation to ensure that the system is operated as per rules, and this is documented.
All machine specific procedures have been inspected at least annually for correctness and to ensure equipment additions and changes have been implemented. This inspection is documented. *The goal is to ensure that the component and energy specific procedures are correct and provide adequate protection and information.*
Arc flash gloves have current certification.
Arc flash gear is appropriate for the voltage exposure.
Component specific procedures for mobile equipment are in place.

Machinery Guarding

- Each location must maintain a system for regular checking of machinery guarding
- No machinery can be operated without all tail pulleys, pinch points, exposed shafts and exposed moving parts properly guarded
- Pad-mounted electrical transformers, tanks, tank and containment valves, gas lines, gas containers/cylinders must be located away from travel ways and adequately protected by bollard, barrier or other measures so they cannot be struck by trucks and/or mobile equipment
- Conveyor return rollers within 7-feet of the ground (or an adjacent working surface) where workers may work or travel under the belt must be guarded
- Guards must be secured in a way that a tool is required to remove them

The hazards posed by an unguarded machine are obvious: in the worst of all cases, the machine can do to your body parts what it does to the materials it's designed to cut, shape, form, etc. Equipment should never be operated without guards in place. A wide variety of mechanical motions and actions may present hazards to the worker. These can include the movement of rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and any parts that impact or shear. These different types of hazardous mechanical motions and actions are basic in varying combinations to nearly all machines, and recognizing them is the first step toward protecting workers from the danger they present.





WHAT SHOULD BE GUARDED?

It may be unclear to you at this point why some areas or parts of a machine are required to be guarded and others are not. In general, any pinch point must be guarded. A pinch point is any point at which it is possible for a person or part of a person's body to be caught between moving parts of a machine, or between the moving and stationary parts of a machine, or between material and any part of the machine. A pinch point does not have to cause injury to a limb or body part, although it might cause injury – it only has to trap or pinch the person to prevent them from escaping or removing the trapped part from the pinch point. If the person would simply pass through and be unharmed, then that area may not require guarding. Your supervisor or co-worker can help make this clear as you inspect a piece of equipment and examine the guarding that is in place.

PROPER GUARDING SHOULD:

Prevent contact: The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.

Secure: Workers should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.

Create no new hazards: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.

Create no interference: Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.

Allow safe lubrication: If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

If equipment has a safety defect, do not use it. Make sure the defective equipment is locked and tagged out until repairs can be made. Report all defective or unsafe equipment to your supervisor.

TYPES OF GUARDING

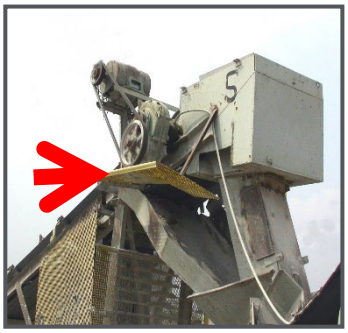
There are three main types of guarding: point-of-contact, location, and area guarding.

POINT OF CONTACT GUARDS

The yellow-painted guards shown in these photos are point-of-contact guards. They fit closely around the moving machine parts. In the photo on the left, they prevent contact with the V-belt drive, the shaft ends and connecting coupling between the gear drive and the conveyor. In the photo on the right, the guards enclose the conveyor tail pulley and shaft, and the motion sensor mounted on the shaft end that extends through the bearing.







LOCATION GUARDS

The V-belts and drive pulley pinch points for the conveyor in this photo are more than 7 feet above the surrounding walkways and working surface. As a result, the drive components are considered guarded by location. The yellow guard (see arrow) below the belt drive has been installed to protect miners working below the drive from being struck by whipping V-belts, if they were to break.

AREA GUARDING



These photos show components of appropriate area guards. The left photo shows a maintenance entry door providing access to equipment that is area-guarded. It is electrically interlocked, the sign is prominently posted, displays the proper warning and is specific in the action required. The entire guard is color-coded “safety yellow.” This entry door provides a greater degree of safety and more protection than the one shown on the previous slide.

When electrical interlocks are used, mines should consider using the type that “fail safe”, so that if a circuitry error occurs, the equipment inside the protected area will shut down.

Confined Space Entry

- All locations must have a confined space entry policy and supporting rules and safe entry procedure for each confined space identified on-site (D)
- Employees must seek prior authorization to enter a confined space, and each location must have safe entry procedures for confined space entry (D)
- All affected employees at each Company location must be trained in confined space entry rules
- All permit-required confined spaces must have signs posted at the entryway indicating “Permit- Required Confined Space – Do Not Enter”
- Permits must be used for safe entry into permit required confined spaces, including but not limited to, baghouses, cold feed bins, mixer drums, tanks, silos, etc.

A confined space is defined as any space or structure which by design has limited openings for entry and exit, and which is not intended for continuous occupancy. A confined space has poor natural ventilation. Confined spaces include storage tanks, pits, silos, vats, boilers, ducts, sewers, pipelines, trenches and other structures found at jobsites.



Supervisors are required to evaluate the workplace to identify all permit-required confined spaces. The supervisor must inform employees of the confined spaces and their dangers, post warning signs, and shall take measures to prevent unauthorized employees from entering permit spaces. If permit spaces exist, the supervisor must develop and implement a written permit space program. The written program must be available for inspection by employees and their authorized representatives. **Employees must ask for authorization, from a supervisor, prior to entering a confined space.**







CONFINED SPACE DETERMINATION

While some confined spaces are clearly marked as such, there are times when you need to decide if something should be a confined space and furthermore if it would require a permit to perform work in it.

ENTERING A CONFINED SPACE

Depending on how the space is classified, there are a few requirements prior to entry after authorization.

- If it is classified as only a Confined Space, the following is required:
  - authorization for entry from a supervisor,
  - LOTO of applicable components, as well as
  - Completion of a TRACK form prior to entry.
- If it is classified as a Permit-Required Confined Space, the following is required:
  - Authorization for entry from a supervisor,
  - LOTO of applicable components,
  - Completion of a TRACK form prior to entry, and
  - Completion of a Confined Space Entry Permit prior to entry.

CONFINED SPACE PERMIT

A permit-required confined space is any space that has one or more of the following characteristics:

- Contains a material that has the potential for engulfing an entrant.
- Contains or has a potential to contain a hazardous atmosphere.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section, or contains any other recognized serious safety or health hazard.

CONFINED SPACE POLICY

CRH South Division is committed to providing a safe and healthy work environment for all of its employees. In turn, its employees have the responsibility to work in a safe and responsible manner. This program contains the requirements for practices and procedures to protect employees from the hazards of entry into permit-required confined spaces. It also specifies the acceptable entry conditions that must exist prior to an employee's entry into or ability to work safely within a permit-required confined space. Only employees trained in this program are authorized to participate in any work associated with confined spaces and must be trained in this program prior to work assignment. This program shall provide employees with the knowledge, skill, and understanding necessary to enable them to:

- Define a confined space
- Differentiate between a confined space and a permit-required confined space
- Locate confined spaces within the facility or work reporting location
- Identify, evaluate, and remove the hazards associated with permit-required confined spaces
- Operate the permit system
- Perform their assigned function as attendant, authorized entrant, or entry supervisor

Employees are required to follow the practices and procedures of this program as a condition of employment.

CONFINED SPACE:

A confined space consists of a space that contains all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit;
- Is not designed for continuous employee occupancy.

PERMIT-REQUIRED CONFINED SPACE:

A permit-required confined space consists of a confined space that has one or more of the following characteristics:

- Contains or has potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard

All spaces that meet the description of a confined space will be treated as a permit-required confined space.

TYPICAL PERMIT-REQUIRED CONFINED SPACES:

The employer is required to evaluate the workplace to determine if there are any Confined Spaces. If the workplace contains confined spaces, those spaces will be treated as permit spaces. The employer shall inform exposed employees by posting signs in the location of the confined space. Listed are typical types of confined spaces encountered at our facilities and work reporting locations. Also included, are the potential specific hazards associated with each space and procedures for their removal if they are present.

LOCATION	HAZARD	PROCEDURE
Sewers	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)

Sewers (continued from previous page)	- Drowning	- Prevent slip/fall into live sewer - Engineering controls or full body type harness (6' maximum length lanyard)
***Tunnel/Shaft/Excavation/ Pit/Sump**	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout - Guards
	- Engulfment	- Trench box/shore/slope if 5' deep or greater - Remove excavation spoils minimum 2' from edge of excavation
	- Drowning	- Utilize ditches or dikes - Prevent water from entering - Remove material prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Caissons/Cofferdams	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords
	- Moving Parts	- Lockout/Tagout - Guards
	- Engulfment	- Remove material prior to entry
	- Drowning	- Remove water prior to entry - Prevent water from entering

Barges/Vessels	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout
	- Drowning	- USCG approved Working Life Vest - Remove material prior to entry
	- Thermal	- Allow to cool prior to entry (AC-20 Liquid asphalt Barge Load)
LOCATION	**HAZARD**	**PROCEDURE**
Tanks/Tank Truck/ **Tank Rail Cars**	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout
	- Engulfment	- Remove material prior to entry
	- Drowning	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry (Liquid asphalt tank)
Large Machinery	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)

	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout - Guards
	- Engulfment	- Remove material prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Primary Dust Collector	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry
	- Dust/Particulate	- Allow dust to settle prior to entry - Dust mask or other PPE if necessary
Mixer/Pugmill	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	(Weigh Hopper doors) - Lockout/Tagout Air Compressor - Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout

		- Breaker
	- Engulfment	- Remove material prior to entry - Empty hot bins and weigh hopper
	- Thermal	- Allow to cool prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Weigh Hopper	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6’ maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	- Lockout/Tagout Air Compressor - Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout
	- Engulfment	- Remove material prior to entry - Empty hot bins
	- Thermal	- Allow to cool prior to entry
Hot Bins	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6’ maximum length lanyard)
	- Pneumatic Energy	- Lockout/Tagout Air Compressor - Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout
	- Engulfment	- Remove material prior to entry

		- Empty bins prior to entry
	- Thermal	- Allow to cool prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Hot Elevator	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry - Empty drier prior to entry - Empty elevator prior to entry
	- Thermal	- Allow to cool prior to entry
Drier	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation - Operate exhaust fan on Plant - Lockout/Tagout burner fuel source
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry

		- Empty Drier
	- Thermal	- Allow to cool prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Cold Feed Bins **(Hoppers, Cold Storage Silos)**	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry - Empty bin or silo
Silos **(Hot Storage)**	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	- Lockout/Tagout Air Compressor - Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry
LOCATION	**HAZARD**	**PROCEDURE**
Boilers	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	- Atmospheric testing - Continuous forced air ventilation

	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Empty contents prior to entry
	- Drowning	- Empty contents prior to entry
	- Thermal	- Allow to cool prior to entry

*Denotes only Tunnels under construction. Tunnels such as Escape Tunnels are not commonly considered confined space unless there are atmospheric conditions within the Tunnel or the potential for a change in atmospheric conditions.

THE PERMIT SYSTEM

Prior to entry into a confined space the employer shall document that all measures, procedures and practices necessary for the safe entry were completed as required by preparing an entry permit. The entry supervisor identified on the permit shall sign the entry permit to authorize entry and verify that all pre-entry procedures were completed properly. The completed permit shall be made available at the time of entry to all authorized entrants, by posting it at the entry portal or by any other equally effective means, so that the entrants have the opportunity to confirm that pre-entry preparations were completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit. The entry supervisor shall terminate entry and cancel the entry permit when:

- The entry operations covered by the entry permit have been completed.
- A condition that is not allowed under the entry permit arises in or near the permit space.

The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the permit space program can be made. The permits utilized by CRH South Division are located in Appendix A.

The entry permit must at a minimum include the following items:

1) The permit space to be entered.
2) The purpose of the entry.
3) The date and authorized duration of the entry permit.
4) A list of authorized entrants within the permit space to enable the attendant to quickly and accurately determine, for the duration of the permit, which authorized entrants are inside the permit space.
5) The personnel, by name, currently serving as attendants.
6) The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
7) The hazards of the permit space to be entered.
8) The measures used to isolate the permit space and to eliminate or control permit space hazards before entry.
9) The acceptable entry conditions.

10) The results of initial and periodic atmospheric testing performed, accompanied by the names or initials of the testers and an indication of when the tests were performed.
11) The rescue and emergency services that can be summoned and the means for summoning those services.
12) The communication procedures used by authorized entrants and attendants to maintain contact during the entry.
13) Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided and on hand as necessary.
14) Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.
15) Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

TRAINING

The employer shall provide training so that all employees whose work is regulated by this program acquire the knowledge, skills, and understanding necessary for the same performance of the duties assigned. Training shall be provided to each affected employee before the employee is able to participate in any work associated with confined spaces. Retraining must be provided if there is a change in permit space operations that creates a new hazard and the employees were not previously trained on the new hazard. Retraining must also be provided if the employer has reason to believe that deviations have occurred from the required permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

The employer shall certify that the required training has been accomplished. The certification shall contain each employee's name, the signatures of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.

DUTIES OF AUTHORIZED ENTRANTS

The employer shall ensure that all authorized entrants:

- Know the hazards that may be faced during entry of the confined space.
- Recognize the signs or symptoms and consequences of exposure.
- Know how to properly use the necessary equipment provided.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status.
- Know how to alert attendants when a hazardous or prohibited condition exists.
- Know how to exit as quickly as possible whenever ordered or alerted to do so.

DUTIES OF ATTENDANTS

The employer shall ensure that each attendant:

- Know the hazards that may be faced during entry of the confined space.
- Be aware of the behavioral effects of hazard exposure in authorized entrants.
- Maintains a continuous accurate count/identification of authorized entrants in the permit space.
- Remains outside the permit space during entry until relieved by another attendant.
- Communicates with authorized entrants as necessary to monitor entrant status.
- Monitors activities inside and outside the space to determine if a hazardous or prohibited condition develops.
- Orders authorized entrants to exit if necessary.
- Summon rescue and other emergency services if necessary.
- Restricts access to the permit space. Keep unauthorized persons away from the area.
- Perform non-entry rescue if necessary.
- Performs no duties that might interfere with their primary duty to monitor and protect the safety of the authorized entrants.

DUTIES OF ENTRY SUPERVISORS

The employer shall ensure that each entry supervisor:

- Know the hazards that may be faced during entry of the confined space.
- Verify that all tests have been conducted and procedures and equipment specified by the permit are in place prior to endorsing the permit and allowing entry to begin.
- Terminates the entry and cancels the permit when work is completed or a prohibited condition develops during entry.
- Verifies that rescue services are available and that the method for summoning them is operable.
- Removes unauthorized individuals who attempt or enter the permit space during entry operations.
- Determines when responsibility for permit operation is transferred and that acceptable entry conditions are continued.

RESCUE AND EMERGENCY SERVICES

Professional rescue and emergency services are available for all of the facilities operated by CRH South Division Employees shall not try to perform any rescues within the confined spaces. Employees should concentrate their efforts to notify the rescue services. If necessary, provide the rescue or treatment facility with the MSDS or other information on the permit space that may aid in the treatment of the rescued employee.

OUTSIDE CONTRACTORS

When an employer arranges to have employees of another employer perform work that involves permit space entry, the host employer shall:

- Inform the contractor that the workplace contains permit spaces and that entry into those areas is allowed only through compliance with the permit space program.
- Apprise the contractor on the permit spaces, including the hazards identified and the employer's precautions or procedures implemented for the protection of employees.
- Coordinate joint entry operations with the contractor.
- Debrief the contractor at the conclusion of the entry operations regarding the permit space program and any hazards confronted or created in the permit space during entry operations.

ALTERNATIVE PROCEDURES

An employer may utilize alternative procedures to enter a permit space provided the only hazard posed by the permit space is an actual or potential hazardous atmosphere and continuous forced air ventilation alone can remove the hazard. The employer must develop monitoring and inspection data to document and support that it meets the requirement. If an initial entry of the permit space is necessary to obtain the data required then it must be done under the full permit-required confined space program procedures. All documentation must be made available to employees who will enter the permit space utilizing the alternative procedures.

Once the conditions in the previous paragraph have been met, entry may take place after:

- Any hazards are removed and it is safe to remove the entrance cover.
- The entrance cover opening is guarded to prevent an accidental fall through the opening or foreign objects from entering the space.
- Atmospheric testing has been performed for oxygen content, flammable gases and vapors, and potential toxic air contaminants.
- No hazardous atmospheric conditions may exist while an employee is inside the space.
- An employee may not enter the space until forced air ventilation has eliminated any hazardous atmosphere.
- The air supply for the forced air ventilation shall be from a clean source and will continuously ventilate the area to be occupied by employees until all employees have left the space.
- The atmosphere within the space shall be periodically tested to ensure no accumulation of a hazardous atmosphere.
- Employees must immediately exit if a hazardous atmosphere is detected during entry and the space must be evaluated to determine how the hazardous atmosphere developed.
- Prior to any subsequent entry, employees must be protected from the hazardous atmosphere.
- The employer shall provide a written certification available to employees that the pre-entry procedures were performed prior to entry. It must contain the date, the location of the space, and the signature of the employee providing the certification.

Below is an example of a Confined Space Determination Sheet

Confined Space Determination Sheet

Plant / Location:	
Component:	
Date:	
Time:	
Person(s) Analyzing Component:	
Signature(s):	

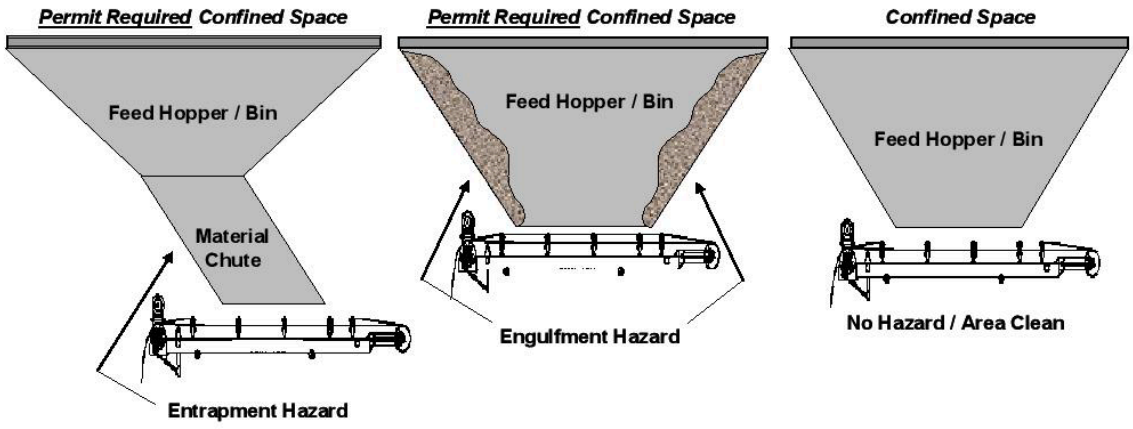
DETERMINATION:

- ☐ **Confined Space**
- ☐ **Permit Required Confined Space**
- ☐ **Permit Required if material or engulfment hazard is present**

Classification Determination	Requirement
Confined Space	TRACK
Permit-Required Confined Space	TRACK and Confined Space Entry Permit

"Confined Space" means a space that:
(1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
(2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
(3) Is not designed for continuous employee occupancy.

"Permit-Required Confined Space (Permit Space)" means a confined space that has one or more of the following characteristics:
(1) Contains or has a potential to contain a hazardous atmosphere;
(2) Contains a material that has the potential for engulfing an entrant;
(3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
(4) Contains any other recognized serious safety or health hazard.



CONFINED SPACE OPERATION

When entrance to a permitted site is required, the proper personnel must be present. The operation requires an entry supervisor, an attendant, and an entrant.

ENTRY SUPERVISORS ARE REQUIRED TO:

- Know space hazards including information on the mode of exposure, signs or symptoms and consequences.
- Verify emergency plans and specified entry conditions such as permits, tests, procedures and equipment before allowing entry.
- Terminate entry and cancel permits when entry operations are completed or if a new condition exists.
- Verify that rescue services are available and that the means for summoning them are operable.
- Take appropriate measures to remove unauthorized entrants.
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

THE ATTENDANT IS REQUIRED TO:

- Remain outside the permit space during entry operations unless relieved by another authorized attendant.
- Perform non-entry rescues when specified by the employer's rescue procedure.
- Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences and physiological effects.
- Maintain communication with and keep an accurate account of those workers entering the permit space.
- Order evacuation of the permit space when:
  - A prohibited condition exists,
  - A worker shows signs of physiological effects of hazard exposure,
  - An emergency outside the confined space exists, and
  - The attendant cannot effectively and safely perform required duties.
- Summon rescue and other services during an emergency.
- Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered the permit space.
- Inform authorized entrants and the entry supervisor if any unauthorized person enters the permit space.
- Perform no other duties that interfere with the attendant's primary duties.

AUTHORIZED ENTRANTS ARE REQUIRED TO:

- Know space hazards, including information on the means of exposure such as inhalation or dermal absorption, signs of symptoms and consequences of the exposure.
- Use appropriate personal protective equipment properly.
- Maintain communication with attendants as necessary to enable them to monitor the entrant's status and alert the entrant to evacuate when necessary.
- Exit from the permit space as soon as possible when:
  - Ordered by the authorized person,
  - He or she recognizes the warning signs or symptoms of exposure,
  - A prohibited condition exists, or
  - An automatic alarm is activated.
- Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

RESCUE PLAN

The **Entry Supervisor** shall maintain a written plan of action that has provisions for conducting a timely rescue of individuals within a confined space, should an emergency arise. The written plan shall be kept onsite where the confined space work is being conducted. All affected personnel shall be trained on the Emergency Response Plan.

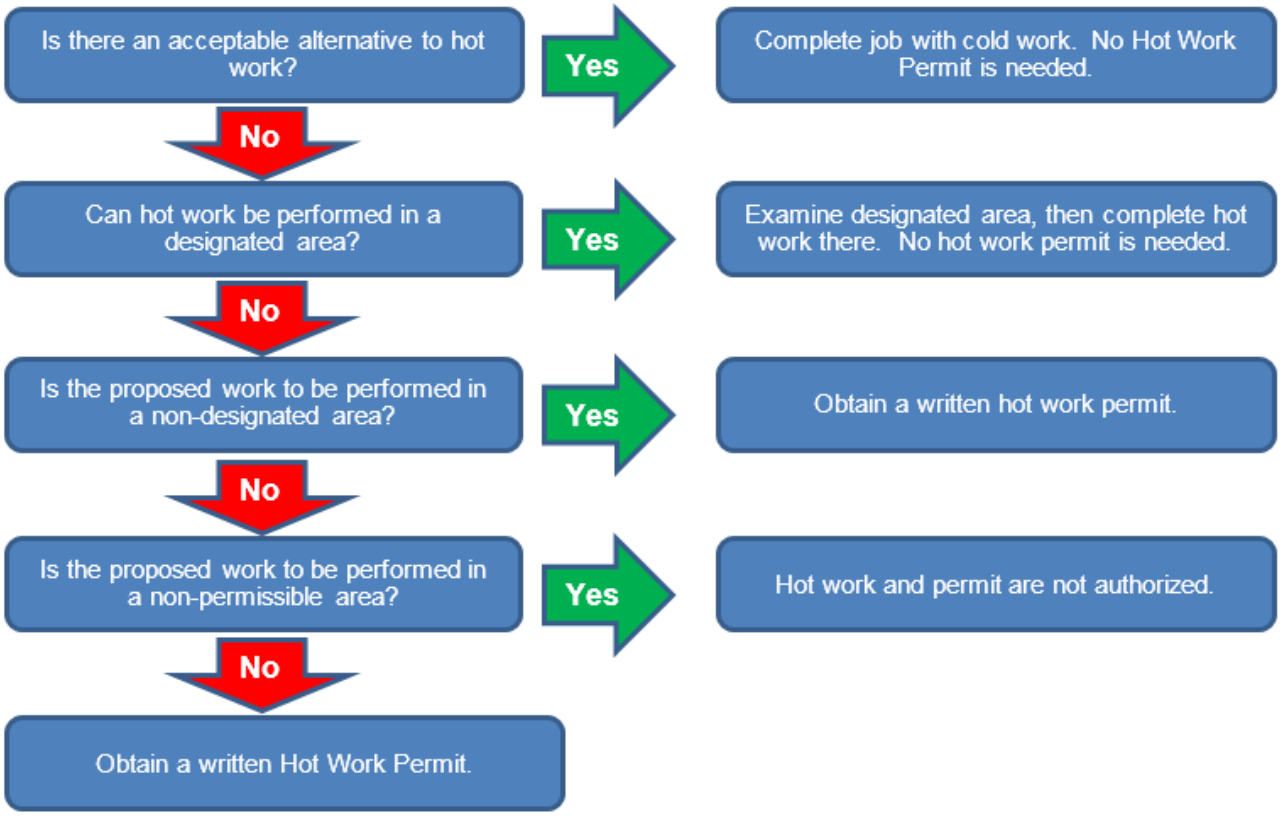
HOT WORK PERMIT

All hot work must be planned and supervised by competent personnel to ensure that sufficient safety and health procedures are met. In general, a Hot Work Permit is not required if work is to be done in a designated or approved areas. A designated area is defined as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents and suitably segregated from adjacent areas.

PROCEDURES

1. The Foreman, Superintendent, Supervisor or EH&S Department is responsible for inspecting specific project sites and determining the need for a Hot Work Permit program.
2. A fire watch is required for every activity where hot work could result in other than a minor fire due to ignition of combustibles. The fire watch must remain for a minimum of 30 minutes.
3. Fire extinguishing equipment appropriate for the must be immediately available at the Hot Work location.

The decision tree used to determine if a hot work permit is necessary is shown on the following page.



TRENCHING & EXCAVATION

While we have existing confined spaces on our jobsites like manholes or tanker trucks, we create a confined space when we engage in excavating and trenching operations.

An excavation is any man-made cut, cavity, trench or depression in an earth surface formed by earth removal. Trench (Trench excavation) means a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet.

Cave-ins pose the greatest risk and are much more likely than other excavation-related accidents to result in worker fatalities. Trenches 4 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than 4 feet, a competent person may determine that a protective system is not required. Trenches 20 feet (6.1 meters) deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer.

OSHA requires safe access and egress to all excavations for employees working in trenches 4 feet or deeper. This device (ladders, steps, ramps, etc.) must be located within 25 feet of all workers.

OSHA standards require that employers inspect trenches daily and as conditions change by a competent person before worker entry to ensure elimination of excavation hazards. A trenching log will be kept by the competent person.

There are several different types of protective systems used in trenching operations:

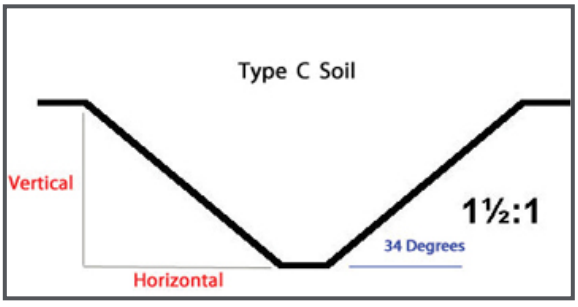
Shoring



Shielding and Benching



Sloping



Confined Spaces Compliance Review Questions
Documented confined space entry policy in place. *Posted or accessible to all employees.*
Safe entry procedures or rules have been developed (in accordance with OSHA 1910.146) for each confined space on site and all affected employees are aware of these procedures.
All employees who may perform duties as confined space entrants, attendants or supervisors have been trained in the confined space program and all applicable entry procedures and this is documented.
Confined space procedures are used for excavations whenever exposure to a hazardous atmosphere could exist. An example would be an internal combustion engine near the top of the excavation used for dewatering.
Permits are used for entry into baghouses, cold feed bins, mixer drums, tanks, silos, etc.
All permit required confined spaces have signs posted at the entryway indicating "permit required confined space".
Completed or canceled permits are retained for at least 1 year.
Calibration gas bottle is current (not expired).
Confined space air tester is available and used for all permit confined space entries.
Confined space air tester is calibrated in accordance with the manufacturer's information.

Working at Heights

- Each location must have a Fall Protection policy in place and posted P D A
- All employees who may work at heights must be trained in the Fall Protection policy, as well as all applicable means and methods, for preventing falls at their location D
- A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the Fall Protection policy
- Employees should be aware of the various tools and devices that can be used to help them achieve 100% fall protection such as fall protection systems, retractable lanyards, beam straps, double lanyards, etc. and these devices must be available
- Fall harnesses/lanyards inspections must be conducted as per manufacturer specifications D
- A “ladders last” approach must be always applied
- All ladders must have a visible capacity rating, be in good condition and be used appropriately
- “Three Points of Contact” stickers or signage must be positioned at ladder ways or access points of all plants and mobile equipment

Fall prevention and fall protection are two terms frequently used to explain the means to control fall hazards but are two different terms and should be considered separately. Proper fall prevention totally eliminates a hazardous situation and, therefore, removes the chance of employee exposure to a fall. Fall protection follows recognition that a hazardous condition cannot be fully or adequately eliminated and, therefore, fall arrest equipment is used.









Working at heights presents unique hazards that if not managed properly can lead to serious injury or death. It is not always the height you’re working at that matters, more than 50% of falls are from less than 9 feet.

While OSHA defines specific heights in which fall protection must be utilized in construction and general industry settings, CRH recommends that fall protection/prevention be worn and/or utilized any time employees are exposed to a fall from any height. Your Company can provide further information on your local policy.

100 percent fall protection is mandatory for all employees and all contractor personnel on all CRH Projects when working at heights.

Types of fall protection systems available are:

- Guardrail Systems
- Fall Arrest Systems

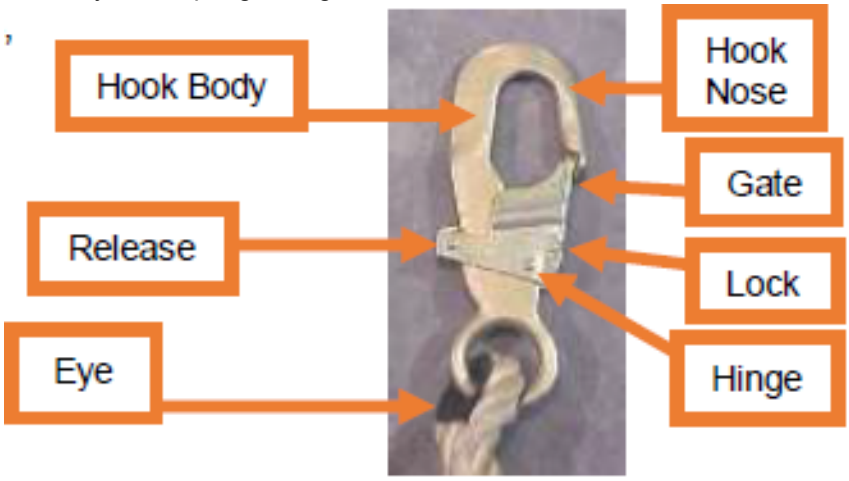
- Fall Restraint Systems

FALL PROTECTION TRAINING

All employees that are exposed to fall hazards must be trained to recognize these hazards and how to minimize them. The training will be completed by a competent person. We define a competent person as someone who is “capable of identifying exiting and predictable hazards in the surrounds or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them”.

INSPECTING FALL PROTECTION EQUIPMENT

Personal Fall Arrest Systems (PFAS) must be regularly inspected. This includes checking the in-service date that was written on the equipment when it was issued. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed. Personal Fall Arrest Equipment must be inspected by the user before each use. Additionally, a competent person other than the user should inspect the equipment at least annually.



Locking Snap hook - The hook must have two independent actions for it to open. If either mechanism is broken, the unit is to be replaced. No hook should stick because of dirt or distortion. Hooks should self-close immediately upon releasing and be free of dents, cracks, burrs or distortions.

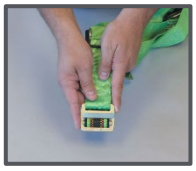
Body Harness The body harness must be of a size to comfortably fit the wearer. It must not be cut or excessively worn. All buckles must be in good working order and the holes for the buckles must not be worn or oversized.



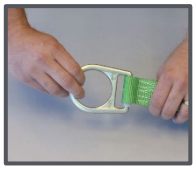
Grasp the webbing and bend in an inverted “U” as shown. This makes damaged fibers and cuts easier to detect. Look for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage.



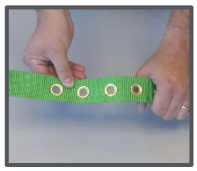
Inspect the quick connect buckles for distortion. The outer bars and center bars must be straight. Make sure dual-tab release mechanism is free of debris and engages properly.



Check all tongue, friction and mating buckles. Check for distortion or sharp edges. Pay special attention to corners and attachment points.



Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. D-ring back pads should also be inspected for damage.



The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Webbing should not have additional punched holes.

Webbing (body of belt, harness or lanyard) - Inspect the entire surface of webbing for damage. Beginning at one end, bend the webbing in an inverted "U." Holding the body side of the belt toward you, grasp the belt with your hands six to eight inches apart. Watch for frayed edges, broken fibers, pulled stitches, cuts or chemical damage. Broken webbing strands generally appear as tufts on the webbing surface.





Self-Retracting Lifelines - Inspect the unit's housing for loose fasteners and bent, cracked, distorted, worn, malfunctioning or damaged parts. Test the lifeline retraction and tension by pulling out several feet of the lifeline and allow it to retract back into the unit. Always maintain a light tension on the lifeline as it retracts. The lifeline should pull out freely and retract all the way back into the unit. Do not use the unit if the lifeline does not retract. The lifeline must be checked regularly for signs of damage. Inspect for cuts, burns, corrosion, kinks, frays or worn areas. Inspect any sewing (web lifelines) for loose, broken or damaged stitching. The braking mechanism must be tested by grasping the lifeline above the impact indicator and applying a sharp steady pull downward which will engage the brakes. There should be no slippage of the lifeline while the brakes are engaged, once tension is released, the brakes will disengage and the unit will return to the retractable mode. Do not use the unit if the brakes do not engage.

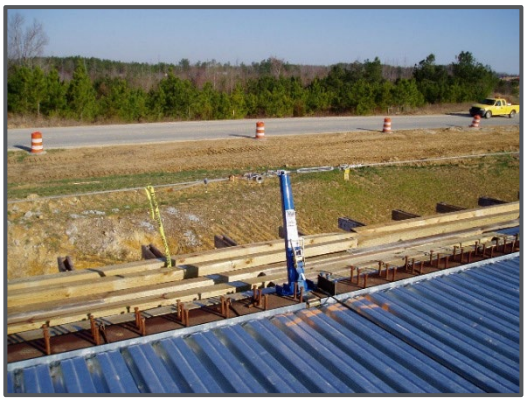


PROPER ANCHOR POINTS

The following are examples of proper anchor points:

- Anchor points that will withstand 5000 lbs. per person.
- Manufactured pre-engineered fall equipment.
- Anchor points that a qualified person has determined will meet the required safety measures.

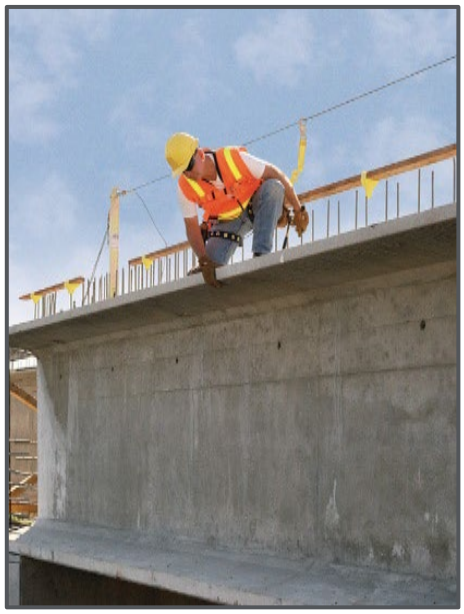




IMPROPER ANCHOR POINTS

The following are examples of improper anchor points:

- Handrails/guardrails
- Ladders/Rungs
- Scaffolding
- Light Fixtures
- Conduit or Plumbing
- Ductwork or Pipe Vents
- Pipe Hangers
- C-Clamps
- Cable Trays
- Another lanyard
- Roof stacks, vents
- Joists, girders – unless qualified person (engineer) allows



LADDER SAFETY

Many everyday situations require the use of ladders when permanent structures are not in place. Just like with any other tool, we need to make sure that they are in good working order and meeting safety requirements.

- Any portable ladders must be inspected monthly by a competent person and must have an “in-service” tag that says the date when the ladder was placed into service.
- Ladders with missing/broken rungs, broken/split rails or other defects must be taken out of service immediately.
- Portable ladders must be placed on a substantial base at a 4-1 pitch.
- 3-points of contact must be maintained at all times when climbing up and down ladders.
- Step ladders must be open completely with the spreader securely locked.
- All portables ladders must be of fiberglass construction.
- Do not splice together short ladders to make long ladders.
- Always use the proper ladder for the application.







Broken ladders must be taken out of service immediately.

SAMPLE IN-SERVICE TAG:

Ladder Inspection Certificate

In-Service Date: _____

Inspector: _____

Location: _____

3-POINTS OF CONTACT

- Ensure what you are climbing is structurally sound and free of debris that may cause you to slip.
- Always face whatever you are climbing; have a good footing and grip before proceeding.
- Do NOT climb with anything in your hands that prohibits you from maintaining 3 Point Contact.







Fall Protection Policy

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Fall Protection Policy Statement

CRH South Division is dedicated to the protection of its employees from on-the-job injuries. All employees of CRH Texas Region have the responsibility to work safely on the job. The purpose of this program is to supplement our existing safety and health program and to ensure that every employee who works for the Company recognizes workplace fall hazards and takes the appropriate measures to address those hazards.

While the 100% Fall Protection Policy appears to become effective only when employees are working four to six feet or more above a lower level, it also extends to other particularly hazardous situations where serious injury could result from a fall of less than six feet. We also strongly encourage lowering the fall protection six-foot criteria where there is a strong possibility that a fall of less than 6 feet would cause serious injury. The ultimate goal is to eliminate **ALL** fall hazards. If a violation occurs, it is the responsibility of surrounding employees to notify the affected employee or his/her supervisor of the violation. Your immediate action may save a life!

This Fall Protection Plan addresses the use of conventional fall protection systems to be used at facilities such as asphalt and concrete plants, maintenance shops and other fixed facilities (which are regulated under 1910 Subpart D), and field projects (1926.500 Subpart M) and Quarry operations. In some applications it may be deemed infeasible or would possibly create a greater hazard to use conventional fall protection systems. In these cases, alternative fall protection systems may be the safest choice. These alternative fall protection systems require a written fall hazard risk assessment explaining the system being utilized. This fall hazard risk assessment should be designed to enable employees to recognize the fall hazards associated with our facilities and to establish the safest procedures to be followed in order to prevent falls. See Section V.(B) for more details.

Each employee who is exposed to fall hazards will be trained in these procedures and strictly adhere to them except when doing so would expose the employee to a greater hazard. If the employee believes using the procedure would expose him or her to greater hazard, the employee is to notify the foreman of their concern and have the concern addressed prior to proceeding.

Responsibilities:

It is CRH Texas Region's responsibility to provide fall protection systems. All fall protection required shall conform to the criteria set forth in 29 CFR 1926.502 and 1910 Subpart D. The Company will purchase or provide fall protection equipment. It is the responsibility of the CRH Texas Region management staff and the EH&S Management to implement this Fall Protection Policy. Any changes to the policy must be approved by the VP EH&S prior to implementation. Observational safety checks of work operations shall be made regularly to ensure adherence to this safety policy and procedures. It is the responsibility of CRH Texas Region management to ensure that all employees understand and adhere to the procedures outlined herein.

The facility manager, crew supervisor, or foreman is responsible to ensure that proper fall protection is on hand and in good working order prior to starting a job requiring the equipment. He/she is also responsible for correcting any unsafe practices or conditions immediately.

It is the responsibility of each authorized employee to inspect any fall protection equipment prior to its use, to notify management of any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees, and to follow the instruction of the crew supervisor.

Requirements for Work at Elevations:

All employees on project sites are required to use Personal Fall Protection when walking/working at heights of six (6) feet or more above the ground or next lower level or around holes that are not protected by a standard guardrail (handrail) or safety net system. At plant and shop sites fall protection is required at four (4) feet. This includes but is not limited to working on top of a structure such as a silo, conveyor, baghouse, cold feed bin, or tank where protection such as guardrails are not adequate. On project sites, this also includes working at the edge of a bridge deck, roof, or excavation six (6) feet or more in depth.

Permanent fall protection shall be provided in accordance with OSHA standards on walking or working surfaces. This is addressed in 29 CFR 1910.21 - 27 for railing, toe boards, walkways, stairs, fixed ladders, floor and wall openings. Where permanent fall protection cannot be used and employees are exposed to fall hazards alternative methods of fall protection must be utilized.

When employees are assigned tasks that are four (4) to six (6) feet or higher or may come within six (6) feet of an unguarded edge or floor opening fall protection PPE shall be provided and used. Such protection must be sufficient to prevent a person that slips or is bumped from falling to a lower level. The protection shall be provided during all phases of the job while the hazard exists.

The facility manager, crew supervisor or foreman should evaluate each task assigned to employees for unprotected fall hazards prior to starting the task. Employees must also evaluate their assigned tasks for unprotected fall hazards. When fall hazards are recognized it should be brought to the attention of a supervisor immediately.

The following solutions should be attempted when determining the best method to safeguard employees from fall hazards.

A. Eliminate the Hazard:

1. Carefully plan the work activity. Through careful planning, it may be possible to complete the work at ground level. This may include partial completion on the ground or lowering equipment to the ground.

2. Whenever possible utilize engineering controls to eliminate the hazard. Employ the use of guardrail (handrail) systems at unprotected edges. Secure covers over holes or other floor openings.

3. Guardrail systems must meet the following provisions:

- ✓ **Fixed facilities** (1910.23(e))**:** A standard railing would consist of top rail, intermediate rail, and posts, and should have a vertical height of at least 42 inches from upper surface of top rail to floor, platform, runway, or ramp level.

- ✓ A standard toe board would be 4 inches in vertical height from its top edge to the level of the walking surface.

- ✓ The intermediate rail, or midrail, should be approximately halfway between the top edge of the guardrail system and the walking/working level;

- ✓ Guardrails should be smooth-surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing with a strength to withstand at least 200 pounds top rail pressure;

- ✓ The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

- ✓ **Construction site guardrails are covered under (1926.502 (b))** and the requirements may differ slightly from those at fixed facilities.

4. Ladderway openings should be provided with a gate, safety chains, or be so offset that a person cannot walk directly into the opening.

B. Personal Fall Arrest Systems:

1. Personal fall arrest systems for both construction sites and general industry sites (plants, shops, etc.) may be utilized in conformance with 29 CFR 1926.502 (d).

2. A personal fall arrest system is a system used to stop an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt and non-locking snap hooks for fall arrest is prohibited. **All purchases of equipment will utilize body harnesses and locking type snap hooks.**

3. Body harnesses and lanyards have been provided at our facilities. This equipment is to be used when none of the previously discussed methods can be employed. The lanyard is to be attached to an anchorage point meeting the requirements detailed in section IV, the other end is to be attached to the D ring on the back of the body harness. This equipment is to be kept in a dry secure place when not in use and is to be inspected by the wearer before and after use. If the equipment does not meet the inspection requirements listed in section IV, it must be returned to the Company for replacement.

4. The lanyard must be of a maximum length or positioned in a manner that prevents the user from free falling more than four (4) to six (6) feet or contacting any lower level. Keep the free fall distance to a minimum. Do not forget there is a "tear out length" on a shock-absorbing lanyard. The lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a nominal breaking strength of 5,400 pounds. (29 CFR 1926.104 (d))

5. Specialty equipment is available by contacting the EH&S Manager. Such equipment can include, but is not limited to, the following:

   - Self retracting lanyards
   - Anchorage connector straps
   - Lanyards with oversized connectors
   - Double lanyards

C. Positioning Device Systems:

1. Positioning Device Systems may be utilized in accordance with 29 CFR 1926.502 (e).

2. Positioning device systems will be similar to personal fall arrest systems EXCEPT that positioning devices shall be rigged so that an employee may not free fall more than two feet. This is usually accomplished by using two-foot positioning straps on side D-Rings of the body harness.

D. Aerial Lifts or Bucket Trucks:

The use of extendable boom platforms, articulating boom platforms, bucket trucks or equipment otherwise known as aerial lifts shall be under the direction of the facility manager, crew supervisor or foreman. The use of such equipment is not authorized without their approval. Operators of these lifts must be thoroughly trained prior to use of the equipment. ***The operator shall wear a fall protection harness with a lanyard that is appropriately anchored to the boom or bucket.***

E. Elevating Work Platforms:

The use of elevating work platforms, other than aerial lifts, such as a scissors lift or a man basket secured to the forks of a forklift shall be under the direction of the facility manager, crew supervisor or foreman. The use of such equipment is not authorized without their approval. Operators of these work platforms must be thoroughly trained prior to use of the equipment.

When working from an elevating work platform, a worker must be protected from falling by a properly designed and maintained guardrail system. If the guardrail system is less than adequate, or the worker leaves the safety of the work platform, additional fall protection would be required.

F. Scaffolds:

Scaffolds are specialty items with detailed design, construction, use and inspection requirements. The use of scaffolds are not authorized without the approval of the facility manager, crew supervisor or foreman. Scaffolds must be designed by a *qualified person* and constructed and loaded in accordance with that design. A *competent person* must supervise the erection, movement, alteration, and disassembly of the scaffold. Employees who utilize scaffolds in their work must be trained prior to use to recognize the hazards associated with the type of scaffold being used and the procedures to control or minimize those hazards.

G. Ladders:

All portable ladders purchased and used by the Company shall be made of fiberglass. Any ladders with structural damage shall be disposed of. Ladders other than stepladders shall extend three rungs above the top level where it is placed and it shall be tied off at the top. Climbing or standing is **NOT PERMITTED** on the top or second step from the top of a stepladder.

Fall Protection System Requirements:

A. Anchorages

Anchorages used for the attachment of personal fall arrest equipment shall meet the following minimum standards: (29 CFR 1926.502(d) 15 & 23)

- Independent of any anchorage being used to support or suspend platforms.
- Capable of supporting at least 5,000 pounds per employee attached.
- Not be attached to any guardrail system or handrail system.
- Part of a complete system which maintains a safety factor of two.
- Designed and installed under the supervision of a qualified person.
- Rigged to restrict employees from falling 4-6 ft or onto a lower level.

B. Horizontal Lifelines

Horizontal lifeline systems shall be custom designed for a specific job and/or application by a fall protection vendor, a qualified engineer, or a safety professional trained and qualified in horizontal lifeline design. Horizontal lifelines shall meet at a minimum all the requirements set forth in 29 CFR 1926.502, 1926.451, and 1910.66.

C. Inspection of Fall Protection Equipment

Personal fall arrest systems and related equipment must be regularly inspected at intervals no greater than those recommended by the equipment manufacturer. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed. Some specific items to review include:

I. **Lanyard** - The entire length of webbing should be inspected for tears, cuts, fraying, or other signs of wear or damage. Sewn termination should be secure, complete and not visibly damaged. Lanyards are to be inspected by beginning at one end and bending a portion (6 to 8 inches) into a U-shape between your hands. Check both sides and all straps along their entire length. ***Once the lanyard has been used to stop a fall it cannot be reused and must be returned to the Company for replacement.***

II. **Locking Snap hook** - The hook must have two independent actions for it to open. If either mechanism is broken, the unit is to be returned to the Company for replacement. No hook should stick because of dirt or distortion. Hooks should self-close immediately upon releasing and be free of dents, cracks, burrs or distortions.

III. **Body Harness** - The body harness must be of a size to fit the wearer. It must not be cut or excessively worn. All buckles must be in good working order and the holes for the buckles must not be worn or oversized.

*** INSPECTIONS OF FALL PROTECTION EQUIPMENT MUST BE DOCUMENTED ***

V. Fall Protection Plans:

A. Operation Specific Fall Protection Plans

I. **Excavations-** Each employee at the edge of an excavation 6 feet or more deep shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway, if it is 6 feet or more above the excavation.

II. **Equipment Operations and Maintenance** up to four to six feet does not require fall protection/prevention. Functions such as access to and from the operator cab, operating equipment from seat with the door open (use seat belts), or checking oil in a loader below four to six feet up from the ground does not require 100% fall protection/prevention. This does not mean we should not provide good safe accesses for operators or fail to recognize hazards at all levels and plan accordingly. If regular maintenance is required above four to six feet from the ground level then practices must be reviewed by the safety professional and operation staff to eliminate the hazard through engineering or administrative controls.

III. **Floor Openings** and **Hole Covers** (holes with a gap of 2-inches or more in the least dimension) shall be covered with materials capable of twice the expected loads and clearly marked with the word “HOLE" or "COVER.” To prevent accidental displacement resulting from wind, equipment, or workers' activities, all covers must be secured.

IV. **Ramps, Runways, and Other Walkways-** Each employee using ramps, runways, and other walkway shall be protected from falling 4-6 feet or more by guardrail systems.

V. **Retrieval/Rescue methods** shall be identified and in place prior to start of work activities. Another employee in the immediate vicinity shall always accompany employees utilizing fall protection. An emergency means of communication is also required. Fall victims are not normally able to assist in their own rescue and time is of the essence. It is critical that help is immediately available and retrieval/rescue plans initiated. Retrieval procedures shall be planned and communicated to all employees prior to the start of any work activity.

B. Fall Hazard Risk Assessment / Job Safety Analysis (JSA)

A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in this policy. A fall hazard risk assessment can be developed as part of a detailed Job Safety Analysis (JSA) and should include task specific operating rules for the activity to be performed at an elevation. Some activities where a fall hazard risk assessment / JSA might be required include, but are not limited to:

I. **Use of Independent Lifelines, Elevated Suspension Work (bosun chairs), Elevated Work in Silos or Tanks, etc.**
II. **Working Over Water, Working on Bridge Decks, Elevated Formwork or Reinforcing Steel, and Elevated Demolition Activities, etc.**

The fall protection risk assessment / (JSA) including task specific operating rules must be prepared and documented, and conform to the following provisions:

I. The fall hazard risk assessment / JSA shall be prepared by a competent person in conjunction with appropriate Company management and the EH&S Manager and developed specifically for the site or task that is being performed.
II. A previously developed fall hazard risk assessment / JSA with task specific operating rules can be utilized if the work at an elevation is determined by the competent person to be substantially the same as the upcoming work. Any changes to the previously developed JSA shall be approved by the competent person and communicated to all affected personnel.
III. The implementation on site of the fall hazard risk assessment / JSA shall be under the supervision of a competent person knowledgeable of the JSA. The JSA must be maintained up to date with a copy kept at the site.
IV. The fall hazard risk assessment / JSA must include a written discussion of measures that will be taken to reduce or eliminate the fall hazard for workers during their performance of that task.

Outside Contractors:

Outside contractors may be required from time to time to perform work at elevations at our facilities. Such contractors shall follow the same requirements as employees of CRH SOUTH DIVISION in the performance of this work. Prior to their work with the Company, CRH SOUTH DIVISION management should ensure that contractors will implement appropriate methods and means of accessing elevated areas and have the PPE necessary to conduct their work safely while at elevations.

Accident Investigation and Reporting:

A. Any fall from elevation incident that results in engagement of a fall protective device, a near miss or injury to an employee, regardless of its nature, shall be reported to the EH&S Manager immediately. It is an integral part of our safety program that a root cause investigation takes place as soon as possible so that the cause and means of prevention can be identified and documented to prevent a reoccurrence.

B. In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

Enforcement:

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. Management reserves the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

PORTABLE AND FIXED LADDER SAFETY

Many everyday situations require the use of ladders when permanent structures are not in place. Just like with any other tool, we need to make sure that they are in good working order and meeting safety requirements.

- Any portable ladders must be inspected monthly by a competent person and must have an “in-service” tag that says the date when the ladder was placed into service.
- Ladders with missing/broken rungs, broken/split rails or other defects must be taken out of service immediately.
- Portable ladders must be placed on a substantial base at a 4-1 pitch.
- 3-points of contact must be maintained at all times when climbing up and down ladders.
- Step ladders must be open completely with the spreader securely locked.
- All portables ladders must be of fiberglass construction.
- Do not splice together short ladders to make long ladders.
- Always use the proper ladder for the application.

Working at Heights Compliance Review Questions
Documented Fall Protection policy in place. *Posted or accessible to all employees.*
All employees who may work at heights have been trained in the fall protection policy as well as all applicable means and methods for preventing falls at their location and this training documented.
A fall hazard risk assessment is conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the fall protection policy.
Employees are aware of the various tools and devices that can be used to help them achieve 100% fall protection such as retractable lanyards, beam straps, double lanyards, etc. and such devices are available.
All ladders have a visible capacity rating.
Fall harnesses/lanyards inspections are conducted as per manufacturer specifications and documented as required.
All ladders are in good condition and are being used appropriately.
3 Point Contact stickers or signs are positioned at the boarding ladders or access points of all fixed and mobile equipment.

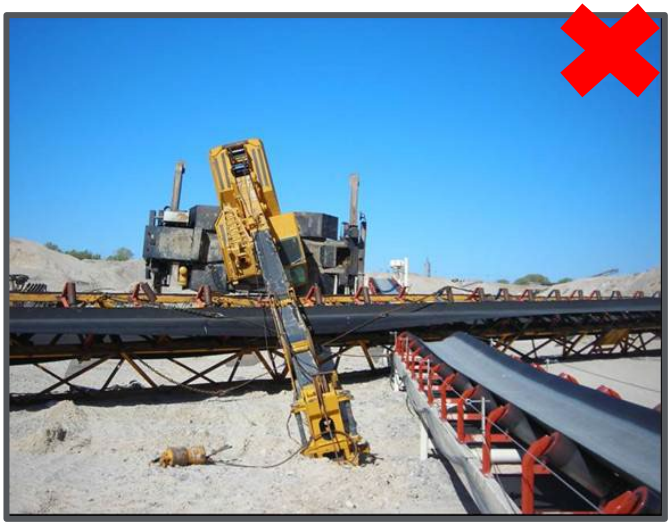
Lifting Operations

- Employees using lifting devices of any capacity (including excavators and loaders) must receive training from a designated competent person in the use of each specific device (including rigging and lifting)
- Specific areas must be designated as “out of bounds” to personnel when lifting operations take place
- All lifting equipment and implements (straps, cables and chains) must have their safe working load limit identified on the lifting device
- If chains are used for lifting, they must be visually inspected before each use and monthly thereafter with a documented inspection record which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain that was inspected D
- Never use chains to tow vehicles or equipment (i.e. stuck in the mud) – use tow ropes, recovery straps or other devices of sufficient strength designed for this purpose

Anyone involved with any CRH operation, who uses a lifting device (crane, boom truck, overhead hoist, floor hoist, etc.) must be properly trained and qualified in the operation of each specific lifting device that he/she may operate. Operation of such equipment includes, but is not limited to the lifting capacities of the respective lifting device and the associated rigging of the material to be lifted. Anyone that is required to attach any given load to a lifting device shall be properly trained in safe rigging procedures.







Always check the weight limit and load size before beginning a lift.

RIGGING AND SIGNALING

Only competent people are allowed to perform rigging and signaling. A competent rigger person must be able to:

- Determine the weight of a load to be picked.
- Decide the proper hitch to use.
- Determine best positive attachment points to the load.
- Recognize possible physical damage to load or rigging.
- Select the proper sling to use.
- Select the proper lifting device to use.
- Read and understand rated capacity charts for all associated rigging components.
- Evaluate environmental conditions (i.e.: weather, ground conditions etc.)
- Evaluate structural condition of item to be rigged or know whom to reference.
- Understand blocking, jacking and rolling operations for various applications.

Signaling will also only be performed by someone who has gone through formal training. It is important to know that unless management has approved otherwise, all signaling must be visual.

BEFORE OPERATING EQUIPMENT YOU MUST:

1. Be appropriately trained and certified to operate the equipment.
2. Know the load limits and capacities of each payload.
3. Ensure only safe rigging practices used.
4. Complete Operator inspections.
5. Ensure equipment inspections and maintenance are completed as required.

Failure to complete overhead crane and hoist inspections and proper equipment maintenance could lead to serious injury or death.

BEST PRACTICES

- A risk assessment must be conducted prior to the lift. You must be authorized, trained and competent to use any lifting equipment e.g. slings, hoists, cranes etc. Where appropriate assess the wind speed before a lift commences.
- If using an excavator to lift a pipe section (for example), then you must ensure that the lifting eye on the bucket was installed by the manufacturer, is in good condition, and that the ground conditions are stable.
- Ensure the crane is on a level, firm, stable surface and any outriggers provided are fully extended.
- Always inspect the sling and load considering the size, weight and center of gravity of the load, the number of legs and the angle the sling makes with the horizontal line, the rated capacity of the sling and the condition and age of the sling.
- Always use the correct load chart, load configuration and setup, load weight and lift path for the lifting equipment.
- Ensure that the following information is included on the lifting equipment: load test certification, rated capacity, specific warning information, product model number, serial number and date of manufacture and manufacturer's name and contact information.
- Always raise the load a few inches, hold, verify capacity/balance, and test brake system before delivering load.
- Always maintain a safe distance from overhead electric power lines and other utility services (gas, water, telecoms, etc.) in accordance with OSHA standards.
- Appropriate inspections should be completed to ensure that contractor equipment and lifting methods are compliant with statutory requirements and the Company's own lifting procedures.

CRANE INSPECTION FORM

It is important that besides a risk assessment, a Crane Inspection form is completed prior to the first lift, every day for every crane lift. It is designed to ensure that the crane is capable of lifting the required load and everything that is required is working. The form also allows us to record non-urgent mechanical issues and track our progress on resolving them. There are different forms for each type of crane.

RIGGING INSPECTION

Each day before being used, all rigging hardware shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

Lifting Operations Compliance Review Questions
Operators of Cranes >2,000 lbs. capacity have received training from an outside third party (i.e. truck mounted cranes, overhead and gantry cranes, etc.) including rigging and lifting training.
Operators of Hoists of any capacity have received training from a competent person in the use of the specific device as well as rigging and lifting training.
Operators of loaders and excavators where buckets are used for lifting have received training in rigging and lifting.
Employees are trained and understand that 50 lbs. is the maximum weight of any object that one employee should attempt to lift manually by themselves. Heavier objects require lifting by mechanical means or with assistance. *Tasks which require >50 lb. objects to be lifted by one person should be reviewed and, if possible, redesigned.*
All cranes greater than 2,000 lbs. capacity are inspected annually by a qualified outside third party.
Lifting equipment and hoists of any capacity are inspected on at least an annual basis by a competent person.
All lifting equipment, hoists and cranes have their safe working load limit identified on the lifting device.
All lifting implements such as straps, cables and chains have their load limit identified, as applicable.
All employees know to never use chains to pull out stuck trucks or equipment (i.e. stuck in the mud). Tow ropes, recovery straps or other devices of sufficient strength designed for this purpose should be used - NEVER Chains.
If chains are used for lifting, they are visually inspected before each use and then monthly with a documented inspection record which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain which was inspected.

Underground and Overhead Utility Dangers

- Risk assessments for underground and overhead work must be in place (D)
- A site survey for utility lines and underground pipes must be conducted before work is carried out on a project (D)
- All employees and operators should stay a minimum of 10-feet away from power lines and spotters must be used in situations where power lines are nearby to observe and warn operators

Many on–the–job accidents are a direct result of inadequate initial planning. A thorough documented Risk Assessment must be conducted prior to starting any task or project that will, or may, involve any underground activity such as trenching or excavating. A Risk Assessment must also be conducted for any operation that will, or may, involve an overhead hazard such as utility lines, trees, buildings, or other such hazards.

OVERHEAD HAZARDS

Many CRH employees operate trucks every day working around overhead hazards. With the best practices below we can greatly reduce the risk associated with these hazards.

- Use standardized hand signals to avoid confusion between our drivers and crews.
- Assure every driver takes the time to GET OUT AND LOOK.
- Assure that drivers are aware and assess the hazards around equipment.
- Involve crew members and make it a team effort.
- Use ground crew to avoid overhead hazards.
- Avoid distractions (radios/phones) around overhead hazards.
- Lower beds prior to travel ensuring clearance from overhead hazards.





Contact with a live power line may result in serious injury or death.

CONTACT WITH POWER LINES

If your equipment contacts power lines, electricity may make contact with the ground, which energizes the earth in a large area around the equipment. The strength of the electrical charge decreases from the point of contact. This is why it is vital not to separate your feet since there may be a difference in the electrical charge under each foot. This difference could create an electrical path through your body.

If you make contact with a high-voltage line while operating heavy equipment, take the following precautions:

- Stay on the equipment, if possible, until help arrives.
- Avoid touching any metal parts.
- Try to break the contact by moving the machine.

If it is absolutely necessary to exit the machine, jump as far out as possible and make sure you do not fall back against the machine. Land with both feet together and hop or shuffle your feet a few inches at a time making sure to never break contact with the ground or cause separation between your feet. Don't walk or run. Get as far away as possible.



Locate all underground utilities prior to digging and make sure you know your soil types!

UNDERGROUND DANGERS

Be sure that all underground utility locations have been identified and clearly marked. The use of potholes is a great practice to verify where a utility may be as some can be marked or labeled completely wrong. However it is important that we call a Utility Locator Service before any digging is done. The project manager will call in the area to be marked and someone will come out and mark any underground lines that are in the area.

Any excavation 5 feet deep or deeper must be sloped, benched, shored or shielded to prevent cave-ins. If your job site has an excavation or trench it is the responsibility of the competent person to maintain a log and daily inspection of the area. Before entering a trench you need to receive proper training. Workers who take chances, use shortcuts, and ignore warnings are the ones who are injured and killed.

BEST PRACTICES

As part of any risk assessment a survey for utility services such as electrical cables, gas pipelines, bridges or other services must be carried out and recorded. The survey findings must be made known to the personnel working on the job. The provision of drawings or maps is a great advantage when locating buried services but you should be aware that they may contain inaccuracies and always exercise caution.

As part of the risk assessment a Utility Locator Service may be used to verify the existence of new / relocated services.

Drivers, crane operators, mobile elevated platform operators, operators of equipment with elevating parts (dump trucks, post drivers, excavators etc.) and personnel using ladders must be aware of any overhead utility lines or services and take whatever precautions are necessary to avoid contact or arcing from electrical cables.

Cables that have been previously damaged but left unreported and unrepaired can cause incidents. So always report any damage to underground / over ground services.

To avoid striking a bridge or other overhead structure, always ensure the body of the truck has return to the flat position or the crane is returned to its road travel position before moving off.

Where contractors / sub-contractors complete work on our sites or work zones then they must also consider above or below ground utilities in their site specific risk assessments and ensure that they have appropriate precautions in place to protect all personnel from injury.

Underground and Overhead Utility Dangers Compliance Review Questions
Documented policy and/or risk assessment for underground and overhead work is in place.
A site survey for utility lines is always conducted and documented before underground work is carried out on-project or facility sites.
All employees and operators are aware to stay at least 10 feet away from power lines. As such, spotters are used in situations where power lines are nearby to observe and warn operators to stay at least 10 feet away.

Use of Personal Protective Equipment (PPE)

- A PPE policy must be in place for all areas of operations/tasks P D
- Daily visual inspections of PPE use must be carried out at each location
- No employee or contractor will be permitted to work without the required PPE

What is PPE? PPE stands for Personal Protective Equipment. PPE is equipment or clothing worn to protect the user from known hazards in the workplace and at home. In many cases it is not possible to completely eliminate hazards by other means, so PPE may be your only means of defense.

ALL EMPLOYEES ARE REQUIRED TO WEAR THE APPROPRIATE PPE IN ORDER TO WORK.

All persons on site outside of an office environment or parking facility are required to be properly outfitted for the area. At a minimum, all persons will have and wear:

- An approved Company hard hat (metal, bump caps and Stetson style hats are not approved head protection and will not be allowed).
- Eye protection (with side shields).
- T-shirt with a standard sleeve (tank tops and/or cut-offs are not approved).
- ANSI Class III High Visibility Clothing if exposed to vehicular traffic or mobile equipment traffic.
- Durable long pants (sweat or jogging pants are not approved).
- Safety-toed footwear that covers the ankle (tennis shoes or sneakers are not approved).
- Any other task specific PPE required by the operation and TRACK/Hazard Analysis.



Some special areas that require additional PPE include:

- Cutting/Grinding/Welding
- Night work
- Use of a chainsaw
- Confined Space Monitors
- Working at Heights or in a man basket
- Hauling/Loading/Unloading of AC

BEST PRACTICES

PPE must always be worn correctly as failure to do so could reduce your protection and expose you to further hazards. All contractors / sub-contractors must wear appropriate PPE as required.

When you see symbols similar to the following, always ensure you are wearing the required PPE:



If PPE is to be used, a PPE program should be in place to ensure the correct selection, maintenance, and use of PPE; to protect against the hazards. The employees should be trained in the proper use of the PPE and the program should be monitored to ensure its ongoing effectiveness. Where further checks or statutory inspections are required on the PPE then please ensure these are complete and up to-date. Always ensure that non-disposable PPE is maintained and cleaned thoroughly, in accordance with the manufacturer's instructions. All PPE must be stored correctly. When PPE needs to be repaired or replaced, always inform your supervisor and ensure you have the correct PPE for the job.

PERSONAL PROTECTIVE EQUIPMENT (PPE) POLICY

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Employees may be exposed to uncontrolled hazards in the workplace which could result in injury or impairment. The Company will try to eliminate or minimize the uncontrolled hazards through engineering or administrative controls. At times these controls are not feasible or unreasonable to institute. In such circumstances, employees may be required to use PPE to reduce the risk of injury or impairment. Employees shall store, use and maintain PPE in a sanitary or reliable condition and in accordance with the manufacturers specifications and design. Alterations to any safety equipment by employees will not be permitted. Failure to use the appropriate PPE as required by federal regulation or Company policy increases the risk for injury and is grounds for disciplinary action up to and including termination.

Most PPE will be provided at no cost to the employee. Keep in mind that improperly fitted PPE often creates hazards; therefore, size and style variations will be made available. Employees should see their supervisor in the event that the proper PPE is not available or if they are in need of something additional.

Head Protection

Hard Hats are provided for your protection from impact penetration and from falling and flying objects. Head protection shall be worn by employees and visitors at all times in posted Hard Hat Areas, on Hard Hat jobs or in any area where there may be danger of falling objects. They must be worn at all times at Crushing and Screening facilities, mining operations, and at asphalt plants. Hard hats shall conform to ANSI Z89.1 specifications and may NOT be altered and must be worn as designated.

Eye and Face Protection

A **welding helmet, face shield, safety glasses or safety goggles** are required when there is any possibility of injury from welding flash, flying particles, chips or sparks, or from splashes of liquids such as asphalt, acids, caustics or solvents and from dust.

Safety glasses (prescription or otherwise) will meet the requirements of ANSI Z87.1 as indicated by the Z87.1 logo stamped on the frame of the glasses. Prescription glasses with plastic lenses, while often referred to as safety glasses; do not necessarily meet these requirements. Contact lenses are not an acceptable form of safety eyewear and in fact may worsen the extent of injury by trapping small particles or absorbing hazardous liquids.

For those employees who must wear prescription glasses and are required to wear safety glasses to work, CRH Texas Region will provide a voucher to be used towards the purchase price of one pair of prescription safety glasses (frames/lenses) per year. Frames and lenses must be ANSI approved and frames shall be fitted with permanent side shields.

Employees performing welding and cutting operations shall use the appropriate shaded safety eyewear. Everyday glasses do not meet the required protection standards for welding and cutting operations

Foot Protection

Safety-toed footwear (Safety Shoes) is required to prevent injury to the feet from falling objects and other foot hazards. It is especially important that they be worn where heavy steel, stock and drums are handled. In certain situations, metatarsal (instep) guards are available which attach to ordinary safety-toe footwear, increasing the protection.

Safety shoes must be worn by all production employees including those working at Crushing and Screening facilities, Mining operations, Asphalt plants, Maintenance shops, Paving operations, Construction projects, Truck Drivers, Quality Control and Traffic Control functions including Flagging. This includes equipment operators, in-plant truck drivers and contractors, who in the performance of their duties enter into designated safety shoe areas, will also wear them.

Safety shoes shall meet the design standards of ANSI Z41.1. Safety shoes shall be of leather construction and extend above the ankle. Hiking boots and sneakers, even if they conform to ANSI Z41.1 design standards, are not allowed under any circumstances.

For employees who are required to wear safety footwear as part of their employment, the CRH Texas Region will provide a voucher that can be used toward the purchase of one pair of safety shoes/boots per year. For boot voucher requests, or for more information on the Company’s Boot Voucher Program, contact the Company’s safety department.

HIGH VISIBILITY APPAREL

As a CRH employee it is important to understand the role that High Visibility PPE plays in keeping us all safe from traffic on our jobsites.

The following are minimum requirements that apply where employees work outside of an office environment. Each site may choose to go above and beyond these minimum requirements based on site specific procedures and/or hazards.

ANSI CLASS 3 GARMENTS

All CRH personnel exposed to vehicle or equipment traffic on construction sites, plants or other facilities are required to wear an ANSI approved Class 3 vest, t-shirt, or jacket.

NIGHTTIME ROAD WORK

- All employees will wear an ANSI approved Class 3 vest, t-shirt, or jacket, AND Class E pants or Class E gaiters.

FLAGGING OPERATIONS

- All employees conducting flagging operations during the day must wear an ANSI approved Class 3 vest
- Employees conducting night shift flagging operations must wear an ANSI approved Class 3 vest, AND Class E pants or gaiters









Hand Protection

Cuts and scrapes to the hands area leading cause of workplace injuries. These can be greatly reduced through the use of work gloves. Work gloves should be worn by all operational personnel when performing tasks that don't require special dexterity, fine motor skills or in cases where work gloves would interfere with the ability to perform the task. In most cases leather palmed work gloves are adequate to reduce the potential for hand injuries. In some cases specialty gloves for heat or chemical use may be necessary.

Hearing Protection

As far is feasible, the Company will implement accepted engineering or administrative practices to reduce worker exposure to noise within permissible sound levels. When not feasible, worker exposure to noise will be reduced through the use of hearing protectors. Employees exposed to noise levels at or about 85 dB shall be enrolled in the Hearing Conservation Program. Areas where employees are most likely to be exposed to elevated noise exposures are at asphalt plants and crushing facilities and also in the operation of equipment.

Keep in mind:

- If you must shout to be heard, then you should be wearing hearing protection.
- If your earplugs have been properly inserted, cupping your hands over your ears will not result in additional noise reduction.
- Do not use earplugs if you are prone to ear infections or earwax buildup. Earmuffs should be considered in these cases.
- Earplugs must be properly inserted and worn. Hands and plugs should be clean prior to use. Follow these steps for maximum effectiveness:

1. Slowly roll and compress the plug into a very thin, crease-free cylinder.

   (Don't worry about hurting the plug; it was designed to be tightly compressed.)
2. While compressed, insert the plug well into the ear canal. Fitting the plug is easier if the outer ear is pulled outward and upward with one hand and inserted with the other hand.
3. With your fingertip, hold the plug in place until it begins to expand and block the noise.
4. Quality and fit may be estimated by observing how the plug rests in your ear. If you are unable to check on your own, ask a co-worker for assistance. Earplug fit can be tested in the presence of noise by alternately covering and uncovering the ears with tightly pressed hands. With properly fitted plugs the noise levels should seem nearly the same whether or not the ears are covered.

Respiratory Protection

As far as is feasible, CRH South Division will implement accepted engineering or administrative practices to control exposure to harmful airborne contaminants in excess of permissible exposure limits. When not feasible, worker exposure to harmful airborne contaminants will be reduced through the use of MSHA/NIOSH approved respirators. Selection of respirators shall be done in accordance with guidance from ANSI Z88.2. All employees who must wear a respirator will be required to participate in the Company's medical clearance and surveillance program.

Keep in mind:

- If the respirator is not on your face, it shall be stored in a sealed bag.
- Used but still functional cartridges shall be stored separately.
- Respirators shall not be shared among employees.
- All workers required to wear respirators shall be clean shaven. MSHA and OSHA have determined that beards and other facial hair may impair the proper function of respiratory devices.
- All respirators have limitation; refer to the manufacturer's specifications.

Fall Protection

A Safety Harness and lifelines shall be worn when working on unprotected elevated structures or equipment or when there is any danger in falling. A Body Belt is an unacceptable from of PPE except, for example, when seated in a pickup truck retrieving cones in work zones.

The current regulations are as follows:

MSHA – whenever there is a danger of falling;

OSHA (General Industry) – 4 feet or greater above the lower level;

OSHA (Construction) – 6 feet or greater above the lower level

Employees walking/working on surfaces with an unprotected side or edge which meets the criteria above shall be protected from falling by the use of guardrail systems or personal fall arrest systems. Exceptions to the above criteria will be made in accordance with federal regulations and typically include work off ladders, mobile equipment, scaffolds and steel erection. Personal fall protection shall consist of a full body harness and shock-absorbing lanyards with locking type snap hooks.

- Lanyards shall be secured above the point of operation to provide for a fall of no greater than 6 feet. In certain situations, additional freedom of movement may be obtained through the use of fall blocks.
- Workers shall secure themselves to a new anchor point before disconnecting from the old anchor point.
- Lanyards shall not be wrapped around any object and tied back onto themselves. Anchor straps, carabineers, and other devices designed for this purpose shall be used.
- At no time shall a knot be tied in any lanyard as this reduces its strength by 50%.
- 4 foot of lanyards shall be used in the operation of a man lift.
- Lanyards and belt shall be used and secured when picking up cones out of pickup trucks.

(See "Fall Protection Policy" for more detailed information.)

Personal Protective Equipment (PPE) Compliance Review Questions
Documented Personal Protective Equipment (PPE) Policy in place for all areas of operation/tasks.
Employees are wearing Class III vests.
Contractors are informed of our PPE requirements and periodically observed to ensure that they are wearing it.
Daily visual inspections of PPE are carried out by employees at your facility/location prior to use.
If the exposure to live or potentially live electrical conductors exists, then NFPA 70E compliant PPE is made available and used.
If an asphalt plant: PPE is available and used per policy for exposure to hot liquid asphalt cement during line breaking, line connecting, sampling, loading and offloading activities, etc. *(both employees and contractors)*
If an asphalt plant: All affected employees understand and adhere to the CRH AMAT Guidance and Control Strategies regarding Hydrogen Sulfide (H2S) exposure. (as outlined in the Reference Bulletin)
If respirators are required to be used (other than dust masks worn on a voluntary basis) employees are medically qualified, trained and fit tested for respirator use.
Arc flash gear is currently certified (gloves) and apparel matches exposure.

Safety of Materials Under Pressure

- Employees must be trained on all applicable safe operating procedures (i.e. loading/unloading)
- Regular checks of pressure relief systems on pressurized conveying systems must be conducted by a designated competent person (D)
- Compressed gas tanks must be separated and stored properly
- Compressed air must not be used for cleaning (personnel or clothing), compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 PSI
- Pressurized systems must be fitted with proper relief systems including check valves, etc.

All pressurized conveying and storage systems for solids, liquids and gases must be designed with pressure relief systems which must be documented and regularly checked. Site maintenance schedules must include regular checks on the integrity of pressure relief systems. No pressurized conveying system containing a defective pressure relief system may be operated.

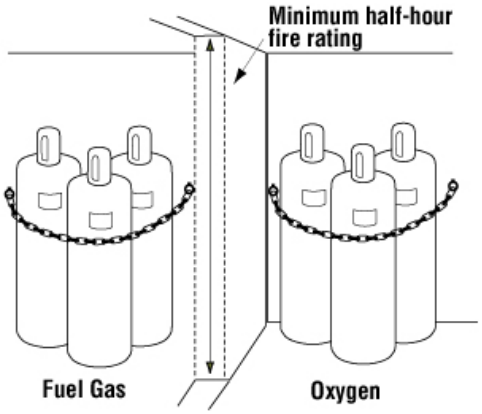
While this might not seem like something you would encounter on a jobsite, think for a moment about the tools you might use in the course of your job like air compressors and air tanks (air pigs), hydraulic systems on heavy equipment, or oxygen/acetylene torches. These are all examples of material under pressure.

Regardless of the properties of the gas, any gas under pressure can explode if the cylinder is improperly stored or handled. Improperly releasing the gas from a compressed gas cylinder is extremely dangerous. A sudden release of the gas can cause a cylinder to become a missile-like projectile, damaging anything in its path. To prevent such a dangerous situation, there are several general procedures to follow for safe storage and handling of a compressed gas cylinder.













Safety of Materials Under Pressure Compliance Review Questions
Facility compressed air systems are inspected / checked periodically by a qualified third-party inspector and have current certifications.
Regular documented checks of pressure relief systems on pressurized conveying systems are conducted by a competent person at your facility/location, as applicable.
Compressed gas tanks are separated and stored properly.
Employees are aware that compressed air should not be used for cleaning personnel or clothing, and that compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 psi.
All employees who work with pressurized systems have been trained in the proper usage of that system and the training documented.

Blasting Operations

- A Blasting policy must be implemented (P)
- All employees on-site must have training on the site-specific blasting rules (D)
- All personnel carrying out blasting operations must have training (D)
- Blasting records must be maintained
- Pre-blast reviews must be conducted (D)



While many of our workers are not directly involved with blasting in the course of our work, it remains one of our most dangerous areas of work. Since blasting is such a big risk for some of our operations, we want to make sure everyone is aware of the basics.



BASIC GUIDELINES

- Blasting area is defined as the area to be affected by blasted material, concussion, or fumes and dust that may be considered hazardous. The blast area is considered to be a perimeter of fifty feet in any direction from the drilled holes to be loaded on a blast, or thirty feet in any direction if the blast site is bermed and the area is within the normal cast of materiel upon detonation.
- Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling. The fall protection needs to be tied off to a suitable anchor point capable of supporting a minimum of 5000 lbs.
- Lightning is a potential cause of premature detonation. If an electrical storm is approaching, the blast area is to be evacuated immediately. It shall remain guarded under the direction of the blaster until activities can resume. Also, if an electrical storm is to approach, the drill will be shut down until the storm passes.
- The blast site will be barricaded using berms, cones, tape, ropers or other markings or equipment to prevent accidental incursion into the site.
- Before a blast is loaded, a blast site safety meeting is required. The whole area (blast area and roads leading up to it) need to be check for hazards like traffic and falling rocks.
- Use of two way communication and cell phones within the blast site is strictly prohibited when using electric detonators. If electric detonators are being used, blasting personnel are to leave cell phone or radios in a safe location and powered off when entering a blast site.
- The blast site will be identified at entrances with signs and traffic cones.
- Blast Area guards will be posted by the Designated Employee so that the blast area can be monitored and prevent persons from inadvertent access.
- Immediately after the blast, the blaster will inspect the blasted material. Once they determine no danger exists, they will give the “all clear” to the Designated Employee who will then give the “all clear” for persons to return to their normal duties.
- The blast area will be cleared and secured prior to hooking up to the blast firing mechanism.

BEST PRACTICES

When carrying out work such as drilling, loading a blast, or any other work at the quarry top, a risk assessment should be completed and the risk of falling over the edge should be addressed (e.g. use of a barrier system, harness and lanyard, etc.).

Always report hazardous situations immediately and if in doubt consult with the person in charge.

All explosives must be stored, transported, used and disposed of safely and securely.

Up to-date records of all blasts must be maintained and a Safe Blasting Policy and implementing rules must be in place. A drill log must be available and reviewed by the person in charge of the blast prior to loading the holes.

The sources of energy that could cause the explosives to initiate should be identified and appropriate safety measures should be part of a planned and proportionate system of work to control all sources of energy that could cause an initiation.



Authorized personnel within the danger zone must not interfere with the electrical integrity of the blast. All personnel must comply with the local mobile phone policy in place during blasting operations.

Where appropriate, contractors and other stakeholders (e.g., neighbors) should be made aware of the dangers of blasting. Were contractors are used in blasting operations then they must be competent and have received the required training as set out in the relevant legislation and codes of practice.

CRH Drilling & Blasting Safety Requirements and Guidelines

Note: These guidelines are for CRH affiliated companies' independent contractors to use as a guide to conduct drilling, blasting, and monitoring activities and do not contain all the rules, regulations, or procedures associated with drilling, blasting, and monitoring activities. Every mining operation is different and thus, certain portions of these guidelines may or may not apply. The Company hires independent contractors for their knowledge and skill and these guidelines do not remove the discretion that remains with the independent contractor.

Objective

1. These guidelines provide guidance for safe and productive drilling, blasting, and blast monitoring for CRH affiliated companies ("Company") mining operations. These guidelines are intended to apply to MSHA regulated facilities only; and shall not be deemed to override more stringent applicable permit requirements or local regulations.
2. Contractor personnel will read and follow these guidelines as well as Company safety rules, manufacturer's instructions, local, state, and federal laws and regulations.

Definitions – for purposes of these Guidelines only

1. Blast Area means the area expected to be affected by blasted material, concussion, or fumes and dust considered hazardous as defined at 30 CFR 56.2.
2. Blast Area Guards are defined as personnel selected by the Designated Employee to assist with blast site security on scheduled blast days. All blast area guards must be task trained and be documented in the Part 46 Book at each location.
3. Blaster is defined as the licensed person responsible for the final planning, layout design, and detonation of the blast in a safe, productive, and efficient manner. The blaster shall coordinate with the Designated Employee in regards to the planning and design of the blast. The final planning and layout design shall be at the discretion of the blaster for safety purposes.
4. Blast Site means a perimeter of fifty feet (50') in any direction from the drilled holes to be loaded on a blast, or thirty feet (30') in any direction if the blast site is bermed, and the area within the normal cast of material upon detonation as defined at 30 CFR 56.2.
5. Company is defined as the CRH affiliated entity which owns and/or operates the site at which the drilling and/or blasting services contracted for are to be performed.
6. Designated Employee is defined as a pit supervisor, drilling supervisor, site manager, or another Company employee or representative designated by the Company to coordinate and work with drilling and blasting personnel.
7. Driller is defined as person responsible for safe operation of drills and accurately drilled holes as designed and documented by the blaster on the blast diagram.
8. Powder Factor is defined as ratio of quantity of rock to quantity of explosives and expressed for this purpose as tons per pound of explosive.

Qualifications

1. Drilling and blasting contractors are required to have a working knowledge of local, state, and federal requirements related to their work and strictly adhere to those regulations and the requirements of the Company.
2. Drilling and blasting contractors must, at a minimum provide and/or have the following:
a. Information required under 30 CFR Part 45.3.
b. MSHA Legal Identification Number.
c. Proof of Part 46 training for all contractor personnel entering Company property.
d. A copy of the Contractor's safety program.
e. Site specific hazard training will be provided by the site to the contractors and their employees. Documentation of site specific hazard training will be kept on file at the site and must be updated on an annual basis.
f. All contractors must provide a certificate of insurance showing the Company as an additional insured with waiver of subrogation as provided in the Contract. See Attachment section a sample certificate of insurance.

Safety – General Matters

1. All Company safety rules and procedures in addition to all MSHA laws and regulations apply to all drilling and blasting activities at Company operated quarries. All drilling and blasting activities are expected to be conducted in a professional manner by all parties to insure the safety of all personnel on Company property and our surrounding communities.
2. Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling. Fall protection will be tied off to a suitable anchor point capable of supporting a minimum of 5000lbs in accordance with 29 C.F.R. 1926.502(d) or such standard as may be adopted by MSHA.
3. Scaling of any observed unstable ground will be done prior to drilling or blasting activity.
4. Prior to each blast, the Designated Employee will meet with the Driller and blast crew prior to drilling or loading activities and review safety issues including, but not limited to, PPE, ground control, access, weather, overhead hazards, and blast security. The meeting is intended to help emphasize that the safety of personnel on Company property and the surrounding community is paramount to all other considerations.
5. Contractor will notify the Designated Employee immediately of any special circumstances at the site or the work being performed that may affect safety or production.
6. All patterns must be checked and reviewed by the Blaster and Designated Employee for proper burdens.

7. Where applicable and if necessary, public roads will be blocked and cleared in coordination with law enforcement prior to blast detonation when necessary to insure public safety.

Blasting Materials

1. Contractor will use only qualified companies or subcontractors to transport blasting materials on public roads and Company property.
2. Contractor will dispose of or remove blasting residue according to local, state, and federal regulations. On site burning shall be subject to approval by the Designated Employee where allowed by applicable law. If burning is not allowed, Contractor shall have another method for proper disposal shall be in place.
3. The quality of explosive material and associated accessories will conform to manufacturer's specifications and any applicable laws and regulations. The Contractor shall be solely responsible for determining such conformity; however, Company reserves the right to request information and/or testing of explosive products conducted with results submitted in writing to Company.
4. Blasting contractors are required to scale in and out all bulk products and document product type and weight on the "Bulk Explosive Weight Ticket" located in the "Attachment" section. This form or equivalent is required to be submitted with blast report.

Weather

1. Forecasted weather conditions should always be reviewed by Contractor prior to drilling or blasting activities. Conditions such as high winds, electrical storms, or ice and snow may create hazards that can be avoided.
2. Lightning is a potential cause of premature detonation. In the event of an imminently approaching electrical storm, the Blast Area is to be evacuated immediately. The Blast Area will be guarded pursuant to the direction of the Blaster and all personnel will be accounted for until blasting activities can resume.

Blast Planning

1. The Designated Employee and Blaster will select the specific Blast Site, inspect the area, and review any special considerations with the Driller or other appropriate Contractor personnel. Blast planning, drilling, loading & blast detonation are expected to be conducted in a manner to reasonably produce the desired gradation.
2. Pre-drill and pre-blast inspections will be accomplished by the Driller, Blaster and Designated Employee either separately or together. Any unsafe conditions found that the drilling or blasting contractor personnel cannot correct must be immediately brought to the attention of the Designated Employee. All unsafe conditions must be addressed prior to any further work activity. Inspections should include but not be limited to ground control, blast access, traffic, slip, trip, and fall considerations.
3. Any Blaster that is not familiar with the quarry site and geological conditions where he or she may be designing a blast will make him or herself familiar and/or request the assistance of other professionals as he or she deems necessary.
4. Any change in typical blast design at the quarry (such as powder factor changes, explosive type, hole diameter, drill pattern, hole angles, or timing) and the reason for the changes are to be discussed with the Designated Employee before implementation.
5. Blast Area security plans should be provided by the Blaster to the Designated Employee.
6. Issues to be addressed in preparing the blast design include but are not limited to:
    a. the location of the nearest residence or non-Company owned structure
    b. vibration considerations
    c. potential flyrock and direction of the blast
    d. limiting access to the Blast Site
    e. persons who will assist with the blast and/or security
    f. communications with those assisting
    g. visibility of the Blast Area for initiation of the blast
    h. cover for the person initiating the blast and the persons assisting
    i. recent complaints received, if any, associated with blasting at the mining operation
7. The Blaster will use a tape and burden pole, a laser profiler, an inclinometer, or other appropriate equipment to obtain an accurate profile of the free face. These measurements will include, but not be limited to, bench height and burden to the front row holes.
8. The Blast Site will be barricaded using berms, cones, tape, ropes, or other markings or equipment to prevent accidental incursion into the Blast Site.
9. The Blaster will prepare the blast diagram, discuss the proposed blast diagram with the Designated Employee, resolve any concerns, note concerns on the diagram, submit the diagram to the Designated Employee for acceptance, sign the diagram, and furnish copies to the Designated Employee and Driller.
10. All drill holes are to be marked by the Blaster with paint or other agreed marking before leaving the site.

Drilling

1. The Driller will pick up the approved blast diagram and inspect the Blast Site with the Designated Employee to address any concerns. If changes in the blast design are required by the Driller, the Blaster will be notified by the Designated Employee and/or Driller. Any change to the blast design, if approved by the Blaster, will be noted on the drill log to be prepared by the Driller and initialed by the Blaster and Designated Employee.

2. The Driller will complete a work place inspection before beginning work at the drill site. The Designated Employee will be responsible to correct any unsafe conditions noted by the Driller before the drill enters the drill site.
3. The Driller will identify the drilled holes on the drill log by a number that corresponds with the identified holes on the blast diagram that is provided by the Blaster. All angle holes will be identified on the drill log by the hole number, degree, and azimuth. The Driller will complete the drill log, discuss it with the Designated Employee before leaving the site, initial any changes from the original blast design, sign the log, and provide copies for the Designated Employee and Blaster.
4. If improperly drilled holes are suspected by the Driller and/or Blaster, the suspect holes will be backfilled with drill cuttings and/or stone by the Driller and a new hole drilled to design specifications in a location approved by the Blaster. Any concerns regarding the holes are to be discussed with the Designated Employee prior to proceeding with any additional drilling and/or blasting. Any re-drilling must comply with any applicable spacing and other blast design considerations.
5. Borehole deviation from intended course can produce higher or lower than expected powder factors. If the Driller or Blaster consider the deviation of any particular hole(s) to be excessive, either the hole will be re-drilled or the borehole deviation will be measured and powder loads adjusted to the correct burden and spacing to provide a safe powder factor.
6. The Driller will use drilling equipment, operators, and procedures that provide correctly drilled holes and accurate data for the drill log.
7. The Driller will insure that the safety and drilling features on the equipment function according to the manufacturer's specifications and regulatory requirements.
8. The Driller will coordinate with the Designated Employee to maintain the barricades at the drilling site to prevent unauthorized entry.
9. If the Driller observes or finds any unsafe conditions, drilling operations are to cease and the Driller shall notify the Designated Employee or quarry manager.
10. The Driller will report abnormal drilling conditions such as joints, weak ground, soft seams, and depth of loose material from collar, cracks or damage to the rock face, back break from previous blasts, and similar information on the attached drill log. Loss of drill cuttings or flushing air while drilling will be noted on the drill log.
11. Cardboard tubes or other suitable material, as determined by the quarry manager or Blaster will be used to collar holes. Tubes will be inserted through the unconsolidated upper material and into solid rock and sealed to avoid debris from entering the hole.
12. The Driller will remain with the drill during operation and secure the drill if there is a requirement to leave the area. The drill will not be left on a face hole when the Driller leaves the site.
13. Dust and/or noise suppression systems installed on the drill must be used when the drill is in operation.
14. Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling.
Fall protection will be tied off to a suitable anchor point capable of supporting 5000 lbs. in accordance with 29 C.F.R. 1910.502(d) or such standard as MSHA may adopt. The tie off point must be in a location that will prevent the line from contacting moving parts.
15. During darkness, drills will not be operated under a highwall, or on the front row of holes on a highwall.
16. Upon the approach of an electrical storm the drill will be shut down or the mast will be lowered until the storm passes.
17. Drillers will always use a spotter or helper when positioning the drill in an area or under conditions he or she believes a spotter or helper to be necessary.
18. Holes will be drilled in a sequential manner from the free face or faces that will allow the blast to be loaded without delay in the event the blast design is not completely drilled.

Blasting

1. The Blaster does acknowledge and accepts responsibility for controlling all activities within the blast site for the duration of blasting related activities. The Blaster shall have the authority to direct and control all Company and Contractor personnel, vehicles, equipment, and activities within the Blast Site.
2. The Blast Site will be identified by the Blaster prior to loading activities. Signs, cones or berms will be used as demarcation.
3. The Blaster shall review at least the following documentation and/or conditions the morning of the blast prior to loading blast holes:
a. Free face conditions
b. The drill log(s)
c. Crest burdens
d. Borehole depths and conditions
e. Designed versus actual burden and spacing
f. Borehole diameter
g. Overhead hazards
4. Before starting to load the blast, a blast site safety meeting is required. The Blast Area and roads leading to the Blast Area need to be checked for hazards, like falling rock and quarry traffic. Example topics that should be addressed during the safety meeting are in the attachments.
5. Use of two way communication and cell phones within the blast site is strictly prohibited when using electric detonators. If electric detonators are being used, blasting personnel are to leave cell phone or radios in a safe location and powered off when entering a blast site.

Loading

1. The Blaster will verify that the drilled pattern conforms to the design on the blast diagram and check the blast site for extraneous electrical current if appropriate. The Blaster shall review the drill log and address any abnormal drilling conditions, examine the Blast Area for weaknesses in the rock, such as loose material, cracks seams, etc., check the Blast Area's free face for any signs of weak burden, joints, excessive back break, or over-digging before loading the blast. The use of video monitors to inspect drill holes is encouraged in the event of any potential concerns.
2. The Blaster will examine the burden on every hole adjacent to the free face or faces using an acceptable method to determine if or where reduced explosive charges, decking, and additional stemming are necessary.
3. The Designated Employee must be advised of any deviation from the blast design.
4. All equipment and activity not associated with the blast will be removed from the Blast Site prior to loading of explosives.
5. The Blast Site will be identified at entrances to the Blast Site with signs and traffic cones at a minimum of 50', or 30' if bermed, from any blast hole that will be loaded in accordance with 30 CFR 56.2.
6. The Blaster will arrange for appropriate stemming material for the blast hole diameter prior to the delivery of explosive material. Typical stemming materials are clean 3/8" stone for holes less than 5" in diameter and clean ¾" stone for holes 5" or greater in diameter. The stemming will be placed adjacent to the bore holes as directed by the Blaster in order to protect the blast crew from potential slip, trip, or fall hazards.
7. Loading operations will be carried out in a sequence that will allow safe detonation of all charged holes if charging operations must be terminated.
8. Explosives loaded into the hole will be measured continuously to insure proper column rise. If explosives accumulate in a cavity, loading operations will cease until the Designated Employee is informed of the situation, options reviewed and the corrective action has taken place.
9. In the event that special or extraordinary precautions are required to insure that a blast can be carried out safely, the blast will not be detonated without the approval of the plant manager.
10. The blast starting detonator will not be connected to the blast until all loading operations are completed and the blast area is clear.
11. If electric caps are used all safety checks, including but not limited to, continuity, resistance, shunting of circuits, and physical count will be conducted prior to connection of blasting machine. The blasting circuit will not be connected to the blasting machine until the Blast Area is cleared and secured.
12. When using electronic detonators, the blast will not be considered ready to be fired until all safety checks recommended by the manufacturer are completed and the Blast Area is cleared and secured.
13. When using non-electric detonators, the blast will be visually inspected by the Blaster as well as another qualified individual after surface delays are connected to insure the complete hook up of planned delay sequence.
14. If overloading of explosives into a void, crack, loose material or above the intended explosive column height occurs, immediate notification will be made to the Designated Employee and the necessary operations will continue per the direction of the Blaster. The Blaster will work with the Designated Employee and provide a solution to either correct the issue or protect personnel and/or equipment against the possibility of fly rock or other safety issues.
15. All holes will be stemmed promptly after explosives reach their designed column height or as directed by the Blaster.

Blast Detonation

1. On the day of any scheduled blasting, a notice will be posted at the time clock, on roads entering the Blast Area, at the visitor sign in log and/or other areas identified by the Designated Employee to advise plant personnel and visitors of the blast and related safety procedures or such other notices as may be required by permit or applicable law.
2. The Blaster will determine risk areas for people and equipment and recommend protective measures to the Designated Employee. The Blaster will also insure that he has adequate communication and cover from the site of blast detonation.
3. Blast Area Guards will be posted by the Designated Employee so that the blast area can be monitored and prevent persons from inadvertent access.
4. Monitoring devices will be positioned and the Designated Employee will confirm the monitoring operations readiness by radio or telephone before detonation of the blast.
5. Radio contact will be set up to insure constant communication with the Blaster, Blast Area Guards, seismograph operators, and other personnel involved in Blast Site security. Non-essential radio communications will cease during the set up and execution of the blast event.
6. The Designated Employee will be responsible for securing the Blast Area is secured prior to the 1st audible warning. When the Designated Employee is satisfied that the Blast Area is secure he or she will announce on the radio that a blast is in progress and all non-essential radio activity will cease. The Designated Employee will then contact and advise the Blaster that the Blast Area is secure.
7. The Blaster will visually inspect the Blast Area from the blast site just prior to detonation after the pit has been cleared.
8. The Company shall have a clearly defined Blast Warning Plan which Blaster will comply with.
9. Immediately after the blast, the Blaster will inspect the blasted material. Once satisfied that no danger exists, the blaster will give the "all clear" to the Designated Employee who will then give the "all clear" for persons to return to their normal duties.
10. All on site personnel shall have a clear understanding of the Blast Warning Plan.
11. If the Blast Area is not deemed safe, only the Blaster and persons authorized by the Designated Employee to clear the hazards will enter the site.
12. Blasts to be re-fired will be treated with all the precautions of a new blast including the need for adequate stemming and burden.

13. No Blast Area Guards will leave their position and no person will leave a position of shelter until the all clear has been given.
14. The blast must be initiated with appropriate equipment that conforms to manufacturer specifications and applicable regulations.

Blast Area Security

1. Prior to initiating the blast(s), the Blaster and Designated Employee will review the following:
a. The identity of the person who will initiate the blast(s).
b. The direction of the intended rock movement.
c. The type of protective shelter to be used by the individual initiating the blast.
d. The Blast Area limits.
e. Designation of Blast Area Guards and their location.
f. The type of communication to be used by the blast initiator, the Blaster, Blast Area Guards, and Designated Employee.
g. The blast warning signals.
2. The Blast Area will be cleared and secured prior to hooking up to the blast firing mechanism.
3. Other than the person initiating the blast, the Blast Area Guards are the closest individuals to the Blast Area and are responsible for preventing unauthorized individuals from entering the Blast Area. Blast Area Guards must be task trained and have suitable cover.
4. Blast Area Guards will be in communication with the Blaster and Designated Employee and shall be authorized to terminate the blast for any breach of the Blast Area security.
Where and when possible an observer should be positioned in a safe location outside the blast area to monitor the blast site and area while the blast area is being cleared. The observer, if applicable, will have radio or other specified contact with the Blaster and retire to a covered position when the “One minute to blast” signal is communicated. If a safe location is not available for the observer the Blaster will observe the blast site and area for a period as long as possible to insure the blast area is cleared before retiring to his or her firing shelter position
5. The “All Clear” signal will not be given by the Blaster until he or she has conducted a post blast examination and concluded that no post-blast hazards exist.

Misfires

1. All Contractors shall have a written procedure for managing misfires. The written procedure will comply with all applicable local, state and federal regulations.
2. If a misfire is suspected, persons shall not enter the blast area for fifteen minutes (15) for non-electric detonators or thirty minutes (30) if using electric detonators or such other timeframe as the Blaster may designate.
3. Misfires or discovered explosive material will be barricaded and/or guarded until a qualified representative from the explosive supplier removes or destroys the hazard. Only qualified personnel are permitted to handle explosive material.
4. In the event of a misfire, the Blaster will be required to immediately notify the Designated Employee. Contractor will submit a written report to the Company explaining the cause of the misfire and the corrective action they will take to prevent future misfires. The written report will be provided within 5 working days.

Post-Blast

1. Once blasting activities have concluded the Blaster will inspect the area surrounding the blast site for unstable ground. If unstable ground conditions exist, the Designated Employee must begin either scaling operations or block the area from entry until stable ground conditions are achieved.

Monitoring

1. All Contractors will comply with the US Bureau of Mines ground vibration levels recommended in RI 8507, 1980 or stricter state, local or permit requirements as may apply.
2. All blasts will be monitored using a seismograph in accordance with the quarry permit and/or applicable laws.
3. Routine care of the monitoring equipment, blast recording, and completion of the field report will be done by a qualified operator.
4. The seismograph field report will be signed by the seismograph operator.
5. Seismograph information will be reviewed by the Blaster. Copies of the field report will be attached to the blast report.
6. Requests for seismic monitoring on individual residences and/or business properties will be considered and authorized in certain situations.

Attachments

1. Forms.
a. These forms are recommended. Contractor forms may be substituted with approval from the Operations General Manager.
i. Pre-Blast Review Form
ii. Site Specific Drilling and Blasting Procedure Form
iii. Bulk Explosive Weight Tickets
iv. Contractor Certificate of Insurance Requirements
v. Blast Site Safety meeting example topics

Pre-Blast Review

Blast Security:

• Who_____
_____

• Where_____
_____

• When_____
_____

Free Face Conditions:

Crest Burdens:

Borehole Depths and Conditions:

Designed Vs. Actual Burden & Spacing:

Borehole Diameters:

Overhead Hazards:

Blasters Signature:

_____Date:_____

Designated Employee's Signature:

_____Date:_____

Bulk Explosives Weight Ticket

Date: _____
Blasting Company: _____
Truck #: _____
Gross Weight: _____
Tare Weight: _____
Net Weight of Explosive Used: _____
Date: _____
Blasting Company: _____
Truck #: _____
Gross Weight: _____
Tare Weight: _____
Net Weight of Explosive Used: _____

Contractor Certificate of Insurance Requirements

Date:
Xxxxxxxxxxxxxx
Xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxx
Dear Vendor:
We are in need of your Certificate of Liability Insurance…
Please provide your certificate with the following:
__ Policy expiration date: **Please submit current certificate**
__ Additional Insured: **Oldcastle Company Name**
__ Minimum General Liability Coverage: **$2,000,000.00 per occurrence**
__ Minimum Auto Liability Coverage: **$2,000,000.00 combined single limit**
__ Minimum Umbrella Liability Coverage: **$10,000,000.00 per occurrence & aggregate**
__ Must have required: **Policy Number(s)**
__ Must show evidence of: **Workers Compensation coverage**
Marked "WC Statutory Limits" with
Box Minimum of $500,000.00
__ Certificate Holder must be: **Named Additional Insured**
__ Please forward current ORIGINAL, SIGNED Certificate of Insurance to:
Oldcastle Company Name
Address
Note: Per occurrence and aggregate coverage limits for General Liability and Auto Liability can be achieved though a combination of primary and excess umbrella coverage. The Company shall be an additional insured on all insurance other
than workers compensation; waiver of subrogation shall apply to all insurance. The Company shall receive notice at least 30
days prior to cancellation of any policy. All policies are required to be on an occurrence rather than "claims made" basis.

Blast Site Safety Meeting

Blast Site Safety Checklist -- Items to be considered:

- Are all blasting personnel wearing hard hats, safety shoes, safety glasses and
- reflective vests?
- Has the drill log been prepared by the Driller and reviewed by the Blaster prior to
- loading?
- Prior to loading, ensure that the Blast Site is barricaded to prevent unauthorized
- entry and that blast warning signs have been placed to notify others of the activity.
- Has the Blaster inspected the face prior to loading?
- Protect against any non-essential vehicles being driven into the blast site.
- Check to see if any holes will have to be driven over the top to facilitate proper
- loading of the shot. If so, how can this be minimized without losing a hole?
- Has the Blaster made certain that his or her personnel understand their role(s)?
- Do the personnel involved understand what explosive product is being used and
- how much will be loaded in each hole?
- What is the minimum amount of stemming required?
- Is there adequate shelter for the person triggering the blast?

Blasting Operations Compliance Review Questions
Documented "Safe Blast Policy" in place.
Contractors have signed acknowledgement stating that they have received the CRH AMAT Blasting Policy.
Employees have received blasting awareness training,
Pre-blast reviews are being conducted/documented.
All personnel carrying out blasting operations are trained in site specific rules (employees and contractors).
Blasting records are kept on site and operating records of all blasts are maintained.

Work Zone Safety

- All work zone personnel must be properly trained for their specific roles and all work zone employees must receive work zone awareness training
- A copy of the most current Manual on Uniform Traffic Control Devices (MUTCD) state/local/project specific traffic control standards must be readily available for review on all projects A
- All reverse systems, echo location systems, back up alarms (including those of contractors) must be working properly
- An Internal Traffic Control Plan (ITCP) must be created and be in use to minimize backing and control internal movement of equipment, vehicles and personnel
- Employees must be aware of the 10-foot rule when working around/operating equipment
- All road crews must have knowledge of and understand the Backer Spotter policy P
- Maintenance of Traffic (MOT) personnel and flaggers must be trained according to their duties
- All equipment must be outfitted with sufficient retro-reflective tape that can be seen at night, the tape must be clean and in working order
- All equipment operating in a work zone must be equipped with flashing lights as required
- All work zone traffic control must be inspected and documented by a designated competent person
- Work zone employees must be familiar with the Best Practices for Mitigating the Effects of Work Zone Intrusions manual

Highway and street construction workers are at risk of fatal and serious nonfatal injury when working in the vicinity of passing motorists, construction vehicles, and equipment. One of the leading causes of national fatalities for workers in work zones is being run over or backed over by internal vehicles. While some of the concerns were addressed about equipment earlier, we feel that this area needs additional attention.

MOBILE EQUIPMENT IN THE WORK ZONE - BLIND SPOTS

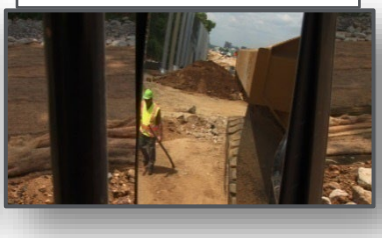
It is important to educate employees on the blind spots around a vehicle or piece of equipment.

- Blind spots have contributed to hundreds of deaths at road-building sites.
- Fatalities involving a worker being struck by a vehicle or equipment account for 73% of transportation-related work zone incidents, with half occurring when a construction vehicle was backing up.

Blind Spots are the locations around equipment and vehicles where workers on foot are invisible to the operator through his windows and mirrors.



Behind the Vehicle



Outside Mirror Range

- Operators must be educated on the blind spots and swing radius of any equipment during their task training.
- Back up alarms must be present on all mobile equipment. If the alarm is not working, the equipment needs to be removed immediately from service.
- If possible, try and utilize pull through or drive through parking that limits the need for vehicles to back up.
- Reduce foot traffic in areas where mobile equipment will be working.
- Communicate the 10’ rule, which asks employees to make contact with the operator before entering the space that is within 10 feet of the operating equipment. DO NOT approach equipment until the operator acknowledges you.
- The signal person must know the operator’s blind spots and remain visible to the operator at all times.

INTERNAL TRAFFIC CONTROL PLAN

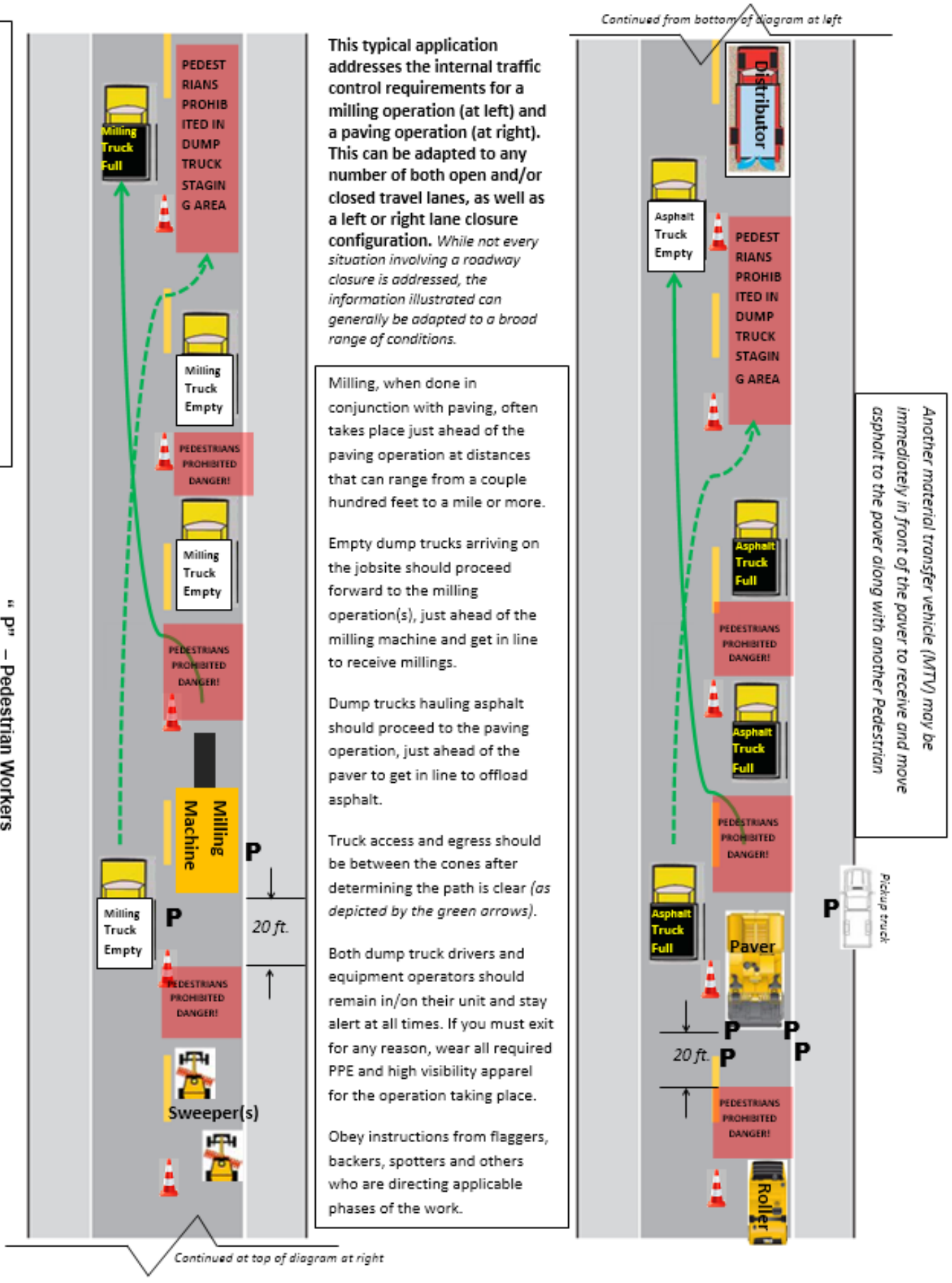
According to the National Institute for Occupational Safety and Health (NIOSH), approximately 20 construction workers are killed in backing accidents each year. Dump trucks are involved in the majority of these fatal accidents. Since dump trucks have large blind spots and backup alarms are not always enough to protect pedestrian workers within the work zone, CRH requires its affiliates to use an Internal Traffic Control Plan ("ITCP") on every road construction project in order to prevent deaths and injuries inside the work zone. Internal traffic control plans fill in the details on how construction traffic should be set up inside the area marked by the hatched box on a TTCP. The requirement for these plans also includes emergency and other unplanned closures that may not be covered by a TTCP. Internal Traffic Control Plans focus on keeping workers on foot from being struck by construction equipment and large trucks within the activity area of a work zone.

Its safety features include but are not limited to:

- Isolating workers from equipment.
- Reducing the need to back up.
- Limits vehicle access points.
- Coordinates truck and equipment movements.
- Provides signs to guide vehicles and pedestrians.
- Separates pedestrians and equipment.
- Informs all on-site personnel of the traffic control plan.

The project manager, superintendent or foreman must review the ITCP with all project personnel, including subcontractors, suppliers, and inspectors during a pre-shift meeting. If the work conditions change during a shift, suspend work on the project and update the ITCP during a safety meeting with all of the project personnel. While copies of the ITCP may be distributed to project personnel, project personnel should not be referring to documents while working on a construction project so it is more important to clearly explain the ITCP to the project personnel and answer any questions regarding the ITCP.

Milling and Paving Operations



This typical application addresses the internal traffic control requirements for a milling operation (at left) and a paving operation (at right). This can be adapted to any number of both open and/or closed travel lanes, as well as a left or right lane closure configuration. *While not every situation involving a roadway closure is addressed, the information illustrated can generally be adapted to a broad range of conditions.*

Milling, when done in conjunction with paving, often takes place just ahead of the paving operation at distances that can range from a couple hundred feet to a mile or more.

Empty dump trucks arriving on the jobsite should proceed forward to the milling operation(s), just ahead of the milling machine and get in line to receive millings.

Dump trucks hauling asphalt should proceed to the paving operation, just ahead of the paver to get in line to offload asphalt.

Truck access and egress should be between the cones after determining the path is clear *(as depicted by the green arrows)*.

Both dump truck drivers and equipment operators should remain in/on their unit and stay alert at all times. If you must exit for any reason, wear all required PPE and high visibility apparel for the operation taking place.

Obey instructions from flaggers, backers, spotters and others who are directing applicable phases of the work.

Another material transfer vehicle (MTV) may be immediately in front of the paver to receive and move asphalt to the paver along with another Pedestrian

"P" – Pedestrian Workers

Anticipated location of pedestrian workers under typical work conditions. May also be found in other locations on the project.

INTERNAL TRAFFIC CONTROL PLAN SAFETY NOTES

Different aspects of the ITCP may be identified and developed during the various construction phases of a project. However, the general principles for a milling and/or paving ITCP are established in this document.

Pedestrian Workers:

- Avoid walking or standing in the travel way of any vehicle or equipment.
- Stop the operation if you observe any pedestrian in the travel way of any vehicle or equipment.
- Do not be in front of the paver unless another worker is acting as a spotter.
- Crossing between the front of the paver and a backing dump truck is prohibited.
- Minimize time spent on foot working adjacent to live traffic whenever possible.
- Take breaks as far away from live traffic and moving equipment as possible.
- Walk in a way that deliberately maximizes distance from both live traffic and moving equipment.
- Do not use a cell phone or other electronic device when crossing traffic routes or engaged in safety sensitive work.

Dump Trucks, Vehicles and Equipment:

- Dump trucks must have a spotter guiding the driver whenever backing.
- Establish and maintain eye contact with the spotter while you are backing.
- STOP backing if you do not have eye contact.
- All dump trucks must be equipped with working backup alarms.
- Shifting into neutral or any action that deactivates the back-up alarm during backing is prohibited.
- Stop the operation if you observe any pedestrian in the travel way of any vehicle or equipment.
- Dump truck drivers should stay in their truck, alert and ready to respond to instructions.
- Access the work zone by coming up from behind the operation in an adjacent lane and turning in between the cones at the appropriate point.
- When entering the work zone, ensure that your path is clear of workers and equipment.
- When exiting the work zone, use extreme care to ensure the vehicle can be safely merged.
- Wear all required PPE when exiting a vehicle for any reason.
- Dismount equipment on the side away from live traffic, whenever possible.
- Do not approach within 10 feet of a pedestrian employee without establishing eye contact.
- The lead roller should not approach the paver closer than 20 feet.
- Do not use cell phones while operating vehicles or equipment.
- Speed of trucks and equipment must be reduced to 5 mph in the work zone.
- All repositioning of vehicles and equipment must follow Oldcastle Material's Repositioning/Backing Guidelines.

ITCP Communication Plan:

- ITCP principles must be communicated to all workers and contractors prior to beginning work.
- When a project is first bid and won, communicate general ITCP plan principles in contract documents and pre-construction meetings.
- Communicate ITCP principles in any meetings with contractors leading up to the project start.
- Conduct a pre-shift briefing (also known as a T-5) to include details of the ITCP.
- Invite contractors and haulers to attend the pre-shift briefing where the ITCP is discussed.
- Contractor managers must communicate the ITCP with all workers who report to them.

If the work conditions change, ensure that all affected managers and personnel receive information on the changes.

WORK ZONE SAFETY CHECKLIST

A competent person must complete a Work Zone Safety Checklist at the start of every job and at the end of the day. If the traffic control stays up over holidays and weekends, the Work Zone Safety Checklist needs to be checked then as well. If deficiencies are found, it is important to correct them immediately. Either the project manager or the safety managers can help in those situations. The topics covered on the checklist are below:

- PAVEMENT DROP-OFFS & LOW SHOULDERS
- TAPERS, CLEAR ZONES & TANGENTS
- CHANNELIZING DEVICES
- SIGNS
- PAVEMENT MARKINGS
- FLAGGERS
- CRASH CUSHIONS, ATTENUATORS, & TEMPORARY TRAFFIC BARRIERS
- ARROW PANELS
- PORTABLE CHANGEABLE MESSAGE SIGNS (“PCMS”)
- DRAINAGE

WORK ZONE PROTECTION DEVICES

Truck Mounted Attenuators “TMA”



Rumble Strips



Work Zone Intrusion Alarm



FLAGGING OPERATIONS

All of our construction personnel are required to be properly trained before performing flagger duties. This person is our first line of defense against worksite intrusions and it is important for them to understand safe practices to keep everyone on the job safe as well as themselves.

FLAGGER EQUIPMENT

- STOP/SLOW Paddle
- Flag for emergencies
- High visibility apparel and other garments
- Air horn/Two way Radios
- Personal comfort items

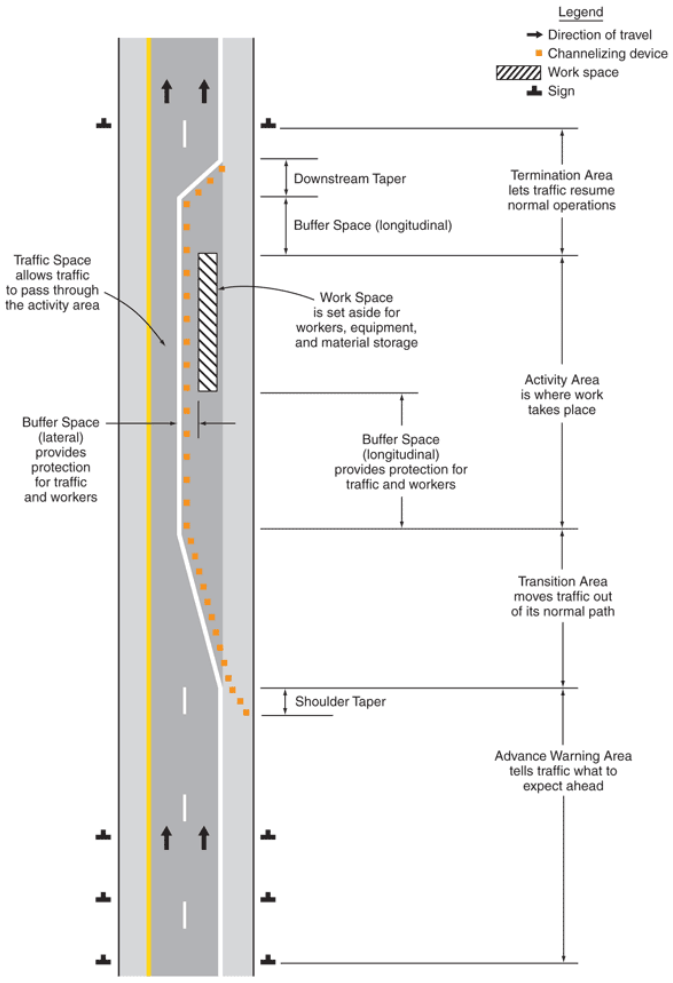


TEMPORARY TRAFFIC CONTROL PLANS

Throughout our job sites you will see two different types of Traffic Control Plans. The Temporary Traffic Control Plan will define the work zone. It should show tapers, work areas, and buffer spaces, as well as where flaggers and signs go. It is generally handled by the Project Manager and is usually just set up at the beginning of a job.

The second type of plan is the Internal Traffic Control Plan. You learned about it during your review of Risk Assessments. It will show you where Equipment will be placed, pedestrian free zones, loading and loading areas, etc. This should be shared with anyone who enters the job site including outside contractors and vendors who may deliver items to the job.

Figure 6C-1. Component Parts of a Temporary Traffic Control Zone



Work Zone Safety Compliance Review Questions
All road crews have knowledge of and understand the CRH AMAT Backer Spotter policy.
MOT personnel and flaggers have been trained according to their duties.
All equipment is outfitted with sufficient retro-reflective tape to be seen at night and the tape is clean and in working order.
A copy of the most current MUTCD/state/local/project specific traffic control standards are immediately available for review on all projects.
All equipment operating in a work zone is equipped with flashing lights as applicable.
All work zone traffic control is inspected and documented by a competent person.
All work zone employees have received work zone awareness training.
All reverse systems, echo location systems, back up alarms, including those of contractors, are working properly.
Work zone employees are familiar with the Work Zone Intrusion Prevention Manual.
An ITCP has been created and is being used to control internal movement.
Employees are aware of the 10 foot rule when working around equipment and the 20 foot rule for safe distance for roller to paver.

Employee Engagement

- Employee groups must participate in problem solving and risk reduction tasks to foster employee engagement
- Engagement opportunities such as near-miss reporting, behavior observations and mentoring of others, etc. must be implemented

An employee driven safety culture is an environment where the employees take full responsibility and ownership of their safety and the safety of those around them. It is only when this culture exists that we can expect to achieve our goals of zero fatalities and incidents. We realize that our employees are the subject matter experts and only with their input and involvement will we move our safety program to the next level. CRH strives to achieve 100% employee participation. Some examples of employee involvement/engagement activities include: Participation on an SLT, reporting near misses, conducting employee observations, being an active participant on a safety committee, having 5S responsibility, leading toolbox talks, conducting FFE audits, and teaching portions of annual training courses.



EMPLOYEE SAFETY COMMITTEES

Employee Safety Committees are an integral part of improving our safety culture. The committee's goal is to identify certain risks which they believe present some of the greatest safety concerns in their work environment. The teams consist of employees from across the operations and include representatives from each line of business. The teams meet at a minimum of once per month to discuss safety improvement opportunities and to identify solutions and improvements.

Additional safety teams may be established for specific jobs, tasks, or projects.

NEAR MISS REPORTING/SAFETY OBSERVATION

The reporting and review of safety observations and near-misses that occur in our facilities or on our jobsites is an essential part of our efforts to improve the safety of our operations. Employees have the opportunity to report safety concerns, observations, or near-misses through the Company's Safety Portal, hard-copy forms, or verbal reporting to the employee's supervisor or safety team. Employees reporting safety observations or near-misses may be eligible for points through the Company's employee incentive plan.

5S

The 5S program is a housekeeping initiative that allows employees to perform tasks more safely and efficiently. The 5S process helps to organize our work areas, reduces the potential for slips and falls, and allows for a more accurate count of inventory for parts, supplies, etc.

5S Elements

- Sort- Sort items based on usage needs, disposing of non-essential items, and eliminating sources of clutter.
- Simplify – Simplify access by arranging items in the work area and establishing guidelines.
- Sweep – Visual sweep of the work area to ensure that everything is in its proper location. A visual sweep of the work area should instantly tell you what is missing or misplaced.
- Standardize – Standardization makes information about locations more recognizable. For example, if all labels on a shelf are formatted the same way, it is easier to visually sweep through the area.
- Self-discipline (Sustain) – Self-discipline is the routine practice of all the steps that precede it. Self-discipline is having all employees doing their part to carry out the 5-S actions.

Employee Engagement Compliance Review Questions
Employees are involved in a Safety Leadership Team (SLT), Safety Committee, Employee Workgroup or similar effort where problem solving is performed through employee ideas and input.
Employee engagement efforts such as near miss reporting, behavior observations, leading training, mentoring others, etc., are robust.
The 5-S program is being sustained. It is an ongoing process. Ratings are current and posted at the facility.

Contractor Safety Management

- Contractors must be evaluated using a contractor safety management guide/checklist
- Contractors must be included and participate in daily safety huddles (i.e. T5s) and risk assessments
- Contractors must receive a safety induction and have appropriate oversight when working at facilities or on jobsites
- Contractors must be informed of and follow all PPE requirements

In order to achieve zero fatalities with our subcontractors, CRH has established Contractor Safety Management Guidelines to ensure that appropriate steps are taken to establish a minimum level of safety with all of our subcontractors on our project sites, contractors performing work at our facilities and the hired haulers delivering our product. By working with our contractors to review their safety culture and practices, we can help them to achieve zero fatalities while reducing and eventually reducing or eliminating incidents and injuries.

A message from our senior management…….

A fundamental value at all CRH companies is to provide a safe, healthy and clean work environment for our employees and for all of our business partners. Our commitment is to ensure that everyone returns home safely to their families every day. We accomplish this through the execution of three Safety Core Values:

-Zero Fatalities

-Zero Incidents

-An Employee Driven Safety Culture

While we have made great progress instilling these core values across our group, we have not been as successful in establishing these values with our business partners. As a result, in 2010, four of our subcontractor's employees were killed while performing work on our projects. No fatality is acceptable and we are committed to eliminating all fatalities for all employees working for or with us.

In order to achieve zero fatalities with our subcontractors we have created the enclosed "Contractor Safety Checklist" and "Guidelines." These are designed to establish a minimum level of safety with all of our subcontractor partners to include subcontractors on our project sites, outside contractors performing work at our facilities and the hired haulers delivering our product. By working with our partners to confirm and/or enhance their safety culture and practices, we can help them to achieve zero fatalities while reducing and eventually eliminating all minor injuries. As an added benefit, we firmly believe that implementation of our minimum safety standards will improve the overall effectiveness of our business partners and reduce their cost.

Please incorporate the enclosed practices with your business partners as soon as practical in the coming months and ensure that all employees involved with CRH achieve a high level of safety performance with zero-fatalities as a fundamental core value.

As we move forward, we welcome further suggestions and refinements to our program for achieving safety excellence with our business partners.

Thank you for extending our expectations of safe performance to everyone we work with.

*** The purpose of this document is to provide internal guidance for CRH operations and is not intended to be shared with subcontractors or others outside of our subcontractor management process. The "Contractor Safety Checklist" is designed to facilitate the conversations with sub-contractors. ***

The information included in this guidance document can be used as the foundation to a progressive contractor safety management process. This document is aligned with the "Contractor Safety Checklist".

CONTRACTOR SAFETY MANAGEMENT GUIDELINES

Phase 1- Contractor Pre-Qualification

The appropriate and reasonable inquiries should be made to contractors who are being considered for partnership. In general these areas are:

1) An overview of their safety record and work practices; and

2) Specific safety practices pertaining to the work to be performed at CRH facilities.

- Safety Performance Review – Safety Pre-Qualification.
- Experience Modification Rate (EMR) and OSHA/MSHA Logs for last 3 years of performance.

(See Contractor Safety Checklist items 1-2)

Phase 2 – Subcontract/Vendor Agreement Award

The safety expectations/requirements of the local CRH Company should be included as a specific part of any written contract/agreement (See attached addendum 2). In lieu of the attached Safety Addendum the local CRH Company may attach a copy of their safety policy and procedures to the subcontract/agreement. The use of the CRH Subcontract, Vendor Agreement and/or Trucking Agreement, as approved by the CRH Law Group is required.

(See Contractor Safety Checklist item 3.)

Phase 3 –Pre work

Environmental, Health and Safety

Safety information should be provided to the contractor/hauler/vendor prior to their commencement of work on CRH facilities/projects. This ensures a clear consistent message regarding our safety requirements and performance expectations. Example of documents and information may include but is not limited to:

- A copy of the local Company Environmental Health & Safety (EHS) handbook or letters and documents outlining CRH safety requirements.
- Safety briefing on CRH expectations and requirements.
- Safety Pre-Bid - Safety Pre-construction meeting – review site safety awareness – Discuss the Completed Contractor Safety Checklist.
- Provide expectations to ensure compliance with the CRH Fundamentals for Fatality Elimination and:
  - Specialized Work Requiring PPE Beyond General Site Requirements
  - Environmentally sensitive work such as Asbestos abatement or superfund reclamation.

Insurance

CRH requires a written certificate of insurance, naming our CRH Company as an additional insured, on a primary basis, with waiver of subrogation, with minimum limits that are established in the written contract. The insurance shall provide adequate coverage for the risk/exposure from the contractor or work. CRH Law approved Additional Insured and Waiver of Subrogation language should be in place. This information can be found on the CRH Interchange site.

Each CRH operating Company should have a process in place to ensure that **(1)** we are receiving the written contracts timely; (2) the certificates of insurance name us as an additional insured, and the insurance is on a primary basis with waiver of subrogation language and contain the necessary insurance and correct limits; and (4) we have a system which notes when certificates of insurance expire, and what we are doing to obtain an updated certificate before the current one expires.

(See Contractor Safety Checklist items 4-7)

Phase 4 - Contract Implementation

ARRIVAL ON SITE

A "kick-off" safety briefing should be conducted with all contractor personnel when they arrive at the Project/Facility. This on the job briefing should be conducted and documented by CRH site personnel to establish lines of communication and reinforce contractor safe performance expectations. A Risk assessment (TRACK, T5, THINK, SAFE, Pre-shift meeting, etc.) to discuss the day's work activities is one example. Another example could be a checklist designed from the pre-bid conversation. *"High Risk" Contractors have more in-depth requirements (addendum 1).*

Regular Ongoing Safety Information and Communication with Subcontractor

A systematic approach should be taken to continue the dialogue and education, for both the contractors and our Company representatives. Therefore planning specific times and topics to converse with our subcontractors about progress, safety issues, best practices, etc. are very important. Below are examples of successful activities:

- Expectation of Participation in Risk Assessment—TRACK, T5, THINK, SAFE Meetings.
- Expectation of Participation in Toolbox meetings or documentation provided to CRH that subcontractor safety meetings are being conducted.
- Review and explain expectations for Fundamentals for Fatality Elimination
- Share educational materials for CRH FFE (Audit tools, etc.)
- General Information/Orientation for project or site
- Safe Backing Requirements
- Review of other Safe Production and Target Zero expectations

DURING CONTRACTORS WORK

CRH personnel should provide oversight and periodic inspections of contractor's work. The CRH Fundamentals of Fatality Elimination shall be reviewed and reinforced with all contractors. Periodic observations/surveys of safety performance are also strongly encouraged.

(See Contractor Safety Checklist items 8-9)

Phase 5 and 6 – Completion & Acceptance; Review & Celebration

Contractors should be included in "safe completion" celebration activities with recognition in the form of a letter of appreciation to the Company or directly with a crew if a project was completed safely and timely. Ultimately this will ensure a good working relationship with the contractor. Cooperation is critical – it is very easy to list standards and demand compliance – we believe safety is everyone's responsibility and a healthy partnership is mutually beneficial.

Addendum 1

Minimum Requirements for Safety Inductions

for High Risk Contractors

1. Minimum Requirements for Safety Inductions for High Risk Contractors

Objectives

- To ensure that a consistent approach to the safety induction of contractors involved in certain activities where there has been a trend of contractor fatal accidents, namely
  - Work involving LOTOTO
  - Haulers/Truck Drivers
  - Paving/Road Surfacing work
- To assist each Company in benchmarking against best practice in terms of safety induction.
- To require each Company to close out any issues

identified in this gap analysis Points to Note

- A Safety induction is not an isolated or standalone process , it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process , ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks , campaign activities etc.
- Inductions must be site or task specific and must be based around the site and work to be completed. While certain elements of the induction may be generic e.g. advice around manual handling, an induction should always have a significant element of site/task safety related information.
- All inductions must include an assessment. This assessment should be credible in that the questions asked should require site specific or technical knowledge relevant to the site/task.
- Induction can take place remotely through an online program or at the site, once the identification of the person can be verified. Once at the site, the person involved should still receive a brief verbal reminder of the key safety issues e.g. Cardinal Rules, Site Transport Rules.
- Site Inductions are deemed to be effective for 12 months
- While DVDs can be used for Induction material, they must be site specific and cover the key issues outlined below – the more site specific material, the more effective is the Safety Induction.

1.1 Minimum requirements for the Safety Induction of Haulers/Truck Drivers

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract companies/broker details around vehicle certification, driver permits etc.

	Item to be covered in the Induction	
1	Company Safety expectations on safety and contractor safety.	
2	Site Layout – Loading/Unloading points, one way systems.	
3	Site Speed Limit.	
4	Procedures around loading including the requirement not to leave the truck cab during loading.	
5	Personal Protective Equipment (PPE) requirements.	
6	Site warning system (in the event of blasting) - where applicable.	
7	Safety requirements for delivery to customer sites [1]	
8	General Construction site safety (where deliveries are to construction site safety): • Traffic Control Plan (internal, external). • Using lifting equipment (general precautions in addition to formal certification).	
9	Safe Access to vehicle (for load security, addition of admixtures, adjusting of tanker inlet points).	
10	Safe access to and from vehicle.	
11	Safe cleaning of the vehicle.	
12	Site rules around the issue of ad-hoc maintenance of trucks: • This will cover the rules and restrictions around adhoc truck maintenance such as tire checking/ inflation, battery charging/jump starting. • It should be stated clearly when such activities are not permitted, or that there are supervisory requirements around such work apply to the site.	
13	Product Handling / Load Security basics for precast and paving (where appropriate).	
14	Site Cardinal Rules.	

[1] Some countries have legal requirements / national association level courses for construction materials drivers delivering to construction sites.

1.2 Contractors involved in Paving Operations

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract companies' details around previous experience in this type of work and individual worker training details.

Item to be covered in the Induction		
1	Company Safety expectations on safety and contractor safety.	
2	Personal Protective Equipment requirements.	
3	High Visibility Clothing requirements.	
4	Traffic Control requirements - general precautions.	
5	Traffic Control requirements - for the particular site, including the site specific traffic control plan.	
6	Procedures for reversing.	
7	Emergency procedures.	
8	Working near mobile plant - general precautions.	
9	Working near mobile plant - for the particular site.	
10	Night time work - general precautions.	
11	Night time work - for the particular site.	
12	Procedures for laying out traffic control measures e.g. cones.	
13	Site / Job Cardinal Rules.	
14	Hot material handling - personal protective equipment.	
15	Consequences for not following CRH Safety requirements.	
16	Review of control measures to prevent contact with reversing vehicles at this site/on this job e.g. use of bankspersons etc.	
17	Assessment.	

1.3 Contractors involved in work where LOTOTO is required: Minimum Standards

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract Company's details around previous experience in this type of work and individual worker training details.

Item to be covered in the Induction		
1	Company expectations on safety and contractor safety.	
2	LOTOTO procedures at site: • Isolation Owner process. • Group lock out procedures (where applicable). • Try Out / Confirmation step.	
3	LOTOTO change management procedures (when the original task has changed).	
4	Confirmation that each contractor has been issued or has their own lock (this is the responsibility of the CRH person completing the induction). • This element of the induction must include a physical demonstration of the use of a padlock and its correct attachment to an Isolator lock. • Where pneumatic or hydraulic isolation is an element of the task involved, then the induction must include a physical demonstration of the use of the locking device e.g. an air valve lock in question and its correct attachment.	
5	Accident Case Study (Electrical Isolation) - Mountsorrel 2017. This will involve a review of the CRH safety alert for this particular accident.	
6	Accident Case Study (Pneumatic Isolation) - Lemona 2017 .This will involve a review of the CRH safety alert for this particular accident.	
7	Accident Case Study (Electrical Isolation) - Florida 2016. This will involve a review of the CRH safety alert for this particular accident.	
8	Electrical Isolation procedures/requirements at this site - physical demonstration of an air-valve lock (where applicable).	
9	Site / Job Cardinal Rules.	
10	Consequences for not following CRH Safety requirements.	
11	Assessment.	

Addendum 2

Subcontract Contractor Safety Rules

1. **Safety Representative/Safety Meetings/Self-Inspections.** Subcontractor shall designate a competent safety representative and require the safety representative to be on site whenever Subcontractor's employees are on the Project. Contractor shall have the right to reject Subcontractor's safety representative. Subcontractor's safety representative may be required to attend any safety meetings scheduled by the Owner or Contractor. Further, Subcontractor's safety representative shall conduct random safety inspections of the Subcontractor's operations and provide the same to Contractor upon request.

2. **Safety Program/Contractor Inspections.** Subcontractor shall prepare and adhere to a written safety program at all times. In addition, Subcontractor shall comply with Contractor's Safety Program to the extent it imposes more stringent and/or additional requirements. Subcontractor shall cooperate with any inspections that may be conducted by Contractor and take any actions needed to correct, abate, and/or eliminate unsafe conditions.

3. **Training.** All Employees and other persons entering the Project under the direction of, or for the benefit, of Subcontractor shall be trained in accordance with all applicable legal requirements for the work to be performed on the Project. In addition, Subcontractor shall conduct at least one safety meeting (*e.g.*, tool box talks) per week with its employees for the purpose of discussing topics relevant to the work being performed on the Project. Subcontractor shall maintain records of all training and provide the same to Contractor upon request.

4. **Personal Protective Equipment.** Subcontractor shall require its employees on the Project to utilize personal protective equipment ("PPE") that is of safe design and construction for the work on the Project. Such PPE will comply with all American National Standards Institute ("ANSI") specifications. Subcontractor's employees on the Project shall wear the following PPE at all times: ANSI-compliant hard hats; ANSI-compliant safety vests/apparel; shirts with sleeves; and long pants. All other PPE (*e.g.*, foot protection, hearing protection, respiratory protection, eye and face protection, *etc*.) shall be used as required by applicable regulation or contract.

5. **Vehicles/Equipment.** Subcontractor shall comply with all applicable Department of Transportation ("DOT") regulations and ensure that (a) all vehicles and drive-able equipment brought to, and/or used on, the Project by Employees are equipped with working horns, (b) all such vehicles and equipment with an obstructed rear view have working reverse signal alarms (*i.e.*, backup alarms), (c) all alarms are in proper working condition, in use at all times, loud enough to be heard above the surrounding noise level, and in full compliance with all applicable OSHA regulations (*e.g.*, 29 C.F.R. § 1926.601), MSHA regulations (*e.g.*, 30 C.F.R. § 56.14132), and other legal requirements, and (d) all vehicles and drive-able equipment with obstructed rear views are guided by an "observer" (*i.e.*, a backer) whenever backing toward any type of material transfer vehicle such as an asphalt paver, shuttle buggy, milling machine, shoulder widener, *etc*.

6. **Transportation.** No person may be transported in any vehicle or equipment unless such person is seated in a seat that is firmly secured and such person is wearing a seatbelt meeting all applicable safety standards (*e.g.*, Federal Motor Vehicle Safety Standards and Regulations). No one is allowed to ride in vehicles (*e.g.*, the backs or sides of trucks) or on pieces of equipment (*e.g.*, loader buckets, trailers, *etc.*) that are not equipped with seats designed to safely accommodate the number of passengers riding therein.

7. **Traffic Control.** Subcontractor shall comply with all applicable laws, regulations, and project specifications governing traffic control, including any applicable specifications contained in the Manual on Uniform Traffic Control Devices ("MUTCD"). In the event that Subcontractor's work places them in a position with the potential to affect traffic, or if the Subcontractor's work affects the placement or visibility of traffic control warning signs, barricades or other devices or any other part of the traffic control plan for the project, Subcontractor shall notify, plan and coordinate said work with the person responsible for Traffic Control on the project.

8. **Language.** Subcontractor shall ensure that English-speaking Employees who are capable of providing fluent translation are present at all times in which non-English-speaking Employees are present.

9. **Governmental Inspections/Investigations.** Subcontractor shall notify the PM and/or EHS Manager as soon as possible of all inspections and/or investigations involving the Work and/or the Project that are conducted by, or on behalf of, governmental authorities. Such inspections and/or investigations include, without limitation, the following authorities: Occupational Safety & Health Administration ("OSHA"), Mine Safety & Health Administration ("MSHA"), DOT,

law enforcement authorities, environmental authorities, *etc*. Subcontractor will report to the PM and/or EHS Manager and keep them promptly apprised of all developments in such inspections and/or investigations, including, without limitation: issuance of warnings, citations, notices of violation, subpoenas, warrants, injunctions, administrative orders, court orders, abatement measures, contests, settlements, litigation, *etc*.

10. **Competent Person.** Subcontractor will ensure that there is a Competent Person (as defined by applicable OSHA/MSHA standards) present at all times for all parts of the Work legally requiring the presence of a Competent Person (*e.g.*, trenching and excavation, fall protection, scaffolding, *etc.*). Subcontractor will designate such Competent Person to Contractor. Contractor may reject the Competent Person chosen by Subcontractor.

11. **Substance Abuse Program.** Subcontractor shall be governed by a written substance abuse program that includes pre-hire drug and alcohol testing, post-accident drug and alcohol testing, random drug testing, and reasonable suspicion drug and alcohol testing in compliance with all applicable laws. All Employees testing positive for drugs and/or alcohol will be prohibited from working on or in connection with the Project.

12. **Incident Reporting.** Subcontractor shall notify Contractor's Project Manager ("PM") and/or EHS Manager of all safety-related incidents involving: (a) Subcontractor and/or its employees and (b) the Work and/or the Project. Subcontractor shall promptly and thoroughly respond to, and investigate, all safety-related incidents and complaints. Further, Subcontractor shall report to the PM and/or EHS Manager as often as directed on the status of such responsive/investigative efforts.

IMPORTANT, PLEASE READ: THESE SAFETY RULES ARE IN NO WAY INTENTED TO CONSTITUTE AN EXHAUSTIVE LIST, OR EVEN A SUMMARY, OF SUBCONTRACTOR'S LEGAL AND CONTRACTUAL RESPONSIBILITIES. SUBCONTRACTOR SHALL OBTAIN AND STRICTLY COMPLY WITH ALL LEGAL AND CONTRACTUAL REQUIREMENTS GOVERNING ITS WORK.

This form should be completed by the Estimator/Project Manager or Supervisor of the CRH Company or one of its subsidiary companies in conjunction with the Contractor involved. Any Safety issues arising from the activities of the Contractor, such as failure to wear agreed PPE, should be immediately addressed, noted and a copy of such notes should be issued to the Contractor involved.

Contractor Safety Checklist

Date: _____ Location: _____

Contractor Name:_____

Nature of Work: _____

Contractors Designated person in charge of site: _____

Annual Review ☐ Project Specific ☐

NOTE:

☐ All Contractor Employees, regardless of job activity, must be over the age of 18. Contractors involved directly in Quarry Activity must be properly trained and have documentation of that training. Written details of training/experience must be provided.

☐ All Contractors/ Sub -Contractors must complete a Company Safety Orientation, to cover the Fundamentals of Fatality Elimination and relevant safety policies.

1. OSHA, MSHA or DOT Reportable Accidents or Fatalities

Provide details of OSHA, MSHA or DOT reportable accidents or fatalities, involving your firm, which have occurred over the last five years.

_____

_____

_____

_____

Please provide the following documents:

☐ MSHA Injury Reports (if applicable)

☐ OSHA 300 Logs

☐ Three (3) years of Experience Modification Rates

2. OSHA, MSHA, EPA Citations or Notices

Please provide a brief summary of any citations or notices of violation within the last three (3) years: (OSHA, MSHA, EPA)

		YES	NO
3.	CRH Safety Policy or Contractor Safety Rules (Addendum) have been reviewed:		
4.	CRH Fundamentals of Fatality Elimination has been reviewed:		
5.	Contractor/Subcontractor Environmental, Health & Safety (EHS) Manual Provided (manual should address Risk Assessment & Compliance):		
6.	Has a copy of the Contractors Drug/Alcohol Policy been provided? If no, copy must be provided.		
7.	Does the Contractor have a procedure for reporting of all accidents in place? **The location manager must be notified of all accident notifications to OSHA, MSHA, EPA and DOT as required under regulatory obligations. As a general/prime contractor, CRH should be added as a contact.*		

INSURANCE REQUIREMENTS

Name & Phone of Insurance Agent:

Please review the attached insurance requirement outline, sample Certificate of Insurance and Endorsements to verify that you meet our insurance requirements.

A copy of your Certificate of Insurance with endorsements is required for review.

We have reviewed the attached documents and we fully meet the CRH insurance requirements.

YES ☐ **NO** ☐

If you checked NO, please indicate from the list below which of the CRH insurance requirements you do NOT meet:

	General Liability Limits Per Occurrence and/or Aggregate
	Per Project General Liability Aggregate
	Umbrella / Excess Limits
	Business Auto Liability Limits w/ Any Auto or Combined Owned/Hired/Non-Owned Autos
	30 Day Notice of Cancellation
	Workers Compensation with Employers Liability
	Additional Insured Endorsements

	Waiver of Subrogation Endorsements
	Primary and Non-Contributory Endorsements

PERSONAL PROTECTION EQUIPMENT

The following are required **AT ALL TIMES** on site:		Additional PPE requirements: Where required by regulations, laws, or when conditions or tasks that warrant additional PPE	
Hard Hats	☐	Hearing Protection	☐
High Visibility Clothing	☐	Hearing Protection	☐
Safety Footwear	☐	Protective Gloves	☐
Eye Protection	☐	Additional PE: _____	

A Safety Manual from the following CRH Location: _____

Has been issued to me on the following date: _____/ _____ / _____

The following information has been reviewed with me by the CRH Estimator /Project Manager/ Supervisor:

		Initial
1.	All persons employed by me at the CRH site will be made aware of the contents of the CRH location Safety Statement and will complete a safety briefing before commencement of work.	
2.	All persons employed by me will be adequately trained, either by relevant experience or by qualification. Written details of training /experience/ qualification records will be provided upon request. All such persons will be over the age of 18.	
3.	Where an operation is undertaken which differs from the terms of the contract, the operating procedure to be used will be brought to the attention of the Supervisor.	
4.	All machinery used by my employees at the CRH locations will be maintained & operated in accordance with the manufacturers' specification, and where required by law, relevant inspection certificates shall be maintained and made available to the Supervisor.	

I fully understand the safety obligations as detailed above:

_____ _____

Contractor

CRH Estimator/Project Manager/Supervisor

_____

Date _____



Contract Transport Safety Guidance

For the Effective Safety Management, Oversight and Partnership between CRH Americas Materials (CRH) and Trucking Subcontractors (Hired Haulers)

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Trucking & Hauler Subcontractors (Haulers) include, but are not limited to:

- Aggregate and Material Haulers
- Hot Mix Asphalt or Liquid Asphalt Cement Haulers
- Fuel Tankers, Oil Haulers and Similar Bulk Liquid Trucks
- Dry Bulk Material Haulers (i.e. cement, fly ash, etc.)
- Equipment Transport Haulers & Services
- Large Vehicle Towing Services

The information included in this guidance document can be used as the foundation to a progressive contracted rolling fleet management process. The Hauler Compliance Audit Checklist in Appendix “A” and Hauler Site Specific Hazard Awareness form in Appendix “B” are designed to help increase our internal compliance efforts and to assist in facilitating conversations with trucking & hauling contractors (Haulers).

***NOTE:** *Only Appendix B – “Hauler Site Specific Hazard Awareness”, and Appendix C – “Additional Training References for Haulers” of this document are intended to be shared directly with haulers along with appropriate communication and/or discussion by a CRH manager.*

Step 1- Pre-Qualification of Trucking / Hauler Contractors

Appropriate and reasonable inquiries must be made into haulers who are being considered for partnership with CRH Americas Materials Companies (CRH).

CRH supervisors, managers and/or administrators should first follow the Pre-Qualification process in its entirety as outlined in the CRH Contractor Management Guidelines, *current revision*.

Additional areas of inquiry for hauling contractors can include:

1) Request the Hauler's Accident Register for the past three years, if applicable

Note: *FMCSA requires all carriers involved in an FMCSA-reportable crash in the past year to retain an Accident Register or report. A reportable crash is one in which a vehicle was towed from the scene, or an injury or fatality occurred. Records must be kept for three years.*

2) Review the Hauler's status with the Federal Motor Carrier Safety Administration (FMCSA) and other key information by going online to the following link:

https://safer.fmcsa.dot.gov/CompanySnapshot.aspx

Note: *Keep in mind that information for items #1 and #2 above are readily available online to the general public. Therefore, this information is also readily available to insurance carriers, attorneys, investigators or anyone else who wants to discover a carrier's status and/or safety record with FMCSA following an accident*

3) Request a copy of the hauler's safety manual, if available. Review any safety practices pertaining to the type of work they would perform at CRH facilities and/or projects for consistency with our requirements, as applicable.

4) Third party haulers should come to CRH with a high level of expertise and qualifications for their work, and we expect that their Company/owner/broker/manager will provide drivers with the basic training they need to work safely. CRH estimators, managers and other professionals involved in the qualification process should make inquiries into how the hauler provides training to their drivers to ensure they possess adequate knowledge and understanding of the hazards involved in the work. Consider providing them with the information and links found in Appendix "C" to supplement their training.

5) All haulers contracts, insurance and related documentation should be internally audited at least annually to meet CRH requirements. Insurance documentation should be reviewed more frequently and/or expiration dates tracked. Consider using the example audit document found in Appendix "A" for this purpose.

Trucking / Hauling Agreement and Insurance

A Hauling Agreement should be used whenever hiring a person or entity to haul materials for the Company (aggregates, asphalt, cement, fuel, etc.). The Hauling Agreement must be approved by our legal group and include the following insurance requirements:

- General Liability limits of $1,000,000 per occurrence, and $2,000,000 in aggregate.
- Auto Liability limits of $1,000,000 combined single limit (aggregate does not apply on auto)
- Workers Compensation at state statutory limits for Coverage A and $1,000,000 for Coverage B employers liability.
- Excess Umbrella Limits of $1,000,000.
- Appropriate language naming the CRH Company as an additional insured and with insurance providing that rights of subrogation against us are waived to the fullest extent permitted by law.

CRH recognizes that it is sometimes difficult for owner-operators to obtain these limits in certain markets. If you encounter any issues with regard to these limits, please discuss them with Richard Brimfield, AMAT Director of Risk Management. Each CRH division should coordinate a review and implementation of proper hauler contracting practices, oversight and monitoring where exceptions should only be made through an approval process directed by senior business leaders. Our risk management and legal teams are always prepared to field calls and inquiries and work with our businesses to review and update our contracting processes. Senior business managers will ultimately decide how to proceed, but let's make sure the decision is an informed decision with an understanding of the legal risk associated with each decision.

Step 2 – Induction of Hired Haulers

All Haulers must receive a safety induction following the **Minimum requirements for the Safety Induction of Haulers/Truck Drivers** found in section 1.1 of the CRH Contractor Management Guidelines, *current revision*.

There are various ways of carrying out an appropriate safety induction. The best way to do this includes a combination of the following:

Meetings, Training Events and other Gatherings

- Pre-Qualification in-person meetings with brokers/owners/hauler managers
- Pre-Project meetings – in office with key hauler leaders
- Pre-Project meetings – in the field with key hauler leaders as well as individual hauler drivers
- CRH Managers should strive to attend hauler driver trainings, where practical, or gatherings organized by the hauler for disseminating safety information to drivers
- Invite key hauler personnel to attend CRH monthly, quarterly or other periodic training meetings where relevant safety issues will be discussed
- CRH personnel should provide appropriate safety messages to individual hauler managers and drivers in various locations (office, site, loadout window) whenever possible and practical.
- Periodically pass out appropriate policies, information, flyers, ITCPs, etc. to hauler/drivers at the plant site or project followed by a brief discussion of our requirements.
- Periodically perform organized checks of back-up alarms at plants and/or sites and discuss relevant safety requirements with drivers as this is done.
- Occasionally, send certified letters to haulers with information on CRH safety requirements with instructions to distribute to individual drivers.
- Implement an online training approach to supplement a safety induction (See Best Practices section of this document for more ideas)

Below are some CRH line of business items & information that may be helpful in providing haulers the required safety information for our specialized operations:

Facility or Site Specific:

- Provide a site specific orientation at the facility for each individual driver when they are new to our operations (See Appendix “B” for an example document which can be used to help conduct a CRH compliant site specific induction)
- Provide appropriate Company handbooks, policies, guidelines and/or documents outlining CRH safety requirements.
- Distribute handouts of the Vehicle and Pedestrian Segregation (VPS) plans for the site.
- Explain and distribute local site rules pertaining to haulers
- Loading or offloading rules, as applicable, and instruction on who to contact for assistance
- Relevant safety topics on required PPE, safe vehicle operation at CRH sites, etc.

Note: In order to aid comprehension and compliance, information distributed to haulers should be limited and focused on items like our CRH Life Saving Rules (LSR) and other high hazard activities (i.e. backing and maneuvering vehicles, loading and unloading processes) relevant to their work.

Road Construction & Paving Projects:

- CRH Guidelines for Repositioning/Backing Equipment on Job Sites (Paving, Milling, etc.)
- Internal Traffic Control (ITCP) plan for the specific project or type of work they will be performing, as applicable.
- CRH Backer Spotter policy
- Information Relating to the CRH 10 Foot Rule
- Work Zone Related Safety Topics
- Review CRH ‘Bed Up’ safety procedures

Note: In order to aid comprehension and compliance, information distributed to haulers should be limited and focused on items such as the CRH Life Saving Rules (LSR) and information referencing other high hazard activities (i.e. backing and maneuvering vehicles, loading and unloading processes, etc.) relevant to their work.

Communicating the Internal Traffic Control Plan (ITCP):

While an ITCP is primarily utilized to minimize backing and other conflicts between pedestrian workers and work vehicles, it must be effectively communicated to haulers, contractors, employees and other affected workers who will be in the work zone. Some things to consider:

- Include a copy of the base ITCP as an addendum to your contract with haulers
- Discuss relevant aspects of the ITCP every day in your contacts with haulers
- Talk about the ITCP in all pre-construction and/or progress meetings that include haulers
- Give the ITCP to hauler leaders so they can explain and hand it to their individual drivers
- Make ITCP and any relevant updates a regular part of all pre-shift communications
- When changes to the ITCP occur, ensure a plan is in place to communicate via radio, text, tablet, discussion, handout, etc. or through hauler leaders
- Ensure that the ITCP includes information on access to and egress from the work area, and the location of equipment and materials storage, staging and cleanout areas, as applicable
- Use the term “ITCP” so everyone gets familiar with what this means and the importance of it
- A violation of the ITCP should be treated as a violation of a Company safety policy

Note: In November 2013 – OSHA, NIOSH, NAPA and ARTBA agree that ITCP’s should be mandatory. CRH also adopts this practice.

Liquid Asphalt Cement, Fly Ash & Fuel Deliveries:

- The CRH approved legal weight sign should be posted at every plant site to make clear our policy regarding overweight vehicles *(see caption at right)*
- Asphalt Plants should provide instruction and signage regarding asphalt cement offloading procedures, and any special hazards. Signage should include the PPE required and appropriate warnings regarding hot liquid asphalt and hydrogen sulfide (H2S).
- Other bulk delivery haulers should receive appropriate instruction and warnings for offloading their specific product at our sites.
- Relevant instructional or warning signage should be installed in a position close to the point where haulers offload so they can readily see and read the information.

CRH SHOULD GIVE PREFERENCE AND OPPORTUNITY FOR ADDITIONAL WORK TO THOSE HAULERS WHO COMPLY WITH ALL CRH EXPECTATIONS.

Step 3 – Facility and Project Site Safety

Our role with Haulers is one of oversight. Broadly, this includes ensuring appropriate levels of supervision and direction are available for the types of tasks being performed and that they are carrying out their responsibilities safely.

Our supervisors, dispatchers, loadout personnel and other field level workers should interact and observe haulers at regular intervals and make **appropriate inquiries** into the safety critical aspects of their work. Some ways we should be doing this on a daily basis include:

1) Contractor Transport Safety Checks:

- Is Personal Protective Equipment (PPE) available and worn by the driver if they need to exit their truck. (Drivers should remain in their cab as first priority and should not exit unless instructed to or absolutely necessary)
- Is the load secured before leaving our site, as appropriate (i.e. tarped, chained, strapped, etc.)
- Reverse warning alarm/reverse light installed and operable.
- No cell phone use while operating trucks on our sites in accordance with CRH expectations.

Reference: Schedule 1, Safety Policy & Operating requirements of the CRH Trucking Agreement, for more information on above items.

2) Preventing Back over Accidents:

While we should instruct CRH personnel to interact with haulers for any observed safety violation or unsafe act, the following items must be given immediate attention in order to prevent back over accidents - **the person making the observation must immediately take action to stop the operation:**

- Backing without a spotter toward any material transfer vehicle (i.e. milling machine, shuttle buggy, paver, road widener, etc.)
- Backing while any person is observed in the travel way of the backing vehicle
- Anyone working immediately behind an idling dump truck without a spotter.
- Backing while using cell phone or other electronic devices
- Backing without an operable reverse warning alarm / reverse light and without a spotter
- Backing while coasting downhill in reverse on any roadway (Dump trucks must remain in reverse gear so the back-up alarm automatically sounds and reverse light is on when vehicles are reversing)
- Trucks must not have toggle switches to activate their back up alarms (This requires drivers to remember to flip the switch for the alarm to be heard and introduces human error)

Note: Site supervisors must be informed of these violations as soon as possible.

3) Disabled, Stuck or Overturned Vehicles

Vehicle towing or pulling should be done by a professional towing service commissioned by the hauler.

- In areas where CRH might assist in moving a disabled or stuck vehicle, a risk assessment must be completed, which considers aspects such as suitability of towing vehicle, competence of personnel, proximity of vehicles, slope & gradient, attachment points, etc.
- Only certified towing straps ropes or slings (non-steel, no chains) or fixed draw-bars may be used for towing or pulling stuck equipment.
- Tire checking or inflation, brake adjustments, battery charging and other ad hoc servicing and maintenance is prohibited on CRH Sites unless absolutely necessary to remove a disabled vehicle from the site. Only then is it allowed by qualified service workers to remove the vehicle from the site.
- Righting overturned dump trucks or other vehicles should only be performed by a professional towing service commissioned by the hauler.
- Environmental issues created by spilled fuels/oils are the responsibility of the hauler. Ideally, the hauler will hire an environmental clean-up Company to handle. However, the reality is that it often becomes necessary for CRH to mitigate the spill if the hauler doesn't handle or handle timely. In these cases, document how clean-up was conducted, capture all costs and charge to the hauler. Communicate well with the hauler that this spill is their responsibility and inform of all steps taken during the clean-up.
- Lockout/Tagout (LOTO) is required when working on or around trucks or equipment where the unexpected release of energy can injure workers.

4) Additional Safety Expectations & Interactions

A systematic approach should be taken to continue dialogue and information with our hauler partners. Therefore, planning specific times and topics to converse with our haulers about progress, safety issues, best practices, etc. is very important. Consider the following:

- Hauler participation in Risk Assessment Processes, where applicable —TRACK, T5, THINK, SAFE Meetings.
- Hauler participation in toolbox meetings and/or documentation provided to CRH that hauler safety meetings are being conducted.
- Review and explain expectations for CRH Life Saving Rules (LSR) with haulers.
- Share educational materials for CRH Life Saving Rules, Safety Alerts, Topics, etc.
- Provide information regarding safe movement and maneuvering of their vehicle on site
- Any other special job instructions to each hauler.
- Review of Safe Work and Target Zero expectations.
- Applicable CRH Stand Down requirements.

Additional training references from industry and regulatory sources that we should make haulers aware of can be found in

Appendix “C”. These can be recommended to haulers to supplement their training activities and improve their overall driver training programs.

While CRH expects that brokers/owners/hauler managers will cascade appropriate information down to their individual drivers, CRH leaders should take opportunities to provide safety information first hand to drivers where it makes sense to do so.

To the extent possible and practical, CRH supervisors should document key interactions with haulers e.g. safety checks, meetings/training, as well as safety information/policies/guidance that were provided to them, etc., and not just serious safety violations.

5) Accidents Involving Hired Haulers

Accidents involving hired haulers should be reported to CRH Supervisors and investigated like any other accident. CRH Supervisors should initiate the investigation and help coordinate with the hauler and their local Safety Manager to collect documentation, photographs, witness statements and any hauler communications, as appropriate. In serious accidents, our role is one of evidence collection & preservation for the future use of insurance adjusters, safety professionals, reconstruction engineers, other experts and attorneys.

Step 4 – Best Practices Implementation and Opportunities

CRH’s strength comes from our ability to create, share and adopt Best Practices throughout our operations. We should encourage our Hauling partners to use this same approach. Some Best Practices for CRH and our haulers to consider include:

- When the bed is raised on a dump truck, personnel must stay out of the area between the raised bed and the tailgate. Therefore, a long handled scraper should be used to reach in from the side of the bed opening which will allow personnel to stay out of this danger area and to maintain a high awareness of nearby vehicles and equipment
- CRH strongly encourages the use of back up cameras and/or sensors on vehicles. This is an additional safety measure that should be encouraged to all haulers.
- There are truck monitoring services available designed to monitor hours of service and other safety features (many allow for using own electronic devices). Use of these features/apps are encouraged for haulers.
- On road construction projects, designate an area to clean off tailgates that is away from other construction and paving activities as well as sufficiently removed from both internal and external traffic patterns.
- Communication plays a key role in safe work on our jobsites. While drivers of commercial motor vehicles are prohibited from using cell phones, CB radios are not prohibited under the FMCSA regulations. Some areas still use these devices effectively. If utilized, ensure plenty of radios/C.B.s are in “ready for service” use on the road crews and work sites to communicate with drivers.
- Fixed facilities should consider traffic control measures to slow truck traffic where appropriate. Speed humps, chicanes, ‘rumble strips’ and effective warning signage can help reduce vehicle speed. It is important to select the most appropriate control for your location.
- Signs for drivers and pedestrians in a workplace should be the same as those used on public roads (as shown in the applicable highway code), wherever a suitable sign exists.
- Speed limits should be posted, however, they need to be appropriate, properly enforced and, where possible, consistent across the site. Lower speeds will be appropriate where pedestrians are present or where loaders, dump trucks and other road-going vehicles share a traffic route.
- Every workplace should have suitable and sufficient lighting, particularly in areas where vehicles maneuver, or pedestrians and vehicles circulate and cross on anywhere loading and unloading takes place.
- CRH should work with haulers to be engaged in the safety process in very specific ways. In particular they should be empowered to **STOP WORK** if an unsafe act, behaviour, or conditions occurs/exists. **When I see something, I will Stop, and Do something.**

- Consider holding a breakfast or luncheon at the project or site where haulers can stop by and where key safety information is disseminated (breakfast sandwiches, hot dogs, hamburgers, etc.)
- Send regular brief communications with information on CRH requirements to haulers with instructions for them to distribute to all individual drivers. These friendly reminders can include our repositioning guidelines, PPE requirements, a relevant safety topic, industry safety information or anything else we want to remind our haulers of.
- Following their determination of GVWR, Haulers should post the legal weight of their truck on the vehicle where it can be seen by plant loadout personnel.
- Implement an online training approach for haulers to supplement a safety induction. Include relevant, impactful information (Overview VPS, ITCP, CRH required elements, etc.) and require this induction before a hauler can work on our sites.
- Once a driver has completed the CRH induction/orientation they could receive some sort of decal they could put on their truck that communicates they have completed our program.
- Haulers should consider using the FMCSA Pre-employment Screening Program (PSP) in their driver qualification process (PSP helps carriers make more informed hiring decisions by providing secure, electronic access to a commercial driver's five-year crash and three-year inspection history from the FMCSA). Some drivers are less than forthcoming when sharing their history with a prospective hiring Company. Information on PSP can be found at the following link
- https://www.psp.fmcsa.dot.gov/psp/default.aspx
- Additional Best Practices and information can be found on the CRH interchange site, link below: http://interchange/safety/Pages/default.aspx

Step 5 – Discipline & Documentation

While there are many unsafe acts and conditions we must look out for with haulers in addition to items outlined above, some common or key violations our supervisors and other personnel must keep an eye out for include:

Unacceptable Work Practices

- Drivers not wearing proper PPE.
- Drivers climbing on or inside of truck beds *(i.e. loader operators especially should be trained to verify that the driver is in the cab before dumping material into any dump truck)*
- Working under a raised truck bed that is not properly blocked, braced or supported
- Traveling with the bed raised *(including leaving the immediate area without waiting until the bed has sufficiently lowered for travel)*
- Positioning oneself between the tailgate and truck bed while in the raised position
- No one should stand or walk to the side or dump area of a raised dump body
- Drivers exiting truck cabs on the site without a work related reason or in an appropriate location
- Exiting the cab of the truck without engaging the parking brake
- Drivers on foot entering any truck or equipment travel way or live traffic lanes
- Trucks operating too fast for conditions or in excess of posted speed limits
- Seat belts not worn when the truck is in motion
- Personnel standing on the running board of a truck while the truck is in motion
- Cleaning out beds in locations other than Company approved or designated bed clean out locations.
- Drivers using cell phones or other electronic devices that pose any distraction *(for example, drivers may not use cell phones while loading, unloading, or waiting to load/unload)*
- Drivers performing servicing or maintenance on their vehicles on CRH sites
- Drivers working without proper induction training.

All drivers are subject to the disciplinary process and unsafe behavior can dictate immediate removal and/or termination of service with a driver or lease hauler. If a safety violation is repeated or serious, the issue should be addressed in writing to the hauler owner/broker/manager in a letter, fax or e-mail *(cc other appropriate CRH managers on your correspondence with another copy to the file)*.

CRH SHOULD GIVE PREFERENCE AND OPPORTUNITY FOR ADDITIONAL WORK TO THOSE HAULERS WHO COMPLY WITH ALL CRH EXPECTATIONS.

APPENDIX A

Hauler Compliance Audit Checklist

Name of Hauler: _____

Office or location Where Documents Stored _____

Responsible CRH Admin or Manager: _____

	Yes	No	Comments
❖ **Contractor Checklist Received**	☐	☐	_____
Contractors should be evaluated using the CRH Contractor Safety Management Guide / Checklist			
❖ **Safety Prequalification Docs**	☐	☐	_____
Required Documents include: Hauler's FMCSA Accident Register, EMR (3 yrs.), OSHA 300 Logs (3 yrs.), MSHA Injury Reports (if applicable)			
❖ **FMCSA Online Status & Record**	☐	☐	_____
FMCSA Online record should be reviewed by a competent admin/mgr./safety. When issues with status, violations or accidents are noted, relevant Company leadership should engage the contractor to ensure they have procedures in place to address this.			
❖ **Contract** *signed by both parties*	☐	☐	_____
❖ **Site Specific Briefing Available**	☐	☐	_____
Are there documents available that hauler received the required safety induction for working at CRH facilities or on jobsites.			
❖ **Received current Certificate of Insurance** (evidencing coverages & limits noted below):	☐	☐	_____

Coverage	Limits
General Liability	• $1,000,000 per occurrence / $2,000,000 per policy aggregate • Additional Insured, Primary & Non-contributory, Waiver of Subrogation
Auto Liability	• $1,000,000 per occurrence (For Any Auto or For All Owned, Hired & Non-owned or Scheduled Autos with Hired and Non-Owned) • Additional Insured, Primary & Non-contributory, Waiver of Subrogation
Work Comp	• Statutory Limits for Coverage A and $1,000,000 Employers Liability • Waiver of Subrogation
Excess or Umbrella	• $1,000,000 per occurrence (additional Excess or Umbrella limits can be used to makeup required underlying limits on GL, AL and EL)

If insurance coverages do not meet above requirements, a waiver approved by your local Company president must be completed.

	Yes	No	N/A
❖ **Waiver approved by Company President**	☐	☐	☐

COMMENTS:

Audit Completed By: _____Date: _____

APPENDIX B

HAULER SITE SPECIFIC HAZARD AWARENESS

For Haulers to/from OSHA and MSHA facilities (as a supplement for MSHA site specific)

1. MAINTAIN AWARENESS OF ANY PEDESTRIANS AROUND YOUR VEHICLE AND EQUIPMENT AT ALL TIMES
2. At CRH/AMAT facilities, you must minimize backing at all times. If you must back toward an area where there are pedestrian workers a backer / spotter must be guiding you - no matter how little or how far you are backing.
3. Review all available site maps and truck routes before proceeding into any area. Always go directly to the work area and do not venture / sight-see into any other areas without permission. Seat belts are required to be worn.
4. Every CRH/AMAT site has a Traffic Control Plan. Follow all posted traffic rules, speed limits and travel routes as well as all site specific safe operating procedures for the vehicle or equipment you will be operating.
5. **Stay in your truck during all loading or unloading activities.** Do not wander around or get into the bed of your truck for any reason. If you determine that it is absolutely necessary to leave your vehicle, wear all required PPE and check to ensure that your vehicle is properly secured and safely located. Notify CRH/AMAT of any issues.
6. Personal Protective Equipment (PPE) that is appropriate for the hazard or required by CRH/AMAT shall be worn to ensure protection for personnel and compliance while on site. Hard hats are required to be worn while outside your truck at all facilities, shops and construction sites. *The PPE requirements include, but are not limited to:*

Type of Hazard(s)	**PPE Required**
Head Hazard – impact	Hard Hat
Foot Hazard – impact	Hard Toe Shoes
Face/Eye Hazard – impact & dust	Safety Glasses
Skin Hazard - abrasion	Sleeved Shirt & Long Pants
Face – liquid spray	Face Shield
Hands – abrasion & burns	Gloves (Elbow Length–Liquid AC)

7. Transporting of any objects, equipment or materials must follow all applicable securement regulations as required by local, state and federal authorities. Haulers must clean all tailgates and securely fasten a tarp to all loose loads or take any other necessary action to prevent material from escaping from the truck.
8. Do not park in the operating areas of heavy equipment and/or mobile equipment, CRH/AMAT equipment shall always have the right-of-way. Never pass behind operating mobile equipment unless the operator signals it is okay.
9. No servicing or maintenance of equipment is permitted on CRH/AMAT sites unless absolutely necessary to remove a disabled vehicle from the site. Only then is it allowed by qualified service workers to remove the vehicle from the site.
10. Tire checking or inflation, brake adjustments, battery charging and other ad hoc maintenance is prohibited.
11. Lockout / Tagout (LOTO) is required when working on or around trucks or equipment where the unexpected release of energy can injure workers.
12. Haulers / Truck Drivers who do not abide by all applicable federal, state, or local regulations and/or CRH / AMAT policy or your own Company policy will be asked to leave the site.
13. Diesel fuel or gasoline are not allowed to be used for any cleaning purposes or as an asphalt release agent. Do not allow any chemicals to drip or spill on the ground.

As applicable, additional items should be discussed with your local CRH / AMAT contact if you are unsure of your responsibilities in specific other areas. Always review signage for additional Company safety expectations regarding safe access for vehicles, product handling, loading / unloading points, appropriate site access to and from your vehicle, CRH /AMAT fixed equipment. Never hesitate to discuss safety concerns with your CRH/AMAT site contact.

CRH/AMAT Facility Name:_____ CRH/AMAT Supervisor_____ Today's Date: _____

Contractor Company Name: _____ Office Phone Number: _____

Contractor Site Supervisor: _____ Cell Phone Number: _____

APPENDIX C

Additional Training References for Haulers

There are numerous online resources and websites which contain valuable information for hauler managers and individual truck drivers, including those driving in road construction. We should consider making our haulers aware of appropriate industry related information and resources so they can learn more about safety and training in support of their driver training programs

Examples of such resources for the road construction, ready mix, tank truck and equipment transport industries are below:

ARTBA - Work Zone Safety Clearinghouse – Work Zone Safety Resources:

https://www.workzonesafety.org/data-resources/runover-backover/

https://www.workzonesafety.org/data-resources/wzsafety-resources/

workzonesafety.org National Work Zone Safety Information Clearinghouse

Centers for Disease Control (CDC) – Preventing Runover and Back over Accidents

https://www.cdc.gov/niosh/docs/wp-solutions/2014-125/pdfs/2014-125.pdf

Safety & Health Magazine Article – Preventing Back over Incidents:

https://www.safetyandhealthmagazine.com/articles/16448-preventing-backover-incidents

National Ready Mix Concrete Association – Truck Driving Safety & Resources

https://www.nrmca.org/operations/SAFETY/default.htm

National Tank Truck Carriers - Safety

http://www.tanktruck.org/

VISTA SAFETY TRAINING - Dump Truck Safety

https://www.vista-training.com/equipment/dump-truck

Federal Motor Carrier Safety Administration – Load Securement Rules & Safety

https://www.fmcsa.dot.gov/regulations/cargo-securement/drivers-handbook-cargo-securement

Contractor Safety Management Compliance Review Questions
CRH AMAT Contractors are evaluated using the CRH Contractor Safety Management Guide/Checklist.
Contractors receive a safety induction and have appropriate oversight when working at facilities or on jobsites.
Contractors participate in daily safety huddles (i.e. T5s) and Risk Assessments when involved in the work.

Bid Sheet **FM 523 AT CR 792 RIGHT TURN LANE**

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
100	6002	STA	PREPARING ROW	8.00	$903.00	$7224.00
105	6108	SY	RMV STAB BASE & ASPH PV (17")	100	$26.00	$2600.00
110	6001	CY	EXCAVATION (ROADWAY)	75	$170.00	$12,750.00
132	6003	CY	EMBANKMENT (FINAL)(ORD COMP)(TY B)	150	$64.00	$9,600.00
160	6003	SY	FURNISHING AND PLACING TOPSOIL (4")	1,000	$9.00	$9,000.00
164	6021	SY	HYDRO MLCH SEED(PERM)	1,000	$4.00	$4,000.00
292	6002	TON	ASPHALT STAB BASE (GR2)(PG 64)	678	$163.00	$110,514.00
354	6041	SY	PLANE ASPH CONC PAV (1.5")(TO REMOVE EXIST RUMBLE STRIP)	65	$83.00	$5,395.00
400	6005	CY	CEM STABIL BKFL	25	$58.00	$1,450
464	6005	LF	RC PIPE (CL III)(24 IN)	52	$230.00	$11,960.00
467	6395	EA	SET (TY II)(24 IN)(RCP)(6:1)(P)	3	$2,250.00	$6,750.00
500	6001	LS	MOBILIZATION	1	$40,000.00	$40,000.00
502	6001	MO	BARRICADES, SIGNS AND TRAFFIC HANDLING	2	$735.00	$1,470.00
506	xxxx	LS	SW3P & TEMP EROSION CONTROL (ALL INCLUSIVE)(SPECIAL)(2%)	1	$5,000.00	$5,000.00
530	6016	SY	DRIVEWAYS (BASE)(6 IN)	75	$77.00	$5,775.00
644	6027	EA	IN SM RD SN SUP&AM TYS80(1)SA(P)	4	$740.00	$2,960.00
644	6075	EA	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	2	$110.00	$220.00

Bid Item No.	Desc Code	Unit	Item Description	Bid Qty	Unit Price	Total Bid
644	6076	EA	REMOVE SM RD SN SUP&AM	2	$110.00	$220.00
666	6174	LF	REFL PAV MRK TY II (W) 6" (SLD)	881	$1.00	$881.00
666	6178	LF	REFL PAV MRK TY II (W) 8" (SLD)	617	$2.00	$1,234.00
666	6184	EA	REFL PAV MRK TY II (W) (ARROW)	4	$95.00	$380.00
666	6192	EA	REFL PAV MRK TY II (W) (WORD)	4	$100.00	$400.00
672	6007	EA	REFL PAV MRKR TY I-C	31	$8.00	$248.00
677	6001	LF	ELIM EXT PAV MRK & MRKS (4")	789	$0.50	$394.50
678	6002	LF	PAV SURF PREP FOR MRK (6")	881	$0.10	$88.10
678	6004	LF	PAV SURF PREP FOR MRK (8")	617	$0.10	$61.70
678	6009	EA	PAV SURF PREP FOR MRK (ARROW)	4	$9.00	$36.00
678	6016	EA	PAV SURF PREP FOR MRK (WORD)	4	$9.00	$36.00
3076	6043	TON	D-GR HMA TY-D PG 70-22 (LEVEL-UP)	73	$265.00	$19,345.00
3076	6066	GAL	TACK COAT	106	$5.00	$530.00
3076	6076	TON	D-GR HMA TY-D SAC A PG70-22 (EXEMPT)(INCL RUMBLE STRIP FILL)	78	$270.00	$21,060.00
6001	6001	DAY	PORTABLE CHANGEABLE MESSAGE SIGN	28	$54.00	$1,512.00
6185	6002	DAY	TMA (STATIONARY)	45	$1.00	$45.00
				PROJECT TOTAL	*$283,139.30*	

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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792"

WEDNESDAY, JUNE 25, 2025 at 11:00 A.M. LOCAL TIME

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

***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: THURSDAY, MAY 22, 2025
THURSDAY, MAY 29, 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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792 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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792
- 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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792

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 Specifications
- Attachment D – Special Specifications
- Attachment E – Drainage Report
- Attachment F – Affidavit of Final Payment & Retainage Release

BRAZORIA COUNTY
SPECIFICATIONS / SCOPE OF WORK

RFP #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792

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 TxDOT Technical Specifications
- Attachment D Special 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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792

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 25-57, 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 widening for right turn deceleration lane along northbound FM 523 to eastbound CR 792 in Brazoria County.

The proposed work consists of prep ROW, excavation, embankment, asphalt pavement widening, concrete pipe culverts, pipe safety end treatment, driveways, signing and pavement markings, and SWP3 devices. Grade ditch to drain. Traffic control standards and signage is included in the plans, minimize interruption of work to traffic.

The estimated budget for this project is:	$235,157.00
Estimated completion time for this project is:	75 calendar days

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

Step One –

Publicly advertised (1st Notice)	May 22, 2025
Publicly advertised (2nd Notice)	May 29, 2025
Deadline for Questions (Clarifications) Submitted	June 11, 2025
Deadline for Addendum to be posted in Bonfire	June 18, 2025
Response Open/Due date by 11:00 a.m. C.S.T.	**June 25, 2025**

Step Two – Interviews **(*if requested by Evaluation Committee*)**
Interviews with short-listed candidates
Selection committee recommendation

Award - Contract approval by Commissioner's Court TBD

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 before Wednesday, June 11, 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 Tuesday, June 3, 2025 at 10:00 a.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 short listed 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. *(See Exhibit B Vendor Qualifications: Section One – Vendors General Experience and Qualifications, Section Two – Projects and Section 9 Project Schedule).*	20 points
Proposed Personnel- Provide resumes of key personnel and list any litigation or claims against your firm. *(See Exhibit B Vendors Qualification: Section Three – Contractor Key Personnel, Section Six Vendor Litigation, Claims and Reputation & Compliance and Section 8 Subcontractor List)*	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. *(See Exhibit B Section Four – Vendor References)*	5 points
Other factors – Includes but not limited to, available resources and safety record. *(See Exhibit B Vendor Qualifications: Section Five- Vendors Current Work Schedule / Record and Section Seven - Vendors Safety Record)*	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 five hundred and ninety ($590.00) 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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792

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 #25-57 WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792

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 25-57 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/manufacturer used in bid/offer specifications or scope of work are descriptive, not restrictive. It is used to indicate the type and quality desired. Bids/Offers 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 Discrimacion

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 0 — Publication Date 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		

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

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** 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.
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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.

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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

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 12/22/2017

To be completed by awarded vendor at the time of signed contract submittal.

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).

To be completed by awarded vendor at the time of signed contract submittal.

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

BRAZORIA COUNTY
RETURN LABEL

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

SEALED REQUEST FOR PROPOSAL (RFP)

RFP#:	25-57
OPENING DATE:	WEDNESAY, JUNE 25, 2025
OPENING TIME:	11:00 A.M. LOCAL TIME
RFP DESCRIPTION:	WIDENNG FOR RIGHT TURN DECELERATION LANE ALONG NB FM 523 TO EB CR792
RETURN OFFER TO:	**PHYSICAL ADDRESS:** COUNTY PURCHASING DIRECTOR BRAZORIA COUNTY PURCHASING 237 E. LOCUST STREET, SUITE 406 ANGLETON, TEXAS 77515

DATED MATERIAL – DELIVER IMMEDIATELY

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

WIDENING FOR RIGHT-TURN DECELERATION LANE ALONG NB FM 523 TO EB CR 792

LENGTH = 807 FT = 0.153 MILE

COMMISSIONERS' COURT

DONALD "DUDE" PAYNE
COMMISSIONER — PRECINCT 1

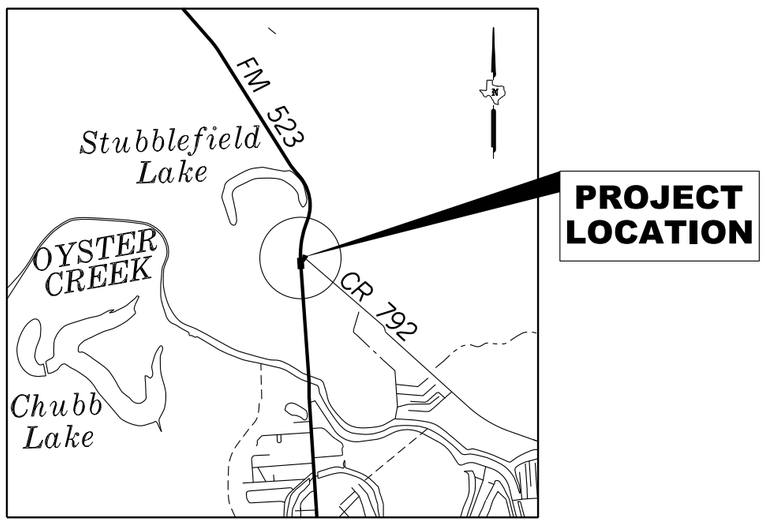
STACY L. ADAMS
COMMISSIONER — PRECINCT 3

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

RYAN CADE
COMMISSIONER — PRECINCT 2

DAVID LINDER
COMMISSIONER — PRECINCT 4

LOCATION MAP
NTS



STATE OF TEXAS
COUNTY OF BRAZORIA

STATE OF TEXAS
AARON DEBORD
96578
LICENSED
PROFESSIONAL ENGINEER
6/28/2024

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

APPROVED FOR CONSTRUCTION
BRAZORIA COUNTY ENGINEERING

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

DATE

DATE: 6/28/2024
DRAWING FILE: ...\CADD\GENERAL\CR523_A_GT01.dgn

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GENERAL

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STATE OF TEXAS
AARON DEBORD
96578
LICENSED
PROFESSIONAL ENGINEER

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

AARON DEBORD, PE — 6/28/2024 DATE

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

INDEX OF SHEETS

DN:	SDD	PROJECT NO.		HIGHWAY
CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	2

DATE: 6/24/2024
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GENERAL NOTES

1) SEE TCP GENERAL NOTES FOR THE FULL DEFINITIONS OF THE TERMS "SPECS," "REGULATIONS," "ENGINEER," "PROJECT LIMITS," "ON-SITE," "PROJECT DURATION," & "SUBSIDIARY," AS USED HEREON & THROUGHOUT THE PLAN SET.

2) EXISTING CONDITIONS AS DEPICTED, MAPPED, & PICTURED IN THE PLANS ARE FOR VISUAL REFERENCE ONLY. THEY WERE GLEANED FROM NON-SURVEY-CONTROLLED PUBLIC SOURCES; NO SURVEY (GROUND, AERIAL, OR OTHERWISE) WAS PERFORMED FOR THIS PROJECT. AS SUCH, TEXT, NUMERICAL, DRAWING, IMAGE, & ANY OTHER INCLUDED DATA DEPICTING, DESCRIBING, ENUMERATING, ETC ANY EXISTING FEATURE HEREON IS NOT INTENDED AS AN OFFICIAL REPRESENTATION OF ITS GEOSPATIAL LOCATION OR EXTENTS. ANY SUCH DATA IS INEXACT: LENGTH & AREA DIMENSIONS THEREOF ARE HORIZONTAL APPROXIMATIONS THAT MUST BE FIELD MEASURED, CONFIRMED, & ADJUSTED, AS WELL AS CORRECTED FOR GRADE, ELEVATION, & CROWN/CROSS-SLOPE/SUPERELEVATION, AS APPLICABLE (HEREAFTER COLLECTIVELY REFERENCED AS "FIELD-FIT"); CROSS-SLOPES, GRADES, ETC THEREOF ARE BASED ON VISUAL INSPECTION &/OR AS-BUILT PLANS ONLY & MUST BE SIMILARLY FIELD-FIT. ADDITIONALLY, SAID DATA HEREIN NEITHER COMPRISES A SATISFACTORY BASIS OF MEASUREMENT FOR, PRECLUDES, NOR EXCLUDES THE OBTAINMENT OF OFFICIAL PERMITS, SURVEY, &/OR ELEVATION CERTIFICATES WHEN REQUIRED FOR PROJECT WORK, PERMITS, ETC. THE CONTRACTOR SHALL COMPARE SAID EXISTING FEATURE REPRESENTATIONS WITH CONDITIONS IN THE FIELD – INCLUDING ALL PROP PLAN COORDINATES & DIMENSIONS WITH RESPECT TO THE EXIST ELEMENTS, I.E., THE BASIS OF DESIGN & QUANTITIES HEREIN -- PRIOR TO COMMENCING WORK OR ORDERING MATERIALS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, IN WRITING, PRIOR TO COMMENCEMENT OF CONST. ALL SUBSIDIARY.
HEREAFTER, THE FOLLOWING WILL BE USED AS A SHORTHAND REFERENCE TO THIS ENTIRE NOTE OF DISCLAIMER THROUGHOUT THE PLANS:

> EXISTING CONDITIONS, DIMENSIONS, & COORDINATES DESCRIBED & DEPICTED ARE FOR VISUAL, RELATIVE LOCATION, ORDER OF MAGNITUDE, ETC. REFERENCE ONLY; FIELD-FIT ALL PROP WORK; SEE GENERAL NOTE #2

3) UPON PROJECT CLOSEOUT, THE CONDITION OF THE PROJECT LIMITS & ALL FACILITIES, FEATURES, ITEMS, EXPANSES, ETC ENCOMPASSED THEREON, OVER, & ABOVE SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK. THESE INCLUDE, BUT ARE NOT LIMITED TO: FENCES (INCLUDING POSTS & GATES), CULVERTS (CROSSING & DRIVEWAY), SETS, LANDSCAPING (VEGETATIVE OR OTHERWISE), PAVING (ROADWAY, DRIVEWAY, ETC), CONCRETE CURB/GUTTER/ISLANDS/RIPRAP, MBGF/BARRIER, SURVEY/SUE/GEOTECH MARKERS, & UTILITIES (BURIED, SURFACING, OVERHEAD, & POLES, INCLUDING MARKERS), WITH PROTECTION FROM DISTURBANCE FOR THE AFOREMENTIONED TO BE PROVIDED AS NEEDED. THE CONTRACTOR SHALL REPLACE OR RECONSTRUCT ANY & ALL OF THE AFOREMENTIONED DAMAGED AS A RESULT OF CONST OPERATIONS WITHIN 3 BUSINESS DAYS WITH EQUAL OR BETTER EQUIVALENTS, TO ORIGINAL (PRE-CONST) OR BETTER CONDITION, & TO THE SATISFACTION OF THE ENGINEER (IN COORDINATION WITH ANY OTHER AFFECTED PARTIES). ALL SUBSIDIARY.

4) CONTRACTOR SHALL ATTEND A PRE-CONST MEETING WITH THE COUNTY, AS WELL AS SECURE ALL PERMITS, WHETHER SUPPLIED BY/VIA THE COUNTY OR ISSUED DIRECTLY TO THE CONTRACTOR, PRIOR TO INITIATING ANY WORK.

5) THE CONTRACTOR SHALL PROVIDE CONTINUED ACCESS FOR US POSTAL SERVICE DELIVERIES FOR THE PROJECT DURATION. ANY MAILBOXES AFFECTED BY PROJECT WORK SHALL BE LOCATED, PERMANENTLY OR TEMPORARILY AS APPROPRIATE, SUCH THAT MAIL SERVICE IS NOT INTERRUPTED, AS WELL AS & TO THE SATISFACTION OF THE ENGINEER.

6) TxDOT STATEWIDE & HOUSTON DISTRICT STANDARD DETAIL SHEETS INCLUDED FOR HEREIN ITEMS FOR WHICH COUNTY STANDARDS WERE UNAVAILABLE. PRIOR TO CONST, THE CONTRACTOR WILL CONFIRM WITH THE COUNTY THAT THE TxDOT STANDARDS INCLUDED ARE ACCEPTABLE OR IF THE COUNTY DESIRES THE STANDARD DETAILS BE REPLACED/SUPERSEDED BY OTHERS. ANY DESIRED REPLACEMENTS ARE TO BE PROVIDED BY THE COUNTY WITHIN 14 DAYS OF THE CONTRACTOR'S CONFIRMATION REQUEST.

7) THE CONTRACTOR SHALL MAINTAIN AN UP-TO-DATE "REDLINED, AS-BUILT" SET OF PLANS ON-SITE FOR INSPECTION & USE BY THE ENGINEER. CONTRACTOR SHALL PROVIDE SAID AS-BUILTS OF THE COMPLETED FACILITY AS CONSTRUCTED TO THE ENGINEER WITHIN 7 WORKING DAYS OF CLOSEOUT, WITH THE REDLINES DEPICTED-BY/CONVERTED-TO CAD & INCORPORATED INTO THE BID PLANS "AS-BUILT."

8) FOR THE BID ITEMS & ANY LUMP SUMS INCLUDED IN THESE PROJECT DOCUMENTS, AS WELL AS ANY OTHER PROJECT WORK SPECIFIED OR OTHERWISE UNDERTAKEN, ALL SHALL BE PERFORMED IN CONFORMANCE WITH THE SPECS, AS WELL AS REGULATIONS. METHOD OF MEASUREMENT SHALL BE SHOWN IN THE BID DOCUMENTS. THE CONTRACTOR'S BID SHALL BE ALL-INCLUSIVE FOR THE ENTIRETY OF THE PROJECT WORK, LIMITS, DURATION, ETC & OTHERWISE SUBSIDIARY IN TOTAL.

9) PERFORM WORK DURING GOOD WEATHER, UNLESS OTHERWISE DIRECTED. IF WORK IS PERFORMED AT CONTRACTOR'S OPTION WHEN INCLEMENT WEATHER IS IMPENDING & IT IS DAMAGED BY SUBSEQUENT PRECIPITATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ITS REPLACEMENT.

10) RADII & OTHER DIMENSIONS ARE TO THE EDGE OF SHOULDER/PAVEMENT.

~~11) ALL CURVE DATA IS ARC DEFINITION-BASED.~~

12) ALIGNMENTS DEPICTED WITHIN THESE PLANS REPRESENT BEST-FIT APPROXIMATIONS OF THE EXIST ROADWAYS' GEOMETRY & NEITHER THEY NOR THEIR ACCOMPANYING EXIST LANES' GEOMETRY ARE TO BE CONSTRUED AS OWNER OR CONSULTANT DESIGNS OR ENDORSEMENTS THEREOF.

13) CONTRACTOR SHALL PROVIDE CONST STAKING & ESTABLISH PROJECT SURVEY CONTROLS PRIOR TO COMMENCEMENT, TESTING, INSPECTION, ETC, AS APPLICABLE, OF ANY WORK.

14) THE PROP PAVEMENT SECTION WAS DETERMINED, SPECIFIED, & PROVIDED BY THE COUNTY.

15) ANY DEPICTIONS OF EXIST PAVEMENT SECTIONS ARE ASSUMPTIONS, BASED ON AS-BUILTS & PLANS BY OTHERS. THEIR NATURE & DEPTH ARE UNKNOWN & SHOULD BE APPROACHED THUSLY DURING CONST.

16) MARKINGS WILL BE PLACED AS SHOWN ON THE PLANS; DIRECTLY IN-LINE, ALONG, & OVER EXIST MARKINGS; OR AS DIRECTED BY THE ENGINEER.

17) TRIM VEGETATION AROUND SIGNS & OTHER OBSTRUCTIONS. USE HAND METHODS OR OTHER MEANS TO REMOVE OTHER OBJECTIONABLE MATERIAL & OBSTRUCTIONS, IF DOING WORK BY MECHANICAL METHODS IS IMPRACTICAL. DO NOT BURN BRUSH.

18) IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIALS ON-SITE AT NO ADDITIONAL EXPENSE TO THE COUNTY. ALL EXIST MATERIAL EXCAVATED, IF SUITABLE, IS TO BE USED BEFORE BORROW IS BROUGHT ON-SITE. ALL EXCESS MATERIAL NOT USED AT PROJECT LOCATIONS SHALL BE STOCKPILED AT A SITE SPECIFIED BY THE ENGINEER AS PROPERTY OF THE COUNTY.

19) SUSPEND ALL ACTIVITIES NEAR ANY SIGNIFICANT RECHARGE FEATURES, SUCH AS SINKHOLES, CAVES, OR ANY OTHER SUBTERRANEAN OPENINGS THAT ARE DISCOVERED WITHIN THE PROJECT LIMITS. DO NOT PROCEED UNTIL A COUNTY-DESIGNATED GEOLOGIST OR TCEQ REPRESENTATIVE IS PRESENT TO EVALUATE & APPROVE REMEDIAL ACTION, IN CONCERT WITH THE ENGINEER.

20) THE CONTRACTOR SHALL CEASE CONST & NOTIFY THE ENGINEER IMMEDIATELY IF CONTAMINATED SOILS &/OR GROUNDWATER ARE ENCOUNTERED AT LOCATIONS NOT IDENTIFIED IN THE PLANS WITHIN THE PROJECT LIMITS. THE NOTIFICATION SHOULD INCLUDE A LOCATION DESCRIPTION & STATION NUMBER, TYPE OF CONTAMINATED SUBSTANCE(S), EVIDENCE OF CONTAMINATION, & MEASURES TAKEN TO CONTAIN THE CONTAMINATION & PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL &/OR GROUNDWATER SHALL BE NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR APPROVAL BY THE ENGINEER. THE CONTRACTOR SHALL NOT RESUME CONST ACTIVITIES WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

21) IF ANY ARCHAEOLOGICAL DEPOSITS ARE ENCOUNTERED DURING CONST, THE CONTRACTOR MUST STOP EXCAVATION IMMEDIATELY & CONTACT THE ENGINEER SUCH THAT AN ARCHAEOLOGICAL INVESTIGATION MAY BE ARRANGED.

22) WHEN AN ABANDONED WATER-WELL IS ENCOUNTERED, CEASE CONST OPERATIONS IN THE AREA & NOTIFY THE ENGINEER SUCH THAT HE/SHE MAY ENSURE PROPER PLUGGING PROCEDURES ARE FOLLOWED. A STATE-LICENSED WATER-WELL DRILLER MUST BE USED TO PLUG ANY WELL.

23) ALL BURIED, SURFACING, & OVERHEAD UTILITIES ARE NOT DEPICTED ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FULLY LOCATE & ACCOMMODATE UTILITIES CROSSING, WITHIN, ADJACENT TO, & OTHERWISE AFFECTED WITHIN THE PROJECT LIMITS, INCLUDING COMPLETING THE APPROPRIATE UTILITY "ONE CALL" & LOCATE REQUESTS; INVESTIGATING, IDENTIFYING, UNCOVERING, VERIFYING, MARKING, &/OR PROTECTING ALL THOSE PERTINENT, TO INCLUDE THE UTILITIES' HORIZONTAL &, WHERE NECESSARY, VERTICAL LOCATIONS; & PROVIDING NOTICE TO THE INSPECTORS, SUPERINTENDENTS, & OTHER PERSONS IN CHARGE OF ALL SUBJECT UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR THE PROTECTION OF, ANY CONST-ACTIVITY-CAUSED SERVICE DISRUPTIONS TO, & PHYSICAL/SERVICE MONETARY DAMAGES THEREOF TO THESE UTILITIES, AS WELL AS THE REMOVAL OF ANY ABANDONED UTILITIES AS REQUIRED. ALL SUBSIDIARY.

GENERAL NOTES (CONTINUED)

24) WARNING: EXIST OVERHEAD UTILITIES EXIST WITHIN THE PROJECT LIMITS. THESE OVERHEAD/SURFACING FACILITIES ARE CLEARLY VISIBLE ON-SITE, SUBJECT TO FREQUENT CHANGE, & ARE NOT FULLY DEPICTED ON THE PLANS. CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER(S) TO TEMPORARILY DEACTIVATE/TURN-OFF; RELOCATE OR REMOVE; ETC FACILITIES, AS APPROPRIATE, INCLUDING SECURING UTILITY POLES PROXIMATE TO CONST ACTIVITIES, WITH THE SECURING COSTS TO BE PAID BY THE CONTRACTOR. ALL SUBSIDIARY. [TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE, FORBIDS ALL ACTIVITIES FOR WHICH PERSONS OR THINGS MAY COME WITHIN 6' OF LIVE OVERHEAD HIGH VOLTAGE LINES, AS WELL AS OPERATING A CRANE DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10' OF SAME. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING THE CONTRACTOR, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF THEIR WORKERS UNDER THIS LAW, WHICH CARRIES BOTH CRIMINAL & CIVIL LIABILITY.]

25) THE UNDERLYING LAYER, EXIST/PROP SUBGRADE, ETC MUST BE PREPARED & INSPECTED PRIOR TO PLACEMENT OF THE EMBANKMENT. CORRECT ANY UNSTABLE MATERIAL (E.G. DRY, WET, LOOSE, ETC) TO A DEPTH OF 6" BELOW EXIST GRADE.

26) THE ENGINEER MUST APPROVE EMBANKMENT MATERIAL, REGARDLESS OF ITS SOURCE (I.E., WHETHER FROM ON- OR OFF-SITE), BEFORE ITS USE ON THE PROJECT. IT IS TO BE PLACED IN MAXIMUM 6" LIFTS & COMPACTED TO A MIN OF 95% STANDARD PROCTOR DENSITY, UNLESS OTHERWISE SPECIFIED IN THE SPECS OR BY THE ENGINEER.

27) UNSUITABLE MATERIAL ENCOUNTERED DURING EARTHWORK, AS DEFINED & EVALUATED BY THE ENGINEER (DUE TO MOISTURE CONTENT OR OTHERWISE), WILL BE CONSIDERED WASTE.

28) TREAT SUBGRADE MATERIALS CONTAINING SULFATES AS PER SPECS.

29) PRIOR TO ANY PAVING OPERATIONS, COMPLETE ALL SUBGRADE & ROADSIDE EARTHEN BERM, SIDESLOPE, & DRAINAGE GRADING, INCLUDING ENSURING ITS POSITIVE DRAINAGE OPERATION IN COMBINATION WITH EXIST, ALREADY-INSTALLED, &/OR TEMP DRAINAGE FEATURES (ALL AS PER TCP GENERAL NOTE 16). UTILIZE EXCAVATION & EMBANKMENT QUANTITIES PROVIDED AS NECESSARY (WIDTH-, DEPTH-, FLOWLINE-OFFSET-, BACKSLOPE-, & FORESLOPE-WISE) TO RESHAPE SWALES/DITCHES TO DRAIN (SEE PROP TYPICAL SECTION), ALSO ENSURING THAT THE ROADBED IS FULLY FREE OF ORGANIC MATERIAL & ANY UNSTABLE, SOFT, ETC AREAS – ALL TO THE SATISFACTION OF THE ENGINEER.

30) THE CONTRACTOR IS REQUIRED TO PROVIDE RECOMMENDATIONS TO THE ENGINEER ON ADJUSTING AGGREGATE & ASPHALT RATES WHEN ROAD CONDITIONS, MATERIAL PROPERTIES, OR CONST METHODS CHANGE.

31) AGGREGATES WHICH ARE FOUND TO CONTAIN EXCESSIVE QUANTITIES OF DUST DURING PRE-COATING, STOCKPILING, OR HAULING OPERATIONS MAY BE REJECTED BY THE ENGINEER.

32) UNLESS OTHERWISE APPROVED BY THE ENGINEER, THE CONTRACTOR SHALL NOT BEGIN ANY OPERATIONS WHICH CANNOT BE COMPLETED DURING THE SAME DAY, AT LEAST 1.5 HRS PRIOR TO SUNSET. CIRCUMSCRIBE PAVING LIMITS SUCH THAT BOTH THE 1ST & 2ND COURSES OF ANY 2-COURSE SURFACE TREATMENT WILL BE COMPLETED SAME-DAY, AS WELL AS, WHERE APPLICABLE, FOR BOTH SIDES.

33) CONTRACTOR SHALL ONLY PULVERIZE, TREAT, MIX, & SEAL LIMITS OF BASE THAT CAN BE ASPHALT-PAVED/COVERED WITHIN A REASONABLE TIME. ANY STABILIZED SEGMENTS LEFT UNSEALED (BY TACK COAT OR ASPHALT) OUTSIDE THE ALLOWABLE, ENGINEER-APPROVED TIME WILL BE SUBJECT TO RETESTING & POSSIBLE REWORK AT THE CONTRACTOR'S EXPENSE.

34) PROVIDE A SMOOTH, CLEAN SAWCUT ALONG THE EXIST PAVEMENT STRUCTURE, AS DIRECTED. CONSIDER THE SAWCUT & ACCOMPANYING EXIST PAVEMENT REMOVAL BOTH SUBSIDIARY.

35) USE PAPER OR OTHER APPROVED MATERIAL AT THE BEGINNING & END OF SHOTS SO THAT TRAVERSE JOINTS ARE STRAIGHT & NON-OVERLAPPING. APPLY BLOTTER MATERIAL TO ALL DRIVEWAYS & INTERSECTIONS.

36) THE ENGINEER MUST APPROVE TOPSOIL MATERIAL BEFORE ITS USE ON THE PROJECT. NO SANDY LOAM ALLOWED.

37) SIGNS (EXIST, CONST/WORK ZONE/ADVANCE WARNING, PROP, ETC) MAY BE RELOCATED DUE TO FIELD CONDITIONS & THE SAFETY OF TRAFFIC, AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL RELOCATE SIGNS AT INTERSECTIONS AS NEEDED TO PROVIDE BETTER VISIBILITY, WITH THE ENGINEER'S CONCURRENCE.

38) FABRICATE ALL SMALL SIGNS NOT DETAILED ON THE PLANS IN CONFORMANCE WITH "STANDARD HIGHWAY SIGN DESIGNS OF TEXAS," LATEST EDITION.

39) NOTIFY THE ENGINEER AT LEAST 24 HRS IN ADVANCE OF REMOVING &/OR PLACING PAVEMENT MARKINGS.

40) THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL CONFLICTING PAVEMENT MARKINGS (EXIST & WORK ZONE), INCLUDING THOSE NOT DISCRETELY SPECIFIED AS TO BE REMOVED WITHIN THE PLANS, AS WELL AS FOR THE REMOVAL & DISPOSAL OF AREA EXIST RAISED PAVEMENT MARKERS & TRAFFIC BUTTONS BEFORE BEGINNING ANY SURFACE OPERATIONS.

41) UNLESS OTHERWISE APPROVED BY THE ENGINEER: BLAST CLEANING IS REQUIRED FOR THE REMOVAL OF EXIST PAVEMENT MARKINGS, BLACK PAINT WILL NOT BE ALLOWED AS A MEANS TO OBSCURE/COVER EXIST PAVEMENT MARKINGS, FOIL-BACKED PAVEMENT MARKINGS WILL NOT BE ALLOWED, & GRINDING WILL NOT BE ACCEPTED AS A METHOD FOR PAVEMENT MARKING REMOVAL ON THE FINAL PAVEMENT SURFACE.

42) PRIOR TO CLOSEOUT: RIDE QUALITY OF ALL NEWLY CONSTRUCTED, RECONSTRUCTED, WIDENED, OVERLAIN, ETC PAVED TRAVELWAY SURFACES MUST BE TO THE SATISFACTION OF THE ENGINEER. ALSO, THE ENGINEER MUST CONFIRM THE MEASURES USED IN, INSPECT, & APPROVE: THE ESTABLISHMENT OF PERMANENT VEGETATION (USUALLY GRASS) ALONG THE EARTHEN ROADSIDE PRISM, INCLUDING WITHIN DITCHES, & THE APPARENT/PROBABLE CONTINUING SUCCESS THEREOF.

STATE OF TEXAS
ROBERT S. DOTY
97218
LICENSED
PROFESSIONAL ENGINEER

Robert S. Doty 10/21/2023

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

GENERAL NOTES

DN:	SDD	PROJECT NO.		HIGHWAY
CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	3

DATE: 12/8/2021
DRAWING FILE: ...\CADD\GENERAL\CR523_A_GN01.dgn

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DATE:
FILE:

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1	1	R2-1	SPEED LIMIT 60	EXISTING								
1	2	D1-1	CO RD 792 ➔	EXISTING								
1	3	R4-1	DO NOT PASS	24x30	X		S80	1	SA	P		
1	4	R3-7R	RIGHT LANE MUST TURN RIGHT	36x36	X		S80	1	SA	P		
2	1	R3-7R	RIGHT LANE MUST TURN RIGHT	36x36	X		S80	1	SA	P		
2	2	PROVIDED BY COUNTY	BRAZORIA 792 COUNTY	EXISTING								
2	3	W14-1	DEAD END	36x36	X		S80	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

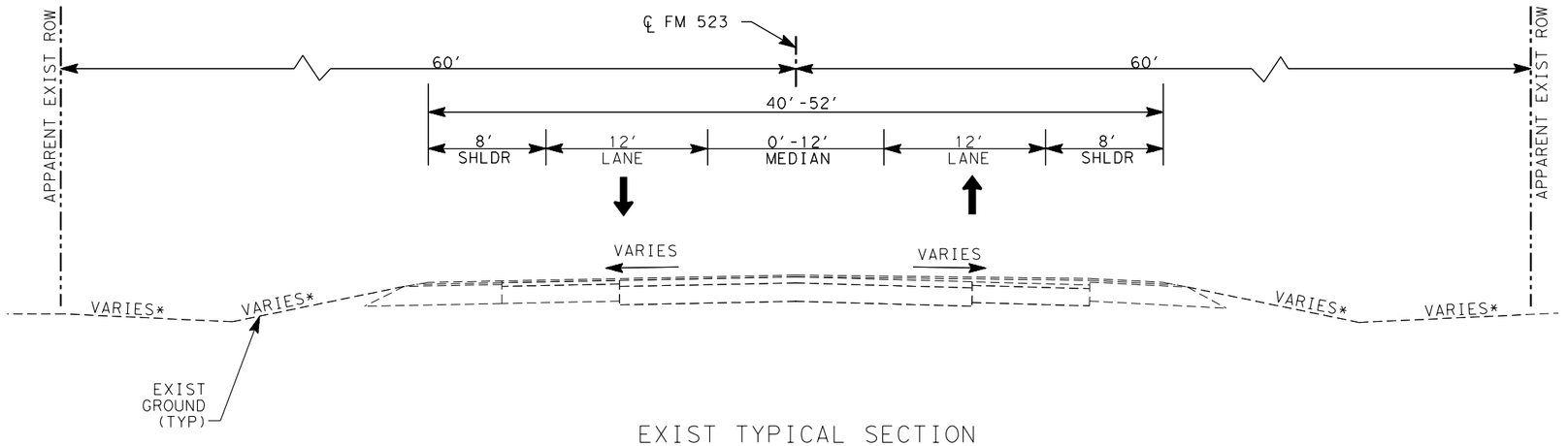
Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS				FM 523
4-16	DIST	COUNTY		SHEET NO.
8-16		BRAZORIA		4

18



EXISTING CONDITIONS, DIMENSIONS, & COORDINATES DESCRIBED & DEPICTED ARE FOR VISUAL, RELATIVE LOCATION, ORDER OF MAGNITUDE, ETC. REFERENCE ONLY; FIELD-FIT ALL PROP WORK; SEE GENERAL NOTE #2

EXIST TYPICAL SECTION

STA 110+35 TO STA 118+42

LEGEND

ACP = ASPH CONC PAV (TY D)
LU = LEVEL-UP

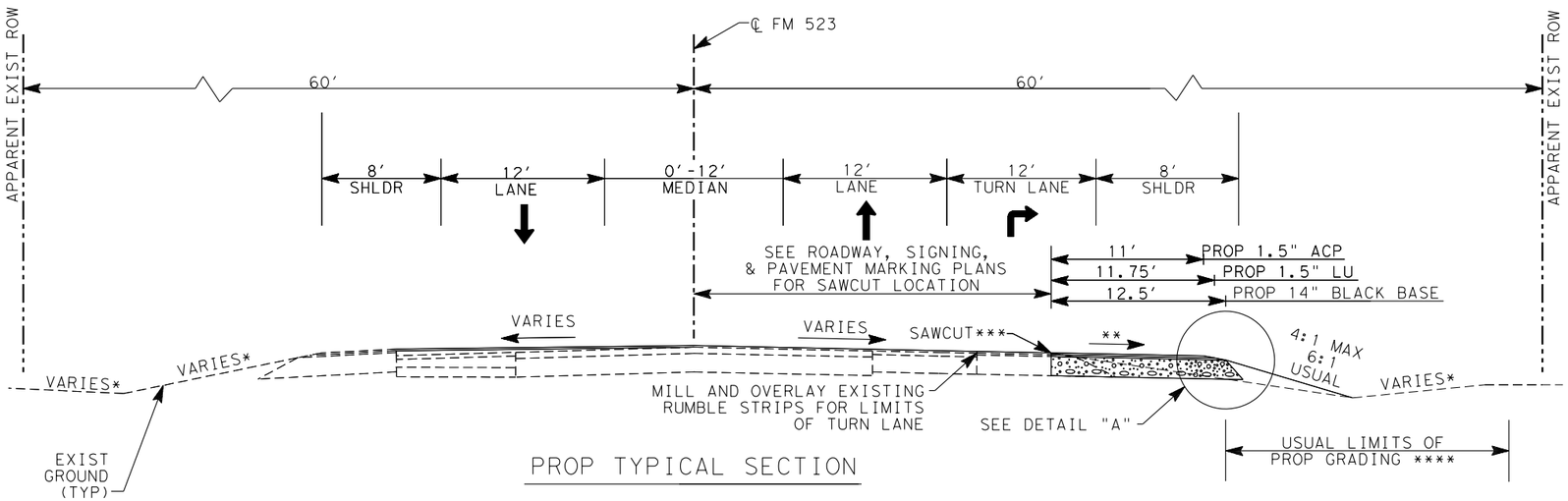
NOTES

* EXIST EARTHEN CROSS-SLOPE VARIES: NOMINALLY 5:1 TO 10:1; APPARENT 8:1 USUAL

** MATCH ADJACENT PAVT CROSS-SLOPE

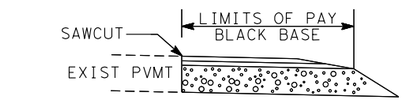
*** SAWCUT IS INCIDENTAL TO VARIOUS BID ITEMS

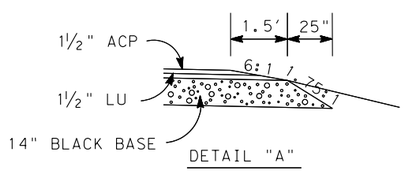
**** PLACE/SHIFT EXIST FLOWLINE AS NECESSARY TO DRAIN (ADHERE TO MAX SLOPES; ALSO SEE GENERAL NOTE 29 & TCP GENERAL NOTE 16)



PROP TYPICAL SECTION

STA 110+35 TO STA 118+42





SCALE: NTS

6/28/2024

STATE OF TEXAS
AARON DEBORD
96578
LICENSED
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

EXIST & PROP TYPICAL SECTIONS

SHEET 1 OF 1

DN:	SDD	PROJECT NO.		HIGHWAY
CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	5

DATE: 6/28/2024
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GENERAL NOTES REGARDING TRAFFIC CONTROL

1) IN ADDITION TO THE COUNTY'S "ROAD & BRIDGE SPECIFICATIONS" (COUNTY SPECS), THE CONTRACTOR'S ATTENTION IS DIRECTED PARTICULARLY TO THE REQUIREMENTS OF ITEM 7, "LEGAL RELATIONS & RESPONSIBILITIES TO THE PUBLIC," OF TxDOT'S "STANDARD SPECS FOR THE CONST & MAINTENANCE OF HIGHWAYS, STREETS, & BRIDGES" (TxDOT SPECS), & THE LATTER DOCUMENT AS A WHOLE. HEREAFTER REFERRED TO COLLECTIVELY AS "SPECS," COUNTY SPECS WILL GOVERN, WITH TxDOT SPECS TO BE USED IN THE ABSENCE OF COUNTY SPECS FOR PARTICULAR ITEMS, ACTIVITIES, ETC (LATEST EDITION OF BOTH).

2) WORK PERFORMED UNDER THIS CONTRACT IS GOVERNED BY THE REQUIREMENTS, REGULATIONS, & GUIDELINES OF MULTIPLE ENTITIES, INCLUDING BUT NOT LIMITED TO THOSE FEDERAL, STATE, REGIONAL, COUNTY, & LOCAL, WHETHER PUBLIC, GOVERNMENTAL, & PRIVATE. CONTRACTOR SHALL COMPLY WITH ALL OF THESE, AS APPLICABLE & PER THE ENGINEER, HEREAFTER COLLECTIVELY REFERRED TO AS "REGULATIONS."

3) "ENGINEER" IS HEREAFTER DEFINED AS THE COUNTY'S TASK/ACTIVITY-ERA &/OR ISSUE-SPECIFIC DESIGNATED REPRESENTATIVE(S), WHOSE ROLES MAY INCLUDE BUT ARE NOT LIMITED TO THAT OF RESIDENT CONST ENGINEER, CLIENT PROJECT/CONTRACTUAL MANAGER, INSPECTOR, &/OR DISCIPLINE EXPERT.

4) DURING BOTH WORK & NON-WORK HOURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE & COMFORTABLE PASSAGE THROUGH THE PROJECT FOR VEHICULAR & ANY PEDESTRIAN/BICYCLE TRAFFIC, WITH MINIMAL INCONVENIENCE TO THE PUBLIC, WITH NO EQUIPMENT OR MATERIAL IN A LOCATION THAT, IN THE OPINION OF THE ENGINEER, CONSTITUTES A HAZARD OR ENDANGERS TRAFFIC, AS WELL AS SAFE WORK ZONES (PROTECTED WHERE NECESSARY) FOR CONST PERSONNEL. THIS TRAFFIC HANDLING & CONTROL IS REQUIRED FOR THE:

   a) "PROJECT LIMITS," AS WELL AS "ON-SITE," TO INCLUDE & WHOSE EXTENTS ARE HEREAFTER DEFINED AS THE FULL, CONTIGUOUS LENGTH COMPRISED OF THE SET OF LOCATIONS TO BE CONSTRUCTED, IN ADDITION TO ANY OTHER AREAS SUBJECT TO CONTRACTOR ACTIVITY, E.G., THOSE FOR ADVANCE SIGNING, DETOURS, FIELD OFFICE(S), CONST ENTRANCES/EXITS, STAGING/STOCKPILING/MAINTENANCE/WASHING LOTS, ETC FOR THE FULL WIDTH OF ROW (REGARDLESS OF CONST WIDTH OR CIRCUMSCRIPTION OF CONTRACTOR ACTIVITY) WITHIN SAID FULL, CONTIGUOUS LENGTH; & FOR & ANY ABUTTING &/OR OTHERWISE POTENTIALLY-PROJECT-AFFECTED AREAS/PROPERTIES.

   b) "PROJECT DURATION," TO INCLUDE & HEREAFTER DEFINED AS FOR THE ENTIRE DURATION OF THE PROJECT'S CONST, 24 HOURS PER DAY, TO INCLUDE ALL OTHER ASSOCIATED ACTIVITY TIME PERIODS, E.G., THOSE FOR ON-SITE MOBILIZATION, CORE SAMPLING, CONST SURVEY, INITIAL ESTABLISHMENT OF PERMANENT VEGETATION, I.E., ALL ACTIVITIES NECESSARY FOR PROJECT PREPARATION (ON-SITE), CONST, & EVENTUAL APPROVAL BY (WHEN TO THE SATISFACTION OF) THE ENGINEER FOR CLOSEOUT.

5) CONTRACT TIME DETERMINATION IS BASED UPON A 5-DAY WORK WEEK, EXCLUDING HOLIDAYS & SPECIAL EVENTS (AS LATER DEFINED IN THESE NOTES), WITH WORKING HOURS RESTRICTED TO 8AM TO 5PM, UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR'S DESIGNATED PROJECT CONST SUPERINTENDENT WILL BE AVAILABLE ON-SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED, INCLUDING SUBCONTRACTOR WORK, AS WELL AS BEING AVAILABLE & ON-CALL 24 HRS A DAY.

6) CONTRACTOR SHALL FULLY PROCURE, INSTALL, MAINTAIN, STOCKPILE, CLEANUP, ETC ALL ELEMENTS, AS WELL AS PROVIDE ALL CONCOMITANT EFFORT, SERVICES, ETC – WHETHER AS DISCRETE ITEMS, LUMP SUMS, OR A COMBINATION THEREOF -- NECESSARY TO PROVIDE TRAFFIC CONTROL & SW3P (I.E., ALL TEMP/CONST-ERA EROSION CONTROL) FOR THE PROJECT'S LIMITS & DURATION. THE CONTRACTOR'S BID SHALL BE CONSIDERED ALL-INCLUSIVE, WITH ALL ELEMENTS NOT OTHERWISE SPECIFIED FOR &/OR INCIDENTAL TO PROJECT WORK STRICTLY CONSIDERED TO BE SUBSIDIARY TO EXTANT PROJECT BID ITEMS & LUMP SUMS, WITH NO EXTRA PAY (HEREAFTER COLLECTIVELY REFERENCED AS "SUBSIDIARY" & THEN ONLY AS AN OCCASIONAL REMINDER, I.E., THE DOCUMENTS HEREIN & ALL THEREON DO NOT HAVE TO SPECIFY SUBSIDIARY FOR IT TO BE SO). PAYMENT FOR TRAFFIC CONTROL THAT IS PROPERLY INSTALLED FOR LESS THAN A FULL MONTH SHALL BE BASED ON A PERCENTAGE OF TIME INSTALLED.

7) IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL SIGNS & BARRICADES ARE PROPERLY INSTALLED & MAINTAINED. THROUGHOUT THE PROJECT AREA, BEFORE ALLOWING TRAFFIC THROUGH THE PROJECT LIMITS, INSTALL TEMP SIGNING (ADVANCE WARNING, WORK ZONE, ETC) & ALL OTHER TRAFFIC CONTROL-RELATED DEVICES/ITEMS BASED UPON TxDOT'S "STD DETAILS HEREIN & THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TXMUTCD), AS WELL AS, BY EXTENSION OF THE LATTER, FHWA'S MUTCD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER APPLICATION OF THE AFOREMENTIONED STANDARDS/MANUALS FOR CHANNELIZING DEVICE & SIGN SPACING, TAPER & BUFFER LENGTHS, ETC FOR THE WORK ZONE PHASE & TCP SCHEME DEPLOYED. WHERE & WHEN POSTED SPEED SPACING IS THE APPROPRIATE BASIS FOR TRAFFIC CONTROL LAYOUT, THOSE SPEEDS ARE 60 & 45 MPH FOR FM 523 & CR 792, RESPECTIVELY. THE ENGINEER WILL BE THE SOLE APPROVED INSPECTOR OF BARRICADES, SIGNS, ETC & IF, IN THE OPINION OF THE ENGINEER, THESE ELEMENTS DO NOT CONFORM TO ESTABLISHED STANDARDS, ARE INCORRECTLY PLACED, ARE INSUFFICIENT IN QUANTITY, ETC THE ENGINEER SHALL HAVE THE OPTION TO STOP OPERATIONS UNTIL THE ISSUES SPECIFIED ARE WHOLLY CORRECTED. IF THE ISSUES AREN'T ADDRESSED IN TIMELY FASHION & OTHERWISE TO THE SATISFACTION OF THE ENGINEER, HE/SHE MAY ORDER ADDITIONAL BARRICADES, DIRECTIONAL DEVICES, ETC & THEIR PLACEMENT THEREOF BY THE CONTRACTOR, AT CONTRACTOR'S EXPENSE.

8) AT THE CONCLUSION OF EACH WORK DAY, CONTRACTOR SHALL INSTALL A 3:1 OR FLATTER SAFETY SLOPE AT ALL DROP-OFFS OF MORE THAN 2" WITHIN AREAS OF THE CLEAR ZONE NOT CORDONED-OFF FROM TRAFFIC. THE SLOPE MUST BE CONSTRUCTED WITH A COMPACTED MATERIAL CAPABLE OF SUPPORTING VEHICLES (SUBSIDIARY), AS APPROVED BY THE ENGINEER.

9) CONTRACTOR SHALL ADHERE TO THE LATEST OSHA STANDARDS FOR ANY TRENCHING & SHORING.

10) SUPPLY LITTER BARRELS IN SUFFICIENT QUANTITY TO ACCOMMODATE CONST PERSONNEL & THE FACILITY-USING PUBLIC THROUGHOUT THE PROJECT'S LIMITS & DURATION.

11) THE CONTRACTOR SHALL PROVIDE & MAINTAIN ACCESS TO PROPERTIES WITHIN THE PROJECT LIMITS & DURATION AT ALL TIMES (SUBSIDIARY). PRIOR TO INITIATING CONST AFFECTING ANY DRIVEWAYS (EXIST, PROP, RECONST, RELOCATE, ETC), WHETHER DIRECTLY &/OR BY CONSTRICTING OR OTHERWISE AFFECTING THE TRAVERSIBILITY OF THEIR FULL WIDTHS, THE CONTRACTOR SHALL PROVIDE EACH PROPERTY'S OWNERS/PRIMARY USERS 48 HRS ADVANCE WARNING, IN PERSON OR IN WRITING. CONTRACTOR SHALL ENSURE CONTINUED ACCESS TO THE PROPERTY CONSTRUCTING DRIVEWAYS IN HALF SECTIONS WHERE APPROPRIATE, WITH ANY TEMP, ALTERNATE-PATH DRIVEWAYS TO BE CONSTRUCTED PROVIDING ALL-WEATHER ACCESS, USING FLEXIBLE BASE OR GRAVEL MATERIAL. ALL SUBSIDIARY.

12) REMOVE OR COMPLETELY COVER ANY EXIST SIGN(S) THAT CONFLICT WITH TRAFFIC CONTROL OPERATIONS. THE CONTRACTOR SHALL MAINTAIN ALL EXIST & NON-CONFLICTING SIGNS THROUGHOUT CONST, EXCEPT THOSE SPECIFIED TO BE REMOVED IN THE PLANS.

13) REMOVE WORK ZONE PAVEMENT MARKINGS WITHIN 48 HRS AFTER PERMANENT PAVEMENT MARKINGS HAVE BEEN INSTALLED.

14) ANY TEMP CONCRETE TRAFFIC BARRIER ENDS SHALL BE TAPERED AWAY FROM EDGE LINE PAVEMENT MARKINGS, TO ENSURE A MIN 1' OFFSET IS MAINTAINED AT CRASH CUSHION ATTENUATORS.

15) ANY USE OF TRACKED OR OTHERWISE NON-RUBBER-TIRED EQUIPMENT NOT LICENSED FOR OPERATION ON PUBLIC HIGHWAYS ON PAVEMENT SURFACES MUST BE APPROVED BY THE ENGINEER. IF APPROVED, THE CONTRACTOR SHALL IMPLEMENT MEASURES TO PROTECT THE PAVEMENT, ITS MARKINGS, & ANY RAISED MARKERS FROM DAMAGE AS APPROPRIATE &/OR THE ENGINEER DIRECTS.

16) CONTRACTOR SHALL ENSURE POSITIVE & ADEQUATE DRAINAGE FOR THE PROJECT LIMITS & DURATION, FOR BOTH PERMANENT & TEMP/PHASED WORK. TO THE END, THE CONTRACTOR SHALL FIELD-IDENTIFY, LOCATE, &/OR VERIFY LOCATIONS OF EXIST DRAIN PIPES & ALL OTHER DRAINAGE FACILITIES, WHETHER OR NOT THEY ARE DEPICTED ON THE PLANS (ALSO SEE GENERAL NOTE 29). CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ITEMS ASSOCIATED WITH TEMP/INTERIM DRAINAGE & ALL RELATED MAINTENANCE (SUBSIDIARY).

17) PRIOR TO OPENING TO CONST-ERA TRAFFIC, PLACE EROSION CONTROL & SW3P TREATMENTS WHERE APPROPRIATE THROUGHOUT THE PROJECT LIMITS & MAINTAIN THEM FOR THE PROJECT DURATION, AS PRESCRIBED BY THE TxDOT STD DETAILS HEREIN &/OR BY THE ENGINEER. TEMP EROSION CONTROL MEASURES SHALL ONLY BE PLACED IN AREAS WHERE SOIL DISTURBANCE IS EXPECTED TO OCCUR WITHIN 2 WEEKS & SHALL BE REMOVED WITHIN 2 WEEKS OF AREA VEGETATION ESTABLISHMENT IN THE AREA OR AS APPROVED BY THE ENGINEER. NON-BACKFILLED/UNPROTECTED PAVEMENT/EARTHEN INTERFACE EDGE DROP-OFFS ARE NOT PERMITTED TO REMAIN OVERNIGHT (SEE EPIC SHEET HEREIN): BACKFILL ALL SUCH DROP-OFFS WITH A SUITABLE MATERIAL TO FORM A STABLE SLOPE, 3:1 OR FLATTER, AT THE END OF EACH WORKDAY. WHERE CONST ACTIVITIES HAVE TEMPORARILY CEASED & WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS, "TRACK" ANY EARTHEN EXPOSED/GRADED/SOIL-LAIN SURFACES, STOCKPILES, & SLOPES, WITH SAID "TRACKING" CONSISTING OF OPERATING A TRACKED VEHICLE OR EQUIPMENT UP & DOWN THE SLOPE, LEAVING TRACK MARKS PERPENDICULAR TO THE DIRECTION OF THE SLOPE. RE-"TRACK" THESE AFTER EACH RAIN EVENT OR EVERY 14 DAYS, WHICHEVER OCCURS FIRST.

18) PERFORM MAINTENANCE, FUELING, WASHING, ETC OF VEHICLES & EQUIPMENT AT DESIGNATED ENGINEER-APPROVED SITES; WITH A SPILL KIT ON-SITE AT ALL TIMES.

GENERAL NOTES REGARDING TRAFFIC CONTROL (CONTINUED)

19) FOR WORK NEAR, ADJACENT TO, OR OVER WATER BODIES, KEEP A UNIVERSAL SPILL KIT ON-SITE ADEQUATE FOR THE BODY OF WATER (LAKE, POND, RIVER, CREEK, FLOODWAY, ETC) & THE TYPE OF WORK TO BE PERFORMED. AGGRESSIVELY PREVENT DEBRIS FROM FALLING INTO WATER BODIES. DEBRIS THAT FALLS INTO WATER BODIES MUST BE REMOVED AT THE END OF EACH WORK DAY. DEBRIS THAT FALLS INTO A CURRENTLY-DRY FLOODWAY MUST BE REMOVED AT THE END OF EACH WORK WEEK OR PRIOR TO ANY PRECIPITATION EVENT.

20) UPON COMPLETION & BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL CLEAR & REMOVE FROM THE SITE ALL DEBRIS & SURPLUS/DISCARDED MATERIALS, LEAVING THE PROJECT LIMITS IN SMOOTH & TIDY CONDITION. SALVAGE MATERIAL, AS DETERMINED BY THE ENGINEER, SHALL BE DELIVERED A FACILITY SPECIFIED BY THE ENGINEER. UNSALVAGEABLE & OTHER WASTE MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR, WITH ITS DISPOSAL, IN AN ENGINEER-APPROVED LOCATION OUTSIDE OF THE PROJECT LIMITS, IN ACCORDANCE WITH REGULATIONS, TO BE HIS/HER SOLE RESPONSIBILITY. NO WASTE MATERIAL SHALL BE PLACED IN EXIST LOW POINTS THAT WILL BLOCK OR ALTER POSITIVE EXIST, TEMP, &/OR PROP DRAINAGE. ALL SUBSIDIARY.

21) THE CONTRACTOR SHALL KEEP THE ROADWAY CLEAN & FREE OF EARTH (MUD, DUST, SOIL, ETC), DEBRIS, & CONST MATERIALS SPILLED, TRACKED, ETC ONTO THE SUBJECT ROADWAY, ADJOINING STREETS/PATHS OF TRAVEL, & ASSOCIATED CLEAR ZONES BY ALL PROJECT-ASSOCIATED PARTIES, WITH CLEANUP TO OCCUR WITHIN 2 HRS OF ANY INCIDENT. CLEANUP (THE AFOREMENTIONED & OTHERWISE KEEPING THE PROJECT LIMITS DEBRIS-FREE) IS REQUIRED FOR THE PROJECT DURATION, INCLUDING AT THE END OF THE WORK DAY, REGARDLESS OF THE CONTRACTOR'S SCOPE OF ACTIVITIES WITHIN THE PROJECT. THE CONTRACTOR SHALL CEASE ALL CONST OPERATIONS TO CLEAN THE ROADWAY, WHEN DIRECTED BY & TO THE SATISFACTION OF THE ENGINEER. ALL SUBSIDIARY.

22) CONTRACTOR STAGING AREAS SHALL BE DETERMINED BY THE CONTRACTOR WITH WRITTEN CONCURRENCE BY THE ENGINEER PRIOR TO CONST. ITEMS (E.G., CONST ENTRANCE/EXIT MATERIALS) & EFFORT TO PREPARE, INSTALL, MAINTAIN & REMOVE STAGING & SIMILAR CONTRACTOR-ACTIVITY AREAS (SEE GENERAL NOTE 4a) SHALL ALL BE SUBSIDIARY (SEE GENERAL NOTE 6).

23) ALL LOCATIONS USED FOR STORING CONST EQUIPMENT, MATERIALS, & STOCKPILES OF ANY TYPE, WITHIN THE ROW, WILL BE AS DIRECTED BY THE ENGINEER. USE OF ROW FOR THESE PURPOSES WILL BE RESTRICTED TO LOCATIONS WHERE SIGHT DISTANCE IS NOT OBSTRUCTED. FOR POTENTIALLY UNSIGHTLY SPOILS, STOCKPILES, ETC CHOOSE LOCATIONS LESS VISIBLE TO THE TRAVELING PUBLIC, AS PRACTICAL & POSSIBLE. THE CONTRACTOR WILL NOT HAVE EXCLUSIVE USE OF ROW BUT WILL COOPERATE IN ITS USE WITH THE COUNTY, UTILITY COMPANIES, & OTHER STAKEHOLDERS, AS APPROPRIATE &/OR AS DIRECTED BY THE ENGINEER.

24) NOTIFY THE ENGINEER AT LEAST 2 BUSINESS DAYS PRIOR TO COMMENCING CONST/CONST PHASES & IN ADVANCE OF LANE CLOSURES. FOR THE LATTER, NOTIFY THE TRAVELING PUBLIC AT LEAST 48 HOURS PRIOR BY PLACING PORTABLE CHANGEABLE MESSAGE BOARDS ON-SITE IN ADVANCE OF THE WORK. SUBMIT ANY CANCELLATION OF PREVIOUSLY-APPROVED LANE CLOSURES NO LATER THAN NOON OF THE DAY PRECEDING THE SCHEDULED CLOSURE.

25) CONTRACTOR SHALL MAINTAIN A MIN OF 1 THRU TRAFFIC LANE IN EACH DIRECTION (FOR A TOTAL OF 2) AT NIGHT & OTHERWISE DURING NON-WORK HOURS. DURING WORK HOURS & IF THE PAVEMENT ISN'T OR WON'T GET WET, A FLAGGING OPERATION MAY BE USED TO REDUCE TRAFFIC TO A SINGLE, REVERSIBLE LANE (I.E., LANE CLOSURE), WITH THE NUMBER OF FLAGGERS TO BE PROVIDED & THE NATURE/DURATION OF THEIR DEPLOYMENT SUBJECT TO APPROVAL BY THE ENGINEER. PRIOR TO ANY SUCH LANE CLOSURE, THE CONTRACTOR MUST PRESENT DETAILS ENSURING TO THE ENGINEER'S SATISFACTION THAT: SUFFICIENT EQUIPMENT, MATERIALS, DEVICES, & WORKERS WILL BE USED, AVAILABLE, & READY TO CONTINUOUSLY PROSECUTE THE WORK; A CONTINGENCY PLAN FOR ALTERNATE TRAFFIC HANDLING IS IN PLACE, IF AT ANY TIME DURING THE LANE CLOSURE ROADWAY QUEUING BECOMES UNREASONABLE (GREATER THAN 20 MIN); & INCLEMENT WEATHER ISN'T IMMINENT.

26) NO ROADWAY OR LANE CLOSURES WILL BE ALLOWED ON THE WEEKENDS, WHICH INCLUDE THE FOLLOWING HOLIDAYS: JANUARY 1; THE LAST MONDAY IN MAY; JULY 4; THE FIRST MONDAY IN SEPTEMBER; THE FOURTH THURSDAY IN NOVEMBER; DECEMBER 25; EASTER WEEKEND; & THE WORKING DAY PRIOR TO OR IMMEDIATELY AFTER ANY OF THE AFOREMENTIONED. NO CLOSURES WILL BE ALLOWED ON THE WEEKENDS OF SPECIAL EVENTS; PRIOR TO CONST, THE CONTRACTOR WILL CONFIRM THE NUMBER, DURATION, & DATES OF ALL SUCH SPECIAL EVENTS WITH THE ENGINEER (THOUGH THE COUNTY RESERVES THE RIGHT TO LATER DESIGNATE OTHERS). ENSURE ALL EQUIPMENT, VEHICLES, WORKERS, ETC ASSOCIATED WITH LANE CLOSURES ARE CLEAR OF THE SUBJECT ROADWAY WITH ALL ITS LANES REOPENED BY NOON OF THE FRIDAY PRIOR TO THESE HOLIDAYS & SPECIAL EVENTS.

STATE OF TEXAS
ROBERT S. DOTY
97218
LICENSED
PROFESSIONAL ENGINEER

Robert S. Doty

10/21/2023

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

TRAFFIC CONTROL PLAN GENERAL NOTES

SHEET 1 OF 1

DN:	SDD	PROJECT NO.		HIGHWAY
CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	6

DATE: 12/8/2021
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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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

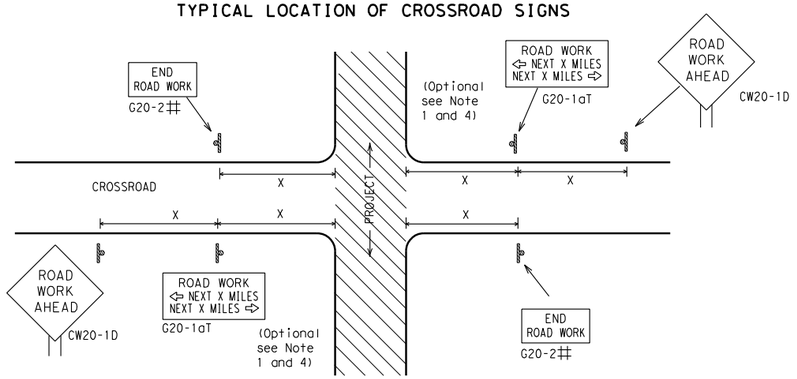
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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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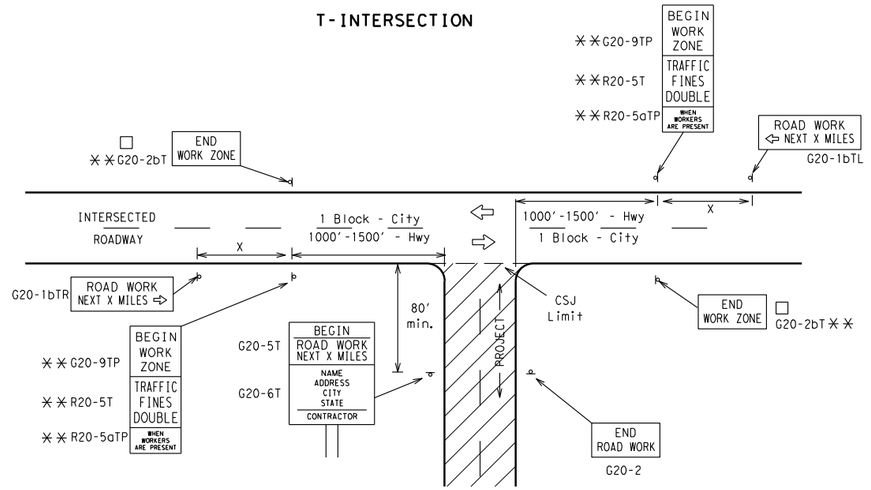
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

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

SPACING

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

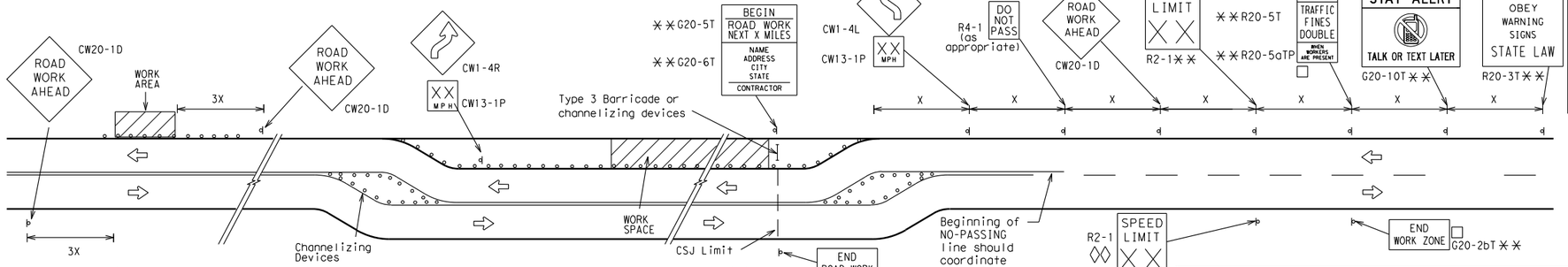
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

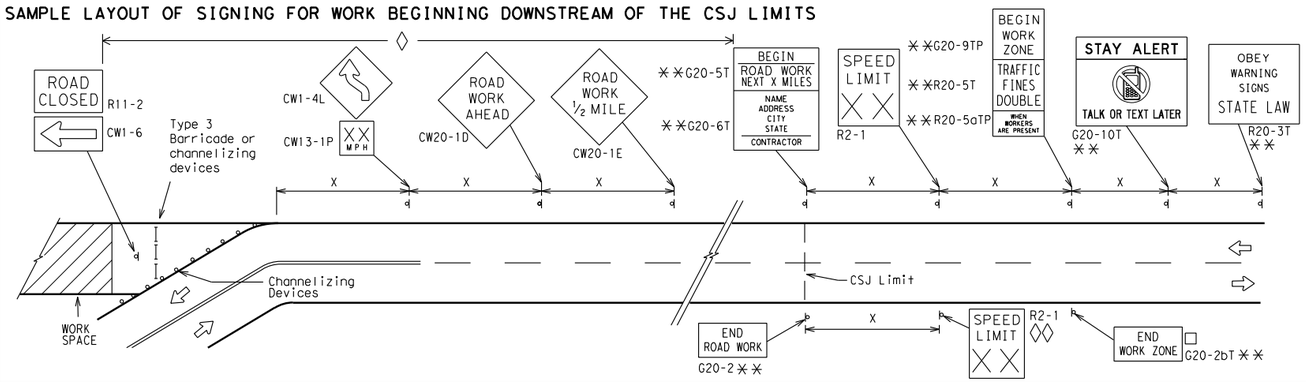
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may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

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

NOTES

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

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

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

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

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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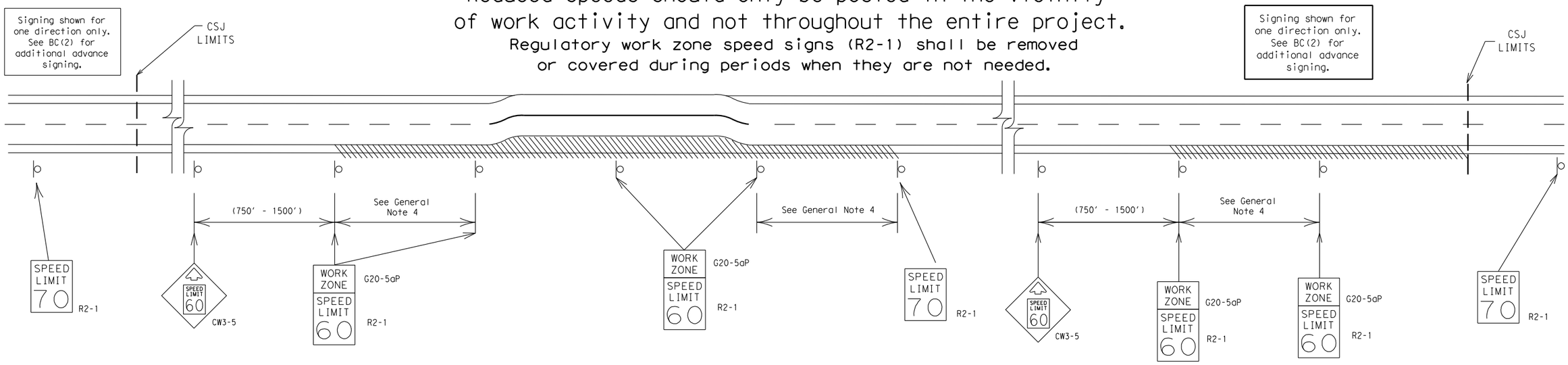
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TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

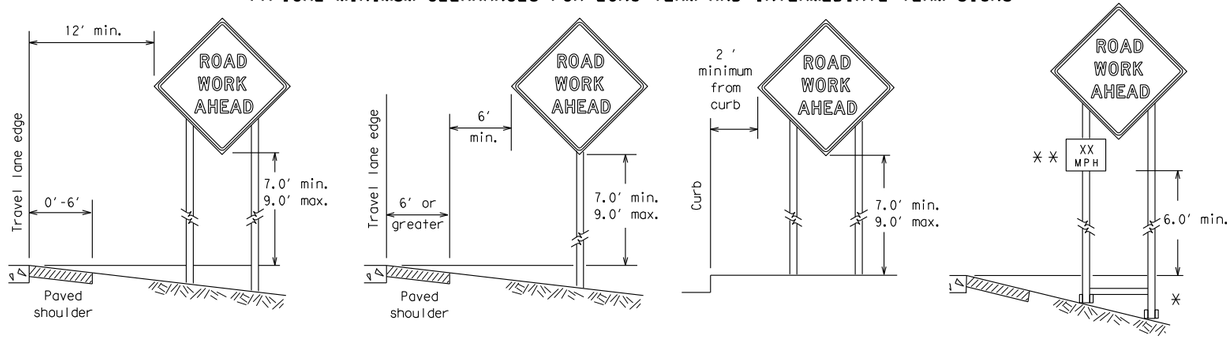
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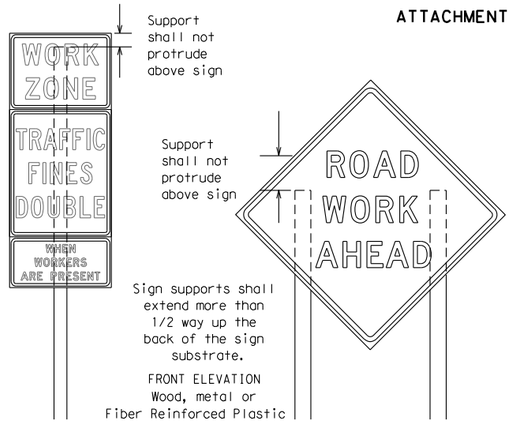
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



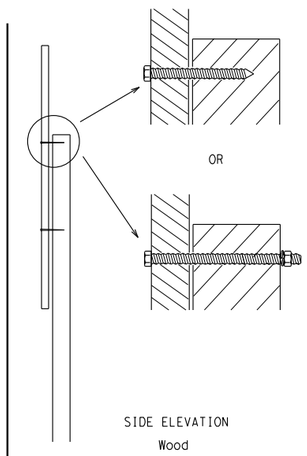
⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS



FRONT ELEVATION
Wood, metal or
Fiber Reinforced Plastic



SIDE ELEVATION
Wood

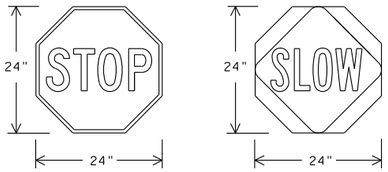
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

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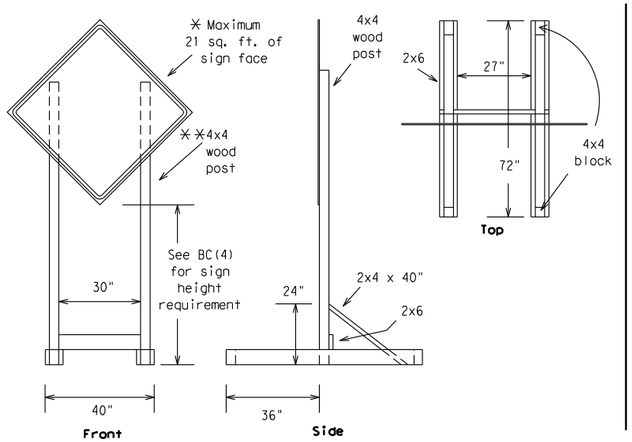
Traffic Safety Division Standard

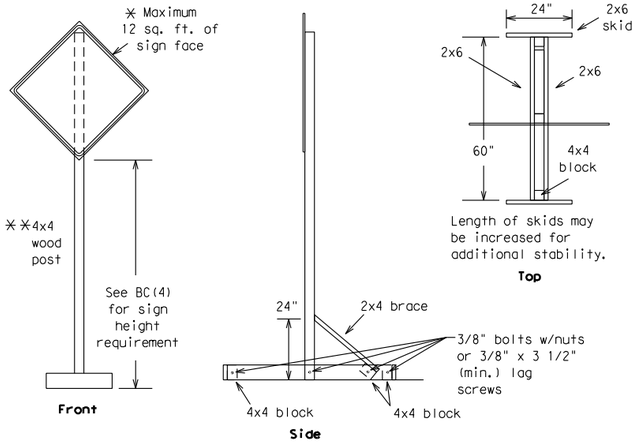
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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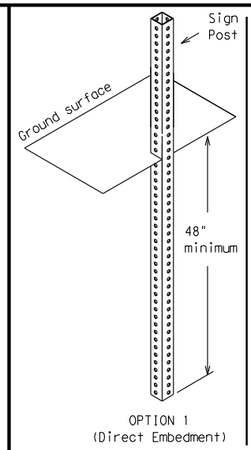
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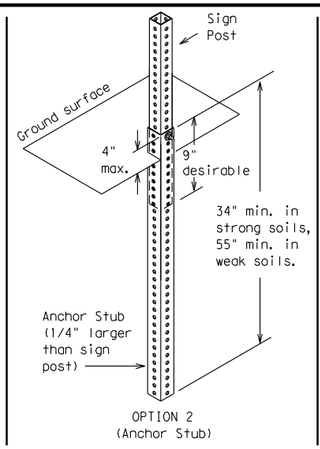


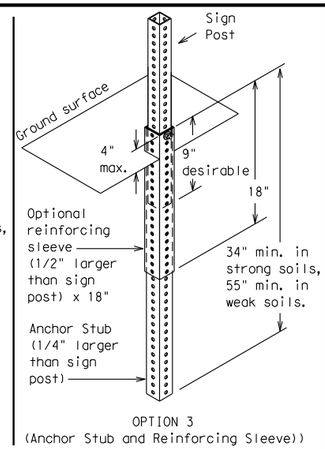


SKID MOUNTED WOOD SIGN SUPPORTS

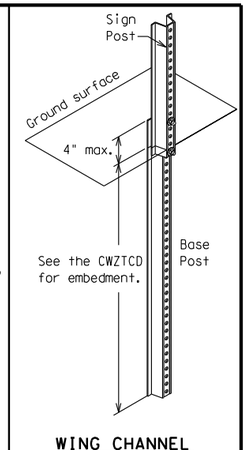
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







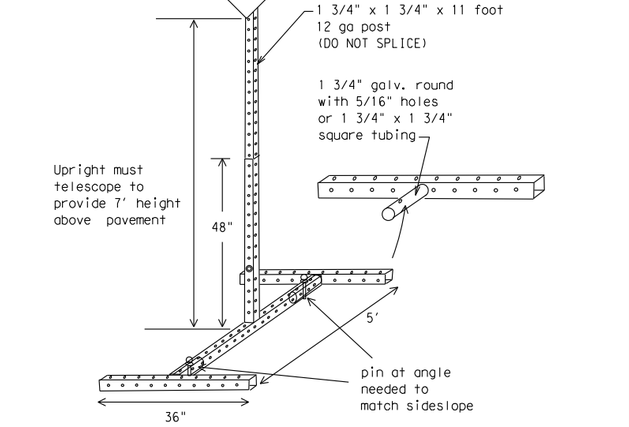
PERFORATED SQUARE METAL TUBING

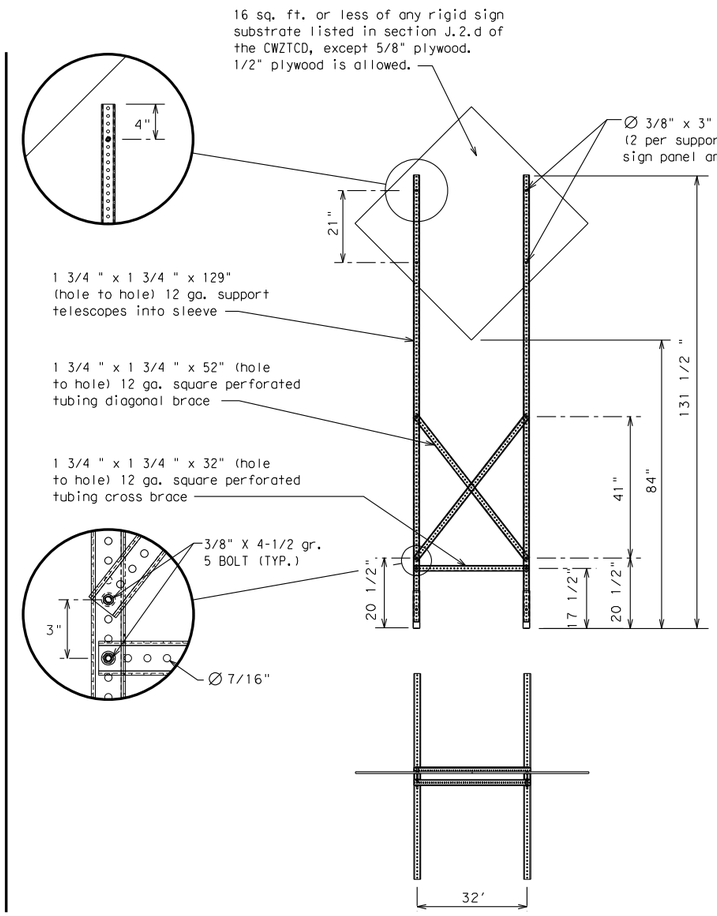


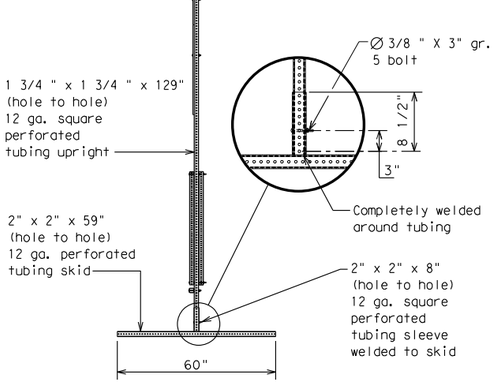
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

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







WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

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BC(5)-21

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

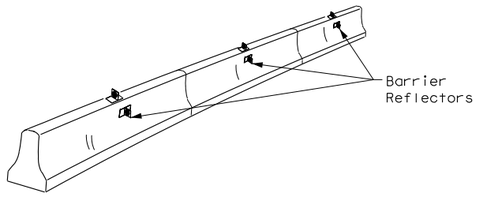
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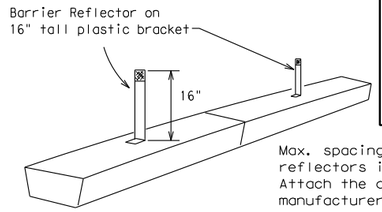
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1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

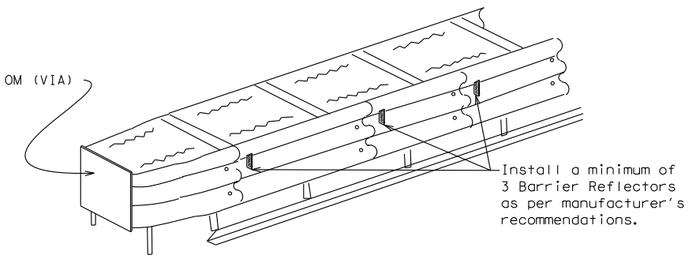


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

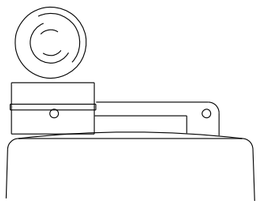


DELINEATION OF END TREATMENTS

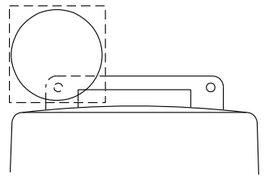
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

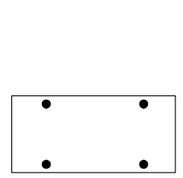
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

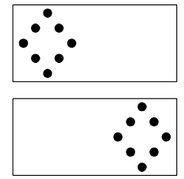
Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:

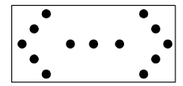


4 CORNER CAUTION

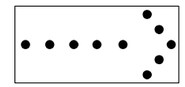
OR



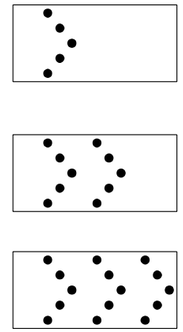
ALTERNATING DIAMOND CAUTION



DOUBLE ARROW



RIGHT/LEFT ARROW
(right arrow shown; left is similar)



RIGHT/LEFT SEQUENTIAL CHEVRON
(right chevron shown; left is similar)

5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21				13

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

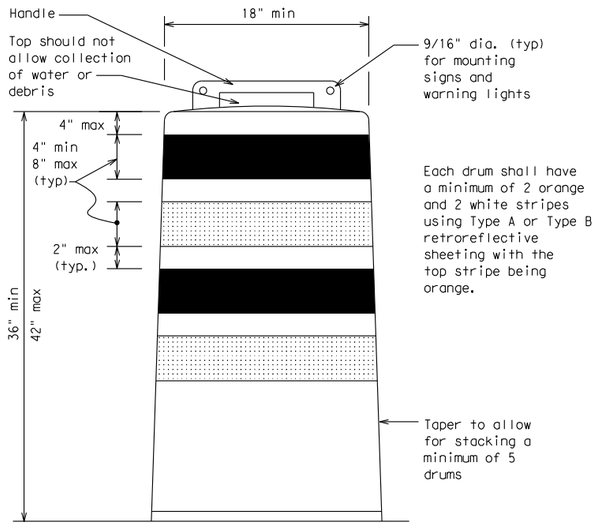
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

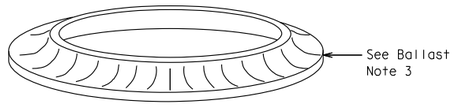
RETROREFLECTIVE SHEETING

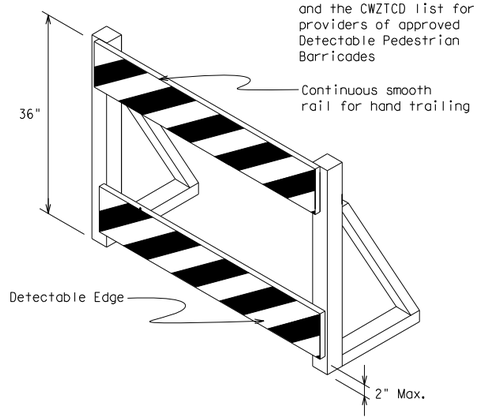
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

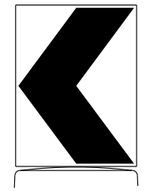




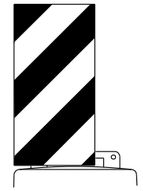


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

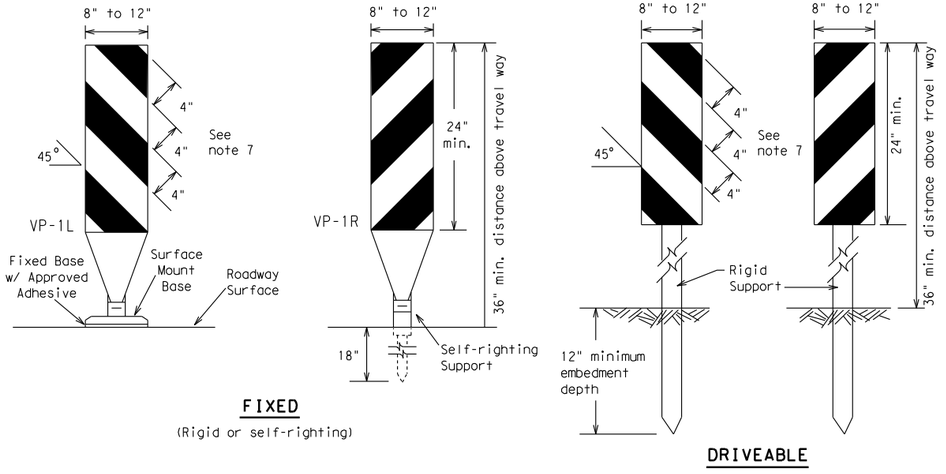
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FIXED
(Rigid or self-righting)

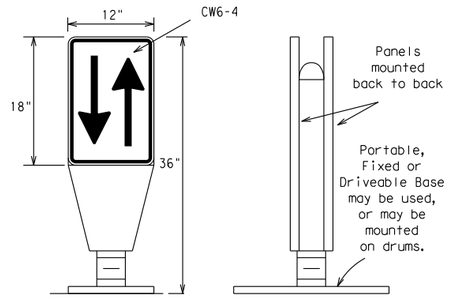
DRIVEABLE

(Rigid or self-righting)

PORTABLE

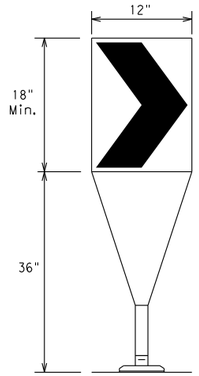
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



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

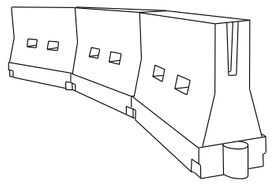
OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



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

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

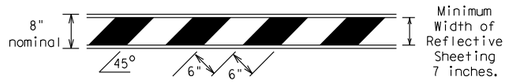
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
9-07 8-14	DIST	COUNTY		SHEET NO.
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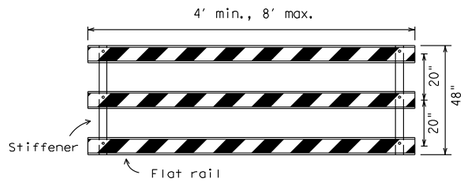
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



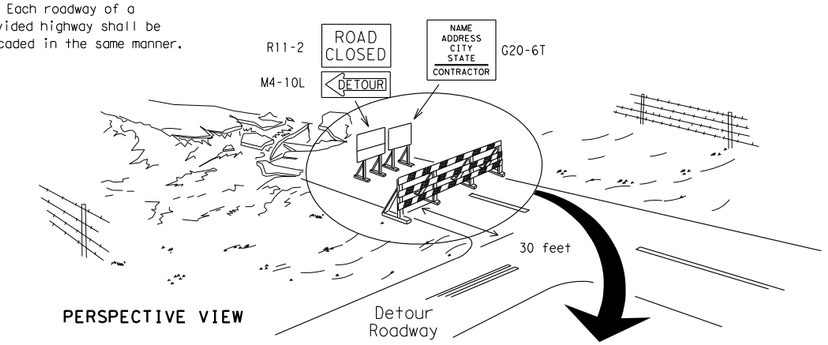
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

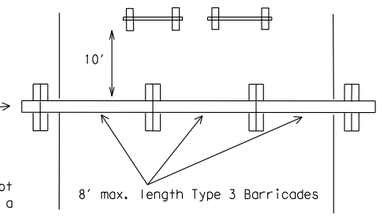
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

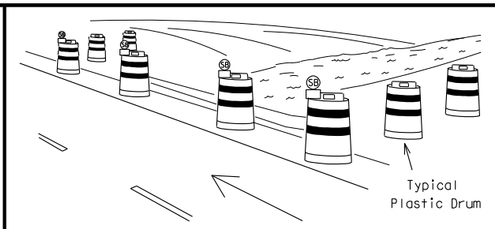
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

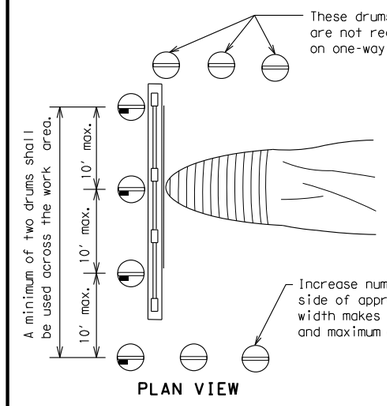
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

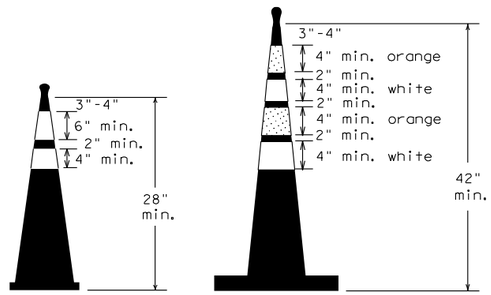
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



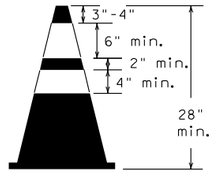
PLAN VIEW

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

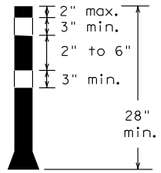
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

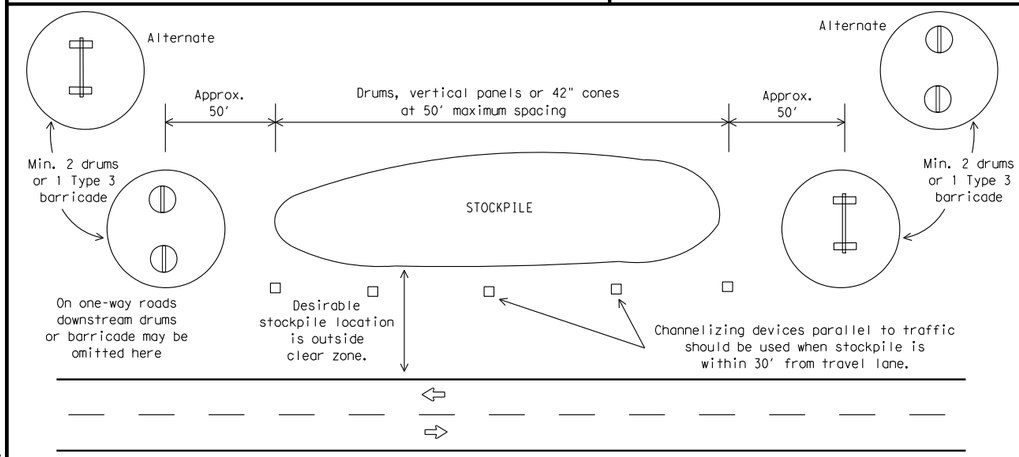


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

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SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

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

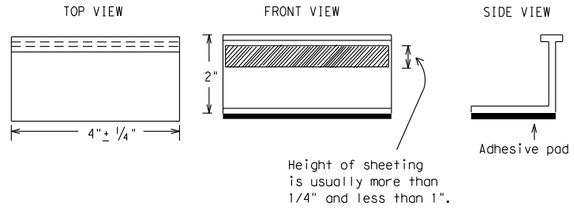
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL 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).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

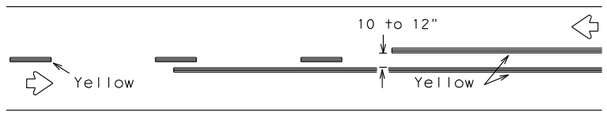
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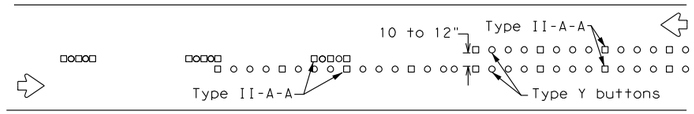
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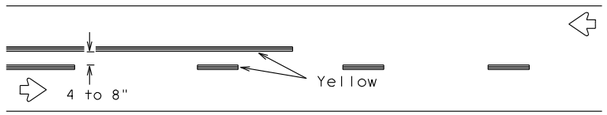
PAVEMENT MARKING PATTERNS



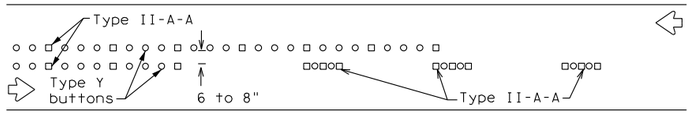
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



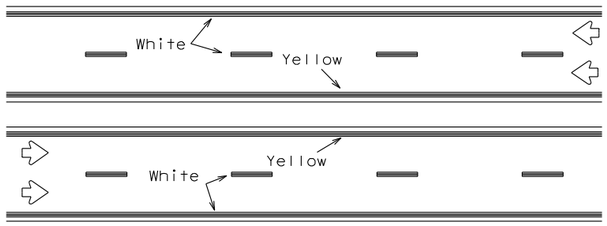
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



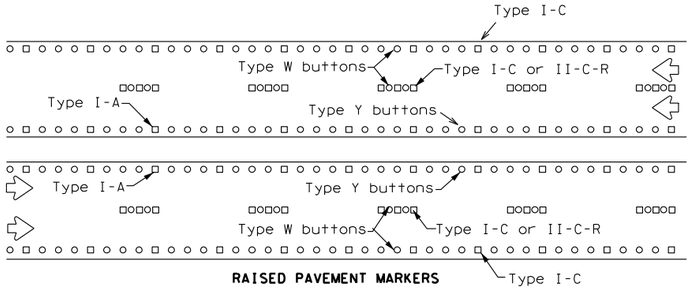
RAISED PAVEMENT MARKERS - PATTERN B

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

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



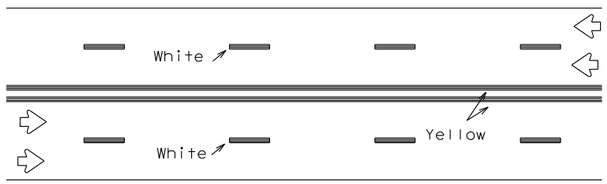
REFLECTORIZED PAVEMENT MARKINGS



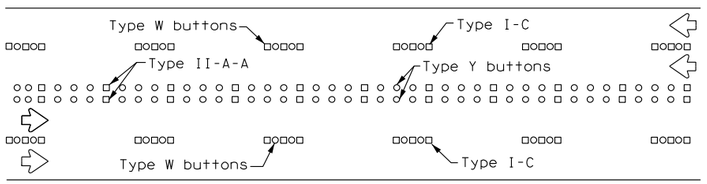
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



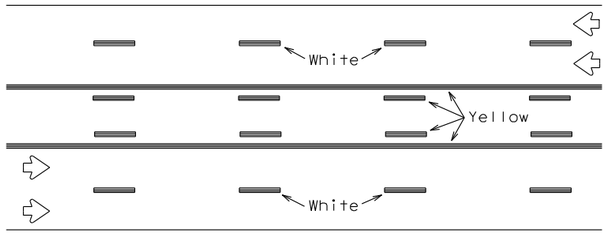
REFLECTORIZED PAVEMENT MARKINGS



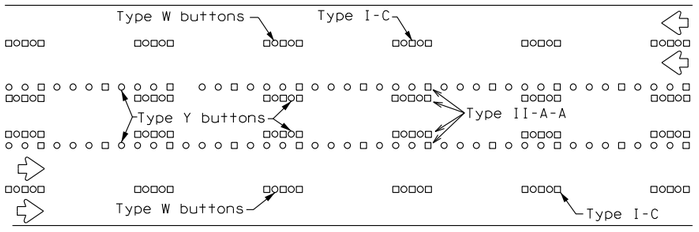
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

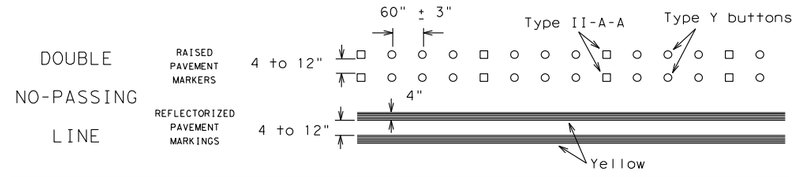
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

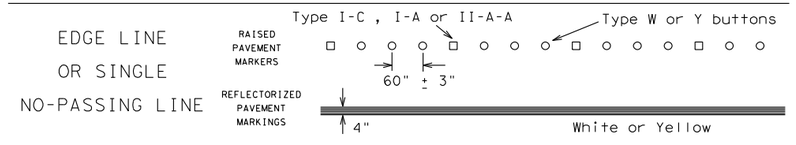
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

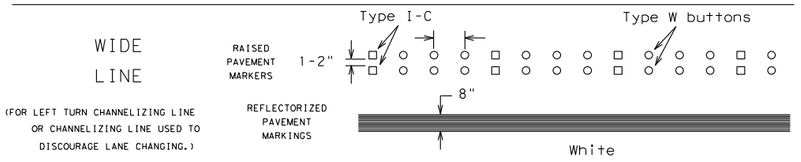


EDGE LINE OR SINGLE NO-PASSING LINE



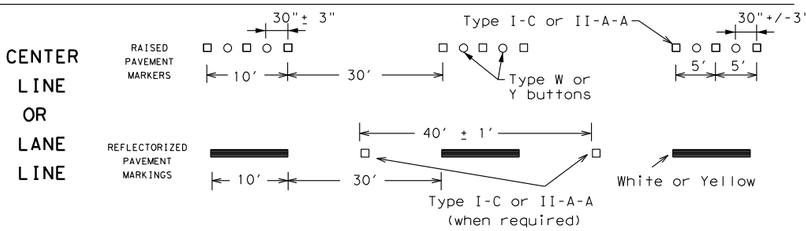
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

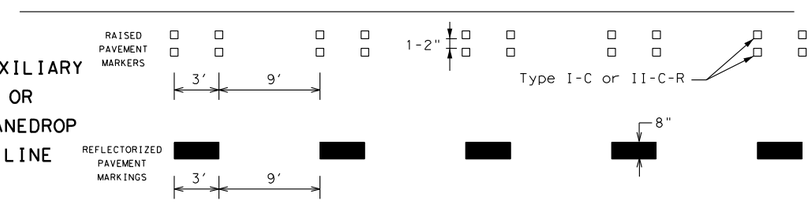


BROKEN LINES

CENTER LINE OR LANE LINE

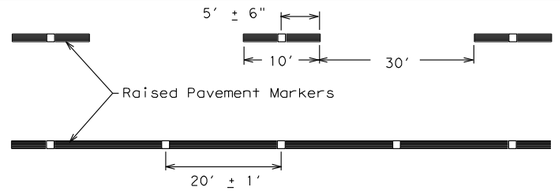


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

SHEET 12 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

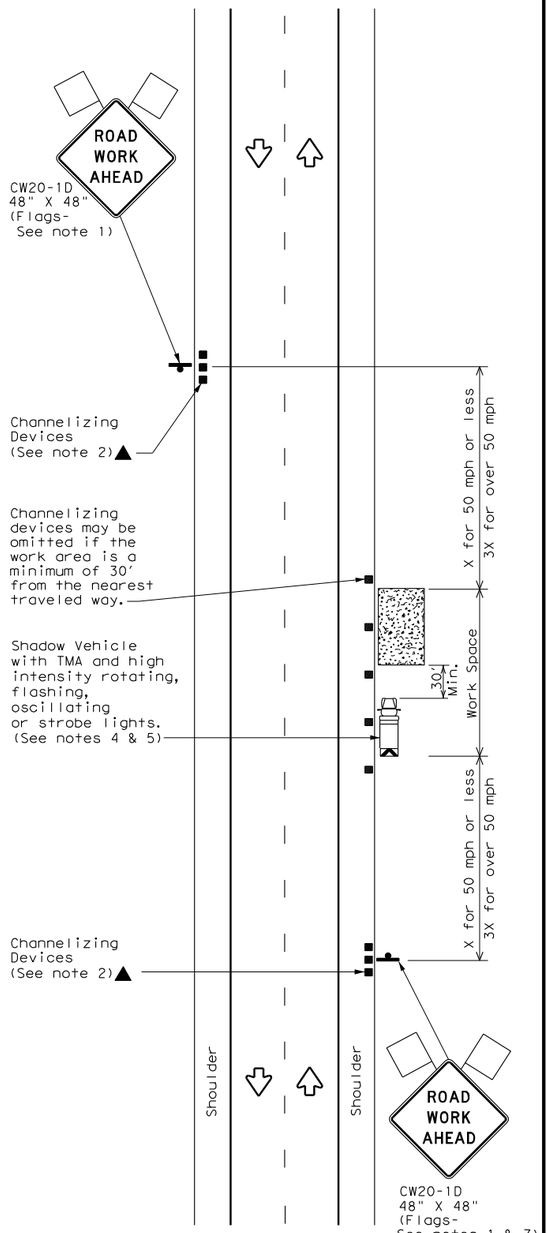
BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	DIST	COUNTY		SHEET NO. 18

106

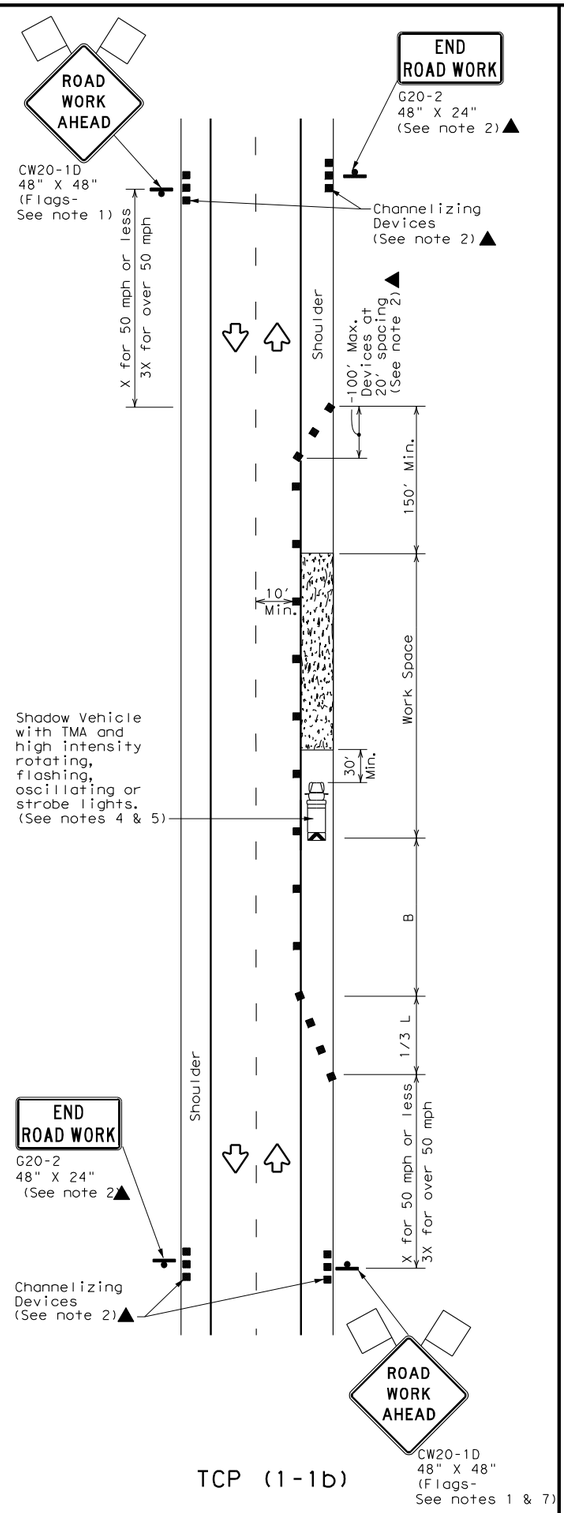
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DATE:
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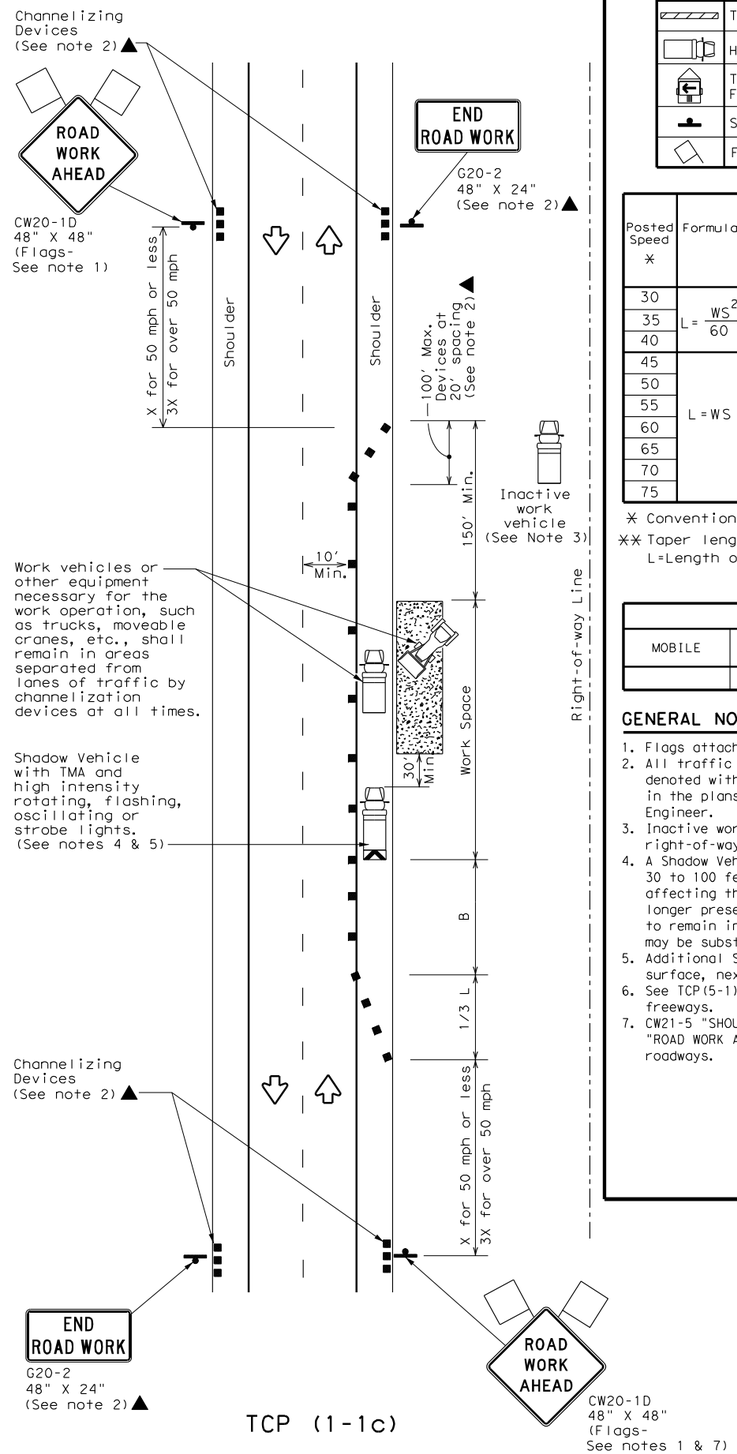
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation

Traffic Operations Division Standard

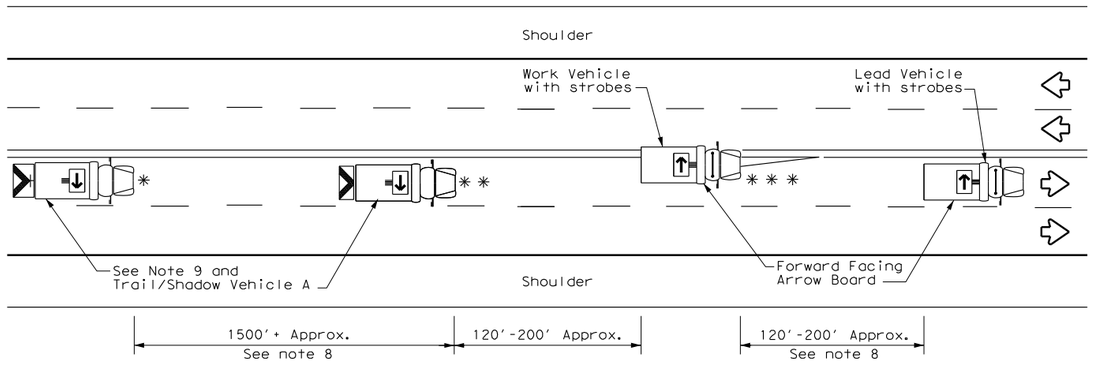
TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO. 19

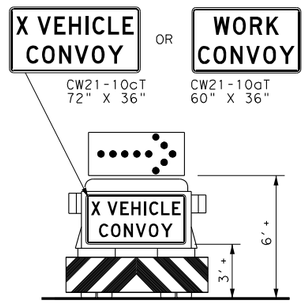
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TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

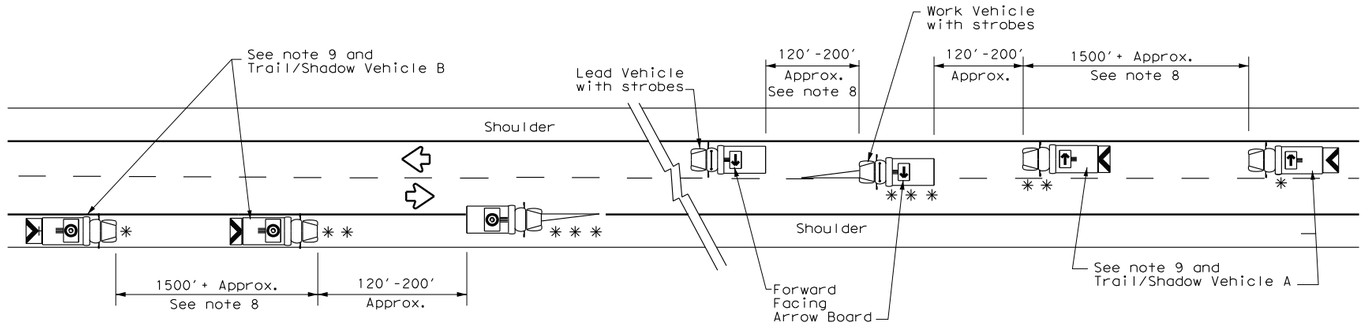
with RIGHT Directional display Flashing Arrow Board

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	Shadow Vehicle		
* * *	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.

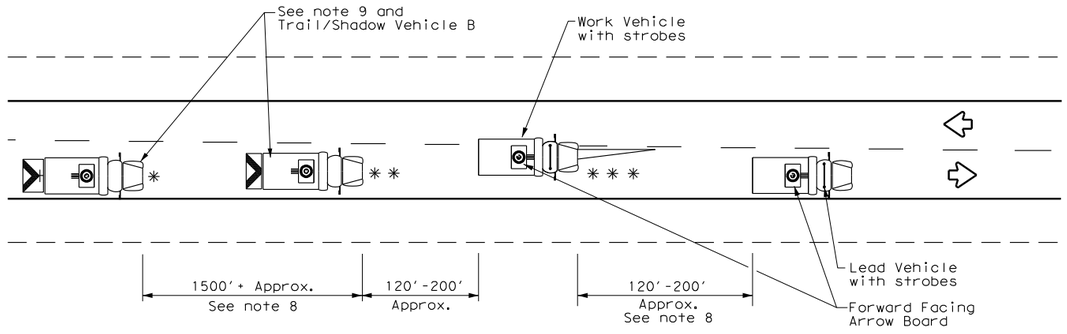


WORK ON SHOULDER

WORK ON TRAVEL LANE

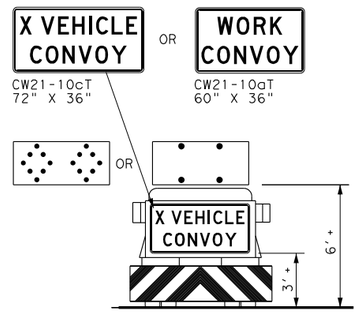
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



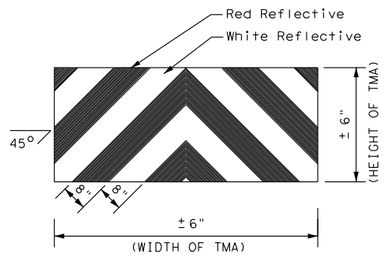
TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

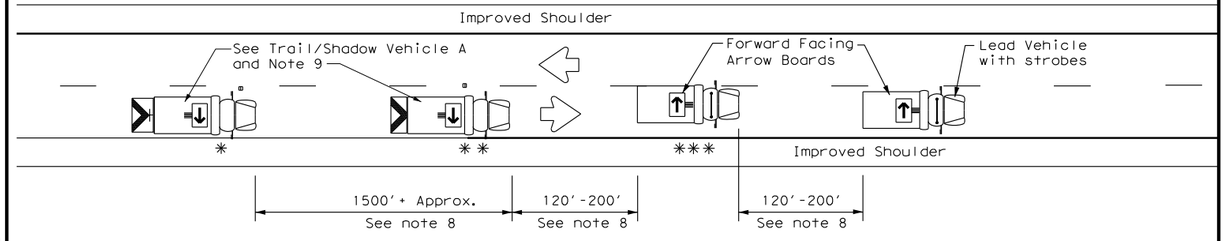
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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	DIST	COUNTY		SHEET NO. 20

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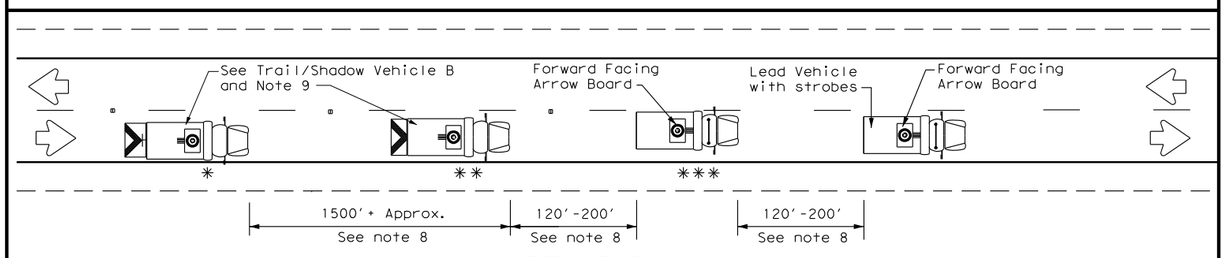
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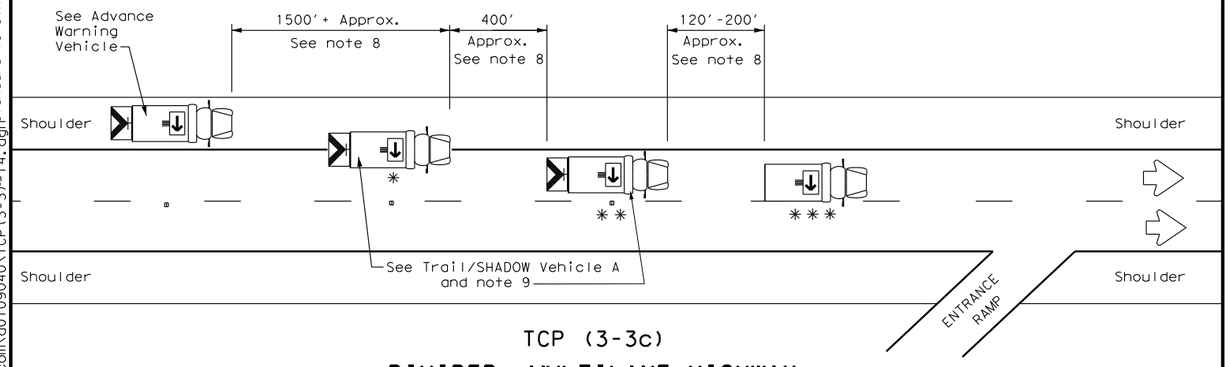
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS (WORK ON TRAVEL LANE)



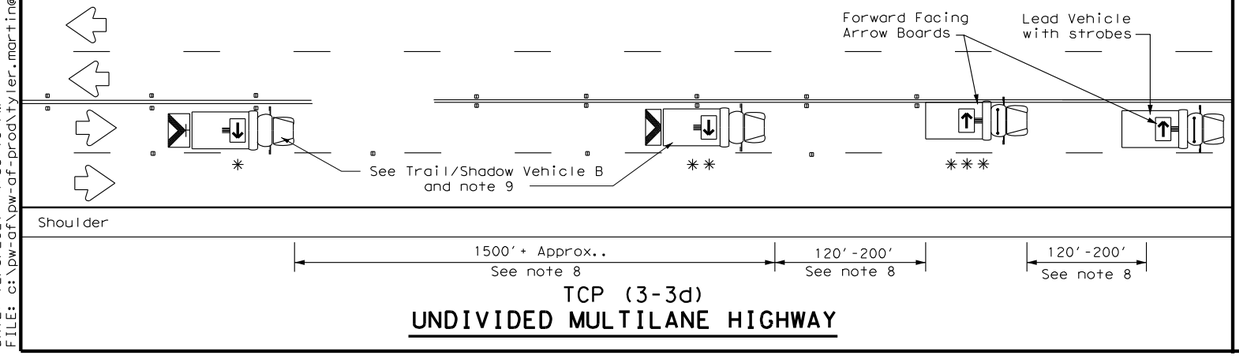
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS (WORK ON TRAVEL LANE)



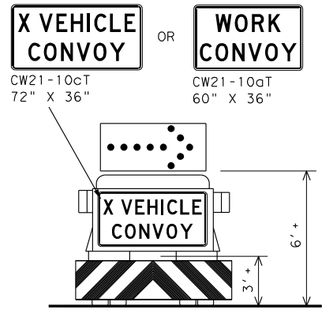
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



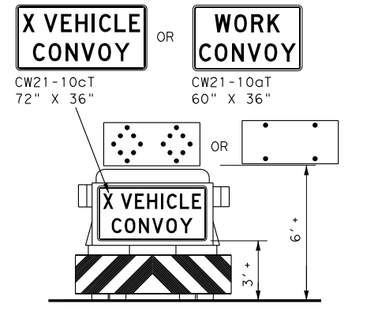
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



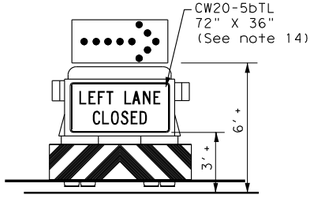
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display
Flashing Arrow Board

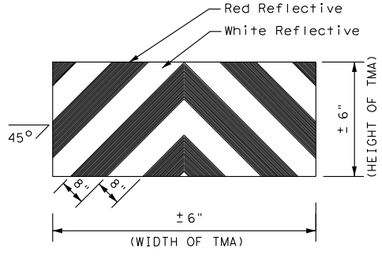


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board
in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
✓				

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dT) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

Texas Department of Transportation

Traffic Operations Division Standard

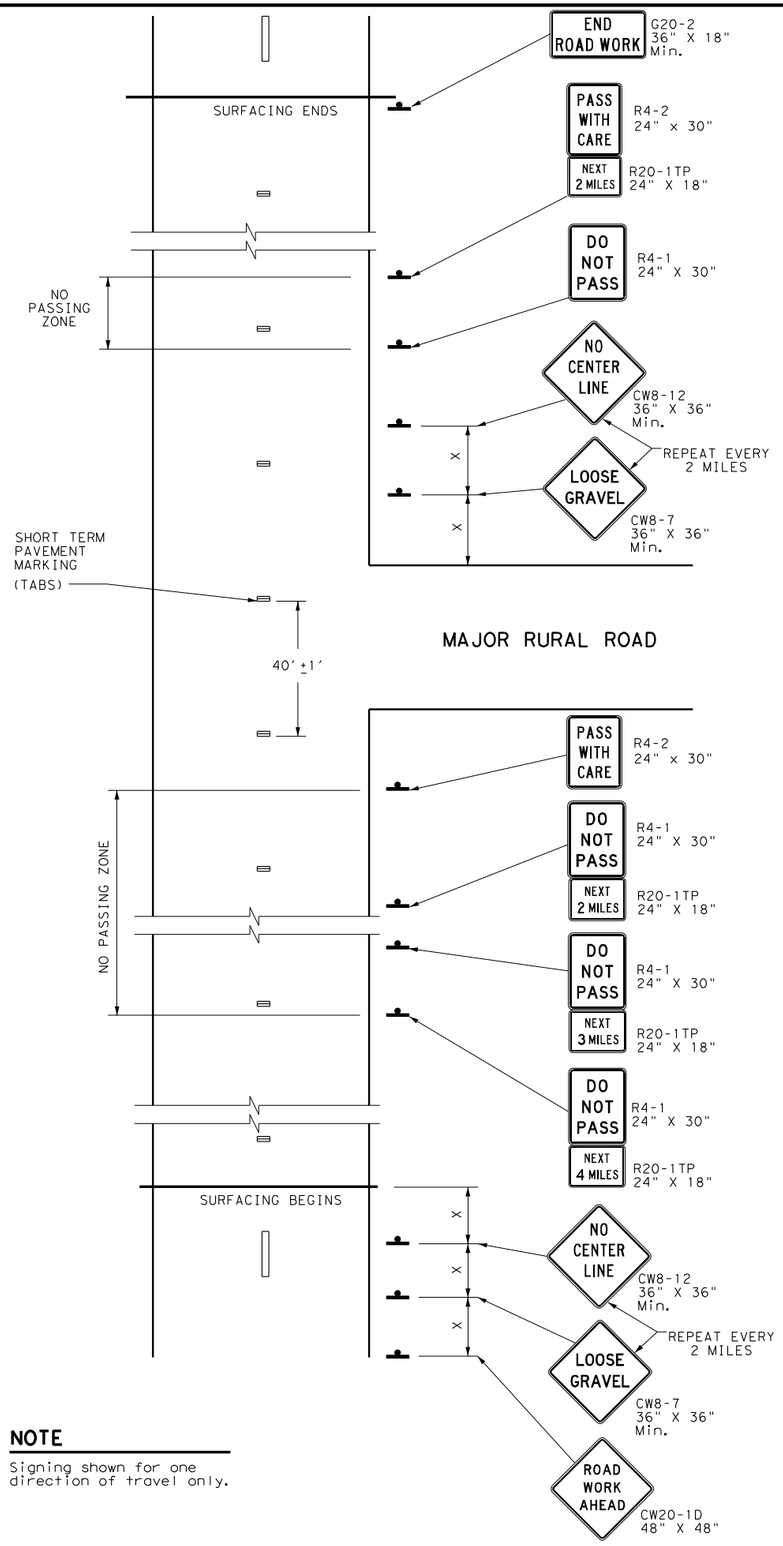
TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

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©TxDOT September 1987	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 7-13				21
1-97 7-14				

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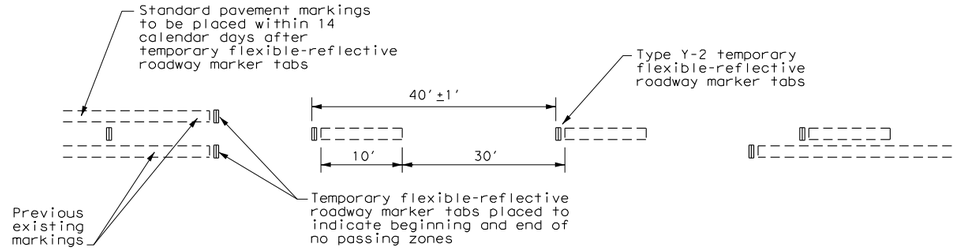
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NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

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

* Conventional Roads Only

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

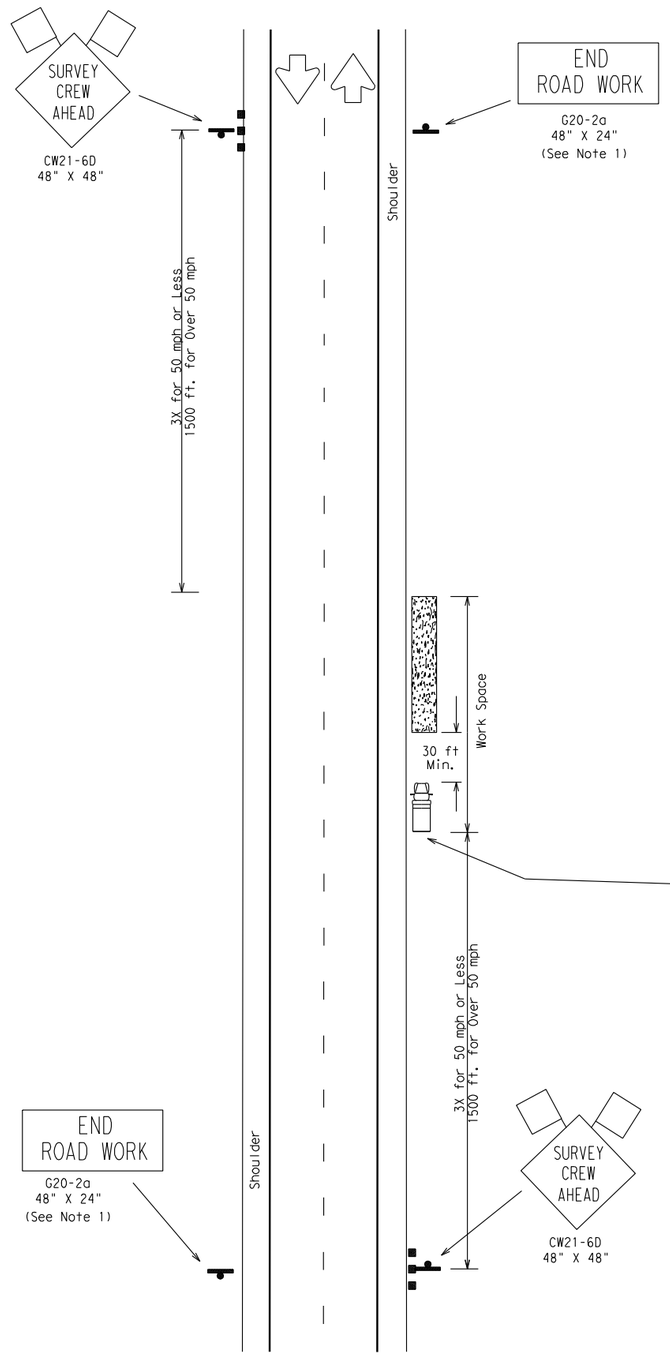
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1-97 7-13					22

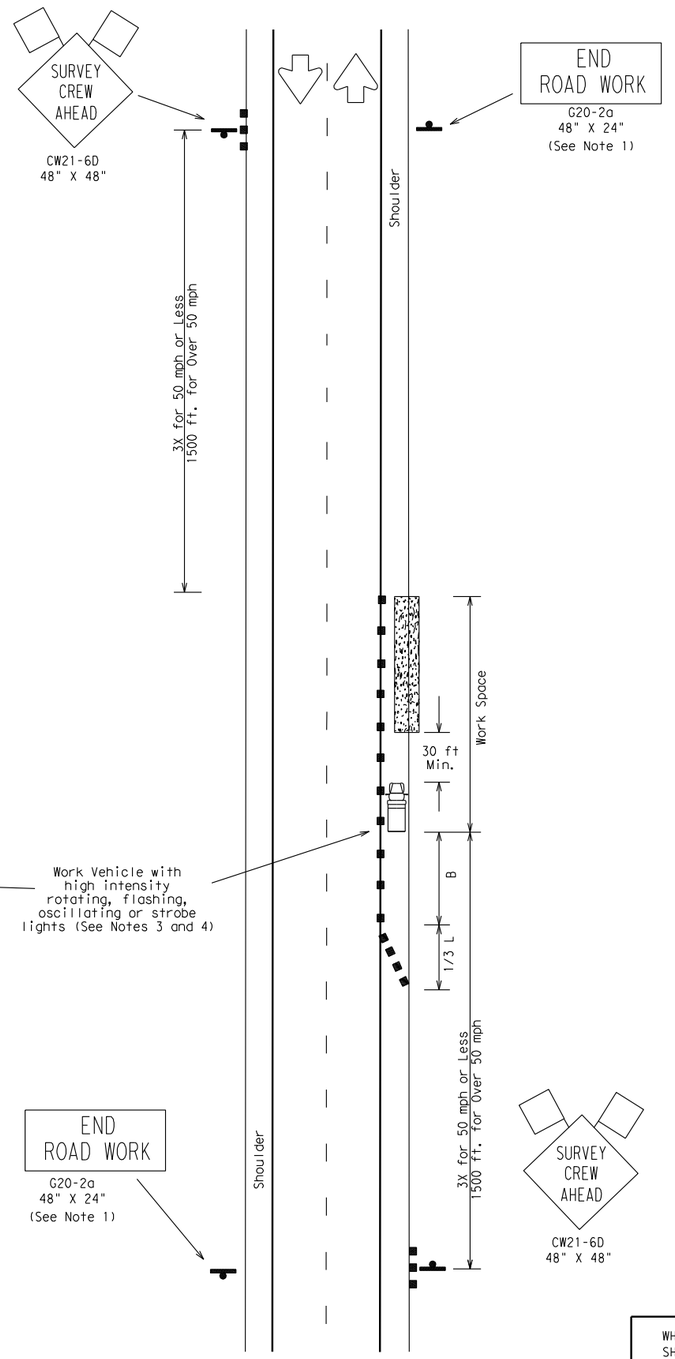
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TCP (S-1a)
WORK OFF SHOULDER OR PAVED SURFACE



TCP (S-1b)
WORK ON SHOULDER

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
40		265′	295′	320′	40′	80′-100′	240′	155′
45	L=WS	450′	495′	540′	45′	90′-110′	320′	195′
50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	900′	540′

✳ Conventional Roads Only

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

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. ~~The C20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.~~
2. Channelizing devices on the shoulder taper and tangent section may be omitted for short duration (less than 1 hour) work.
3. If line-of-sight requirements for surveying operations will preclude the placement of the Work Vehicle to protect workers, the channelizing devices mentioned in Note 2 are required.
4. A Shadow Vehicle with a Truck Mounted Attenuator and flashing warning lights/arrow panel in caution mode may be used in lieu of the Work Vehicle to protect the work space.
5. The CW20-1D "ROAD WORK AHEAD" sign may be substituted for the CW21-6D "SURVEY CREW AHEAD" sign. (1)
6. This plan may also be used for shoulder work or off shoulder work for multilane undivided roadways.
7. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-1a)

8. Cones may be placed at edge of pavement adjacent to the work space to enhance safety.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
(1) Corrected misspelling.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-1)-08A

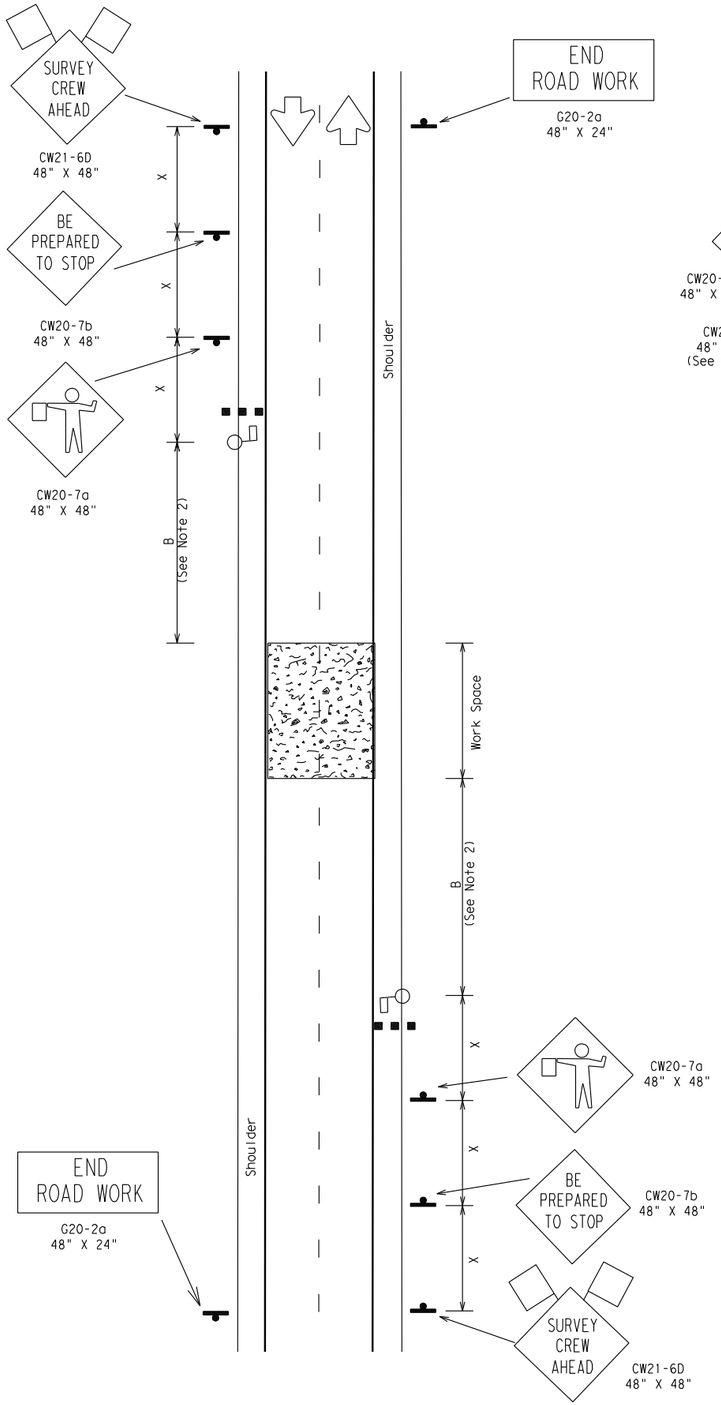
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DIST	COUNTY		SHEET NO.
			23

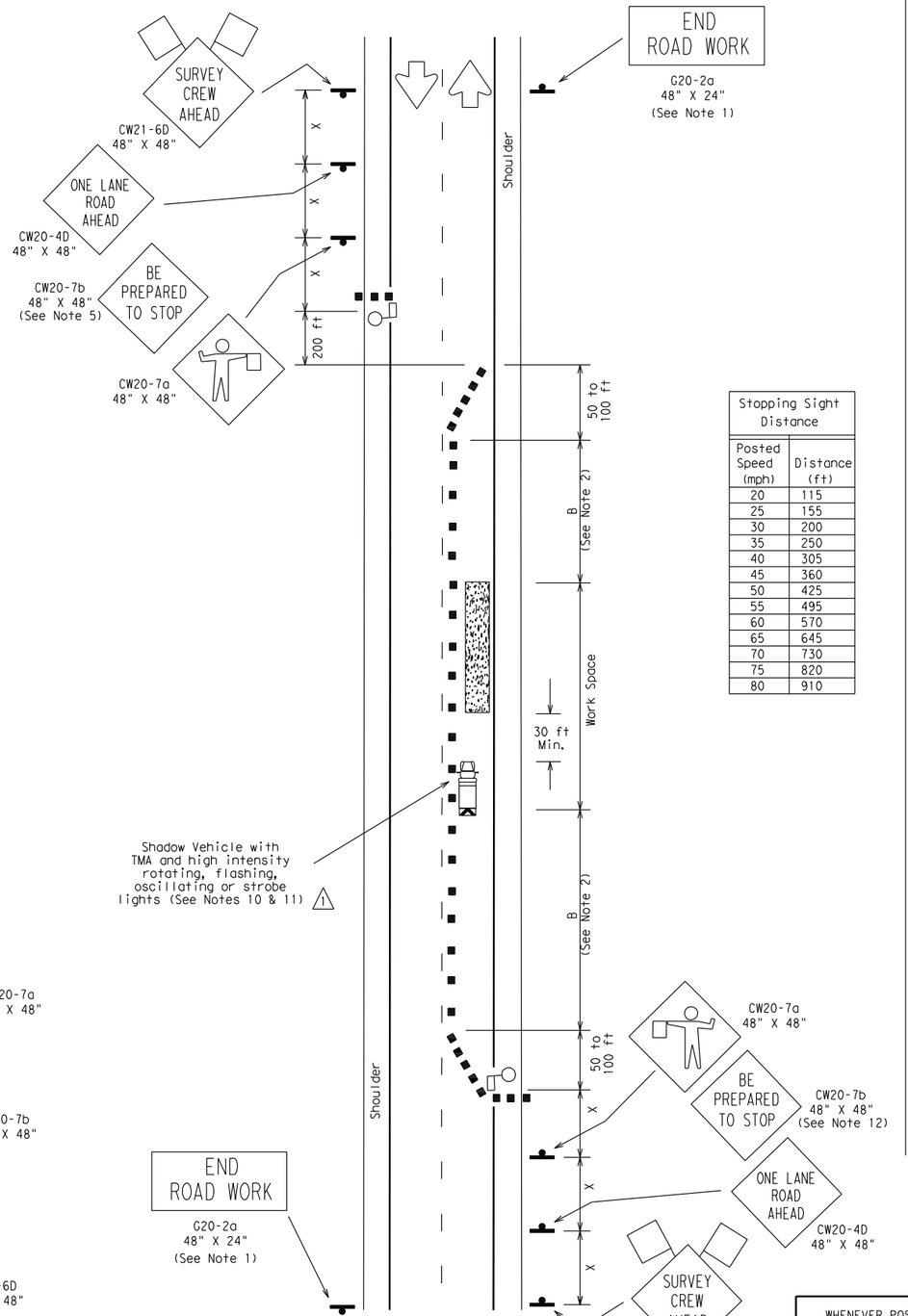
REVISIONS
8-08

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TCP (S-2a)
ROAD CLOSED FOR LESS THAN 20 MINUTES -
OFF PEAK TRAFFIC HOURS
WITH OR WITHOUT SHOULDERS



TCP (S-2b)
WORK IN ROADWAY
OFF PEAK TRAFFIC HOURS
WITH OR WITHOUT SHOULDERS

Stopping Sight Distance	
Posted Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag
Heavy Work Vehicle Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Panel (M) Portable Changeable Message Sign (PCMS)
Flagger Sign Post

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'	90'
35		205'	225'	245'	35'	70'-90'	160'	120'
40		265'	295'	320'	40'	80'-100'	240'	155'
45	L=WS	450'	495'	540'	45'	90'-110'	320'	195'
50		500'	550'	600'	50'	100'-125'	400'	240'
55		550'	605'	660'	55'	110'-140'	500'	295'
60		600'	660'	720'	60'	120'-150'	600'	350'
65		650'	715'	780'	65'	130'-165'	700'	410'
70		700'	770'	840'	70'	140'-175'	800'	475'
75		750'	825'	900'	75'	150'-185'	900'	540'

✳ Conventional Roads Only

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

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

DEFINITIONS:
SHORT DURATION - work that occupies a location up to 1 hour.
SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:
1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. Adequate Stopping Sight Distance (see Stopping Sight Distance table) should be maintained from approaching traffic to the flagger or a queue of stopped vehicles. The Buffer Space "B" should be extended around curves or other obstacles, when necessary, to have adequate Stopping Sight Distance to the flagger station.
3. Flaggers should use two-way radios or other means of communication while flagging.
4. The length of the work space should be based on the ability of the flaggers to communicate.
5. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" signs.
6. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads is desirable, but is not required when working less than 15 minutes in area of the side road, as determined by the Engineer.

TCP(S-2a)
7. Road closures shall be less than 20 minutes. Closures less than 5 minutes are desirable.
8. Sign spacing should be increased if traffic repeatedly queues past the CW20-7b "BE PREPARED TO STOP" sign.
9. The surveying instrument should not be located on the paved surface.

TCP (S-2B)
10. For short duration work the Shadow Vehicle with a TMA may be replaced by another Work Vehicle with high intensity rotating, flashing or strobe lights.
11. Shadow Vehicles with a TMA are desirable when workers or equipment are in the work space. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Shadow Vehicle.
12. The CW20-7b "BE PREPARED TO STOP" sign is optional. When used, it should be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign.

WHENEVER POSSIBLE, SURVEY PARTIES SHOULD AVOID, BY THE USE OF OFFSET LINES, ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

8-18-08 Revision
1 Corrected referrence to notes.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

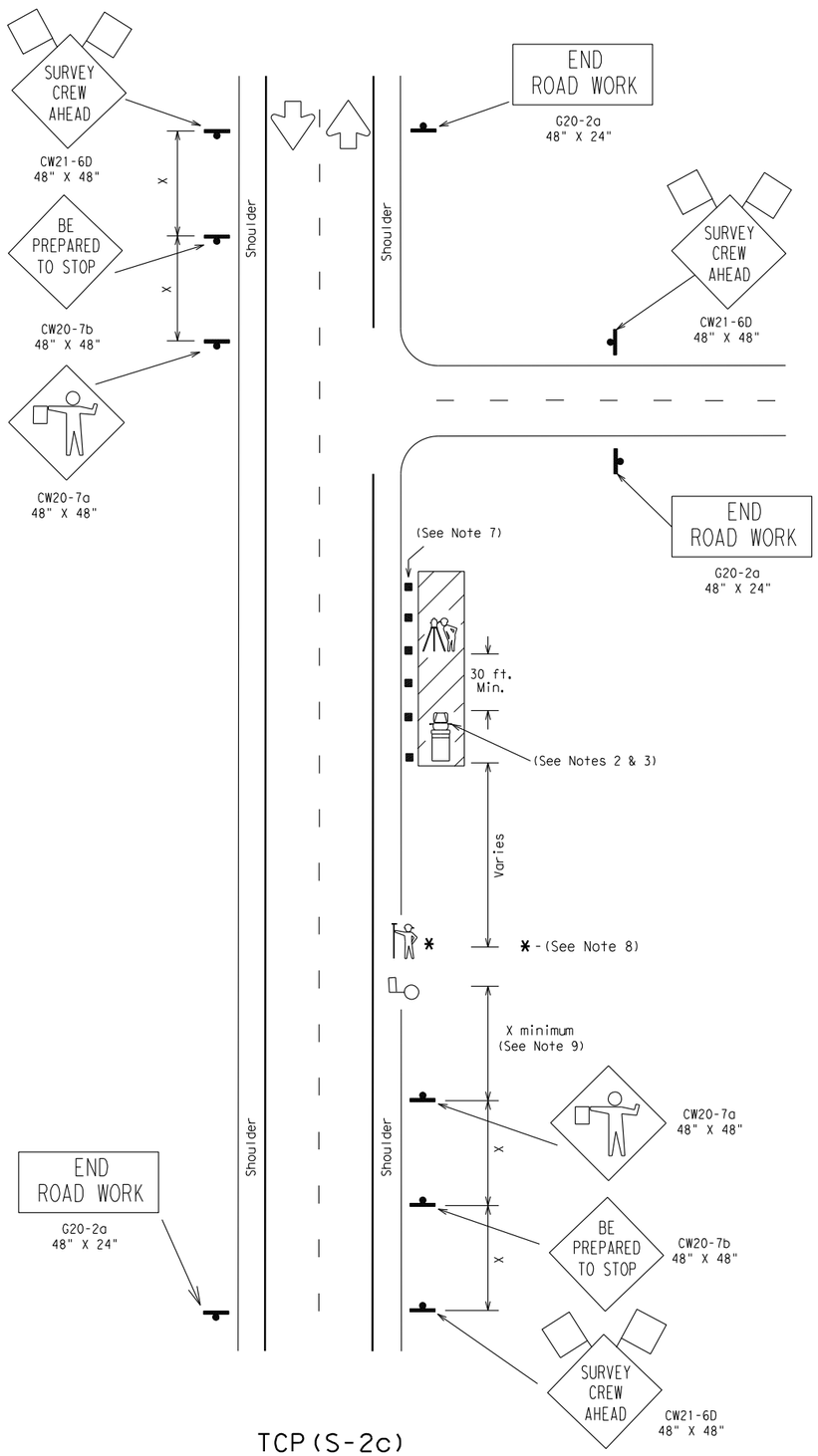
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TCP(S-2c)

Stopping Sight Distance	
Posted Speed (mph)	Distance (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

LEGEND

Type III Barricade ■ ■ Channelizing Devices Flag

Work Vehicle Truck Mounted Attenuator (TMA)

Flagger Sign Post Survey Rodman Instrument Person

Posted Speed ⁎	Formula	Minimum Desirable Taper Lengths ⁎⁎ 10′ Offset	11′ Offset	12′ Offset	Suggested Maximum Spacing of Device On a Taper	On a Tangent	Min. Sign Spacing "X" Distance	Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′	90′
35		205′	225′	245′	35′	70′-90′	160′	120′
40		265′	295′	320′	40′	80′-100′	240′	155′
45	L=WS	450′	495′	540′	45′	90′-110′	320′	195′
50		500′	550′	600′	50′	100′-125′	400′	240′
55		550′	605′	660′	55′	110′-140′	500′	295′
60		600′	660′	720′	60′	120′-150′	600′	350′
65		650′	715′	780′	65′	130′-165′	700′	410′
70		700′	770′	840′	70′	140′-175′	800′	475′
75		750′	825′	900′	75′	150′-185′	900′	540′

⁎ Conventional Roads Only

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

TYPICAL USAGE:				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

DEFINITIONS:

MOBILE - work that moves continously or intermittently (stopping up to approximately 15 minutes).

SHORT DURATION - work that occupies a location up to 1 hour.

SHORT TERM STATIONARY - daytime work that occupies a location for more than 1 hour within a single daylight period.

GENERAL NOTES:

1. The G20-2a "END ROAD WORK" sign may be placed on the back of the CW21-6D "SURVEY CREW AHEAD" sign or may be omitted for short duration (less than 1 hour) work.
2. Work Vehicle with high intensity rotating, flashing, oscillating or strobe lights should be used to protect work space.
3. When approved by the engineer, Type III barricades or other channelizing devices may be substituted for the Heavy Work Vehicle.
4. CW20-1D "ROAD WORK AHEAD" signs may be substituted for CW21-6D "SURVEY CREW AHEAD" SIGNS.
5. The CW21-6D "SURVEY CREW AHEAD" sign for low volume intersecting side roads may be omitted when approved by the Engineer.
6. The Surveying Instrument shall not be located on the paved surface.
7. Cones at edge of pavement adjacent to instrument person may be omitted when approved by the Engineer.
8. Rodman may only enter roadway when accompanied by flagger and as traffic allows.
9. The distance between the advance warning signs and the work should not exceed a two mile maximum.
10. Flaggers and Survey Crew should use two-way radios or other means of communication.
11. Survey Crew and Flaggers shall wear high-visibility apparel meeting the ANSI 107-2007 standard performance for Class 2 or Class 3 risk exposure.
12. Additional traffic control devices may be required to address local site conditions.
13. Stopping Sight Distance shall be maintained from approaching traffic to the flagger. See "Stopping Sight Distance" table.

SURVEY PARTIES SHOULD AVOID ANY UNNECCESSARY PERIODS OF TIME ON THE ROAD SURFACE.

This TCP is to cover two lane rural type roadways as determined by the Engineer. All other type roadways will be covered by other established Survey TCP'S.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN FOR SURVEYING OPERATIONS

TCP(S-2c)-10

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REVISIONS

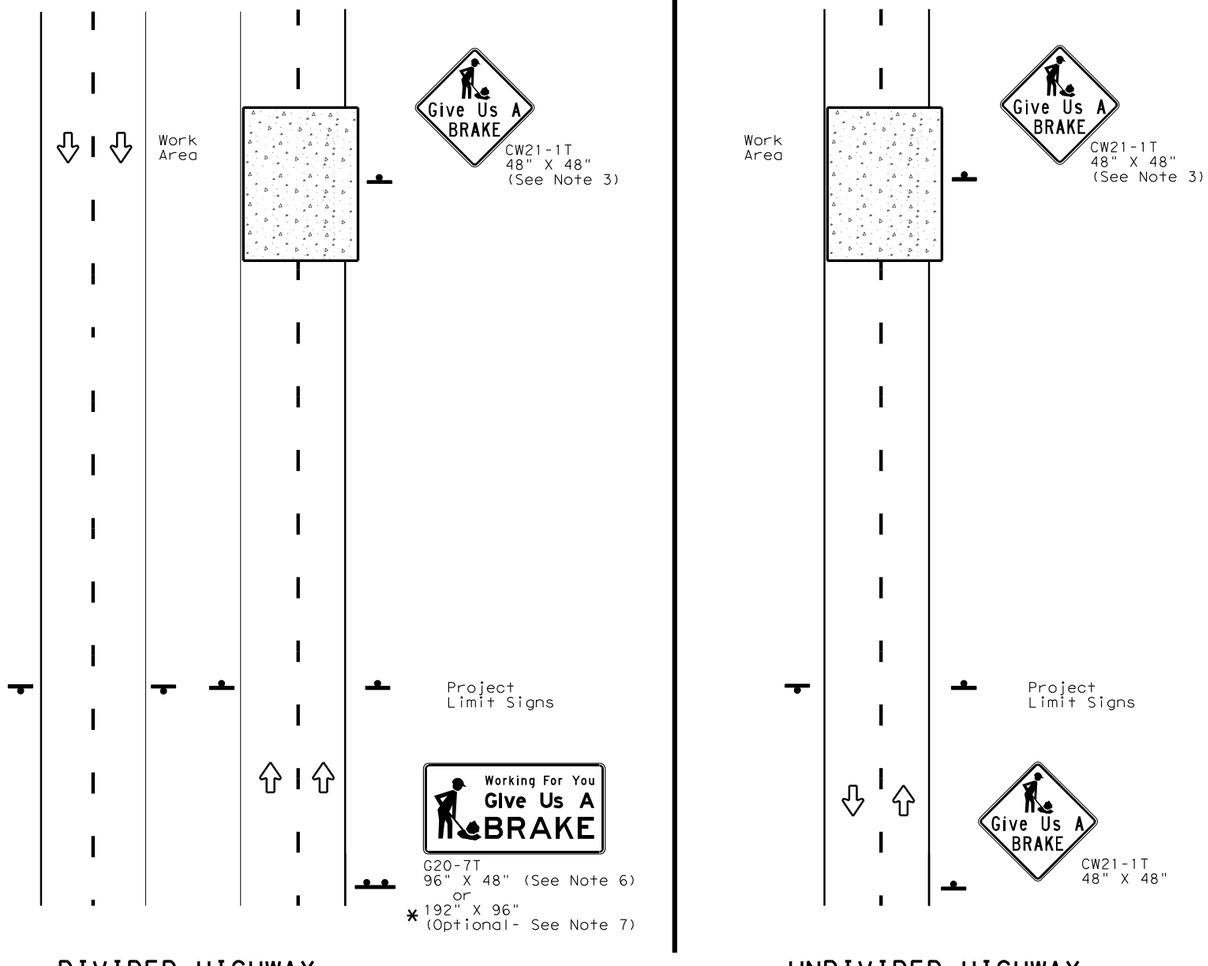
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SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL}
BLACK	LEGEND & BORDERS	NON-REFLECTIVE ACRYLIC FILM

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

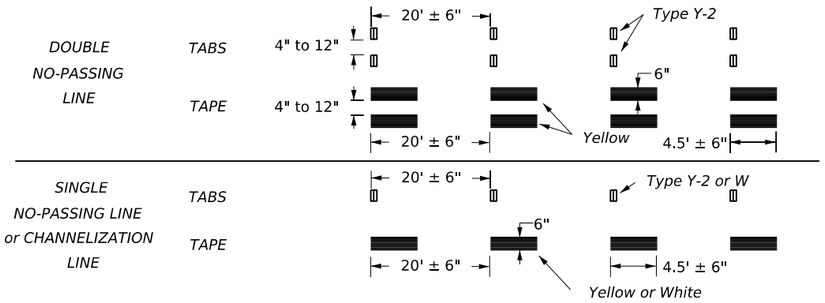
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©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
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8-96 3-03				26

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



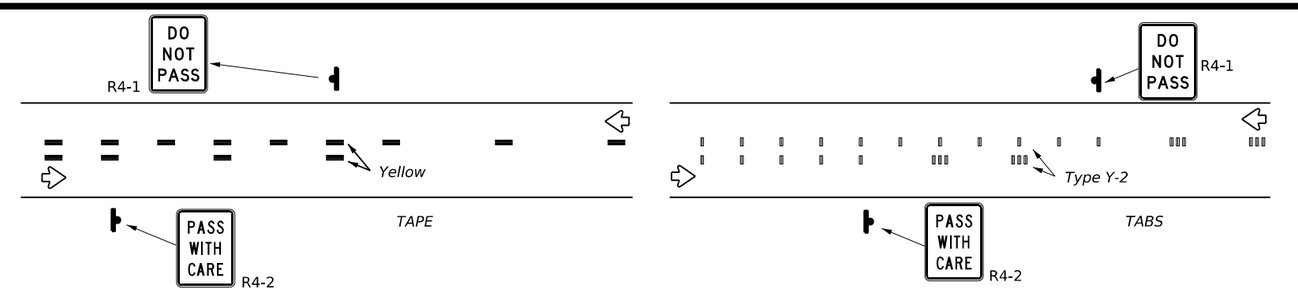
NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

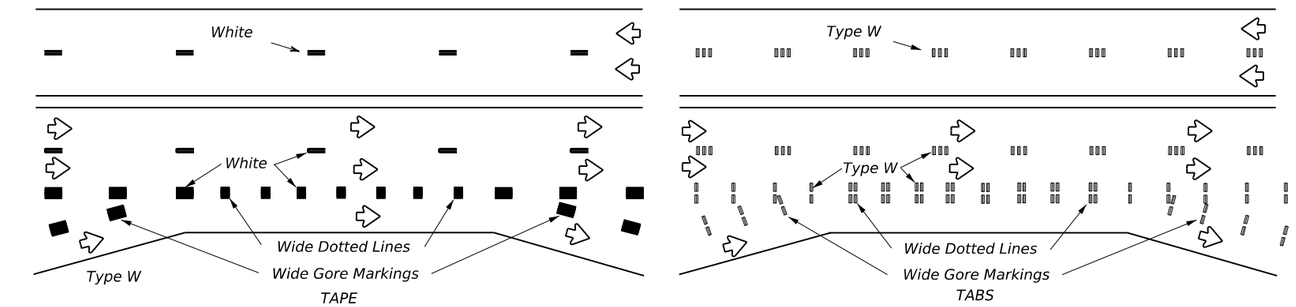
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

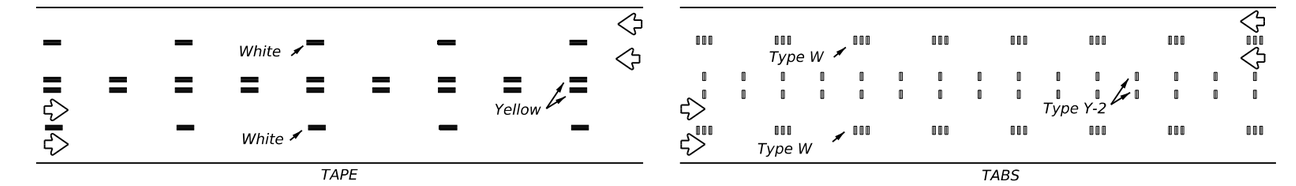
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



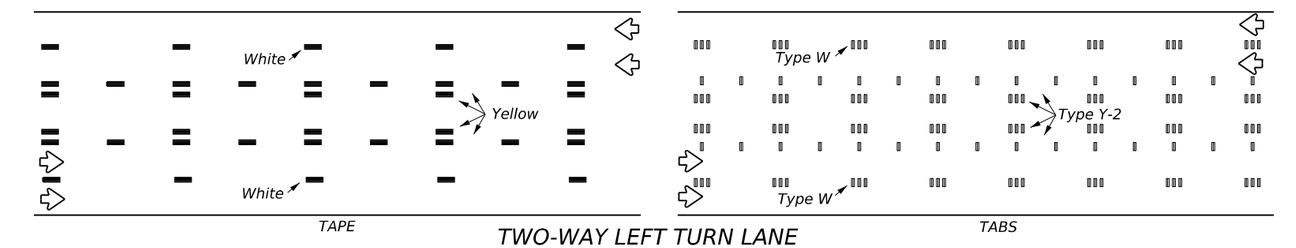
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



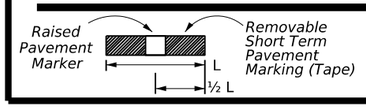
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

Traffic Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ(STPM)-23

FILE: wzstpm-23.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS				
4-92 7-13	DIST	COUNTY		SHEET NO.
1-97 2-23				27
3-03				

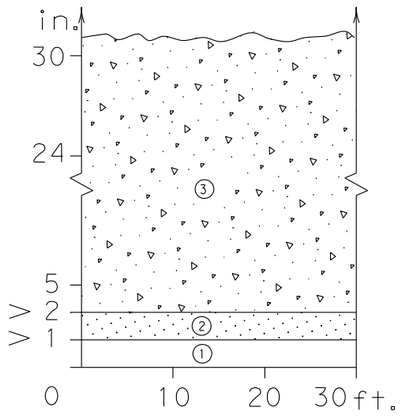
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FILE:

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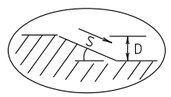
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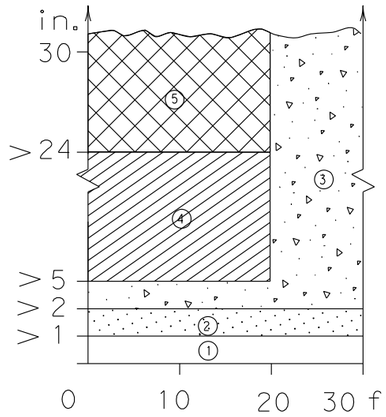
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

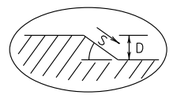


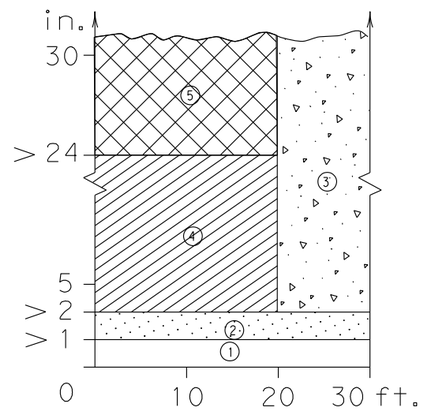
Edge Condition I
S = (3:1) (or flatter)



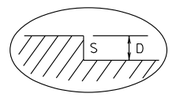


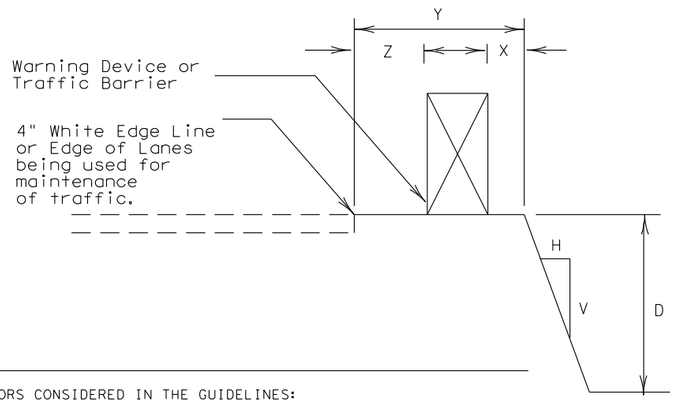
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment.
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a "Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW 8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge fill may be provided to change the edge slope to that of the preferable Edge Condition I.
⑤	Check indications (Figure-1) for positive barrier. Where positive barrier is not indicated, the treatment shown above for Zone- 4 may be used after consideration of other applicable factors.

Edge Condition Notes:

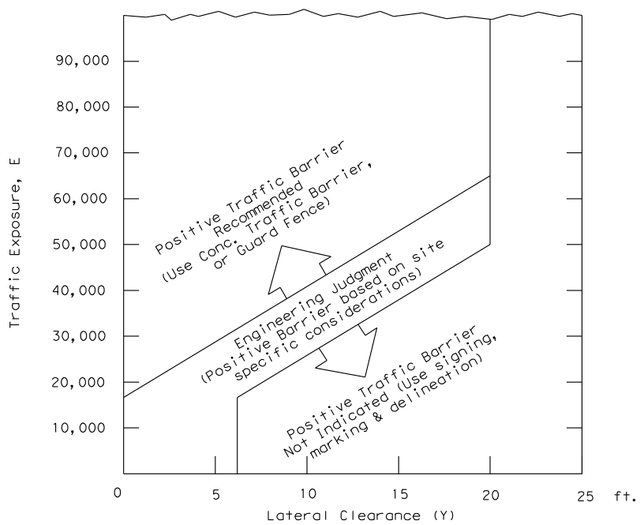
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1 E = ADT x T
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2 Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3 An approved end treatment should be provided for any positive barrier end located within a lateral offset of 20 feet from the edge of the travel lane.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

STATE OF TEXAS
ROBERT S. DOTY
97218
LICENSED
PROFESSIONAL ENGINEER

Date 10/21/2023

Robert S. Doty

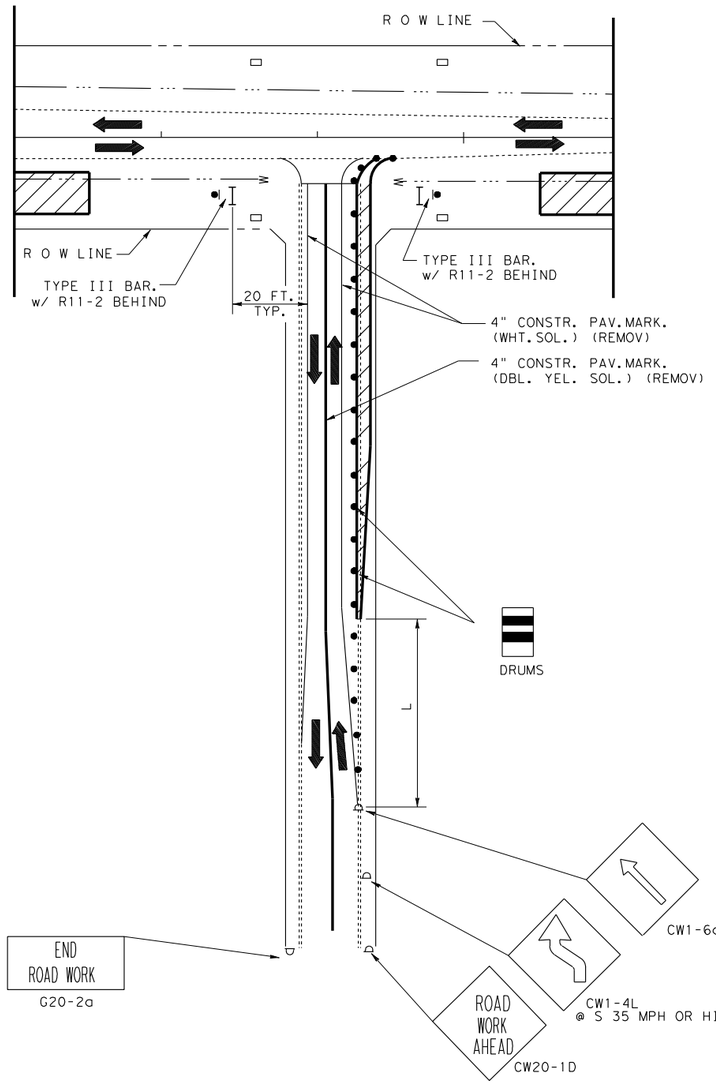
Texas Department of Transportation
Traffic Operations Division

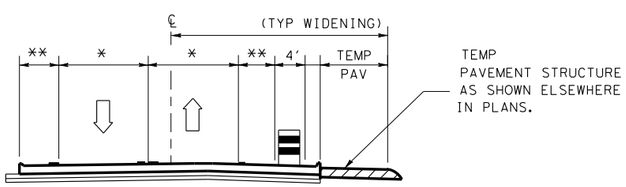
TREATMENT FOR VARIOUS EDGE CONDITIONS

©TxDOT August 2000

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CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			28

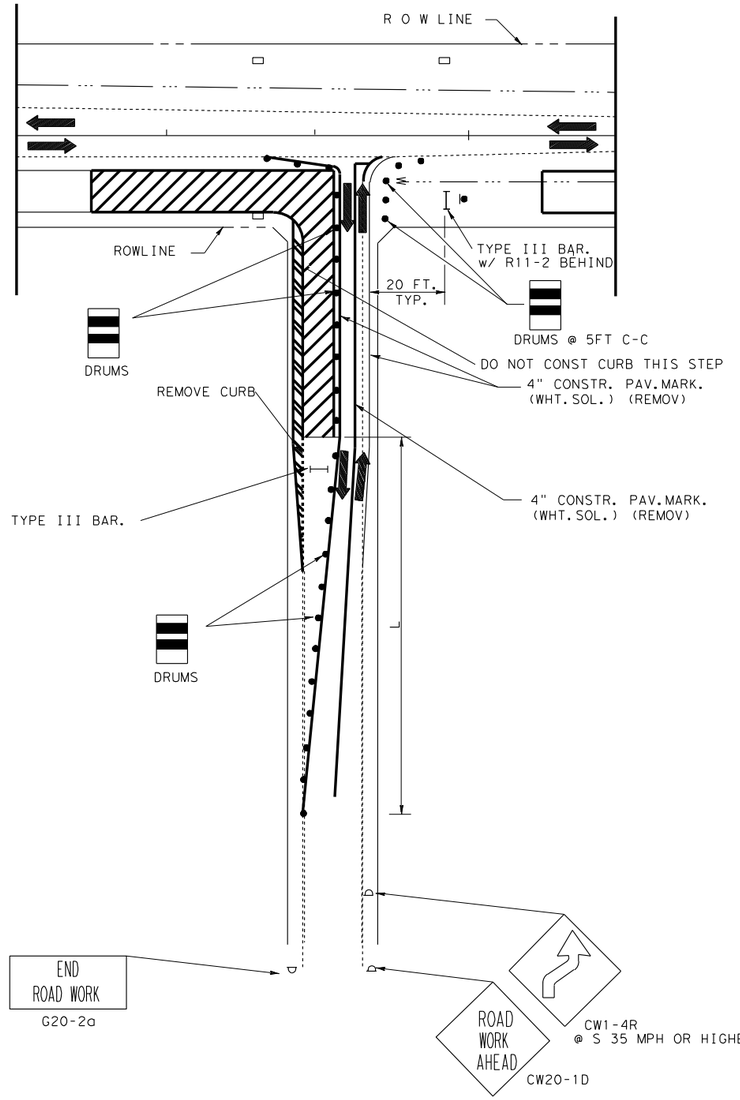
REVISIONS
03-01
08-01 correct typos

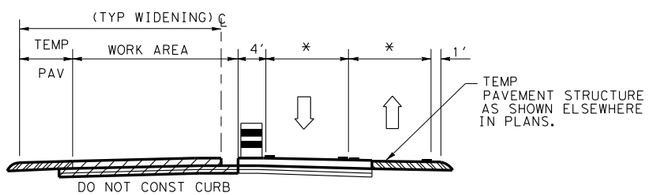




** MIN. 0 FT.
MAX. 10 FT.

STEP 1





STEP 2

* 10 FT. MIN.
12 FT. DESIRABLE IF SPACE AVAILABLE.

* IN CASES WHERE EXISTING SIDE STREETS HAVE LESS THAN 10 FT. LANE WIDTHS, PROVIDE LANE WIDTHS EQUAL OR GREATER THAN EXISTING.

TYPICAL ADVANCE SIGNING
TO REMAIN PLACE DURING ALL PHASES
OR AS DIRECTED BY ENGINEER

END
ROAD WORK
G20-2a

ROAD
WORK
AHEAD
CW20-1D

CONSTRUCTION WARNING
SIGN SPACING

POSTED SPEED (MPH)	"X" SIGN SPACINGS (FEET)
30 OR LESS	120
35	160
40	240
45	320
50	400
55	500
60	600
65	700
70	800

TYPICAL TRANSITION LENGTHS
AND
SUGGESTED MAXIMUM SPACING OF DEVICES

POSTED SPEED	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS ⊛⊛ 10′ OFFSET	11′ OFFSET	12′ OFFSET	SUGGESTED MAX. SPAC. OF DEVICE ON A TAPER	ON A TANGENT	MINIMUM SIGN SPACING × DISTANCE
30	$L=\frac{WS^2}{60}$	150′	165′	180′	30′	60′-75′	120′
35		205′	225′	245′	35′	70′-90′	160′
40		265′	295′	320′	40′	80′-100′	240′
45	L=WS	450′	495′	540′	45′	90′-110′	320′
50		500′	550′	600′	50′	100′-125′	400′
55		550′	605′	660′	55′	110′-140′	500′
60		600′	660′	720′	60′	120′-150′	⊛ 600′
65		650′	715′	780′	65′	130′-165′	⊛ 700′
70		700′	770′	840′	70′	140′-175′	⊛ 800′

⊛ CONVENTIONAL ROADS ONLY

⊛⊛ TAPER LENGTHS HAVE BEEN ROUNDED OFF.

LEGEND

CONSTRUCTION AREA

TEMPORARY PAVEMENT

OPEN TO TRAFFIC

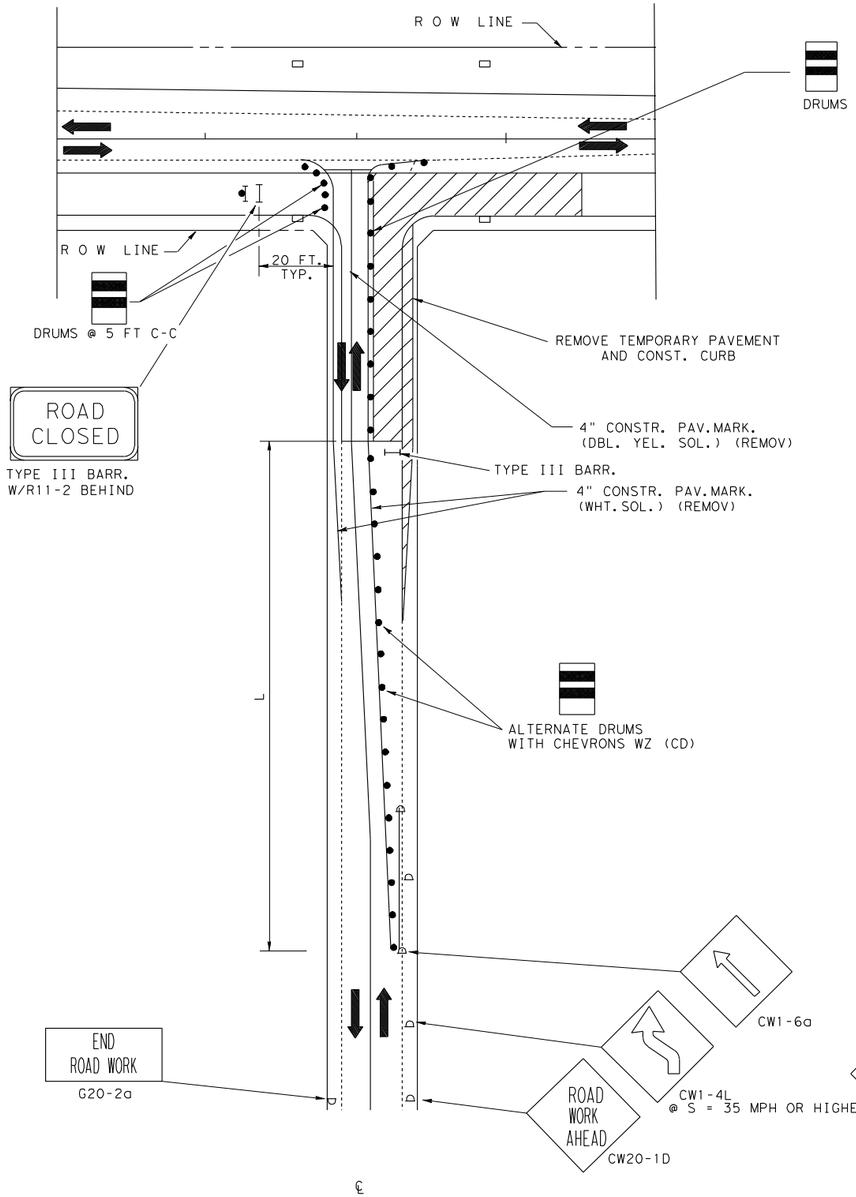
Texas Department of Transportation
Houston District

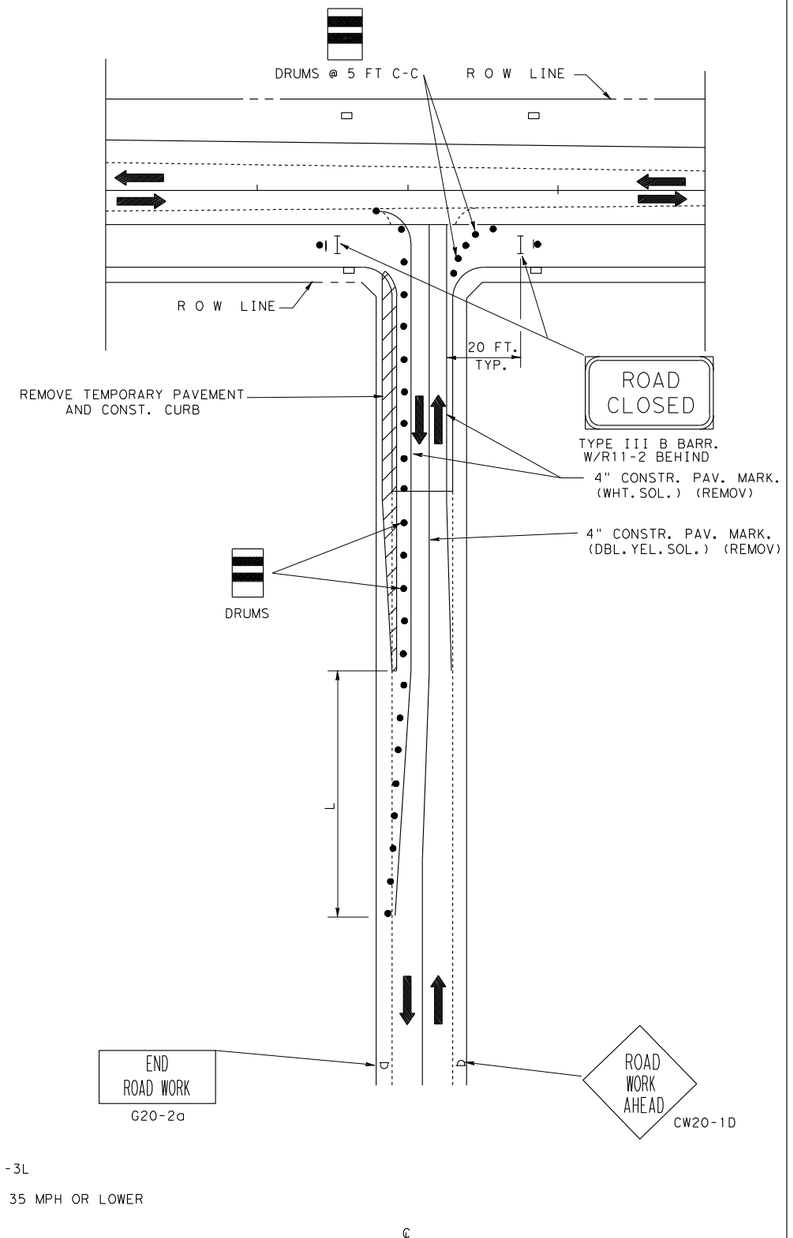
TWO WAY ROADWAY INTERSECTION PHASING

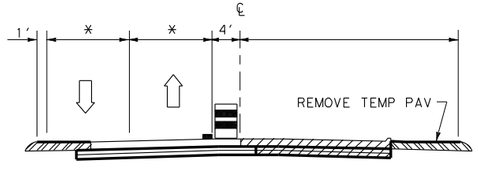
TWRIP(1) TC2010-09

FILE:	DN:	CK:	DW:	CK:
© TxDOT OCT 2009	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		
	COUNTY	CONTROL	SECT	JOB
				29

STD H-5A





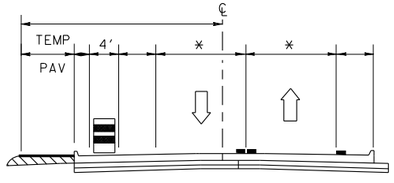


STEP 3

TEMP
PAVEMENT STRUCTURE
AS SHOWN ELSEWHERE

* 10 FT. MIN.
12 FT. DESIRABLE IF SPACE AVAILABLE.

* IN CASES WHERE EXISTING SIDE STREETS HAVE LESS THAN 10 FT. LANE WIDTHS, PROVIDE LANE WIDTHS EQUAL OR GREATER THAN EXISTING.



STEP 4

TYPICAL ADVANCE SIGNING
TO REMAIN PLACE DURING ALL PHASES
OR AS DIRECTED BY ENGINEER

END
ROAD WORK
G20-2a

ROAD
WORK
AHEAD
CW20-1D

CONSTRUCTION WARNING
SIGN SPACING

POSTED SPEED (MPH)	"X" SIGN SPACINGS (FEET)
30 OR LESS	120
35	160
40	240
45	320
50	400
55	500
60	600
65	700
70	800

TYPICAL TRANSITION LENGTHS
AND
SUGGESTED MAXIMUM SPACING OF DEVICES

POSTED SPEED	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS ⊛⊛ 10' OFFSET	11' OFFSET	12' OFFSET	SUGGESTED MAX. SPAC. OF DEVICE ON A TAPER	ON A TANGENT	MINIMUM SIGN SPACING × DISTANCE
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'	120'
35		205'	225'	245'	35'	70'-90'	160'
40		265'	295'	320'	40'	80'-100'	240'
45	L=WS	450'	495'	540'	45'	90'-110'	320'
50		500'	550'	600'	50'	100'-125'	400'
55		550'	605'	660'	55'	110'-140'	500'
60		600'	660'	720'	60'	120'-150'	⊛ 600'
65		650'	715'	780'	65'	130'-165'	⊛ 700'
70		700'	770'	840'	70'	140'-175'	⊛ 800'

⊛ CONVENTIONAL ROADS ONLY

⊛⊛ TAPER LENGTHS HAVE BEEN ROUNDED OFF.

LEGEND

CONSTRUCTION AREA

TEMPORARY PAVEMENT

OPEN TO TRAFFIC

Texas Department of Transportation
Houston District

TWO WAY ROADWAY INTERSECTION PHASING

TWRIP(2) TC2010-09

FILE:	DN:	CK:	DW:	CK:
©TxDOT OCT 2009	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOU	6		
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
					30

STD H-5B

FM 523

Beginning chain A_BL__523 description

Point SDBL5230 N 13,574,487.20 E 3,142,043.58 Sta 103+00.00

Course from SDBL5230 to PC SDBL5231 N 3° 13′ 15.14" W Dist 1,695.35

Curve Data					
Curve SDBL5231					
P.I. Station	122+22.93	N	13,576,407.10	E	3,141,935.54
Delta =	18° 03′ 21.53" (RT)				
Degree =	4° 00′ 00.00"				
Tangent =	227.59				
Length =	451.40				
Radius =	1,432.39				
External =	17.97				
Long Chord =	449.53				
Mid. Ord. =	17.74				
P.C. Station	119+95.35	N	13,576,179.87	E	3,141,948.33
P.T. Station	124+46.75	N	13,576,627.10	E	3,141,993.81
C.C.		N	13,576,260.35	E	3,143,378.46
Back = N	3° 13′ 15.14" W				
Ahead = N	14° 50′ 06.39" E				
Chord Bear = N	5° 48′ 25.63" E				

Course from PT SDBL5231 to SDBL5235 N 14° 50′ 06.39" E Dist 53.25

Point SDBL5235 N 13,576,678.57 E 3,142,007.45 Sta 125+00.00

Ending chain A_BL__523 description

CR 792

Beginning chain A_BL__792 description

Point SDBL7921 N 13,576,034.75 E 3,141,956.49 Sta 70+00.00

Course from SDBL7921 to PC SDBL7921 N 86° 46′ 44.86" E Dist 39.88

Curve Data					
Curve SDBL7921					
P.I. Station	71+59.49	N	13,576,043.71	E	3,142,115.74
Delta =	45° 19′ 19.65" (RT)				
Degree =	20° 00′ 00.00"				
Tangent =	119.61				
Length =	226.61				
Radius =	286.48				
External =	23.97				
Long Chord =	220.75				
Mid. Ord. =	22.12				
P.C. Station	70+39.88	N	13,576,036.99	E	3,141,996.32
P.T. Station	72+66.50	N	13,575,963.52	E	3,142,204.48
C.C.		N	13,575,750.97	E	3,142,012.41
Back = N	86° 46′ 44.86" E				
Ahead = S	47° 53′ 55.48" E				
Chord Bear = S	70° 33′ 35.31" E				

Course from PT SDBL7921 to SDBL7929 S 47° 53′ 55.48" E Dist 83.50

Point SDBL7929 N 13,575,907.54 E 3,142,266.44 Sta 73+50.00

Ending chain A_BL__792 description

EXISTING CONDITIONS, DIMENSIONS, & COORDINATES DESCRIBED & DEPICTED ARE FOR VISUAL, RELATIVE LOCATION, ORDER OF MAGNITUDE, ETC. REFERENCE ONLY; FIELD-FIT ALL PROP WORK; SEE GENERAL NOTE #2

STATE OF TEXAS
ROBERT S. DOTY
97218
LICENSED
PROFESSIONAL ENGINEER

Robert S. Doty 10/21/2023

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

HORIZONTAL ALIGNMENT DATA SHEET

SHEET 1 OF 1

DN: SDD	PROJECT NO.			HIGHWAY
CK DN: RSD				CR 523
DW: TJR	STATE	COUNTY		SHEET NO.
CK DW: RSD	TEXAS	BRAZORIA		31

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DATE:12/8/2021
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EXISTING CONDITIONS, DIMENSIONS, & COORDINATES DESCRIBED & DEPICTED ARE FOR VISUAL, RELATIVE LOCATION, ORDER OF MAGNITUDE, ETC. REFERENCE ONLY; FIELD-FIT ALL PROP WORK; SEE GENERAL NOTE #2

LEGEND

- EXIST TRAFFIC DIRECTION
- PROP TRAFFIC DIRECTION
- CURVE # — HORIZONTAL CURVE NUMBER
- FULL DEPTH PAVEMENT WIDENING
- (A) SAWCUT LINE
- (B) REFL PAV MRK (W) (6") (SLD)
- (C) REFL PAV MRK (W) (8") (SLD)
- (D) ARROW
- (E) WORD
- (F) REFL PAV MRK TY I-C
- EXISTING SIGN (TO REMAIN)
- EXISTING SIGN (TO RELOCATED)

NOTES:

1. STATIONS & OFFSETS ARE FROM FM 523 ALIGNMENT UNLESS OTHERWISE NOTED.
2. OFFSETS ARE TO EOP UNLESS OTHERWISE NOTED.
3. FOR FULL WIDENING EXTENTS ALONG FM 523 & CR 792: GRADE ROADSIDE SIDESLOPES TO DRAIN, (MAX 3:1). SEE TYPICAL SECTION, GENERAL NOTE 29, & TCP GENERAL NOTE 16.
4. CONTRACTOR TO EXTEND EXISTING 24" RCP CULVERT TO FACILITATE PAVEMENT CONSTRUCTION.

0 50' 100'
SCALE: 1" = 100'

6/28/2024

STATE OF TEXAS
AARON DEBORD
96578
LICENSED
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

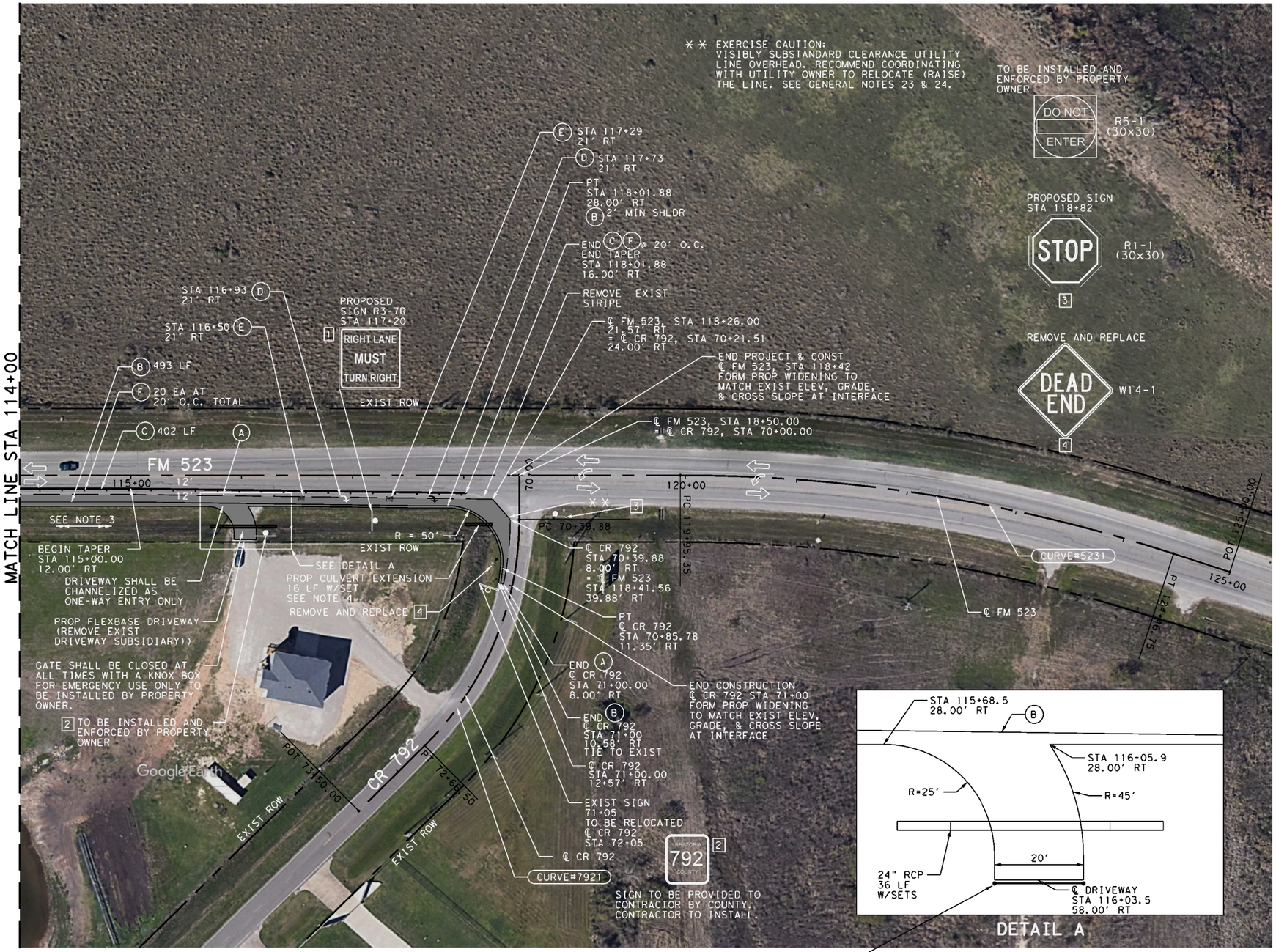
ROADWAY, SIGNING, & PAVEMENT MARKING PLAN

SHEET 1 OF 2

DN:	SDD	PROJECT NO.		HIGHWAY
CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	32

DATE: 6/28/2024
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LEGEND

- EXIST TRAFFIC DIRECTION
- PROP TRAFFIC DIRECTION
- CURVE # — HORIZONTAL CURVE NUMBER
- FULL DEPTH PAVEMENT WIDENING
- (A) SAWCUT LINE
- (B) REFL PAV MRK (W) (6") (SLD)
- (C) REFL PAV MRK (W) (8") (SLD)
- (D) ARROW
- (E) WORD
- (F) REFL PAV MRK TY I-C
- EXISTING SIGN (TO REMAIN)
- EXISTING SIGN (TO RELOCATED)

NOTES:

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0 50' 100'
SCALE: 1" = 100'

6/28/2024

STATE OF TEXAS
AARON DEBORD
96578
LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	RECOM'D

BRAZORIA COUNTY, TEXAS

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AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TBPE FIRM REGISTRATION # 739

FM 523

ROADWAY, SIGNING, & PAVEMENT MARKING PLAN

SHEET 2 OF 2

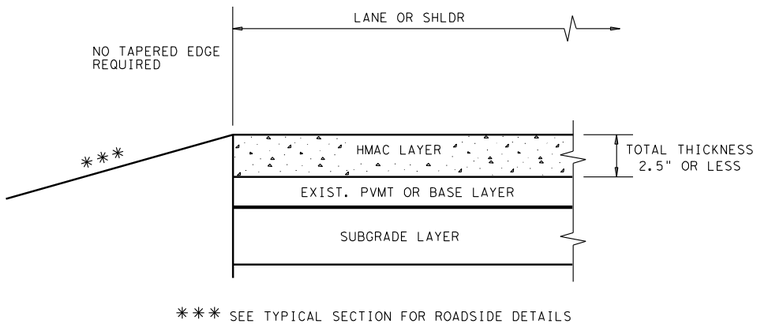
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CK DN:	RSD			CR 523
DW:	TJR	STATE	COUNTY	SHEET NO.
CK DW:	RSD	TEXAS	BRAZORIA	33

DATE: 6/28/2024
DRAWING FILE: ...\CADD\ROADWAY\CR523_A_PVR02.dgn

...\CADD\ROADWAY\CR523_A_PVR02.dgn

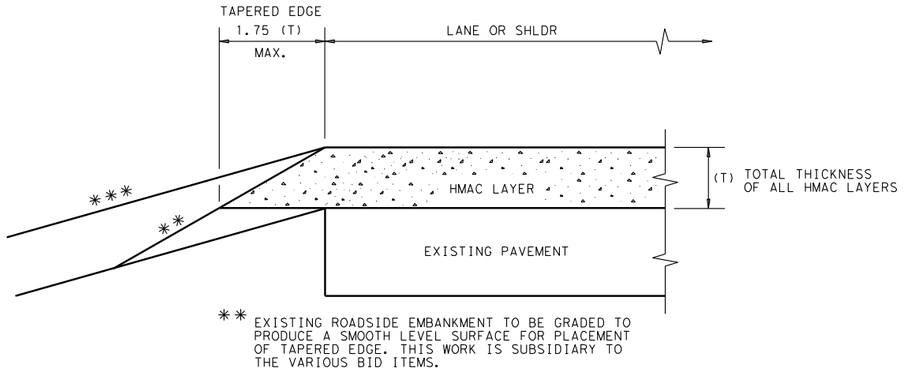
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DATE:
FILE:



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

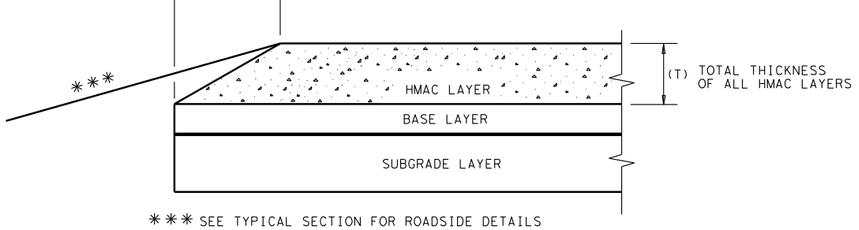
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY
WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

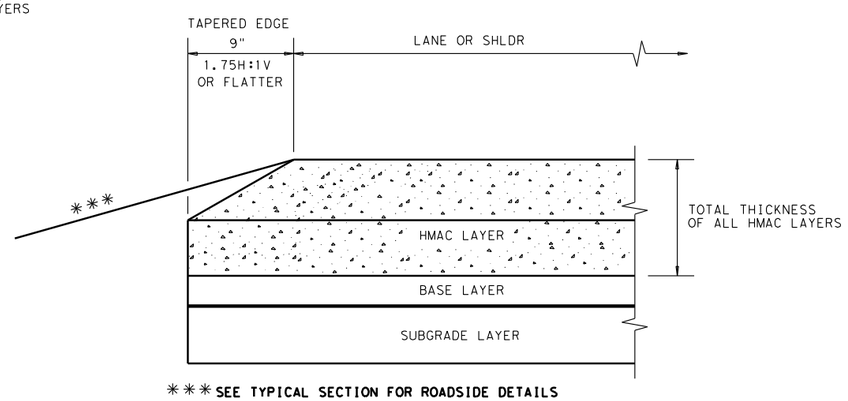
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT
HMAC THICKNESS 5" OR GREATER

(NOT TO SCALE)

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

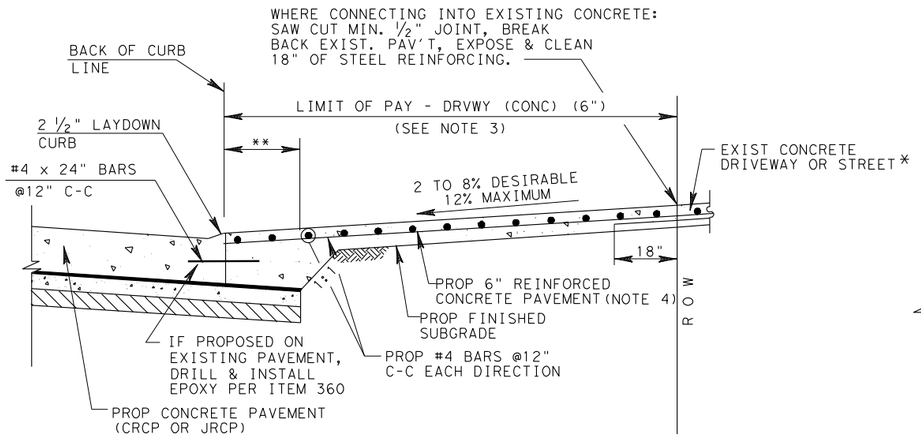
Texas Department of Transportation

Design Division Standard

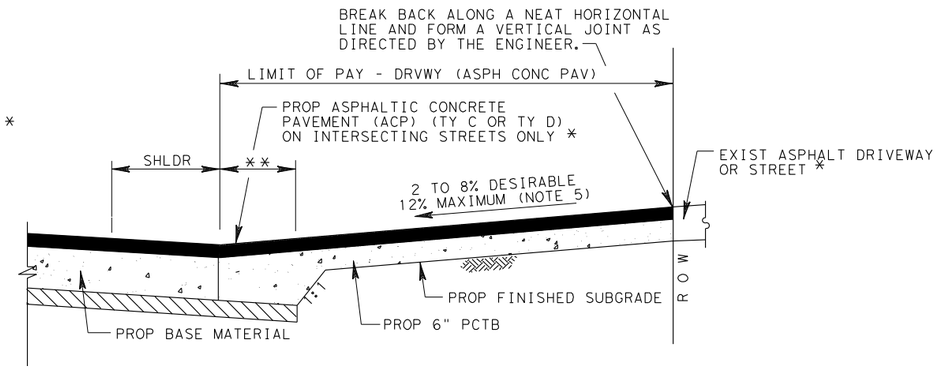
TAPERED EDGE DETAILS HMAC PAVEMENT

TE(HMAC)-11

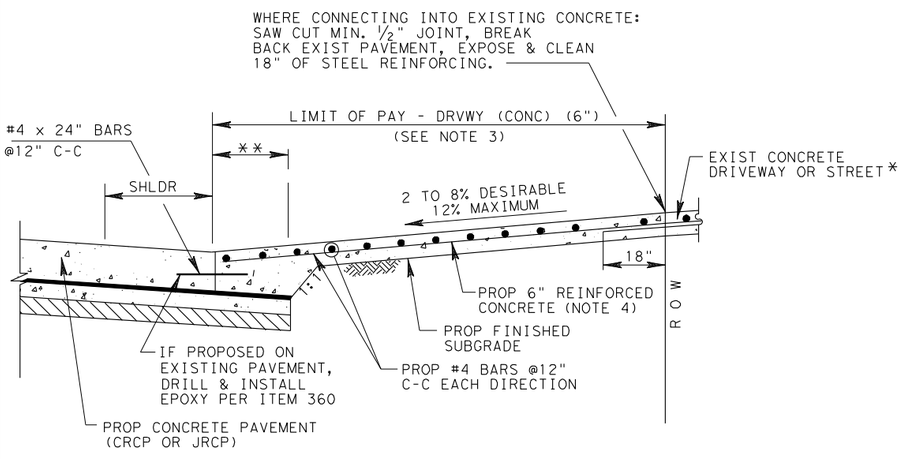
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©TxDOT January 2011	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
	DIST	COUNTY		SHEET NO.	
				34	



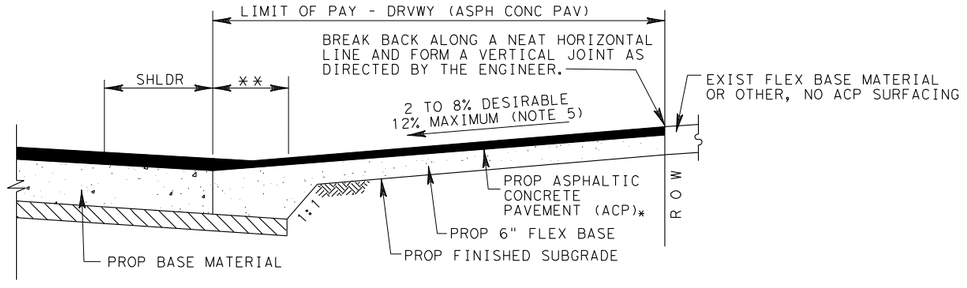
PROPOSED DRIVEWAY DETAIL
REINFORCED CONCRETE AT CONCRETE
CURB AND GUTTER ROADWAY



PROPOSED DRIVEWAY DETAIL
ASPHALT W/ PCTB AT ASPHALT ROADWAY



PROPOSED DRIVEWAY DETAIL
REINFORCED CONCRETE AT CONCRETE ROADWAY



PROPOSED DRIVEWAY DETAIL
ASPHALT W/ FLEX BASE AT ASPHALT ROADWAY

NOTES:

1. ALSO SEE SHEET 2 OF 2 FOR DRIVEWAY SLOPES WITH PROPOSED SIDEWALKS.
2. FOR INTERSECTIONS BUILT WITH CRCP PAVEMENT SEE CRCP DETAIL.
3. FAST TRACK CONCRETE IS PAID AS DRVWY (CONC) (FAST TRACK).
4. THICKNESS OF DRIVEWAY IS 6 INCHES FOR REGULAR AND FAST TRACK CONCRETE.
5. MAXIMUM SLOPE IS: 12% RESIDENTIAL
   8% OTHERS

LEGEND:

PCTB- PORTLAND CEMENT TREATED BASE

JRCP- JOINTED REINFORCED CONCRETE PAVEMENT

CRCP- CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

ACP- ASPHALTIC CONCRETE PAVEMENT

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS FOR REINFORCING STEEL AND SECTION REQUIREMENTS.

** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE

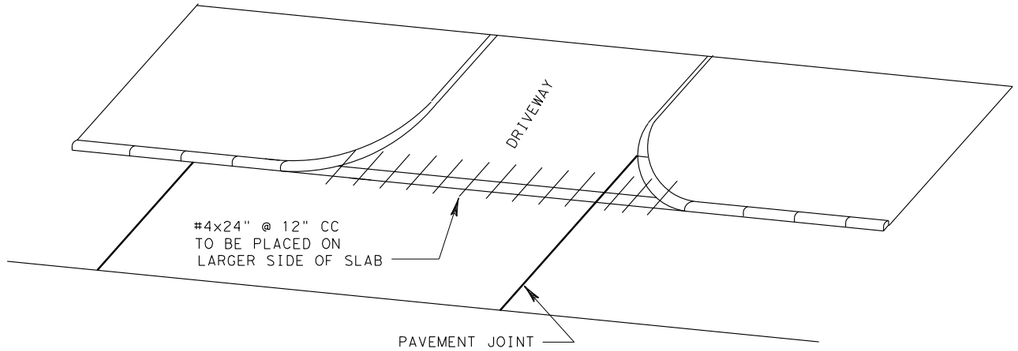
Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

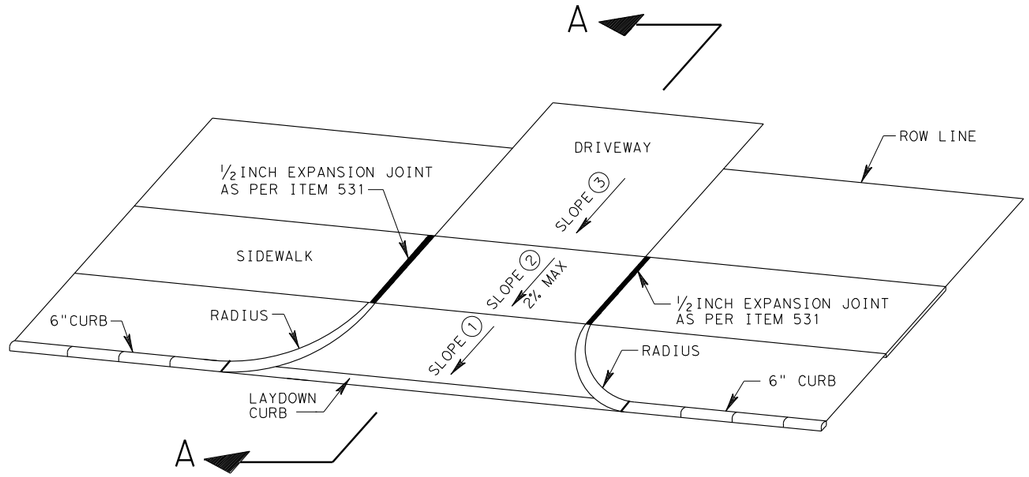
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FILE: STDB-8a.dgn	DN:	CK:	DW:	CK:		
© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.			SHEET
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	COUNTY		CONTROL	SECT	JOB	HIGHWAY
						35

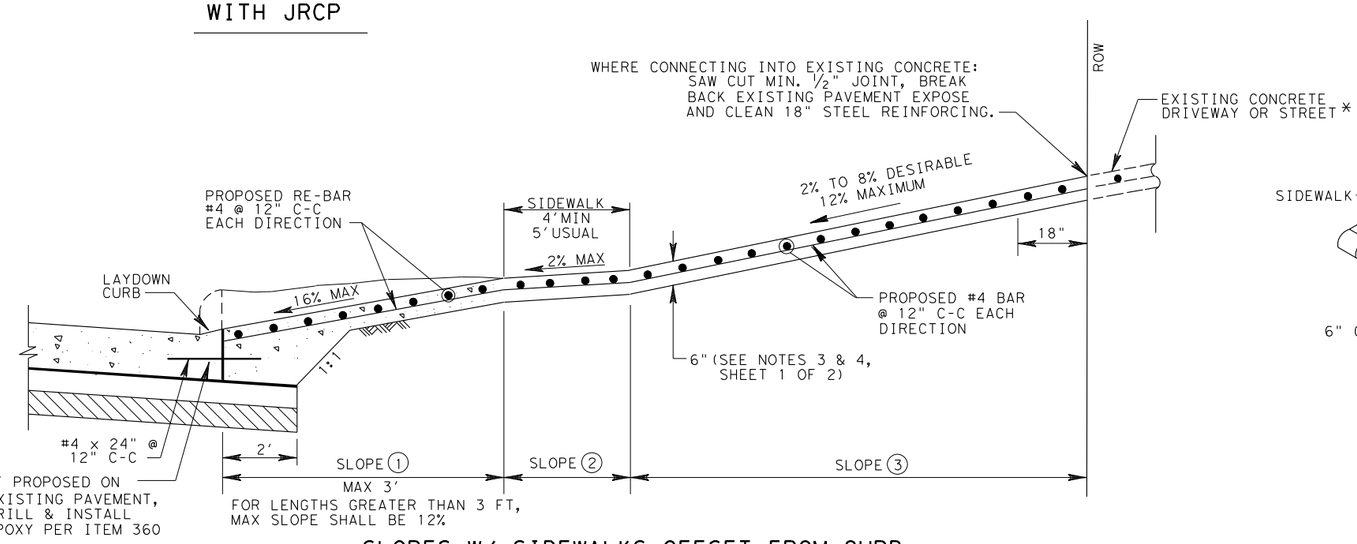
STDB8A



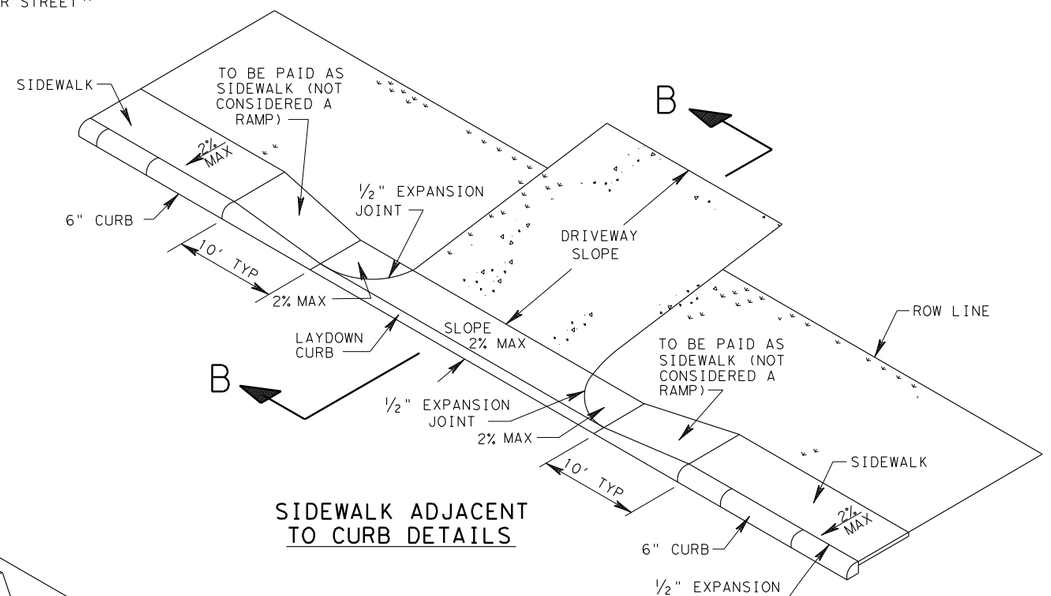
TIE BAR PLACEMENT WITH JRCP



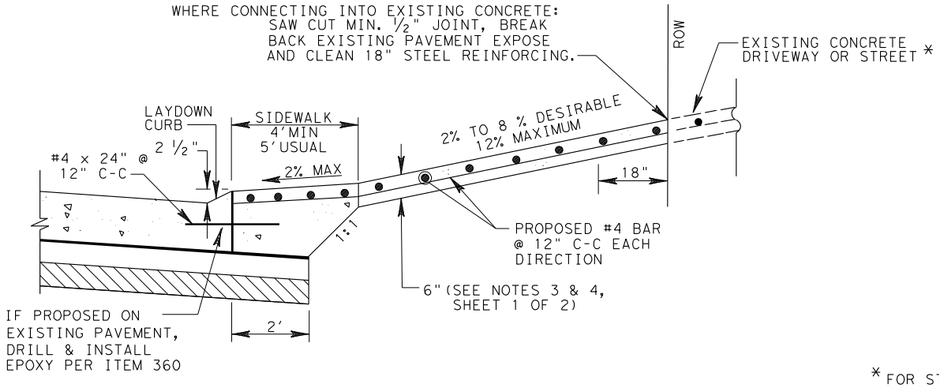
SIDEWALK OFFSET FROM CURB DETAILS



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

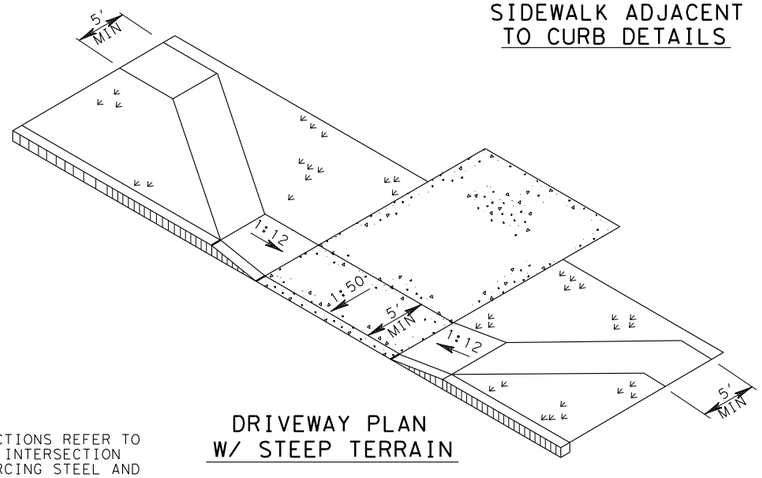


SIDEWALK ADJACENT TO CURB DETAILS



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

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS FOR REINFORCING STEEL AND SECTION REQUIREMENTS.



DRIVEWAY PLAN W/ STEEP TERRAIN

SHEET 2 OF 3

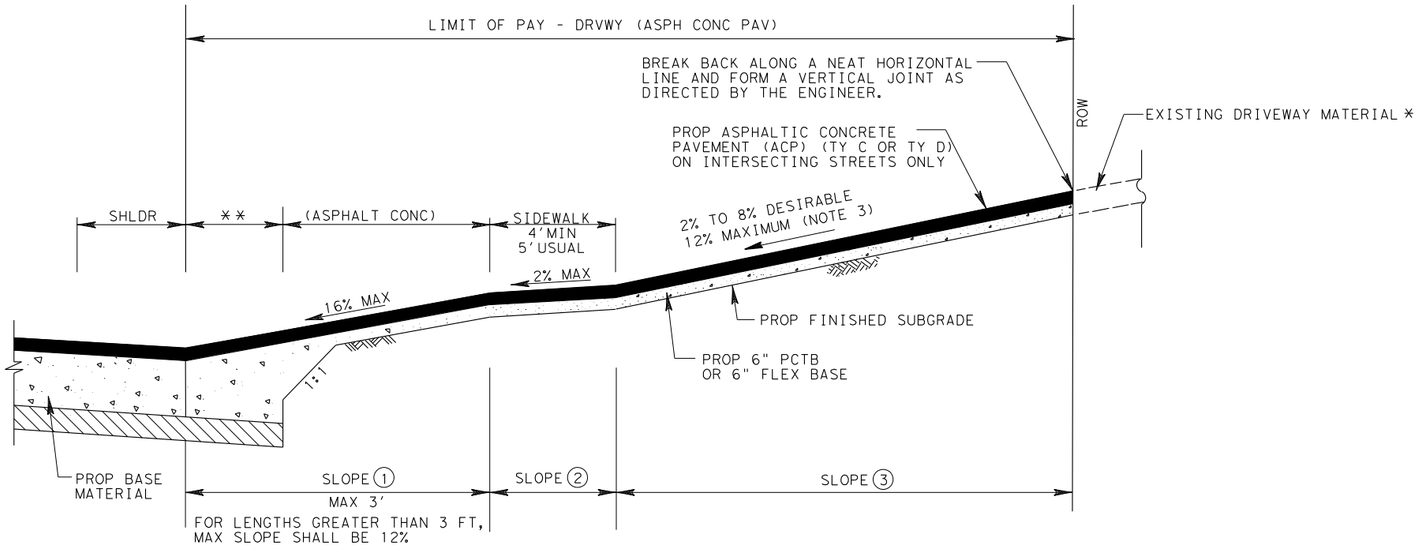
Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

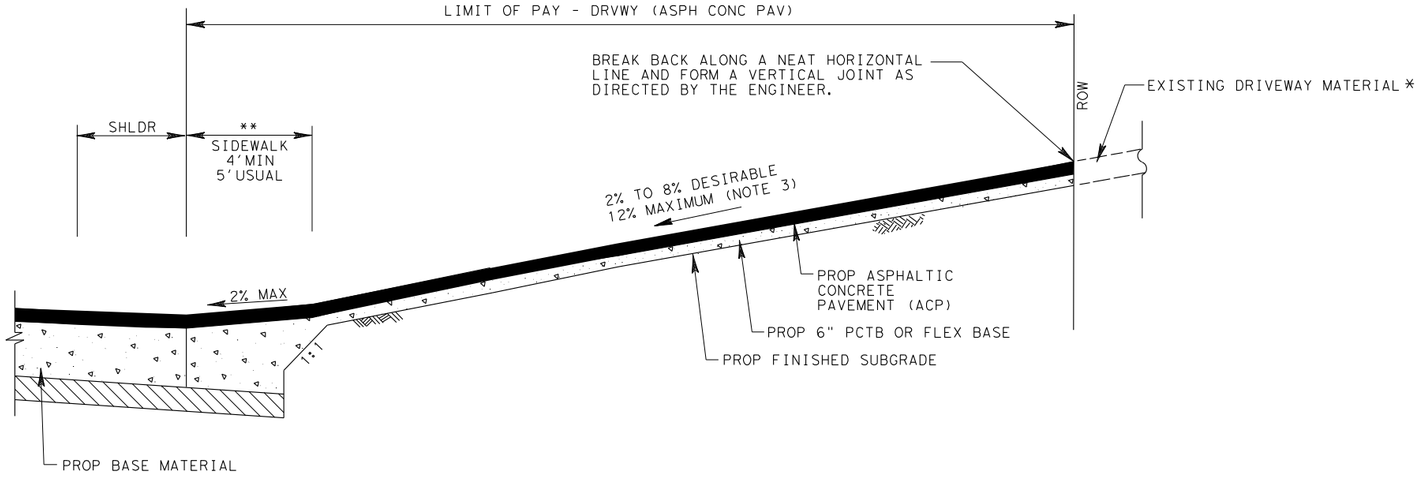
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REVISIONS 9/09 ADDED NOTE FOR ITEM 360. 11/15 ADDED NOTE FOR PCTB	HOU	6			
	COUNTY		CONTROL	SECT	JOB	HIGHWAY
						36

STDB8B



PROPOSED DRIVEWAY SLOPES
WITH SIDEWALKS OFFSET



PROPOSED DRIVEWAY SLOPES
WITH SIDEWALKS ADJACENT

NOTES:

1. ALSO SEE SHEET 2 OF 3 FOR DRIVEWAY SLOPES WITH PROPOSED SIDEWALKS.
2. FOR INTERSECTIONS BUILT WITH CRCP PAVEMENT SEE CRCP DETAIL.
3. MAXIMUM SLOPE IS: 12% RESIDENTIAL
   8% OTHERS

LEGEND:

PCTB- PORTLAND CEMENT TREATED BASE

ACP- ASPHALTIC CONCRETE PAVEMENT

* FOR STREET INTERSECTIONS REFER TO PAVING DETAILS AND INTERSECTION DETAILS.

** PROPOSED LIMIT OF ROADWAY BASE AND/OR SUBGRADE

Texas Department of Transportation
Houston District

DRIVEWAY DETAILS

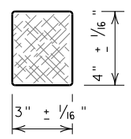
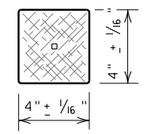
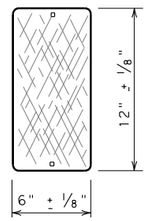
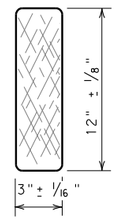
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© TxDOT SEPT. 2004	DIST	FED REG	PROJECT NO.		SHEET
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	COUNTY		CONTROL	SECT	JOB	HIGHWAY
						37

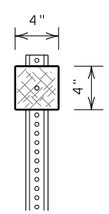
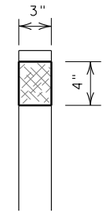
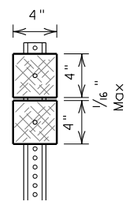
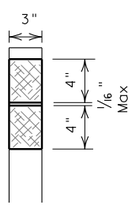
STDB8C

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REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
SHEETING	Yellow, White or Red Type B or C reflective sheeting			
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes.			

DELINEATORS

	SINGLE		DOUBLE	
DEVICE				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
- S = Single
- D = Double

COLOR OF REFLECTORS
- W = White
- Y = Yellow
- R = Red

REFLECTOR UNIT SIZE
- 1 or 2

TYPE OF POST OR DELINEATOR
- WC = Wing Channel Post
- YFLX = Yellow Flexible Post
- WFLX = White Flexible Post
- BRF = Barrier Reflector

TYPE OF MOUNT
- GND = Embedded (drivable or set in concrete)
- CTB = Concrete Barrier Mount
- GF1 or GF2 = Guard Fence Attachment
- SRF = Surface Mount

DIRECTION
- If Required
- BI = Bi-Directional
- BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
- 1, 2, 3, or 4

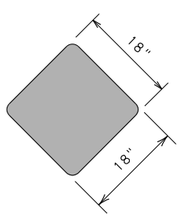
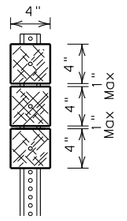
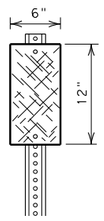
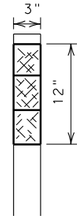
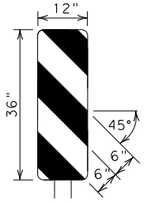
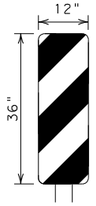
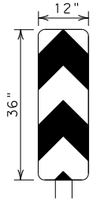
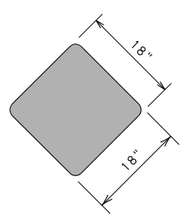
NUMBER OF REFLECTORS OR DIRECTION
- X = 3-Size 2 reflector units (Type 2 only)
- Y = 1-Size 3 reflector unit (Type 2 only)
- Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
- L = Left Side (Type 3 Object Marker only)
- R = Right Side (Type 3 Object Marker only)
- C = Center (Type 3 Object Marker only)

TYPE OF POST
- WC = Wing Channel Post
- WFLX = White Flexible Post
- TWT = Thin Walled Tubing

TYPE OF MOUNT
- GND = Embedded (drivable)
- SRF = Surface Mount
- WAS = Wedge Anchor Steel
- WAP = Wedge Anchor Plastic

DIRECTION
- If Required
- BI = Bi-Directional

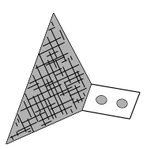
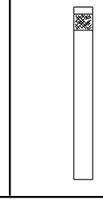
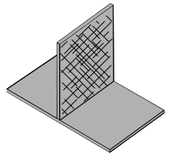
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

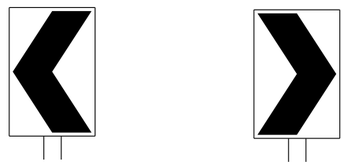
DEPARTMENTAL MATERIAL SPECIFICATIONS

FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

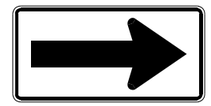
BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE	 W1-8			
SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	
NOTE	1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies). 2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).			

ONE DIRECTION LARGE ARROW

DEVICE	 W1-6	
SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
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REVISIONS				
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20				38

DATE:
FILE:

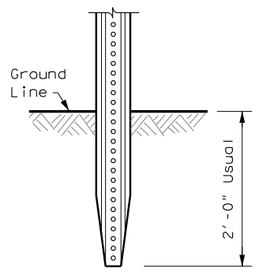
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POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

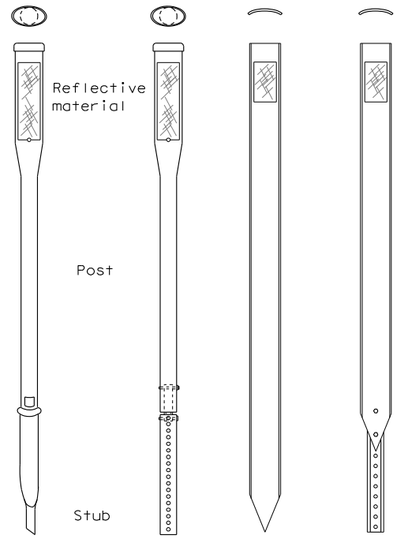


NOTES

1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

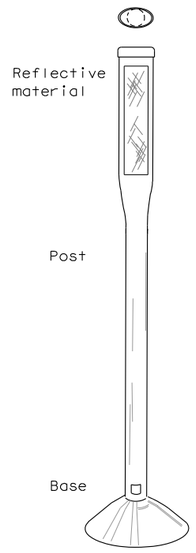
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



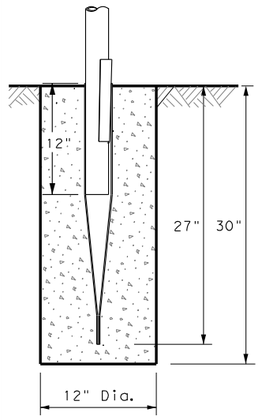
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

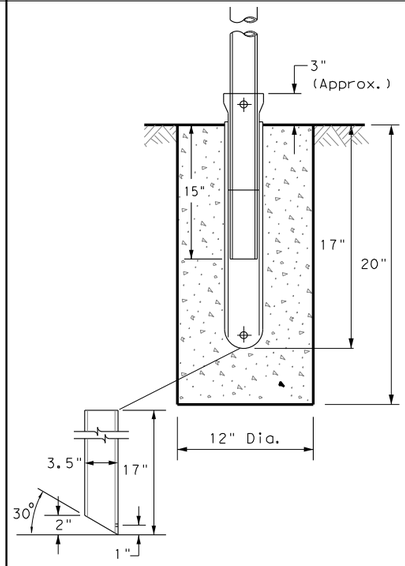
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

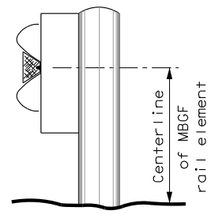
NOTE

1. Install per manufacturer's recommendations.

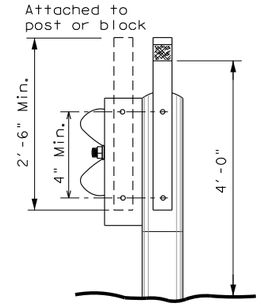
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

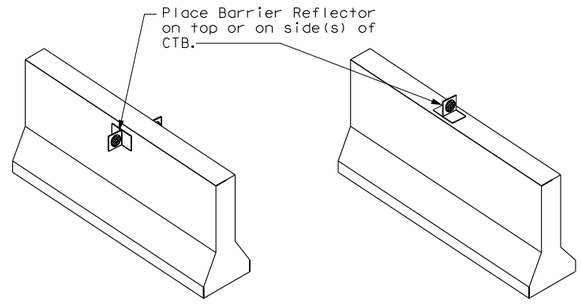
GF1



GF2



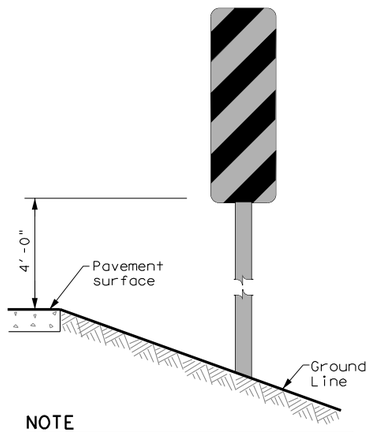
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

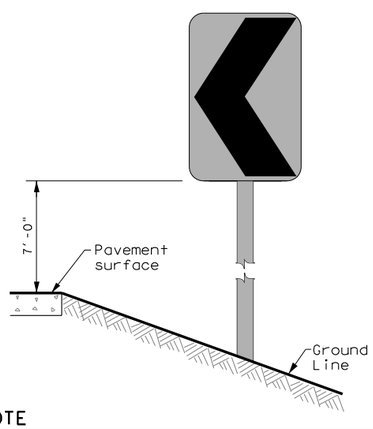
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

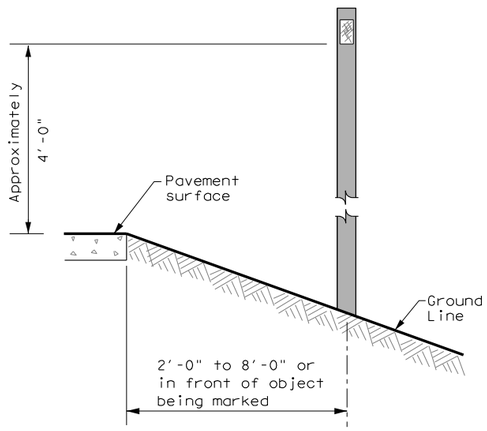
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

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4-10 7-20				39

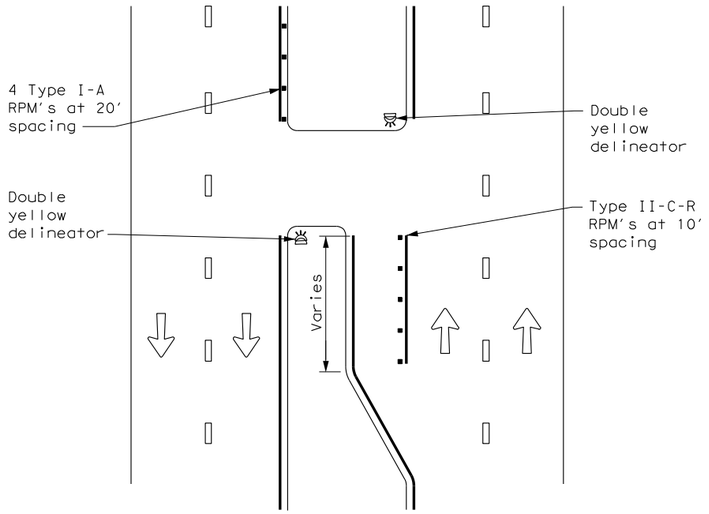
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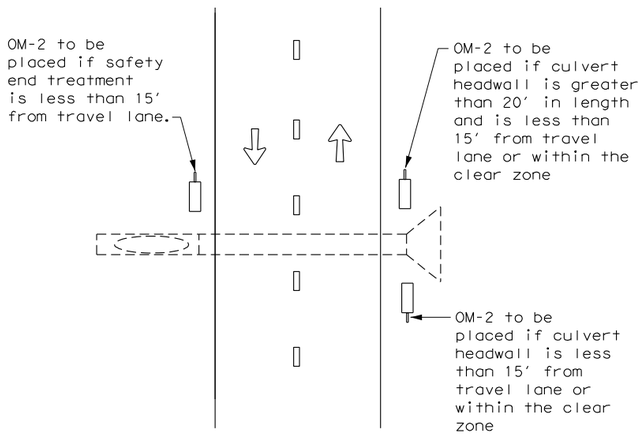
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FILE:

CROSSOVERS



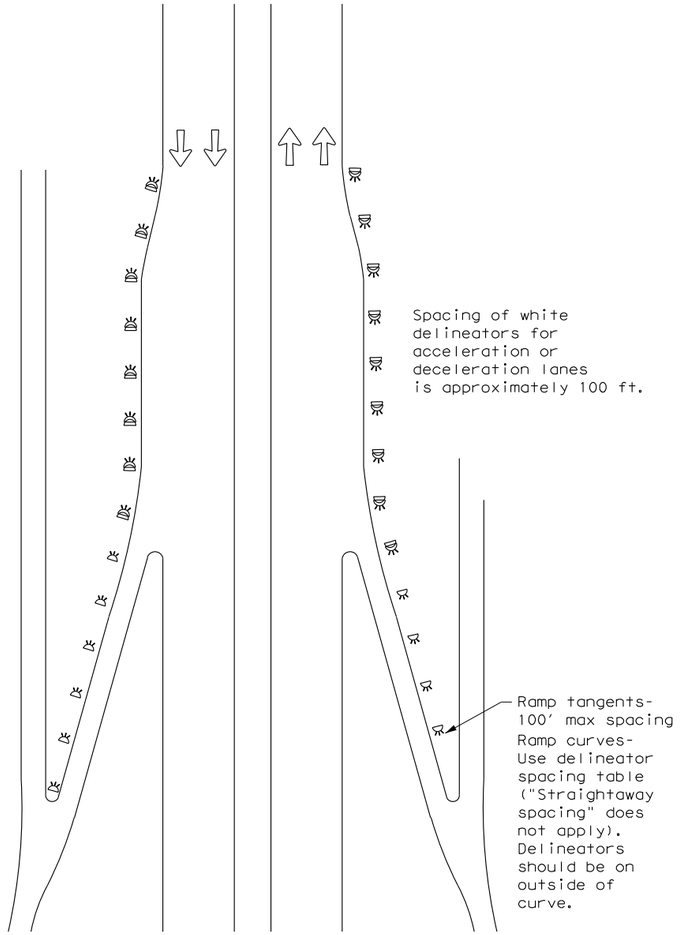
DETAIL 1

FOR CULVERTS WITHOUT MBGF



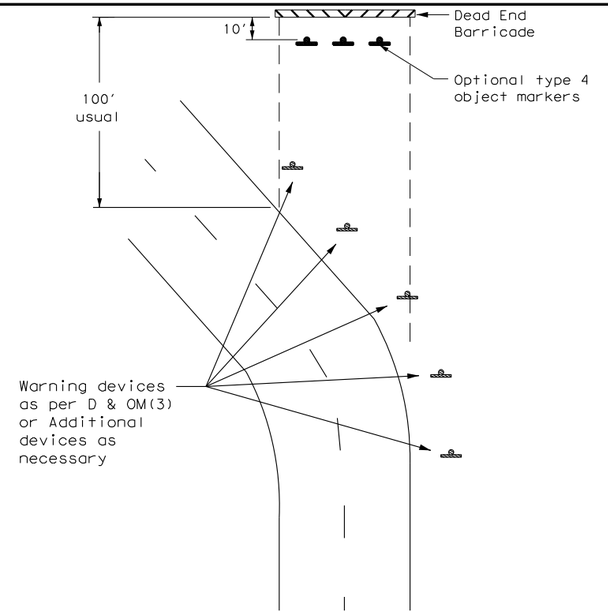
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



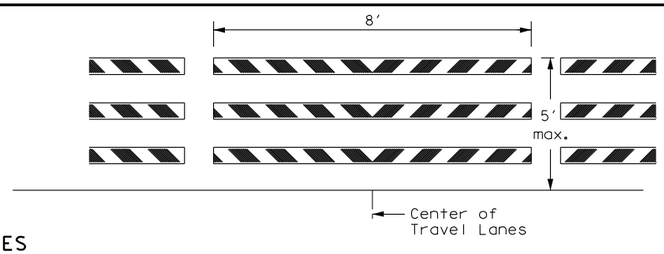
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

LEGEND	
	Bidirectional Delineator
	Delineator
	OM-3
	Barricade
	Sign
	OM-2
	Double Delineator

Texas Department of Transportation

Traffic Safety Division Standard

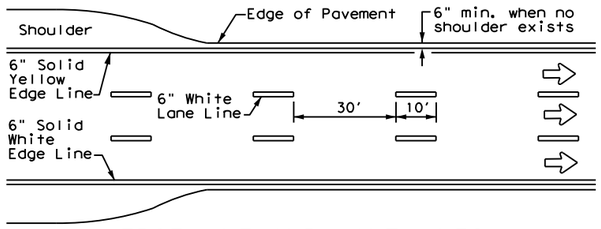
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-20

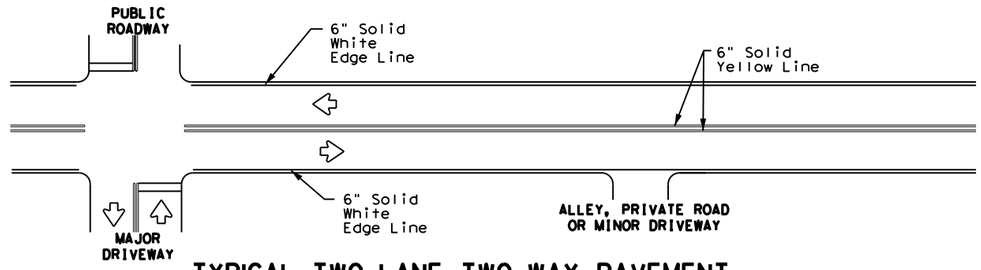
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7-20				40

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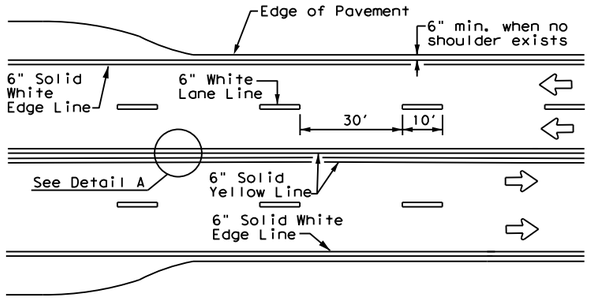
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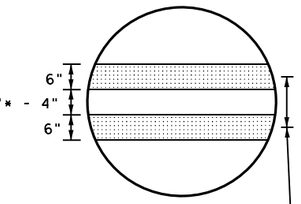


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

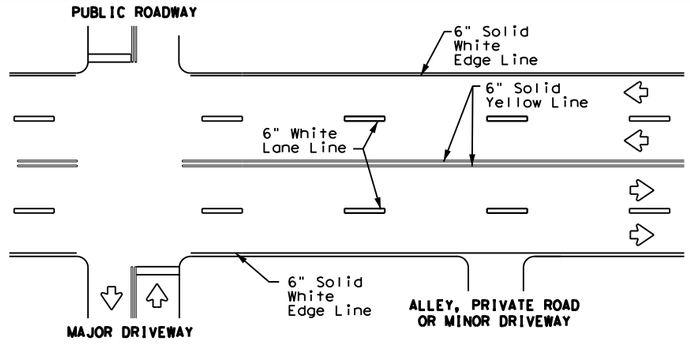




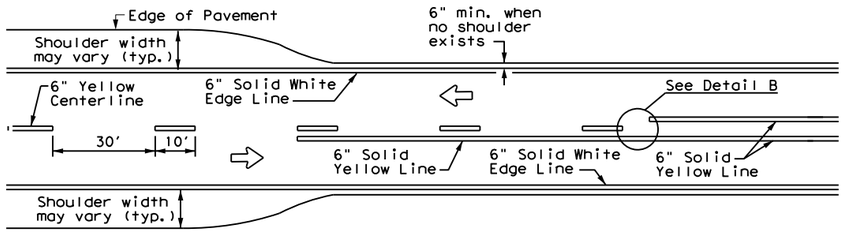
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

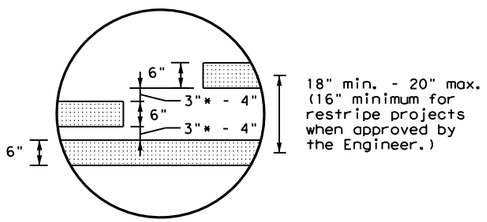
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

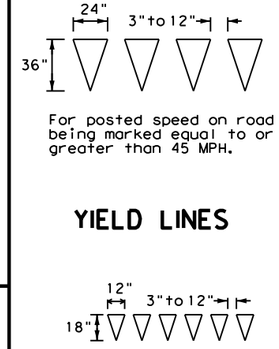


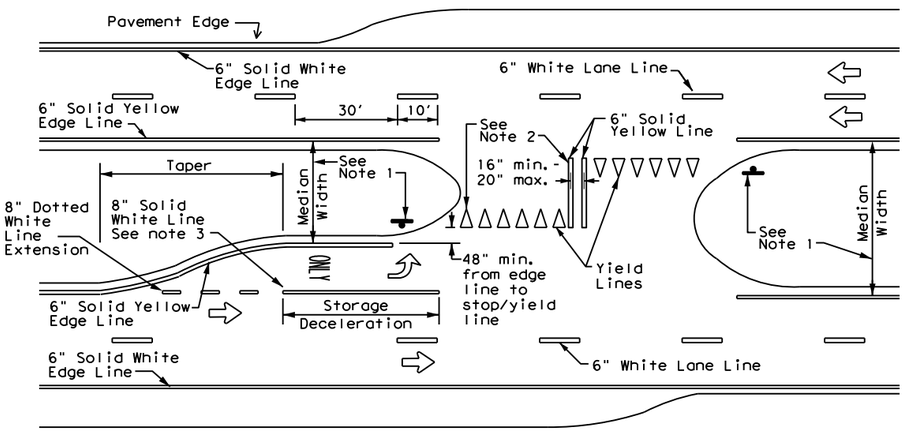
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

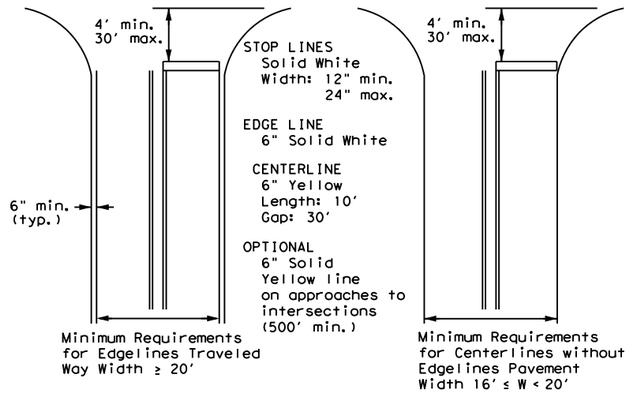
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. 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.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. 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.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the 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

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

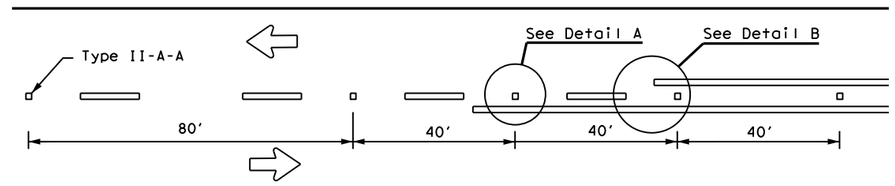
PM(1)-22

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© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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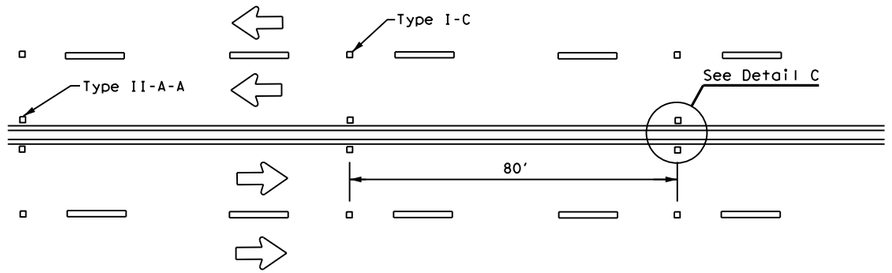
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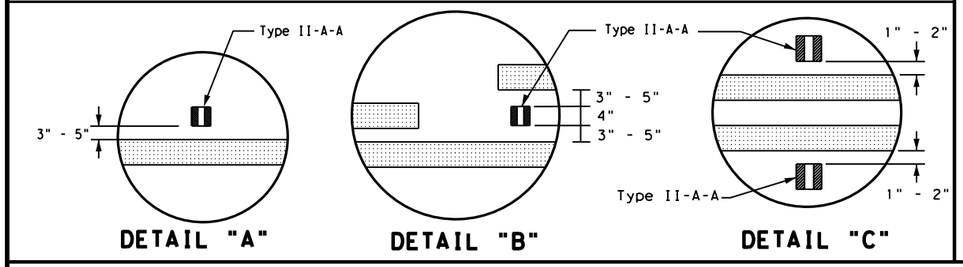
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

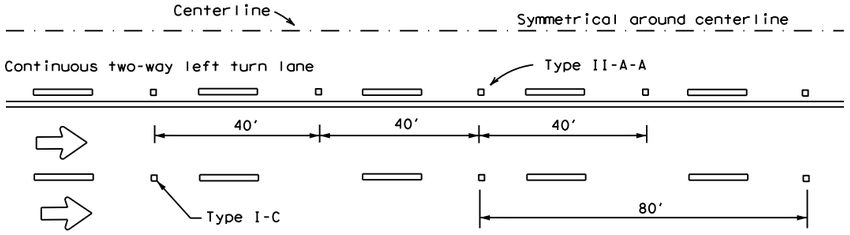


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

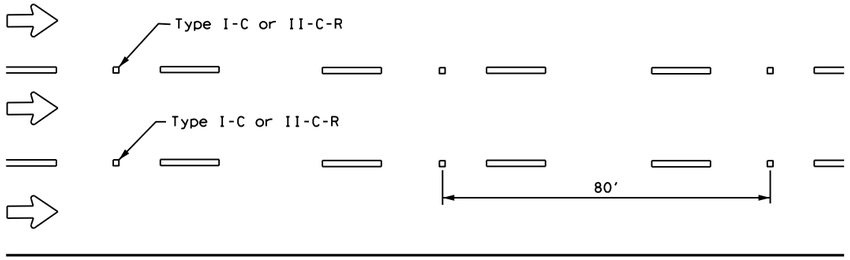


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



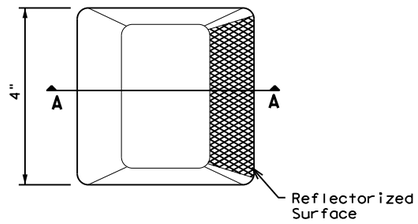
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

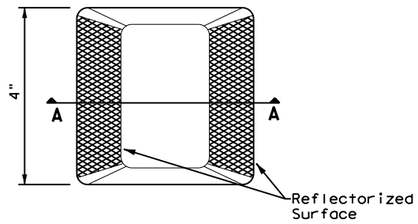
See Note 3.

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

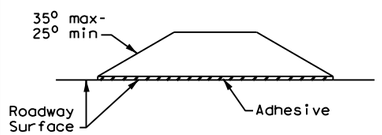
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

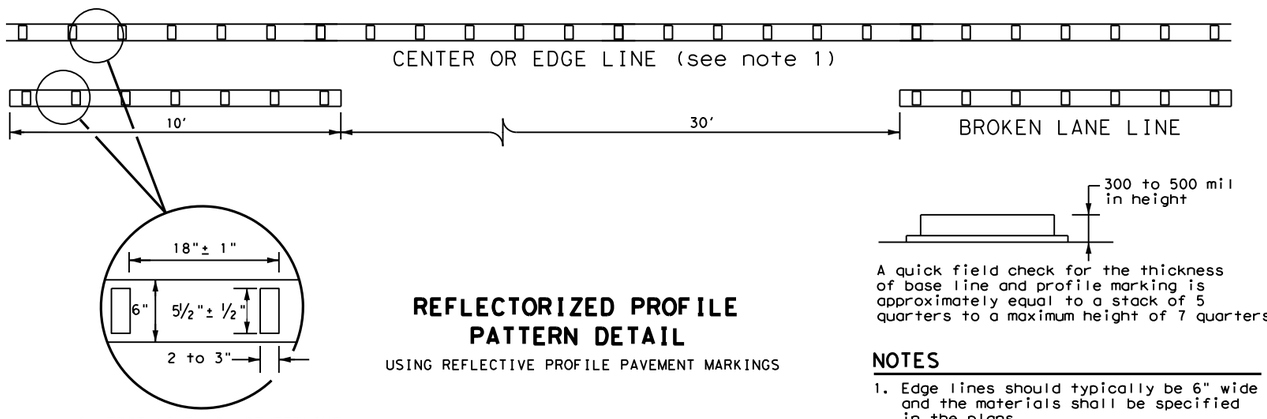


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. 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.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-22

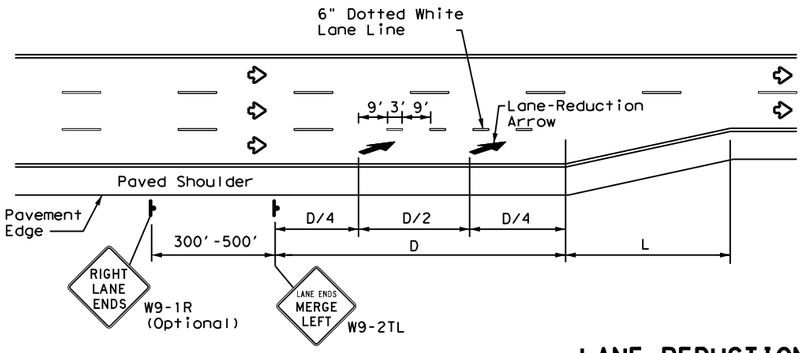
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©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	DIST	COUNTY		SHEET NO. 42

22B

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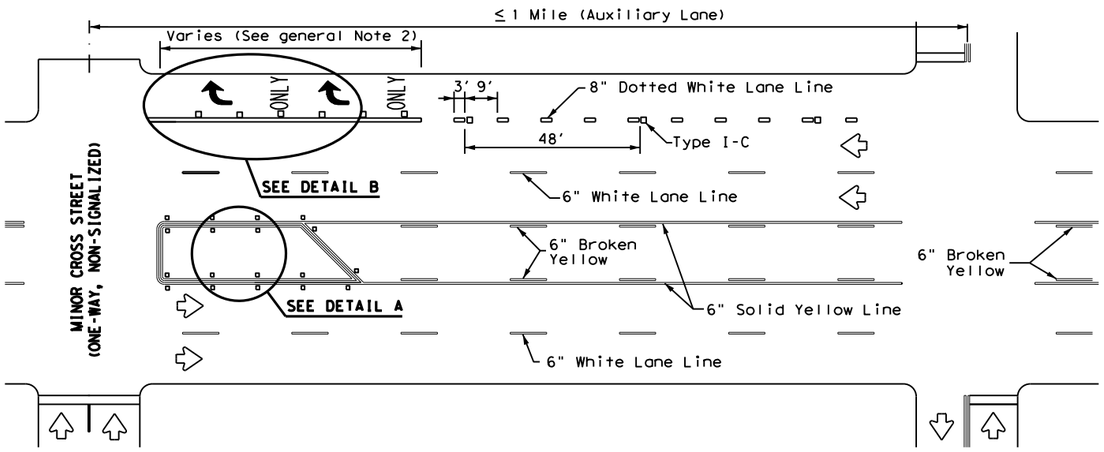


LANE REDUCTION

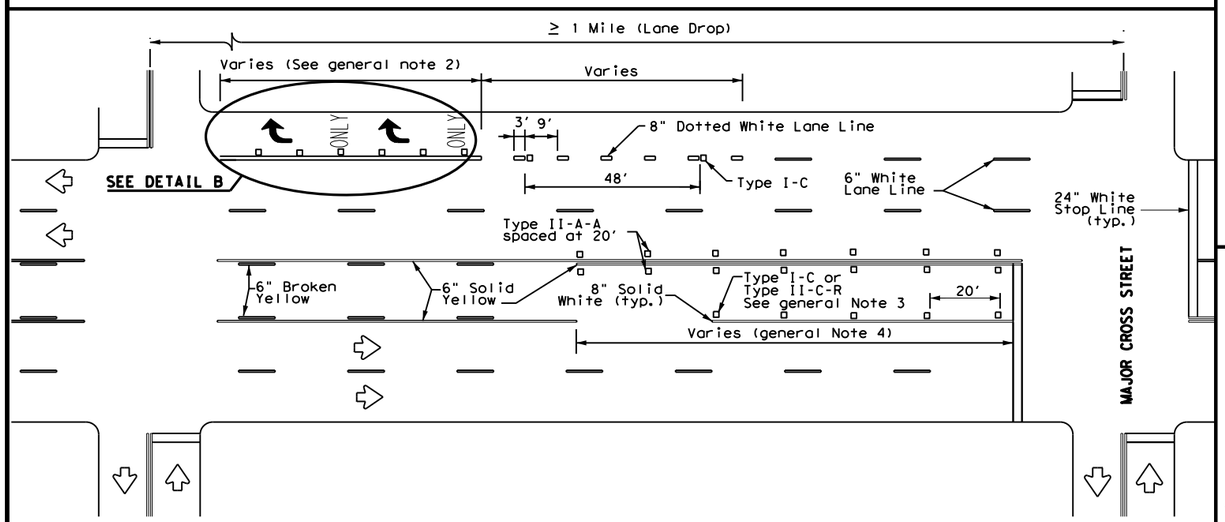
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

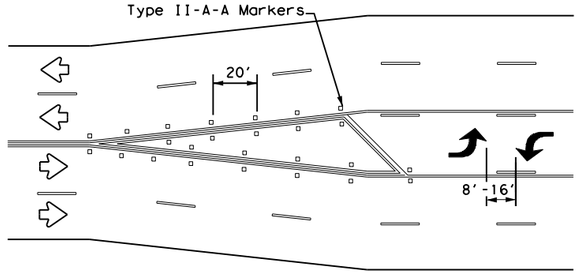
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



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

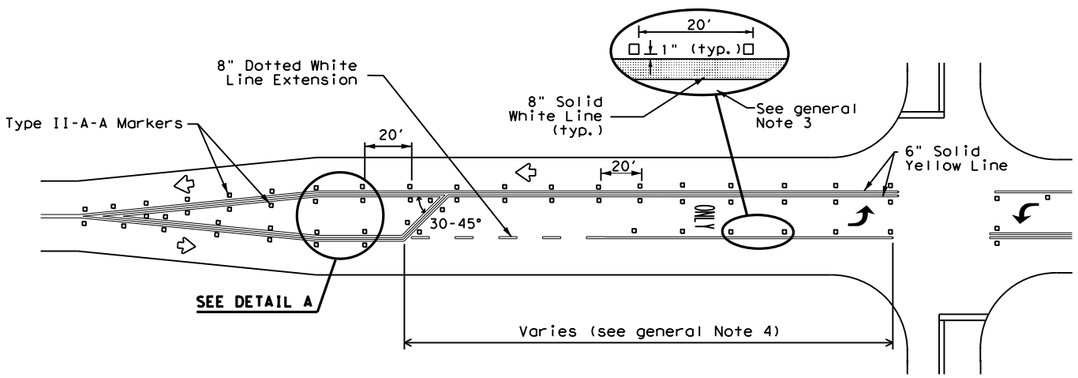


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP

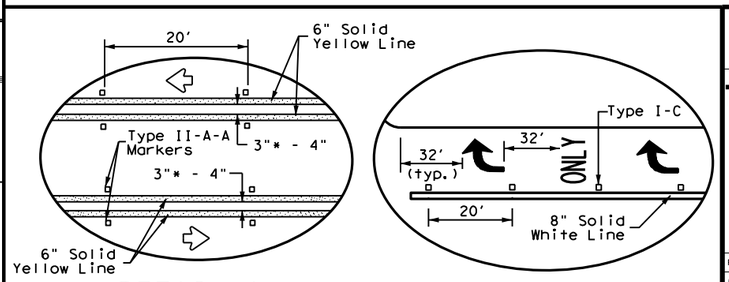


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

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.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
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REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	DIST	COUNTY		SHEET NO. 43

22C

DATE:
FILE:

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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

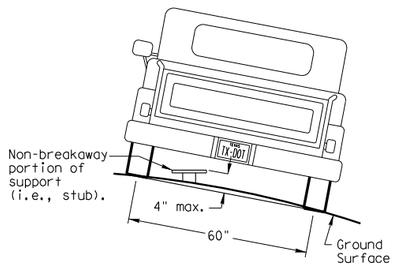
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

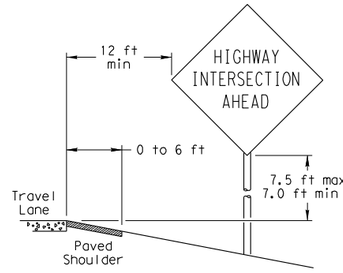
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

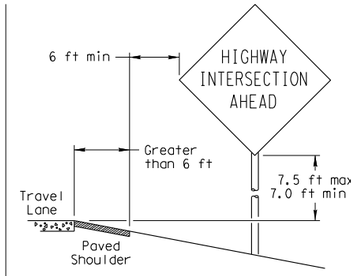
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

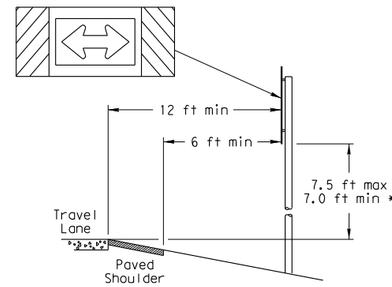
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



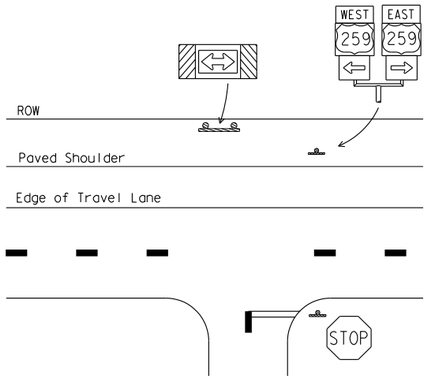
GREATER THAN 6 FT. WIDE

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

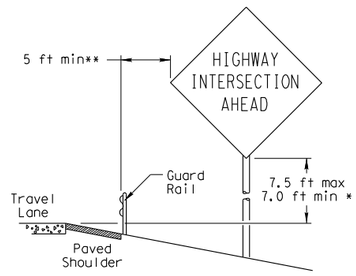
T-INTERSECTION



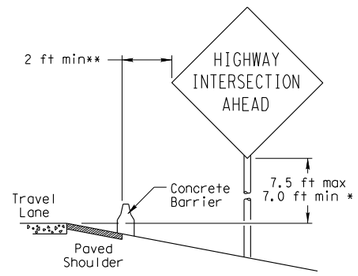
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

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

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

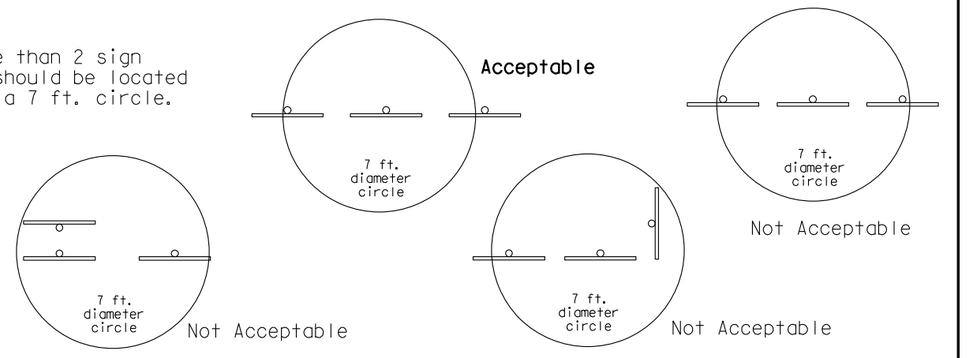
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

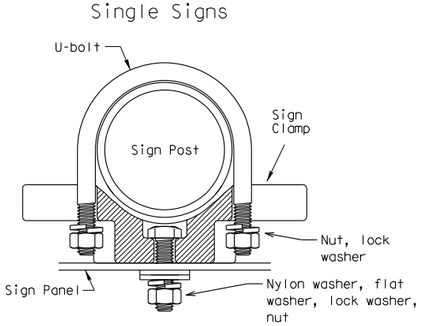
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

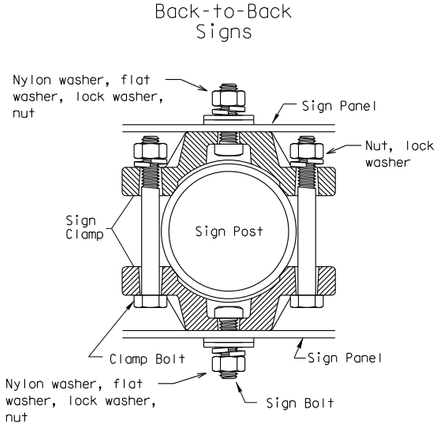
The website address is:
http://www.txdot.gov/publications/traffic.htm

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



TYPICAL SIGN ATTACHMENT DETAIL





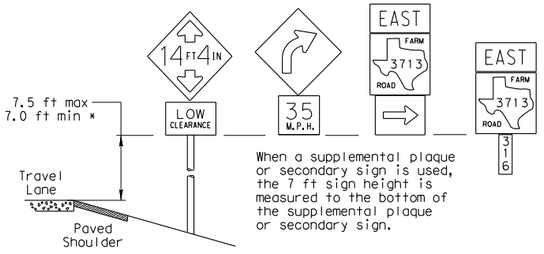
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

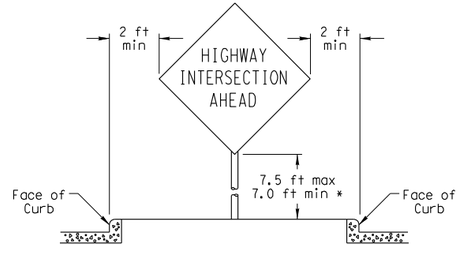
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



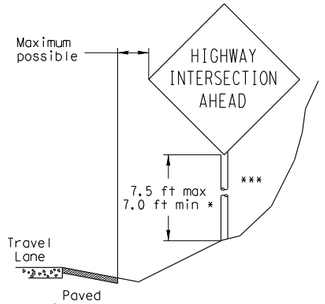
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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CONT	SECT	JOB	HIGHWAY

DIST	COUNTY	SHEET NO.
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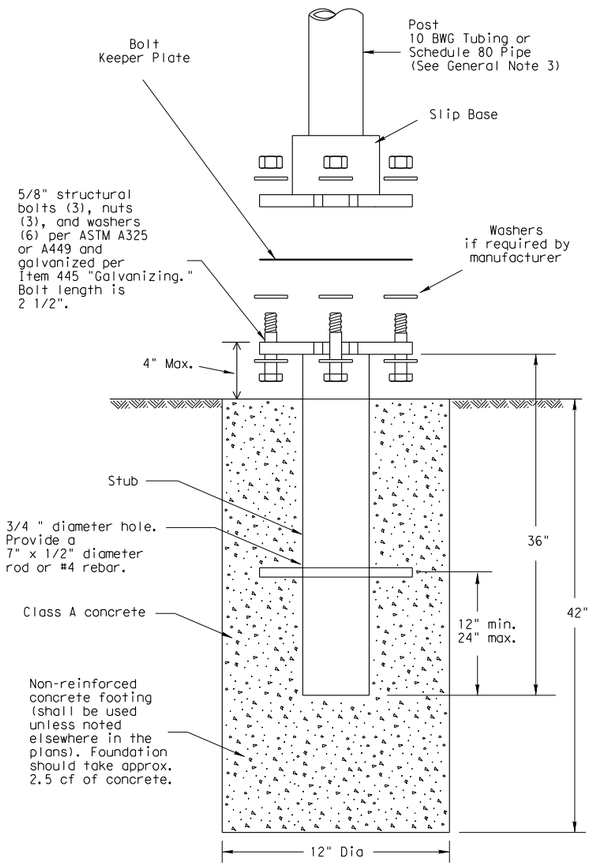
9-08 REVISIONS

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TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

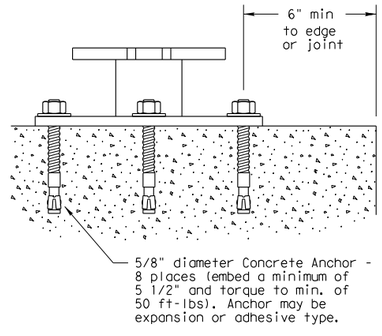
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



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

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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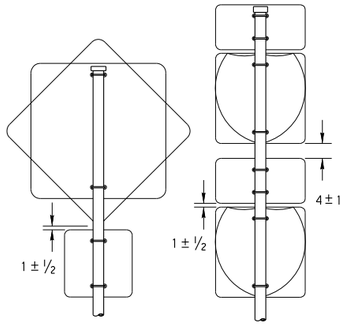
REVISIONS 9-08

CONT	SECT	JOB	HIGHWAY

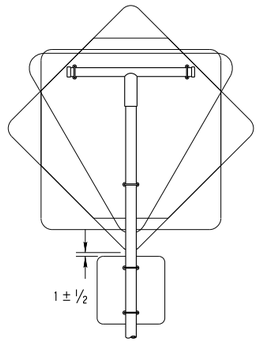
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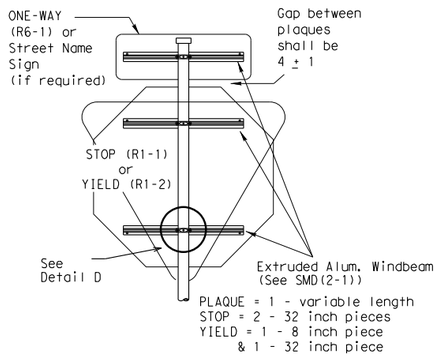
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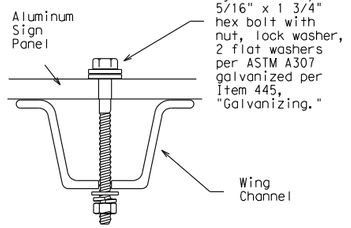
SM RD SGN ASSM TY XXXXX(1)XX(P)



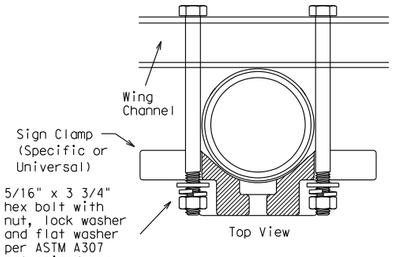
SM RD SGN ASSM TY XXXXX(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



Detail A



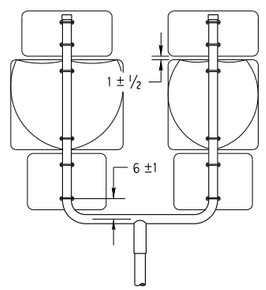
Detail B

GENERAL NOTES:

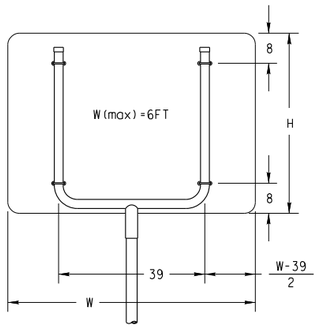
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

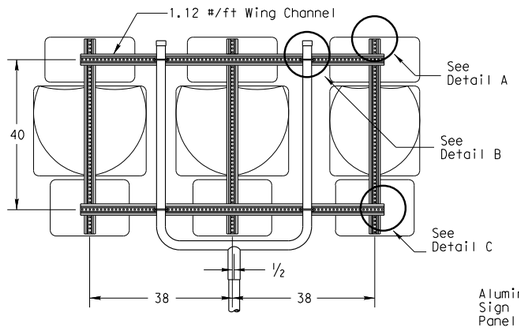
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



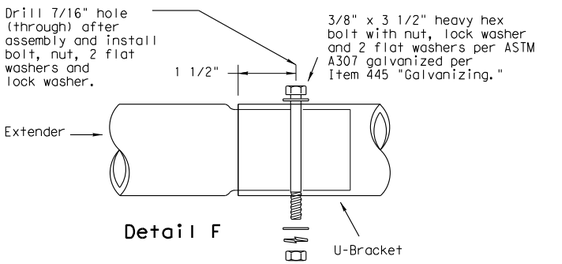
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

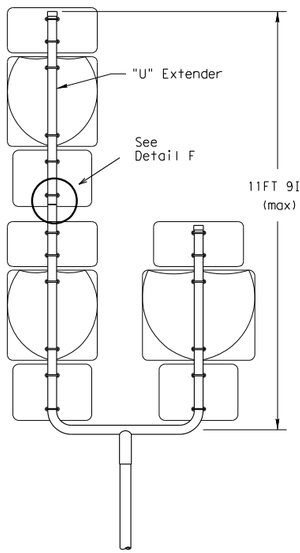


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

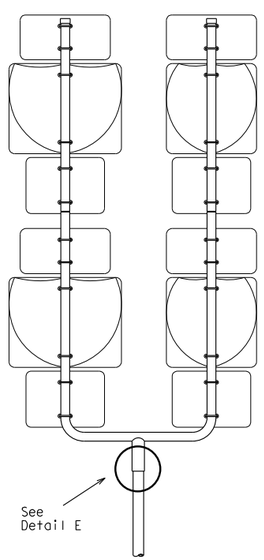


Detail F

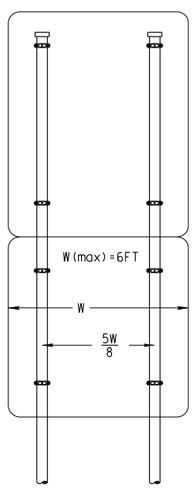
Splices shall only be allowed behind the sign substrate.



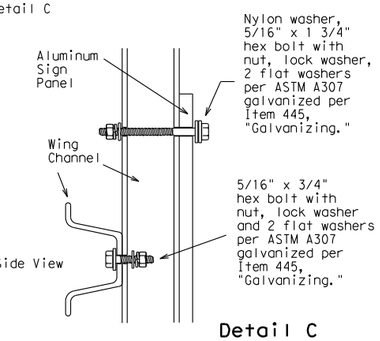
SM RD SGN ASSM TY S80(1)XX(U-1EXT)



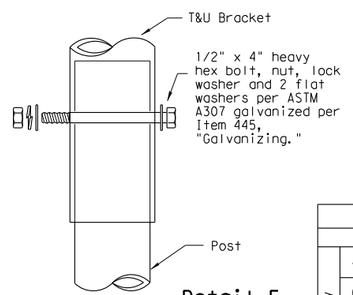
SM RD SGN ASSM TY S80(1)XX(U-2EXT)



SM RD SGN ASSYM TY XXXXX(2)XX(P)

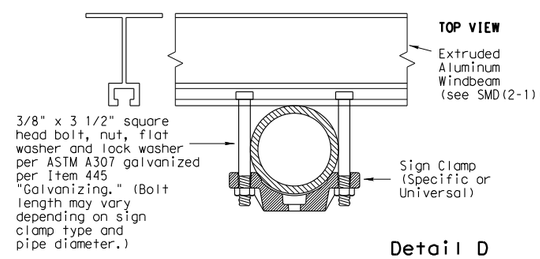


Detail C

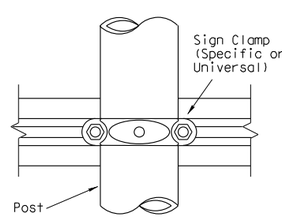


Detail E

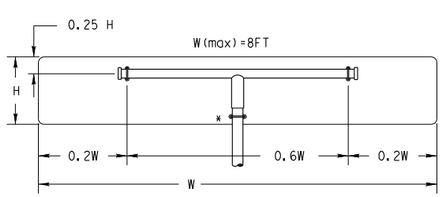
SIDE VIEW



Detail D



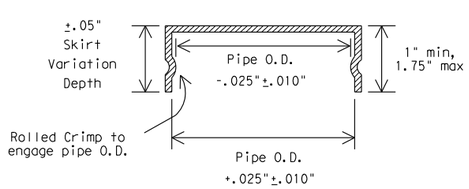
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08				

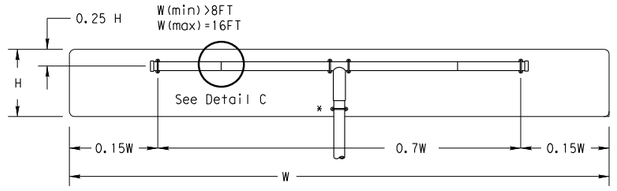
DIST	COUNTY	SHEET NO.
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26C

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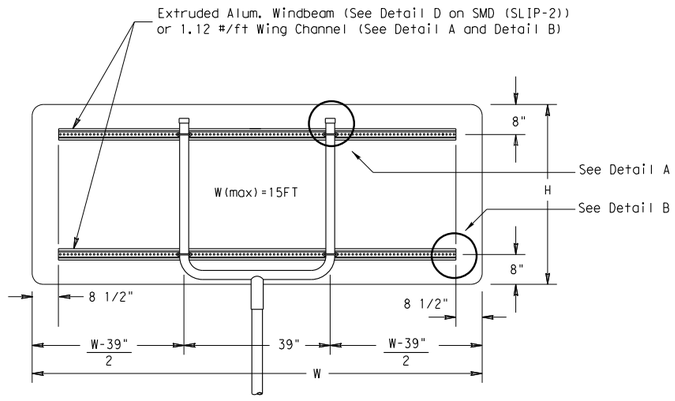
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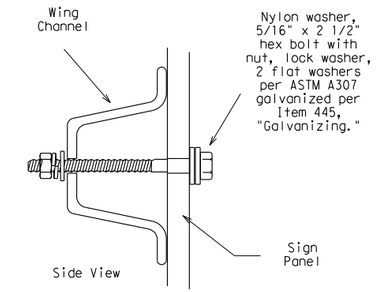


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

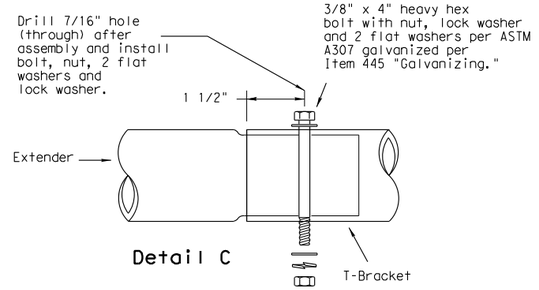
(* - See Note 12)



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



Detail B



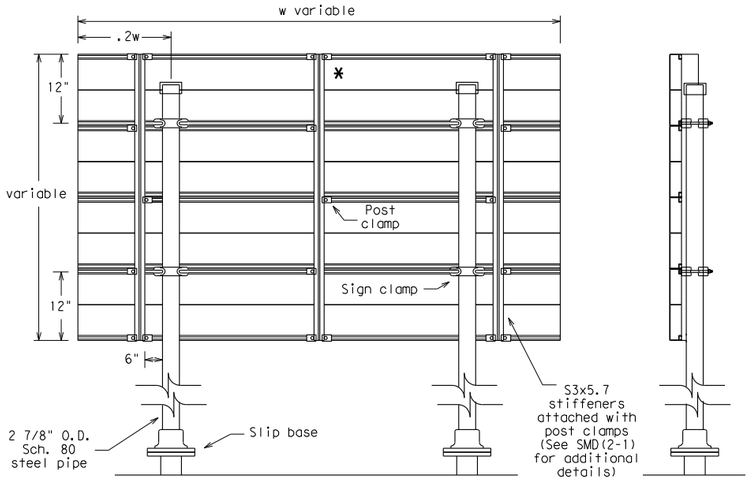
Detail C

Splices shall only be allowed behind the sign substrate.

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

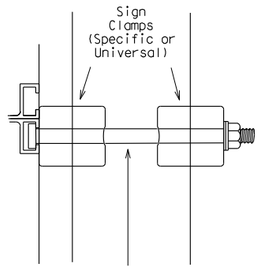


Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

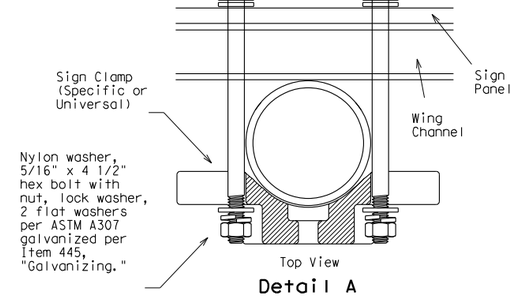
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

See Detail E
for clamp installation

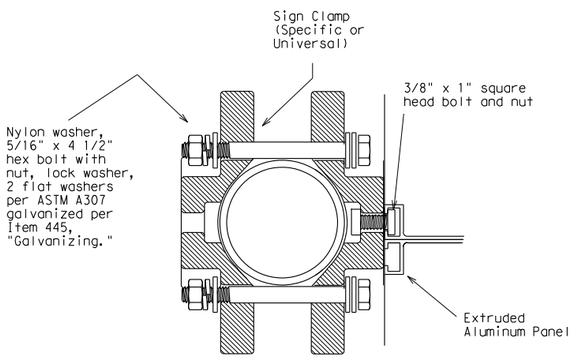


3/8" x 4 1/2"
square head
bolt, nut,
flat washer
and lock washer per
ASTM A307 galvanized
per Item 445,
"Galvanizing."

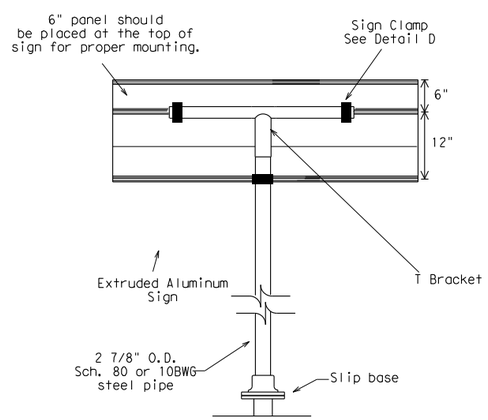
Detail E



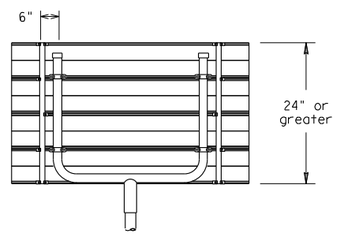
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

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DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

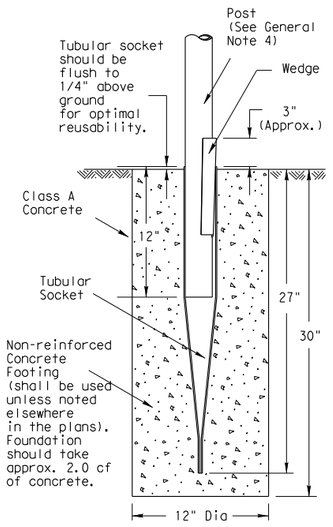
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DIST	COUNTY	SHEET NO.
		47

9-08 REVISIONS

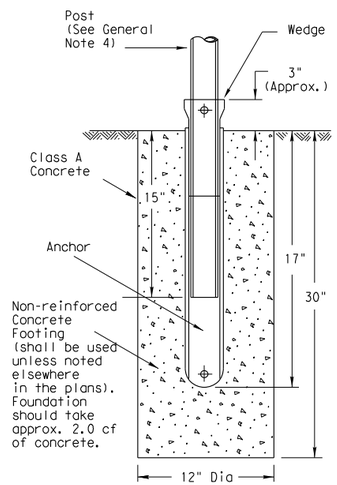
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Wedge Anchor Steel System



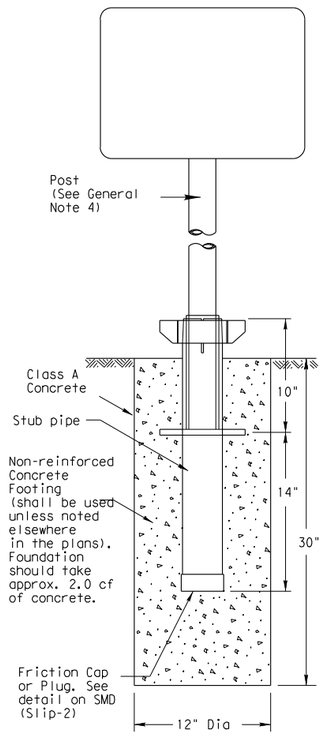
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

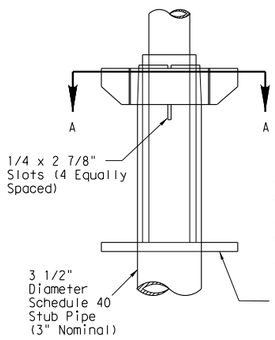


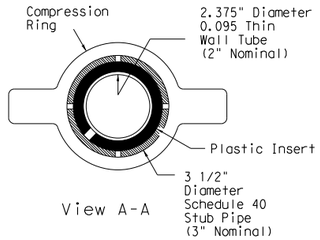
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



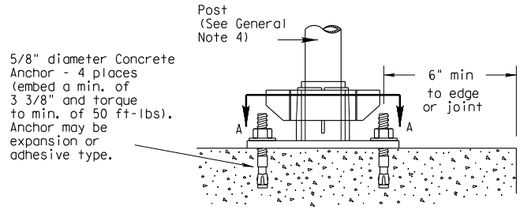
SM RD SGN ASSM TY TWT(X)UA(P)



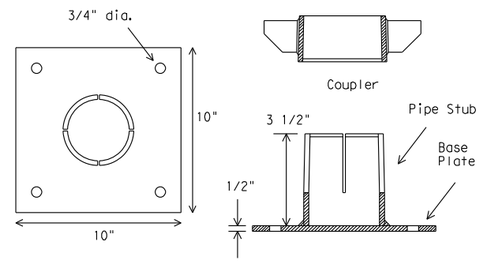


View A-A

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

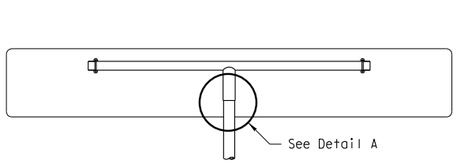


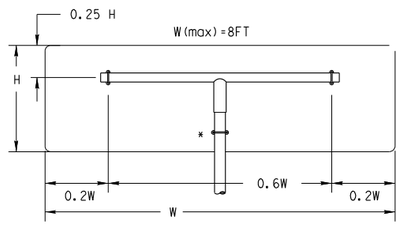
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.



SM RD SGN ASSM TY TWT(X)UB(P)

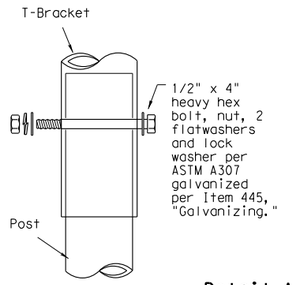
Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post





SM RD SGN ASSM TY TWT(X)XX(T)

(* - See General Note 6)



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

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

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

© TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.
			48

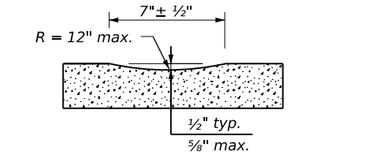
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26E

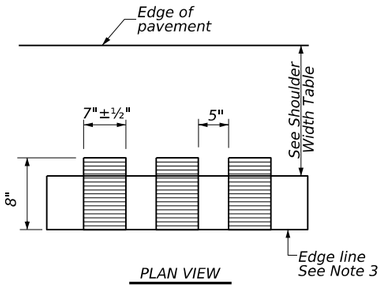
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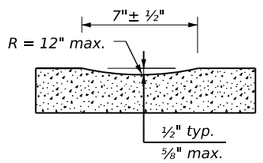


PROFILE VIEW
OPTION 1

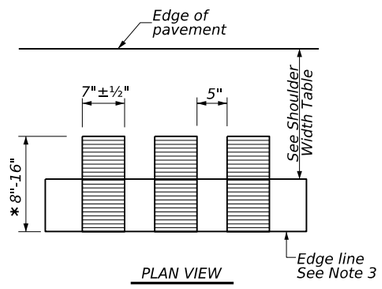


PLAN VIEW

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



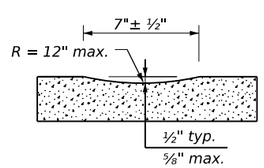
PROFILE VIEW
OPTION 2



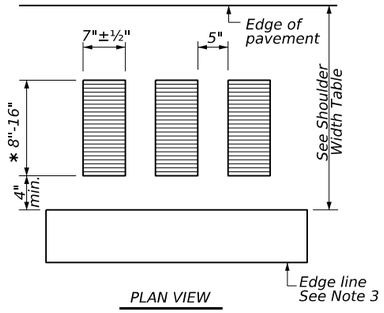
PLAN VIEW

∗ This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



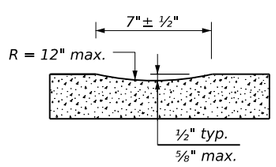
PROFILE VIEW
OPTION 3



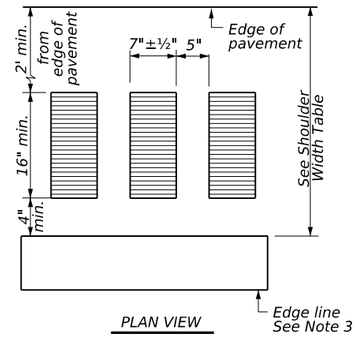
PLAN VIEW

∗ This distance may vary based on width of shoulder

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)

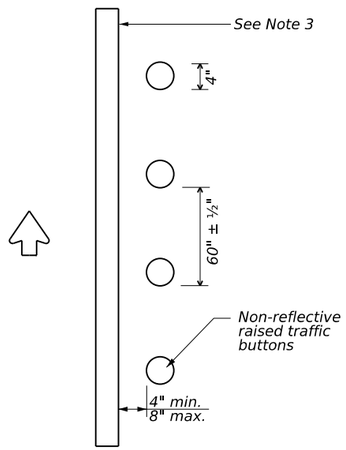


PROFILE VIEW
OPTION 4



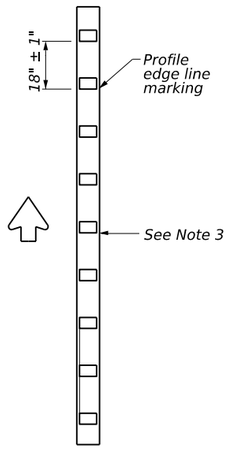
PLAN VIEW

CONTINUOUS MILLED DEPRESSIONS (Rumble Strips)



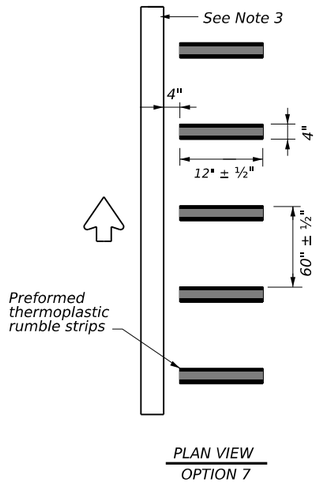
PLAN VIEW
OPTION 5

RAISED EDGE LINE (Rumble Strips)



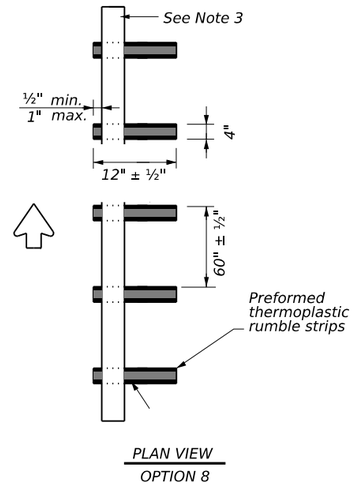
PLAN VIEW
OPTION 6

PROFILE EDGE LINE MARKINGS (Rumble Strips)



PLAN VIEW
OPTION 7

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)



PLAN VIEW
OPTION 8

PREFORMED THERMOPLASTIC EDGE LINE (Rumble Strips)

SHOULDER WIDTH TABLE		
EQUAL TO OR LESS THAN 2 FEET	GREATER THAN 2 FEET LESS THAN 4 FEET	EQUAL TO OR GREATER THAN 4 FEET
Option 1, 5, 6 or 8	Option 1, 2, 3 5, 6 or 7	Option 2, 4, 5 6 or 7

GENERAL NOTES

1. Rumble strips and profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.
2. Milled rumble strips are preferred when adequate pavement depth is available. If pavement thickness is less than 2 inches, milled rumble strips shall not be used. Rumble strips shall not be milled or depressed into bridge decks.
3. Use Standard Sheet PM(2) and FPM(1) for positioning, dimensioning, and spacing of all reflective raised pavement markers, pavement markings, and profile markings.
4. See the Shoulder Width Table below for determining what options may be used for edge line rumble strips.
5. Breaks in edge line rumble strips shall occur at least 50 feet and no more than 150 feet in advance of bridges, railroad crossings, intersections, or driveways with high usage of large trucks when installed on conventional highways.
6. Rumble strips shall not be placed across exit or entrance ramps, acceleration or deceleration lanes, crossovers, gore areas, or intersections with other roadways.
7. Consideration should be given to noise levels when edgeline rumble strips are to be installed near residential areas, schools, churches, etc. A 3/8 inch deep (minimum) milled rumble strip may be considered in these areas.
8. Consideration shall be given to bicyclists. See RS(6).

WHEN INSTALLING MILLED DEPRESSION EDGE LINE RUMBLE STRIPS:

9. See dimensions for milled rumble strips. Other shapes and dimensions may be used if approved by the Traffic Safety Division.
10. Pavement markings can be applied over milled shoulder rumble strips to create an edge line rumble strip.

WHEN INSTALLING RAISED OR PROFILE EDGE LINE RUMBLE STRIPS:

11. Raised rumble strips consisting of non-reflective raised traffic buttons may be used. Non-reflective raised traffic buttons can be affixed to asphalt or concrete with bitumen or adhesives, as per the manufacturer's recommendations.
12. Non-reflective traffic buttons shall be placed adjacent to the pavement marking delineating the edge line when used as a rumble strip. The color of the button should match the color of the adjacent edge line marking (white or yellow). The buttons will be paid for under Item 672, "Raised Pavement Markers." Non-reflective traffic buttons must meet the requirements of DMS-4300.
13. Non-reflective traffic buttons shall not be placed across exit or entrance ramps, acceleration and deceleration lanes, crossovers, gore areas or intersections with other roadways.
14. The minimum distance between the edge line and the buttons should be used if the shoulder is less than 8 feet in width.
15. Raised profile thermoplastic markings used as edge lines may substitute for buttons.

Texas Department of Transportation

Traffic Safety Division Standard

EDGE LINE RUMBLE STRIPS ON UNDIVIDED OR TWO LANE HIGHWAYS
RS(2)-23

FILE: rs(2)-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-13 1-23	DIST	COUNTY		SHEET NO. 49

SITE DESCRIPTION

PROJECT LIMITS: 5 MILES NE OF FREEPORT IN BRAZORIA COUNTY

PROJECT DESCRIPTION: WIDENING FOR NB RIGHT-TURN LANE ALONG FM523 AT CR792

MAJOR SOIL DISTURBING ACTIVITIES: 1. ROADWAY EMBANKMENT AND EXCAVATION.
2. ROADWAY BASE AND PAVEMENT.

TOTAL PROJECT AREA: 0.67

TOTAL AREA TO BE DISTURBED: 0.67

WEIGHTED RUNOFF COEFFICIENT:
(AFTER CONSTRUCTION): ((Provide combined runoff coeff.))

EXISTING CONDITION OF SOIL & VEGETATIVE
COVER AND % OF EXISTING VEGETATIVE COVER: ((List existing soil types based on soil mapping and estimated vegetative cover))

NAME OF RECEIVING WATERS: ((Name and identification number of the receiving outfall facility as listed in the Segment Identification Maps for Texas Rivers and Coastal Basins))

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

____ TEMPORARY SEEDING
__X__ PERMANENT PLANTING, SODDING, OR SEEDING
____ MULCHING
____ SOIL RETENTION BLANKET
____ BUFFER ZONES
____ PRESERVATION OF NATURAL RESOURCES

OTHER:

STRUCTURAL PRACTICES:

__X__ SILT FENCES
____ HAY BALES
____ ROCK BERMS
____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
____ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
____ DIVERSION DIKE AND SWALE COMBINATIONS
____ PIPE SLOPE DRAINS
____ PAVED FLUMES
____ ROCK BEDDING AT CONSTRUCTION EXIT
____ TIMBER MATTING AT CONSTRUCTION EXIT
____ CHANNEL LINERS
____ SEDIMENT TRAPS
____ SEDIMENT BASINS
____ STORM INLET SEDIMENT TRAP
____ STONE OUTLET STRUCTURES
____ CURBS AND GUTTERS
____ STORM SEWERS
____ VELOCITY CONTROL DEVICES
____ EROSION CONTROL LOGS

OTHER:

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:
((Provide narrative of construction sequencing))

STORM WATER MANAGEMENT: ((State manner in which storm water runoff will be adequately conveyed during construction))

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The area adjacent to creeks and drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: All inspections will be performed by a TxDOT inspector per one of the options below as directed by the Area Engineer
1. At least every 7 calendar days
2. At least every 14 days or after 0.5 inches or more of rainfall
An inspection and maintenance report should be made for each inspection. Based on the inspection results, the controls shall be revised according to the inspection report.

WASTE MATERIALS: The dumpster used to store all waste material will meet all state and local city solid waste management regulations. All trash and construction debris will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulation and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): In the event of a spill which may be considered hazardous, the Houston District Safety Office shall be contacted immediately at 713-802-5962.

SANITARY WASTE:

OFFSITE VEHICLE TRACKING:

____ HAUL ROADS DAMPENED FOR DUST CONTROL
____ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
____ EXCESS DIRT ON ROAD REMOVED DAILY
____ STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the sediment that may enter receiving waterways. Disposal areas shall not be located in any waterway, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the contractor in a manner which minimizes the runoff of all pollutants. All waterways shall be cleared as soon as practical of temporary embankments, temporary bridges, matting, falsework, piling, debris, and other obstructions placed during construction operations that are not part of the finished work.

Texas Department of Transportation
Houston District

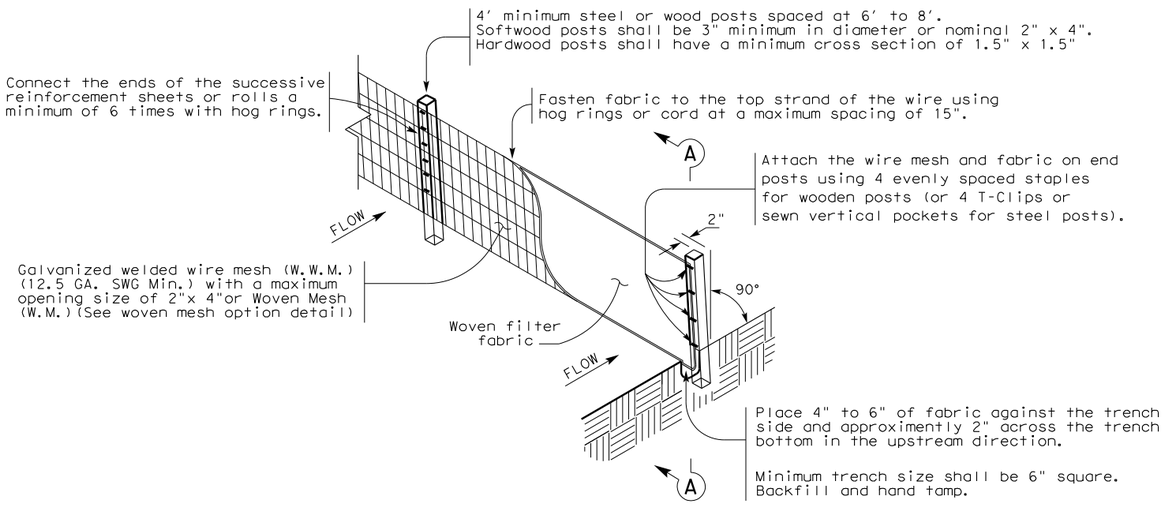
TxDOT STORM WATER POLLUTION PREVENTION PLAN

SWP3

FILE: STDG1.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
©TxDOT JANUARY 2007	DIST	FED REG	PROJECT NO.	SHEET
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9/2010 INSPECTION NOTE 9/2013 INSPECTION NOTE 11/2013 SW3P TO SWP3 03/2015 2014 SPECS	COUNTY	CONTROL	SECT	JOB / HIGHWAY
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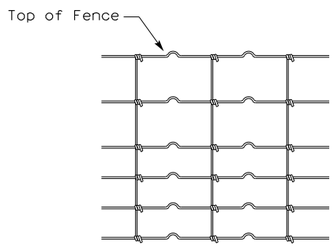
STD G-1

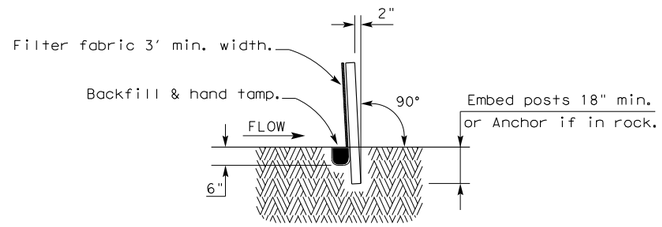
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TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

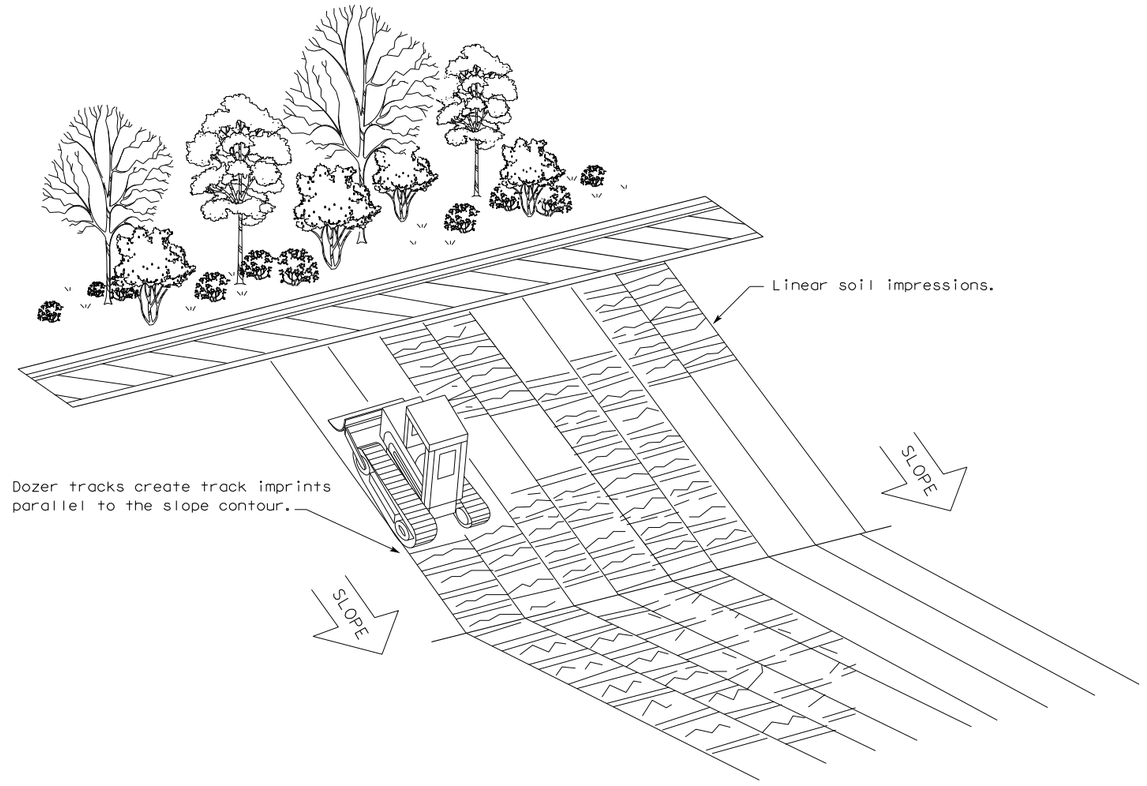
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

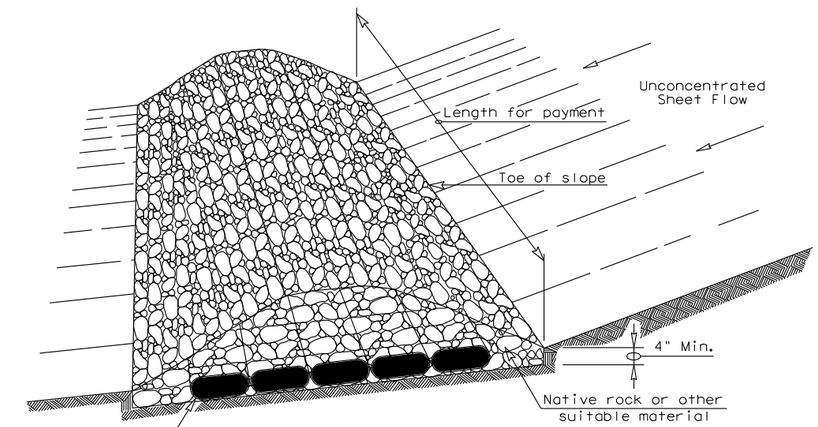
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				51

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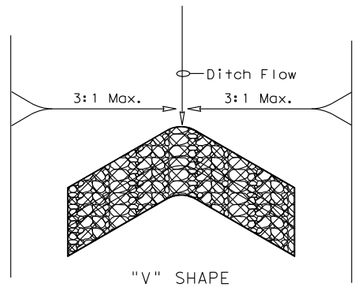
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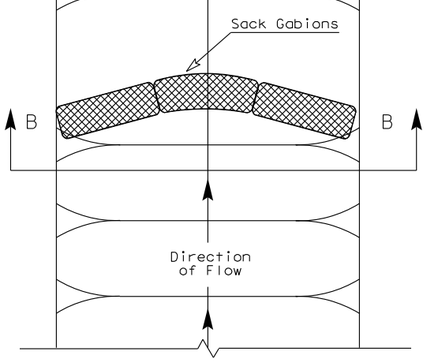


FILTER DAM AT TOE OF SLOPE

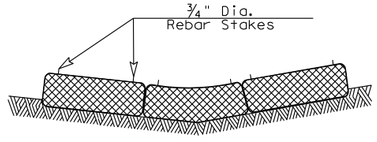
RFD1



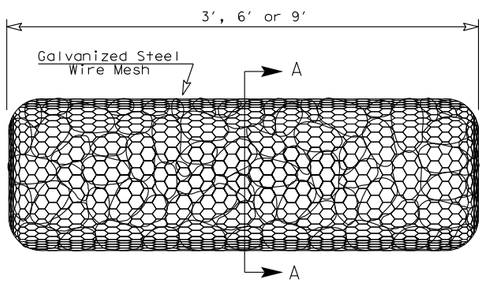
"V" SHAPE
PLAN VIEW



PLAN VIEW

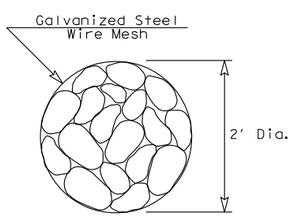


SECTION B-B

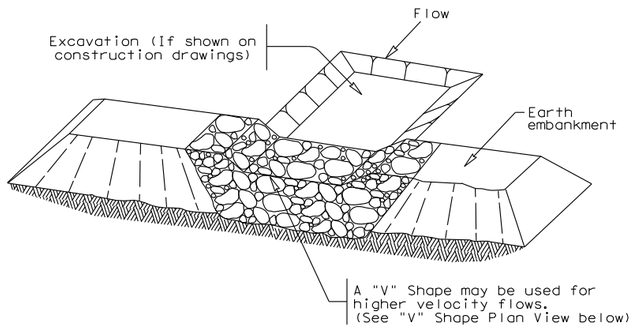


TYPE 4 (SACK GABIONS)

RFD4

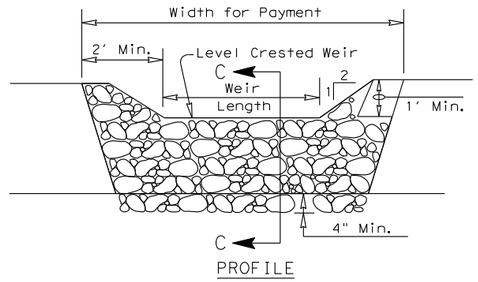


SECTION A-A

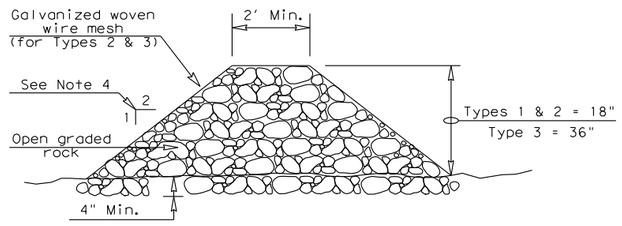


FILTER DAM AT SEDIMENT TRAP

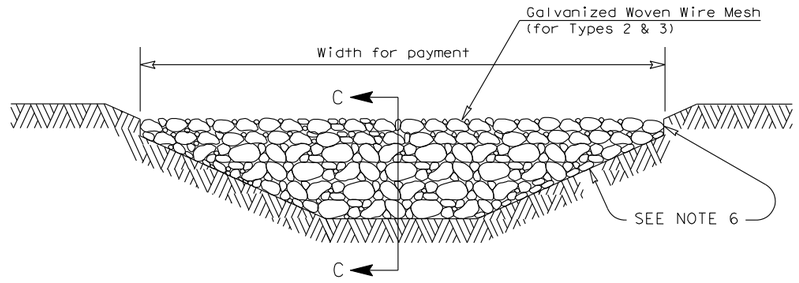
RFD1 OR RFD2



PROFILE



SECTION C-C



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam — RFD1
Type 2 Rock Filter Dam — RFD2
Type 3 Rock Filter Dam — RFD3
Type 4 Rock Filter Dam — RFD4

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

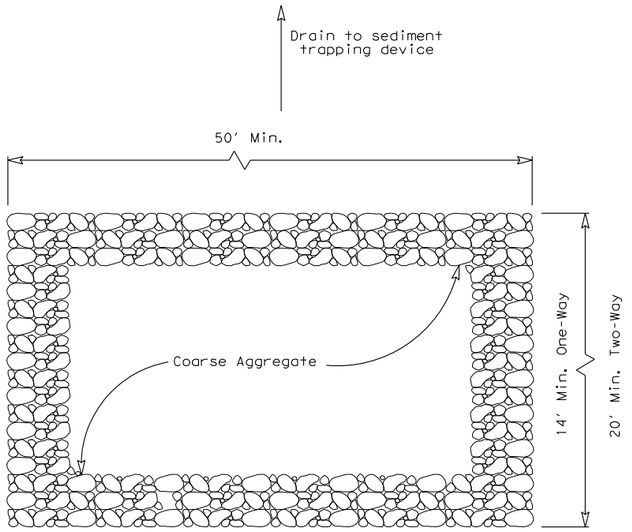
ROCK FILTER DAMS

EC(2)-16

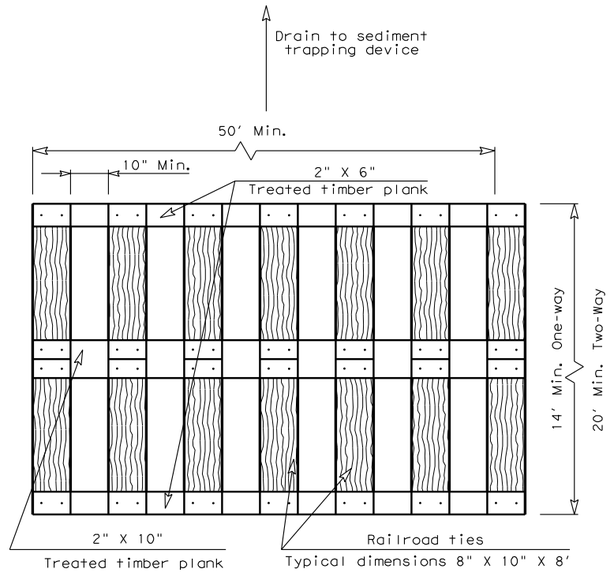
FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				52

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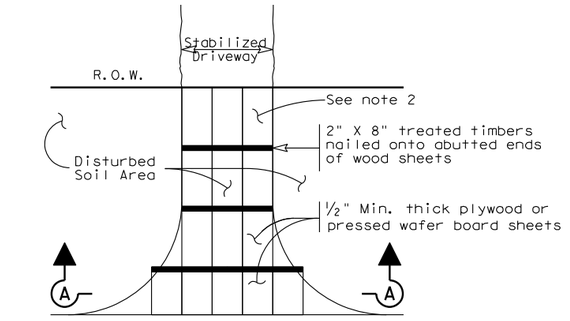
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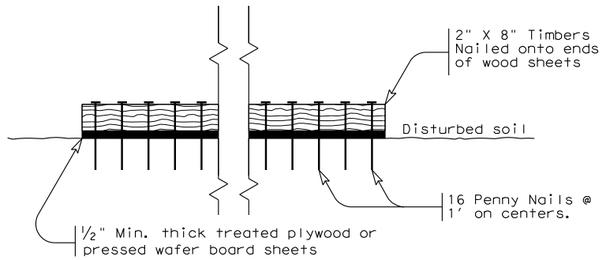
PLAN VIEW



PLAN VIEW



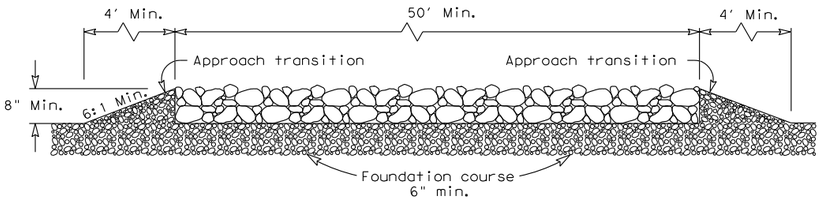
PLAN VIEW



SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

SHORT TERM



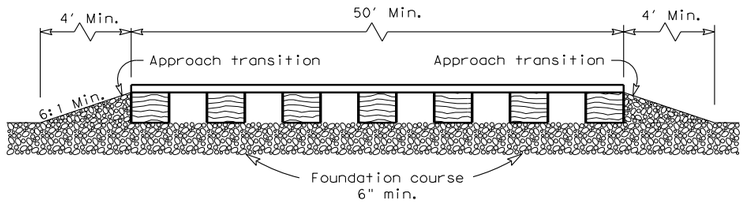
ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.



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 ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

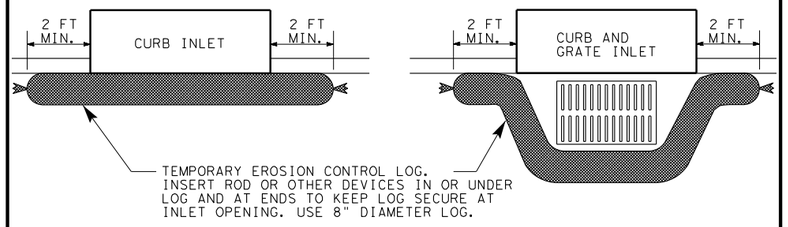
CONSTRUCTION EXITS

EC(3)-16

FILE: ec316	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
©TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				53

CURB INLETS
8" DIAMETER LOGS

ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8")



MATERIAL REQUIREMENTS

FILL:

Use 100% shredded mulch or other non-compost biodegradable material as fill for logs. No compost or fines.

DO NOT USE MATERIAL WHICH PROHIBITS WATER INFILTRATION.

LOG MESH:
Use mesh with 1/4" openings or larger. Mesh must allow water infiltration but also hold fill material in place.

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

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).

Sediment traps should be placed in the following locations:
1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way

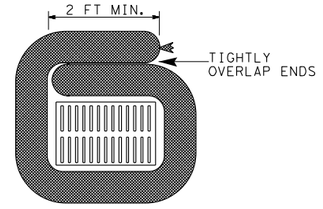
The trap should be cleaned when the capacity has been reduced by 1/2 or the sediment has accumulated to a depth of 1', whichever is less.

REQUIRED ITEMS:

- ITEM 506-6040 BIODEG EROSN CONT LOGS (INSTL) (8") LF
- ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL) (12") LF
- ITEM 506-6043 BIODEG EROSN CONT LOGS (REMOVE) LF

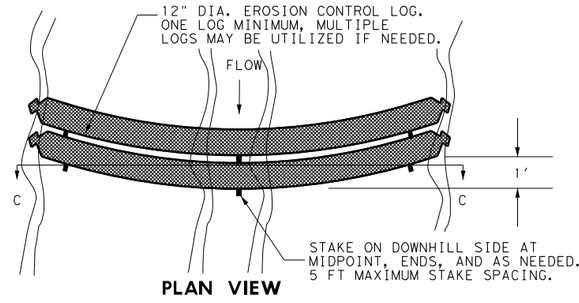
DROP INLETS AND OTHER LOCATIONS
12" DIAMETER LOGS

ITEM 506-6041 BIODEG EROSN CONT LOGS (INSTL)(12")

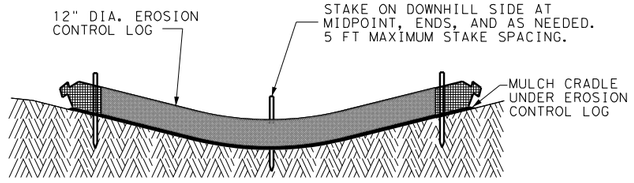


DROP INLET
USE 12" DIAMETER LOG

DROP INLETS

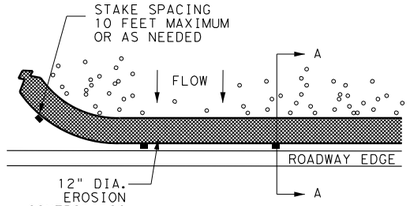


PLAN VIEW

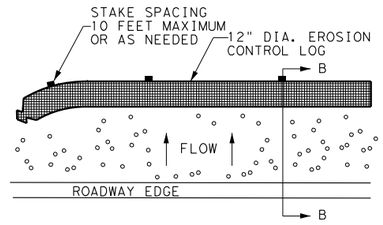


SECTION C-C

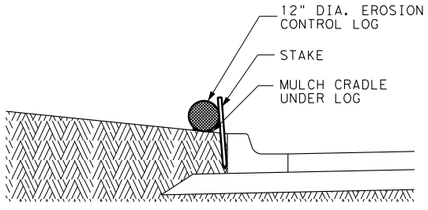
DRAINAGE SWALE OR DITCH



PLAN VIEW

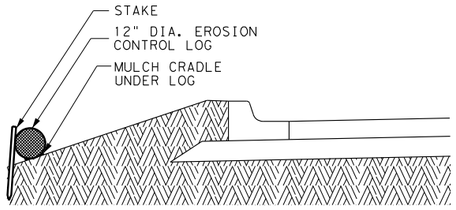


PLAN VIEW



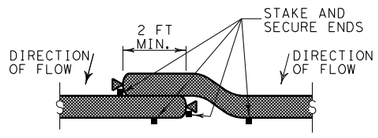
SECTION A-A

SLOPE TO ROADWAY EDGE

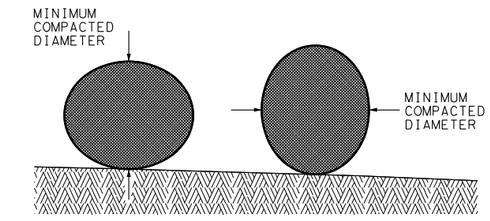


SECTION B-B

SLOPE AWAY FROM ROADWAY EDGE



END OF LOG OVERLAP



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

Texas Department of Transportation
Houston District

EROSION CONTROL LOG

ECL-12

FILE: STDG4a.DGN	DN: TxDot	CK: TxDot	DW: TxDot	CK: TxDot
© TxDOT 2014	DISTRICT	FED REG	PROJECT NUMBER	SHEET
REVISIONS 3/15 MINOR CORRECTIONS	HOU	6		
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
					54

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DATE:
FILE:

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1.

2.

☐ No Action Required ☐ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☐ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☒ Temporary Vegetation	☒ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☒ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☒ Mulch Filter Berm and Socks	☒ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice
CGP:	Construction General Permit
DSHS:	Texas Department of State Health Services
FHWA:	Federal Highway Administration
MOA:	Memorandum of Agreement
MOU:	Memorandum of Understanding
MS4:	Municipal Separate Stormwater Sewer System
MBTA:	Migratory Bird Treaty Act
NOT:	Notice of Termination
NWP:	Nationwide Permit
NOI:	Notice of Intent
SPCC:	Spill Prevention Control and Countermeasure
SW3P:	Storm Water Pollution Prevention Plan
PCN:	Pre-Construction Notification
PSL:	Project Specific Location
TCEQ:	Texas Commission on Environmental Quality
TPDES:	Texas Pollutant Discharge Elimination System
TPWD:	Texas Parks and Wildlife Department
TxDOT:	Texas Department of Transportation
T&E:	Threatened and Endangered Species
USACE:	U.S. Army Corps of Engineers
USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☐ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☐ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS				
12-12-2011 (DS)				
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY		SHEET NO.
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				55

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 2014 for specifications, dimensions, volumes and measurements that are not shown. Use latest Houston District, Special Provisions for those items indicated.		
	✓		**161-6017 COMPOST MANUF TOPSOIL (BIP)(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.
✓			**162-6002 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.
	✓		**164-6066 DRILL SEEDING(PERM)(WARM OR 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: 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 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	PLS (Pure Live Seed) Provide documentation of PLS requirements per Item 164.2.1. CONSTRUCTION. Cultivate the area to a depth of 4 inches before placing the seed unless otherwise directed. When performing permanent seeding after an established temporary seeding, cultivate 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. 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. Use broadcast seeding method where site conditions prevent drill seeding method. Broadcast Seeding. 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.
	✓		**164-6052 BROADCAST SEED(PERM)(SPECIAL MIX) SY** Item 164.1. Description Provide and install seeding as shown on District Standard		
		✓	**164-6051 DRILL SEED(TEMP)(WARM OR 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 November, December, January, February: Oats (Avena sativa - 72.0 lbs PLS/acre	
		✓	**164-6009 BROADCAST SEED(TEMP)(WARM) SY** Item 164.1. Description Provide and install seeding as shown on District Standard		
	✓	✓	**162-6003 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
✓	✓	✓	**166-6001 FERTILIZER AC** Item 166.2. Materials Use fertilizer as shown on 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, 281-851-6749 Sustanite-standard grade, Automation Nation, Inc., 713-675-4999 Milorganite, MMSD, 800-287-9645 Agricultural Organic P/L, Ag Org, INC., 713-523-4396
✓	✓	✓	**168-6001 VEGETATIVE WATERING MG**	APPLICATION RATE Item 168.3 Construction. 6000 gallons/acre per working day x 20 consecutive working days = 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

BLOCK SOD	PERMANENT SEEDING	TEMPORARY SEEDING
1. FERTILIZER 2. CULTIVATE SOIL (ITEM 162.3) 3. SOD 4. VEGETATIVE WATERING	1. FERTILIZER 2. COMPOST MANUFACTURED TOPSOIL 3. CULTIVATE SOIL (ITEMS 164.3 AND 161.3.1) 4. PERMANENT SEEDING 5. STRAW OR HAY MULCH 6. VEGETATIVE WATERING	1. FERTILIZER 2. CULTIVATE SOIL (PER ITEM 164.3) 3. TEMPORARY SEEDING 4. STRAW OR HAY MULCH 5. VEGETATIVE WATERING

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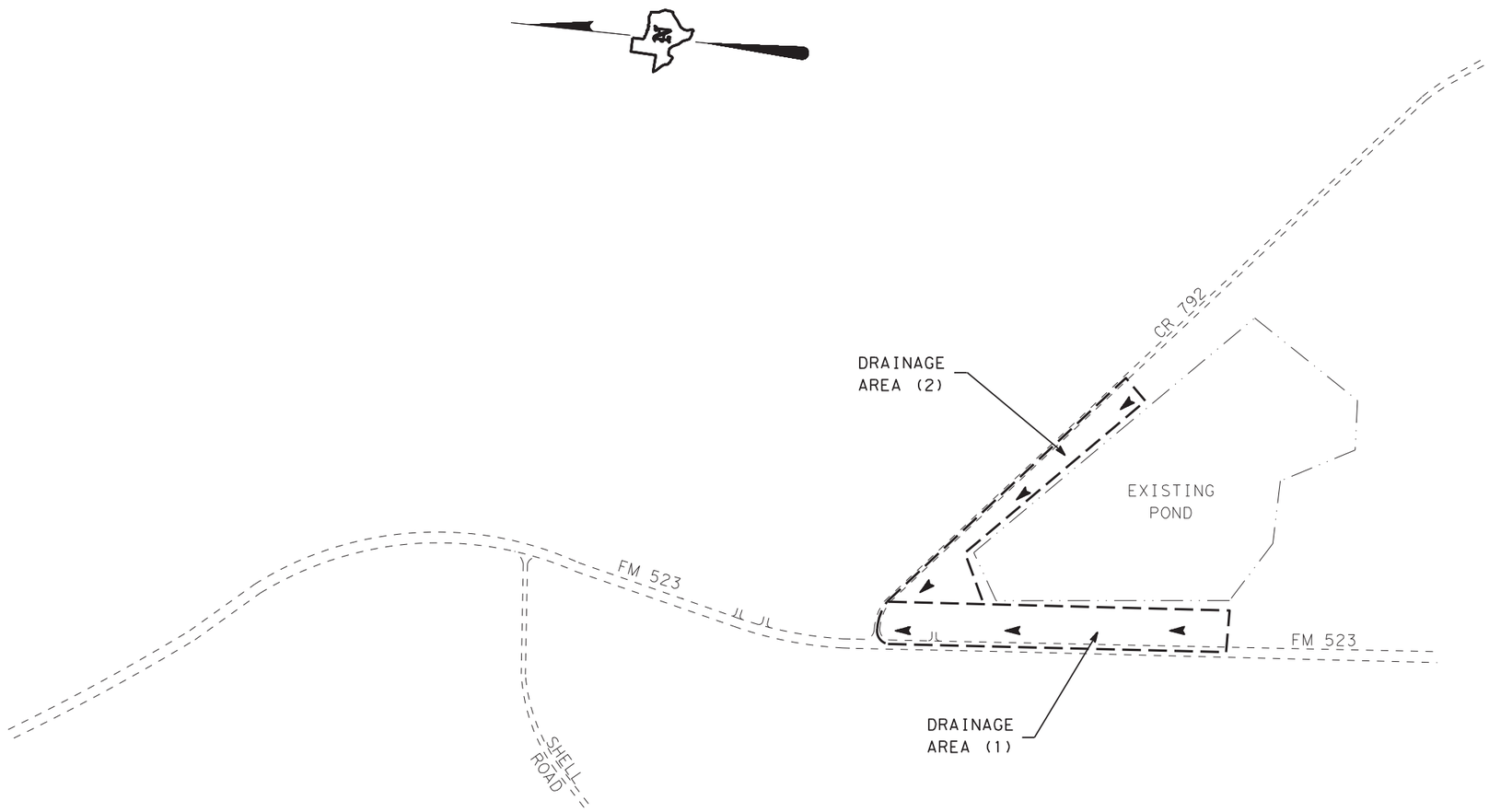
Texas Department of Transportation

HOUSTON DISTRICT

FERTILIZER, SEED, SOD, STRAW, COMPOST, AND WATER

FSSSCW-15

REVISIONS	FILE:	FED DIV	STATE	PROJECT NUMBER			SHEET
10/2014 UPDATED TO 2014 SPECS 3/2015 MINOR CORRECTIONS 3/2023 ADDED SHEET ABBREVIATION	OCT 2014	6	TEXAS				56
	ORIGINAL:	DIST	COUNTY	CONTROL	SECT	JOB	HIGHWAY
		12					



DRAINAGE AREA DETAILS							
LOCATION	AREA (ACRE)	AVERAGE "C"	T.C (MIN)	I_{10} (IN/HR)	Q_{10} (CFS)	I_{100} (IN/HR)	Q_{100} (CFS)
DRAINAGE AREA (1)	5.8	0.51	25.9	5.16	15.26	7.82	23.13
DRAINAGE AREA (2)	4.1	0.51	24.1	5.35	11.19	8.09	16.92
TOTAL DRAINAGE					26.45		40.05

STATE OF TEXAS
JAMIE A. H. JONES
128752
LICENSED PROFESSIONAL ENGINEER

Jamie A.H. Jones, P.E.

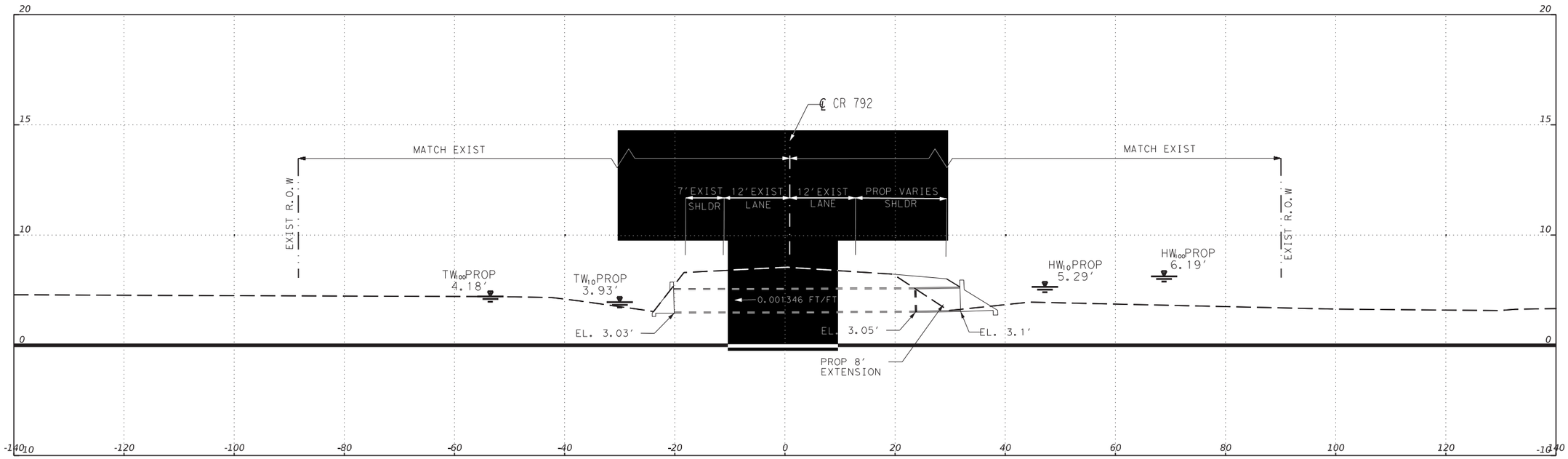
10/17/2023

DRAINGAGE AREA MAP FOR FM 523 AT CR 792

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CONT.	SECT.	JOB	HIGHWAY NO.
			FM 523
DIST.	COUNTY		SHEET NO.
HOU	BRAZORIA		57

8/28/2023 H:\Non CSJ Projects\FM 523 @ CR 792\Drainage Area Map CR 792.dgn



CR 792

EXIST 2 - 24" X 44' RCP
PROP 2-24" X 8' WITH 3 SET (3:1)

STATE OF TEXAS
JAMIE A. H. JONES
128752
LICENSED PROFESSIONAL ENGINEER

Jamie A.H. Jones, P.E.

10/17/2023

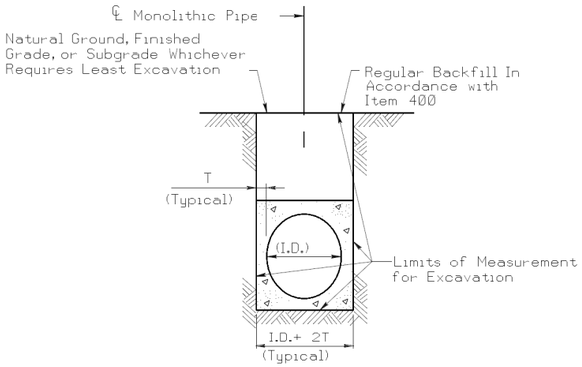
Texas Department of Transportation

SHEET OF

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
			FM 523	Brazoria	CTY	58

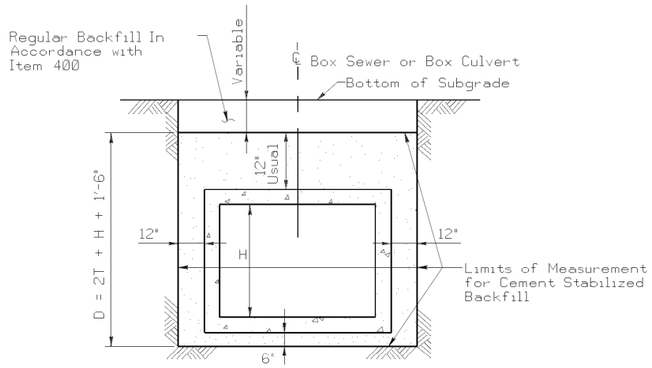
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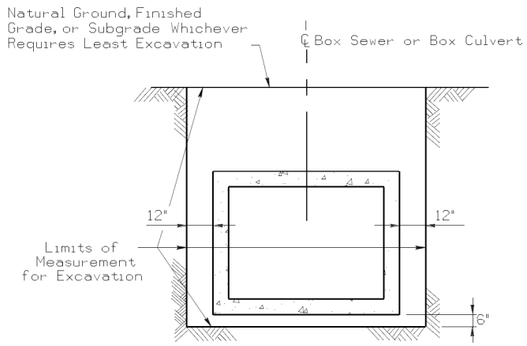
EXCAVATION DETAIL

MONOLITHIC PIPE
IN A PAVED OR GRADED AREA



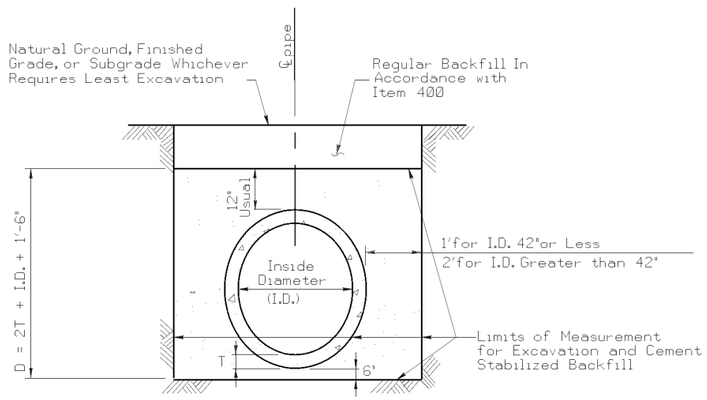
BACKFILL DETAIL

BOX CULVERTS
IN A GRADED OR PAVED AREA
INCLUDING DETOURS *



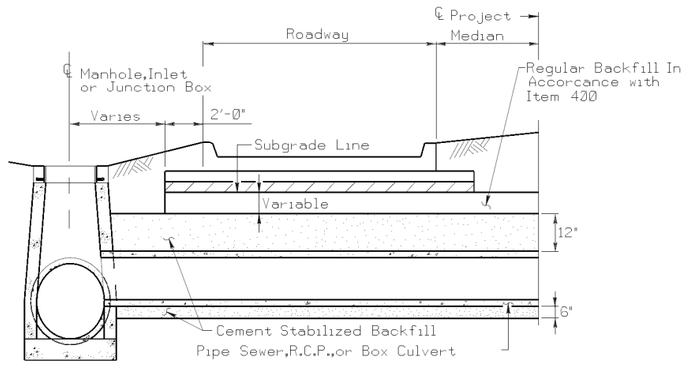
EXCAVATION DETAIL

BOX CULVERTS
IN A GRADED AREA



EXCAVATION & BACKFILL DETAIL

REINFORCED CONCRETE PIPE
IN A GRADED OR PAVED AREA
INCLUDING DETOURS



BACKFILL DETAIL

AT MANHOLE, INLET OR JUNCTION BOX

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

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

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.

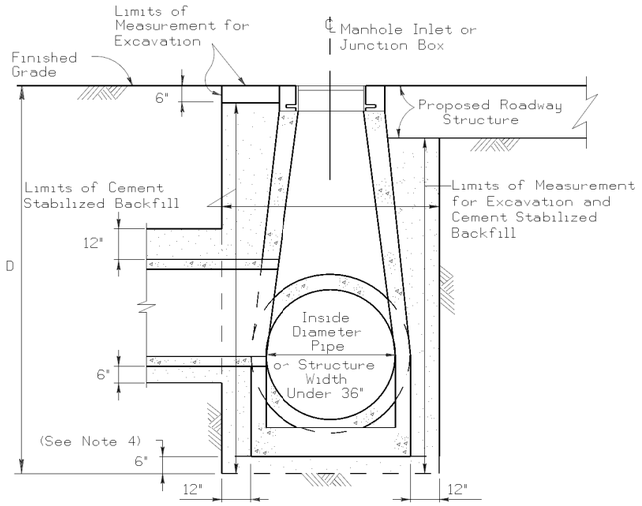
D = Depth
H = Height
T = Thickness
R = Radius
Dia = Diameter

Texas Department of Transportation
Houston District

EXCAVATION AND BACKFILL DIAGRAMS

E&BD

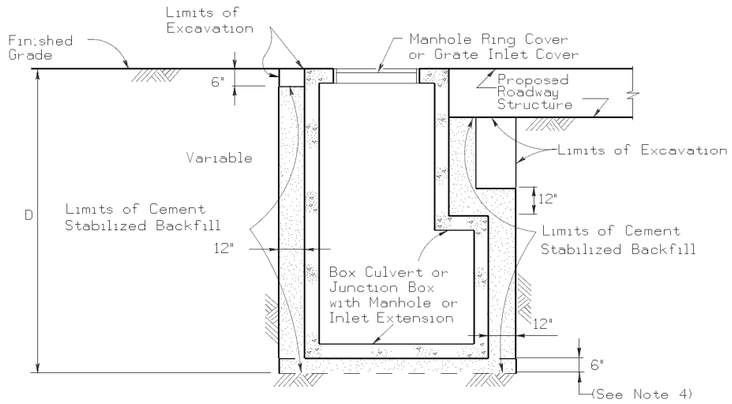
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© TxDOT FEB 2010	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	HOUSTON	6		59
REVISED 11/05 REVISED 2/2010 Added note to Table LSht 2 of 2. REVISED 6/12 REVISED 9/14	COUNTY		CONTROL SECT JOB	HIGHWAY



EXCAVATION AND BACKFILL DETAIL

MANHOLES SMALLER THAN 36 IN.
IN A PAVED OR GRADED AREAS

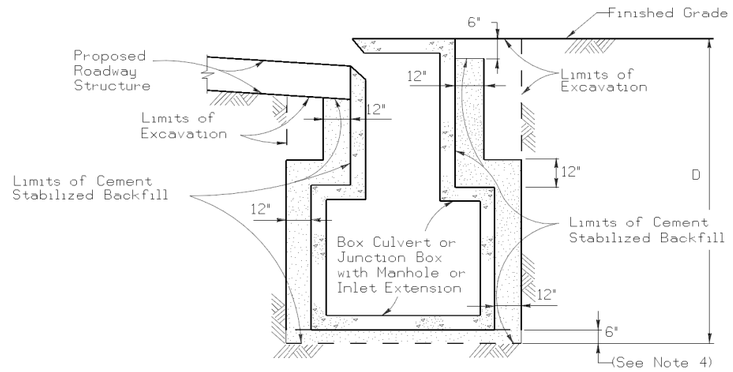
N.T.S.



EXCAVATION AND BACKFILL DETAIL

JUNCTION BOXES IN A
PAVED OR GRADED AREA

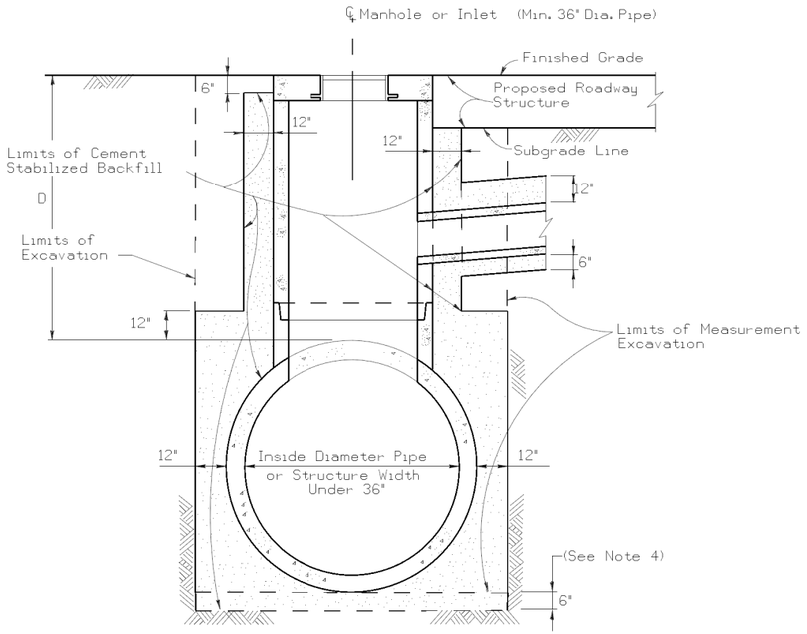
N.T.S.



EXCAVATION AND BACKFILL DETAIL

INLET EXTENSIONS ON A BOX CULVERT
IN A PAVED OR GRADED AREA

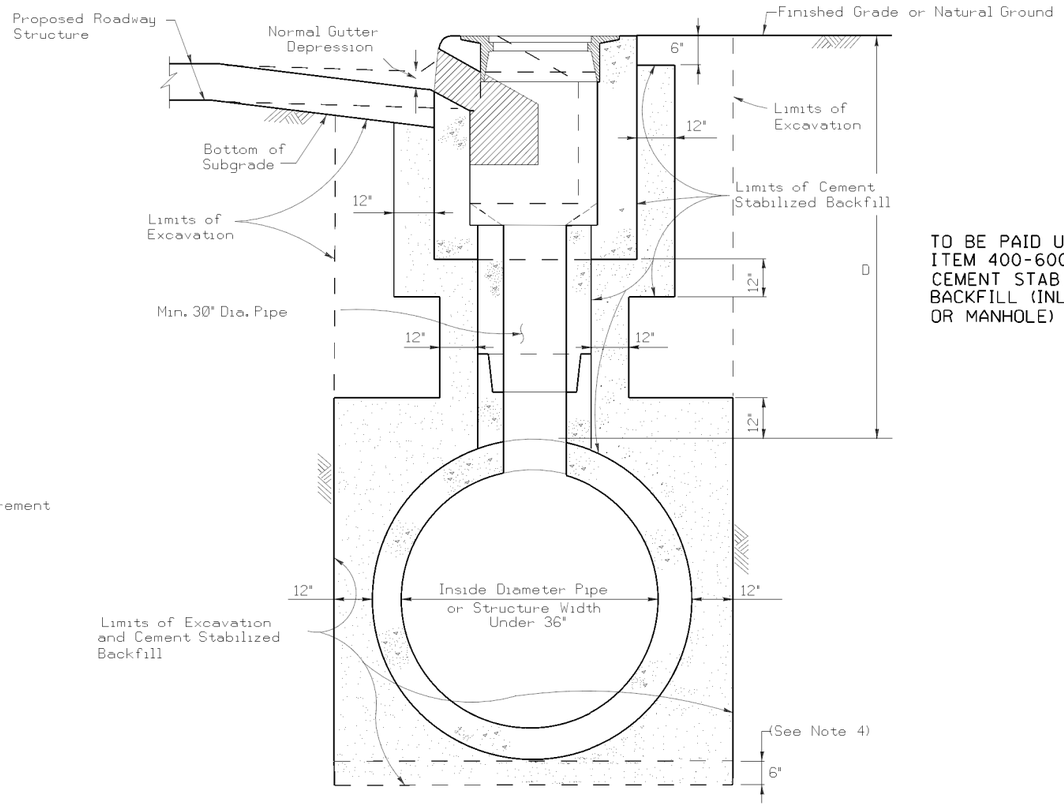
N.T.S.



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.

D = Depth
H = Height
T = Thickness
R = Radius
Dia = Diameter

TABLE 1

SCHEDULE FOR PAY QUANTITIES OF CEMENT STABILIZED BACKFILL (SEE NOTE 1)

MANHOLE OR INLET DEPTH (D) IN FEET	CEMENT STABILIZED BACKFILL IN CUBIC YARDS
Ø through 5	5.75
> 5 through 10	8.25
greater than 10	12.75

TO BE PAID UNDER ITEM 400-6009 CEMENT STABILIZED BACKFILL (INLET OR MANHOLE)

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.

Texas Department of Transportation
Houston District

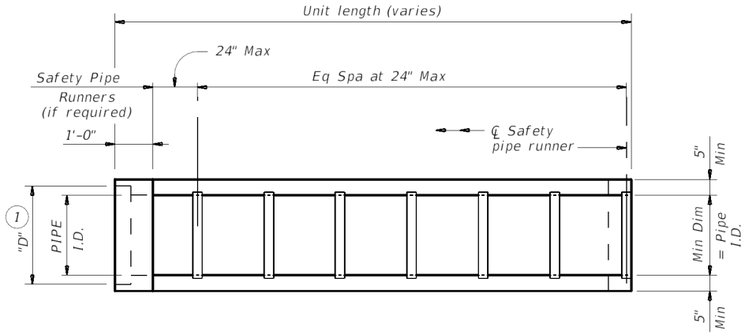
EXCAVATION AND BACKFILL DIAGRAMS

E&BD

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© TxDOT FEB 2010	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS REVISED 2/2010 Added note to Table 1. REVISED 6/12 REVISED 9/14 REVISED 3/15	HOUSTON	6		60
	COUNTY		CONTROL	SECT	JOB	HIGHWAY

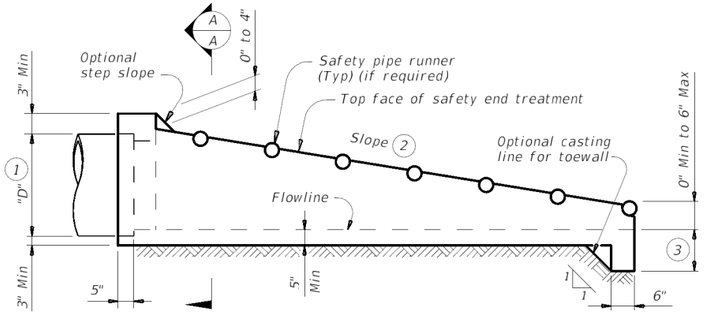
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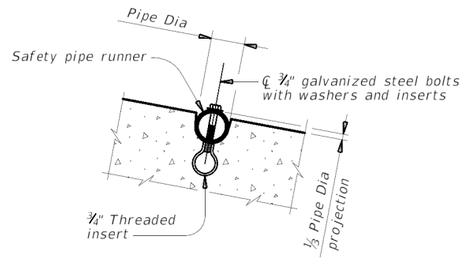
PLAN

(Showing bell end connection.)



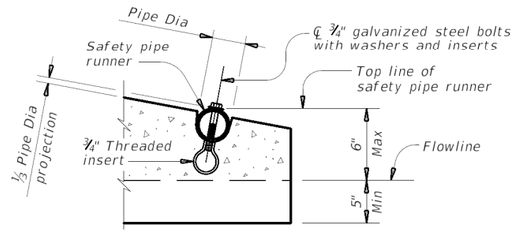
LONGITUDINAL ELEVATION

(Showing bell end connection.)

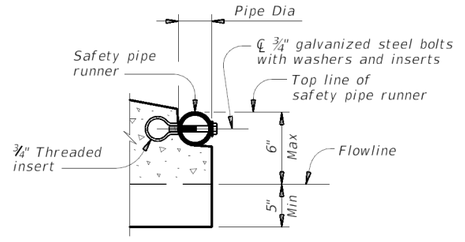


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



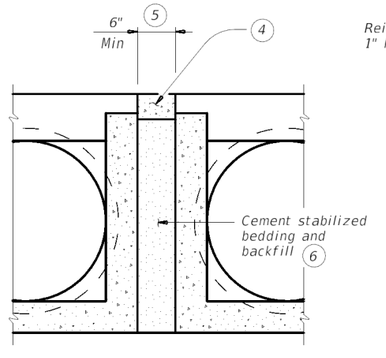
OPTION A



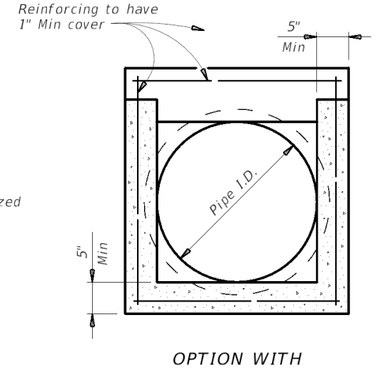
OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

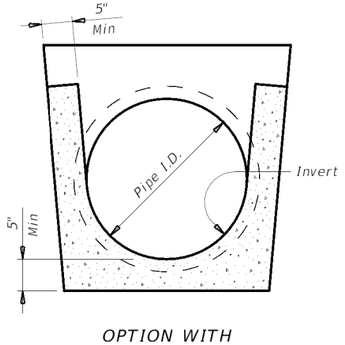
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MULTIPLE PIPE INSTALLATION

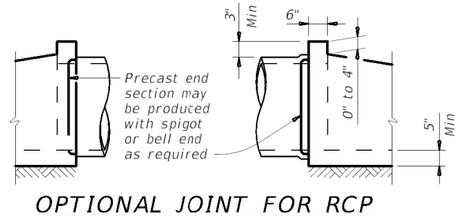


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	2.7"	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment."

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures." Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment." When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment."

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe." Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

PSET-SP

FILE: CD-PSET-SP-21.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-21: Added 42" TP				
	DIST	COUNTY		SHEET NO.
				61

FM 523 AT CR 792 RIGHT TURN LANE

TxDOT TECHNICAL SPECIFICATIONS

The following specifications from the Texas Department of Transportation - 2014 - 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.html

100. Preparing Right of Way
105. Removing Treated and Untreated Base and Asphalt Pavement
110. Excavation
132. Embankment
160. Topsoil
164. Seeding for Erosion Control
292. Asphalt Treatment (Plant-Mixed)
354. Planing and Texturing Pavement
400. Excavation and Backfill for Structures
464. Reinforced Concrete Pipe
467. Safety End Treatment
500. Mobilization
502. Barricades, Signs, and Traffic Handling
506. Temporary Erosion, Sedimentation, and Environmental Controls
530. Intersections, Driveways, and Turnouts
644. Small Roadside Sign Assemblies
666. Retroreflectorized Pavement Markings
672. Raised Pavement Markers
677. Eliminating Existing Pavement Markings and Markers
678. Pavement Surface Preparation for Markings

TxDOT Special Specifications (pdfs included)

3076. Dense-Graed Hot-Mix Asphalt
6001. Portable Changeable Message Sign
6185. Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

Special Specification 3076
Dense-Graded Hot-Mix Asphalt

1. DESCRIPTION

Construct a hot-mix asphalt (HMA) pavement layer composed of a compacted, dense-graded mixture of aggregate and asphalt binder mixed hot in a mixing plant. Payment adjustments will apply to HMA placed under this specification unless the HMA is deemed exempt in accordance with Section 3076.4.9.4., "Exempt Production."

2. MATERIALS

Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications.

Notify the Engineer of all material sources and before changing any material source or formulation. The Engineer will verify that the specification requirements are met when the Contractor makes a source or formulation change, and may require a new laboratory mixture design, trial batch, or both. The Engineer may sample and test project materials at any time during the project to verify specification compliance in accordance with Item 6, "Control of Materials."

2.1. **Aggregate**. Furnish aggregates from sources that conform to the requirements shown in Table 1 and as specified in this Section. Aggregate requirements in this Section, including those shown in Table 1, may be modified or eliminated when shown on the plans. Additional aggregate requirements may be specified when shown on the plans. Provide aggregate stockpiles that meet the definitions in this Section for coarse, intermediate, or fine aggregate. Aggregate from reclaimed asphalt pavement (RAP) is not required to meet Table 1 requirements unless otherwise shown on the plans. Supply aggregates that meet the definitions in Tex-100-E for crushed gravel or crushed stone. The Engineer will designate the plant or the quarry as the sampling location. Provide samples from materials produced for the project. The Engineer will establish the Surface Aggregate Classification (SAC) and perform Los Angeles abrasion, magnesium sulfate soundness, and Micro-Deval tests. Perform all other aggregate quality tests listed in Table 1. Document all test results on the mixture design report. The Engineer may perform tests on independent or split samples to verify Contractor test results. Stockpile aggregates for each source and type separately. Determine aggregate gradations for mixture design and production testing based on the washed sieve analysis given in Tex-200-F, Part II.

2.1.1. **Coarse Aggregate**. Coarse aggregate stockpiles must have no more than 20% material passing the No. 8 sieve. Aggregates from sources listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC) are preapproved for use. Use only the rated values for hot-mix listed in the BRSQC. Rated values for surface treatment (ST) do not apply to coarse aggregate sources used in hot-mix asphalt.

For sources not listed on the Department's BRSQC:

- build an individual stockpile for each material;
- request the Department test the stockpile for specification compliance; and
- once approved, do not add material to the stockpile unless otherwise approved.

Provide aggregate from non-listed sources only when tested by the Engineer and approved before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

Provide coarse aggregate with at least the minimum SAC shown on the plans. SAC requirements only apply to aggregates used on the surface of travel lanes. SAC requirements apply to aggregates used on surfaces other than travel lanes when shown on the plans. The SAC for sources on the Department's *Aggregate Quality Monitoring Program* (AQMP) (Tex-499-A) is listed in the BRSQC.

2.1.1.1. **Blending Class A and Class B Aggregates**. Class B aggregate meeting all other requirements in Table 1 may be blended with a Class A aggregate to meet requirements for Class A materials, unless otherwise shown on the plans. Ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source when blending Class A and B aggregates to meet a Class A requirement unless otherwise shown on the plans. Blend by volume if the bulk specific gravities of the Class A and B aggregates differ by more than 0.300. Coarse aggregate from RAP and Recycled Asphalt Shingles (RAS) will be considered as Class B aggregate for blending purposes.

The Engineer may perform tests at any time during production, when the Contractor blends Class A and B aggregates to meet a Class A requirement, to ensure that at least 50% by weight, or volume if required, of the material retained on the No. 4 sieve comes from the Class A aggregate source. The Engineer will use the Department's mix design template, when electing to verify conformance, to calculate the percent of Class A aggregate retained on the No. 4 sieve by inputting the bin percentages shown from readouts in the control room at the time of production and stockpile gradations measured at the time of production. The Engineer may determine the gradations based on either washed or dry sieve analysis from samples obtained from individual aggregate cold feed bins or aggregate stockpiles. The Engineer may perform spot checks using the gradations supplied by the Contractor on the mixture design report as an input for the template; however, a failing spot check will require confirmation with a stockpile gradation determined by the Engineer.

2.1.1.2. **Micro-Deval Abrasion**. The Engineer will perform a minimum of one Micro-Deval abrasion test in accordance with Tex-461-A for each coarse aggregate source used in the mixture design that has a Rated Source Soundness Magnesium (RSSM) loss value greater than 15 as listed in the BRSQC. The Engineer will perform testing before the start of production and may perform additional testing at any time during production. The Engineer may obtain the coarse aggregate samples from each coarse aggregate source or may require the Contractor to obtain the samples. The Engineer may waive all Micro-Deval testing based on a satisfactory test history of the same aggregate source.

The Engineer will estimate the magnesium sulfate soundness loss for each coarse aggregate source, when tested, using the following formula:

$$Mg_{est.} = (RSSM)(MD_{act.}/RSMD)$$

where:
$Mg_{est.}$ = magnesium sulfate soundness loss
$MD_{act.}$ = actual Micro-Deval percent loss
$RSMD$ = Rated Source Micro-Deval

When the estimated magnesium sulfate soundness loss is greater than the maximum magnesium sulfate soundness loss specified, the coarse aggregate source will not be allowed for use unless otherwise approved. The Engineer will consult the Soils and Aggregates Section of the Materials and Tests Division, and additional testing may be required before granting approval.

2.1.2. **Intermediate Aggregate**. Aggregates not meeting the definition of coarse or fine aggregate will be defined as intermediate aggregate. Supply intermediate aggregates, when used that are free from organic impurities. The Engineer may test the intermediate aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. Supply intermediate aggregate from coarse aggregate sources, when used that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve, and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

2.1.3. **Fine Aggregate**. Fine aggregates consist of manufactured sands, screenings, and field sands. Fine aggregate stockpiles must meet the gradation requirements in Table 2. Supply fine aggregates that are free from organic impurities. The Engineer may test the fine aggregate in accordance with Tex-408-A to verify the material is free from organic impurities. Unless otherwise shown on the plans, up to 10% of the total aggregate may be field sand or other uncrushed fine aggregate. Use fine aggregate, with the exception of field sand, from coarse aggregate sources that meet the requirements shown in Table 1 unless otherwise approved.

Test the stockpile if 10% or more of the stockpile is retained on the No. 4 sieve and verify that it meets the requirements in Table 1 for crushed face count (Tex-460-A) and flat and elongated particles (Tex-280-F).

Table 1
Aggregate Quality Requirements

Property	Test Method	Requirement
Coarse Aggregate		
SAC	Tex-499-A (AQMP)	As shown on the plans
Deleterious material, %, Max	Tex-217-F, Part I	1.5
Decantation, %, Max	Tex-217-F, Part II	1.5
Micro-Deval abrasion, %	Tex-461-A	Note 1
Los Angeles abrasion, %, Max	Tex-410-A	40
Magnesium sulfate soundness, 5 cycles, %, Max	Tex-411-A	30
Crushed face count,[2] %, Min	Tex-460-A, Part I	85
Flat and elongated particles @ 5:1, %, Max	Tex-280-F	10
Fine Aggregate		
Linear shrinkage, %, Max	Tex-107-E	3
Sand equivalent, %, Min	Tex-203-F	45

1. Used to estimate the magnesium sulfate soundness loss in accordance with Section 3076.2.1.1.2., "Micro-Deval Abrasion."
2. Only applies to crushed gravel.

Table 2
Gradation Requirements for Fine Aggregate

Sieve Size	% Passing by Weight or Volume
3/8"	100
#8	70–100
#200	0–30

2.2. **Mineral Filler**. Mineral filler consists of finely divided mineral matter such as agricultural lime, crusher fines, hydrated lime, or fly ash. Mineral filler is allowed unless otherwise shown on the plans. Use no more than 2% hydrated lime or fly ash unless otherwise shown on the plans. Use no more than 1% hydrated lime if a substitute binder is used unless otherwise shown on the plans or allowed. Test all mineral fillers except hydrated lime and fly ash in accordance with Tex-107-E to ensure specification compliance. The plans may require or disallow specific mineral fillers. Provide mineral filler, when used, that:

- is sufficiently dry, free-flowing, and free from clumps and foreign matter as determined by the Engineer;
- does not exceed 3% linear shrinkage when tested in accordance with Tex-107-E; and
- meets the gradation requirements in Table 3, unless otherwise shown on the plans.

Table 3
Gradation Requirements for Mineral Filler

Sieve Size	% Passing by Weight or Volume
#8	100
#200	55–100

2.3. **Baghouse Fines**. Fines collected by the baghouse or other dust-collecting equipment may be reintroduced into the mixing drum.

2.4. **Asphalt Binder**. Furnish the type and grade of performance-graded (PG) asphalt specified on the plans.

2.5. **Tack Coat**. Furnish CSS-1H, SS-1H, or a PG binder with a minimum high-temperature grade of PG 58 for tack coat binder in accordance with Item 300, "Asphalts, Oils, and Emulsions." Specialized tack coat materials listed on the Department's MPL are allowed or required when shown on the plans. Do not dilute emulsified asphalts at the terminal, in the field, or at any other location before use.

2.6. **Additives**. Use the type and rate of additive specified when shown on the plans. Additives that facilitate mixing, compaction, or improve the quality of the mixture are allowed when approved. Provide the Engineer with documentation such as the bill of lading showing the quantity of additives used in the project unless otherwise directed.

2.6.1. **Lime and Liquid Antistripping Agent**. When lime or a liquid antistripping agent is used, add in accordance with Item 301, "Asphalt Antistripping Agents." Do not add lime directly into the mixing drum of any plant where lime is removed through the exhaust stream unless the plant has a baghouse or dust collection system that reintroduces the lime into the drum.

2.6.2. **Warm Mix Asphalt (WMA)**. Warm Mix Asphalt (WMA) is defined as HMA that is produced within a target temperature discharge range of 215°F and 275°F using approved WMA additives or processes from the Department's MPL.

WMA is allowed for use on all projects and is required when shown on the plans. When WMA is required, the maximum placement or target discharge temperature for WMA will be set at a value below 275°F.

Department-approved WMA additives or processes may be used to facilitate mixing and compaction of HMA produced at target discharge temperatures above 275°F; however, such mixtures will not be defined as WMA.

2.6.3. **Compaction Aid.** Compaction Aid is defined as a chemical warm mix additive that is used to produce an asphalt mixture at a discharge temperature greater than 275°F.

Compaction Aid is allowed for use on all projects and is required when shown on the plans.

2.7. **Recycled Materials**. Use of RAP and RAS is permitted unless otherwise shown on the plans. Use of RAS is restricted to only intermediate and base mixes unless otherwise shown on the plans. Do not exceed the maximum allowable percentages of RAP and RAS shown in Table 4. The allowable percentages shown in Table 4 may be decreased or increased when shown on the plans. Determine the asphalt binder content and gradation of the RAP and RAS stockpiles for mixture design purposes in accordance with Tex-236-F, Part I. The Engineer may verify the asphalt binder content of the stockpiles at any time during production. Perform other tests on RAP and RAS when shown on the plans. Asphalt binder from RAP and RAS is designated as recycled asphalt binder. Calculate and ensure that the ratio of the recycled asphalt binder to total binder does not exceed the percentages shown in Table 5 during mixture design and HMA production when RAP or RAS is used. Use a separate cold feed bin for each stockpile of RAP and RAS during HMA production.

Surface, intermediate, and base mixes referenced in Tables 4 and 5 are defined as follows:

- **Surface**. The final HMA lift placed at the top of the pavement structure or placed directly below mixtures produced in accordance with Items 316, 342, 347, or 348;
- **Intermediate**. Mixtures placed below an HMA surface mix and less than or equal to 8.0 in. from the riding surface; and
- **Base**. Mixtures placed greater than 8.0 in. from the riding surface. Unless otherwise shown on the plans, mixtures used for bond breaker are defined as base mixtures.

2.7.1. **RAP**. RAP is salvaged, milled, pulverized, broken, or crushed asphalt pavement. Fractionated RAP is defined as a stockpile that contains RAP material with a minimum of 95.0% passing the 3/8-in. or 1/2-in. sieve, before burning in the ignition oven, unless otherwise approved. The Engineer may allow the Contractor to use an alternate to the 3/8-in. or 1/2-in. screen to fractionate the RAP.

Use of Contractor-owned RAP including HMA plant waste is permitted unless otherwise shown on the plans. Department-owned RAP stockpiles are available for the Contractor's use when the stockpile locations are shown on the plans. If Department-owned RAP is available for the Contractor's use, the Contractor may use Contractor-owned fractionated RAP and replace it with an equal quantity of Department-owned RAP. Department-owned RAP generated through required work on the Contract is available for the Contractor's use when shown on the plans. Perform any necessary tests to ensure Contractor- or Department-owned RAP is appropriate for use. The Department will not perform any tests or assume any liability for the quality of the Department-owned RAP unless otherwise shown on the plans. The Contractor will retain ownership of RAP generated on the project when shown on the plans.

Do not use Department- or Contractor-owned RAP contaminated with dirt or other objectionable materials. Do not use Department- or Contractor-owned RAP if the decantation value exceeds 5% and the plasticity index is greater than 8. Test the stockpiled RAP for decantation in accordance with Tex-406-A, Part I. Determine the plasticity index in accordance with Tex-106-E if the decantation value exceeds 5%. The decantation and plasticity index requirements do not apply to RAP samples with asphalt removed by extraction or ignition.

Do not intermingle Contractor-owned RAP stockpiles with Department-owned RAP stockpiles. Remove unused Contractor-owned RAP material from the project site upon completion of the project. Return unused Department-owned RAP to the designated stockpile location.

Table 4
Maximum Allowable Amounts of RAP[1]

Maximum Allowable Fractionated RAP (%)		
Surface	**Intermediate**	**Base**
15.0	25.0	30.0

1. Must also meet the recycled binder to total binder ratio shown in Table 5.

2.7.2. **RAS**. Use of post-manufactured RAS or post-consumer RAS (tear-offs) is not permitted in surface mixtures unless otherwise shown on the plans. RAS may be used in intermediate and base mixtures unless otherwise shown on the plans. Up to 3% RAS may be used separately or as a replacement for fractionated RAP in accordance with Table 4 and Table 5. RAS is defined as processed asphalt shingle material from manufacturing of asphalt roofing shingles or from re-roofing residential structures. Post-manufactured RAS is processed manufacturer's shingle scrap by-product. Post-consumer RAS is processed shingle scrap removed from residential structures. Comply with all regulatory requirements stipulated for RAS by the TCEQ. RAS may be used separately or in conjunction with RAP.

Process the RAS by ambient grinding or granulating such that 100% of the particles pass the 3/8 in. sieve when tested in accordance with Tex-200-F, Part I. Perform a sieve analysis on processed RAS material before extraction (or ignition) of the asphalt binder.

Add sand meeting the requirements of Table 1 and Table 2 or fine RAP to RAS stockpiles if needed to keep the processed material workable. Any stockpile that contains RAS will be considered a RAS stockpile and be limited to no more than 3.0% of the HMA mixture in accordance with Table 4.

Certify compliance of the RAS with DMS-11000, "Evaluating and Using Nonhazardous Recyclable Materials Guidelines." Treat RAS as an established nonhazardous recyclable material if it has not come into contact with any hazardous materials. Use RAS from shingle sources on the Department's MPL. Remove substantially all materials before use that are not part of the shingle, such as wood, paper, metal, plastic, and felt paper. Determine the deleterious content of RAS material for mixture design purposes in accordance with Tex-217-F, Part III. Do not use RAS if deleterious materials are more than 0.5% of the stockpiled RAS unless otherwise approved. Submit a sample for approval before submitting the mixture design. The Department will perform the testing for deleterious material of RAS to determine specification compliance.

2.8. **Substitute Binders**. Unless otherwise shown on the plans, the Contractor may use a substitute PG binder listed in Table 5 instead of the PG binder originally specified, if using recycled materials, and if the substitute PG binder and mixture made with the substitute PG binder meet the following:

- the substitute binder meets the specification requirements for the substitute binder grade in accordance with Section 300.2.10., "Performance-Graded Binders;" and
- the mixture has less than 10.0 mm of rutting on the Hamburg Wheel test (Tex-242-F) after the number of passes required for the originally specified binder. Use of substitute PG binders may only be allowed at the discretion of the Engineer if the Hamburg Wheel test results are between 10.0 mm and 12.5 mm.

Table 5
Allowable Substitute PG Binders and Maximum Recycled Binder Ratios

Originally Specified PG Binder	Allowable Substitute PG Binder for Surface Mixes	Allowable Substitute PG Binder for Intermediate and Base Mixes	Maximum Ratio of Recycled Binder[1] to Total Binder (%)		
			Surface	Intermediate	Base
76-22[4,5]	70-22	70-22	10.0	20.0	25.0
70-22[2,5]	N/A	64-22	10.0	20.0	25.0
64-22[2,3]	N/A	N/A	10.0	20.0	25.0
76-28[4,5]	70-28	70-28	10.0	20.0	25.0
70-28[2,5]	N/A	64-28	10.0	20.0	25.0
64-28[2,3]	N/A	N/A	10.0	20.0	25.0

1. Combined recycled binder from RAP and RAS. RAS is not permitted in surface mixtures unless otherwise shown on the plans.
2. Binder substitution is not allowed for surface mixtures.
3. Binder substitution is not allowed for intermediate and base mixtures.
4. Use no more than 10.0% recycled binder in surface mixtures when using this originally specified PG binder.
5. Use no more than 20.0% recycled binder when using this originally specified PG binder for intermediate mixtures. Use no more than 25.0% recycled binder when using this originally specified PG binder for base mixtures.

3. EQUIPMENT

Provide required or necessary equipment in accordance with Item 320, "Equipment for Asphalt Concrete Pavement."

4. CONSTRUCTION

Produce, haul, place, and compact the specified paving mixture. In addition to tests required by the specification, Contractors may perform other QC tests as deemed necessary. At any time during the project, the Engineer may perform production and placement tests as deemed necessary in accordance with Item 5, "Control of the Work." Schedule and participate in a mandatory pre-paving meeting with the Engineer on or before the first day of paving unless otherwise shown on the plans.

4.1. **Certification**. Personnel certified by the Department-approved hot-mix asphalt certification program must conduct all mixture designs, sampling, and testing in accordance with Table 6. Supply the Engineer with a list of certified personnel and copies of their current certificates before beginning production and when personnel changes are made. Provide a mixture design developed and signed by a Level 2 certified specialist. Provide Level 1A certified specialists at the plant during production operations. Provide Level 1B certified specialists to conduct placement tests. Provide AGG101 certified specialists for aggregate testing.

Table 6
Test Methods, Test Responsibility, and Minimum Certification Levels

Test Description	Test Method	Contractor	Engineer	Level[1]
1. Aggregate and Recycled Material Testing				
Sampling	Tex-221-F	✓	✓	1A/AGG101
Dry sieve	Tex-200-F, Part I	✓	✓	1A/AGG101
Washed sieve	Tex-200-F, Part II	✓	✓	1A/AGG101
Deleterious material	Tex-217-F, Parts I & III	✓	✓	AGG101
Decantation	Tex-217-F, Part II	✓	✓	AGG101
Los Angeles abrasion	Tex-410-A		✓	TxDOT
Magnesium sulfate soundness	Tex-411-A		✓	TxDOT
Micro-Deval abrasion	Tex-461-A		✓	AGG101
Crushed face count	Tex-460-A	✓	✓	AGG101
Flat and elongated particles	Tex-280-F	✓	✓	AGG101
Linear shrinkage	Tex-107-E	✓	✓	AGG101
Sand equivalent	Tex-203-F	✓	✓	AGG101
Organic impurities	Tex-408-A	✓	✓	AGG101
2. Asphalt Binder & Tack Coat Sampling				
Asphalt binder sampling	Tex-500-C, Part II	✓	✓	1A/1B
Tack coat sampling	Tex-500-C, Part III	✓	✓	1A/1B
3. Mix Design & Verification				
Design and JMF changes	Tex-204-F	✓	✓	2
Mixing	Tex-205-F	✓	✓	2
Molding (TGC)	Tex-206-F	✓	✓	1A
Molding (SGC)	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Parts I & VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Ignition oven correction factors[2]	Tex-236-F, Part II	✓	✓	2
Indirect tensile strength	Tex-226-F	✓	✓	1A
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Boil test	Tex-530-C	✓	✓	1A
4. Production Testing				
Selecting production random numbers	Tex-225-F, Part I		✓	1A
Mixture sampling	Tex-222-F	✓	✓	1A/1B
Molding (TGC)	Tex-206-F	✓	✓	1A
Molding (SGC)	Tex-241-F	✓	✓	1A
Laboratory-molded density	Tex-207-F, Parts I & VI	✓	✓	1A
Rice gravity	Tex-227-F, Part II	✓	✓	1A
Gradation & asphalt binder content[2]	Tex-236-F, Part I	✓	✓	1A
Control charts	Tex-233-F	✓	✓	1A
Moisture content	Tex-212-F, Part II	✓	✓	1A/AGG101
Hamburg Wheel test	Tex-242-F	✓	✓	1A
Micro-Deval abrasion	Tex-461-A		✓	AGG101
Boil test	Tex-530-C	✓	✓	1A
Abson recovery	Tex-211-F		✓	TxDOT
5. Placement Testing				
Selecting placement random numbers	Tex-225-F, Part II		✓	1B
Trimming roadway cores	Tex-251-F, Parts I & II	✓	✓	1A/1B
In-place air voids	Tex-207-F, Parts I & VI	✓	✓	1A
In-place density (nuclear method)	Tex-207-F, Part III	✓		1B
Establish rolling pattern	Tex-207-F, Part IV	✓		1B
Control charts	Tex-233-F	✓	✓	1A
Ride quality measurement	Tex-1001-S	✓	✓	Note 3
Segregation (density profile)	Tex-207-F, Part V	✓	✓	1B
Longitudinal joint density	Tex-207-F, Part VII	✓	✓	1B
Thermal profile	Tex-244-F	✓	✓	1B
Shear Bond Strength Test	Tex-249-F		✓	TxDOT

1. Level 1A, 1B, AGG101, and 2 are certification levels provided by the Hot Mix Asphalt Center certification program.
2. Refer to Section 3076.4.9.2.3., "Production Testing," for exceptions to using an ignition oven.
3. Profiler and operator are required to be certified at the Texas A&M Transportation Institute facility when Surface Test Type B is specified.

4.2. **Reporting and Responsibilities**. Use Department-provided templates to record and calculate all test data, including mixture design, production and placement QC/QA, control charts, thermal profiles, segregation density profiles, and longitudinal joint density. Obtain the current version of the templates at http://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/forms/site-manager.html or from the Engineer. The Engineer and the Contractor will provide any available test results to the other party when requested. The maximum allowable time for the Contractor and Engineer to exchange test data is as given in Table 7 unless otherwise approved. The Engineer and the Contractor will immediately report to the other party any test result that requires suspension of production or placement, a payment adjustment less than 1.000, or that fails to meet the specification requirements. Record and electronically submit all test results and pertinent information on Department-provided templates.

Subsequent sublots placed after test results are available to the Contractor, which require suspension of operations, may be considered unauthorized work. Unauthorized work will be accepted or rejected at the discretion of the Engineer in accordance with Article 5.3., "Conformity with Plans, Specifications, and Special Provisions."

Table 7
Reporting Schedule

Description	Reported By	Reported To	To Be Reported Within
Production Quality Control			
Gradation[1]	Contractor	Engineer	1 working day of completion of the sublot
Asphalt binder content[1]			
Laboratory-molded density[2]			
Moisture content[3]			
Boil test[3]			
Production Quality Assurance			
Gradation[3]	Engineer	Contractor	1 working day of completion of the sublot
Asphalt binder content[3]			
Laboratory-molded density[1]			
Hamburg Wheel test[4]			
Boil test[3]			
Binder tests[4]			
Placement Quality Control			
In-place air voids[2]	Contractor	Engineer	1 working day of completion of the lot
Segregation[1]			
Longitudinal joint density[1]			
Thermal profile[1]			
Placement Quality Assurance			
In-place air voids[1]	Engineer	Contractor	1 working day after receiving the trimmed cores[5]
Segregation[3]			1 working day of completion of the lot
Longitudinal joint density[3]			
Thermal profile[3]			
Aging ratio[4]			
Payment adjustment summary	Engineer	Contractor	2 working days of performing all required tests and receiving Contractor test data

1. These tests are required on every sublot.
2. Optional test. When performed on split samples, report the results as soon as they become available.
3. To be performed at the frequency specified in Table 16 or as shown on the plans.
4. To be reported as soon as the results become available.
5. 2 days are allowed if cores cannot be dried to constant weight within 1 day.

The Engineer will use the Department-provided template to calculate all payment adjustment factors for the lot. Sublot samples may be discarded after the Engineer and Contractor sign off on the payment adjustment summary documentation for the lot.

Use the procedures described in Tex-233-F to plot the results of all quality control (QC) and quality assurance (QA) testing. Update the control charts as soon as test results for each sublot become available. Make the control charts readily accessible at the field laboratory. The Engineer may suspend production for failure to update control charts.

4.3. **Quality Control Plan (QCP)**. Develop and follow the QCP in detail. Obtain approval for changes to the QCP made during the project. The Engineer may suspend operations if the Contractor fails to comply with the QCP.

Submit a written QCP before the mandatory pre-paving meeting. Receive approval of the QCP before beginning production. Include the following items in the QCP:

4.3.1. **Project Personnel**. For project personnel, include:

- a list of individuals responsible for QC with authority to take corrective action;
- current contact information for each individual listed; and
- current copies of certification documents for individuals performing specified QC functions.

4.3.2. **Material Delivery and Storage**. For material delivery and storage, include:

- the sequence of material processing, delivery, and minimum quantities to assure continuous plant operations;
- aggregate stockpiling procedures to avoid contamination and segregation;
- frequency, type, and timing of aggregate stockpile testing to assure conformance of material requirements before mixture production; and
- procedure for monitoring the quality and variability of asphalt binder.

4.3.3. **Production**. For production, include:

- loader operation procedures to avoid contamination in cold bins;
- procedures for calibrating and controlling cold feeds;
- procedures to eliminate debris or oversized material;
- procedures for adding and verifying rates of each applicable mixture component (e.g., aggregate, asphalt binder, RAP, RAS, lime, liquid antistrip, WMA);
- procedures for reporting job control test results; and
- procedures to avoid segregation and drain-down in the silo.

4.3.4. **Loading and Transporting**. For loading and transporting, include:

- type and application method for release agents; and
- truck loading procedures to avoid segregation.

4.3.5. **Placement and Compaction**. For placement and compaction, include:

- proposed agenda for mandatory pre-paving meeting, including date and location;
- proposed paving plan (e.g., paving widths, joint offsets, and lift thicknesses);
- type and application method for release agents in the paver and on rollers, shovels, lutes, and other utensils;
- procedures for the transfer of mixture into the paver, while avoiding segregation and preventing material spillage;
- process to balance production, delivery, paving, and compaction to achieve continuous placement operations and good ride quality;
- paver operations (e.g., operation of wings, height of mixture in auger chamber) to avoid physical and thermal segregation and other surface irregularities; and
- procedures to construct quality longitudinal and transverse joints.

4.4. **Mixture Design**.

4.4.1. **Design Requirements**. The Contractor will design the mixture using a Superpave Gyratory Compactor (SGC). A Texas Gyratory Compactor (TGC) may be used when shown on the plans. Use the dense-graded design procedure provided in Tex-204-F. Design the mixture to meet the requirements listed in Tables 1, 2, 3, 4, 5, 8, 9, and 10.

4.4.1.1. **Design Number of Gyrations (Ndesign) When The SGC Is Used**. Design the mixture at 50 gyrations (Ndesign). Use a target laboratory-molded density of 96.0% to design the mixture; however, adjustments can be made to the Ndesign value as noted in Table 9. The Ndesign level may be reduced to at least 35 gyrations at the Contractor's discretion.

Use an approved laboratory from the Department's MPL to perform the Hamburg Wheel test, and provide results with the mixture design, or provide the laboratory mixture and request that the Department perform the Hamburg Wheel test. The Engineer will be allowed 10 working days to provide the Contractor with Hamburg Wheel test results on the laboratory mixture design.

The Engineer will provide the mixture design when shown on the plans. The Contractor may submit a new mixture design at any time during the project. The Engineer will verify and approve all mixture designs (JMF1) before the Contractor can begin production.

Provide the Engineer with a mixture design report using the Department-provided template. Include the following items in the report:

- the combined aggregate gradation, source, specific gravity, and percent of each material used;
- asphalt binder content and aggregate gradation of RAP and RAS stockpiles;
- the target laboratory-molded density (or Ndesign level when using the SGC);
- results of all applicable tests;
- the mixing and molding temperatures;
- the signature of the Level 2 person or persons that performed the design;
- the date the mixture design was performed; and
- a unique identification number for the mixture design.

Table 8
Master Gradation Limits (% Passing by Weight or Volume) and VMA Requirements

Sieve Size	B Fine Base	C Coarse Surface	D Fine Surface	F Fine Mixture
2"	–	–	–	–
1-1/2"	100.0[1]	–	–	–
1"	98.0–100.0	100.0[1]	–	–
3/4"	84.0–98.0	95.0–100.0	100.0[1]	–
1/2"	–	–	98.0–100.0	100.0[1]
3/8"	60.0–80.0	70.0–85.0	85.0–100.0	98.0–100.0
#4	40.0–60.0	43.0–63.0	50.0–70.0	70.0–90.0
#8	29.0–43.0	32.0–44.0	35.0–46.0	38.0–48.0
#30	13.0–28.0	14.0–28.0	15.0–29.0	12.0–27.0
#50	6.0–20.0	7.0–21.0	7.0–20.0	6.0–19.0
#200	2.0–7.0	2.0–7.0	2.0–7.0	2.0–7.0
Design VMA, % Minimum				
–	13.0	14.0	15.0	16.0
Production (Plant-Produced) VMA, % Minimum				
–	12.5	13.5	14.5	15.5

1. Defined as maximum sieve size. No tolerance allowed.

Table 9
Laboratory Mixture Design Properties

Mixture Property	Test Method	Requirement
Target laboratory-molded density, % (SGC)	Tex-207-F	96.0
Design gyrations (Ndesign for SGC)	Tex-241-F	50[1]
Indirect tensile strength (dry), psi	Tex-226-F	85–200[2]
Boil test[3]	Tex-530-C	–

1. Adjust within a range of 35–100 gyrations when shown on the plans or specification or when mutually agreed between the Engineer and Contractor.
2. The Engineer may allow the IDT strength to exceed 200 psi if the corresponding Hamburg Wheel rut depth is greater than 3.0 mm and less than 12.5 mm.
3. Used to establish baseline for comparison to production results. May be waived when approved.

Table 10
Hamburg Wheel Test Requirements

High-Temperature Binder Grade	Test Method	Minimum # of Passes @ 12.5 mm[1] Rut Depth, Tested @ 50°C
PG 64 or lower	Tex-242-F	10,000[2]
PG 70		15,000[3]
PG 76 or higher		20,000

1. When the rut depth at the required minimum number of passes is less than 3 mm, the Engineer may require the Contractor to increase the target laboratory-molded density (TGC) by 0.5% to no more than 97.5% or lower the Ndesign level (SGC) to at least 35 gyrations.
2. May be decreased to at least 5,000 passes when shown on the plans.
3. May be decreased to at least 10,000 passes when shown on the plans.

4.4.1.2. **Target Laboratory-Molded Density When The TGC Is Used**. Design the mixture at a 96.5% target laboratory-molded density. Increase the target laboratory-molded density to 97.0% or 97.5% at the Contractor's discretion or when shown on the plans or specification.

4.4.2. **Job-Mix Formula Approval**. The job-mix formula (JMF) is the combined aggregate gradation, target laboratory-molded density (or Ndesign level), and target asphalt percentage used to establish target values for hot-mix production. JMF1 is the original laboratory mixture design used to produce the trial batch. When WMA is used, JMF1 may be designed and submitted to the Engineer without including the WMA additive. When WMA is used, document the additive or process used and recommended rate on the JMF1 submittal. The Engineer and the Contractor will verify JMF1 based on plant-produced mixture from the trial batch unless otherwise approved. The Engineer may accept an existing mixture design previously used on a Department project and may waive the trial batch to verify JMF1. The Department may require the Contractor to reimburse the Department for verification tests if more than 2 trial batches per design are required.

4.4.2.1. **Contractor's Responsibilities**.

4.4.2.1.1. **Providing Gyratory Compactor**. Use a SGC calibrated in accordance with Tex-241-F to design the mixture in accordance with Tex-204-F, Part IV, for molding production samples. Locate the SGC, if used, at the Engineer's field laboratory and make the SGC available to the Engineer for use in molding production samples. Furnish a TGC calibrated in accordance with Tex-914-K when shown on the plans to design the mixture in accordance with Tex-204-F, Part I, for molding production samples.

4.4.2.1.2. **Gyratory Compactor Correlation Factors**. Use Tex-206-F, Part II, to perform a gyratory compactor correlation when the Engineer uses a different gyratory compactor. Apply the correlation factor to all subsequent production test results.

4.4.2.1.3. **Submitting JMF1**. Furnish a mix design report (JMF1) with representative samples of all component materials and request approval to produce the trial batch. Provide approximately 10,000 g of the design mixture if opting to have the Department perform the Hamburg Wheel test on the laboratory mixture, and request that the Department perform the test.

4.4.2.1.4. **Supplying Aggregates**. Provide approximately 40 lb. of each aggregate stockpile unless otherwise directed.

4.4.2.1.5. **Supplying Asphalt**. Provide at least 1 gal. of the asphalt material and enough quantities of any additives proposed for use.

4.4.2.1.6. **Ignition Oven Correction Factors**. Determine the aggregate and asphalt correction factors from the ignition oven in accordance with Tex-236-F, Part II. Provide correction factors that are not more than 12 months old. Provide the Engineer with split samples of the mixtures before the trial batch production, including all additives (except water), and blank samples used to determine the correction factors for the ignition oven used for QA testing during production. Correction factors established from a previously approved mixture design may be used for the current mixture design if the mixture design and ignition oven are the same as previously used, unless otherwise directed.

4.4.2.1.7. **Boil Test**. Perform the test and retain the tested sample from Tex-530-C until completion of the project or as directed. Use this sample for comparison purposes during production. The Engineer may waive the requirement for the boil test.

4.4.2.1.8. **Trial Batch Production**. Provide a plant-produced trial batch upon receiving conditional approval of JMF1 and authorization to produce a trial batch, including the WMA additive or process if applicable, for verification testing of JMF1 and development of JMF2. Produce a trial batch mixture that meets the requirements in Table 4, Table 5, and Table 11. The Engineer may accept test results from recent production of the same mixture instead of a new trial batch.

4.4.2.1.9. **Trial Batch Production Equipment**. Use only equipment and materials proposed for use on the project to produce the trial batch.

4.4.2.1.10. **Trial Batch Quantity**. Produce enough quantity of the trial batch to ensure that the mixture meets the specification requirements.

4.4.2.1.11. **Number of Trial Batches**. Produce trial batches as necessary to obtain a mixture that meets the specification requirements.

4.4.2.1.12. **Trial Batch Sampling**. Obtain a representative sample of the trial batch and split it into 3 equal portions in accordance with Tex-222-F. Label these portions as “Contractor,” “Engineer,” and “Referee.” Deliver samples to the appropriate laboratory as directed.

4.4.2.1.13. **Trial Batch Testing**. Test the trial batch to ensure the mixture produced using the proposed JMF1 meets the mixture requirements in Table 11. Ensure the trial batch mixture is also in compliance with the Hamburg Wheel requirement in Table 10. Use a Department-approved laboratory to perform the Hamburg Wheel test on the trial batch mixture or request that the Department perform the Hamburg Wheel test. The Engineer will be allowed 10 working days to provide the Contractor with Hamburg Wheel test results on the trial batch. Provide the Engineer with a copy of the trial batch test results.

4.4.2.1.14. **Development of JMF2**. Evaluate the trial batch test results after the Engineer grants full approval of JMF1 based on results from the trial batch, determine the optimum mixture proportions, and submit as JMF2. Adjust the asphalt binder content or gradation to achieve the specified target laboratory-molded density. The asphalt binder content established for JMF2 is not required to be within any tolerance of the optimum asphalt binder content established for JMF1; however, mixture produced using JMF2 must meet the voids in mineral aggregates (VMA) requirements for production shown in Table 8. If the optimum asphalt binder content for JMF2 is more than 0.5% lower than the optimum asphalt binder content for JMF1, the Engineer may perform or require the Contractor to perform Tex-226-F on Lot 1 production to confirm the indirect tensile strength does not exceed 200 psi. Verify that JMF2 meets the mixture requirements in Table 5.

4.4.2.1.15. **Mixture Production**. Use JMF2 to produce Lot 1 as described in Section 3076.4.9.3.1.1., “Lot 1 Placement,” after receiving approval for JMF2 and a passing result from the Department’s or a Department-approved

laboratory's Hamburg Wheel test on the trial batch. If desired, proceed to Lot 1 production, once JMF2 is approved, at the Contractor's risk without receiving the results from the Department's Hamburg Wheel test on the trial batch.

Notify the Engineer if electing to proceed without Hamburg Wheel test results from the trial batch. Note that the Engineer may require up to the entire sublot of any mixture failing the Hamburg Wheel test to be removed and replaced at the Contractor's expense.

4.4.2.1.16. **Development of JMF3**. Evaluate the test results from Lot 1, determine the optimum mixture proportions, and submit as JMF3 for use in Lot 2.

4.4.2.1.17. **JMF Adjustments**. If JMF adjustments are necessary to achieve the specified requirements, make the adjustments before beginning a new lot. The adjusted JMF must:

- be provided to the Engineer in writing before the start of a new lot;
- be numbered in sequence to the previous JMF;
- meet the mixture requirements in Table 4 and Table 5;
- meet the master gradation limits shown in Table 8; and
- be within the operational tolerances of JMF2 listed in Table 11.

4.4.2.1.18. **Requesting Referee Testing**. Use referee testing, if needed, in accordance with Section 3076.4.9.1., "Referee Testing," to resolve testing differences with the Engineer.

Table 11
Operational Tolerances

Description	Test Method	Allowable Difference Between Trial Batch and JMF1 Target	Allowable Difference from Current JMF Target	Allowable Difference between Contractor and Engineer[1]
Individual % retained for #8 sieve and larger	Tex-200-F or Tex-236-F	Must be Within Master Grading Limits in Table 8	±5.0[2,3]	±5.0
Individual % retained for sieves smaller than #8 and larger than #200			±3.0[2,3]	±3.0
% passing the #200 sieve			±2.0[2,3]	±1.6
Asphalt binder content, %	Tex-236-F	±0.5	±0.3[3]	±0.3
Laboratory-molded density, %	Tex-207-F	±1.0	±1.0	±1.0
In-place air voids, %		N/A	N/A	±1.0
Laboratory-molded bulk specific gravity		N/A	N/A	±0.020
VMA, %, min	Tex-204-F	Note[4]	Note[4]	N/A
Theoretical maximum specific (Rice) gravity	Tex-227-F	N/A	N/A	±0.020

1. Contractor may request referee testing only when values exceed these tolerances.
2. When within these tolerances, mixture production gradations may fall outside the master grading limits; however, the % passing the #200 will be considered out of tolerance when outside the master grading limits.
3. Only applies to mixture produced for Lot 1 and higher.
4. Test and verify that Table 8 requirements are met.

4.4.2.2. **Engineer's Responsibilities**.

4.4.2.2.1. **Gyratory Compactor**. For SGC mixtures designed in accordance with Tex-204-F, Part IV, the Engineer will use a Department SGC, calibrated in accordance with Tex-241-F, to mold samples for laboratory mixture design verification. For molding trial batch and production specimens, the Engineer will use the Contractor-provided SGC at the field laboratory or provide and use a Department SGC at an alternate location. The Engineer will make the Contractor-provided SGC in the Department field laboratory available to the Contractor for molding verification samples.

For TGC mixtures designed in accordance with Tex-204-F, Part I, the Engineer will use a Department TGC, calibrated in accordance with Tex-914-K, to mold samples for trial batch and production testing. The Engineer will make the Department TGC and the Department field laboratory available to the Contractor for molding verification samples, if requested by the Contractor.

4.4.2.2.2. **Conditional Approval of JMF1 and Authorizing Trial Batch**. The Engineer will review and verify conformance of the following information within 2 working days of receipt:

- the Contractor's mix design report (JMF1);
- the Contractor-provided Hamburg Wheel test results;
- all required materials including aggregates, asphalt, additives, and recycled materials; and
- the mixture specifications.

The Engineer will grant the Contractor conditional approval of JMF1 if the information provided on the paper copy of JMF1 indicates that the Contractor's mixture design meets the specifications. When the Contractor does not provide Hamburg Wheel test results with laboratory mixture design, 10 working days are allowed for conditional approval of JMF1. The Engineer will base full approval of JMF1 on the test results on mixture from the trial batch.

Unless waived, the Engineer will determine the Micro-Deval abrasion loss in accordance with Section 3076.2.1.1.2., "Micro-Deval Abrasion." If the Engineer's test results are pending after two working days, conditional approval of JMF1 will still be granted within two working days of receiving JMF1. When the Engineer's test results become available, they will be used for specification compliance.

After conditionally approving JMF1, including either Contractor- or Department-supplied Hamburg Wheel test results, the Contractor is authorized to produce a trial batch.

4.4.2.2.3. **Hamburg Wheel Testing of JMF1**. If the Contractor requests the option to have the Department perform the Hamburg Wheel test on the laboratory mixture, the Engineer will mold samples in accordance with Tex-242-F to verify compliance with the Hamburg Wheel test requirement in Table 10.

4.4.2.2.4. **Ignition Oven Correction Factors**. The Engineer will use the split samples provided by the Contractor to determine the aggregate and asphalt correction factors for the ignition oven used for QA testing during production in accordance with Tex-236-F, Part II. Provide correction factors that are not more than 12 months old.

4.4.2.2.5. **Testing the Trial Batch**. Within 1 full working day, the Engineer will sample and test the trial batch to ensure that the mixture meets the requirements in Table 11. If the Contractor requests the option to have the Department perform the Hamburg Wheel test on the trial batch mixture, the Engineer will mold samples in accordance with Tex-242-F to verify compliance with the Hamburg Wheel test requirement in Table 10.

The Engineer will have the option to perform the following tests on the trial batch:

- Tex-226-F, to verify that the indirect tensile strength meets the requirement shown in Table 9; and
- Tex-530-C, to retain and use for comparison purposes during production.

4.4.2.2.6. **Full Approval of JMF1**. The Engineer will grant full approval of JMF1 and authorize the Contractor to proceed with developing JMF2 if the Engineer's results for the trial batch meet the requirements in Table 11. The Engineer will notify the Contractor that an additional trial batch is required if the trial batch does not meet these requirements.

4.4.2.2.7. **Approval of JMF2**. The Engineer will approve JMF2 within one working day if the mixture meets the requirements in Table 5 and the gradation meets the master grading limits shown in Table 8. The asphalt binder content established for JMF2 is not required to be within any tolerance of the optimum asphalt binder content established for JMF1; however, mixture produced using JMF2 must meet the VMA requirements shown in Table 8. If the optimum asphalt binder content for JMF2 is more than 0.5% lower than the optimum asphalt binder content for JMF1, the Engineer may perform or require the Contractor to perform Tex-226-F on Lot 1 production to confirm the indirect tensile strength does not exceed 200 psi.

4.4.2.2.8. **Approval of Lot 1 Production**. The Engineer will authorize the Contractor to proceed with Lot 1 production (using JMF2) as soon as a passing result is achieved from the Department's or a Department-approved laboratory's Hamburg Wheel test on the trial batch. The Contractor may proceed at its own risk with Lot 1 production without the results from the Hamburg Wheel test on the trial batch.

If the Department's or Department-approved laboratory's sample from the trial batch fails the Hamburg Wheel test, the Engineer will suspend production until further Hamburg Wheel tests meet the specified values. The Engineer may require up to the entire sublot of any mixture failing the Hamburg Wheel test be removed and replaced at the Contractor's expense.

4.4.2.2.9. **Approval of JMF3 and Subsequent JMF Changes**. JMF3 and subsequent JMF changes are approved if they meet the mixture requirements shown in Table 4, Table 5, and the master grading limits shown in Table 8, and are within the operational tolerances of JMF2 shown in Table 11.

4.5. **Production Operations**. Perform a new trial batch when the plant or plant location is changed. Take corrective action and receive approval to proceed after any production suspension for noncompliance to the specification. Submit a new mix design and perform a new trial batch when the asphalt binder content of:

- any RAP stockpile used in the mix is more than 0.5% higher than the value shown on the mixture design report; or
- RAS stockpile used in the mix is more than 2.0% higher than the value shown on the mixture design report.

4.5.1. **Storage and Heating of Materials**. Do not heat the asphalt binder above the temperatures specified in Item 300, "Asphalts, Oils, and Emulsions," or outside the manufacturer's recommended values. Provide the Engineer with daily records of asphalt binder and hot-mix asphalt discharge temperatures (in legible and discernible increments) in accordance with Item 320, "Equipment for Asphalt Concrete Pavement," unless otherwise directed. Do not store mixture for a period long enough to affect the quality of the mixture, nor in any case longer than 12 hr. unless otherwise approved.

4.5.2. **Mixing and Discharge of Materials**. Notify the Engineer of the target discharge temperature and produce the mixture within 25°F of the target. Monitor the temperature of the material in the truck before shipping to ensure that it does not exceed the maximum production temperatures listed in Table 12 (or 275°F for WMA). The Department will not pay for or allow placement of any mixture produced above the maximum production temperatures listed in Table 12.

Table 12
Maximum Production Temperature

High-Temperature Binder Grade[1]	Maximum Production Temperature
PG 64	325˚F
PG 70	335˚F
PG 76	345˚F

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.

Produce WMA within the target discharge temperature range of 215°F and 275°F when WMA is required. Take corrective action any time the discharge temperature of the WMA exceeds the target discharge range. The Engineer may suspend production operations if the Contractor's corrective action is not successful at controlling the production temperature within the target discharge range. Note that when WMA is produced, it may be necessary to adjust burners to ensure complete combustion such that no burner fuel residue remains in the mixture.

Control the mixing time and temperature so that substantially all moisture is removed from the mixture before discharging from the plant. Determine the moisture content, if requested, by oven-drying in accordance with

Tex-212-F, Part II, and verify that the mixture contains no more than 0.2% of moisture by weight. Obtain the sample immediately after discharging the mixture into the truck, and perform the test promptly.

4.6. **Hauling Operations**. Clean all truck beds before use to ensure that mixture is not contaminated. Use a release agent shown on the Department's MPL to coat the inside bed of the truck when necessary.

Use equipment for hauling as defined in Section 3076.4.7.3.3., "Hauling Equipment." Use other hauling equipment only when allowed.

4.7. **Placement Operations**. Collect haul tickets from each load of mixture delivered to the project and provide the Department's copy to the Engineer approximately every hour, or as directed. Use a hand-held thermal camera or infrared thermometer, when a thermal imaging system is not used, to measure and record the internal temperature of the mixture as discharged from the truck or Material Transfer Device (MTD) before or as the mix enters the paver and an approximate station number or GPS coordinates on each ticket. Calculate the daily yield and cumulative yield for the specified lift and provide to the Engineer at the end of paving operations for each day unless otherwise directed. The Engineer may suspend production if the Contractor fails to produce and provide haul tickets and yield calculations by the end of paving operations for each day.

Prepare the surface by removing raised pavement markers and objectionable material such as moisture, dirt, sand, leaves, and other loose impediments from the surface before placing mixture. Remove vegetation from pavement edges. Place the mixture to meet the typical section requirements and produce a smooth, finished surface with a uniform appearance and texture. Offset longitudinal joints of successive courses of hot-mix by at least 6 in. Place mixture so that longitudinal joints on the surface course coincide with lane lines and are not placed in the wheel path, or as directed. Ensure that all finished surfaces will drain properly. Place the mixture at the rate or thickness shown on the plans. The Engineer will use the guidelines in Table 13 to determine the compacted lift thickness of each layer when multiple lifts are required. The thickness determined is based on the rate of 110 lb./sq. yd. for each inch of pavement unless otherwise shown on the plans.

Table 13
Compacted Lift Thickness and Required Core Height

Mixture Type	Compacted Lift Thickness Guidelines		Minimum Untrimmed Core Height (in.) Eligible for Testing
	Minimum (in.)	Maximum (in.)	
B	2.50	5.00	1.75
C	2.00	4.00	1.50
D	1.50	3.00	1.25
F	1.25	2.50	1.25

4.7.1. **Weather Conditions**.

4.7.1.1. **When Using a Thermal Imaging System**. Place mixture when the roadway surface is dry and the roadway surface temperature is at or above the temperatures listed in Table 14A. The Engineer may restrict the Contractor from paving surface mixtures if the ambient temperature is likely to drop below 32°F within 12 hr. of paving. Place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable as determined by the Engineer. Provide output data from the thermal imaging system to demonstrate to the Engineer that no recurring severe thermal segregation exists in accordance with Section 3076.4.7.3.1.2., "Thermal Imaging System."

Table 14A
Minimum Pavement Surface Temperatures

High-Temperature Binder Grade[1]	Minimum Pavement Surface Temperatures (°F)	
	Subsurface Layers or Night Paving Operations	Surface Layers Placed in Daylight Operations
PG 64	35	40
PG 70	45[2]	50[2]
PG 76	45[2]	50[2]

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.
2. Contractors may pave at temperatures 10°F lower than these values when a chemical WMA additive is used as a compaction aid in the mixture or when using WMA.

4.7.1.2. **When Not Using a Thermal Imaging System**. When using a thermal camera instead of the thermal imaging system, place mixture when the roadway surface temperature is at or above the temperatures listed in Table 14B unless otherwise approved or as shown on the plans. Measure the roadway surface temperature with a hand-held thermal camera or infrared thermometer. The Engineer may allow mixture placement to begin before the roadway surface reaches the required temperature if conditions are such that the roadway surface will reach the required temperature within 2 hr. of beginning placement operations. Place mixtures only when weather conditions and moisture conditions of the roadway surface are suitable as determined by the Engineer. The Engineer may restrict the Contractor from paving if the ambient temperature is likely to drop below 32°F within 12 hr. of paving.

Table 14B
Minimum Pavement Surface Temperatures

High-Temperature Binder Grade[1]	Minimum Pavement Surface Temperatures (°F)	
	Subsurface Layers or Night Paving Operations	Surface Layers Placed in Daylight Operations
PG 64	45	50
PG 70	55[2]	60[2]
PG 76	60[2]	60[2]

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.
2. Contractors may pave at temperatures 10°F lower than these values when a chemical WMA additive is used as a compaction aid in the mixture, when using WMA, or utilizing a paving process with equipment that eliminates thermal segregation. In such cases, for each sublot and in the presence of the Engineer, use a hand-held thermal camera operated in accordance with Tex-244-F to demonstrate to the satisfaction of the Engineer that the uncompacted mat has no more than 10°F of thermal segregation.

4.7.2. **Tack Coat**.

4.7.2.1. **Application.** Clean the surface before placing the tack coat. The Engineer will set the rate between 0.04 and 0.10 gal. of residual asphalt per square yard of surface area. Apply a uniform tack coat at the specified rate unless otherwise directed. Apply the tack coat in a uniform manner to avoid streaks and other irregular patterns. Apply the tack coat to all surfaces that will come in contact with the subsequent HMA placement, unless otherwise directed. Allow adequate time for emulsion to break completely before placing any material. Prevent splattering of tack coat when placed adjacent to curb, gutter, and structures. Do not dilute emulsified asphalts at the terminal, in the field, or at any other location before use.

4.7.2.2. **Sampling.** The Engineer will obtain at least one sample of the tack coat binder per project in accordance with Tex-500-C, Part III, and test it to verify compliance with Item 300, “Asphalts, Oils, and Emulsions.” The Engineer will notify the Contractor when the sampling will occur and will witness the collection of the sample from the asphalt distributor immediately before use.

For emulsions, the Engineer may test as often as necessary to ensure the residual of the emulsion is greater than or equal to the specification requirement in Item 300, “Asphalts, Oils, and Emulsions.”

4.7.3. **Lay-Down Operations**. Use the placement temperatures in Table 15 to establish the minimum placement temperature of the mixture delivered to the paver.

Table 15
Minimum Mixture Placement Temperature

High-Temperature Binder Grade[1]	Minimum Placement Temperature (Before Entering Paver)[2,3]
PG 64	260˚F
PG 70	270˚F
PG 76	280˚F

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.
2. Minimum placement temperatures may be reduced 10°F if using a chemical WMA additive as a compaction aid.
3. When using WMA, the minimum placement temperature is 215°F.

4.7.3.1. **Thermal Profile**. Use a hand-held thermal camera or a thermal imaging system to obtain a continuous thermal profile in accordance with Tex-244-F. Thermal profiles are not applicable in areas described in Section 3076.4.9.3.1.4., "Miscellaneous Areas."

4.7.3.1.1. **Thermal Segregation**.

4.7.3.1.1.1. **Moderate**. Any areas that have a temperature differential greater than 25°F, but not exceeding 50°F, are deemed as moderate thermal segregation.

4.7.3.1.1.2. **Severe**. Any areas that have a temperature differential greater than 50°F are deemed as severe thermal segregation.

4.7.3.1.2. **Thermal Imaging System**. Review the output results when a thermal imaging system is used, and provide the automated report described in Tex-244-F to the Engineer daily unless otherwise directed. Modify the paving process as necessary to eliminate any recurring (moderate or severe) thermal segregation identified by the thermal imaging system. The Engineer may suspend paving operations if the Contractor cannot successfully modify the paving process to eliminate recurring severe thermal segregation. Density profiles are not required and not applicable when using a thermal imaging system. Provide the Engineer with electronic copies of all daily data files that can be used with the thermal imaging system software to generate temperature profile plots daily or upon completion of the project or as requested by the Engineer.

4.7.3.1.3. **Thermal Camera**. When using a thermal camera instead of the thermal imaging system, take immediate corrective action to eliminate recurring moderate thermal segregation when a hand-held thermal camera is used. Evaluate areas with moderate thermal segregation by performing density profiles in accordance with Section 3076.4.9.3.3.2., "Segregation (Density Profile)." Provide the Engineer with the thermal profile of every sublot within one working day of the completion of each lot. When requested by the Engineer, provide the thermal images generated using the thermal camera. Report the results of each thermal profile in accordance with Section 3076.4.2., "Reporting and Responsibilities." The Engineer will use a hand-held thermal camera to obtain a thermal profile at least once per project. No production or placement payment adjustments greater than 1.000 will be paid for any sublot that contains severe thermal segregation. Suspend operations and take immediate corrective action to eliminate severe thermal segregation unless otherwise directed. Resume operations when the Engineer determines that subsequent production will meet the requirements of this Section. Evaluate areas with severe thermal segregation by performing density profiles in accordance with Section 3076.4.9.3.3.2., "Segregation (Density Profile)." Remove and replace the material in any areas that have both severe thermal segregation and a failing result for Segregation (Density Profile) unless otherwise directed. The sublot in question may receive a production and placement payment adjustment greater than 1.000, if applicable, when the defective material is successfully removed and replaced.

4.7.3.2. **Windrow Operations**. Operate windrow pickup equipment so that when hot-mix is placed in windrows, substantially all the mixture deposited on the roadbed is picked up and loaded into the paver.

4.7.3.3. **Hauling Equipment**. Use belly dumps, live bottom, or end dump trucks to haul and transfer mixture; however, with exception of paving miscellaneous areas, end dump trucks are only allowed when used in conjunction with an MTD with remixing capability or when a thermal imaging system is used unless otherwise allowed.

4.7.3.4. **Screed Heaters**. Turn off screed heaters to prevent overheating of the mat if the paver stops for more than 5 min. The Engineer may evaluate the suspect area in accordance with Section 3076.4.9.3.3.4., "Recovered Asphalt Dynamic Shear Rheometer (DSR)," if the screed heater remains on for more than 5 min. while the paver is stopped.

4.8. **Compaction**. Compact the pavement uniformly to contain between 3.8% and 8.5% in-place air voids. Take immediate corrective action to bring the operation within 3.8% and 8.5% when the in-place air voids exceed the range of these tolerances. The Engineer will allow paving to resume when the proposed corrective action is likely to yield between 3.8% and 8.5% in-place air voids.

Obtain cores in areas placed under Exempt Production, as directed, at locations determined by the Engineer. The Engineer may test these cores and suspend operations or require removal and replacement if the in-place air voids are less than 2.7% or more than 9.9%. Areas defined in Section 3076.4.9.3.1.4., "Miscellaneous Areas," are not subject to in-place air void determination.

Furnish the type, size, and number of rollers required for compaction as approved. Use additional rollers as required to remove any roller marks. Use only water or an approved release agent on rollers, tamps, and other compaction equipment unless otherwise directed.

Use the control strip method shown in Tex-207-F, Part IV, on the first day of production to establish the rolling pattern that will produce the desired in-place air voids unless otherwise directed.

Use tamps to thoroughly compact the edges of the pavement along curbs, headers, and similar structures and in locations that will not allow thorough compaction with rollers. The Engineer may require rolling with a trench roller on widened areas, in trenches, and in other limited areas.

Complete all compaction operations before the pavement temperature drops below 160°F unless otherwise allowed. The Engineer may allow compaction with a light finish roller operated in static mode for pavement temperatures below 160°F.

Allow the compacted pavement to cool to 160°F or lower before opening to traffic unless otherwise directed. Sprinkle the finished mat with water or limewater, when directed, to expedite opening the roadway to traffic.

4.9. **Acceptance Plan**. Payment adjustments for the material will be in accordance with Article 3076.6., "Payment."

Sample and test the hot-mix on a lot and sublot basis. Suspend production until test results or other information indicates to the satisfaction of the Engineer that the next material produced or placed will result in payment factors of at least 1.000, if the production payment factor given in Section 3076.6.1., "Production Payment Adjustment Factors," for two consecutive lots or the placement pay factor given in Section 3076.6.2., "Placement Payment Adjustment Factors," for two consecutive lots is below 1.000.

4.9.1. **Referee Testing**. The Materials and Tests Division is the referee laboratory. The Contractor may request referee testing if a "remove and replace" condition is determined based on the Engineer's test results, or if the differences between Contractor and Engineer test results exceed the maximum allowable difference shown in Table 11 and the differences cannot be resolved. The Contractor may also request referee testing if the Engineer's test results require suspension of production and the Contractor's test results are within specification limits. Make the request within five working days after receiving test results and cores from the Engineer. Referee tests will be performed only on the sublot in question and only for the particular tests in question. Allow 10 working days from the time the referee laboratory receives the samples for test results to

be reported. The Department may require the Contractor to reimburse the Department for referee tests if more than three referee tests per project are required and the Engineer's test results are closer to the referee test results than the Contractor's test results.

The Materials and Tests Division will determine the laboratory-molded density based on the molded specific gravity and the maximum theoretical specific gravity of the referee sample. The in-place air voids will be determined based on the bulk specific gravity of the cores, as determined by the referee laboratory and the Engineer's average maximum theoretical specific gravity for the lot. With the exception of "remove and replace" conditions, referee test results are final and will establish payment adjustment factors for the sublot in question. The Contractor may decline referee testing and accept the Engineer's test results when the placement payment adjustment factor for any sublot results in a "remove and replace" condition. Placement sublots subject to be removed and replaced will be further evaluated in accordance with Section 3076.6.2.2., "Placement Sublots Subject to Removal and Replacement."

4.9.2. **Production Acceptance**.

4.9.2.1. **Production Lot**. A production lot consists of four equal sublots. The default quantity for Lot 1 is 1,000 tons; however, when requested by the Contractor, the Engineer may increase the quantity for Lot 1 to no more than 4,000 tons. The Engineer will select subsequent lot sizes based on the anticipated daily production such that approximately three to four sublots are produced each day. The lot size will be between 1,000 tons and 4,000 tons. The Engineer may change the lot size before the Contractor begins any lot.

If the optimum asphalt binder content for JMF2 is more than 0.5% lower than the optimum asphalt binder content for JMF1, the Engineer may perform or require the Contractor to perform Tex-226-F on Lot 1 to confirm the indirect tensile strength does not exceed 200 psi. Take corrective action to bring the mixture within specification compliance if the indirect tensile strength exceeds 200 psi unless otherwise directed.

4.9.2.1.1. **Incomplete Production Lots**. If a lot is begun but cannot be completed, such as on the last day of production or in other circumstances deemed appropriate, the Engineer may close the lot. Adjust the payment for the incomplete lot in accordance with Section 3076.6.1., "Production Payment Adjustment Factors." Close all lots within five working days unless otherwise allowed.

4.9.2.2. **Production Sampling**.

4.9.2.2.1. **Mixture Sampling**. Obtain hot-mix samples from trucks at the plant in accordance with Tex-222-F. The sampler will split each sample into three equal portions in accordance with Tex-200-F and label these portions as "Contractor," "Engineer," and "Referee." The Engineer will perform or witness the sample splitting and take immediate possession of the samples labeled "Engineer" and "Referee." The Engineer will maintain the custody of the samples labeled "Engineer" and "Referee" until the Department's testing is completed.

4.9.2.2.1.1. **Random Sample**. At the beginning of the project, the Engineer will select random numbers for all production sublots. Determine sample locations in accordance with Tex-225-F. Take one sample for each sublot at the randomly selected location. The Engineer will perform or witness the sampling of production sublots.

4.9.2.2.1.2. **Blind Sample**. For one sublot per lot, the Engineer will obtain and test a "blind" sample instead of the random sample collected by the Contractor. Test either the "blind" or the random sample; however, referee testing (if applicable) will be based on a comparison of results from the "blind" sample. The location of the Engineer's "blind" sample will not be disclosed to the Contractor. The Engineer's "blind" sample may be randomly selected in accordance with Tex-225-F for any sublot or selected at the discretion of the Engineer. The Engineer will use the Contractor's split sample for sublots not sampled by the Engineer.

4.9.2.2.2. **Informational Shear Bond Strength Testing.** Select one random sublot from Lot 2 or higher for shear bond strength testing. Obtain full depth cores in accordance with Tex-249-F. Label the cores with the Control Section Job (CSJ), producer of the tack coat, mix type, shot rate, lot, and sublot number and provide to the

Engineer. The Engineer will ship the cores to the Materials and Tests Division or district laboratory for shear bond strength testing. Results from these tests will not be used for specification compliance.

4.9.2.2.3. **Asphalt Binder Sampling**. Obtain a 1-qt. sample of the asphalt binder witnessed by the Engineer for each lot of mixture produced. The Contractor will notify the Engineer when the sampling will occur. Obtain the sample at approximately the same time the mixture random sample is obtained. Sample from a port located immediately upstream from the mixing drum or pug mill and upstream from the introduction of any additives in accordance with Tex-500-C, Part II. Label the can with the corresponding lot and sublot numbers, producer, producer facility location, grade, district, date sampled, and project information including highway and CSJ. The Engineer will retain these samples for one year. The Engineer may also obtain independent samples. If obtaining an independent asphalt binder sample and upon request of the Contractor, the Engineer will split a sample of the asphalt binder with the Contractor.

At least once per project, the Engineer will collect split samples of each binder grade and source used. The Engineer will submit one split sample to MTD to verify compliance with Item 300, “Asphalts, Oils, and Emulsions” and will retain the other split sample for one year.

4.9.2.3. **Production Testing**. The Contractor and Engineer must perform production tests in accordance with Table 16. The Contractor has the option to verify the Engineer’s test results on split samples provided by the Engineer. Determine compliance with operational tolerances listed in Table 11 for all sublots.

Take immediate corrective action if the Engineer’s laboratory-molded density on any sublot is less than 95.0% or greater than 97.0% to bring the mixture within these tolerances. The Engineer may suspend operations if the Contractor’s corrective actions do not produce acceptable results. The Engineer will allow production to resume when the proposed corrective action is likely to yield acceptable results.

The Engineer may allow alternate methods for determining the asphalt binder content and aggregate gradation if the aggregate mineralogy is such that Tex-236-F, Part I does not yield reliable results. Provide evidence that results from Tex-236-F, Part I are not reliable before requesting permission to use an alternate method unless otherwise directed. Use the applicable test procedure as directed if an alternate test method is allowed.

Table 16
Production and Placement Testing Frequency

Description	Test Method	Minimum Contractor Testing Frequency	Minimum Engineer Testing Frequency
Individual % retained for #8 sieve and larger	Tex-200-F or Tex-236-F	1 per sublot	1 per 12 sublots[1]
Individual % retained for sieves smaller than #8 and larger than #200			
% passing the #200 sieve			
Laboratory-molded density	Tex-207-F	N/A	1 per sublot[1]
Laboratory-molded bulk specific gravity			
In-place air voids			
VMA	Tex-204-F		
Segregation (density profile)[2]	Tex-207-F, Part V	1 per sublot	1 per project
Longitudinal joint density	Tex-207-F, Part VII		
Moisture content	Tex-212-F, Part II	When directed	
Theoretical maximum specific (Rice) gravity	Tex-227-F	N/A	1 per sublot[1]
Asphalt binder content	Tex-236-F	1 per sublot	1 per lot[1]
Hamburg Wheel test	Tex-242-F	N/A	1 per project
Recycled Asphalt Shingles (RAS)[3]	Tex-217-F, Part III	N/A	
Thermal profile[2]	Tex-244-F	1 per sublot	
Asphalt binder sampling and testing	Tex-500-C, Part II	1 per lot (sample only)[4]	
Tack coat sampling and testing	Tex-500-C, Part III	N/A	
Boil test[5]	Tex-530-C	1 per lot	
Shear Bond Strength Test[6]	Tex-249-F	1 per project (sample only)	

1. For production defined in Section 3076.4.9.4., "Exempt Production," the Engineer will test one per day if 100 tons or more are produced. For Exempt Production, no testing is required when less than 100 tons are produced.
2. Not required when a thermal imaging system is used.
3. Testing performed by the Materials and Tests Division or designated laboratory.
4. Obtain witnessed by the Engineer. The Engineer will retain these samples for one year.
5. The Engineer may reduce or waive the sampling and testing requirements based on a satisfactory test history.
6. Testing performed by the Materials and Tests Division or District for informational purposes only.

4.9.2.4. **Operational Tolerances**. Control the production process within the operational tolerances listed in Table 11. When production is suspended, the Engineer will allow production to resume when test results or other information indicates the next mixture produced will be within the operational tolerances.

4.9.2.4.1. **Gradation**. Suspend operation and take corrective action if any aggregate is retained on the maximum sieve size shown in Table 8. A sublot is defined as out of tolerance if either the Engineer's or the Contractor's test results are out of operational tolerance. Suspend production when test results for gradation exceed the operational tolerances in Table 11 for three consecutive sublots on the same sieve or four consecutive sublots on any sieve unless otherwise directed. The consecutive sublots may be from more than one lot.

4.9.2.4.2. **Asphalt Binder Content**. A sublot is defined as out of operational tolerance if either the Engineer's or the Contractor's test results exceed the values listed in Table 11. No production or placement payment adjustments greater than 1.000 will be paid for any sublot that is out of operational tolerance for asphalt binder content. Suspend production and shipment of the mixture if the Engineer's or the Contractor's asphalt binder content deviates from the current JMF by more than 0.5% for any sublot.

4.9.2.4.3. **Voids in Mineral Aggregates (VMA)**. The Engineer will determine the VMA for every sublot. For sublots when the Engineer does not determine asphalt binder content, the Engineer will use the asphalt binder content results from QC testing performed by the Contractor to determine VMA.

Take immediate corrective action if the VMA value for any sublot is less than the minimum VMA requirement for production listed in Table 8. Suspend production and shipment of the mixture if the Engineer's VMA results on two consecutive sublots are below the minimum VMA requirement for production listed in Table 8. No production or placement payment adjustments greater than 1.000 will be paid for any sublot that does not

meet the minimum VMA requirement for production listed in Table 8 based on the Engineer's VMA determination.

Suspend production and shipment of the mixture if the Engineer's VMA result is more than 0.5% below the minimum VMA requirement for production listed in Table 8. In addition to suspending production, the Engineer may require removal and replacement or may allow the sublot to be left in place without payment.

4.9.2.4.4. **Hamburg Wheel Test**. The Engineer may perform a Hamburg Wheel test at any time during production, including when the boil test indicates a change in quality from the materials submitted for JMF1. In addition to testing production samples, the Engineer may obtain cores and perform Hamburg Wheel tests on any areas of the roadway where rutting is observed. Suspend production until further Hamburg Wheel tests meet the specified values when the production or core samples fail the Hamburg Wheel test criteria in Table 10. Core samples, if taken, will be obtained from the center of the finished mat or other areas excluding the vehicle wheel paths. The Engineer may require up to the entire sublot of any mixture failing the Hamburg Wheel test to be removed and replaced at the Contractor's expense.

If the Department's or Department approved laboratory's Hamburg Wheel test results in a "remove and replace" condition, the Contractor may request that the Department confirm the results by re-testing the failing material. The Materials and Tests Division will perform the Hamburg Wheel tests and determine the final disposition of the material in question based on the Department's test results.

4.9.2.5. **Individual Loads of Hot-Mix**. The Engineer can reject individual truckloads of hot-mix. When a load of hot-mix is rejected for reasons other than temperature, contamination, or excessive uncoated particles, the Contractor may request that the rejected load be tested. Make this request within 4 hr. of rejection. The Engineer will sample and test the mixture. If test results are within the operational tolerances shown in Table 11, payment will be made for the load. If test results are not within operational tolerances, no payment will be made for the load.

4.9.3. **Placement Acceptance**.

4.9.3.1. **Placement Lot**. A placement lot consists of four placement sublots. A placement sublot consists of the area placed during a production sublot.

4.9.3.1.1. **Lot 1 Placement**. Placement payment adjustments greater than 1.000 for Lot 1 will be in accordance with Section 3076.6.2., "Placement Payment Adjustment Factors"; however, no placement adjustment less than 1.000 will be assessed for any sublot placed in Lot 1 when the in-place air voids are greater than or equal to 2.7% and less than or equal to 9.9%. Remove and replace any sublot with in-place air voids less than 2.7% or greater than 9.9%.

4.9.3.1.2. **Incomplete Placement Lots**. An incomplete placement lot consists of the area placed as described in Section 3076.4.9.2.1.1., "Incomplete Production Lots," excluding areas defined in Section 3076.4.9.3.1.4., "Miscellaneous Areas." Placement sampling is required if the random sample plan for production resulted in a sample being obtained from an incomplete production sublot.

4.9.3.1.3. **Shoulders, Ramps, Etc**. Shoulders, ramps, intersections, acceleration lanes, deceleration lanes, and turn lanes are subject to in-place air void determination and payment adjustments unless designated on the plans as not eligible for in-place air void determination. Intersections may be considered miscellaneous areas when determined by the Engineer.

4.9.3.1.4. **Miscellaneous Areas**. Miscellaneous areas include areas that typically involve significant handwork or discontinuous paving operations, such as temporary detours, driveways, mailbox turnouts, crossovers, gores, spot level-up areas, and other similar areas. Temporary detours are subject to in-place air void determination when shown on the plans. Miscellaneous areas also include level-ups and thin overlays when the layer thickness specified on the plans is less than the minimum untrimmed core height eligible for testing shown in Table 13. The specified layer thickness is based on the rate of 110 lb./sq. yd. for each inch of

pavement unless another rate is shown on the plans. When "level up" is listed as part of the item bid description code, a payment adjustment factor of 1.000 will be assigned for all placement sublots as described in Article 3076.6, "Payment." Miscellaneous areas are not eligible for random placement sampling locations. Compact miscellaneous areas in accordance with Section 3076.4.8., "Compaction." Miscellaneous areas are not subject to in-place air void determination, thermal profiles testing, segregation (density profiles), or longitudinal joint density evaluations.

4.9.3.2. **Placement Sampling**. The Engineer will select random numbers for all placement sublots at the beginning of the project. The Engineer will provide the Contractor with the placement random numbers immediately after the sublot is completed. Mark the roadway location at the completion of each sublot and record the station number. Determine one random sample location for each placement sublot in accordance with Tex-225-F. Adjust the random sample location by no more than necessary to achieve a 2-ft. clearance if the location is within 2 ft. of a joint or pavement edge.

Shoulders, ramps, intersections, acceleration lanes, deceleration lanes, and turn lanes are always eligible for selection as a random sample location; however, if a random sample location falls on one of these areas and the area is designated on the plans as not subject to in-place air void determination, cores will not be taken for the sublot and a 1.000 pay factor will be assigned to that sublot.

Provide the equipment and means to obtain and trim roadway cores on site. On-site is defined as in close proximity to where the cores are taken. Obtain the cores within one working day of the time the placement sublot is completed unless otherwise approved. Obtain two 6-in. diameter cores side-by-side from within 1 ft. of the random location provided for the placement sublot. For Type D and Type F mixtures, 4-in. diameter cores are allowed. Mark the cores for identification, measure and record the untrimmed core height, and provide the information to the Engineer. The Engineer will witness the coring operation and measurement of the core thickness. Visually inspect each core and verify that the current paving layer is bonded to the underlying layer. Take corrective action if an adequate bond does not exist between the current and underlying layer to ensure that an adequate bond will be achieved during subsequent placement operations.

Trim the cores immediately after obtaining the cores from the roadway in accordance with Tex-251-F if the core heights meet the minimum untrimmed value listed in Table 13. Trim the cores on site in the presence of the Engineer. Use a permanent marker or paint pen to record the lot and sublot numbers on each core as well as the designation as Core A or B. The Engineer may require additional information to be marked on the core and may choose to sign or initial the core. The Engineer will take custody of the cores immediately after witnessing the trimming of the cores and will retain custody of the cores until the Department's testing is completed. Before turning the trimmed cores over to the Engineer, the Contractor may wrap the trimmed cores or secure them in a manner that will reduce the risk of possible damage occurring during transport by the Engineer. After testing, the Engineer will return the cores to the Contractor.

The Engineer may have the cores transported back to the Department's laboratory at the HMA plant via the Contractor's haul truck or other designated vehicle. In such cases where the cores will be out of the Engineer's possession during transport, the Engineer will use Department-provided security bags and the Roadway Core Custody protocol located at http://www.txdot.gov/business/specifications.htm to provide a secure means and process that protects the integrity of the cores during transport.

Decide whether to include the pair of cores in the air void determination for that sublot if the core height before trimming is less than the minimum untrimmed value shown in Table 13. Trim the cores as described above before delivering to the Engineer if electing to have the cores included in the air void determination. Deliver untrimmed cores to the Engineer and inform the Engineer of the decision to not have the cores included in air void determination if electing to not have the cores included in air void determination. The placement pay factor for the sublot will be 1.000 if cores will not be included in air void determination.

Instead of the Contractor trimming the cores on site immediately after coring, the Engineer and the Contractor may mutually agree to have the trimming operations performed at an alternate location such as a field laboratory or other similar location. In such cases, the Engineer will take possession of the cores

immediately after they are obtained from the roadway and will retain custody of the cores until testing is completed. Either the Department or Contractor representative may perform trimming of the cores. The Engineer will witness all trimming operations in cases where the Contractor representative performs the trimming operation.

Dry the core holes and tack the sides and bottom immediately after obtaining the cores. Fill the hole with the same type of mixture and properly compact the mixture. Repair core holes with other methods when approved.

4.9.3.3. **Placement Testing**. Perform placement tests in accordance with Table 16. After the Engineer returns the cores, the Contractor may test the cores to verify the Engineer's test results for in-place air voids. The allowable differences between the Contractor's and Engineer's test results are listed in Table 11.

4.9.3.3.1. **In-Place Air Voids**. The Engineer will measure in-place air voids in accordance with Tex-207-F and Tex-227-F. Before drying to a constant weight, cores may be pre-dried using a CoreDry or similar vacuum device to remove excess moisture. The Engineer will average the values obtained for all sublots in the production lot to determine the theoretical maximum specific gravity. The Engineer will use the average air void content for in-place air voids.

The Engineer will use the vacuum method to seal the core if required by Tex-207-F. The Engineer will use the test results from the unsealed core to determine the placement payment adjustment factor if the sealed core yields a higher specific gravity than the unsealed core. After determining the in-place air void content, the Engineer will return the cores and provide test results to the Contractor.

4.9.3.3.2. **Segregation (Density Profile)**. Test for segregation using density profiles in accordance with Tex-207-F, Part V when using a thermal camera insead of the thermal imaging system. Density profiles are not required and are not applicable when using a thermal imaging system. Density profiles are not applicable in areas described in Section 3076.4.9.3.1.4., "Miscellaneous Areas."

Perform a minimum of one density profile per sublot. Perform additional density profiles when any of the following conditions occur, unless otherwise approved:

- the paver stops due to lack of material being delivered to the paving operations and the temperature of the uncompacted mat before the initial break down rolling is less than the temperatures shown in Table 17;
- areas that are identified by either the Contractor or the Engineer with thermal segregation;,
- any visibly segregated areas that exist.

Table 17
Mimimum Uncompacted Mat Temperature Requiring a Segregation Profile

High-Temperature Binder Grade[1]	Minimum Temperature of the Uncompacted Mat Allowed Before Initial Break Down Rolling[2,3,4]
PG 64	<250˚F
PG 70	<260˚F
PG 76	<270˚F

1. The high-temperature binder grade refers to the high-temperature grade of the virgin asphalt binder used to produce the mixture.
2. Segregation profiles are required in areas with moderate and severe thermal segregation as described in Section 3076.4.7.3.1.3.
3. Minimum uncompacted mat temperature requiring a segregation profile may be reduced 10°F if using a chemical WMA additive as a compaction aid.
4. When using WMA, the minimum uncompacted mat temperature requiring a segregation profile is 215°F.

Provide the Engineer with the density profile of every sublot in the lot within one working day of the completion of each lot. Report the results of each density profile in accordance with Section 3076.4.2., "Reporting and Responsibilities."

The density profile is considered failing if it exceeds the tolerances in Table 18. No production or placement payment adjustments greater than 1.000 will be paid for any sublot that contains a failing density profile. When a hand-held thermal camera is used instead of a thermal imaging system, the Engineer will measure the density profile at least once per project. The Engineer's density profile results will be used when available. The Engineer may require the Contractor to remove and replace the area in question if the area fails the density profile and has surface irregularities as defined in Section 3076.4.9.3.3.5., "Irregularities." The sublot in question may receive a production and placement payment adjustment greater than 1.000, if applicable, when the defective material is successfully removed and replaced.

Investigate density profile failures and take corrective actions during production and placement to eliminate the segregation. Suspend production if 2 consecutive density profiles fail unless otherwise approved. Resume production after the Engineer approves changes to production or placement methods.

Table 18
Segregation (Density Profile) Acceptance Criteria

Mixture Type	Maximum Allowable Density Range (Highest to Lowest)	Maximum Allowable Density Range (Average to Lowest)
Type B	8.0 pcf	5.0 pcf
Type C, Type D & Type F	6.0 pcf	3.0 pcf

4.9.3.3.3. **Longitudinal Joint Density**.

4.9.3.3.3.1. **Informational Tests**. Perform joint density evaluations while establishing the rolling pattern and verify that the joint density is no more than 3.0 pcf below the density taken at or near the center of the mat. Adjust the rolling pattern, if needed, to achieve the desired joint density. Perform additional joint density evaluations, at least once per sublot, unless otherwise directed.

4.9.3.3.3.2. **Record Tests**. Perform a joint density evaluation for each sublot at each pavement edge that is or will become a longitudinal joint. Joint density evaluations are not applicable in areas described in Section 3076.4.9.3.1.4., "Miscellaneous Areas." Determine the joint density in accordance with Tex-207-F, Part VII. Record the joint density information and submit results on Department forms to the Engineer. The evaluation is considered failing if the joint density is more than 3.0 pcf below the density taken at the core random sample location and the correlated joint density is less than 90.0%. The Engineer will make independent joint density verification at least once per project and may make independent joint density verifications at the random sample locations. The Engineer's joint density test results will be used when available.

Provide the Engineer with the joint density of every sublot in the lot within one working day of the completion of each lot. Report the results of each joint density in accordance with Section 3076.4.2., "Reporting and Responsibilities."

Investigate joint density failures and take corrective actions during production and placement to improve the joint density. Suspend production if the evaluations on two consecutive sublots fail unless otherwise approved. Resume production after the Engineer approves changes to production or placement methods.

4.9.3.3.4. **Recovered Asphalt Dynamic Shear Rheometer (DSR)**. The Engineer may take production samples or cores from suspect areas of the project to determine recovered asphalt properties. Asphalt binders with an aging ratio greater than 3.5 do not meet the requirements for recovered asphalt properties and may be deemed defective when tested and evaluated by the Materials and Tests Division. The aging ratio is the DSR value of the extracted binder divided by the DSR value of the original unaged binder. Obtain DSR values in accordance with AASHTO T 315 at the specified high temperature performance grade of the asphalt. The Engineer may require removal and replacement of the defective material at the Contractor's expense. The asphalt binder will be recovered for testing from production samples or cores in accordance with Tex-211-F.

4.9.3.3.5. **Irregularities**. Identify and correct irregularities including segregation, rutting, raveling, flushing, fat spots, mat slippage, irregular color, irregular texture, roller marks, tears, gouges, streaks, uncoated aggregate particles, or broken aggregate particles. The Engineer may also identify irregularities, and in such cases, the Engineer will promptly notify the Contractor. If the Engineer determines that the irregularity will adversely affect pavement performance, the Engineer may require the Contractor to remove and replace (at the Contractor's expense) areas of the pavement that contain irregularities. The Engineer may also require the Contractor to remove and replace (at the Contractor's expense) areas where the mixture does not bond to the existing pavement.

If irregularities are detected, the Engineer may require the Contractor to immediately suspend operations or may allow the Contractor to continue operations for no more than one day while the Contractor is taking appropriate corrective action.

4.9.4. **Exempt Production**. The Engineer may deem the mixture as exempt production for the following conditions:

- anticipated daily production is less than 500 tons;
- total production for the project is less than 5,000 tons;
- when mutually agreed between the Engineer and the Contractor; or
- when shown on the plans.

For exempt production, the Contractor is relieved of all production and placement sampling and testing requirements, except for coring operations when required by the Engineer. The production and placement pay factors are 1.000 if the specification requirements listed below are met, all other specification requirements are met, and the Engineer performs acceptance tests for production and placement listed in Table 16 when 100 tons or more per day are produced.

- produce, haul, place, and compact the mixture in compliance with the specification and as directed;
- control mixture production to yield a laboratory-molded density that is within ±1.0% of the target laboratory-molded density as tested by the Engineer;
- compact the mixture in accordance with Section 3076.4.8., "Compaction;" and
- when a thermal imaging system is not used, the Engineer may perform segregation (density profiles) and thermal profiles in accordance with the specification.

4.9.5. **Ride Quality**. Measure ride quality in accordance with Item 585, "Ride Quality for Pavement Surfaces," unless otherwise shown on the plans.

5. MEASUREMENT

5.1. **Dense Graded Hot-Mix Asphalt.** Hot mix will be measured by the ton of composite hot-mix, which includes asphalt, aggregate, and additives. Measure the weight on scales in accordance with Item 520, "Weighing and Measuring Equipment."

5.2. **Tack Coat.** Tack coat will be measured at the applied temperature by strapping the tank before and after road application and determining the net volume in gallons from the calibrated distributor. The Engineer will witness all strapping operations for volume determination. All tack, including emulsions, will be measured by the gallon applied.

The Engineer may allow the use of a metering device to determine asphalt volume used and application rate if the device is accurate within 1.5% of the strapped volume.

6. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under Section 3076.5.1, "Measurement," will be paid for at the unit bid price for "Dense Graded Hot-Mix Asphalt" of the mixture type, SAC, and binder specified. These prices are full compensation for surface preparation, materials, placement, equipment, labor, tools, and incidentals.

The work performed and materials furnished in accordance with this Item and measured as provided under Article 3076.5.2, "Measurement," will be paid for at the unit bid price for "Tack Coat" of the tack coat provided. These prices are full compensation for materials, placement, equipment, labor, tools, and incidentals. Payment adjustments will be applied as determined in this Item; however, a payment adjustment factor of 1.000 will be assigned for all placement sublots for "level ups" only when "level up" is listed as part of the item bid description code. A payment adjustment factor of 1.000 will be assigned to all production and placement sublots when "exempt" is listed as part of the item bid description code, and all testing requirements are met.

Payment for each sublot, including applicable payment adjustments greater than 1.000, will only be paid for sublots when the Contractor supplies the Engineer with the required documentation for production and placement QC/QA, thermal profiles, segregation density profiles, and longitudinal joint densities in accordance with Section 3076.4.2., "Reporting and Responsibilities." When a thermal imaging system is used, documentation is not required for thermal profiles or segregation density profiles on individual sublots; however, the thermal imaging system automated reports described in Tex-244-F are required.

Trial batches will not be paid for unless they are included in pavement work approved by the Department.

Payment adjustment for ride quality will be determined in accordance with Item 585, "Ride Quality for Pavement Surfaces."

6.1. **Production Payment Adjustment Factors**. The production payment adjustment factor is based on the laboratory-molded density using the Engineer's test results. The bulk specific gravities of the samples from each sublot will be divided by the Engineer's maximum theoretical specific gravity for the sublot. The individual sample densities for the sublot will be averaged to determine the production payment adjustment factor in accordance with Table 19 for each sublot, using the deviation from the target laboratory-molded density defined in Table 9. The production payment adjustment factor for completed lots will be the average of the payment adjustment factors for the four sublots sampled within that lot.

Table 19
Production Payment Adjustment Factors for Laboratory-Molded Density[1]

Absolute Deviation from Target Laboratory-Molded Density	Production Payment Adjustment Factor (Target Laboratory-Molded Density)
0.0	1.050
0.1	1.050
0.2	1.050
0.3	1.044
0.4	1.038
0.5	1.031
0.6	1.025
0.7	1.019
0.8	1.013
0.9	1.006
1.0	1.000
1.1	0.965
1.2	0.930
1.3	0.895
1.4	0.860
1.5	0.825
1.6	0.790
1.7	0.755
1.8	0.720
> 1.8	Remove and replace

1. If the Engineer's laboratory-molded density on any sublot is less than 95.0% or greater than 98.0%, take immediate corrective action to bring the mixture within these tolerances. The Engineer may suspend operations if the Contractor's corrective actions do not produce acceptable results. The Engineer will allow production to resume when the proposed corrective action is likely to yield acceptable results.

6.1.1. **Payment for Incomplete Production Lots**. Production payment adjustments for incomplete lots, described under Section 3076.4.9.2.1.1., "Incomplete Production Lots," will be calculated using the average production payment factors from all sublots sampled.

A production payment factor of 1.000 will be assigned to any lot when the random sampling plan did not result in collection of any samples within the first sublot.

6.1.2. **Production Sublots Subject to Removal and Replacement**. If after referee testing, the laboratory-molded density for any sublot results in a "remove and replace" condition as listed in Table 19, the Engineer may require removal and replacement or may allow the sublot to be left in place without payment. The Engineer may also accept the sublot in accordance with Section 3076.5.3.1., "Acceptance of Defective or Unauthorized Work." Replacement material meeting the requirements of this Item will be paid for in accordance with this Section.

6.2. **Placement Payment Adjustment Factors**. The placement payment adjustment factor is based on in-place air voids using the Engineer's test results. The bulk specific gravities of the cores from each sublot will be divided by the Engineer's average maximum theoretical specific gravity for the lot. The individual core densities for the sublot will be averaged to determine the placement payment adjustment factor in accordance with Table 20 for each sublot that requires in-place air void measurement. A placement payment adjustment factor of 1.000 will be assigned to the entire sublot when the random sample location falls in an area designated on the plans as not subject to in-place air void determination. A placement payment adjustment factor of 1.000 will be assigned to quantities placed in areas described in Section 3076.4.9.3.1.4., "Miscellaneous Areas." The placement payment adjustment factor for completed lots will be the average of the placement payment adjustment factors for up to four sublots within that lot.

Table 20
Placement Payment Adjustment Factors for In-Place Air Voids

In-Place Air Voids	Placement Pay Adjustment Factor	In-Place Air Voids	Placement Pay Adjustment Factor
< 2.7	Remove and Replace	6.4	1.042
2.7	0.710	6.5	1.040
2.8	0.740	6.6	1.038
2.9	0.770	6.7	1.036
3.0	0.800	6.8	1.034
3.1	0.830	6.9	1.032
3.2	0.860	7.0	1.030
3.3	0.890	7.1	1.028
3.4	0.920	7.2	1.026
3.5	0.950	7.3	1.024
3.6	0.980	7.4	1.022
3.7	0.998	7.5	1.020
3.8	1.002	7.6	1.018
3.9	1.006	7.7	1.016
4.0	1.010	7.8	1.014
4.1	1.014	7.9	1.012
4.2	1.018	8.0	1.010
4.3	1.022	8.1	1.008
4.4	1.026	8.2	1.006
4.5	1.030	8.3	1.004
4.6	1.034	8.4	1.002
4.7	1.038	8.5	1.000
4.8	1.042	8.6	0.998
4.9	1.046	8.7	0.996
5.0	1.050	8.8	0.994
5.1	1.050	8.9	0.992
5.2	1.050	9.0	0.990
5.3	1.050	9.1	0.960
5.4	1.050	9.2	0.930
5.5	1.050	9.3	0.900
5.6	1.050	9.4	0.870
5.7	1.050	9.5	0.840
5.8	1.050	9.6	0.810
5.9	1.050	9.7	0.780
6.0	1.050	9.8	0.750
6.1	1.048	9.9	0.720
6.2	1.046	> 9.9	Remove and Replace
6.3	1.044		

6.2.1. **Payment for Incomplete Placement Lots**. Payment adjustments for incomplete placement lots described under Section 3076.4.9.3.1.2., "Incomplete Placement Lots," will be calculated using the average of the placement payment factors from all sublots sampled and sublots where the random location falls in an area designated on the plans as not eligible for in-place air void determination.

If the random sampling plan results in production samples, but not in placement samples, the random core location and placement adjustment factor for the sublot will be determined by applying the placement random number to the length of the sublot placed.

If the random sampling plan results in placement samples, but not in production samples, no placement adjustment factor will apply for that sublot placed.

A placement payment adjustment factor of 1.000 will be assigned to any lot when the random sampling plan did not result in collection of any production samples.

6.2.2. **Placement Sublots Subject to Removal and Replacement**. If after referee testing, the placement payment adjustment factor for any sublot results in a "remove and replace" condition as listed in Table 20, the Engineer will choose the location of two cores to be taken within 3 ft. of the original failing core location. The Contractor will obtain the cores in the presence of the Engineer. The Engineer will take immediate possession of the untrimmed cores and submit the untrimmed cores to the Materials and Tests Division, where they will be trimmed if necessary and tested for bulk specific gravity within 10 working days of receipt.

The bulk specific gravity of the cores from each sublot will be divided by the Engineer's average maximum theoretical specific gravity for the lot. The individual core densities for the sublot will be averaged to determine the new payment adjustment factor of the sublot in question. If the new payment adjustment factor is 0.700 or greater, the new payment adjustment factor will apply to that sublot. If the new payment adjustment factor is less than 0.700, no payment will be made for the sublot. Remove and replace the failing sublot, or the Engineer may allow the sublot to be left in place without payment. The Engineer may also accept the sublot in accordance with Section 3076.5.3.1., "Acceptance of Defective or Unauthorized Work." Replacement material meeting the requirements of this Item will be paid for in accordance with this Section.

6.3. **Total Adjusted Pay Calculation**. Total adjusted pay (TAP) will be based on the applicable payment adjustment factors for production and placement for each lot.

TAP = (A+B)/2

where:
A = Bid price × production lot quantity × average payment adjustment factor for the production lot
B = Bid price × placement lot quantity × average payment adjustment factor for the placement lot + (bid price × quantity placed in miscellaneous areas × 1.000)

Production lot quantity = Quantity actually placed - quantity left in place without payment

Placement lot quantity = Quantity actually placed - quantity left in place without payment - quantity placed in miscellaneous areas

Special Specification 6001
Portable Changeable Message Sign

1. DESCRIPTION

Furnish, operate, and maintain portable trailer mounted changeable message sign (PCMS) units.

2. MATERIALS

Furnish new or used material in accordance with the requirements of this Item and the details shown on the plans. Provide a self-contained PCMS unit with the following:

- Sign controller
- Changeable Message Sign
- Trailer
- Power source

Paint the exterior surfaces of the power supply housing, supports, trailer, and sign with Federal Orange No. 22246 or Federal Yellow No. 13538 of Federal Standard 595C, except paint the sign face assembly flat black.

2.1. **Sign Controller**. Provide a controller with permanent storage of a minimum of 75 pre-programmed messages. Provide an external input device for random programming and storage of a minimum of 75 additional messages. Provide a controller capable of displaying up to 3 messages sequentially. Provide a controller with adjustable display rates. Enclose sign controller equipment in a lockable enclosure.

2.2. **Changeable Message Sign**. Provide a sign capable of being elevated to at least 7 ft. above the roadway surface from the bottom of the sign. Provide a sign capable of being rotated 360° and secured against movement in any position.

Provide a sign with 3 separate lines of text and 8 characters per line minimum. Provide a minimum 18 in. character height. Provide a 5 × 7 character pixel matrix. Provide a message legibility distance of 600 ft. for nighttime conditions and 800 ft. for normal daylight conditions. Provide for manual and automatic dimming light sources.

The following are descriptions for 3 screen types of PCMS:

- **Character Modular Matrix**. This screen type comprises of character blocks.
- **Continuous Line Matrix**. This screen type uses proportionally spaced fonts for each line of text.
- **Full Matrix**. This screen type uses proportionally spaced fonts, varies the height of characters, and displays simple graphics on the entire sign.

2.3. **Trailer**. Provide a 2 wheel trailer with square top fenders, 4 leveling jacks, and trailer lights. Do not exceed an overall trailer width of 96 in. Shock mount the electronics and sign assembly.

2.4. **Power Source**. Provide a diesel generator, solar powered power source, or both. Provide a backup power source as necessary.

2.5. **Cellular Telephone**. When shown on the plans, provide a cellular telephone connection to communicate with the PCMS unit remotely.

3. CONSTRUCTION

Place or relocate PCMS units as shown on the plans or as directed. The plans will show the number of PCMS units needed, for how many days, and for which construction phases.

Maintain the PCMS units in good working condition. Repair damaged or malfunctioning PCMS units as soon as possible. PCMS units will remain the property of the Contractor.

4. MEASUREMENT

This Item will be measured by each PCMS or by the day used. All PCMS units must be set up on a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each PCMS set up and operational on the worksite.

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 "Portable Changeable Message Sign." This price is full compensation for PCMS units; set up; relocating; removing; replacement parts; batteries (when required); fuel, oil, and oil filters (when required); cellular telephone charges (when required); software; and equipment, materials, tools, labor, and incidentals.

Special Specification 6185

Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

1. DESCRIPTION

Furnish, operate, maintain and remove upon completion of work, Truck Mounted Attenuator (TMA) or Trailer Attenuator (TA).

2. MATERIALS

Furnish, operate and maintain new or used TMAs or TAs. Assure used attenuators are in good working condition and are approved for use. A list of approved TMA/TA units can be found in the Department's Compliant Work Zone Traffic Control Devices List. The host vehicle for the TMA and TA must weigh a minimum of 19,000 lbs. Host vehicles may be ballasted to achieve the required weight. Any weight added to the host vehicle must be properly attached or contained within it so that it does not present a hazard and that proper energy dissipation occurs if the attenuator is impacted from behind by a large truck. The weight of a TA will not be considered in the weight of the host vehicle but the weight of a TMA may be included in the weight of the host vehicle. Upon request, provide either a manufacturer's curb weight or a certified scales weight ticket to the Engineer.

3. CONSTRUCTION

Place or relocate TMA/TAs as shown on the plans or as directed. The plans will show the number of TMA/TAs needed, for how many days or hours, and for which construction phases.

Maintain the TMA/TAs in good working condition. Replace damaged TMA/TAs as soon as possible.

4. MEASUREMENT

4.1. **Truck Mounted Attenuator/Trailer Attenuator (Stationary).** This Item will be measured by the each or by the day. TMA/TAs must be set up in a work area and operational before a calendar day can be considered measurable. When measurement by the day is specified, a day will be measured for each TMA/TA set up and operational on the worksite.

4.2. **Truck Mounted Attenuator/Trailer Attenuator (Mobile Operation).** This Item will be measured by the hour. The time begins once the TMA/TA is ready for operation at the predetermined site and stops when notified by the Engineer. A minimum of 4 hr. will be paid each day for each operating TMA/TA used in a mobile operation.

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 "Truck Mounted Attenuators/Trailer Attenuators (Stationary)," or "Truck Mounted Attenuators/Trailer Attenuators (Mobile Operation)." This price is full compensation for furnishing TMA/TA: set up; relocating; removing; operating; fuel; and equipment, materials, tools, labor, and incidentals.

Revised04/17/2020
For questions, contact (713) 802-5620

TxDOT Houston District Permits
Drainage/ Hydraulic Checklist
& Drainage Summary Table Required for All Projects with Drainage to TxDOT

Please visit the following Link for the latest Houston District Hydraulic Section Drainage Criteria: https://www.txdot.gov/inside-txdot/district/houston/guidelines-and-criteria.html

Instructions: This checklist must be completed and submitted for ALL access driveway, street tie-in, or drainage-only permit applications. Check the applicable boxes, or leave blank if not applicable.

Miscellaneous TxDOT As-Built drawings for Drainage Area and Hydraulic Computations (Please e-mail your request to: Hou_PlanRequest@Txdot.gov)	Applicant	TxDOT Reviewer
Graphical scale and north arrow (required on all civil plan sheets)	YES	
Symbols and legend	NO	
Project location map	YES	
Benchmark with elevation and Datum reference	NO	
Signed and sealed boundary & topographic map with effective Flood Insurance Rate Map (FIRM) information	YES	
Total development acreage and type of development	X	
Is the subject site crossed by jurisdictional waters? If so, have all necessary permits been secured?	NO	
Is the subject site receiving drainage from TxDOT ROW? If so, consult with hydraulics section prior to final design.	YES	
Is the subject site receiving offsite drainage via a TxDOT cross drainage structure? If so, then the proposed plan must clearly show that prescriptive water rights are maintained, and the drainage conveyance will not be diminished by the proposed development.	NO	
Amount of the TxDOT frontage either from survey map or scaled from as-built plans	X	
Proposed drainage tie-in (details/cross section and elevations)	X	
Proposed restrictor detail (NOTE: Restrictor shall be accessible to TxDOT inspectors, otherwise engineering justification is required on the drainage plan)	X	
Proposed detention areas (ponds/parking/underground vault, etc.) cross sections with 100- yr. Water Surface Elevation (WSE)	X	
Storm Water Pollution Prevention Plan (SW3P)	X	
Applicable standard details and construction notes	X	

Pump Discharge – Please refer to the "Pump Discharge Criteria" and consult with the TxDOT Houston District Hydraulic Section prior to detail drainage system design. General criteria for projects with pump discharge to TxDOT: • Earthen detention ponds minimum side slopes will be 4:1 • Maximum pumped discharge will not exceed 20% of the allowable gravity discharge • A return line to circulate any discharge exceeding the allowable pump discharge back to the pond • Automatic shut-down device to turn off all pumps when TxDOT drainage system capacity is exceeded NOTE: During construction care must be taken to minimize the discharge of sediments such as silt, soil and sand to the TxDOT right of way. In addition to the standard SWPPP practices, a temporary settling basin should be constructed on the private site to receive discharge from pumped dewatering operations to allow sediments to settle prior to draining to the TxDOT right of way. During construction site dewatering operations shall not be pumped or allowed to drain directly to the TxDOT right of way without the use of sediment controls.	X	

TxDOT Houston District Permits
Drainage/ Hydraulic Checklist
& Drainage Summary Table Required for All Projects with Drainage to TxDOT

Hydrology	Applicant	TxDOT Reviewer
NOTE to Land Development Engineers: Beginning March 13, 2020, All New Projects that are Submitted must use NOAA ATLAS 14 Updated Rainfall Data for Site Peak Flows and Required Detention Volume Calculations. Projects already substantially complete using the old e,b,d values will continue to be accepted until close of business March 31, 2020. Please Contact the Houston District Hydraulic Section for Additional Information and Related Questions.	YES	
Any diversion or re-routing of natural flow pattern in proposed condition Existing 10-yr and 100-yr storm events runoff (Q-e) which currently drains to TxDOT right-of- way (ROW)	YES	
Existing off-site drainage area map and runoff calculations (Q-os)	YES	
TxDOT allowable discharge (Q-a) which is the maximum discharge allowed through primary restrictor (NOTE: in lieu of as-built plan: 2-yr design, C=0.65 and area of 150-ft strip fronting the TxDOT ROW may be used for the site's allowable discharge)	NO	
Developed 10-yr and 100-yr storm events runoff (Q-d).	YES	
Proposed site discharge (Q-p) which shall not exceed Q-e and Q-a.	YES	
All pertaining hydrologic parameters and assumptions used in calculations (e.g. flow velocities, time of concentration, path of sheet flow, land cover, type of development, design rainfall depth & losses, IDF factors, % or acreage of existing & proposed impervious cover, storm event & duration, runoff coefficient (C) etc.) NOTE: For dry, grass lined ponds with side slope ≥ 2:1, C = 0.75 shall be used, and C = 0.90 for all other types of detention ponds	YES	
Hydraulics	**Applicant**	**TxDOT Reviewer**
Restrictor/outfall pipe calculations (e.g., Orifice, culvert, Weir, combination, etc.)	YES	
Required Detention Volume Calculations: Acceptable Methods: a) Malcom b) Triangular (NOTE: Please consult with Houston District Hydraulic Section before using other methods)		
Proposed detention volumetric calculations	X	
Proposed detention storage/stage/discharge table and supporting calculations, for the 10-yr and 100-yr storm events	X	
Internal drainage system hydraulic calculations	X	
On-site 100-yr sheet flow analysis. (100-yr HGL may be used for sheet flow analysis) NOTE: A grading plan with sheet flow arrows that clearly shows the path of the flow to the detention pond may be used in lieu of the analysis.	X	
Off-site 100-yr sheet flow analysis (if applicable)	X	
Tailwater (TW) elevation(s) used in hydraulic calculations	YES	
Open channel hydraulic calculations (if applicable)	YES	

TxDOT Houston District Permits
Drainage / Hydraulic Checklist
& Drainage Summary Table Required for All Projects with Drainage to TxDOT

Restrictor (if applicable)		
Grading Plan	Applicant	TxDOT Reviewer
Building finished floor elevation (FFELEV)	X	
Proposed driveway elevations at the high point and where it ties into the existing roadway	X	
Proposed top of grate inlets, top of pavement and curb elevations	X	
Finished grade elevations on the perimeter (property line) of the site	X	
Elevations of the proposed detention pond top bottom, flowline, etc.	X	
Detention pond 10-yr and 100-yr design WSE	X	
Detention pond static WSE, if a wet pond proposed	X	
Ditch re-grading	SHOWS IN TYPICAL	
Design sheet flow arrows	YES	
Drainage Plan	Applicant	TxDOT Reviewer
Drainage Summary Table provided on the plan as required	YES	
Existing and proposed storm sewer layout, pipe sizes, slopes, and material Proposed detention pond layout (NOTE: 10-ft minimum maintenance berm of distance from the detention pond top of bank to the TxDOT right-of-way is required)	X	
Existing and proposed drainage junction box/manhole/inlets showing type, size, top, and flowline elevations	X	
Extreme event sheet flow arrows	X	
Restrictor pipe location and detail (NOTE: Restrictor shall be inside private property)	X	
All pertaining hydraulic calculations	X	
Flood plain information	X	

DRAINAGE SUMMARY TABLE (APLICABLE TO PROJECTS WITH DRAINAGE TO TxDOT)

Please copy and paste the completed table onto the drainage sheet

TxDOT Tracking number (TR#)		
Highway	FM 523 at CR 792	
TxDOT frontage		FT
TxDOT Area (the strip of site within 150-ft frontage)	9.9	AC
Total tract area based on submitted survey map		AC
Proposed disturbed area		AC
Project contributing drainage area to TxDOT	9.9	AC
Off-site contributing drainage area (if applicable)		AC
Increased impervious area		AC
10-yr required detention volume	0	AC-FT
10-yr proposed detention volume	0	AC-FT
10-yr design W.S.E.	5.29	FT
10-yr Pre-developed peak flow	13.97	CFS
10-yr Post-developed peak flow (Before de te nti on/restrictor)	26.45	CFS
10-yr Proposed discharge to TxDOT R.O.W. (With detention/restrictor)		CFS
100-yr required detention volume	0	AC-FT
100-yr proposed detention volume	0	AC-FT
100-yr design W.S.E.	6.19	FT
100-yr Pre-developed peak flow	21.14	CFS
100-yr Post-developed peak flow (Before de te nti on/restrictor)	40.05	CFS
100-yr Proposed discharge to TxDOT R.O.W. (With detention/restrictor)		CFS
TxDOT as-built or calculated allowable discharge		CFS
Primary tie-in/outfall structure size	24	Inch
Primary restrictor size		Inch
Primary restrictor maximum discharge		CFS
Secondary outfall device size (If applicable)		CFS
Secondary outfall discharge (If applicable)		CFS
Maximum combined pumped discharge (If applicable)		GPM (CFS)
% Pumped discharge volume (If applicable)		AC-FT
Effective gravity discharge elevation (If applicable)		FT
B.F.E. per effective FIRM (If applicable)	16	FT
Proposed fill below B.F.E. (If applicable)		AC-FT
Proposed cut below B.F.E. (If applicable)		AC-FT

Permit to Construct Access Driveway Facilities on Highway Right of Way

PERMIT NUMBER: TxDOT ENTER PERMIT NUMBER HERE				
	GPS*	ROADWAY		
REQUESTOR	LATITUDE, LONGITUDE	HWY NAME	FM	523
	29.02085, - 95.326542	FOR TxDOT'S USE		
		CONTROL		
NAME		SECTION		
MAILING ADDRESS				
CITY, STATE, ZIP				
PHONE NUMBER				
*GLOBAL POSITIONING SYSTEM COORDINATES AT INTERSECTION OF DRIVEWAY CENTERLINE WITH ABUTTING ROADWAY				

Is this parcel in current litigation with the State of Texas? ☐ YES ☒ NO

The Texas Department of Transportation, hereinafter called the State, hereby authorizes _____, hereinafter called the Permittee, to ☒ construct / ☐ reconstruct a LEFT TURN / SHOULDER (residential, convenience store, retail mall, farm, etc.) access driveway on the highway right of way abutting highway number FM 523 in Brazoria County, located FM 523 and CR 792.

USE ADDITIONAL SHEETS AS NEEDED

This permit is subject to the Access Driveway Policy described on page 2 and the following:

1. The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the state highway right of way.
2. The Permittee represents that the design of the facilities, as shown in the attached sketch, is in accordance with the Roadway Design Manual, Hydraulic Design Manual and the access management standards set forth in the Access Management Manual (except as otherwise permitted by an approved variance).
3. Construction of the driveway shall be in accordance with the attached design sketch, and is subject to inspection and approval by the State.
4. Maintenance of facilities constructed hereunder shall be the responsibility of the Permittee, and the State reserves the right to require any changes, maintenance or repairs as may be necessary to provide protection of life or property on or adjacent to the highway. Changes in design will be made only with prior written approval of the State.
5. The Permittee shall hold harmless the State and its duly appointed agents and employees against any action for personal injury or property damage related to the driveway permitted hereunder.
6. Except for regulatory and guide signs at county roads and city streets, the Permittee shall not erect any sign on or extending over any portion of the highway right of way. The Permittee shall ensure that any vehicle service fixtures such as fuel pumps, vendor stands, or tanks shall be located at least 12 feet from the right of way line to ensure that any vehicle services from these fixtures will be off the highway right of way.
7. The State reserves the right to require a new access driveway permit in the event of: (i) a material change in land use, driveway traffic volume or vehicle types using the driveway, or (ii) reconstruction or other modification of the highway facility by the State.
8. The State may revoke this permit upon violation of any provision of this permit by the Permittee.
9. This permit will become null and void if the above-referenced driveway facilities are not constructed within six (6) months from the issuance date of this permit.
10. The Permittee will contact the State's representative _____ telephone, (_____) _____, at least twenty-four (24) hours prior to beginning the work authorized by this permit.
11. The requesting Permittee will be provided instructions on the appeal process if this permit request is denied by the State.

The undersigned hereby agrees to comply with the terms and conditions set forth in this permit for construction and maintenance of an access driveway on the highway right of way.

Date: _____ Signed: _____
(Property owner or owner's representative)

Date of Issuance	District Engineer, or designee Approval
Date of Issuance as per Variance to AMM	District Engineer, or designee Approval
Date of Denial	District Engineer Denial (No Delegation)

Access Driveway Policy

Title 43 Texas Administrative Code (Transportation), Chapter 11 (Design), Subchapter C (Access Connections To State Highways) and the "Access Management Manual" establish policy for the granting of access and the design, materials, and construction of driveways connecting to state highways. All driveway facilities must follow this policy. To the extent there is any conflict between this permit and the policy, the policy shall control. If a proposed driveway does not comply with the access management standards, the owner may seek a variance to a requirement contained in the access management standards by contacting the local TxDOT office.

TxDOT Driveway Permit Request Contact

For a local contact for your TxDOT Driveway Permit Request or variance request, visit: http://www.txdot.gov/inside-txdot/district.html. You can click on the section of the map closest to your location to find the local TxDOT office. You can also click on the drop down box below the map to find the district for your county.

Other Conditions

In addition to Items 1 thru 11 on page 1 of this permit, the facility shall also be in accordance with the attached sketch and subject to the following additional conditions stated below:

Variance Documentation Justification

For a Variance request, please indicate which of the below are applicable, as required by TAC §11.52(e):

☐ a significant negative impact to the owner's real property or its use will likely result from the denial of its request for the variance, including the loss of reasonable access to the property or undue hardship on a business located on the property.

☐ an unusual condition affecting the property exists that was not caused by the property owner and justifies the request for the variance.

For the conditions selected above, provide written justification below. (Attach additional sheets, if needed)

For TXDOT use below:

For Variance denials, please indicate which of the below conditions, as provided in TAC §11.52(e), were determined:

☐ adversely affect the safety, design, construction, mobility, efficient operation, or maintenance of the highway; or

☐ likely impair the ability of the state or the department to receive funds for highway construction or maintenance from the federal government.

Attachments:

Sketch of Installation

All Variance Documentation

Houston District Access Permit Application

DF-M200 2-2022

1. Purpose of Request: Explain the need for proposed access. Proposed operations / facilities, frequency of use of proposed access, approximate types and sizes of vehicles using proposed access for each individual year of the next three years.

Proposed site will be commercial strip center, including dining and offices. One driveway is being proposed along FM 523 for the site to be accessed. Vehicle traffic will be typical commercial.

2. Background: Date chronology of previous correspondence, meetings, or discussions about proposed access, identification of property zoning or approved platting, if applicable. Include any previous approved permits, permit applications, preliminary approvals, and tracking numbers, if applicable.

On July 2023 we had a meeting with the area office TXDOT team. We discussed access availability, location of proposed left turn lane and future TXDOT improvements for FM 523 and CR 792.

3. Existing roadway characteristics: At location(s) of proposed access: Number of roadway lanes in each directions, Approximate width of roadway lanes / shoulders, Posted speed of roadway, Roadway pavement material (asphalt, concrete, gravel, dirt). Also, is there an existing roadway median opening, entrance / exit ramp, or traffic signal within one-thousand feet of the proposed access?

Existing FM 523 has 1 lane in each direction, medium no curb, & shoulder in each side. Lane width 12' , medium no curb width 12' , both side shoulder width 8'. Speed limit 60 mph.
Roadway pavement concrete. no traffic signal at the intersection.
Existing CR 792 has 1 lane in each direction, no medium, lane width 10', no shoulder.

4. Environmental Clearance Requirements: *If the access request includes work on right turn lanes, roadway widening, excavation or median opening changes, please provide the environmental requirements/reports that will be needed to be completed once design is approved by TxDOT. (Please complete form* **Environmental Review for Permit Level Actions***).*

5. **Agreements:** *An agreement between TxDOT and the applicant will also be needed once all plans are finalized if the application includes roadway improvements such as Traffic Signals, Turn Lanes, Widenings,and Median Openings. Please refer to the Agreement Type Table to identity the type of agreement needed and describe below, if applicable.*

FM 523 , proposed left turn lanes 12' and adding 4' shoulder.
CR 792, proposed adding shoulder 8'-12' . See Roadway, Signing, & Pavement Marking Plan for more details.

Houston District Access Permit Application

Application Help | Submit by Email

DF-M200 2-2022

Date of Submittal: Aug 18, 2023

Version: 1.0

Name of Applicant:

Permittee (Property Owner)

Consulting Firm | Contact Person

Email Permit To:

Contact Email Address | Contact Phone

Contact Address

TX

City | State | Zip Code

Retail Development FM 523 and CR 792

Name of Site

NB FM 523 TO EB CR 792

Site Address / Location / Limits

Pearland | TX | 77584

City | State | Zip Code

Latitude 29.02085 Longitude -95.326542

Is this parcel in current litigation with the State of Texas? ○ Yes ◉ No

Type of Permit Request: ☒ Street Tie-In ☒ Commercial ☐ Drainage Only ☐ Low Use ☐ Construction ☒ Sidewalk ☐ TIA ☐ Traffic Signal ☐ Preliminary ☐ Controlled Access (ADL Break)

Help

Highway: FM0523 Name of closest cross street: C.R. 792

Is Highway within an incorporated city? ☐ Yes ☒ No City: Pearland County: Brazoria

Maint Map

Property on which side of highway? ○ Northbound ○ Southbound ○ Eastbound ○ Westbound

Number of requested driveway(s): 1 Number of requested street tie-in(s): 1

Number of Existing access(s) to be modified: 0

Date of Sign and Seal Plans Submittal: (Except Preliminary) Tracking No:

Type of highway design? ☐ Curbed ☒ Open Ditch ☐ Both

If open ditch, inside diameter of nearest upstream and downstream pipes: 24.00

Is there an existing roadway median opening, ramp, or traffic signal located within 1000 feet of the proposed driveway? If yes, indicate distance and direction in all plans. ☒ Yes ☐ No

Does this request include any drainage coming to TxDOT? ☐ Yes ☒ No

If no, provide name of entity/agency/authority that will receive any drainage outfall / storm discharge after the site has been developed: CITY OF PEARLAND

Upon request, please provide a copy of the approval letter from the drainage authority.

Please complete and attach the Drainage/Hydraulic Checklist.

The drainage / hydraulic checklist must be completed and submitted for street tie-in, commercial access *and drainage-only permit applications.*

Houston District Access Permit Application

DF-M200 2-2022

1. Purpose of Request: Explain the need for proposed access. Proposed operations / facilities, frequency of use of proposed access, approximate types and sizes of vehicles using proposed access for each individual year of the next three years.

Proposed site will be commercial strip center, including dining and offices. One driveway is being proposed along FM 523 for the site to be accessed. Vehicle traffic will be typical commercial.

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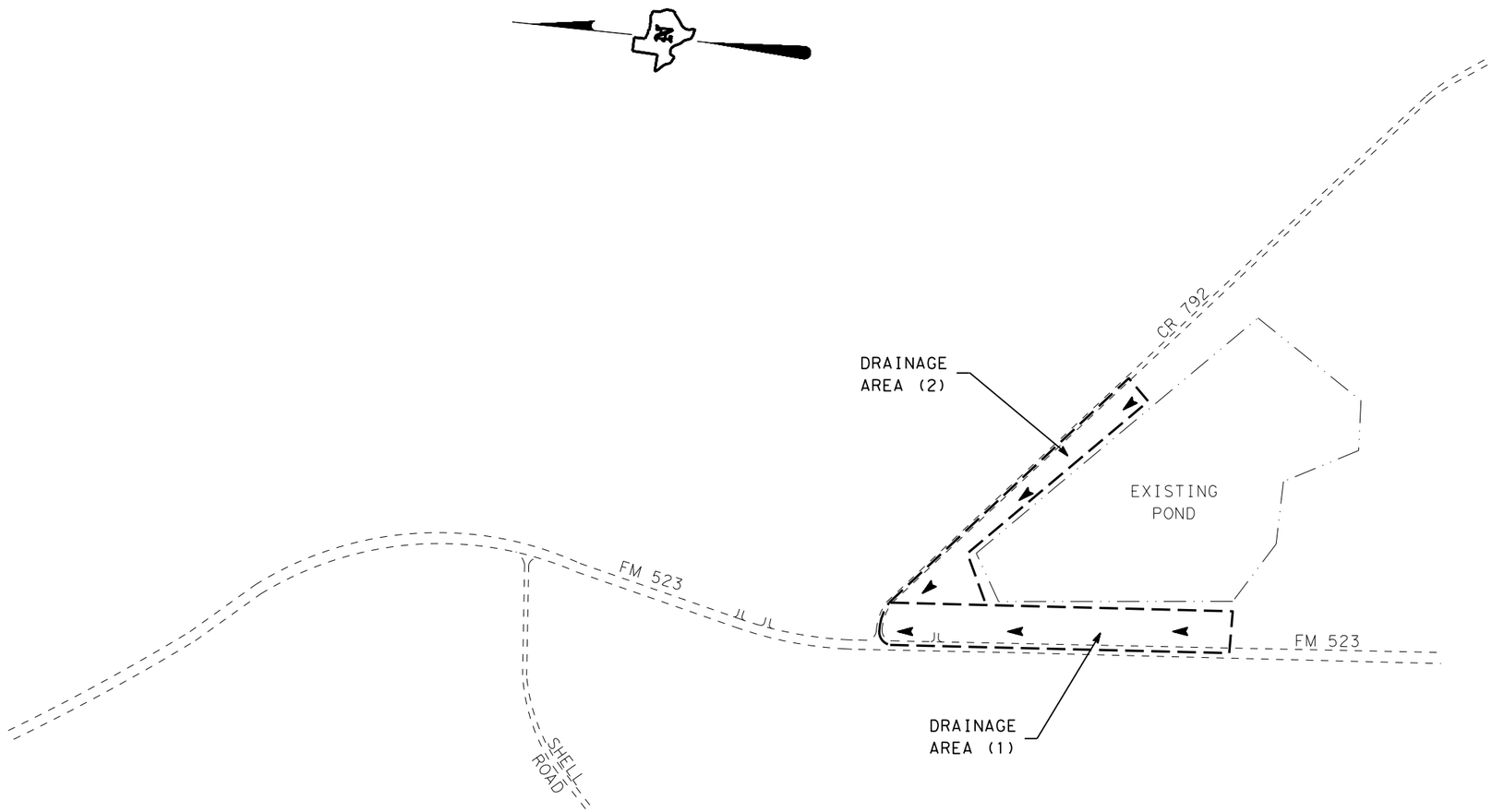
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Roadway pavement concrete. no traffic signal at the intersection.
Existing CR 792 has 1 lane in each direction, no medium, lane width 10', no shoulder.

4. Environmental Clearance Requirements: *If the access request includes work on right turn lanes, roadway widening, excavation or median opening changes, please provide the environmental requirements/reports that will be needed to be completed once design is approved by TxDOT. (Please complete form* **Environmental Review for Permit Level Actions***).*

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FM 523 , proposed left turn lanes 12' and adding 4' shoulder.
CR 792, proposed adding shoulder 8'-12' . See Roadway, Signing, & Pavement Marking Plan for more details.


792
729A
523
792
FM 523 & CR 792
523



DRAINAGE AREA DETAILS							
LOCATION	AREA (ACRE)	AVERAGE "C"	T.C (MIN)	I_{10} (IN/HR)	Q_{10} (CFS)	I_{100} (IN/HR)	Q_{100} (CFS)
DRAINAGE AREA (1)	5.8	0.51	25.9	5.16	15.26	7.82	23.13
DRAINAGE AREA (2)	4.1	0.51	24.1	5.35	11.19	8.09	16.92
TOTAL DRAINAGE					26.45		40.05

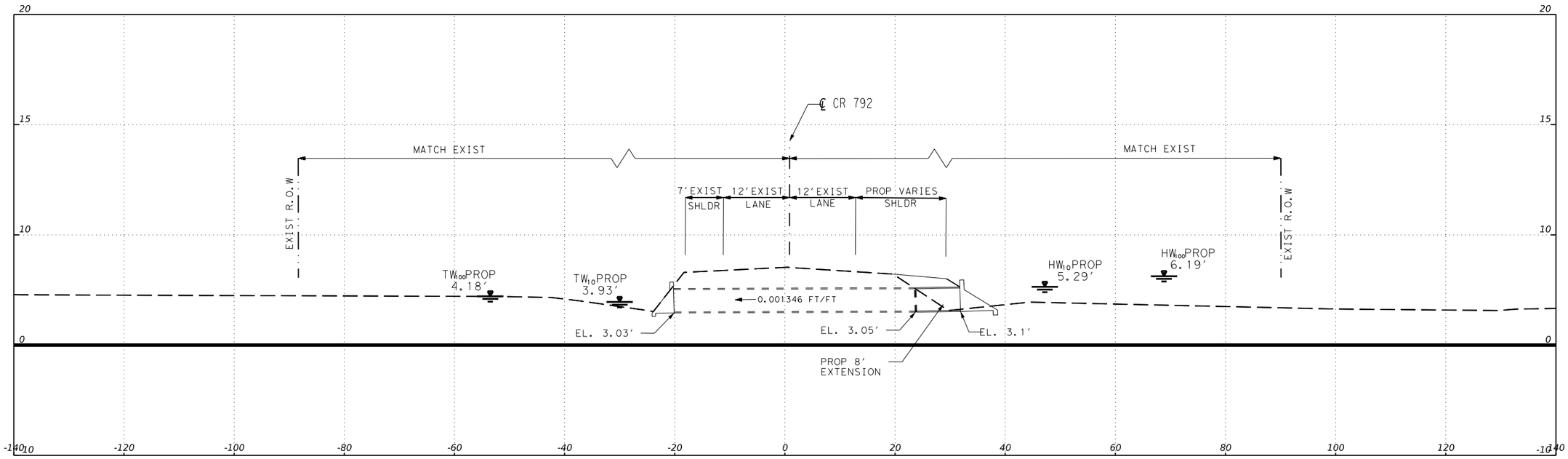
STATE OF TEXAS
JAMIE A. H. JONES
128752
LICENSED
PROFESSIONAL ENGINEER

DRAINGAGE AREA MAP FOR FM 523 AT CR 792

© 2012
Texas Department of Transportation

CONT.	SECT.	JOB	HIGHWAY NO.
			FM 523
DIST.	COUNTY		SHEET NO.
HOU	BRAZORIA		1

8/28/2023 H:\Non CSJ Projects\FM 523 @ CR 792\Drainage Area Map CR 792.dgn



CR 792

EXIST 2 - 24" X 44' RCP
PROP 2-24" X 8' WITH 3 SET (3:1)

STATE OF TEXAS
JAMIE A. H. JONES
128752
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

SHEET OF

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
			FM 523	Brazoria	CTY	1

DATE: 8/25/2023 3:06:14 PM
FILE: C:\DESIGN PROJECTS\ WorkSets\ TXDOT WorkSet Template\4 - Design\Plan Set\1. Generallcross section SH 523 & CR 792.dgn

DW: CK: DW: CK:

Culvert Designer/Analyzer Report
Turn Lane at FM 523 & CR 792

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	6.19	ft	Discharge	40.05	cfs
Inlet Control HW Elev.	6.06	ft	Tailwater Elevation	4.18	ft
Outlet Control HW Elev.	6.19	ft	Control Type	Outlet Control	
Headwater Depth/Height	1.54				

Grades					
Upstream Invert	3.10	ft	Downstream Invert	3.03	ft
Length	52.00	ft	Constructed Slope	0.001346	ft/ft

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	1.61	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	1.61	ft
Velocity Downstream	7.40	ft/s	Critical Slope	0.008131	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	2.00	ft
Section Size	24 inch		Rise	2.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	6.19	ft	Upstream Velocity Head	0.63	ft
Ke	0.50		Entrance Loss	0.32	ft

Inlet Control Properties					
Inlet Control HW Elev.	6.06	ft	Flow Control	Submerged	
Inlet Type	Square edge w/headwall		Area Full	6.3	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

Culvert Designer/Analyzer Report
Turn Lane at FM 523 & CR 792

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	5.29	ft	Discharge	26.45	cfs
Inlet Control HW Elev.	5.15	ft	Tailwater Elevation	3.93	ft
Outlet Control HW Elev.	5.29	ft	Control Type	Outlet Control	
Headwater Depth/Height	1.09				

Grades					
Upstream Invert	3.10	ft	Downstream Invert	3.03	ft
Length	52.00	ft	Constructed Slope	0.001346	ft/ft

Hydraulic Profile					
Profile	M2		Depth, Downstream	1.31	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	1.31	ft
Velocity Downstream	6.07	ft/s	Critical Slope	0.005862	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	2.00	ft
Section Size	24 inch		Rise	2.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	5.29	ft	Upstream Velocity Head	0.35	ft
Ke	0.50		Entrance Loss	0.17	ft

Inlet Control Properties					
Inlet Control HW Elev.	5.15	ft	Flow Control	Unsubmerged	
Inlet Type	Square edge w/headwall		Area Full	6.3	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

LIMIT OF MODERATE WAVE ACTION

ZONE AE (EL 13)

ZONE AE (EL 16)

ZONE AE (EL 12)

ZONE AE (EL 15)

30

23

M6.0

24

ZONE AE (EL 10)

M7.0

E

ZONE AE (EL 10)

SEE **NOTES TO USERS** FOR INFORMATION ABOUT THIS BOUNDARY

City of Clute 480068

AW0079

Stubblefield Lake

D

Drainage Area

792

Shank Lake

ZONE AE (EL 16)

Oyster Creek Floodwall

D

Chubb Lake

PROFILE BASELINE

M5.0

ZONE AE (EL 10)

TUNA RUN DR

AW0058

AW0059

LEVEE ROAD

ZONE AE (EL 16)

City of Freeport 485467

21

City of Oyster Cree 481255

BALDWIN ROAD

TAMANDA

ROBINSON ROAD

M4.0

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

00 0 300 600 ME

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0640K

FIRM

FLOOD INSURANCE RATE MAP

BRAZORIA COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 640 OF 925

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BRAZORIA COUNTY	485458	0640	K
CLUTE, CITY OF	480068	0640	K
FREEPORT, CITY OF	485467	0640	K
OYSTER CREEK, CITY OF	481255	0640	K

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48039C0640K

MAP REVISED
DECEMBER 30, 2020

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

ATTACHMENT C
AFFIDAVIT
OF FINAL PAYMENT AND RETAINAGE RELEASE

STATE OF TEXAS §

COUNTY OF BRAZORIA §

I have read this Final Estimate and certify that it includes all items and balances due to Contractor remaining unpaid on this contract and I hereby accept it in full release to Brazoria County and in final and complete satisfaction of any and all claims due to Contractor from Brazoria County by virtue of this contract and work arising under it.

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.

Signed this _____ day of _____, 2023.

_____
Contractor PM

SUBSCRIBED AND SWORN TO BEFORE ME, Contractor PM on

_____, 2023.

_____
Notary Public in and for the State of Texas

STATE OF TEXAS §

COUNTY OF BRAZORIA §

ENGINEER'S APPROVAL

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.

Signed this _____ day of _____, 2023.

_____
ASSISTANT COUNTY ENGINEER

SUBSCRIBED AND SWORN TO BEFORE ME, _____ on

_____, 2023.

_____
Notary Public in and for the State of Texas