

NOTIFICATION OF ADDENDUM

ADDENDUM NO. 1

DATED 7/27/2021

Control	<u>2121-04-114, ETC.</u>
Project	<u>CBI 2021(797), ETC.</u>
Highway	<u>IH 10</u>
County	<u>EL PASO</u>

Ladies/Gentlemen:

Attached please find an addendum on the above captioned project. Included in the attachment is an addendum notification which details the changes and the respective proposal pages which were added and/or changed.

Except for new bid insert pages, it is unnecessary to return any of the pages attached.

Bid insert pages must be returned with the bid proposal submitted to the Department, unless your firm is submitting a bid using a computer print out. The computer print out must be changed to reflect the new bid item information.

Contractors and material suppliers, etc. who have previously been furnished informational proposals are not being furnished a copy of the addendum. If you have a subcontractor on the above project, please advise them of this addendum. Acknowledgment of this addendum is not requested if your company has been issued a proposal stamped "This Proposal Issued for Informational Purposes."

You are required to acknowledge receipt of this addendum on the Addendum Acknowledgement form contained in your bid proposal by placing a mark in the box next to the respective addendum.

Failure to Acknowledge receipt of this addendum in your bid proposal will result in your bid not being read.

SUBJECT: PLANS AND PROPOSAL ADDENDUMS

PROJECT: CBI 2021(797)

CONTROL: 2121-04-114

COUNTY: EL PASO

LETTING: 08/04/2021

REFERENCE NO: 0726

PROPOSAL ADDENDUMS

-
- PROPOSAL COVER
 - BID INSERTS (SH. NO.:
 - GENERAL NOTES (SH. NO.: O, LL

 - SPEC LIST (SH. NO.:
 - SPECIAL PROVISIONS:
 - ADDED:

 - DELETED:

 - SPECIAL SPECIFICATIONS:
 - ADDED:

 - DELETED:

 - OTHER: PLAN SHEETS AND OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

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

REVISED GENERAL NOTE FOR ITEM 360

REVISED GENERAL NOTE FOR ITEM 3076

***** PLAN SHEETS *****

SHEETS 13 AND 14: REVISED STATION RANGES

SHEETS 16G AND 16R (GENERAL NOTES): SEE GENERAL NOTES AS NOTED ABOVE

SHEETS 34 AND 37: REVISED TCP NARRATIVE

SHEET 148: REVISED SHEET (ADDED PCTB CAGE DETAIL)

SHEET 258: REVISED NOTE

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General Notes:

Tests to be in accordance with the Department's Standard Test Methods

Table 1
Compaction Requirements for Subgrade and Base Courses

Item	Description	Outside Roadway Course Density
132 ^{1,2,3}	Embankment (Final)(Density Control) (TY A)	(See Below)

1. To a depth of 6 in. below natural ground scarify and compact to a 95% minimum.
2. From natural ground to 24 in. below finished subgrade, 98% minimum compaction.
3. From 24 in. below finished subgrade to finished subgrade, 100% minimum compaction.

Table 2
Basis of Estimate

Item	Description	Rate
275	Cement treat subgrade (Exist Material or Embankment)	2% Cement (2.2 lb/cf)
3076	D-GR HMA TY-D PG 64-22	1 in. = 110 lb./sq. yd.
3076	TACK COAT (TRAIL)	0.15 gal./sq. yd
360	PRIME COAT AE-P	0.15 gal/sq. yd

1. Deviation from the rates shown will require approval.
2. Tack coat rate shown is based on the desired residual application of 0.10 gal/sy. Engineer may adjust the rate.

NOTICE

The Contractor is to take note that this project includes Additional Project Specific Liquidated Damages (APSLD). Refer to Item 8 on this General Notes.

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All existing median continuous illumination poles and pole arms to be removed, must be salvaged and returned to a TxDOT designated location within 10 miles of the project, as directed by the Engineer. All costs associated with delivering the poles and pole arms to TxDOT (including but not limited to loading, transporting, fuel, labor, overhead, and any other incidentals) will be subsidiary to the removal bid item for illumination poles.

General Requirements

Contractor questions on this project are to be addressed to the following individual(s):

Ricardo Romero, PE Ricardo.Romero@txdot.gov

Aldo Madrid, PE Aldo.Madrid@txdot.gov

Contractor questions will be accepted through email, phone, and in person to the above listed individuals.

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:

<https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/>

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name. Posted responses are part of the contract documents and responses must be accounted for in the Contractors bid.

Maintain the entire project area in a neat and orderly manner throughout the duration of the work. Remove all construction litter and undesirable vegetation within the right of way within the project limits, including incidental limits. This work will be subsidiary to the various bid items.

Contractor's must become familiar with project site conditions prior to submitting bids.

This project requires nighttime work. Where nighttime work is approved, provide adequate lighting for the entire work site as directed. Lighting for nighttime work will be considered subsidiary to the various bid items.

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Comply with all Occupational Safety & Health Administration (OSHA) and United States Environmental Protection Agency (EPA) regulations as well as all local and State requirements.

Refer to the traffic control plan sheets for the proposed sequence of work. Changes will not be permitted, except as approved in writing by the Engineer. Any proposed changes to the traffic control plan must be signed and sealed by a Professional Engineer in the State of Texas, and the original sealing engineer must be informed of the changes. For any and all TCP changes requested by the Contractor, the Contractor must indicate how the proposed changes will affect subsequent construction phases of the project, and also must indicate any impacts the proposed TCP changes will have on the overall project safety and completion. All costs of preparing TCP Changes will be the Contractor's responsibility.

Design Cross Sections and a 3d OpenRoads model are available for copying, at the Area Engineer's Office. Contractor is responsible for the cost of copying. The 3D model is provided for information only. In the event of discrepancies between the model and the signed and sealed plans, the plans will have precedence.

General Project Description – This project consists of widening the existing section of IH-10 with general limits being Eastlake Blvd. to FM 1281 (Horizon Blvd.) from four lanes to six lanes. The project includes incidental work outside of the general limits described, which are shown on the plans. The highway will be widened to the inside, by providing 13" CRCP and matching existing adjacent cross-slopes. The work also includes but is not limited to providing safe Traffic Control Plan throughout the duration of the project, removing items that are currently on the existing median between EB and WB Main-lanes, capping existing inlets and providing drainage, cleaning existing culverts, adjusting side slopes to increase ditch capacity (EB and WB space between Main-lanes and Frontage Roads), installing ITS features, installing High Mast Illumination and upgrading underpass lighting at Eastlake and at Horizon to LED, and signing, pavement markings and delineation (removal and installation), installation of Pedestrian Fencing at various

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locations throughout the project limits and Erosion Control. Each Contract awarded by the Department stands on its own and 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.

Properly dispose unsalvageable materials according to local, state, and federal regulations. Deface traffic signs, so they will not reappear in public as signs. This work will be subsidiary to the various bid items.

Any sign panels that are adjusted, removed or replaced, shall be done the same workday unless otherwise approved by the Engineer in writing. This work shall be subsidiary to item 502.

Notify the Engineer and District Public Information Officer at least two weeks prior to a proposed traffic pattern change.

All construction vehicles used in the field must have proper amber color light strobes, and must provide a non-intrusive backup alarm system. Payment for this item is subsidiary to the various bid items.

Obtain Engineer approval for all equipment and vehicles to be used on the project prior to use.

Designate an on-site representative who will have full authority to speak and make decisions on Contractor behalf.

Consult TCP plans and sequence of work narrative section for more detailed description of work requirements.

General ITS

Contact the Department's El Paso District Signal Shop at txdotelplocates@txdot.gov to request all Department utility line locates within the project limits. The Signal Shop will

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locate utilities one time only, upon request. Record locates for the purpose of refreshing and maintaining all markings throughout the duration of the project.

Maintenance of ITS Equipment

All ITS Equipment and communication network within the project limits, passing thru or connected to equipment in the project shall remain operational while this project is under construction and before project is accepted. A Force Account has been established for maintaining ITS equipment and communication network.

The contractor shall be responsible for the operation and maintenance of all ITS equipment within the project limits through the duration of the project. The contractor shall repair, supply and/or replace any damaged equipment or fiber optic cable within 2 business days.

If any equipment must be returned to the equipment manufacturer, the contractor will coordinate with the State to obtain warranty repair. ITS equipment no longer covered by warranty repair will be replaced by equipment approved by the state. ITS equipment under warranty coverage will be sent back to the manufacturer by the state and the state will provide a temporary replacement to the contractor to limit downtime during the warranty repair.

The contractor shall complete an inventory on all ITS equipment and communication status prior to construction work beginning. An electronic copy of the report shall be given to the state in the form of a USB flash drive. Any equipment determined to be non-functional during the inventory shall not be responsibility of the contractor to maintain during the duration of the project, unless equipment is replaced by the State.

Fiber optic cable shall be tested prior to and after installation with OTDR. Provide test results to the State in electronic format in the form of a USB flash drive.

The existing ITS trunkline within the project limits is fully functional and operational. The Contractor must always maintain this connectivity during construction. The proposed fiber optic must be installed in the existing conduit as shown in the plans. After the proposed

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fiber optic cable is fully functional and operational, then only the contractor must remove the existing fiber optic cable and the conductors as shown on the plans.

Equipment List to be maintained during construction:

- Existing ITS trunkline conduits and conductors connectivity
- Existing HUB at Eastlake and Horizon

All materials and services not expressly called for in the specifications or not shown on the plans, which may be necessary to complete and properly construct the ITS network, will be performed, furnished and installed at no additional cost to TxDOT.

Item 2 – Instruction to Bidders

This project will use Additional Project Specific Liquidated Damages (APSLD). See notes under Items 8 for the number of working days for the substantial completion of the project and any additional details.

If the bidder has any questions concerning the specification of work requirement of the contract, contact the East Area Office Engineer or his designee, as previously listed.

Item 4 – Scope of Work

Provide and maintain vehicular and pedestrian access at all times, including Saturdays, Sundays, and holidays, except when required on the Traffic Control Plan, or when approved in writing by the Engineer. This access includes, but it's not limited to, driveways, streets, parking areas, and walkways. This shall be considered subsidiary to the various bid items.

Schedule and perform all work to assure proper drainage during the course of construction operations. All labor, tools, equipment and supervision required, to ensure drainage, removal, and handling of water shall be considered incidental work. Temporary drainage during construction is the responsibility of the contractor, and will not be paid for directly, but will be subsidiary to all pertinent bid items.

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Repair any existing pavement, utilities, structures, etc., damaged as a result of construction operations, at no additional cost to the Department.

Maintain all Contract items until final acceptance of the project.

Plan datum for this project is NAD 83 for horizontal and NAVD 88 for elevation based.

Project Datum:

1. The Texas Coordinate System of 1983 (NAD83 State Plane Coordinates) Central Zone (4203) and Vertical (NAVD88), GEOID Model 2012A (CONUS), with values in **U.S. Survey Feet** will be used as the basis for all horizontal coordinates derived for this project, unless otherwise directed by the State.
2. The Combined Surface Adjustment Factor (CSF) for this project will be 1.00023100 (Texas Coordinate System of 1983 (NAD83) Surface Coordinates which are the Project Coordinates.

Item 5 – Control of the Work

The Department will furnish horizontal and vertical reference points. Contractor must verify horizontal and vertical reference points with conventional survey methods before proceeding with construction activities. Verification must be submitted for review and approval to the Department's R.P.L.S. prior to start of construction. No construction shall begin, until primary control monuments are confirmed and accepted by all parties.

Contractor must verify existing adjacent EB and WB main-lane cross-slopes prior to start CRCP widening. Any discrepancies found must be submitted to the Engineer and TxDOT Surveyor for review prior to starting any work. Cross slopes verification will not be paid for directly, but will be subsidiary to the CRCP bid item

Inform the Engineer and the respective utility companies, when it becomes apparent that the utility lines will interfere with the work in progress. Ensure all gas valves are accessible at all times, therefore, temporary PCTB, material stockpiles, etc. can't be placed over these valves.

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Reference all existing striping and other pavement markings to allow these markings to be re-established. Ensure the markings are in line with signs, TMS arrows, etc.

When working near electrical lines or utility poles, comply with Federal, State and Local regulations. For electrical lines and services shown on plans, in the lines need to be de-energized, or the poles need to be braced, contact electric company. Work pertaining to de-energizing lines, bracing poles and other protective measures will be subsidiary to the electrical service bid items.

Arrange the operations so that any two consecutive exit or entrance ramps will not be closed at the same time, unless directed.

Item 6 – Control of Materials

The Contractor must schedule a Pre-ITS installation meeting with the Department Area Office and the Department's El Paso District Signal Shop prior to starting any ITS work.

Immediately after Contract is award, the Contractor must coordinate with the Engineer regarding the items to be purchased by the Department. It is the Contractor's responsibility to contact the Department, so that items can be ordered adequately with respect to time. The approximate lead time to receive these items is 90 calendar days (3 months) from the date the charge codes for the ITS items can be generated by the Department. The Contractor must submit shop drawings for all ITS and Illumination items with long lead times immediately after the award, so that these materials can be ordered on time and the project can be on schedule.

Furnish all materials on this Contract except for the following that the Department will provide:

- IP Addressable Power Strip
- RVSD

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- CCTV Digital
- Field Ethernet Switch
- Terminal Server

ITS materials to be furnished by the Department can be picked up at the ELP District Traffic Signal Shop. Contact the supervisor twenty-four (24) hours in advance of picking up materials. Use the above listed materials furnished by the Department only on the intended TXDOT project (CSJ 2121-04-114). The installation of these items will be paid for under the various Force Accounts established for the project.

Item 7 – Legal Relations and Responsibilities

Comply with all requirements of the Environmental Permits Issues and Commitments (EPIC) Sheet and the Environmental Best Management Practices sheets.

Dispose of all waste materials in compliance with Local, State, and Federal regulations. Submit list of all approved waste sites to the Engineer for review.

Do not discharge any liquid pollutant from vehicles onto the roadside. Immediately clean spills and dispose in compliance with local, state, and federal regulations to the satisfaction of the Engineer at no additional cost to the Department.

Occupational Safety & Health Administration (OSHA) regulations prohibit operations that bring people or equipment within 10 ft. of an energized electrical line. Where workers and/or equipment may be close to an energized electrical line, notify the electrical power company and make all necessary adjustments to ensure the safety of workers near the energized line.

Nighttime is considered from 9 PM to 6 AM during weekdays, not including Fridays. Coordinate with Engineer for scheduled nighttime work.

No significant traffic generator events identified.

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Repair or replace any structures and utilities that might have been damaged by negligence or failure to have utility locates performed, at no cost to TxDOT.

Item 8 – Prosecution and Progress

This project includes Additional Project-Specific Liquidated Damages (APSLD)

APSLD will be assessed in addition to the Schedule of Liquidated Damages (SP000---658) for this project. APSLD will be assessed at the rate shown below.

Substantial completion: **\$10,000 per day**

Substantial Completion: The maximum numbers of days allowed for substantial completion shall be 320 working days. Substantial completion of the contract is defined as the point in time at which the roadway is in the final geometric configuration and traffic is following with the lane arrangement as shown in the plans for the finished roadway. All pavement construction is complete with final conditions traffic control devices and pavement markings in their final position.

Working days will be calculated in accordance with Section 8.3.1.2., “Six-Day Workweek.”

Create and Maintain a Critical Path Method (CPM) Schedule. The CPM schedule shall be created and maintained using software fully compatible with version 6.1 or newer of Primavera Project Planner. Update CPM schedule on weekly basis and provide look-ahead. The look ahead must include upcoming work items, possible lane and road closures. Submit the updated look ahead schedule at every weekly project meeting. The schedule shall have a specific section dedicated solely to lane closures and detours listing each lane closure and detour for next three weeks. Schedule updates shall be subsidiary to the various bid items. Submit a baseline schedule and obtain approval prior to starting construction. The estimate will be held if monthly schedule update is not submitted.

Prior to beginning operations, schedule and attend a preconstruction conference with the Engineer. Provide the Department a written outline of the proposed sequence of work

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(CPM Schedule) and an estimated progress schedule. Cost of pre-construction conference shall be subsidiary to the various bid items.

Keep traveled surfaces used in hauling operations clear and free of dirt or other material.

Provide a safe hauling and materials delivery route diagram at the pre-construction conference. Cost of preparing the safe hauling and materials delivery route diagram shall be subsidiary to the various bid items. This diagram must show the routes and describe the procedures that will be used to haul equipment and materials in and out of the jobsite.

Protect from damage and destruction all areas of the right of way, which are not included in the actual limits of the proposed construction areas. Exercise care to prevent damage to trees, vegetation, and other natural features.

Protect trees, shrubs, and other landscape features from abuse, marring, or damage within the actual construction and/or fenced protection areas designated for preservation. Restore any area disturbed or damaged to a condition "as good as" or "better than" prior to start of construction operation. This work will be at the Contractor's expense.

Roadway closures during the following key dates and/or special events are prohibited:

No closures will be permitted from Good Friday to Easter Sunday.

No closures will be permitted the Saturday and Sunday before Memorial Day and Labor Day.

No closures will be permitted on Saturday or Sunday when July 4th falls on a Friday or Monday.

No closures will be permitted from the Wednesday prior to Thanksgiving Day to the Sunday after Thanksgiving Day.

No closures will be permitted from December 23 to December 25 and from December 30 to January 1.

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No closures will be permitted during weekday peak hours and legal holidays.

All work and lane closures are restricted to non-peak hours defined as 7 A.M. to 4 P.M. Monday through Friday or night-time hours of 9 PM to 6 AM during weekdays, unless otherwise directed in writing.

Perform striping maintenance operations in accordance with the appropriate traffic control standard in the plan set, for site conditions, or as determined by the Engineer. The Engineer may allow the Contractor to work on several roadways at one time provided the Contractor demonstrates the ability and possesses the resources to perform work at the various locations.

Item 9 – Measurement and Payment

Monthly progress payments will be made for items of work completed by the 27th day of each month. Any work completed after the 27th will be included for payment in the subsequent monthly progress payment. Submit Material on Hand (MOH) payment requests at least two (2) working days before the 27th of the month for payment consideration on that month's estimate.

After completion of pavement work under overpass structure(s), coordinate with the construction inspector and El Paso Bridge Section at (915)790-4229 to measure the lowest vertical clearance in US Customary Units, for each structure. This work is subsidiary to the various bid items in this contract. These vertical clearances shall be displayed on the vertical clearance signs to be installed.

Post vertical clearance signs and advanced warning clearance signs for structures at 3" below the measured minimum vertical clearance for each structure. Payment for this work, signs, and incidentals will be subsidiary to the pertinent bid items within this contract.

Item 100 – Preparing Right of Way

This Item covers all items requiring removal as directed by the Engineer not governed otherwise by individual removal pay items elsewhere in the plans. Many items to be

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removed have been identified for Contractor's information only, and their payment will be under PREP ROW. Any items that require removal, in order to complete the intended project, but are not shown to be removed, must be removed and the payment for those item will be subsidiary to the PREP ROW bid item. The limits of PREP ROW for this project are measured from STA. 609+00 to STA. 787+00 along the I-10 centerline. Removal of existing aggregates on the median side of the westbound mainlane between station 732+00 and station 739+00 will be paid for under this item.

Contractor to accept ownership of removed materials, unless otherwise indicated by the Engineer. Any and all materials identified by the Engineer to be salvaged, must be kept in good condition and must be delivered to a TxDOT designated location within 10 miles of the project. Labor, loading, unloading, transportation and any other costs associated with this operation will be considered subsidiary to the PREP ROW bid item.

All existing median continuous illumination poles and pole arms are to be salvaged and returned to a TxDOT designated location within 10 miles of the project limits. All costs associated with delivering the poles and pole arms to TxDOT will be subsidiary to the removal items for each illumination assembly. Light fixtures, transformer bases and other items related to the illumination assembly removal will be the property of the contractor and need to be properly disposed of.

Item 104 – Removing Concrete

All work items requiring to saw-cut existing concrete (including but not limited to rip-rap, CRCP, etc as shown on the plans, or as directed by the Engineer will be considered subsidiary to this Item.

Item 105 – Removing Treated and Untreated Base and Asphalt Pavement

All work items required to saw-cut the existing asphalt roadway, driveways, etc. as shown on the plans, or as directed is considered subsidiary to this Item. Reclaimed asphalt pavement (RAP) removed from the project may be incorporated into the project. Incorporate the RAP into the pavement mix design as approved by the Engineer. Perform any necessary tests to ensure RAP is appropriate for use. Any remaining RAP must be

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delivered to the East Area office located at 1430 Joe Battle Blvd, El Paso, TX 79936. The Engineer may change the location. The contractor shall coordinate with East Area Maintenance Supervisor Manuel Molina Jr at 915-857-5041 before delivery of material. Hauling of RAP material and incidentals to complete will be subsidiary to this Item.

Item 110 – Excavation

All work items required to saw-cut the existing pavement, concrete sidewalks, driveways, etc., as shown in the plans, or as directed, will be considered subsidiary to this Item.

To eliminate all drop-off conditions, construct tapers as directed. This work will not be paid for directly but will be considered subsidiary to pertinent bid items.

Excavate to finish subgrade. Scarify subgrade to a uniform depth at least 6 in. below finish subgrade elevation in areas where base or pavement structure will be placed on subgrade. Manipulate and compact subgrade in accordance with Section 132.3.4., “Compaction Methods.” Compact to 100% relative density in accordance with Section 132.3.4.2., “Density Control.”

Item 132 – Embankment

Scarify and compact top 6 inches of existing roadway as directed before additional embankment or base course is placed. This work is subsidiary to this bid items.

Subgrade compaction will be density control and subsidiary to this Item.

Item 275 – Cement Treatment (Road-Mixed)

Provide Type II cement at the rates of shown on the plans or as directed by the Engineer.

No new flexible base material is required for this Item. Shape existing material or embankment in accordance with applicable bid items to conform to the typical sections shown on the plans and as directed.

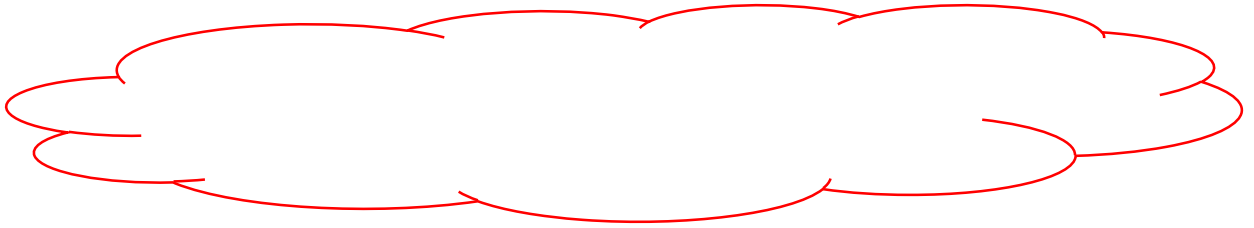
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Item 360 – Concrete Pavement

A pre-paving meeting will be required. Submit a paving plan detailing the location of joints and the sequence of paving for approval to the Engineer at least seven days before the pre-paving meeting.



Only multiple piece tie bars, as described in Section 360.2.2.2, “Tie Bars,” and as noted on Standard sheet “Continuously Reinforced Concrete Pavement,” CRCP (1)-20, will be used at longitudinal construction joints and only threaded couplings will be permitted for these tie bars.

New concrete pavement paving adjacent to existing concrete paving will require a neat saw-cut edge and drilling as per Item 361, “Repair of Concrete Pavement,” regardless whether transverse or longitudinally. This work will be considered subsidiary to this Item.

When freezing weather or windy conditions in excess of 25 mph are forecasted to occur within 12 hours from the last CRCP placement of the day, cover and protect the entire CRCP placed that day with cotton blankets and polyethylene film immediately after the membrane curing has been applied. Place and weigh the film so it will remain in direct contact with the surface for a period of 48 hours and to the satisfaction of the Engineer.

Place longitudinal joints at a minimum distance of 6 in. from the lane lines to minimize any conflicts with the pavement markings. Ensure that these joints do not fall within the anticipated wheel path area.

Use Class 5 or 8 joint sealants on all sawed joints.

Item 400- Excavation and Backfill for Structures

Structural excavation for storm drain pipes and storm drain junction structures is subsidiary to item 464 and 465.



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Item 416 – Drilled Shaft Foundations

Drilled shafts should be specified and constructed in accordance with the requirements outlined in the current Texas Department of Transportation “Standard Specification for Construction and Maintenance of Highways, Streets, and Bridges,” Item 416.

Stake all drilled shaft foundations locations for Engineer approval prior to commencement of drilling operations in order to ensure no conflicts with utility lines. Coordinate with the Utility companies for utility location within the project limits. Repair any damage to existing utilities to the satisfaction of the Engineer and the utility owner at no additional cost to the Department.

Use Class “C” concrete.

Cover drilled shafts with plywood and delineate them with cones, to the satisfaction of the Engineer, when not working in them and after work hours. No open trenches will be allowed at anytime.

Provide photographs for each drilled shaft installed.

Replace faulty anchor bolts as directed. Do not weld anchor bolts.

Remove spoils daily, out of the drainage area or as directed.

Install MGBF and end treatments prior to commencement of drilling operations for drilled shaft.

Item 432 – Riprap

Provide Type II Cement and “Class B” concrete. Construct Rip-rap concrete apron and maintenance pads in accordance with TxDOT ITS Standard ITS(7)-15 for ITS pole foundations.

Wire mesh and fibers for concrete will not be allowed on this project for this Item. Reinforce all concrete riprap using bar reinforcement conforming to Item 440, “Reinforcement for Concrete,” as shown on the plans, or as directed.

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Finish concrete riprap with a smooth (wood float) finish, unless otherwise directed.

In areas where guard fence posts are to be placed in riprap, the riprap shall have an 18 inch +/- blocked out area (round or square). Blocked out areas shall be backfilled with 2 sack flowable backfill and considered subsidiary to the various bid items.

Submit shop drawing and obtain approval for all stone riprap material sources to be used on this project.

Item 502 – Barricades, Signs, and Traffic Handling

Prior to starting construction, provide a routing of traffic and sequence of work plan for the Engineer approval. The routing plans must show how work force and materials delivery equipment will enter and exit the project site. Indicate hauling routes and routes to be used for material deliveries.

Additional signs and barricades, placed as directed by the Engineer, will be considered subsidiary to this Item.

In accordance with Section 7.2.6.1, designate, in writing, a Contractor Responsible Person (CRP) and a CRP alternate to take full responsibility for the set-up, maintenance, and necessary corrective measures of the traffic control plan. The CRP or CRP alternate must be present at site and implement the initial set up of every traffic control phase/stage, at each location, and/or each call out, for the entire duration of the project.

At the written request of the Engineer, immediately remove the CRP or CRP alternate from the project if, in the opinion of the Engineer, is not competent, not present at initial TCP set-ups, or does not perform in a proper, skillful, or safe manner. These individuals shall not be reinstated without written consent of the Engineer.

CRP and CRP alternate must be trained using Department approved training. Provide a copy of the certificate of completion to the Engineer for project records. Refer to Table 3 for Department approved Training.

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Table 3
Contractor Responsible Person and Alternate

Provider	Course Number	Course Title	Duration	Notes
American Traffic Safety Services Association	TCS	Traffic Control Supervisor	2 days	
Traffic Control Supervisor	133112 133113	Design and Operation of Work Zone Traffic Control Work Zone Traffic Control for Maintenance Operations	1 day 1 day	Both courses are required to meet minimum required training.
Texas Engineering Extension Services	133112A	Design and Operation of Work Zone Traffic Control	3 days	
University of Texas Arlington Division for Enterprise Development	WKZ421	Traffic Control Supervisor	16 hours	Contact UTA for training needs.

All contractor workers involved with the traffic control implementation and maintenance must participate and complete a Department approved training course. Provide a copy of the certificate of completion to the Engineer for project records. Refer to Table 4 for Department approved training.

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**Table 4
Other Work Zone Personnel**

Provider	Course Number	Course Title	Duration	Notes
American Traffic Safety Services Association	TCT	Traffic Control Technician	1 day	
Texas Engineering Extension Services	HWS002	Work Zone Traffic Control	16 hours	Identical to HWS-410. Counts for 3 year CRP requirement.
National Highway Institute	133116	Maintenance of Traffic for Technicians	5 hours	Web based
National Highway Institute	134109-I	Maintenance Training Series: Basics of Work Zone Traffic Control	1 hour	Free, Web based
University of Texas at Arlington, Division for Enterprise Development	WKZ100	Work Zone Safety: Temporary Traffic Control	4 hours	Note name change. Free, Web based
TxDOT/AGC Joint Development	N/A	Safe Workers Awareness Highway Construction Work Zone Hazards	16 minutes 18 minutes	Videos available through AGC of Texas offices. English & Spanish
AGC America	N/A	Highway Work Zone Safety Training	1 day	
Texas Engineering Extension Service	HWS400	Temporary Traffic Control Worker	4 hours	Contact TEEX, if interested in course
TxDOT/AGC Joint Development	N/A	Work Zone Fundamentals	10 minutes	Videos available through ACT of Texas offices. English & Spanish

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Contractor may choose to train workers involved with the traffic control implementation and maintenance with a contractor developed training in lieu of Department approved training. Contractor developed training must be equivalent to the Department approved training shown in Table 3. Provide the Engineer a copy of the course curriculum for pre-approval, prior to conducting the contractor developed training. Provide the Engineer a copy of the log of attendees after training completion for project records.

Existing regulatory signs, route marker auxiliaries, guide signs, and warning signs that must be removed due to widening shall be relocated temporarily and erected on approved supports at locations shown in the plans, or as directed. This work will not be paid for directly, but will be considered subsidiary to this Item.

Notify the Department officials when major traffic changes are to be made, such as detours. Coordinate with the Department on all traffic changes. Advance notification for the following week's work must be made by 5 P.M. on Wednesdays.

If Law Enforcement Personnel is required by the Engineer, coordinate with local law enforcement as directed or agreed. Complete the weekly tracking form provided by the Department and submit invoices with 5% allowance for Law Enforcement payments by Contractor that agree with the tracking form for payment at the end of each month where approved services were provided. Payment for law enforcement personnel will be under Force Account.

Provide access to intersecting side roads and driveways at all times, unless otherwise directed.

Any approved change to the sequence of work or TCP, must be signed and sealed by a Contractor's Licensed Professional Engineer. This Engineer and the Contractor will assume full responsibility and payment for additional quantities for any barricades, signs and devices needed due to the changes. Any and all issues created by TCP changes must be accounted for on the revised TCP or affected discipline specific sheets. The state will not compensate the Contractor or his designer for any changes made to the TCP or

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any changes to other disciplines which are caused by deviations from the intended original design.

Use striping operations to channelize traffic into the newly completed roadway, as directed. Maintain shoulders and median areas in a condition capable of serving as emergency paths, as approved. This work will be subsidiary to this Item.

Use portable changeable message signs (PCMS) to alert public of freeway lane closure two weeks prior to construction.

Use flaggers when directed. Provide two-way radio communication for all flaggers.

Place and maintain sufficient additional warning signs, beacons, delineators, and barricades to warn and guide the public of all hazards through the construction zone at all times, and as directed.

Use flashing arrow boards on all tapers for each lane closure. Subsidiary to this Item.

Some signs, barricades, and channelization devices may not be shown at the precise or measured position. Place the barricades, devices, or signs, with approval, in positions to meet field conditions.

Fill any holes left by barricade or sign supports and restore the area to its original condition. Subsidiary to this Item.

Use Type A flashing warning lights or delineators to mark open excavation, footings, foundations, or other obstructions near lanes that may be open to traffic, as directed. Subsidiary to this Item.

For additional information pertaining to channelization, signing, spacing details, and flagging procedures required to regulate, warn, and guide traffic through project, refer to the "Barricade and Construction Standards," BC(1)-14 and to the current *Texas Manual on Uniform Traffic Control Devices(TMUTCD)*.

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Remove or cover signs that do not apply to current conditions at the end of each day's work.

Repair and/or replace all signs damaged by the public or due to weather events.

Newly installed MBGF for the final locations of High Mast Illumination structures, ITS structures, OSB, COSS structures will be used to protect construction workers and traffic during their construction in conjunction with the various TCP standards as shown on the plans. Do not leave any un-protected MBGF ends overnight. Contractor shall install only the length of MBGF and SGT or GET's that can be installed in a day, without leaving any un-protected ends. Barrier will be required to protect any MBGF sections that are not completed in one day. Cost of barrier and Crash Cushion needed to protect incomplete MBGF shall be the Contractor responsibility.

Safety Contingency

The contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancement, to improve the effectiveness of the TCP that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Item 504 – Field Office and Laboratory

Furnish one field office and laboratory for the Department use on this project. A Type B Structure (Field Office and Laboratory) will be used as described under Item 504.2.1.3.

All field office layouts must be approved by the Engineer prior to installation. The Engineer reserves the right to modify the layout.

The Field Office must include high speed broadband internet connectivity (WI-FI), a Color Printer/Scanner/Copier (All in one will be acceptable) capable of printing and copying 11"X17" and 8.5" X 11" sheets with software that is compatible with TxDOT equipment,

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and three 11-inch I-PAD Pro (2021) Tablets (512 GB minimum, two main cameras (wide and ultrawide, Lidar Sensor, WI-FI Only). All three 11-inch I-PAD Pro (2021) Tablets are to remain property of the Department after project completion. Telephone line and telephones are not required. Location of field office and laboratory shall be coordinated with the Area Engineer prior to installation. Enclose the field office and the parking area with a fence and provide security lighting. Chain link fencing (6-ft. chain link fence, a top mounted 3-strand barbed wire, and separate 16 ft entrance and exit gates to facilitate pull through maneuvers of the vehicles), area dimensioned as directed by the Engineer, will be provided around TxDOT field office/laboratory and parking areas separate from contractor areas. Keep Contractor and TxDOT parking separate. No contractor vehicles, equipment, dumpsters, storage, etc. will be allowed in TxDOT parking area. Allow for space to accommodate a minimum of 6 pull through parking spaces.

A 10 lb. ABC fire extinguisher with up-to-date inspection tag, working smoke detector, first aid kit and eye wash station shall be installed in all facilities used by TxDOT personnel. They shall be mounted on a wall that is easily accessible and not blocked by any permanent features or furniture.

Inspect the fire extinguisher, smoke detectors, eye wash stations and first aid kits every month. Make necessary corrections or updates as needed or as directed within 7 calendar days of notice of corrections.

This item, including but not limited to providing fully operational field office and laboratory, ipads and copier/scanner, enclosing the field office and parking area, fencing and lighting for the field office and any related incidentals will not be paid for directly but will be subsidiary to the various bid items.

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Item 506 – Temporary Erosion, Sedimentation, and Environmental Controls

Place Best Method Practices (BMP's) in locations as designated in the plans or as directed to meet field conditions.

Place a weatherproof bulletin board containing the Texas Commission on Environmental Quality (TCEQ) required information on the project at a site as directed. Post the following documents:

1. TCEQ "TPDES Storm Water Program" Construction Site Notice; Primary Construction Site Notices from both Contractor and Department, completed and signed.
2. TCEQ "Primary Notice of Intent," from both Contractor and Department; and
3. TCEQ "TPDES Permit.

Place rain gauge(s) at locations as designated.

The total disturbed area for this project is **49.15** acres. Establish the authorization requirements for Storm Water Discharges for soil disturbed area in this project, all project locations in the Contract, and Contractor Project Specific Locations (PSLs), within one mile of the project limits. Both the Department and the Contractor shall obtain an authorization to discharge storm water from TCEQ for the construction activities shown on the plans. Obtain required authorization from the TCEQ for any Contractor PSLs for construction support activities on or off right of way. When the total area disturbed for all projects in the Contract and PSLs within one mile of the project limits exceeds five acres, provide a copy of the Contractor Notice of Intent (NOI) PSLs on the right of way to the Engineer (to the appropriate Municipal Separate Storm Sewer System (MS4) Operator when on an Off-system State route).

Best Method Practices (BMP's) may be adjusted to meet field conditions, or as directed. Engineer will verify all locations prior to placement of BMPs. Within the project limits, keep all inlets functional as long as possible to accept storm water as part of the Storm Water Pollution Prevention Plan (SWP3), as directed.

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Grading operations will be limited to the catch point of the proposed cross-section.

Preserve any vegetation outside these limits.

Item 512 – Portable Concrete Traffic Barrier

Coordinate with the Engineer two weeks in advance to schedule pick-up of the Portable Concrete Traffic Barrier (PCTB) from the Canutillo Yard at the corner of TX-20 (Doniphan Dr.) and State Hwy SPUR 6 or as directed by the Engineer. The unit price for PCTB (Stock Pile) shall include but is not limited to pick-up, loading, transportation, drop-off, installation and labor, incidentals, any connection hardware needed and install complete.

Load, haul, place, and store PCTB as directed. Any PCTB furnished by the Department, damaged in the process of transporting, hauling, or placing will be repaired at the Contractor's expense. Contractor to provide connection hardware that are commonly known as metal cages subsidiary to this Item and shall remain property of the Department at the end of the project.

Upon termination, the PCTB and connection hardware shall remain the property of the Department. Deliver all materials to the original storage site, or as directed by the Engineer. PCTB shall be stacked in storage yard as directed by the Engineer.

Any PCTB furnished by the State, which is damaged in the process of transporting, handling or placing shall be repaired, or replaced, as directed and in accordance with TxDOT's Concrete Repair Manual (Jan 2019), at the Contractor's expense.

Contractor to select cleaned and non-damaged PCTB from the yard as directed by the Engineer.

Contractor must install two yellow reflective tabs (top and side facing traffic) to all PCTB to be used on the project. Any damaged tabs must be replaced immediately. Payment for the original installation and replacement of tabs will be subsidiary to Item 512.

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Item 514 – Permanent Concrete Traffic Barrier (F-Shape)

All Permanent Concrete Safety Barrier (CSB) (F-Shape) independently of type (TY 1, TY 3, TY 4 or SPL) must be painted as shown on the Concrete Barrier Aesthetics Sheet and as shown on plans. Painting will not be paid for directly, but it will be subsidiary to the corresponding CSB item (514-6013, 514-6015 and/or 514-6016). Colors are as shown on the Concrete Barrier Aesthetics sheet. Main color is Awning Red (#30233), and Accent color is sand (#13578). Submit color samples for approval prior to installation.

Concrete surface preparation is also subsidiary to the corresponding ITEM 514.

Item 540 – Metal Beam Guard Fence

Provide composite blockouts for all Metal Beam Guard Fence (MBGF) posts. Use the same type of post throughout the project, except as specifically noted in the plans.

Install guardrails in the direction of traffic flow.

Stake the locations for approval prior to beginning the installation of the proposed MBGF and posts.

When removing MBGF, remove all delineators and object markers associated with the MBGF. This work will be subsidiary to the various bid items.

Verify MBGF post lengths and heights prior to ordering materials.

Place reflectors, as per Delineator and Pavement Marker Standard D&OM (1)-20 on the metal beam rail element or as directed. Verify placement of GF2. This work will not be paid for directly but will be considered subsidiary to pertinent items.

At the end of each workday, protect all untreated, incomplete, MBGF/Rail blunt ends exposed to traffic flow during construction until the permanent end treatment is in place. All work and incidentals are considered subsidiary to this Item.

MBGF not used will become the property of the Contractor.

Replace damaged sections of Metal Beam Guard Fence (MBGF).

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Item 545 –Crash Cushion Attenuators

Furnish crash cushion attenuators at the locations shown on the plans and on the Crash Cushion Summary Sheet (CCSS) for temporary work zone and permanent applications. Crash Cushion attenuators shall meet the plan requirements and be on the Department's *Compliant Work Zone Traffic Control Devices* List.

Sacrificial Crash Cushion Attenuators will be used for traffic control purposes only, and reusable will be used for permanent applications on this project.

Additional Crash Cushion Attenuators will be ordered as shown on the plans and stored and ready for use as deemed necessary on the project to protect PCTB. Used, and not damaged Crash Cushion Attenuators must be delivered to the East Area Office, at no additional cost to the State.

Item 585 – Ride Quality for Pavement Surfaces

Ride Quality for Existing Pavement:

Measure the ride quality of an existing pavement surface (inside shoulders and half travel lanes) prior to beginning the pavement widening activities. Use a certified profiler operator from the Department's MPL. When requested, furnish the Engineer documentation for the person certified to operate the profiler. Provide all profile data to the Engineer in electronic data files within 24 hours of the ride quality using the format specified in Tex-1001-S. The Engineer will use Department software to evaluate longitudinal profiles to determine areas requiring corrective action. Correct any 0.1-mi. section with an average IRI over 95.0 in. per mile or as directed by the Engineer. Correct the deficient section to an IRI of 75 in. per mile or less or as directed by the engineer.

Measure localized roughness using an inertial profiler in accordance with Tex-1001-S. The Engineer will determine areas of localized roughness using the individual profile from each wheel path.

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Use diamond grinding to correct any deficient 0.1-mi. section and localized roughness. The work performed, materials furnished, certification and recertification, traffic control for all testing, and materials will not be measured or paid for directly but will be subsidiary to pertinent Items. Work needed for corrective action, equipment, labor, tools, and incidentals will be paid under Item 3004, "Diamond Grinding and Grooving Pavement"

Reprofile the corrected area and provide results that show the corrective action was successful. If the corrective action is not successful, the Engineer may require continued corrective action.

Ride Quality for Final Riding Surface of Travel Lanes

Use Surface Test Type B and pay adjustment schedule 2 to evaluate ride quality for the final riding surface of travel lanes. Notify the District Laboratory 48 hours prior to conducting Surface Test Type B. Properly mark all starting/ending points, and leave-out sections prior to testing. Deliver test results within 24 hours of testing. Provide all profile measurements in electronic data to ELP-LAB@txdot.gov using the format specified in Tex-1001-S.

An IRI > 95 will require corrective action.

Use diamond grinding to correct areas of localized roughness. The work needed for corrective action for final riding surface of travel lanes will not be measured or paid for directly but will be subsidiary to pertinent items.

Item 610 – Roadway Illumination Assemblies

Conductor runs in Illumination Layouts must include 5 ft. of slack.

High Mast Illumination assemblies will be constructed for this project. Contractor must submit High Mast Illumination Assemblies Shop Drawings immediately after award, so the materials can be procured for on-time arrival based on the established sequence of construction.

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All High Mast illumination assemblies must be completed and in full operation before the existing project illumination assemblies in the median are turned off, removed or demolished. Refer to plan sheets that indicate salvageable portions of the existing roadway illumination assemblies.

Item 618 – Conduit

The location of conduit is diagrammatic and may be varied to meet local conditions upon approval of the Engineer.

Use underground warning tape in the trench installation of conduit (PVC). The installation of warning tape is subsidiary to this bid item.

For conduit placement in pavement, an earth-saw may be used provided the cut does not exceed 6 in. Backfill as shown on the trench details in the plans.

For all underground conduit bends of 45°, provide rigid metal conduit. Where the rigid metal conduit is exposed at any point and where rigid metal extends into ground boxes, bond the metal conduit to the grounding conductor with grounding type bushings or by other UL-listed grounding connectors, approved by the Engineer. Rigid metal bends will not be paid for directly but will be considered incidental to the PVC conduit system.

Use rigid metal conduit when crossing bridges or culverts. All clamps, expansion joints, bolts and accessories necessary to install the rigid metal will be subsidiary to this Item.

Backfill roadway and driveway trench with cement-stabilized backfill at the end of each working day. Place an ACP patch at the end of the week or as directed by the Engineer.

All conduit elbows and rigid metal extensions required to be installed on PVC conduit systems will not be paid for separately but will be considered subsidiary to the various bid items.

All bore items shall be directional and shall be paid for under this item. Bore quantities include the distance beneath the roadway plus an additional 2 ft. on either side of the curb, sidewalk, or edge of pavement.

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For conduits install by open trench method, backfill the trench as shown on the plans.

Place all other conduit at a minimum depth of 18 in. below the pavement surface. Place conduit prior to the new pavement construction.

Maintain minimum clearance between ITS conduit and illumination conduit as shown in the Department Standard ITS(35)-16.

Fit both ends of each raceway with a temporary cap to prevent dirt and debris from entering during construction.

Install a continuous green insulated copper wire No. 8 AWG or larger in every conduit throughout the electrical system in accordance with the electrical detail sheets, and the latest edition of the National Electrical Code.

When conduit is to be installed where riprap presently exists, take care in breaking the existing riprap for placement of the conduit. Do not break out a greater area that is required for placement of the conduit. Replace broken riprap with Class "C" concrete to the exact slope, pattern, color and thickness of the existing riprap. Replacement of riprap will be subsidiary to this Item.

Restore any disturbed native soil "as good as" or "better than" it's original condition at the end of each construction day.

Item 620 – Electrical Conductors

Use NEC type XHHW for all conductors.

Insulate grounding conductors with a green jacket and neutral conductors with a white jacket.

At every accessible point, bond together the grounding conductors which share the same conduit, junction box, ground box or structure in accordance with the electrical detail sheets and the latest edition of the National Electrical Code.

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Include extra cable length in each ground box or foundation for each run, to provide adequate slack, as provided in the plans or as directed.

Ensure a properly bonded electrical system by running wires between foundations and grounding it at each foundation ground-rod as shown on the Department's relevant Foundation Standard sheets.

Bond metal junction boxes and metal conduit to the circuit grounding conductors in accordance with the National Electrical Code.

Refer to Article 7.18, "Electrical Requirements," for electrical certification and electrical licensing requirements.

The required electrical certifications course is available and is scheduled periodically by Texas Engineering Extension Service (TEEX). Alternatively, Contractors may purchase an entire course for their personnel to be held at a time and location of their choice as negotiated through TEEX. For more information contact:

Texas Engineering Extension Service (TEEX)
TxDOT Electrical System Course
(979) 845-6563

Item 624 – Ground Boxes

Ensure the ground box cover is legibly imprinted by the manufacturer with the words "Danger High Voltage" as required by the "Electrical Details" State Standard Sheet(s). In addition, imprint "Traffic Management", or whatever other system will be housed in the ground box. The ground box locations shown on the plans are approximate and can be adjusted to better fit field conditions when approved.

Remove all conductors in ground boxes as shown on the plans to be abandoned. Payment for removal of conductors will be subsidiary to this Item.

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Item 628 – Electrical Services

Meet at the service locations with representatives of the Department, electrical utility company, and City of El Paso (Traffic Section) at least twelve weeks before electric power is needed to finalize exact service pole placement and resolve any issues.

Any costs for electrical connection, test, and operation will be the responsibility of the government agency that will have the final operational control of the items built.

Remove the existing service enclosure and conduit on service poles that are to be reused or abandoned. Modify the services as noted on the plans. Payment for removal and modifications will be considered subsidiary to this Item.

Item 644 – Small Roadside Sign Assemblies

Stake all sign locations and receive approval prior to sign placement.

The 2-1/2 inch, Schedule 10 post will meet the following requirements:

- 0.120 in. nominal wall thickness
- Seamless or electric-resistance welded steel tubing or pipe
- Steel will be HSLAS Grade 55 per ASTM A1011 or ASTM A1008

Other steel may be used, if it meets the following:

- 55,000 psi minimum yield strength
- 70,000 psi minimum tensile strength
- 20% minimum elongation in 2 in.
- Wall thickness (uncoated) to be within the range of 0.108 in. to 0.132 in. galvanization per ASTM A123 or ASTM A653 G90

For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metalizing with zinc wire per ASTM B833.

Verify all post lengths to ensure the proper sign height. Remove and replace any sign installed incorrectly. This work will be done at no expense to the Department.

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Provide Texas Universal Triangular Slip Base clamp type for all signs as shown on SMD (Slip-1)-08.

As directed, some regulatory and guide signs will be relocated before construction begins. Mark and locate each reference marker perpendicular to the road and along the right of way, or as directed, prior to removal. Re-erect reference markers at their original location upon completion of construction.

All signs removed will remain property of the Department.

Item 650 – Overhead Sign Supports

Provide a minimum clearance of 21 ft. from the high elevation point of the roadway to the bottom of the future lane control signals as shown on the plans, or as directed.

Base column lengths on base plate elevations provided on plans. Verify by field survey that plan dimensions and all base plate elevations mirror field conditions, prior to column fabrication. Furnish corrected column lengths to the Engineer for approval, after placement of the drill shafts.

For Use with Tubular Overhead Sign Bridges:

Provide anti-graffiti coating on all faces of column and color Awning Red, Fed #30233 (Type II) paint for all exposed concrete columns. Paint and graffiti coating is subsidiary to this Item.

Provide smooth, round, hot-dipped galvanized (inside and outside) overhead sign supports. Submit shop drawings to the Engineer for approval.

Weld all tubular structural frame pipe or seamless steel pipe. Must conform to the following:

ASTM A-53 Grade B, Type E or S

ASTM A252 Grade 2, Type E or S

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ASTM A106 Grade B, Type S
API 5L Grade B, Type E or S
API 5LX Grade X42, Type E or S

All other structural steel will conform to ASTM specifications A36, unless noted otherwise. All steel greater than 1/2 in. thickness will conform to the longitudinal Charpy V-Notch requirements of ASTM A36, Group I, in accordance with Article 442.3, "Construction."

Coating System

Provide a coating system of a polyamide-cured epoxy prime coat, a polyamide-cured epoxy intermediate coat material. All three system coats should be manufactured from the same company to ensure compatibility among coats, from one of the following manufacturers or an approved equal:

1. Ameron

201 N Berry St.
Brea, California 92821
Local telephone contact: (714) -256-7755
Prime Coat: Amerlock® 400
Top Coat: Amercoat® 450 HS

2. ICI/DEVOE Coatings

5480 Clover Leaf Pkwy
Valley View, Ohio 44125
Local telephone contact: (216)328-1581
Prime Coat: Devran 4170 Corrosion Resistant Epoxy
Intermediate Coat: Devran 4170 Corrosion Resistant Epoxy
Top Coat: Devthane 4708 Aliphatic Urethane Enamel

3. Porter Paint Co.

400 South 13th Street

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Louisville, KY 40201

Local telephone contact: (502) 588-9679

Prime Coat: Porter Paints MCR 4300

Intermediate Coat: Porter Paints MCR 4300

Top Coat: Porter Paints Hythane

4. Poly-Carb, Inc.

33095 Bainbridge Road

P.O. Box 39278

Solon, Ohio 44139

Local telephone contact: (419)248-1223

Prime Coat: Mark-60 (ULTRA POX)

Intermediate Coat: Mark-60 (ULTRA POX)

Top Coat: Mark-73 (ULTRAKOTE)

5. Sherwin-Williams Company

671 Beta Drive

Mayfield Village, Ohio 44143

Local telephone contact: (440)461-3310

Prime Coat: Tile-Clad II Hi-Build Primer

Intermediate Coat: Hi-Build Aliphatic Polyurethane Enamel

Surface Preparations

New unweathered galvanized support sections will have their surface preparation as well as their protective coating done at the manufacturer of the support sections.

The support sections will be prepared for coating by SSPC SPI followed by SSPC-SP7 (solvent cleaning) followed by a brush-off blast. Blasting abrasives containing more than 1% free silica will not be allowed. Before the prepared surface degrades from the prescribed standards, the prime coat will be applied. In every case, the surfaces will be

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coated with the epoxy prime coat on the same day of surface preparation. Careful handling and storage will be required to prevent scraping, marring, or other surface damage to the prepared surface.

Coating, Wash Primer 1.5 mils

This coat will consist of one coat of an epoxy primer to support sections. The total dry film thickness of this coat will be between 1.5 and 2.0 mils. If more than one coat is needed, expense will be borne by the Contractor.

In all cases, this coat will be applied by brush over surfaces that were prepared earlier that same day. The thinning of the epoxy material is strictly prohibited. Do not use material that is not capable of being applied as specified.

When the average dry film thickness of this coat over the entire support section is less than the specified 1.5 mils, this item will be reduced in direct proportion to the deficiency of coating if more than 16 2/3%. If the deficiency of coating is more than 16 2/3% (i.e. the average dry film thickness is less than 1.25 mils), the work for this Item will be considered unsatisfactory and will be relocated at the full expense of the Contractor, including all labor.

Coating, Urethane Top Coat, Support Sections

This item will consist of the application of one coat of urethane to support sections. The total dry film thickness of this coat will not be less than 1.5 mils. If more than one pass is necessary to obtain the required thickness that coat expense will be borne by the Contractor.

All coatings are subsidiary to this Item.

Final color will be Patina Green FED #24300.

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Item 658 – Delineator and Object Marker Assemblies

Verify all locations with the Engineer prior to installation.

Removal and proper disposal of all existing delineators, object markers, and any non-standard hardware assemblies are not paid directly, but will be considered subsidiary to pertinent items for payment.

Item 662 – Work Zone Pavement Markings

In those areas where existing pavement markings are to be covered or removed, field locate and record the existing pavement markings by survey or other approved method by the Engineer as directed. Place final striping at these locations. Use temporary tabs to establish existing striping location, which must be re-established with contrast pavement markings. Payment of temporary tabs will be subsidiary to the removal pay items.

Remove and properly dispose of tabs upon completion of the final striping. This work is considered subsidiary to various bid items.

Place raised pavement markers in accordance with applicable standards and as directed. Raised Pavement Markings for traffic control purposes will be subsidiary to the 502 bid item.

Item 666 –Retroreflectorized Pavement Markings

Use a pilot line for final striping and remove pilot line after all striping is complete. Removal will be in accordance with the methods specified in Item 677, “Eliminating Existing Pavement Markings and Markers,” and will be subsidiary to this Item.

Air blasting is required as pavement surface preparation.

In those areas where existing pavement markings are to be covered or removed, field locate and record the existing pavement markings by survey or other approved method by the Engineer as directed. Place final striping on these locations.

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Item 672 – Raised Pavement Markers

Use a pilot line for final striping and remove pilot line after all striping is complete. Removal will be in accordance with the methods specified in Item 677, “Eliminating Existing Pavement Markings and Markers,” and will be subsidiary to this Item.

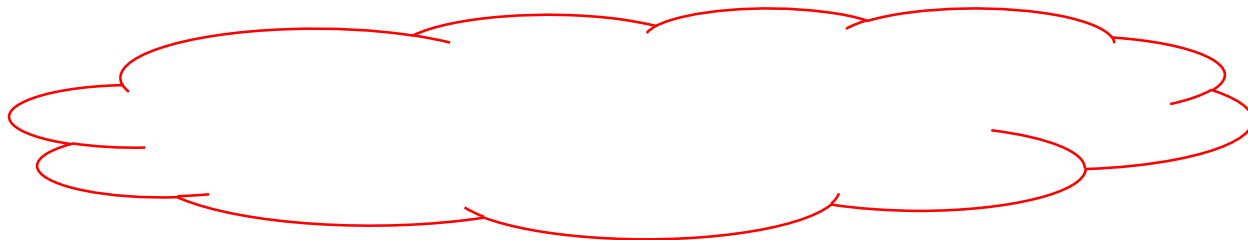
Air blasting is required for pavement surface preparation.

Furnish adhesives that conform to DMS-6100, “Epoxies and Adhesives,” and DMS-6130, “Bituminous Adhesive for Pavement Markers,” for this Item.

Do not place raised pavement markers when the pavement surface temperature is below 60°F.

Removal of all existing raised pavement markers will be considered subsidiary to the various bid items.

Item 3076 – Dense-Graded Hot-Mix Asphalt



1

In place of typical tack materials shown in Table 18 under Item 300, use a tracking resistant asphalt interlayer (TRAIL) material as a tack coat. Approved TRAIL products are found on TxDOT’s Material Producer List under Asphalt Interlayer (Tracking Resistant) through <http://www.txdot.gov/business/resources/materials.html>.

Hydrated Lime shall be added as an additive as per Item 301 “Asphalt Antistripping Agent” between the rates of 1.0% minimum and 2.0% maximum by weight. If the Hamburg Wheel Test cannot be met within these limits, Liquid Antistripping agents as approved by the Engineer may be used in conjunction with lime.

Supply Warm-Mix Asphalt (WMA) under this Item.

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When Reclaimed Asphalt Pavement (RAP) is used in the production of hot-mix asphaltic concrete, use fractionated RAP. Do not exceed 10.0% of Fractionated RAP on surface mixtures.

Use of RAS is not allowed for any mixtures.

Substitute PG Binders (grade dumping) will not be allowed for any mixtures.

Obtain the current version of the templates at <http://www.txdot.gov/inside-txdot/formspublications/consultants-contractors/forms/site-manager.html>. Submit electronically to the Engineer.

Design the mixture at 50 gyrations (Ndesign).

Do not cover with asphaltic material, any existing survey monuments, manholes, or valve covers, etc. Adjustments will be done in coordination with the respective utility owners.

Provide a minimum of 40 ft skis during paving operations.

Place a string line or other suitable marking to ensure smooth, neat lines, or as directed.

Place longitudinal joints approximately 6 in. from the broken striping, or as directed, to avoid placing under the wheel path.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed will be slow enough, so that stopping between trucks is not ordinarily required. If the Engineer determines non-uniform delivery of material is affecting the HMA placement, the Engineer may require the paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

Item 4125 – Wall with Metal Fence

Fabricate and install wall with metal fence following special specification and plan sheet details. This item covers fabrication of the wall with metal fence, transportation to the job site, footings, reinforcement, labor, all materials and any overhead, complete

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installation, painting and finishing. Install anti-graffiti coating on exposed rock. Anti-graffiti coating will not be paid for directly, but will be subsidiary to ITEM 4125.

Item 6001 – Portable Changeable Message Sign

Provide messages as directed.

Provide two Portable Message Signs (PMS). Use PMS as advanced notification for two weeks prior to beginning project and throughout duration of project as directed.

Item 6003 - ITS System Support Equipment

Furnish the following items, meeting the specifications in this Contract:

Description	Quantity
FULL COLOR LED DMS (DMS DISPLAY BOARDS ONLY) (ITEM 6322)	1
FULL COLOR LED DMS (DMS CONTROLLER BOARD) ONLY) (ITEM 6322)	1
FULL COLOR LED DMS (FULL COLOR DISPLAY DRIVER ONLY) (ITEM 6322)	1
FULL COLOR LED DMS (POWER SUPPLY ONLY) (ITEM 6322)	1
FULL COLOR LED DMS (AIR FILTER FOR DMS SIGN ONLY) (ITEM 6322)	1
FULL COLOR LED DMS (AIR FILTER FOR DMS CABINET ONLY) (ITEM 6322)	1
EMBEDDED LED DYNAMIC MESSAGE SIGN SYSTEM	3

All Contractor-furnished equipment will be compatible with the Department's existing equipment and mounting facilities. Submit all equipment and specifications for approval prior to delivery.

Contact the Engineer and verify equipment models prior to ordering system support equipment. Deliver all equipment provided under this Item to:

Texas Department of Transportation (Signal Shop)

13301 Gateway West Blvd., El Paso, TX 79928

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Item 6005 - Testing, Training, Documentation, Final Acceptance, and Warranty

The 90 day Final Acceptance Test will begin only when all TMS equipment installation, cabling, wiring, testing, field work, TransVista operations center work, etc for the entire project is completed and acceptable to TxDOT. Partial testing is not allowed.

Item 6007 - Fiber Optic Cable

Furnish equipment compatible with the Department's equipment and mounting facilities. Submit equipment list and specifications for approval prior to delivery.

Fiber optic cable road markers must be installed equidistant between fiber ground boxes containing fiber optic cable or as approved by the Engineer. Fiber optic cable road markers shall read "FIBER OPTIC CABLE BURIED, CONTACT TXDOTELPLOCATES@TxDOT.gov" or as directed by the Engineer.

Provide compact fiber patch panels and splice tray modules for the sizes specified to maximize empty rack space.

Clearly label fiber assignments and ID for ITS field device on fiber distribution housing modules per District requirements.

All fiber optic equipment that will be used by the Contractor on this project shall be certified and calibrated to latest NIST calibration standards by an independent and accredited calibration laboratory before the Contractor can begin work on the fiber optic cable system. The Contractor shall provide documentation on the most recent fiber optic certifications of their workers and equipment. The Contractor shall provide documentation on the most recent calibration reports of their fiber optic equipment.

Training required under this Item will include two 16-hour sessions for a total of 32 hours. The first and second training sessions will be for ten people. This training and all expenses will be subsidiary to this Item. Training will include ETA testing for fiber optic technicians and fiber optics installer certificates. Training will be held in El Paso, Texas at the TxDOT El Paso District Headquarters. Items covered in the training will be the following:

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Introduction to Fiber Optics

- Fiber Theory and Optical Fiber Cables
- Connectors
- Splicing Panels, Trays, and Enclosure
- Installation Methods and Tools
- Testing and Test Equipment
- Maintenance and Restoration
- Fiber and Laser Safety
- Light Sources and Detectors
- Repeaters and Regenerators
- Digital and Analog Transmission
- Passive Devices
- System Standards
- System Design
- Video Transmission
 - Transmission Formats
 - Data Transport Systems
- Real-time Video
 - Multi-channel
 - High-density
 - Digital and FM Transmission
- Traffic Control Systems
 - Traffic Controllers
 - Data Modem Protocols
- Next Generation Systems
 - All-IP, Hybrid, and Legacy
- Splicing
 - Fusion and Mechanical
 - Restoration Scenarios

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- Fiber Handling and Cleaving
- Terminating No-polish Connectors
- Cable Preparation
 - Loose Tube Cables
 - Indoor/Outdoor Cables
 - Patch Panel Preparation
 - Splice Enclosure Preparation
 - Mid-entry Practices
- OTDR Operation
 - Acceptance Testing
 - Span Acceptance and Splice Loss
 - Reflection Testing
 - Emergency Restoration
 - Troubleshooting
- Optical Loss Testing
 - Cleaning and Inspection
 - Link Loss Measurement
 - Identifiers and Tracers
 - Documentation
- Other
 - CCTV Video Systems
 - Multi-drop Data Networks
 - Measure TX and RX Power
 - Variable and Fixed Attenuators

Item 6008 - Intelligent Transportation System (ITS)

Ground Mounted Cabinet Installation of Video Encoder and Video Decoder provided by the State shall be subsidiary to this bid item.

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Item 6010 - Closed Circuit Television Field Equipment (Install Only)

Contractor to install CCTV according to the manufacturer's recommendations to achieve the specified accuracy and reliability.

Contractor to configure and integrate the CCTV system to communicate with TransVista through fiber optics. Contractor to calibrate CCTV field equipment. Contractor to maintain CCTV video feed communication link until project is accepted.

Item 6027 – Preparation of Existing Conduits, Ground Boxes or Manholes

Install cable rack assemblies in existing ground boxes as identified in the plans. Secure fiber optic cable slack and splice enclosures to cable rack assemblies. The Contractor is responsible for damage done to existing cable during the preparation of existing conduit. The Contractor will repair or replace damage done to existing cables. The repairing or replacing of damage to existing cables will be done at the expense of the Contractor, and to the satisfaction of the Engineer.

Item 6064 - ITS Pole w/Cabinet (55')

Furnish equipment compatible with the Department's existing equipment and mounting practices. Submit equipment list and specifications for approval by the Engineer prior to delivery.

ITS field device cabinets will be Type 2, Configuration 2 pole mounted cabinets.

Provide cabinets with 0.125" thick aluminum, 5052-H32, mill finish sun shields on top, front, and both sides offset from cabinet shell. A sunshield is not required on the pole mounting side. Provide cabinets that are painted white on the interior and left with steel finish on the exterior.

Place inside rack pullout drawer a fiber terminator schematic that details out and labels fiber terminations for the backbone fibers as well as TIS field equipment drop cables terminated on the fiber patch panels.

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The Department will provide IP addressable power strip. The contractor will install, configure and integrate the IP addressable power strip with the TxDOT Traffic Management Center. This work will subsidiary to item 6064-6084.

Item 6137 – ITS Equipment Install

See plans for quantities and request specifications and manufacturer cut sheets for installation and configuration procedures. Contractor will be responsible for installation, configuration, integration, and testing under this Item.

Item 6163 – Remove Existing Cables

Remove existing cables at locations shown on the plans and as directed. The type of existing cables may be of various communication cabling (fiber)(power) and (communication). Refer to Special Provision for information.

Item 6185 – Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

All TMA Operators must participate in a TMA workshop to be conducted by the El Paso District Safety Office, on the proper use of TMAs, prior to working on Department Right of Way (ROW). A certificate of completion will be issued to TMA Operators that successfully complete the TMA workshop. The certificate of completion must be carried by TMA Operators at all times while working on Department right of way.

Acquire the TCP and TMA Operator's certificates of completion prior to the authorization to begin work. No time suspension will be granted and no traffic control work will be allowed without certificates of completion.

In addition to the shadow vehicles with Truck Mounted Attenuator (TMA) that are specified as being required on the traffic control plan for this project, provide1 additional shadow vehicle(s) with TMA for TCP (6-1)-12.

Item 6186- ITS Ground Box

Label corner of ground box lid via text or graphical image whether the box contains fiber optic slack or is a splice enclosure location. For example, a graphical image of a "figure

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8" may represent slack. Provide to the District location of the label and sample graphical images (if utilized) for review and approval as part of shop drawing submittal.

Item 6227 – Solar Powered Light Emitting Diode (LED) Roadside Sign

Contractor to install solar powered light emitting diode (LED) system on signs as shown on plans. Solar panel and battery to operate 24/7 as indicated on Special Provision.

Item 6304 - Radar Vehicle Sensing Devices (RVSD) (Install Only)

Contractor to install RVSD according to the manufacturer's recommendations to achieve the specified accuracy and reliability.

Contractor to configure and integrate the RVSD system to communicate with TransVista through fiber optics. Contractor to calibrate RVSD. Contractor to maintain RVSD communication link until project is accepted.

Item 6322 - Full Color LED Dynamic Message Sign System

Furnish and install Light Emitting Diode (LED) Dynamic Message Signs (DMS) with nominal 18 in. characters. Furnish and install equipment cabinets.

Two-12 inch yellow LED flashing beacons shall be installed and made operational on each DMS installed on this project. The beacons are included with the DMS and shall be configured to flash alternatively.

The LED dynamic message signs installed on this project shall be configured to operate using the existing Lonestar software located at TransVista and Central Processing Unit installed in the field. Coordinate with the District on color display functionality through Lonestar. Provide vendor software to the District. Prior to completion of this project, the Contractor shall demonstrate complete operability of all DMS's installed on this project at the TransVista Traffic Management Center.

The Contractor will ensure that, during construction, the attachment of the DMS to the truss structure will not interfere with the structure bolt heads.

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Provide communication cables between the DMS and the DMS controller cabinet for the operation of the sign.

Provide cabinets with minimum 0.125" thick aluminum, 5052-H32, mill finish sun shields on top, front, and both sides offset from cabinet shell. A sunshield is not required on the pole mounting side. Provide cabinets that are painted white on the interior and left with steel finish on the exterior.

Place inside rack pullout drawer a fiber terminator schematic that details out and labels fiber terminations for the backbone fibers as well as TIS field equipment drop cables terminated on the fiber patch panels.

The Department will provide IP addressable power strip. The contractor will install, configure, and integrate the IP addressable power strip with the TxDOT Traffic Management Center. This work will subsidiary to item 6322-6001.

Provide local warehouse storage for all DMS's to be installed on this project from the time of delivery by the manufacturer to the time of final installation. Assume responsibility for all sign components during receiving, storage, transport, and final installation.

Item 6377 - System Integration

Furnish equipment compatible with the Department's existing equipment and mounting facilities. Submit equipment list and specifications for approval by the Engineer prior to delivery.

Ensure system is fully integrated and operational from TransVista and Central Processing Unit in the field. Ensure DMS display queue detection messages triggered by RVSD and Central Processing Unit as specified in the plans.

All ethernet cables and electrical conductors must be labeled with a heat shrink label. This is subsidiary to various bid items. For items where heat shrink does not fit over the connector, the cable will be labeled as direct by the Engineer.

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Submit the following data prior to final acceptance during construction of Traffic Management equipment for approval by the Engineer and TransVista:

1. Freeway Management System Geographic Information System (FMSGIS) Data by providing survey information in the following format (NAD 83) and (Lat & Long) of all poles, ground boxes, and controller cabinets.
2. Digital photos and serials of all poles, controller cabinets, and elements in controller cabinets.
3. The following information shall be submitted to the department for all items provided by the contractor: make, model, serial number, device name, date of manufacture, software version.