Control	**6471-50-001**
Project	**MMC - 647150001**
Highway	**US0069**
County	**JEFFERSON**

ADDENDUM ACKNOWLEDGMENT

Each bidder is required to acknowledge receipt of an addendum issued for a specific project. This page is provided for the purpose of acknowledging an addendum.

FAILURE TO ACKNOWLEDGE RECEIPT OF AN ADDENDUM WILL RESULT IN THE BID NOT BEING READ.

In order to properly acknowledge an addendum place a mark in the box next to the respective addendum.

ADDENDUM NO. 1 ☐

ADDENDUM NO. 2 ☐

ADDENDUM NO. 3 ☐

ADDENDUM NO. 4 ☐

ADDENDUM NO. 5 ☐

In addition, the bidder by affixing their signature to the signature page of the proposal is acknowledging that they have taken the addendum(s) into consideration when preparing their bid and that the information contained in the addendum will be included in the contract, if awarded by the Commission or other designees.

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Control	**6471-50-001**
Project	**MMC - 647150001**
Highway	**US0069**
County	**JEFFERSON**

PROPOSAL TO THE TEXAS TRANSPORTATION COMMISSION

2014 SPECIFICATIONS

WORK CONSISTING OF HYDRAULIC CEMENT

JEFFERSON COUNTY, TEXAS

The quantities in the proposal are approximate. The quantities of work and materials may be increased or decreased as considered necessary to complete the work as planned and contemplated.

This project is to be completed in 365 calendar days and will be accepted when fully completed and finished to the satisfaction of the Executive Director or designee.

Provide a proposal guaranty in the form of a Cashier's Check, Teller's Check (including an Official Check) or Bank Money Order on a State or National Bank or Savings and Loan Association, or State or Federally chartered Credit Union made payable to the Texas Transportation Commission in the following amount:

ONE THOUSAND (Dollars) **($1,000)**

A bid bond may be used as the required proposal guaranty. The bond form may be detached from the proposal for completion. The proposal may not be disassembled to remove the bond form. The bond must be in accordance with Item 10 of the specifications.

Any addenda issued amending this proposal and/or the plans that have been acknowledged by the bidder, become part of this proposal.

By signing the proposal the bidder certifies:

1. the only persons or parties interested in this proposal are those named and the bidder has not directly or indirectly participated in collusion, entered into an agreement or otherwise taken any action in restraint of free competitive bidding in connection with the above captioned project.
2. the signatory represents and warrants that they are an authorized signatory for the organization for which the bid is submitted and they have full and complete authority to submit this bid on behalf of their firm.
3. that the certifications and representations contained in the proposal are true and accurate and the bidder intends the proposal to be taken as a genuine government record.

- **Signed: ****

(1) _____ (2) _____ (3) _____

Print Name:

(1) _____ (2) _____ (3) _____

Title:

(1) _____ (2) _____ (3) _____

Company:

(1) _____ (2) _____ (3) _____

- Signatures to comply with Item 10 of the specifications.

**Note: Complete (1) for single venture, through (2) for joint venture and through (3) for triple venture.

*** When the calendar days field contains an asterisk (*) refer to the Special Provisions and General Notes.**

NOTICE TO CONTRACTORS

FOR THIS PROJECT THE AUDITED FINANCIAL PREQUALIFICATION REQUIREMENT IS WAIVED. ANY CONTRACTOR INTENDING TO BID ON THIS WORK MUST SUBMIT A COMPLETED "MATERIALS SUPPLIER'S QUESTIONNAIRE", WITH ANY ADDITIONAL INFORMATION REQUESTED IN THAT FORM, AT LEAST TEN DAYS PRIOR TO THE LETTING DATE.

CONTRACTORS THAT ARE CURRENTLY PREQUALIFIED BASED ON AN AUDITED FINANCIAL STATEMENT DO NOT NEED TO SUBMIT A "MATERIALS SUPPLIER'S QUESTIONNAIRE" SINCE THE NECESSARY INFORMATION IS CONTAINED IN THE AUDITED PREQUALIFICATION DOCUMENTS.

UNIT PRICES MUST BE SUBMITTED IN ACCORDANCE WITH ITEM 10 OF THE STANDARD SPECIFICATIONS OR SPECIAL PROVISION TO ITEM 10 FOR EACH ITEM LISTED IN THIS PROPOSAL.

TEXAS DEPARTMENT OF TRANSPORTATION

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS,

That we, (Contractor Name) _____

_____

Hereinafter called the Principal, and (Surety Name) _____

_____

a corporation or firm duly authorized to transact surety business in the State of Texas, hereinafter called the Surety, are held and firmly bound unto the Texas Department of Transportation, hereinafter called the Obligee, in the sum of not less than two percent (2%) of the department's engineer's estimate, rounded to the nearest one thousand dollars, not to exceed one hundred thousand dollars ($100,000) as a proposal guaranty (amount displayed on the cover of the proposal), the payment of which sum will and truly be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the principal has submitted a bid for the following project identified as:

Control	**6471-50-001**
Project	**MMC - 647150001**
Highway	**US0069**
County	**JEFFERSON**

NOW, THEREFORE, if the Obligee shall award the Contract to the Principal and the Principal shall enter into the Contract in writing with the Obligee in accordance with the terms of such bid, then this bond shall be null and void. If in the event of failure of the Principal to execute such Contract in accordance with the terms of such bid, this bond shall become the property of the Obligee, without recourse of the Principal and/or Surety, not as a penalty but as liquidated damages.

Signed this _____ Day of _____ 20_____

By: _____

(Contractor/Principal Name)

_____

(Signature and Title of Authorized Signatory for Contractor/Principal)

*By: _____

(Surety Name)

_____

(Signature of Attorney-in-Fact)

*Attach Power of attorney (Surety) for Attorney-in-Fact

Impressed Surety Seal Only

This form may be removed from the proposal.

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BIDDER'S CHECK RETURN

IMPORTANT

The space provided for the return address must be completed to facilitate the return of your bidder's check. Care must be taken to provide a legible, accurate, and <u>complete</u> return address, including zip code. A copy of this sheet should be used for each different return address.

NOTE

Successful bidders will receive their guaranty checks with the executed contract.

RETURN BIDDERS CHECK TO (PLEASE PRINT):

Control	**6471-50-001**
Project	**MMC - 647150001**
Highway	**US0069**
County	**JEFFERSON**

IMPORTANT

PLEASE RETURN THIS SHEET IN ITS ENTIRETY

Please acknowledge receipt of this check(s) at your earliest convenience by signing below in longhand, in ink, and returning this acknowledgement in the enclosed self addressed envelope.

Check Received By: _____ Date:_____

Title: _____

For (Contractor's Name): _____

Project _____ County_____

This page intentionally left blank.

NOTICE TO THE BIDDER

In the space provided below, please enter your total bid amount for this project. Only this figure will be read publicly by the Department at the public bid opening.

It is understood and agreed by the bidder in signing this proposal that the total bid amount entered below is not binding on either the bidder or the Department. It is further agreed that **the official total bid amount for this proposal will be determined by multiplying the unit bid prices for each pay item by the respective estimated quantities shown in this proposal and then totaling all of the extended amounts.**

$_____

Total Bid Amount

Control 0001-03-030
Project STP 2000(938)HES
Highway SH 20
County EL PASO

ALT	ITEM	DESC	SP	Bid Item Description	Unit	Quantity	Bid Price	Amount	Seq
	104	509		REMOV CONC (SDWLK)	SY	266.400	$10.000	$2,664.00	1

EXAMPLE

Total Bid Amount _____$2,664.00_____

Signed _____
Title _____
Date _____

Additional Signature for Joint Venture:

Signed _____
Title _____
Date _____

EXAMPLE OF BID PRICES SUBMITTED BY COMPUTER PRINTOUT

EXAMPLES

BID PRICES SUBMITTED BY HAND WRITTEN FORMAT

ALT	ITEM-CODE			UNIT BID PRICE ONLY WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC NO	S.P. NO.				
	190	026		RED OAK 1 1/2 - 1 3/4 GAL BB	EA	9.000	1
				EXAMPLE: One hundred fifty DLRS and No CENTS			

Unit price for each plant in place

	249	014		FLEX BASE(DEL)(DENSCOT)(TY A GR4 CL2)	TON	56,787.00	14
				EXAMPLE: Seven DLRS and Fifty three CENTS			

Unit price for each ton of Flexible Base

	430	001	001	CL A CONC FOR EXT STR (CULV)	CY	45.000	27
				EXAMPLE: Three hundred five DLRS and No CENTS			

Unit price for each cubic yard of Concrete

	610	007	001	RDWY ILL ASSEM(TY ST 50T-8-8)(.4 KW)S	EA	13.000	7
				EXAMPLE: Fourteen hundred sixteen DLRS and Thirty seven CENTS			

Unit price of each Roadway Illumination Assembly

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ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	8014	6009		CL A CONC(DEL)(CY)(81-100 MI FROM PLNT) DOLLARS and CENTS	CY	80.000	1
	8014	6019		CL C CONC(DEL)(CY)(81-100 MI FROM PLNT) DOLLARS and CENTS	CY	100.000	2
	8014	6024		CL HES CONC(DEL)(CY)(81-100MI FROM PLT) DOLLARS and CENTS	CY	100.000	3

CERTIFICATION OF INTEREST IN OTHER BID PROPOSALS FOR THIS WORK

By signing this proposal, the bidding firm and the signer certify that the following information, as indicated by checking “Yes” or “No” below, is true, accurate, and complete.

A. Quotation(s) have been issued in this firm's name to other firm(s) interested in this work for consideration for performing a portion of this work.

_____ YES

_____ NO

B. If this proposal is the low bid, the bidder agrees to provide the following information prior to award of the contract.

1. Identify firms which bid as a prime contractor and from which the bidder received quotations for work on this project.
2. Identify all the firms which bid as a prime contractor to which the bidder gave quotations for work on this project.

ENGINEER SEAL

Control **6471-50-001**

Project **MMC - 647150001**

Highway **US0069**

County **JEFFERSON**

The enclosed Texas Department of Transportation Specifications, Special Specifications, Special Provisions, General Notes and Specification Data in this document have been selected by me, or under my responsible supervision as being applicable to this project. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

The seal appearing on this document was authorized by

Henry Keith Horn, P.E.

JULY 25, 2024

GENERAL NOTES:

General:

The purpose of this Contract is to supply Hydraulic Cement Concrete (DEL) districtwide to the following sections below:

	Hydraulic Cement Concrete – CL A CONC, CL C CONC, CL HES CONC
	Beaumont Maintenance- Area of Responsibility
	Port Arthur Maintenance- Area of Responsibility
	Woodville Maintenance- Area of Responsibility
	Kountze Maintenance- Area of Responsibility
	Orange Maintenance- Area of Responsibility
	Newton Maintenance- Area of Responsibility
	Jasper Maintenance- Area of Responsibility
	Liberty Maintenance- Area of Responsibility
	Anahuac Maintenance- Area of Responsibility

Each Contract awarded by the Department stands on its own as such, is separate from other Contracts. A Contractor awarded multiple Contracts, must be capable and sufficiently staffed to concurrently process any or all Contracts at the same time.

Coordinate work through:

Maintenance Section	Address	Maintenance Supervisor
Beaumont	8450 Eastex Freeway Beaumont, TX 77708	Fred Miller Fred.Miller@txdot.gov 409-924-6522
Port Arthur	6101 Twin City Hwy Port Arthur, TX 77642	Carl Ray Carl.Ray@txdot.gov 409-722-4694
Kountze	1942 US 69 North Kountze, TX 77625	Steven Singleton Steven.Singleton@txdot.gov 409-246-2300
Woodville	1270 US 69 North Woodville, TX 75979	Jeremy Smith Jeremy.Smith@txdot.gov 409-283-2451
Orange	3128 HWY 62 North Orange, TX 77632	James Hand James.R.Hand@txdot.gov 409-883-3476

Newton	1009 W. Court St. Newton, TX 75966	Cecil Wade Cecil.Wade@txdot.gov 409-379-4681
Jasper	3304 US HWY 190 West Jasper, TX 75951	Jay Castleberry Jay.Castleberry@txdot.gov 409-384-6260
Liberty	209 Layl Dr Liberty, TX 77575	Jesse Flake Jesse.Flake@txdot.gov 936-336-5669
Anahuac	503 N Ross Sterling Anahuac, TX 77514	Kevin Emerson Kevin.Emerson@txdot.gov 409-267-3611
District Maintenance	8350 Eastex Freeway Beaumont, TX 77708	Brad Murray Brad.Murray@txdot.gov 409-898-5829

Section 10. 2 - Instructions to Bidders:

This project includes plan sheets that are not part of the bid proposal. View or download plans at:

https://www.dot.state.tx.us/business/plansonline/ftpinfo.htm

Contractor questions on this project are to be addressed to the following individuals:

Keith Horn, P.E. – Director of Maintenance
Keith.Horn@txdot.gov

Tiffany McCray – Contract Specialist
Tiffany.McCray@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All Contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

SECTION 10.3 – Award and Execution of Contract:

If several Contracts are awarded to the same Contractor, the Contractor shall be sufficiently equipped to concurrently supply each Contract material. Each Contract awarded by the Department stands on its own and as such, is separate from other Contracts.

Material requests shall be issued by Work Order to the Contractor a minimum of 7 calendar days in advance unless expedited items therefore allowing a minimum of 48 hours. Each Work Order shall specify quantities to be delivered, location of delivery, and days to complete Work Order.

Section 10.4 – Scope of Work:

Prior to beginning operations, the Department will arrange a coordination call or virtual meetings between designated representatives of the Department and the Contractor. In this meeting, the representatives from all parties will discuss the Contract, proposed procedures, and plans for performing the work while providing safe passage for traffic at all times. Specifications, unusual conditions, and other pertinent items regarding the work will also be discussed. Limit the use of the roadway for the hauling of material to legal loads. Keep the traveled surfaces used in hauling operations free of dirt or other materials.

In accordance with Section 10.4.3, TXDOT does not guarantee a specific volume to be purchased. No minimum compensation to the Contractor is guaranteed. Quantities indicated for each Item in the Contract are estimates only and are based on the previous usage. These estimates should not be construed as a minimum or maximum quantity to be ordered. The acceptance of this Contract also does not guarantee that any materials may be requested or ordered.

If a delivery location changes by more than five miles, either party can request an adjustment to the Contract for changes in freight trucking cost.

In accordance with Section 10.4.3.1, this Contract may be extended once not to exceed 365 calendar days and can’t exceed the original Contract time if mutually agreed.

Section 10.8 - Prosecution and Progress:

There are 365 calendar days on this Contract. Calendar days will be charged in accordance with Section 10.8.2, "Contract Term".

Each work order will specify a delivery site by the bid Item in the Contract and quantity to be supplied.

All material delivery tickets must include the Work Order number and be signed, dated, and list the arrival/departure times by the Department representative upon arrival at final delivery location. Measurement of this Item will be measured by the ton as defined in the plans and specifications.

In the event of a delay in delivery of materials notify the Maintenance Supervisor for the work order immediately by phone and provide documentation, in writing, to the office of record upon completion of delivery.

Failure to complete a work order will incur damages in accordance with Section 10.8.6. Actual damages incurred will be deducted from the work order payment and calculations will be provided upon request.

SECTION 10.9 – MEASUREMENT AND PAYMENT:

Contractor is responsible for obtaining annual overweight tolerance permit if hauling material which exceeds the legal road weight.

Trucks may be held up for 2-hours at the jobsite at no additional expense to the Department. Written documentation of arrival will be used when calculation demurrage charges and included on an invoice submitted to the managing office. The Department will specify the arrival time and delivery frequency on the work order provided to the Contractor. If the Contractor arrives prior to the specified delivery time, the 2-hour hold will not begin until the arrival time specified on the work order.

Contractor will provide demurrage rate per truck, per 15-min increment, and the Coordination call prior to beginning work on the Contract.

Demurrage charges will be invoiced in 15-min increments, rounded down to the nearest whole increment. Contractor will be required to provide documentation for the demurrage per truck.

ITEM 8014 – Hydraulic Cement Concrete (Materials Only)

Special Specification 8014 Hydraulic Cement Concrete (Materials Only) Furnish hydraulic cement concrete that meet the requirements of the specification.

(Site Delivery). 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 “Hydraulic Cement Concrete” of the class specified. This price is full compensation for furnishing materials, sampling, loading, hauling, delivery of materials to the site specified in the plans, labor for measuring, and for equipment, labor, tools, and incidentals.

The site locations and contact information are listed at the beginning of these general notes.

For Hauling Operations:

Deliveries will be made between the hours of 7:00 AM and 4:00 PM CST Monday through Thursday unless prior arrangements have been made with Beaumont District Maintenance, Beaumont, Port Arthur, Kountze, Orange, Newton, Jasper, Liberty, Anahuac or Woodville Maintenance Section.

CONTROL : 6471-50-001
PROJECT : MMC - 647150001
HIGHWAY : US0069
COUNTY : JEFFERSON

TEXAS DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014. STANDARD SPECIFICATIONS ARE INCORPORATED INTO THE CONTRACT BY REFERENCE.

ITEM 10 MAINTENANCE AND TRAFFIC MATERIALS CONTRACTS

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL PROVISION "NONDISCRIMINATION" (000---002)
SPECIAL PROVISION "CERTIFICATE OF INTERESTED PARTIES (FORM 1295)" (000--1019)
SPECIAL PROVISION TO ITEM 10 (010---001)

SPECIAL SPECIFICATIONS:

ITEM 8014 HYDRAULIC CEMNET CONCRETE (MATERIALS ONLY)

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFICATIONS FOR THIS PROJECT.

CHILD SUPPORT STATEMENT

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

CONFLICT OF INTEREST CERTIFICATION

Pursuant to Texas Government Code Section 2261.252(b), the Department is prohibited from entering into contracts in which Department officers and employees have a financial interest.

By signing the Contract, the Contractor certifies that it is not prohibited from entering into a Contract with the Department as a result of a financial interest as defined under Texas Government Code Section 2261.252(b), and that it will exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict of interest with the Department.

The Contractor also certifies that none of the following individuals, nor any of their family members within the second degree of affinity or consanguinity, owns 1% or more interest or has a financial interest as defined under Texas Government Code Section 2261.252(b) in the Contractor:

- Any member of the Texas Transportation Commission; and
- The Department's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, and Director of Contract Services.

Violation of this certification may result in action by the Department.

E-VERIFY CERTIFICATION

Pursuant to Texas Transportation Code §223.051, all TxDOT contracts for construction, maintenance, or improvement of a highway must include a provision requiring Contractors and subcontractors to use the U.S. Department of Homeland Security's E-Verify system to determine employment eligibility. By signing the contract, the Contractor certifies that prior to the award of the Contract:

- the Contractor has registered with and will, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the Contract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement; and
- the Contractor will require that all subcontractors also register with and, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the subcontract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement.

Violation of this requirement constitutes a material breach of the Contract, subjects a subcontractor to removal from the Contract, and subjects the Contractor or subcontractors to possible sanctions in accordance with Title 43, Texas Administrative Code, Chapter 10, Subchapter F, "Sanctions and Suspension for Ethical Violations by Entities Doing Business with the Department."

Certification Regarding Disclosure of Public Information

Pursuant to Subchapter J, Chapter 552, Texas Government Code, contractors executing a contract with a governmental body that results in the expenditure of at least $1 million in public funds must:

1) preserve all contracting information* as provided by the records retention requirements applicable to Texas Department of Transportation (TxDOT) for the duration of the contract,
2) on request of TxDOT, promptly provide any contracting information related to the contract that is in the custody or possession of the entity, and
3) on completion of the contract, either:
    A. provide, at no cost to TxDOT, 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 TxDOT

The requirements of Subchapter J, Chapter 552, Government Code, may apply to this contract, 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.

By entering into Contract, the Contractor agrees to:

- provide, or make available, to TxDOT and any authorized governmental investigating or auditing agency all records, including electronic and payment records related to the contract, for the same period provided by the records retention schedule applicable to TxDOT, and
- ensure that all subcontracts include a clause requiring the same.

* As defined in Government Code §552.003, "Contracting information" means the following information maintained by a governmental body or sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor:

1) information in a voucher or contract relating to the receipt or expenditure of public funds by a governmental body;
2) solicitation or bid documents relating to a contract with a governmental body;
3) communications sent between a governmental body and a vendor, contractor, potential vendor, or potential contractor during the solicitation, evaluation, or negotiation of a contract;
4) documents, including bid tabulations, showing the criteria by which a governmental body evaluates each vendor, contractor, potential vendor, or potential contractor responding to a solicitation and, if applicable, an explanation of why the vendor or contractor was selected; and
5) communications and other information sent between a governmental body and a vendor or contractor related to the performance of a final contract with the governmental body or work performed on behalf of the governmental body.

CERTIFICATION TO NOT BOYCOTT ISRAEL

Pursuant to Texas Government Code §2271.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott Israel, as defined in Government Code §808.001, and will not boycott Israel during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott Israel and will not boycott Israel during the term of this contract. “Boycott” 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 purposes.

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT BOYCOTT ENERGY COMPANIES

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor does not boycott energy companies, as defined in Government Code §809.001, and will not boycott energy companies during the term of the contract. This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not boycott energy companies and will not boycott energy companies during the term of this contract. “Boycott” means taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with a company because the company: (1) 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 (2) does business with a company described by (1).

Violation of this certification may result in action by the Department.

CERTIFICATION TO NOT DISCRIMINATE AGAINST FIREARM ENTITIES OR FIREARM TRADE ASSOCIATIONS

Pursuant to Texas Government Code §2274.002, the Department must include a provision requiring a written verification affirming that the Contractor:

1) does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association, as defined in Government Code §2274.001, and
2) will not discriminate against a firearm entity or firearm trade association during the term of the contract.

This provision applies to a contract that:

1) is with a Contractor that is not a sole proprietorship,
2) is with a Contractor with 10 or more full-time employees, and
3) has a value of $100,000 or more.

By signing the contract, the Contractor certifies that it does not discriminate against a firearm entity or firearm trade association as described and will not do so during the term of this contract. "Discriminate against a firearm entity or firearm trade association" means, with respect to the entity or association, to: (1) 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; (2) 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 (3) terminate an existing business relationship with the entity or association based solely on its status as a firearm entity or firearm trade association. "Discriminate against a firearm entity or firearm trade association" does not include: (1) the established policies of a merchant, retail seller, or platform that restrict or prohibit the listing or selling of ammunition, firearms, or firearm accessories; (2) a company's refusal to engage in the trade of any goods or services, decision to refrain from continuing an existing business relationship, or decision to terminate an existing business relationship to comply with federal, state, or local law, policy, or regulations or a directive by a regulatory agency, or for any traditional business reason that is specific to the customer or potential customer and not based solely on an entity 's or association's status as a firearm entity or firearm trade association.

Violation of this certification may result in action by the Department.

Special Provision to Item 000
Nondiscrimination

1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws including Title VI of the Civil Rights Act of 1964, as amended, (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

Texas Department of Transportation, as a recipient of Federal financial assistance, and under Title VI 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.C. § 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.

2. DEFINITION OF TERMS

Where the term “contractor” appears in the following six nondiscrimination clauses, the term “contractor” is understood to include all parties to contracts or agreements with the Texas Department of Transportation.

3. NONDISCRIMINATION PROVISIONS

During the performance of this contract, the contractor agrees as follows:

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

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

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

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

3.5. **Sanctions for Noncompliance**. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Recipient shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:

- withholding of payments to the contractor under the contract until the contractor complies, and/or
- cancellation, termination or suspension of the contract, in whole or in part.

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

Special Provision 000
Certificate of Interested Parties (Form 1295)

Submit a notarized Form 1295, "Certificate of Interested Parties," in the following instances:

- at Contract execution for Contracts awarded by the Commission;
- at Contract execution for Contracts awarded by the District Engineer or Chief Engineer with an award amount of $1,000,000 or more; at any time an existing Contract awarded by the District Engineer or Chief Engineer increases in value to $1,000,000 or more due to changes in the Contract; at any time there is an increase of $1,000,000 or more to an existing Contract (change orders, extensions, and renewals); or
- at any time there is a change to the information in Form 1295, when the form was filed for an existing Contract.

Form 1295 and instructions on completing and filing the form are available on the Texas Ethics Commission website.

Special Provision to Item 10
Maintenance and Traffic Materials Contracts

ITEM 10 APPLIES TO MAINTENANCE MATERIALS (MMC) AND TRAFFIC MATERIALS CONTRACTS (TMC) WITH NO FEDERAL FUNDS BEING USED. ITEMS 1–9 DO NOT APPLY TO MMC AND TMC CONTRACTS.

1. ABBREVIATIONS AND DEFINITIONS

1.1. **Applicability.** Wherever the following terms are used in these specifications or other Contract documents, the intent and meaning will be interpreted as shown below.

1.2. **Abbreviations.**

AASHTO	American Association of State Highway and Transportation Officials
AMRL	AASHTO Materials Reference Laboratory
ANSI	American National Standards Institute
ASNT	American Society for Nondestructive Testing
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
DMS	Departmental Material Specification
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration, U.S. Department of Transportation
MPL	Material Producer List
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NRM	Nonhazardous Recyclable Material
NTPEP	National Transportation Product Evaluation Program
OSHA	Occupational Safety & Health Administration, U.S. Department of Labor
PS&E	Plans, Specifications, and Estimates
QA	Quality Assurance
QC	Quality Control
SBE	Small Business Enterprise
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
USC	United States Code

1.3. **Definitions.**

1.3.1. **Actual Cost**. Contractor's actual cost to provide material, including labor, equipment, and project overhead necessary for the work.

1.3.2. **Addendum**. Change in proposal forms developed between advertising and bid submittal deadline.

1.3.3. **Advertisement**. The public announcement required by law inviting bids for work to be performed or materials to be furnished.

1.3.4. **Affiliates**. Two or more Bidders are affiliated if they share common officers, directors, or stockholders; a family member of an officer, director, or stockholder of one Bidder serves in a similar capacity in another of the Bidders; an individual who has an interest in, or controls a part of, one Bidder either directly or indirectly also has an interest in, or controls a part of, another of the Bidders; the Bidders are so closely connected or associated that one of the Bidders, either directly or indirectly, controls or has the power to control another Bidder; one Bidder controls or has the power to control another Bidder; or the Bidders are closely allied

through an established course of dealings including, but not limited to the lending of financial assistance. Refer to 43 TAC §9.12(g), "Affiliated Entities."

1.3.5. **Anticipated Profit**. Profit for work not performed.

1.3.6. **Apparent Low Bidder**. The Bidder determined to have the numerically lowest total bid as a result of the tabulation of bids by the Department.

1.3.7. **Award**. The Commission's acceptance of a Contractor's bid for a proposed Contract that authorizes the Department to enter into a Contract.

1.3.8. **Bid**. The offer from the Bidder for performing the work described in the proposal.

1.3.9. **Bid Bond**. The security executed by the Contractor and the Surety furnished to the Department to guarantee payment of liquidated damages if the Contractor fails to enter into an awarded Contract.

1.3.10. **Bid Error**. A mathematical mistake made by a Bidder in the unit price entered into the proposal.

1.3.11. **Bidder**. An individual, partnership, limited liability company, corporation, or joint venture submitting a bid for a proposed Contract.

1.3.12. **Bidders Questionnaire**. A prequalification form that reflects detailed equipment and experience data but waives audited financial data.

1.3.13. **Callout Work**. A type of Contract that requires a Contractor's response on an as-needed basis through issuance of a work order.

1.3.14. **Certificate of Insurance**. A form approved by the Department covering insurance requirements stated in the Contract.

1.3.15. **Change Order**. Written order to the Contractor detailing changes to the specified work, item quantities, or any other modification to the Contract.

1.3.16. **Commission**. The Texas Transportation Commission or authorized representative.

1.3.17. **Confidential Questionnaire.** A prequalification form that reflects detailed financial and experience data.

1.3.18. **Contract**. The agreement between the Department and the Contractor establishing the obligations of the parties for furnishing of materials and performance of the work prescribed in the Contract documents.

1.3.19. **Contract Documents**. Elements of the Contract including, but not limited to the plans, specifications incorporated by reference, special provisions, special specifications, bid bond, change orders, and supplemental agreements.

1.3.20. **Contract Term.** The number of calendar days until the contract terminates or the date the contract terminates, unless extended by mutual agreement.

1.3.21. **Contractor**. The individual, partnership, limited liability company, corporation, or joint venture and all principals and representatives with which the Contract is made by the Department. For MMC and TMC contracts and these specifications, the contracted material supplier is considered a Contractor.

1.3.22. **Debar (Debarment)**. Action taken by the Department or federal government pursuant to regulation that prohibits a person or company from entering into a Contract, or supplier of materials or equipment used in a highway improvement Contract as defined in Transportation Code, Chapter 223, Subchapter A.

1.3.23. **Department**. The Texas Department of Transportation (TxDOT).

1.3.24. **Departmental Materials Specifications**. Reference specifications for various materials published by the Materials and Tests Division.

1.3.25. **Electronic Vault**. The Department's bidding system where electronic bids are stored before bid opening.

1.3.26. **Escalation Ladder.** A process to determine issue resolution during the course of the Contract.

1.3.27. **Engineer**. The Chief Engineer of the Department or the authorized representative of the Chief Engineer.

1.3.28. **Expedited Work Order.** A work order requiring material to be delivered within 48 hr.

1.3.29. **Family Member**. A family member of an individual is the individual's parent, parent's spouse, step-parent, step-parent's spouse, sibling, sibling's spouse, spouse, child, child's spouse, spouse's child, spouse's child's spouse, grandchild, grandparent, uncle, uncle's spouse, aunt, aunt's spouse, first cousin, or first cousin's spouse. Refer to 43 TAC § 9.12(g), "Affiliated Entities."

1.3.30. **Hazardous Materials or Waste**. Hazardous materials or waste include but are not limited to explosives, compressed gas, flammable liquids, flammable solids, combustible liquids, oxidizers, poisons, radioactive materials, corrosives, etiologic agents, and other material classified as hazardous by 40 CFR 261, or applicable state and federal regulations.

1.3.31. **Independent Assurance Tests**. Tests used to evaluate the sampling and testing techniques and equipment used in the acceptance program. The tests are performed by the Department and are not used for acceptance purposes.

1.3.32. **Inspector**. The person assigned by the Engineer to inspect for compliance with the Contract and the materials used.

1.3.33. **In Writing.** Communication memorialized to include written or electronic documentation via email or letter only.

1.3.34. **Joint Venture**. Any combination of individuals, partnerships, limited liability companies, or corporations submitting a single bid proposal.

1.3.35. **Letting**. The receipt, opening, tabulation, and determination of the apparent low Bidder.

1.3.36. **Letting Official**. The Executive Director or any Department employee empowered by the Executive Director to officially receive bids and close the receipt of bids at a letting.

1.3.37. **Licensed Professional Engineer**. A person who has been duly licensed by the Texas Board of Professional Engineers to engage in the practice of engineering in the State of Texas; also referred to as a Professional Engineer.

1.3.38. **Maintenance Materials Contract**. A type of Contract for the purchase of roadway materials.

1.3.39. **Material Producer List**. Department maintained list of approved products.

1.3.40. **Materially Unbalanced Bid**. A bid that generates a reasonable doubt that award to the Bidder submitting a mathematically unbalanced bid will result in the lowest ultimate cost to the State.

1.3.41. **Materials Contract**. A Contract entered under Transportation Code, Chapter 223, Subchapter A, for roadway materials, traffic control devices, or safety devices. These contracts are designated as "MMC" and "TMC" for Maintenance Materials or Traffic Materials contracts respectively.

1.3.42. **Materials Supplier's Questionnaire.** A prequalification form that reflects basic information, such as company contact, signature authority, and other requirements, but waives financial, equipment, and experience data.

1.3.43. **Mathematically Unbalanced Bid**. A bid containing bid prices that do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs, and other indirect costs.

1.3.44. **National Holidays**. January 1, the last Monday in May, July 4, the first Monday in September, the fourth Thursday in November, December 24, and December 25.

1.3.45. **Nonhazardous Recyclable Material**. A material recovered or diverted from the nonhazardous waste stream for the purposes of reuse or recycling in the manufacture of products that may otherwise be produced using raw or virgin materials.

1.3.46. **Nonresident Bidder**. A Bidder whose principal place of business is not in Texas. This includes a Bidder whose ultimate parent company or majority owner does not have its principal place of business in Texas.

1.3.47. **Nonresponsive Proposal**. A proposal that does not meet the criteria for acceptance contained in the proposal form.

1.3.48. **Notification**. Either written or oral instruction to the Contractor. Voice mail is oral notification.

1.3.49. **Plans**. The drawings approved by the Engineer, including true reproductions of the drawings that may show the location, character, dimensions, and details of the work and are a part of the Contract. Documents may include drawings or digital files.

1.3.50. **Power of Attorney for Bid Bonds**. An instrument under corporate seal appointing an attorney in fact to act on behalf of a Surety in signing bonds.

1.3.51. **Prequalification**. The process for determining a Contractor's eligibility to bid work.

1.3.52. **Prequalification Statement**. The forms on which required information is furnished concerning the Contractor's ability to perform and finance the work.

1.3.53. **Producer Price Index (PPI)**. As defined by the US Bureau of Labor Statistics, program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.

1.3.54. **Proposal**. The offer from the Bidder submitted on the prescribed form, including addenda issued, giving unit bid prices for performing the work described in the plans and Specifications.

1.3.55. **Proposal Form**. The form printed and sent to the Bidder by the Department or printed by the Bidder from the Department's bidding system.

1.3.56. **Proposal Guaranty**. The security furnished by the Bidder as a guarantee that the Bidder will enter into a Contract if awarded the work.

1.3.57. **Quality Assurance**. Sampling, testing, inspection, and other activities conducted by the Engineer to determine payment and make acceptance decisions.

1.3.58. **Quality Control**. Sampling, testing, and other process control activities conducted by the Contractor to monitor production and placement operations.

1.3.59. **Referee Tests**. Tests requested to resolve differences between Contractor and Engineer test results. The referee laboratory is the Materials and Tests Division.

1.3.60. **Regular Item**. A bid item contained in a proposal.

1.3.61. **Responsive Bid**. A proposal that meets all requirements of the proposal form for acceptance.

1.3.62. **Roadside**. The areas between the outside edges of the shoulders and the right of way boundaries.

1.3.63. **Special Provisions**. Additions or revisions to these standard specifications or special specifications.

1.3.64. **Special Specifications**. Supplemental specifications applicable to the Contract not covered by these standard specifications.

1.3.65. **Specifications**. Directives or requirements issued or made pertaining to the method and manner of performing the work or to quantities and qualities of materials to be furnished under the Contract. References to DMSs, ASTM or AASHTO specifications, or Department bulletins and manuals, imply the latest standard or tentative standard in effect on the date of the proposal. The Engineer will consider incorporation of subsequent changes to these documents in accordance with Article 10.4, "Scope of Work."

1.3.66. **State**. The State of Texas.

1.3.67. **State Holiday**. A holiday authorized by the State Legislature excluding optional state holidays and not listed in Section 10.1.3.44., "National Holidays." A list of state holidays can be found on the Department's website.

1.3.68. **Subsidiary**. Materials, labor, or other elements that because of their nature or quantity have not been identified as a separate item and are included within the items on which they necessarily depend.

1.3.69. **Supplier's Agent**. The representative of the Contractor who is available at all times and able to receive instructions from the Engineer or authorized Department representatives and to act for the Contractor.

1.3.70. **Suspension**. Action taken by the Department or federal government pursuant to regulation that prohibits a person or company from entering into a Contract, or supplier of materials or equipment used in a highway improvement Contract as defined in Transportation Code, Chapter 223, Subchapter A.

1.3.71. **Traffic Materials Contract**. A type of Contract for the purchase of traffic control and safety devices.

1.3.72. **Verification Tests**. Tests used to verify accuracy of QC and QA and mixture design testing.

1.3.73. **Wholly-Owned Subsidiary**. A legal entity owned entirely by the Contractor.

1.3.74. **Work**. The furnishing of all approved materials necessary for the successful completion of the Contract.

1.3.75. **Work Authorization**. A letter issued to the Contractor by the Department to notify when calendar day charges are beginning on the Contract. This letter of notification could be tied with the issuance of the first work order.

1.3.76. **Work Order**. Written notice to the Contractor to provide a specified quantity of materials in accordance with the Contract. The work order may contain other specific instructions for the Contractor. A work order is part of the Contract.

1.3.77. **Work Order Time.** Time (days) specified in the Contract for the completion of all deliveries specified in a work order. The time begins with the date of the work order.

1.3.78. **Written Notice**. Written notice is considered to have been duly given if delivered in person to the individual or member to whom it is intended or if sent by regular, registered, or certified mail and delivered to the last known business address; sent by facsimile to the last known phone number; or sent by e-mail to the last known address. The date of the letter will serve as the beginning day of notice. Unclaimed mail or failure to provide current contact information will not be considered a failure to provide written notice.

2. INSTRUCTIONS TO BIDDERS

2.1. **Introduction.** Instructions to the Contractor in these Specifications are generally written in active voice, imperative mood. The subject of imperative sentences is understood to be "the Contractor." The Department's responsibilities are generally written in passive voice, indicative mood. Phrases such as "as approved," "unless otherwise approved," "upon approval," "as directed," "as verified," "as ordered," and "as determined" refer to actions of the Engineer unless otherwise stated, and it is understood that the directions, orders, or instructions to which they relate are within the limitations of and authorized by the Contract.

2.2. **Eligibility of Bidders.** Obtain a prequalification form from the Department's website. A Bidder may choose to be prequalified by submitting either a Confidential Questionnaire (CQ), a Bidder's Questionnaire (BQ), or a Materials Supplier's Questionnaire (MQ). Submit the appropriate questionnaire at least 10 calendar days before the last day of the bid opening for the District or statewide letting. Comply with all technical prequalification requirements in the proposal. Once prequalified, a Bidders eligibility is valid for a period of 1 yr. Bidding capacity and available bidding capacity does not apply to MMC and TMC contracts.

Reference 43 TAC §§ 9.11, "Definitions," and 9.12, "Qualification of Bidders."

2.2.1. **Confidential Questionnaire (CQ)**. Submit a CQ and an audited financial statement for approval. Once prequalified, a Bidder's eligibility is valid for a period of 1 yr. from the balance sheet statement date.

2.2.2. **Bidder's Questionnaire (BQ)**. Bidders prequalified with a BQ are only eligible to bid on projects identified as being waived from the requirements of Section 10.2.2.1., "Confidential Questionnaire (CQ)." Materials Contract proposals are designated with a "MW" on the Proposal Request Form. Submit a BQ for approval. Once prequalified, a Bidder's eligibility is valid for a period of 1 yr. from the date the BQ was received by the Department.

2.2.3. **Materials Supplier's Questionnaire (MQ)**. A prequalification form, prescribed by the Department, that gathers information, such as company contact, signature authority, and other requirements, to allow a person to bid on a materials contract, i.e., for maintenance materials, traffic control devices, or safety devices. Bidders that submit only an MQ are eligible to bid only on a materials contract. Moreover, bidding capacity does not apply for a materials contract. An uncompleted materials contract does not affect the bidding capacity or available bidding capacity of a Bidder who submits a CQ or a BQ.

2.3. **Issuing Proposal Forms.** The Department will issue a proposal form to a prequalified Bidder as prescribed in Section 10.2.2. "Eligibility of Bidders." Request a proposal form electronically from the Department's website. A proposal form printed directly from the Department's website is for informational purposes only and will not be accepted as an official proposal form. In the case of a joint venture, all joint venture participants must be prequalified.

The Department will not issue a proposal form if one or more of the following apply:

- the Bidder is suspended or debarred by the Commission or the Department,
- the Bidder has not fulfilled the requirements for prequalification,
- the Bidder is prohibited from rebidding a specific proposal form due to a bid error on the original proposal form,
- the Bidder failed to enter into a Contract on the original award,
- the Bidder was defaulted or terminated on the original Contract, unless the Department terminated in the best interest of the State or the public,
- the Bidder or a subsidiary or affiliate of the Bidder has received compensation from the Department to participate in the preparation of the plans or specifications on which the bid or Contract is based,
- the Bidder is ineligible to bid on any proposed Contract in accordance with Article 10.7.8., "Responsibility for Damage Claims,"
- the Bidder is prohibited from participating in the contract because of a decision of the Deputy Executive Director under 43 TAC § 9.24 "Performance Review Committee and Actions",

- the Bidder failed to attend a mandatory pre-bid conference, or
- the Bidder or affiliate of the Bidder that was originally determined as the apparent low Bidder on a project, but was deemed nonresponsive for failure to register or participate in the Department of Homeland Security (DHS) E-Verify system as specified in Section 10.2.14., "Department of Homeland Security (DHS) E-Verify System," is prohibited from rebidding that specific project.

Reference 43 TAC §§ 9.12, "Qualification of Bidders," and 9.13, "Notice of Letting and Issuance of Bid Forms."

2.4. **Interpreting Estimated Quantities.** The quantities listed in the proposal form are approximate and will be used for the comparison of bids. Payments will be made for the work performed in conformance with the Contract.

2.5. **Examining Documents and Work Locations.** Examine the proposal form, plans, specifications, and specified work locations before submitting a bid for the work. Submitting a bid will be considered evidence that the Bidder has performed this examination.

Oral explanations, instructions, or consideration for Contractor-proposed changes in the proposal form given during the bidding process are not binding. Only requirements included in the proposal form, associated specifications, plans, and Department-issued addenda are binding. Request explanations of documents in adequate time to allow the Department to reply before the bid opening.

Immediately notify the Department of any error, omission, or ambiguity discovered in any part of the proposal form and Contract documents. The Department will issue addenda when appropriate.

2.6. **Preparing the Bid.** Prepare the bid on the proposal form furnished by the Department. Informational proposal forms printed from the Department's website will not be accepted.

Specify a unit price in dollars and cents for each regular item.

The Department will not accept an incomplete bid. A bid that has one or more of the deficiencies listed below is considered incomplete:

- certifications were not acknowledged,
- a regular item left blank,
- the proposal form submitted had the incorrect number of items,
- the Bidder did not acknowledge all addenda, or
- additionally, for printed bids:
  - the blank spaces for each item as required in the bid form are not filled in by writing in words in ink,
  - the bid was not signed in ink in the complete and correct name of the bidder making the bid, and signed by the person or persons authorized to bind the bidder, or
  - unit prices were not stated in dollars and cents for each bid item listed in the bid form.

Reference 43 TAC § 9.14, "Submittal of Bid."

2.7. **Nonresponsive Bid.** The Department will not accept a nonresponsive bid. A bid that has one or more of the deficiencies listed below is considered nonresponsive:

- the bid was not in the hands of the Letting Official at the time and location specified in the advertisement,
- a proposal form was submitted for the same project by a Bidder or Bidders and one or more of its partners or affiliates, unless the Executive Director has granted an affiliation exception under 43 TAC § 9.12, "Qualification of Bidders,"
- the Bidder was not authorized to receive a proposal form under Section 10.2.3., "Issuing Proposal Forms,"

- the Bidder failed to acknowledge receipt of all addenda issued,
- the proposal form was signed by a person who was not authorized to bind the Bidder or Bidders,
- the proposal guaranty did not comply with the requirements contained in this Item,
- the bid was in a form other than the official proposal form issued by the Department,
- the Bidder modified the bid in a manner that altered the conditions or requirements for work as stated in the proposal form,
- a typed proposal form does not contain the information in the format shown on the "Example of Bid Prices Submitted by Computer Printout" in the proposal form,
- the Bidder did not meet the requirements of the technical qualification, or
- the Bidder failed to participate in the Department of Homeland Security (DHS) E-Verify system as specified in Section 10.2.14.

Reference 43 TAC § 9.15, "Acceptance, Rejection, and Reading of Bids."

2.8. **Electronic Bid.** The Bidder is responsible for taking the appropriate measures to submit a bid. These measures include, but are not limited to acquiring hardware, software, and Internet connectivity needed for submitting a bid via the Department's bidding system.

2.8.1. **Proposal Form.** Use the electronic proposal form in the Department's bidding system. Acknowledge all addenda listed in the Department's bidding system.

The electronic proposal form does not contain the special provisions, special specifications, general notes, and other Contract documents. These documents are included by reference.

2.8.2. **Proposal Guaranty**. Provide a proposal guaranty in the amount indicated on the proposal form. Use an electronic bid bond. Guaranty checks or printed bid bonds will not be accepted.

For a joint venture, the bond must be in the name of all joint venture participants. Enter the bond authorization code into the Department's bidding system.

It is the Bidder's responsibility to ensure the electronic bid bond is issued in the name or Department vendor ID numbers of the Bidder or Bidders.

2.8.3. **Submittal of Bid**. Submit the bid to the vault using the Department's bidding system.

2.8.4. **Revising the Proposal Form**. Make desired changes in the Department's bidding system up until the time and date set for the opening of bids. The last bid submitted to the vault will be used for tabulation purposes.

2.8.5. **Withdrawing a Bid**. Submit an electronic or written request to withdraw a bid before the time and date set for the opening. The Department will not accept oral requests. An electronic request must be made using the Department's bidding system.

A written request must be signed and submitted to the Letting Official conducting the letting with proof of identification. The request must be made by a person authorized to bind the Bidder or Bidders. In the case of joint venture, the Department will accept a request from any person authorized to bind a party to the joint venture. The Department may require written delegation of authority to withdraw a bid when the individual sent to withdraw the bid is not authorized to bind the Bidder or Bidders.

2.9. **Printed Bid.**

2.9.1. **Proposal Form**. Mark all entries in ink. As an alternative to hand writing the unit prices in the proposal form, submit a typed proposal form. A typed proposal form must contain the information in the format shown on the "Example of Bid Prices Submitted by Computer Printout" in the proposal form.

Acknowledge all addenda by checking the appropriate box on the addendum acknowledgement page. Provide the complete and correct name of the Bidder submitting the bid. A person authorized to bind the Bidder must sign the proposal form. In the case of a joint venture, provide the complete and correct name of all Bidders submitting the bid. In the case of a joint venture, the person signing the proposal form must be authorized to bind all joint venture participants.

2.9.2. **Proposal Guaranty**. Provide a proposal guaranty in the amount indicated on the proposal form. Use either a guaranty check or a printed bid bond. An electronic bid bond may be used as the guaranty. Ensure the electronic bid bond meets the requirements of Section 10.2.8.2., "Proposal Guaranty," and submit the electronic bid bond with the printed bid.

2.9.2.1. **Guaranty Check**. When utilized, make the check payable to the Texas Transportation Commission or the Texas Department of Transportation. The check must be a cashier's check, money order, or teller's check drawn by or on a state or national bank, or a state or federally chartered credit union (collectively referred to as "bank"). The check must be dated on or before the date of the bid opening. Postdated checks will not be accepted. The type of check or money order must be indicated on the face of the instrument, except in the case of a teller's check, and the instrument must be no more than 90 days old. A check must be made payable at or through the institution issuing the instrument; be drawn by a bank and on a bank; or be payable at or through a bank. The Department will not accept personal checks, certified checks, or other types of money orders.

2.9.2.2. **Bid Bond**. When a bond is utilized, use the bid bond form provided by the Department. Submit the bid bond in the amount specified with the powers of attorney dated and attached. The bond must be dated on or before the date of the bid opening, bear the impressed seal of the Surety, and be signed by the Bidder or Bidders and an authorized individual of the Surety. As an alternative for joint venture Bidders, each of the Bidders may submit a separate bid bond completed as outlined in this Section. Bid bonds will only be accepted from Sureties authorized to execute a bond under and in accordance with state law.

2.9.3. **Submittal of Bid**. Place the completed proposal form and the proposal guaranty in a sealed envelope marked to indicate the contents.

When submitting by mail or delivery service, place the envelope in another sealed envelope and address as indicated in the official advertisement. It is the Bidder's responsibility to ensure that the sealed bid arrives at the location described on or before the time and date set for the bid opening. To be accepted, the bid must be in the hands of the Letting Official by that time of opening regardless of the method chosen for delivery.

2.9.4. **Revising the Proposal Form**. Make desired changes to the proposal form in ink, initial each change made, and submit the proposal to the Letting Official. Correction fluid or tape will be considered a change to the bid and requires the initials of the Bidder. The Department will not make revisions to a bid on behalf of a Bidder.

2.9.5. **Withdrawing a Bid**. Submit to the Letting Official conducting the letting a written request to withdraw a bid before the time and date set for the opening. The Department will not accept oral requests. A written request must be signed and submitted to the Letting Official with proof of identification. The request must be made by a person authorized to bind the Bidder or Bidders. In the case of joint venture, the Department will accept a request from any person authorized to bind a party to the joint venture. The Department may require written delegation of authority to withdraw a bid when the individual sent to withdraw the bid is not authorized to bind the Bidder or Bidders.

2.10. **Opening and Reading of Bids.** At the time, date, and location specified in the official advertisement, the Letting Official will publicly open and read bids.

2.11. **Tabulating Bids.**

2.11.1. **Official Total Bid Amount**. The Department will sum the products of the quantities and the unit prices bid in the proposal form to determine the official total bid amount, except as provided in Section 10.2.11.5., "Consideration of Unit Prices." The official total bid amount is the basis for determining the apparent low Bidder. The total bid amounts will be compared, and the results made public.

2.11.2. **Consideration of Bid Format**. When a Bidder submits both an electronic bid and a printed bid that is responsive, the unit bid prices in the electronic bid will be used to determine the total bid amount. If the electronic bid is incomplete or nonresponsive, the printed bid will be used in the tabulation of the total bid amount.

If a Bidder submits two or more printed bids, all responsive bids will be tabulated. The bid with the lowest tabulation will be used to determine the total bid amount.

2.11.3. **Rounding of Unit Prices**. The Department will round off all unit bids involving fractional parts of a cent to the nearest one-tenth cent ($0.001) in determining the amount of the bid as well as computing the amount due for payment of each item under the Contract. For rounding purposes, entries that contain five-hundredths of a cent ($0.0005) or more will be rounded up to the next highest tenth of a cent, while entries that contain less than five-hundredths of a cent will be rounded down to the next lowest tenth of a cent and in accordance with Section 10.2.11.5. Bids less than five-hundredths of a cent ($0.0005) will be rounded to one-tenth of a cent ($0.001). When credit items are included (negative unit prices), rounding is performed on the absolute value.

2.11.4. **Interpretation of Unit Prices**. The Department will make a documented determination of the unit bid price if a unit bid price is illegible. The Department's determination will be final.

2.11.5. **Consideration of Unit Prices**. Unit bid price entries such as no dollars and no cents, zero dollars and zero cents, or numerical entries of $0.00 will be tabulated as one-tenth of a cent ($.001). The Department will consider proposals where unit bid prices have been left blank incomplete and nonresponsive.

2.11.5.1. **"Buy America."** The use of foreign steel is only allowed when shown on the plans. For a Bidder who proposes to use foreign steel or iron materials to be considered the apparent low Bidder, their total bid must be at least 25% lower than the next lowest bid if that bid proposes to use domestic steel or iron materials.

This requirement does not apply to minimal use of steel or iron materials provided that the total cost of all foreign source items used in the project, as delivered to the project site, is less than $2,500 or one-tenth-of-one-percent (1/10 of 1%) of the Contract amount, whichever is greater.

2.11.5.2. **Home State Bidding Preference**. For the purpose of determining the apparent low Bidder on proposed Contracts, the Department will select the option that results in the greatest bidding preference to the resident Bidder.

2.11.5.2.1. **Reverse Application of Non-Resident Bidder's Home State Bidding Preference**. The total bid amount will be based upon the reverse application of the non-resident Bidder's home state bidding preference, if any. This will also apply to another state's preference for a Bidder that offers materials grown, produced, processed, or manufactured in that state.

Any reverse application of the home state bidding preference would be the greater of the following:

- the amount by which a resident Bidder would be required to underbid the non-resident Bidder to obtain a comparable contract in the state in which the non-resident's principle place of business is located; or
- the amount by which a resident Bidder would be required to underbid the non-resident Bidder to obtain a comparable contract in the state in which a majority of the manufacturing relating to the Contract will be performed.

2.11.5.2.2. **Texas Home State Bidding Preference**. A Bidder will be considered the apparent low Bidder if the Bidder's home office is located in this state and their bid does not exceed an amount equal to 105% of the apparent low bid received from a Bidder whose home office is not located in this state. This will not apply to a Bidder from a bordering state whose state does not give a preference to a Bidder in a manner similar to this Section.

2.12. **Consideration of Bid Errors.** The Department will consider a claim of a bid error by the apparent low Bidder if the following requirements have been met:

- a written notification is submitted to the Department within five business days after the date the bid is opened; and
- the submittal identifies the items of work involved and includes bidding documentation. The Department may request clarification of submitted documentation.

The Department will evaluate the claim of a bid error by the apparent low Bidder by considering the following:

- the bid error relates to a material item of work,
- the bid error amount is a significant portion of the total bid,
- the bid error occurred despite the exercise of ordinary care, and
- the delay of the proposed work will not impact cost and safety to the public.

Acceptance of the bid error claim by the Department will result in the rejection of all bids. The erring Contractor will not be allowed to bid the project when it is re-let. Rejection of bids due to the Contractor's bid error may result in the application of remedial actions by the Department.

Reference 43 TAC § 9.24, "Performance Review Committee and Actions."

2.13. **Tie Bids.** If the official total bid amount for two or more Bidders is equal and those bids are the lowest submitted, each tie Bidder will be given an opportunity to withdraw their bid. If two or more tie Bidders do not withdraw their bids, the low Bidder will be determined by a coin toss or a series of coin tosses when there are more than two Bidders. If all tie Bidders request to withdraw their bids, no withdrawals will be allowed and the low Bidder will be determined by a coin toss or a series of coin tosses when there are more than two Bidders. The Letting Official will preside over the proceedings.

2.14. **Department of Homeland Security (DHS) E-Verify System.** The Department will not award a Contract to a Contractor that is not registered in the DHS E-Verify system. Remain active in E-Verify throughout the life of the Contract.

If the apparent low Bidder does not appear on the DHS E-Verify system before award, the Department will notify the Contractor that they must submit documentation showing that they are compliant within five calendar days after the date the notification was sent. A Contractor who fails to comply or respond within the deadline will be declared non-responsive. The Bidder forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in the scope of the work. The Bidder forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in the scope of the work.

The Department may recommend that the Commission:

- reject all bids, or
- award the Contract to the new apparent low Bidder, if the Department is able to verify the Bidder's participation in the DHS E-verify system.

If the Department is unable to verify the new apparent low Bidder's participation in the DHS E-Verify system:

- the new apparent low Bidder will not be deemed nonresponsive,
- the new apparent low Bidder's guaranty will not be forfeited,
- the Department will reject all bids,
- the new apparent low Bidder will remain eligible to receive future proposals for the same project, and
- the proposal guaranty of the original low bidder will become the property of the State, not as a penalty, but as liquidated damages.

3. AWARD AND EXECUTION OF CONTRACT

3.1. **Award of Contract.** The Commission or original award authority will award, reject, or defer the Contract within 30 days after the opening of the proposal. The Department reserves the right to reject any or all proposals and to waive technicalities in the best interest of the State.

3.1.1. **Award**. The Commission or original award authority will award the Contract to the low Bidder as determined by Section 10.2.11., "Tabulating Bids." The Commission may award a Contract to the second lowest Bidder when the following requirements have been met:

- the Contract is for maintenance work with an Engineer's estimate less than $300,000,
- the low Bidder withdraws its bid or fails to enter into Contract,
- the second lowest Bidder agrees to perform the work at the unit bid prices of the low Bidder,
- the Executive Director recommends in writing the award of the Contract to the second lowest Bidder, and
- the Commission agrees with the Executive Director's recommendation for award to the second lowest Bidder.

3.1.2. **Rejection**. The Commission or original award authority will reject the Contract if:

- collusion may have existed among the Bidders. Collusion participants will not be allowed to bid future proposals for the same Contract,
- the low bid is mathematically and materially unbalanced. The Bidder will not be allowed to bid future proposals for the same Contract,
- the lowest bid is higher than the Department's estimate and re-advertising for bids may result in a lower bid,
- the low bid contains a bid error that satisfies the requirements and criteria in Section 10.2.12., "Consideration of Bid Errors," or
- rejection of the Contract is in the best interest of the State.

3.1.3. **Deferral**. The Commission may defer the award or rejection of the Contract when deferral is in the best interest of the State.

3.2. **Rescinding of Award.** The Commission or original award authority reserves the right to cancel the award of any Contract before contract execution with no compensation due when the cancellation is in the best interest of the State. The Department will return the proposal guaranty to the Contractor.

3.3. **Execution of Contract.** Provide the following within 15 days after written notification of award of the Contract.

3.3.1. **Contract**. Execute the Contract as prescribed by the Department.

3.3.2. **Insurance.** Refer to Section 10.3.7, "Beginning of Work."

Once work begins, insurances must cover the work for the duration of the Contract and must remain in effect until final acceptance. Provide project specific insurance, not listed in Table 1, until acceptance of the work covered by the project specific insurance or as approved by the Engineer. Failure to obtain and maintain insurance for the contracted work may result in suspension of work or default of the Contract. If the insurance expires and coverage lapses for any reason, stop all work until the Department receives an acceptable certificate of insurance.

Provide the Department with a certificate of insurance verifying the types and amounts of coverage shown in Table 1. The certificate of insurance must be in a form approved by the Texas Department of Insurance. Any certificate of insurance provided must be available for public inspection.

Table 1
Insurance Requirements

Type of Insurance	Amount of Coverage
Commercial General Liability Insurance	Not Less Than: $600,000 each occurrence
Business Automobile Policy	Not Less Than: $600,000 combined single limit
Workers' Compensation	Not Less Than: Statutory

By signing the Contract, the Contractor certifies compliance with all applicable laws, rules, and regulations pertaining to workers' compensation insurance. Pay all deductibles stated in the policy.

The Workers' Compensation policy must include a waiver of subrogation endorsement in favor of the Department.

The work performed under this Section will not be measured or paid for directly but will be subsidiary to pertinent Items.

3.3.3. **Business Ownership Information.** Submit the names and social security numbers of all individuals owning 25% or more of the firm, or firms in the case of a joint venture, on the Department's form.

3.4. **Failure to Enter Contract.** If the Contractor fails to comply with all of the requirements in Section 10.3.3., "Execution of Contract," the proposal guaranty will become the property of the State, not as a penalty, but as liquidated damages. The Contractor forfeiting the proposal guaranty will not be considered in future proposals for the same work unless there has been a substantial change in design of the work and may result in the application of remedial actions by the Department.

Reference 43 TAC § 9.24, "Performance Review Committee and Actions."

3.5. **Approval and Execution of Contract**. The Contract will be approved and signed under authority of the Commission.

3.6. **Return of Proposal Guaranty.** The proposal guaranty check of the low Bidder will be retained until after the Contract has been rejected or awarded and executed. Bid bonds will not be returned.

3.7. **Beginning of Work.** Do not begin work until authorized in writing by the Engineer. Do not begin work until a certificate of insurance showing coverages in conformance with the Contract requirements is provided and accepted.

Verify all quantities of materials shown on the plans before ordering.

For Contracts with callout work and work orders, the purchase of materials before a work order is issued or without prior written approval of the Engineer is at the Contractor's risk, and the Department is not obligated for the cost of the materials or work to acquire the materials.

3.8. **Assignment of Contract.** Do not assign, sell, transfer, or otherwise dispose of the Contract or any portion of the rights, title, or interest (including claims) without the approval of the Commission or original award authority. The Department must deem any proposed assignment justified and legally acceptable before the assignment can take place.

4. SCOPE OF WORK

4.1. **Contract Intent**. The intent of the Contract is to describe the completed work to be performed. Furnish materials, supplies, and other incidentals necessary for the proper delivery of the materials in conformance with Contract documents.

4.2. **Coordination Call.** Before starting work, schedule and participate in a coordination call or virtual meeting with the Engineer or designated representative to establish points of contact for communication, an issue escalation ladder, delivery location details, and other Contract requirements. Work with the Engineer to resolve or escalate all issues.

4.2.1. **Issue Resolution Process**. An issue is any aspect of the Contract where parties of the Contract do not agree. The individuals identified at the lowest level of the issue escalation ladder will initiate the issue resolution process by escalating any issue that remains unresolved within the time frame outlined in the issue escalation ladder.

Work with the Engineer or designated representative to resolve all issues during the course of the Contract. Refer to Section 10.4.5., "Dispute or Claims Procedure," for all unresolved issues.

4.3. **Changes in the Work.** The Engineer reserves the right to make changes in the Contract including addition, reduction, or elimination of quantities and alterations needed to complete the Contract. Perform the work as altered. If no unit price exists, this will be considered extra work and the Contract will be amended by a change order. The Department does not guarantee a specific volume to be purchased. No minimum compensation to the Contractor is guaranteed. Quantities indicated for each Item in the Contract are estimates only and are based on the previous usage. These estimates should not be construed as a minimum or maximum quantity to be ordered.

If a delivery location changes by more than five miles, either party can request an adjustment to the Contract for changes in freight trucking cost.

4.3.1. **Contract Extensions.** When mutually agreed in writing, the Engineer may extend the Contract if the Contractor has satisfactorily fulfilled the terms and conditions of the Contract. The extension may be for a period of time not to exceed the original Contract time and may include additional quantities up to the original bid quantities plus any quantities added by change order. Unit prices may be adjusted, with the extension, to reflect the current Federal Producer Price Index (PPI) published by the Bureau of Labor Statistics (BLS), Region VI, Washington, DC 20212. The extension will meet the terms and conditions of the original Contract. When mutually agreed, execute the extension before the end of the term of the existing, or previously extended, Contract. Prosecute the original Contract and the extension consecutively. The extension will be allowed once for any Contract greater than 6 mo. in duration not to exceed 12 mo. and twice for any Contract duration 6 mo. or less.

4.4. **Requests for Additional Compensation and Damages.** Notify the Engineer in writing of any intent to request additional compensation once there is knowledge of the basis for the request. An assessment of damages is not required to be part of this notice but is desirable. The intent of the written notice requirement is to provide the Engineer an opportunity to evaluate the request and to keep an accurate account of the actual costs that may arise. Minimize impacts and costs.

If written notice is not given, the Contractor waives the right to additional compensation unless the circumstances could have reasonably prevented the Contractor from knowing the cost impact before performing the work. Notice of the request and the documentation of the costs will not be construed as proof or substantiation of the validity of the request. Submit the request in enough detail to enable the Engineer to determine the basis for entitlement, adjustment in the number of working days specified in the Contract, and compensation.

Damages occur when impacts that are the responsibility of the Department result in additional costs to the Contractor that could not have been reasonably anticipated at the time of letting.

4.5. **Dispute or Claims Procedure.** The dispute resolution policy promotes a cooperative attitude between the Engineer and Contractor. Emphasis is placed on resolving issues while they are still current, at the area office or the district office, and in an informal manner. Open sharing of information is encouraged by all parties involved so the information provided completely and accurately reflects the issues and facts. If information is not shared, decisions may be limited to relying on the documentation that is available for review.

It is the Department's goal to have a dispute settled in the District before elevating it to the Contract Claim Committee (CCC) as a claim. The Construction Division can assist in the resolution of a dispute with a Contractor when requested by the District. The Contractor may request that a District ask for assistance of the Construction Division; however, the request for a recommendation prepared by the Construction Division to settle a dispute must come from the District.

If a dispute cannot be resolved, initiate the Contract claim procedure by submitting a claim to the District Engineer, the Director of the Construction Division, or the CCC.

The Department's Contract claim procedure has been established in accordance with 43 TAC § 9.2, Contract Claim Procedure. Detailed instructions for submitting a claim and its components can be found on the Department's website.

If a claim has been submitted and the Contractor wishes to resume negotiations with the District, notify the CCC in writing of the intent to resume negotiations at the District level and request review of the claim be suspended by the CCC pending the outcome of the negotiations.

Contractor may file a claim after completion of the Contract or when required for orderly performance of the Contract. File the claim no later than 1 yr. after the date the Department issues notice to the Contractor that they are in default, the date the Department terminates the Contract, or 1 yr. after the date of final acceptance of the Contract. It is the Contractor's responsibility to submit requests in a timely manner.

5. CONTROL OF THE WORK

5.1. **Authority of Engineer.** The Engineer has the authority to observe, test, inspect, approve, and accept the materials. The Engineer decides all questions about the quality and acceptability of materials, Contract interpretations, and acceptable Contract fulfillment. The Engineer has the authority to enforce and make effective these decisions.

The Engineer acts as a referee in all questions arising under the terms of the Contract. The Engineer's decisions will be final and binding.

The Engineer will pursue and document actions against the Contractor as warranted to address Contract performance issues. Contract remedies include, but are not limited to, the following:

- requiring the Contractor to remove and replace defective material, or reducing payment for defective material,
- assessing standard liquidated damages to recover the Department's administrative costs, including additional project-specific liquidated damages when specified in the Contract in accordance with 43 TAC §9.22, "Liquidated Damages,"
- withholding estimates, and
- declaring the Contractor to be in default of the Contract.

The Engineer will consider and document any events outside the Contractor's control that contributed to the failure to meet performance standards, including consideration of sufficient time.

Follow the issue escalation ladder if there is disagreement regarding the application of Contract remedies.

5.2. **Coordination of Plans, Specifications and Special Provisions.** The specifications, accompanying plans, special provisions, change orders, and supplemental agreements are intended to work together and be interpreted as a whole.

Numerical dimensions govern over scaled dimensions. Special provisions govern over plans (including general notes), which govern over standard specifications and special specifications. Job-specific plan sheets govern over standard plan sheets when included.

Notify the Engineer or designated representative promptly of any omissions, errors, or discrepancies discovered so that necessary corrections and interpretations can be made. Failure to promptly notify the Engineer will constitute a waiver of all claims for misunderstandings or ambiguities that result from the errors, omissions, or discrepancies discovered.

5.3. **Inspection.** Inspectors are authorized representatives of the Engineer. Inspectors are authorized to examine all materials furnished, including preparation, fabrication, and material manufacture. Inspectors inform the Contractor of failures to meet Contract requirements. Inspectors may reject materials. Inspectors cannot alter, add, or waive Contract provisions or issue instructions contrary to the Contract. Inspection or lack of inspection will not relieve the Contractor from obligation to provide materials or perform the work in conformance with the Contract.

5.4. **Work Order Final Acceptance.** The Engineer or designated representative will determine if all material was provided and met Contract specifications according to the work orders issued on the Contracts. Work Order Final Acceptance relieves the Contractor from further Work Order responsibilities.

5.5. **Contract Termination**. The Contract terminates upon the latter of 1) fulfillment of all Work Orders; or 2) on the termination date or after passage of the calendar days shown in the proposal, unless extended by mutual agreement.

6. CONTROL OF MATERIALS

6.1. **Source Control.** Use only materials that meet Contract requirements. Unless otherwise specified or approved, provide new materials. Secure the Engineer's approval of the proposed source of materials to be used before their delivery if requested.

6.1.1. **Buy America**. Comply with the latest provisions of Buy America as listed at 23 CFR 635.410. Use steel or iron materials manufactured in the United States except when:

- the cost of materials, including delivery, does not exceed 0.1% of the total Contract cost or $2,500, whichever is greater,
- the Contract contains an alternate item for a foreign source steel or iron product and the Contract is awarded based on the alternate item, or
- the materials are temporarily installed.

Submit a notarized original of the Form D-9-USA-1 (Department Form 1818) with the proper attachments for verification of compliance.

Manufacturing is any process that modifies the chemical content, physical shape or size, or final finish of a product. Manufacturing begins with initial melting and mixing and continues through fabrication (cutting, drilling, welding, bending, etc.) and coating (paint, galvanizing, epoxy, etc.).

6.1.2. **Buy Texas**. Provide materials produced in Texas when the materials are available at a comparable price and in a comparable period of time. Provide documentation of purchases or a description of good-faith efforts on request.

6.2. **Acceptance or Rejection of Defective Material.** When work fails to meet the Contract requirements but is still adequate to serve the purpose, the Engineer will decide the extent to which the materials will be accepted and remain. The Engineer will document the basis of acceptance and may adjust the Contract price. When materials fail to meet contract requirements and is inadequate to serve the purpose, it will be considered defective. Correct, or remove and replace the materials at the Contractor's expense as directed. Reimburse the Department for cost incurred if additional sampling and testing is required by a change of source.

Materials not meeting Contract requirements will be rejected, unless the Engineer approves corrective actions. Upon rejection, immediately remove and replace rejected materials.

The Department has the authority to remove or replace defective materials. Cost for the removal may be deducted from any money due or to become due to the Contractor.

6.3. **Manufacturer Warranties.** Transfer to the Department warranties and guarantees required by the Contract or received as part of normal trade practice.

6.4. **Sampling, Testing, and Inspection.** Refer to the Material Special Specification for more information. The material requirements and standard test methods in effect at the time the proposed Contract is advertised govern. Unless otherwise noted, the Department will perform testing at its expense. If requested, provide a complete written statement of the origin, composition, and manufacture of materials.

Material that has been tested and approved at a supply source or staging area may be inspected or tested within 30 days upon delivery and rejected if it does not meet Contract requirements. Copies of test results are available upon request. Do not supply material that, after approval, becomes unfit for use.

6.5. **Plant Inspection and Testing.** The Engineer may, but is not obligated to inspect materials at the acquisition or manufacturing source. Material samples will be obtained and tested for compliance with quality requirements. Materials produced under Department inspection are for Department use only unless released in writing by the Engineer.

If inspection is at the plant, meet the following conditions unless otherwise specified:

- cooperate fully and assist the Engineer during the inspection,
- ensure the Engineer has full access to all parts of the plant used to manufacture or produce materials,
- provide a facility at the plant for use by the Engineer as an office or laboratory, in accordance with Item 504, "Field Office and Laboratory,"
- provide and maintain adequate safety measures and restroom facilities, and
- furnish and calibrate scales, measuring devices, and other necessary equipment in accordance with Item 320, "Equipment for Asphalt Concrete Pavement."

The Engineer may provide inspection for periods other than daylight hours if:

- continuous production of materials for Department use is necessary due to the production volume being handled at the plant, and
- the lighting is adequate to allow satisfactory inspection.

6.6. **Hazardous Materials.** Comply with the requirements of Section 10.7.6., "Responsibility for Hazardous Materials."

Use materials that are free of hazardous materials. Notify the Engineer immediately if materials are suspected to contain hazardous materials. If materials delivered or provided by the Contractor are suspected to contain hazardous materials, have an approved commercial laboratory test the materials for the presence of hazardous materials as approved. Remove, remediate, and dispose of any of these materials found to contain hazardous materials. The work required to comply with this section will be at the Contractor's expense if materials are found to contain hazardous materials. Work order day charges will not be suspended and extensions of work order day charges will not be granted for activities related to handling hazardous material introduced by the Contractor. If suspected materials are not found to contain hazardous materials, the Department will reimburse the Contractor for hazardous materials testing.

7. LEGAL RELATIONS AND RESPONSIBILITIES

7.1. **Ethics.** Honor the Department's ethics policy. The Department's ethics policy has been established in accordance with 43 TAC Chapter 10. A complete copy of the Department's ethics policy can be found on the Department's website.

By entering into Contract, the Contractor certifies that the Contractor has read and understands the Department's ethics policy.

Failure to honor this policy may result in action by the Department, which includes but is not limited to verbal warning, removal of project personnel, termination of the Contract, and sanctions under the Texas Administrative Code.

7.2. **Laws to be Observed.** Comply with all federal, state, and local laws, ordinances, and regulations that affect the performance of the work. The Contractor is not required to comply with city electrical ordinances not included in this Contract. Indemnify and save harmless the State and its representatives against any claim arising from violation by the Contractor of any law, ordinance, or regulation.

This Contract is between the Department and the Contractor only. No person or entity may claim third-party beneficiary status under this Contract or any of its provisions, nor may any non-party sue for personal injuries or property damage under this Contract.

7.3. **Permits, Licenses, and Taxes**. Procure all permits and licenses; pay all charges, fees, and taxes; and give all notices necessary and incidental to the due and lawful prosecution of work, except for permits provided by the Department.

7.4. **Patented Devices, Material, and Processes.** Indemnify and save harmless the State from any claims for infringement from the Contractor's use of any patented design, device, material, process, trademark, or copyright selected by the Contractor and used in connection with the work. Indemnify and save harmless the State against any costs, expenses, or damages that it may be obliged to pay, by reason of this infringement, at any time during the prosecution or after the completion of the work**.**

7.5. **Personal Liability of Public Officials.** Department employees are agents and representatives of the State and will incur no liability, personal or otherwise, in carrying out the provisions of the Contract or in exercising any power or authority granted under the Contract**.**

7.6. **Responsibility for Hazardous Materials.** Comply with the requirements of Section 10.6.6., "Hazardous Materials." Indemnify and save harmless the State and its agents and employees from all suits, actions, or claims and from all liability and damages for any injury or damage to any person or property arising from the generation or disposition of hazardous materials introduced by the Contractor on any work done by the Contractor on State-owned or controlled sites. Indemnify and save harmless the State and its representatives from any liability or responsibility arising out of the Contractor's generation or disposition of any hazardous materials obtained, processed, stored, shipped, etc., on sites not owned or controlled by the State. Reimburse the State for all payments, fees, or restitution the State is required to make as a result of the Contractor's actions.

7.7. **Protecting Adjacent Property.** Protect adjacent property from damage. If any damage results from an act or omission on the part of or on behalf of the Contractor, take corrective action to restore the damaged property to a condition similar or equal to that existing before the damage was done.

7.8. **Responsibility for Damage Claims.** Indemnify and save harmless the State and its agents and employees from all suits, actions, or claims and from all liability and damages for any injury or damage to any person or property due to the Contractor's negligence in the performance of the work and from any claims arising or amounts recovered under any laws, including workers' compensation and the Texas Tort Claims Act. Indemnify and save harmless the State and assume responsibility for all damages and injury to property of any character occurring during the prosecution of the work resulting from any act, omission, neglect, or misconduct on the Contractor's part in the manner or method of executing the work; from failure to properly execute the work; or from defective work or material.

If the Contractor asserts any claim or brings any type of legal action (including an original action, third-party action, or cross-claim) against any member of the Commission or individual employee of the Department for any cause of action or claim for alleged negligence arising from the Contract, the Contractor will be ineligible to bid on any proposed Contract with the Department during the pendency of the claim or legal action.

7.9. **Hauling and Loads on Roadways and Structures.** Comply with federal and state laws concerning legal gross and axle weights.

8. PROSECUTION AND PROGRESS

8.1. **Prosecution of Work.** The Contract term begins at the issuance of a Work Order or 30 calendar days from the execution date, whichever comes first. When work orders are issued, provide approved materials within the specified time. Restrictions on delivery times will be as shown on the plans.

8.2. **Contract Term**. Contract term will be the calendar days shown in the plans. Calendar days will be charged Sunday through Saturday, including all holidays, regardless of weather conditions, material availability, or other conditions not under the control of the Contractor.

8.3. **Work Orders**. There will be a minimum of seven working days allowed to deliver material as of the date of the work order except for Expedited Work Orders (EWO). The actual number of days allowed for delivery of materials will be shown in the Contract and work order; however, anything less than seven working days in the Contract or work order (except for an EWO) is not allowed.

8.3.1. **Delivery of Materials.** Materials will be delivered Monday through Friday, excluding national or state holidays, if weather or other conditions permit the performance of the manufacturing and delivery of materials for a continuous period of seven hr. between 7 A.M. and 5 P.M.

8.4. **Shipping.** All shipping will be Freight on Board destination. Material prices with delivery by railcar or by truck must include all shipping and handling fees, including but not limited to fees for any equipment necessary to offload material, unless specifically allowed for in the Contract general notes.

If a delay is foreseen, Contractor will give written notice to the Department and must keep the Department advised at all times of order status. Default in promised delivery (without written acceptance of reasons) or failure to meet specifications authorizes the Department to purchase materials elsewhere and charge any increased costs for the materials, including the cost of re-soliciting, to the Contractor.

8.5. **Issuance of Expedited Work Order**. Expedited Work Order (EWO) will only contain bid items identified as "expedited" in the Contract. An EWO completion time will be 48 hr. or less as shown in the Contract. The time begins when the Department contacts the Contractor with an EWO. A Contractor must accept the work order within 2 hr. from initial contact of the Department, or the Department will obtain the material through another source. The Department could seek damages for any costs exceeding the EWO cost.

8.5.1. **Expedited Work Orders Delivery of Materials.** EWO delivery days include Sunday through Saturday.

8.6. **Late Delivery Damages**. The time and date established for the completion of each work order is an essential element of the Contract. The Department will coordinate with the Contractor as shown in the Contract for specific materials. In the case of conflict, see Section 10.5.2., "Coordination of Plans, Specifications and Special Provisions," for governing language.

If the Contractor fails to complete a work order within the number of working days specified, working days will continue to be charged. Failure to complete a work order within the number of working days specified, including any approved additional working days, will result in actual damages being charged as follows.

- For roadway operations, any materials specified in the work order will be considered late unless the Department agrees to a new time and date offered by the Contractor no less than 48 hr. before the work order's time and date of delivery. Actual damages incurred will be deducted from the monthly payment and calculations will be provided upon request. If advanced notice is not approved and the Department has to obtain material through another source, the Department could seek damages for any costs exceeding the Contract bid items.
- For deliveries of stockpile materials, any materials specified in the work order will be considered late unless the Department agrees to a new time and date offered by the contractor no less than 24 hr.

before the work order's time and date of delivery. If advanced notice is not approved and the Department has to obtain material through another source, the Department could seek damages for any costs exceeding the Contract bid items.

The Department may suspend damages when weather impacts the delivery of the materials.

Providing material that does not meet specification requirements does not constitute delivery, and applicable damages may continue to accrue until the Contractor delivers materials in full compliance with the specifications to the designated delivery location. The Department reserves the right to require replacement materials or a refund if materials not meeting specifications are discovered after the payment has been made.

8.7. **Default of Contract.**

8.7.1. **Declaration of Default**. The Engineer may declare the Contractor to be in default of the Contract if the Contractor:

- fails to complete a work order within the number of days specified;
- is uncooperative, disruptive, or threatening;
- fails to perform the work in conformance with the Contract requirements;
- neglects or refuses to remove and replace rejected materials or unacceptable work;
- discontinues the prosecution of the work without the Engineer's approval;
- makes an unauthorized assignment;
- fails to resume work that has been discontinued within a reasonable number of days after notice to do so;
- fails to conduct the work in an acceptable manner; or
- commits fraud or other unfixable conduct as determined by the Department.

If any of these conditions occur, the Engineer will give notice in writing to the Contractor of the intent to declare the Contractor in default. If the Contractor does not proceed as directed within 10 days after the notice, the Department will provide written notice to the Contractor to declare the Contractor to be in default of the Contract. If the Contractor provides the Department written notice of voluntary default of the Contract, the Department may waive the 10-day notice of intent to declare the Contractor in default and immediately provide written notice of default to the Contractor. Calendar day charges will continue until completion of the Contract. A default may result in the application of remedial actions by the Department.

Reference 43 TAC § 9.24, "Performance Review Committee and Actions."

The Department may suspend work in accordance with Section 10.8.1., "Prosecution of Work," to investigate apparent fraud or other unfixable conduct before defaulting the Contractor. The Contractor may be subject to sanctions under the TAC.

The Department will determine the most expeditious and efficient way to obtain the material and recover damages from the Contractor. The Department will hold all money earned but not disbursed by the date of default. All costs and charges incurred by the Department as a result of the default, including the cost of completing the work under the Contract, costs for other work deemed necessary, and any applicable liquidated damages will be deducted from money due the Contractor for completed work. In case the costs incurred by the Department are less than the amount that would have been payable under the Contract if the work had been completed by the Contractor, the Department will be entitled to retain the difference.

8.7.2. **Wrongful Default**. If it is determined after the Contractor is declared in default, that the Contractor was not in default, the rights and obligations of all parties will be the same as if termination had been issued for the convenience of the public as provided in Section 10.8.8., "Termination of Contract."

8.8. **Termination of Contract**. The Department may terminate the Contract in whole or in part whenever:

- the Contractor is prevented from proceeding with the work as a direct result of an executive order of the President of the United States or the Governor of the State,
- the Contractor is prevented from proceeding with the work due to a national emergency, or when the work to be performed under the Contract is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment, or labor as the result of an order or a proclamation of the President of the United States,
- the Contractor is prevented from proceeding with the work due to an order of any federal authority,
- the Contractor is prevented from proceeding with the work by reason of a preliminary, special, or permanent restraining court order where the issuance of the restraining order is primarily caused by acts or omissions of persons or agencies other than the Contractor, or
- the Department determines that termination of the Contract is in the best interest of the State or the public.

8.8.1. **Procedures and Submittals.** The Department will provide written notice to the Contractor of termination specifying the extent of the termination and the effective date. Upon notice, immediately proceed in accordance with the following:

- stop work as specified in the notice,
- place no further orders for materials,
- complete performance of the work not terminated, and
- settle all outstanding liabilities and termination settlement proposals resulting from the termination of the Contract.

8.8.2. **Settlement Provisions.** The Engineer will prepare a change order that reduces the affected quantities of work and adds acceptable costs for termination. No claim for loss of anticipated profits will be considered. The Department will pay reasonable and verifiable termination costs including:

- all work completed at the unit bid price,
- expenses necessary for the preparation of termination settlement proposals and support data, and
- other expenses acceptable to the Department.

9. MEASUREMENT AND PAYMENT

9.1. **Measurement of Quantities**. The Engineer or designated representative will measure all completed work orders using United States standard measures, unless otherwise specified.

9.1.1. **Hauling on Routes Accessible to the Traveling Public**. For payment purposes on haul routes accessible to the traveling public:

- if the gross vehicle weight is less than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight, or
- if the gross vehicle weight is more than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.

9.1.2. **Hauling on Routes Not Accessible to the Traveling Public**. For payment purposes on haul routes that are not accessible to the traveling public where advance permission is obtained in writing from the Engineer:

- if the gross vehicle weight is less than the maximum allowed by the Engineer, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight, or
- if the gross vehicle weight is more than the maximum allowed by the Engineer, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.

9.2. **Scope of Payment.** Payment of the Contract unit price is full compensation for providing all approved materials under the Contract. Until final acceptance in accordance with Section 5.4., "Work Order Final Acceptance," the Contractor assumes liability for completing all work orders in conformance with material specifications.

9.3. **Progress Payments**. The Engineer will prepare a monthly estimate of the quantities of approved materials received. Payment of the monthly estimate is determined at the Contract item prices less any withholdings or deductions in conformance with the Contract. Progress payments may be withheld for failure to comply with the Contract.

It is the Department's intent to pay a Contractor for work through the last working day of the month; however, the use of early cut-off dates for monthly estimates is a project management practice to manage workload at the Area Office level. Approval for using early cut-off dates is at the District's discretion. The earliest cut-off date for estimates is the 25th of the month.

9.4. **Payment for Extra Work.** Payment for extra work directed, performed, and accepted will be made in accordance with Section 10.4.3., "Changes in the Work." Payment for extra work will be established by agreed unit prices. Agreed unit prices are unit prices that include markups and are comparable to recent bid prices for the same materials.

9.5. **Demurrage**. Demurrage is defined as a delay in delivery of material caused by the Department. Trucks may be held for up to 2 hr. at the jobsite at no additional expense to the Department. The Contractor's driver will report to the Engineer or designated representative at the time of arrival at the final delivery location and obtain a signature documenting the date and time. If not possible to obtain a signature, photographic documentation of the delivery location gate or marked roadway location with time and date stamp could be used. Written documentation of arrival will be used when calculating demurrage charges and included on an invoice submitted to the managing office. The demurrage charge will be invoiced in 15-min. increments, rounded down to the nearest whole increment. The Contractor has the option to provide documentation to charge a Demurrage Rate per truck per 15-min. increment. Documentation supporting the demurrage rate per truck will be required. Notify the Engineer or designated representative with any concerns or questions about demurrage charges.

9.6. **Return, Cancellation, and Restocking Fee.** The Department may request that the Contractor accept return of merchandise that meets specifications and has already been delivered, or that Contractor cancel an order before delivery. If the Contractor does not agree to the Department's request, both parties must attempt to resolve the matter. The Contractor may request a reasonable restocking charge, and the Department may pay a restocking charge (no more than 10% of the cost of the item unless the Contractor can justify a higher cost for materials that are designed specifically for the work order) if determined that the charge is justifiable. However, the Department will not pay restocking or other fees for cancellations requested before shipment by the Contractor unless the material is a product specific design.

9.7. **Retainage.** The Department will not withhold retainage on the Contractor.

9.8. **Payment Provisions for Suppliers.** These requirements apply to all tiers of suppliers. Incorporate the provisions of this Section into all material purchase agreements.

Pay suppliers for work performed within 10 days after receiving payment from the Department.

Pay any retainage on a supplier's work within 10 days after satisfactory completion of all of the supplier's work.

For the purpose of this Section, satisfactory completion is accomplished when:

- the supplier has fulfilled the Contract requirements of both the Department and the subcontract for the work, including the submittal of all information required by the Contract and the Department, and
- the work done by the supplier has been inspected, approved, and paid by the Department.

Provide a certification of prompt payment to certify that all suppliers were paid from the previous month's payments and retainage was released for those whose work is complete. Submit the certification in the manner prescribed by the Department each month and the month following the month when final acceptance occurred.

9.9. **Work Order Final Payments.** Each work order will be reconciled for final quantities and final payment as they are completed.

Item 8014
Hydraulic Cement Concrete (Materials Only)

1. DESCRIPTION

Furnish hydraulic cement concrete for concrete pavements, concrete structures, and other concrete construction.

2. MATERIALS

Use materials from prequalified sources listed on the Department website. Provide coarse and fine aggregates from sources listed in the Department's Concrete Rated Source Quality Catalog (CRSQC). Use materials from non-listed sources only when tested and approved by the Engineer before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources. Do not combine approved material with unapproved material.

2.1. **Cement**. Furnish cement conforming to DMS-4600, "Hydraulic Cement."

2.2. **Supplementary Cementing Materials** (SCM).

- **Fly Ash**. Furnish fly ash, ultra-fine fly ash (UFFA), and modified Class F fly ash (MFFA) conforming to DMS-4610, "Fly Ash."
- **Slag Cement**. Furnish Slag Cement conforming to DMS-4620, "Slag Cement."
- **Silica Fume**. Furnish silica fume conforming to DMS-4630, "Silica Fume."
- **Metakaolin**. Furnish metakaolin conforming to DMS-4635, "Metakaolin."

2.3. **Cementitious Material**. Cementitious materials are the cement and supplementary cementing materials used in concrete.

2.4. **Chemical Admixtures**. Furnish admixtures conforming to DMS-4640, "Chemical Admixtures for Concrete."

2.5. **Water**. Furnish mixing and curing water that is free from oils, acids, organic matter, or other deleterious substances. Water from municipal supplies approved by the Texas Department of Health will not require testing. Provide test reports showing compliance with Table 1 before use when using water from other sources.

Water that is a blend of concrete wash water and other acceptable water sources, certified by the concrete producer as complying with the requirements of both Table 1 and Table 2, may be used as mix water. Test the blended water weekly for 4 weeks for compliance with Table 1 and Table 2 or provide previous test results. Then test every month for compliance. Provide water test results upon request.

Table 1
Chemical Limits for Mix Water

Contaminant	Test Method	Maximum Concentration (ppm or mg\L)
Chloride (Cl)	ASTM C114	
Prestressed concrete		500
Bridge decks & superstructure		500
All other concrete		1,000
Sulfate (SO4)	ASTM C114	2,000
Alkalies (Na2O + 0.658K2O)	ASTM C114	600
Total solids	ASTM C1603	50,000

Table 2
Acceptance Criteria for Questionable Water Supplies

Property	Test Method	Limits
Compressive strength, min % control at 7 days	ASTM C31, ASTM C39[1,2]	90
Time of set, deviation from control, h:min.	ASTM C403	From 1:00 early to 1:30 later

1. Base comparisons on fixed proportions and the same volume of test water compared to the control mix using 100% potable water or distilled water.
2. Base comparisons on sets consisting of at least 2 standard specimens made from a composite sample.

Do not use mix water that has an adverse effect on the air-entraining agent, on any other chemical admixture, or on strength or time of set of the concrete. Use mixing and curing water free of iron and other impurities that may cause staining or discoloration when using white hydraulic cement.

2.6. Aggregate.

2.6.1. Coarse Aggregate. Provide coarse aggregate consisting of durable particles of gravel, crushed blast furnace slag, recycled crushed hydraulic cement concrete, crushed stone, or combinations which are free from frozen material and from injurious amounts of salt, alkali, vegetable matter, or other objectionable material, either free or as an adherent coating. Provide coarse aggregate of uniform quality throughout.

Provide coarse aggregate with the requirements listed in Table 3 unless otherwise shown on the plans.

Table 3
Coarse Aggregate Requirements

Description	Test Method	Limit
Weight of Clay Lumps, % Max	Tex-413-A	0.25
Weight of Shale, % Max		1.0
Weight of Laminate and Friable Particle, % Max		5.0
L.A. Abrasion Wear, % Max	Tex-410-A	40
5-Cycle Magnesium Sulfate Soundness,[1,2] non-air-entrained concrete, % Max	Tex-411-A	25
5-Cycle Magnesium Sulfate Soundness,[1,3] air-entrained concrete, % Max		18
Loss by Decantation, % Max	Tex-406-A	1.5

1. Recycled crushed hydraulic cement concrete is not subject to 5-cycle magnesium sulfate soundness requirements.
2. Allowed when air-entrained concrete is used at the supplier's option.
3. Only when air-entrained concrete is required by the plans.

Increase the loss by decantation limit to 3.0% for all classes of concrete and 5.0% for Class A, B, and P if the material finer than the No. 200 sieve is determined to be at least 85% calcium carbonate in accordance with Tex-406-A, Part III, in the case of coarse aggregates made primarily from crushing stone unless otherwise shown on the plans. Provide test results upon request.

Provide coarse aggregate or combination of aggregates conforming to the gradation requirements shown in Table 4 when tested in accordance with Tex-401-A unless otherwise specified.

Table 4
Coarse Aggregate Gradation Chart

Aggregate Grade No.[1]	Maximum Nominal Size	Percent Passing on Each Sieve								
		2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	#4	#8
1	2"	100	80–100	50–85		20–40			0–10	
2	1-1/2"		100	95–100		35–70		10–30	0–10	
3	1-1/2"		100	95–100		60–90	25–60		0–10	
4 (57)	1"			100	95–100		25–60		0–10	0–5
5 (67)	3/4"				100	90–100		20–55	0–10	0–5
6 (7)	1/2"					100	90–100	40–70	0–15	0–5
7	3/8"						100	70–95	0–25	
8	3/8"						100	95–100	20–65	0–10

1. Corresponding ASTM C33 gradation shown in parentheses.

2.6.2. Fine Aggregate. Provide fine aggregate consisting of clean, hard, durable particles of natural, manufactured sand, recycled crushed hydraulic cement concrete, slag, lightweight aggregate, or a combination thereof. Provide fine aggregate free from frozen material and from injurious amounts of salt, alkali, vegetable matter, or other objectionable material.

Provide fine aggregates with the requirements in Table 5 unless otherwise shown on the plans.

Table 5
Fine Aggregate Requirements

Description	Test Method	Limit
Weight of Clay Lumps, % Max	Tex-413-A	0.50
Organic Impurities[1]	Tex-408-A	Color not darker than standard
Sand Equivalent	Tex-203-F	80
Fineness Modulus	Tex-402-A	2.3 to 3.1

1. Only when air-entrained concrete is specified.

Provide fine aggregate or combinations of aggregates conforming to the gradation requirements shown in Table 6 when tested in accordance with Tex-401-A unless otherwise specified.

Table 6
Fine Aggregate Gradation Chart (Grade 1)

Sieve Size	Percent Passing
3/8"	100
#4	95–100
#8	80–100
#16	50–85
#30	25–65
#50	10–35[1]
#100	0–10
#200	0–3[2]

1. 6–35 when sand equivalent value is greater than 85.
2. 0–6 for manufactured sand.

2.6.3. Intermediate Aggregate. Provide intermediate aggregate consisting of clean, hard, durable particles of natural, manufactured sand, slag, recycled crushed hydraulic cement concrete, lightweight aggregate, or a combination thereof when optimized aggregate gradation (OAG) concrete is specified or when used at the concrete supplier's option. Provide intermediate aggregate free from frozen material and injurious amounts of salt, alkali, vegetable matter, or other objectionable material.

Provide intermediate aggregate with the requirements in Table 7.

Table 7
Intermediate Aggregate Requirements

Description	Test Method	Limit
Weight of Clay Lumps, % Max	Tex-413-A	0.50
L.A. Abrasion Wear,[1] % Max	Tex-410-A	40
5-Cycle Magnesium Sulfate Soundness,[1,2,3] non-air-entrained concrete, % Max	Tex-411-A	25
5-Cycle Magnesium Sulfate Soundness,[1,2,4] air-entrained concrete, % Max		18
Organic Impurities[5]	Tex-408-A	Color not darker than standard
Loss by Decantation,[1] % Max	Tex-406-A	1.5

1. Only applies to the portion retained on the No. 4 sieve, if more than 30% of the intermediate aggregate is retained on the No. 4 sieve.
2. Recycled crushed hydraulic cement concrete is not subject to 5-cycle magnesium sulfate soundness requirements.
3. Allowed when air-entrained concrete is used at the supplier's option.
4. Only when air-entrained concrete is required by the plans.
5. Only applies to the portion passing the 3/8 in. sieve, if more than 30% of the intermediate aggregate is passing the 3/8 in. sieve.

For the portion retained on the No. 4 sieve, if more than 30% of the intermediate aggregate is retained on the No. 4 sieve, and in the case of aggregates made primarily from crushing stone, unless otherwise shown on the plans, the loss by decantation may be increased to 3.0% for all classes of concrete and 5.0% for Class A, B, and P if the material finer than the No. 200 sieve is determined to be at least 85% calcium carbonate in accordance with Tex-406-A, Part III. Provide test results upon request.

2.7. Mortar and Grout. Furnish pre-packaged grouts conforming to DMS-4675, "Cementitious Grouts and Mortars for Miscellaneous Applications," when specified for applications other than post-tension grouting.

Section 8XXX.4.2.6., "Mix Design Options," does not apply for mortar and grout.

2.8. Storage of Materials.

2.8.1. Cement and Supplementary Cementing Materials. Store all cement and supplementary cementing materials in weatherproof enclosures that will protect them from dampness or absorption of moisture.

2.8.2. Aggregates. Handle and store concrete aggregates in a manner that prevents contamination with foreign materials. Clear and level the sites for the stockpiles of all vegetation if the aggregates are stored on the ground and do not use the bottom 6-in. layer of aggregate without cleaning the aggregate before use.

Maintain separate stockpiles and prevent intermixing when conditions require the use of 2 or more grades of coarse aggregates. Separate the stockpiles using physical barriers where space is limited. Store aggregates from different sources in different stockpiles unless the Engineer authorizes pre-blending of the aggregates. Minimize segregation in stockpiles. Remix and test stockpiles when segregation is apparent.

Sprinkle stockpiles to control moisture and temperature as necessary. Maintain reasonably uniform moisture content in aggregate stockpiles.

2.8.3. Chemical Admixtures. Store admixtures in accordance with manufacturer's recommendations and prevent admixtures from freezing.

3. EQUIPMENT

3.1. Concrete Plants and Mixing Equipment. Except for volumetric stationary plant or truck (auger) mixers, each plant and truck mixer must be currently certified by the National Ready Mixed Concrete Association (NRMCA) or have an inspection report signed and sealed by a licensed professional engineer showing concrete measuring, mixing, and delivery equipment meets all requirements of ASTM C94. A new certification or signed and sealed report is required every time a plant is moved. Plants with a licensed professional engineer's inspection require re-inspection every 2 yr. Provide a copy of the certification or the

signed and sealed inspection report to the Engineer. Remove equipment or facilities from service until corrected when they fail to meet specification requirements.

When allowed on the plans or by the Engineer, for concrete classes not identified as structural concrete in Table 8 or for Class C concrete not used for bridge-class structures, the Engineer may inspect and approve all plants and trucks instead of the NRMCA or non-Department engineer-sealed certifications. The criteria and frequency of Engineer approval of plants and trucks is the same used for NRMCA certification.

Inspect and furnish inspection reports on the condition of blades and fins and their percent wear from the original manufacturer's design for truck mixers and agitators annually. Repair mixing equipment exhibiting 10% or more wear before use. If an inspection within 12 mo. is not practical, a 2-mo. grace period (for a maximum of 14 mo. between inspections) is permitted.

3.1.1. Scales. Check all scales before beginning of operations, after each move, or whenever their accuracy or adequacy is questioned, and at least once every 6 mo. Immediately correct deficiencies, and recalibrate. Provide a record of calibration showing scales in compliance with ASTM C94 requirements. Check batching accuracy of volumetric water batching devices at least every 90 days. Check batching accuracy of chemical admixture dispensing devices at least every 6 mo. Perform daily checks as necessary to ensure measuring accuracy.

3.1.2. Volumetric Mixers. Provide volumetric mixers with rating plates defining the capacity and the performance of the mixer in accordance with the Volumetric Mixer Manufacturers Bureau or equivalent. Provide volumetric mixers that comply with ASTM C685. Provide test data showing mixers meet the uniformity test requirements of Tex-472-A.

Unless allowed on the plans or by the Engineer, volumetric truck (auger) mixers may not supply classes of concrete identified as structural concrete in Table 8.

3.1.3. Agitators and Truck and Stationary Mixers. Provide stationary and truck mixers capable of combining the ingredients of the concrete into a thoroughly mixed and uniform mass and capable of discharging the concrete so at least 5 of the 6 requirements of Tex-472-A are met.

Perform concrete uniformity tests on mixers or agitators in accordance with Tex-472-A as directed, to resolve issues of mix uniformity and mixer performance.

Perform the mixer or agitator uniformity test at the full rated capacity of the equipment. Remove all equipment that fails the uniformity test from service.

Inspect and maintain mixers and agitators. Keep them free of concrete buildup, and repair or replace worn or damaged blades or fins.

Ensure all mixers have a plate affixed showing manufacturer's recommended operating speed and rated capacity for mixing and agitating.

3.2. Hauling Equipment. Provide hauling equipment capable of maintaining the mixed concrete in a thoroughly mixed and uniform mass, and discharging the concrete with a satisfactory degree of uniformity.

Provide equipment with smooth, mortar-tight metal containers equipped with gates that prevent accidental discharge of the concrete when using non-agitating equipment for transporting concrete.

Maintain hauling equipment clean and free of built-up concrete.

4. MIXTURE DESIGN AND PROPERTIES

4.1. Classification of Concrete Mix Designs. Provide classes of concrete meeting the requirements shown in Table 8.

A higher-strength class of concrete with equal or lower water-to-cementitious material (w/cm) ratio may be substituted for the specified class of concrete when approved.

4.2. **Mix Design Proportioning**. Furnish mix designs using ACI 211, Tex-470-A, or other approved procedures for the classes of concrete listed in Table 8 unless a design method is indicated on the plans. Perform mix design proportioning by absolute volume method unless otherwise approved. Perform cement replacement using equivalent weight method unless otherwise approved.

Do not exceed the maximum w/cm ratio listed in Table 8 when designing the mixture.

4.2.1. **Cementitious Materials**. Do not exceed 700 lb. of cementitious material per cu. yd. of concrete unless otherwise specified or approved.

- Use cement of the same type and from the same source for monolithic placements.
- Do not use supplementary cementing materials when white hydraulic cement is specified.

Table 8
Concrete Classes

Class of Concrete	Design Strength,[1] Min f'_c (psi)	Max w/cm Ratio	Coarse Aggregate Grades[2,3,4]	Cement Types	Mix Design Options	Exceptions to Mix Design Options	General Usage[5]
A	3,000	0.60	1–4, 8	I, II, I/II, IL, IP, IS, IT, V	1, 2, 4, & 7	When the cementitious material content does not exceed 520 lb./cu. yd., Class C fly ash may be used instead of Class F fly ash.	Curb, gutter, curb & gutter, conc. retards, sidewalks, driveways, back-up walls, anchors, non-reinforced drilled shafts
B	2,000	0.60	2–7				Riprap, traffic signal controller foundations, small roadside signs, and anchors
C[6]	3,600	0.45	1–6	I, II, I/II, IP, IS, IT[7], V	1–8		Drilled shafts, bridge substructure, bridge railing, culverts except top slab of direct traffic culverts, headwalls, wing walls, inlets, manholes, concrete traffic barrier
E	3,000	0.50	2–5	I, II, I/II, IL, IP, IS, IT[7], V	1–8	When the cementitious material content does not exceed 520 lb./cu. yd., Class C fly ash may be used instead of Class F fly ash.	Seal concrete
F[6]	Note[8]	0.45	2–5	I, II, I/II, IP, IS, IT[7], V			Railroad structures; occasionally for bridge piers, columns, or bents
H[6]	Note[8]	0.45	3–6	I, II, I/II, III, IP, IS, IT[7], V	1–5	Do not use Type III cement in mass placement concrete. Up to 20% of blended cement may be replaced with listed SCMs when Option 4 is used for precast concrete.	Precast concrete, post-tension members
S[6]	4,000	0.45	2–5	I, II, I/II, IP, IS, IT[7], V	1–8		Bridge slabs, top slabs of direct traffic culverts, approach slabs
P	See Item 360, "Concrete Pavement."	0.50	2–3	I, II, I/II, IL, IP, IS, IT, V	1–8	When the cementitious material content does not exceed 520 lb./cu. yd., Class C fly ash may be used instead of Class F fly ash.	Concrete pavement
CO[6]	4,600	0.40	6	I, II, I/II, IP, IS, IT[7], V	1–8		Bridge deck concrete overlay
LMC[6]	4,000	0.40	6–8				Latex-modified concrete overlay
SS[6]	3,600	0.45	4–6		1-8	Use a minimum cementitious material content of 658 lb./cu. yd. of concrete. Limit the alkali loading to 4.0 lbs./cu. yd. or less when using option 7.	Slurry displacement shafts, underwater drilled shafts

Class of Concrete	Design Strength,[1] Min f'c (psi)	Max w/cm Ratio	Coarse Aggregate Grades[2,3,4]	Cement Types	Mix Design Options	Exceptions to Mix Design Options	General Usage[5]
K[6]	Note[8]	0.40	Note[8]	I, II, I/II, III IP, IS, IT[7], V	1-8		Note[8]
HES	Note[8]	0.45	Note[8]	I, IL, II, I/II, III		Mix design options do not apply. 700 lb. of cementitious material per cu. yd. limit does not apply.	Concrete pavement, concrete pavement repair
"X" (HPC) [6,9,10]	Note[11]	0.45	Note[11]	I, II, I/II, III IP, IS, IT[7], V	1–5, & 8	Maximum fly ash replacement for Options 1 and 3 may be increased to 45%. Up to 20% of a blended cement may be replaced with listed SCMs for Option 4. Do not use Option 8 for precast concrete.	
"X" (SRC) [6,9,10]	Note[11]	0.45	Note[11]	I/II, II, IP, IS, IT[7], V	1–4, & 7	Do not use Class C Fly Ash. Type III-MS may be used where allowed. Type I and Type III cements may be used with Options 1–3, with a maximum w/cm of 0.40. Up to 20% of blended cement may be replaced with listed SCMs when Option 4 is used for precast concrete. Do not use Option 7 for precast concrete[12].	

3. Design strength must be attained within 56 days.
4. Do not use Grade 1 coarse aggregate except in massive foundations with 4 in. minimum clear spacing between reinforcing steel bars, unless otherwise permitted. Do not use Grade 1 aggregate in drilled shafts.
5. Use Grade 8 aggregate in extruded curbs unless otherwise approved.
6. Other grades of coarse aggregate maybe used in non-structural concrete classes when allowed by the Engineer.
7. For information only.
8. Structural concrete classes.
9. Do not use Type IT cements containing > 5% limestone.
10. As shown on the plans or specified.
11. "X" denotes class of concrete shown on the plans or specified.
12. (HPC): High Performance Concrete, (SRC): Sulfate Resistant Concrete.
13. Same as class of concrete shown on the plans.
14. Option 7 will be allowed for precast concrete products included in Items 462, 464, and 465.

4.2.2. **Aggregates.** Recycled crushed hydraulic cement concrete may be used as a coarse or fine aggregate in Class A, B, E, and P concrete. Limit recycled crushed concrete fine aggregate to a maximum of 20% of the fine aggregate.

Use light-colored aggregates when white hydraulic cement is specified.

Use fine aggregate with an acid insoluble residue of at least 60% by weight when tested in accordance with Tex-612-J in all concrete subject to direct traffic.

Use the following equation to determine if the aggregate combination meets the acid insoluble residue requirement when blending fine aggregate or using an intermediate aggregate:

$$\frac{(A_1 \times P_1)+(A_2 \times P_2)+(A_{ia} \times P_{ia})}{100} \geq 60\%$$

where:
A_1 = acid insoluble (%) of fine aggregate 1
A_2 = acid insoluble (%) of fine aggregate 2
A_{ia} = acid insoluble (%) of intermediate aggregate passing the 3/8 in. sieve

P_1 = percent by weight of fine aggregate 1 of the fine aggregate blend
P_2 = percent by weight of fine aggregate 2 of the fine aggregate blend
P_{ia} = percent by weight of intermediate aggregate passing the 3/8 in. sieve

Alternatively to the above equation, blend fine aggregate with a micro-deval loss of less than 12%, when tested in accordance with Tex-461-A, with at least 40% of a fine aggregate with an acid insoluble residue of at least 60%.

Use the following equation to determine if the aggregate combination meets the sand equivalency requirement when blending fine aggregate or using an intermediate aggregate:

$$\frac{(SE_1 \times P_1) + (SE_2 \times P_2) + (SE_{ia} \times P_{ia})}{100} \geq 80\%$$

where:
SE_1 = sand equivalency (%) of fine aggregate 1
SE_2 = sand equivalency (%) of fine aggregate 2
SE_{ia} = sand equivalency (%) of intermediate aggregate passing the 3/8 in. sieve
P_1 = percent by weight of fine aggregate 1 of the fine aggregate blend
P_2 = percent by weight of fine aggregate 2 of the fine aggregate blend
P_{ia} = percent by weight of intermediate aggregate passing the 3/8 in. sieve

4.2.3. Chemical Admixtures. Do not use Type C, Type E, Type F, or Type G admixtures in Class S bridge deck concrete. Do not use chemical admixtures containing calcium chloride in any concrete.

Use a 30% calcium nitrite solution when a corrosion-inhibiting admixture is required. The corrosion-inhibiting admixture must be set neutral unless otherwise approved. Dose the admixture at the rate of gallons of admixture per cubic yard of concrete shown on the plans.

4.2.4. Air Entrainment. Use an approved air-entraining admixture when air-entrained concrete is specified, or when an air-entraining admixture is used at the concrete supplier's option, and do not exceed the manufacturer's recommended dosage. Ensure the minimum entrained air content is at least 3.0% for all classes of concrete except Class P when air-entrained concrete is specified, during trial batch, or when providing previous field data.

4.2.5. Slump. Provide concrete with a slump in accordance with Table 9 unless otherwise specified. When approved, the slump of a given concrete mix may be increased above the values shown in Table 9 using chemical admixtures, provided the admixture-treated concrete has the same or lower water-to-cementitious material ratio and does not exhibit segregation or excessive bleeding. Request approval to exceed the slump limits in Table 9 sufficiently in advance for proper evaluation by the Engineer.

Table 9
Placement Slump Requirements

General Usage[1]	Placement Slump Range,[2] in.
Walls (over 9 in. thick), caps, columns, piers, approach slabs, concrete overlays	3 to 5
Bridge slabs, top slabs of direct traffic culverts, latex-modified concrete for bridge deck overlays	3 to 5-1/2
Inlets, manholes, walls (less than 9 in. thick), bridge railing, culverts, concrete traffic barrier, concrete pavement (formed), seal concrete	4 to 5-1/2
Precast concrete	4 to 9
Underwater concrete placements	6 to 8-1/2
Drilled shafts, slurry displaced and underwater drilled shafts	See Item 416, "Drilled Shaft Foundations."
Curb, gutter, curb and gutter, concrete retards, sidewalk, driveways, anchors, riprap, small roadside sign foundations, concrete pavement repair, concrete repair	As approved

1. For information only.
2. For fiber reinforced concrete, perform slump before addition of fibers.

4.2.6. Mix Design Options.

4.2.6.1. Option 1. Replace 20% to 35% of the cement with Class F fly ash.

4.2.6.2. Option 2. Replace 35% to 50% of the cement with slag cement or MFFA.

4.2.6.3. Option 3. Replace 35% to 50% of the cement with a combination of Class F fly ash, slag cement, MFFA, UFFA, metakaolin, or silica fume; however, no more than 35% may be fly ash, and no more than 10% may be silica fume.

4.2.6.4. Option 4. Use Type IP, Type IS, or Type IT cement as allowed in Table 5 for each class of concrete. Up to 10% of a Type IP, Type IS, or Type IT cement may be replaced with Class F fly ash, slag cement, or silica fume. Use no more than 10% silica fume in the final cementitious material mixture if the Type IT cement contains silica fume, and silica fume is used to replace the cement.

4.2.6.5. Option 5. Replace 35% to 50% of the cement with a combination of Class C fly ash and at least 6% of silica fume, UFFA, or metakaolin. However, no more than 35% may be Class C fly ash, and no more than 10% may be silica fume.

4.2.6.6. Option 6. Use a lithium nitrate admixture at a minimum dosage determined by testing conducted in accordance with Tex-471-A. Before use of the mix, provide an annual certified test report signed and sealed by a licensed professional engineer, from a laboratory on the Department's MPL, certified by the Construction Division as being capable of testing according to Tex-471-A.

4.2.6.7. Option 7. Ensure the total alkali contribution from the cement in the concrete does not exceed 3.5 lb. per cu. yd. of concrete when using hydraulic cement not containing SCMs calculated as follows:

$$\text{lb. alkali per cu. yd.} = \frac{(\text{lb. cement per cu. yd.}) \times (\%\ \text{Na}_2\text{O equivalent in cement})}{100}$$

In the above calculation, use the maximum cement alkali content reported on the cement mill certificate.

4.2.6.8. Option 8. Perform annual testing as required for any deviations from Options 1–5 or use mix design options listed in Table 10. Laboratories performing ASTM C1260, ASTM C1567, and ASTM C1293 testing must be listed on the Department's MPL. Before use of the mix, provide a certified test report signed and sealed by a licensed professional engineer demonstrating the proposed mixture conforms to the requirements of Table 10.

Provide a certified test report signed and sealed by a licensed professional engineer, when HPC is required, and less than 20% of the cement is replaced with SCMs, demonstrating ASTM C1202 test results indicate the permeability of the concrete is less than 1,500 coulombs tested immediately after either of the following curing schedules:

- Moisture cure specimens 56 days at 73°F.
- Moisture cure specimens 7 days at 73°F followed by 21 days at 100°F.

Table 10
Option 8 Testing and Mix Design Requirements

Scenario	ASTM C1260 Result		Testing Requirements for Mix Design Materials or Prescriptive Mix Design Options[1]
	Mix Design Fine Aggregate	Mix Design Coarse Aggregate	
A	> 0.10%	> 0.10%	Determine the dosage of SCMs needed to limit the 14-day expansion of each aggregate[2] to 0.08% when tested individually in accordance with ASTM C1567; or Use a minimum of 40% Class C fly ash with a maximum CaO[3] content of 25%.
B	≤ 0.10%	≤ 0.10%	Use a minimum of 40% Class C fly ash with a maximum CaO[3] content of 25%; or Use any ternary combination which replaces 35% to 50% of cement.
	≤ 0.10%	ASTM C1293 1 yr. Expansion ≤ 0.04%	Use a minimum of 20% of any Class C fly ash; or Use any ternary combination which replaces 35% to 50% of cement.
C	≤ 0.10%	> 0.10%	Determine the dosage of SCMs needed to limit the 14-day expansion of coarse and intermediate[2] aggregate to 0.08% when tested individually in accordance with ASTM C1567; or Use a minimum of 40% Class C fly ash with a maximum CaO[3] content of 25%.
D	> 0.10%	≤ 0.10%	Use a minimum of 40% Class C fly ash with a maximum CaO[3] content of 25%; or Use any ternary combination which replaces 35% to 50% of cement.
	> 0.10%	ASTM C1293 1 yr. Expansion ≤ 0.04%	Determine the dosage of SCMs needed to limit the 14-day expansion of fine aggregate to 0.08% when tested in accordance with ASTM C1567.

1. Do not use Class C fly ash if the ASTM C1260 value of the fine, intermediate, or coarse aggregate is 0.30% or greater, unless the fly ash is used as part of a ternary system.
2. Intermediate size aggregates will fall under the requirements of mix design coarse aggregate.
3. Average the CaO content from the previous ten values as listed on the mill certificate.

4.2.7. Optimized Aggregate Gradation (OAG) Concrete. The gradation requirements in Table 4 and Table 6 do not apply when OAG concrete is specified or used by the concrete supplier unless otherwise shown on the plans. Use Tex-470-A to establish the optimized aggregate gradation. Use at least 420 lb. per cu.yd. of cementitious material when OAG concrete is used unless otherwise approved. Use a coarse aggregate with a maximum nominal size of 1-1/2 in. for Class P concrete. Use a coarse aggregate for all other classes of concrete with a maximum nominal size not larger than:

- 1/5 the narrowest dimension between sides of forms, or
- 1/3 the depth of slabs, or
- 3/4 the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, individual tendons, bundled tendons, or ducts.

Make necessary adjustments to individual aggregate stockpile proportions during OAG concrete production when the gradation deviates from the optimized gradation requirements.

4.3. Concrete Trial Batches. Perform preliminary and final trial batches when required by the plans, or when previous satisfactory field data is not available. Submit previous satisfactory field data to the Engineer showing the proposed mix design conforms to specification requirements when trial batches are not required and before concrete is placed.

Perform preliminary and final trial batches for all self-consolidating concrete mix designs.

4.3.1. Preliminary Trial Batches. Perform all necessary preliminary trial batch testing when required, and provide documentation including mix design, material proportions, and test results substantiating the mix design conforms to specification requirements.

4.3.2. Final Trial batches. Make all final trial batches using the proposed ingredients in a mixer that is representative of the mixers to be used on the job when required. Make the batch size at least 50% of the mixer's rated capacity. Perform fresh concrete tests for air content and slump, and make, cure, and test strength specimens for compliance with specification requirements. Test at least one set of design strength specimens, consisting of 2 specimens per set, at 7-day, 28-day, and at least one additional age unless otherwise directed. Before placing, provide the Engineer the option of witnessing final trial batches, including the testing of the concrete. If not provided this option, the Engineer may require additional trial batches, including testing, before the concrete is placed.

Establish 7-day compressive strength target values using the following formula for each Class A, B, and E concrete mix designs to be used:

$$\text{Target value} = \text{Minimum design strength} \times \frac{\text{7 - day avg. trial batch strength}}{\text{28 - day avg. trial batch strength}}$$

Submit previous satisfactory field data, data from a new trial batch, or other evidence showing the change will not adversely affect the relevant properties of the concrete when changes are made to the type, brand, or source of aggregates, cement, SCM, water, or chemical admixtures. Submit the data for approval before making changes to the mix design. A change in vendor does not necessarily constitute a change in materials or source. The Engineer may waive new trial batches when there is a prior record of satisfactory performance with the ingredients. During concrete production, dosage changes of chemical admixtures used in the trial batches will not require a re-evaluation of the mix design.

Establish the strength–maturity relationship in accordance with Tex-426-A when the maturity method is specified or permitted. When using the maturity method, any changes in any of the ingredients, including changes in proportions, will require the development of a new strength–maturity relationship for the mix.

4.3.3. Mix Design of Record. Once a trial batch or previously satisfactory field data substantiates the mix design, the proportions and mixing methods used become the mix design of record. Do not exceed mix design water-to-cementitious material ratio.

4.4. Production Testing.

4.4.1. Aggregate Moisture Testing. Determine moisture content per Tex-409-A or Tex-425-A for coarse, intermediate, and fine aggregates at least twice a week, when there is an apparent change, or for new shipments of aggregate. When aggregate hoppers or storage bins are equipped with properly maintained electronic moisture probes for continuous moisture determination, moisture tests per Tex-409-A or Tex-425-A are not required. Electronic moisture probes, however, must be verified at least every 90 days against Tex-409-A and be accurate to within 1.0% of the actual moisture content.

4.5. Measurement of Materials.

4.5.1. Non-Volumetric Mixers. Measure aggregates by weight. Correct batch weight measurements for aggregate moisture content. Measure mixing water, consisting of water added to the batch, ice added to the batch, water occurring as surface moisture on the aggregates, and water introduced in the form of admixtures, by volume or weight. Measure ice by weight. Measure cement and supplementary cementing materials in a hopper and on a separate scale from those used for other materials. Measure the cement first when measuring the cumulative weight. Measure concrete chemical admixtures by weight or volume. Measure batch materials within the tolerances of Table 12.

Table 12
Mix Design Batching Tolerances—Non-Volumetric Mixers

Material	Tolerance (%)
Cement, wt.	–1 to +3
SCM, wt.	–1 to +3
Cement + SCM (cumulative weighing), wt.	–1 to +3
Water, wt. or volume	±3[1]
Fine aggregate, wt.	±2
Coarse aggregate, wt.	±2
Fine + coarse aggregate (cumulative weighing), wt.	±1
Chemical admixtures, wt. or volume	±3

1. Allowable deviation from target weight not including water withheld or moisture in the aggregate. The Engineer will verify the water-to-cementitious material ratio is within specified limits.

Ensure the quantity measured, when measuring cementitious materials at less than 30% of scale capacity, is accurate to not less than the required amount and not more than 4% in excess. Ensure the cumulative quantity, when measuring aggregates in a cumulative weigh batcher at less than 30% of the scale capacity, is measured accurate to ±0.3% of scale capacity or ±3% of the required cumulative weight, whichever is less.

Measure cement in number of bags under special circumstances when approved. Use the weights listed on the packaging. Weighing bags of cement is not required. Ensure fractional bags are not used except for small hand-mixed batches of approximately 5 cu. ft. or less and when an approved method of volumetric or weight measurement is used.

4.5.2. Volumetric Mixers. Provide an accurate method of measuring all ingredients by volume, and calibrate equipment to assure correct measurement of materials within the specified tolerances. Base tolerances on volume–weight relationship established by calibration, and measure the various ingredients within the tolerances of Table 13. Correct batch measurements for aggregate moisture content.

Table 13
Mix Design Batching Tolerances—Volumetric Mixers

Material	Tolerance
Cement, wt. %	0 to +4
SCM, wt. %	0 to +4
Fine aggregate, wt. %	±2
Coarse aggregate, wt. %	±2
Admixtures, wt. or volume %	±3
Water, wt. or volume %	±1

4.6. Mixing and Delivering Concrete.

4.6.1. Mixing Concrete. Operate mixers and agitators within the limits of the rated capacity and speed of rotation for mixing and agitation as designated by the manufacturer of the equipment. Provide concrete in a thoroughly mixed and uniform mass with a satisfactory degree of uniformity when tested in accordance with Tex-472-A.

Do not top-load new concrete onto returned concrete.

Adjust mixing times and batching operations as necessary when the concrete contains silica fume to ensure the material is completely and uniformly dispersed in the mix. The dispersion of the silica fume within the mix will be verified by the Materials and Tests Division, Rigid Pavements and Concrete Materials Section, using cylinders made from trial batches. Make necessary changes to the batching operations, if uniform dispersion is not achieved, until uniform and complete dispersion of the silica fume is achieved.

Mix concrete by hand methods or in a small motor-driven mixer when permitted, for small placements of less than 2 cu. yd. For such placements, proportion the mix by volume or weight.

4.6.2. **Delivering Concrete**. Deliver concrete to the project in a thoroughly mixed and uniform mass, and discharge the concrete with a satisfactory degree of uniformity. Conduct testing in accordance with Tex-472-A when there is a reason to suspect the uniformity of concrete and as directed.

Maintain concrete delivery and placement rates enough to prevent cold joints.

Adding chemical admixtures or the portion of water withheld is only permitted at the jobsite, under the supervision of the Engineer, to adjust the slump or slump flow of the concrete. Do not add water or chemical admixtures to the batch after more than an amount needed to conduct slump testing has been discharged. Turn the drum or blades at least 30 additional revolutions at mixing speed to ensure thorough and uniform mixing of the concrete. When this water is added, do not exceed the approved mix design water-to-cementitious material ratio.

Before unloading, furnish the delivery ticket for the batch of concrete containing the information required on Department Form 596, "Concrete Batch Ticket." The Engineer will verify all required information is provided on the delivery tickets. The Engineer may suspend concrete operations until the corrective actions are implemented if delivery tickets do not provide the required information. The Engineer will verify the design water-to-cementitious material ratio is not exceeded.

Begin the discharge of concrete delivered in truck mixers within the times listed in Table 14. Concrete delivered after these times, and concrete that has not begun to discharge within these times will be rejected.

Table 14
Concrete Discharge Times

Fresh Concrete Temperature, °F	Max Time After Batching for Concrete Not Containing Type B or D Admixtures, min.	Max Time After Batching for Concrete Containing Type B or D Admixtures,[1] min.
90 and above	45	75
75 ≤ T < 90	60	90
T < 75	90	120

1. Concrete must contain at least the minimum manufacturer's recommended dosage of Type B or D admixture.

4.7. **Sampling and Testing of Concrete**. Unless otherwise specified, all fresh and hardened concrete is subject to testing as follows:

4.7.1. **Fresh Concrete**. Fresh concrete will be sampled for testing at the discharge end if using belt conveyors or pumps. When it is impractical to sample at the discharge end, a sample will be taken at the time of discharge from the delivery equipment and correlation testing will be performed and documented to ensure specification requirements are met at the discharge end.

Testing of Fresh Concrete. The Engineer, unless specified in other Items or shown on the plans, will test the fresh and hardened concrete in accordance with the following methods:

- Slump. Tex-415-A
- Air Content. Tex 414-A or Tex-416-A
- Temperature. Tex-422-A
- Making and Curing Strength Specimens. Tex-447-A
- Compressive Strength. Tex-418-A
- Flexural Strength. Tex-448-A
- Maturity. Tex-426-A

Flexural strength and maturity specimens will not be made unless specified in other items or shown on the plans. Concrete not meeting fresh concrete testing requirements will be rejected.

Fresh concrete exhibiting segregation and excessive bleeding will be rejected.

4.7.2.

5. ACCEPTANCE OF CONCRETE

The Engineer will sample and test the fresh and hardened concrete for acceptance. The test results will be reported to the concrete supplier. Investigate the quality of the materials, the concrete production operations, and other possible problem areas to determine the cause for any concrete that fails to meet the required strengths as outlined below. Take necessary actions to correct the problem including redesign of the concrete mix. The Engineer may suspend all concrete operations under the pertinent Items if the concrete supplier is unable to identify, document, and correct the cause of the low strengths in a timely manner. Resume concrete operations only after obtaining approval for any proposed corrective actions. Concrete failing to meet the required strength as outlined below will be evaluated using the procedures listed in Article 8014.6, "Measurement and Payment."

5.1. Structural Class of Concrete. For concrete classes identified as structural concrete in Table 8, the Engineer will make and test 7-day and 28-day specimens. Acceptance will be based on attaining the design strength given in Table 8.

5.2. Class P and Class HES. The Engineer will base acceptance in accordance with Item 360, "Concrete Pavement," and Item 361, "Repair of Concrete Pavement."

5.3. All Other Classes of Concrete. For concrete classes not identified as structural concrete in Table 8, the Engineer will make and test 7-day specimens. The Engineer will base acceptance on the 7-day target value established in accordance with Section 8014.4.3., "Concrete Trial Batches."

6. MEASUREMENT

7. This Item will be measured by the cubic yard of material.

8. PAYMENT

Material (Site Delivery). Payment will be made for the materials furnished in accordance with this Item and measured as provided under "Measurement" at the unit price bid for "Hydraulic Cement Concrete" of the class specified. This price is full compensation for furnishing materials, sampling, loading, hauling, delivery of materials to the site specified in the plans, labor for measuring, and for equipment, labor, tools, and incidentals. Locations will be shown in the plans.

The following procedure will be used to evaluate concrete where one or more project acceptance test specimens fail to meet the required design strength specified in this Item or on the plans:

- The concrete for a given placement will be considered structurally adequate and accepted at full price if the average of all test results for specimens made at the time of placement meets the required design strength provided no single test result is less than 85% of the required design strength.
- The Engineer will perform a structural review of the concrete to determine its adequacy to remain in service if the average of all test results for specimens made at the time of placement is less than the required design strength or if any test results are less than 85% of the required design strength. If the in-situ concrete strength is needed for the structural review, take cores at locations designated by the Engineer in accordance with Tex-424-A. The Engineer will test the cores. The coring and testing will be at the concrete supplier's expense.
- If all of the tested cores meet the required design strength, the concrete will be paid for at full price.
- If any of the tested cores do not meet the required design strength, but the average strength attained is determined to be structurally adequate, the Engineer will determine the limits of the payment adjustment using the following formula:

$$A = B_p\left[-5.37\left(\frac{S_a}{S_s}\right)^2 + 11.69\left(\frac{S_a}{S_s}\right) - 5.32\right]$$

where:
A = Amount to be paid per unit of measure for the entire placement in question
S_a = Actual average strength from cylinders or cores. Use values from cores, if taken.
S_s = Minimum required strength (specified)
B_p = Unit Bid Price

- If the structural review determines the concrete is not adequate to remain in service, the Engineer will determine the limits of the concrete to be removed.
- The decision to reject structurally inadequate concrete or to apply the payment adjustment factor will be made no later than 56 days after placement.

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