NOTIFICATION OF ADDENDUM

ADDENDUM NO. 2

DATED 2/28/2014

Control	**0173-03-015**
Project	**DMO 1102(478)**
Highway	**SH 34**
County	**KAUFMAN**

Ladies/Gentlemen:

Attached please find an addendum on the above captioned project. Included in the attachment is an adendum 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.

04/99

SUBJECT: PLANS AND PROPOSAL ADDENDUMS
PROJECT: DMO 1102(478) CONTROL: 0173-03-015
COUNTY: KAUFMAN
LETTING: 03/06/2014
REFERENCE NO: 0228

PROPOSAL ADDENDUMS

_ PROPOSAL COVER
_ BID INSERTS (SH. NO.:)
X GENERAL NOTES (SH. NO.: 21Q
)
_ SPEC LIST (SH. NO.:)
_ SPECIAL PROVISIONS:
ADDED:

DELETED:

_ SPECIAL SPECIFICATIONS:
ADDED:

DELETED:

X OTHER: See changes outlined below

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

GENERAL NOTES
Sheet 21Q: Item 502 second paragraph has been deleted
PLAN SHEETS
SHEETS 21Q ABD 21R WERE REPLACED DUE TO GENERAL NOTE CHANGE ABOVE
SHEETS 22A THRU 22E WERE REPLACED TO MATCH THE PROPOSAL BID INSERTS

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SW3P RESPONSIBILITIES

TxDOT Area of Responsibility

Responsible for the area defined by the limits of the subject project, except for those areas utilized and operated by the contractor. These areas include, though are not limited to, areas used for field offices, equipment and/or material storage, and concrete or asphalt plants.

TxDOT Operational Responsibility

Responsible for seeking coverage under the TPDES Construction General Permit (CGP) and operating the project within the requirements of the CGP for discharging storm water from the subject project and to notify MS4 permit holders of the intent to discharge storm water.

File a Notice of Termination with TCEQ upon completion of the project when the exposed areas have been stabilized with a vegetative cover of at least 70%.

Contractor Area of Responsibility

Responsible for all areas under their direct operational control which includes, though not limited to, areas used for field offices, equipment and/or material storage, and concrete or asphalt plants. These areas may be located on or off the subject project's R.O.W.

Contractor Operational Responsibility

Responsible for seeking coverage under the TPDES Construction General Permit (CGP) and adhering to all requirements of the permit for discharging storm water from the areas under their operational control. Perform regular inspections, prepare a written report of deficiencies, and repair deficiencies within the time frame set forth by the permit. File a Notice of Termination with TCEQ upon completion of the project when the exposed areas have been stabilized with a vegetative cover of at least 70%.

Responsible under contractual obligations to TxDOT to install, clean, repair, replace or remove sediment and erosion control devices as indicated on TxDOT's Inspection Reports, or as required by daily construction practices, within the time frame set forth by the permit.

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SPECIFICATION DATA

Table 1: Soil Constants Requirements

Item	Description	Plasticity Index		Note
		Max	Min	
132	Embk(DENS CONT) (Type C1)	40	8	1
132	Embk(DENS CONT) (Type C2)	25	10	2

Note 1: Material excavated from the project must meet the PI requirements when used in the top 10 feet of embankment that supports the pavement structure or other locations shown in the plans. Do not use shale and obtain approval to incorporate shaley clay produced by the construction project.

Note 2: Use as a non-select embankment backfill as defined under Item 423.2.C.1. Use as an embankment to backfill behind abutments to the extent of the approach slab or to backfill areas enclosed by an abutment and / or retaining walls or other locations as shown in the plans.

Table 2: Basis of Estimate for Permanent Construction

Item	Description	Thickness	Rate		Quantity
162	Block Sod	N/A			8,930 SY
164	Drill Seed (Perm) (R/U) (C/S)	N/A			81,938 SY
166 *	Fertilizer (12-6-6)	N/A	500	Lb/Ac	4.48 Ton
168	Vegetative Watering (Warm)**	N/A			7207.22 MG
310	Prime Coat (MC-30)	N/A	0.20	Gal/SY	23,558 Gal
3268 3267	Hot Mix Asphalt (Ty B) Hot Mix Asphalt (Ty C)	4” 2”	110 110	Lbs/SY/In Lbs/SY/In	27,249 Ton 3,002 Ton

* For contractor’s information only
**Adjust for actual field conditions/temperatures as necessary. See Vegetation Establishment Plan Sheet for estimated daily rates.

Note:
(1) Base material weight based on 1.50 Ton/CY (dry- compacted)
(2) Asphalt weight based on 110 Lbs/SY/In
(3) Subgrade weight based on 110 Ton/CY (dry-compacted)

Table 3: Basis of Estimate for Temporary Erosion Control Items				
Item	Description	Rate		Quantity
164	Drill Seeding (Temp) (**Warm**)	See Specifications		40,969 SY
166*	Fertilizer (12-6-6)	500	Lb/Ac	2.24 Ton
168	Vegetative Watering (Warm)**	7	MG/Ac/Day	3603.61 MG
164	Drill Seeding (Temp) (**Cool**)	See Specifications		40,969 SY
166*	Fertilizer (12-6-6)	500	Lb/Ac	2.24 Ton
168	Vegetative Watering (Cool)**	1	MG/Ac/Day	3603.61 MG

*For Contractor's Information Only.
**Adjust for Actual Field Conditions/Temperatures as Necessary. See Vegetation Establishment Sheet for estimated daily rates.

Table 4: Basis of Estimate for Finish Colors (Items 427 & 446) [1]		
Element	Color	Specification Number [2]
CTB		32648
Columns		32648
Bent caps		32648
Retaining wall		32648
Retaining wall coping		32648
Abutment walls		32648
Abutment backwall		32648
Abutment cap		32648
Girders		32648
Bottom of slab overhang		32648
Slab edge		32648
Concrete rail parts		32648
Metal rail parts		30252
Architectural elements		See plans

1. Unless otherwise noted, it is the intent of these plans that all exposed surfaces (concrete or steel) of bridges, retaining walls, concrete traffic railing and concrete traffic barrier be given a tinted coating as shown or as directed. Such coating shall meet the applicable provisions of Item 427 or Item 446.

2. Federal Standard 595b colors.

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GENERAL

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items.

The construction, operation and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

The disturbed area for this project, as shown on the plans is 50.26 acres. However, the Total Disturbed Area (TDA) will establish the required authorization for storm water discharges. The TDA of this project will be determined by the sum of the disturbed area in all project locations in the contract, and all disturbed area on all Project-Specific Locations (PSL) located in the project limits and/or within 1 mile of the project limits. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction site as shown on the plans, according to the TDA of the project. The contractor will obtain any required authorization from the TCEQ for the discharge of storm water from any PSL for construction support activities on or off of the project row according to the TDA of the project. When the TDA for the project exceeds 1 acre, provide a copy of the appropriate application of permit (NOI, or Construction Site Notice) to the engineer, for any PSL located in the project limits or within 1 mile of the project limits. Follow the directives and adhere to all requirements set forth in the TCEQ, Texas Pollution Discharge Elimination System, Construction General Permit (TPDES, CGP).

This project required permits with environmental resources agencies. There is a high probability that an environmentally sensitive area could be encountered on the contractor designated Project-Specific Locations (PSL) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). Item 7.19.F, “Project-Specific Locations”, will provide a listing of regulatory agencies that may need to be contacted regarding this project.

Prior to contract letting, bidders may request electronic earthwork information by email.
Email: Hal.Stanford@txdot.gov
Brenda.Callaway@txdot.gov

Earthwork files will be provided by email or by using TxDOT’s Dropbox FTP Service.

Bidders may also obtain a free computer diskette that contains earthwork information from the engineer’s office. Paper copies of cross-sections may be produced by using the provided free diskette at the bidders’ expense and at copying companies. This data is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with appropriate plans, specifications and estimate for the project(s).

Install traffic marking signs prior to sealcoat application and remove within three days after placement of traffic markings.

Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

Place survey monuments, provided by the department, at points indicated and as detailed in the plans or as directed. Furnish surface coordinates and the elevation of the set monument and an azimuth from the monument to some prominent physical feature, preferably another survey monument on the project. This work will not be paid for directly, but will be considered subsidiary to the various bid items.

Use established industry and utility safety practices to erect poles, luminaries, signs or structures near any overhead or underground utility. Consult with the appropriate utility company prior to beginning such work.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way on this project. For signal, illumination, surveillance, and communications & control maintained by TxDOT, call the TxDOT Traffic Signal Office (214-320-6682) for locates a minimum of 48 hours in advance of excavation. For irrigation systems, call TxDOT Maintenance Landscape Office (214-320-6205) for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages incurred to the above mentioned utilities when working without having the utilities located prior to excavation.

For the project to be deemed complete, permanently stabilize all unpaved disturbed areas of the project with a vegetative cover at a minimum of 70% density for the control of erosion.

Repair or replace any structures and utilities that might have been damaged by negligence or a failure to have utility locates performed.

Perform all electrical work in accordance with the National Electrical Code and Texas Department of Transportation Specifications.

Consult with appropriate electric company representatives according to their respective area to coordinate electrical services installations.

Meet weekly with the engineer to notify him or her of planned work for the upcoming week.

Provide the engineer with a daily work schedule of planned work.

Submit pre-letting questions, by email only, to the attention of Area Engineer or Assistant Area Engineer.
Email: Hal.Stanford@txdot.gov
Brenda.Callaway@txdot.gov

Answers will be provided by email.

An electronic file containing pre-letting questions and TxDOT answers will be provided upon email request.

Material On Hand (MOH) will not be used in calculating partial payments for Mobilization.

Provide the Engineer with a copy of all DBE subcontractor agreements prior to commencing work.

The following standard detail sheets have been modified*: IL-C(MOD) AND IL-H-G(MOD)*

Item 8:
This Project will be a Five-Day Workweek in accordance with Article 8.3.A.1.

Nighttime work is allowed in accordance with Article 8.3.C.1.

Item 100:
Remove the existing roadway small signs, delineators and object markers as shown on the plans, or as directed, during construction within the right of way. Small sign, delineator and object marker removals are subsidiary to this Item.

The limits of preparing right of way will be measured from SH 34 Sta. 130+00 to Sta. 227+28 and US 175 Sta. 743+00 to Sta. 806+00 along the centerline of construction.

Item 104:
In those areas where the pavement is not to be overlaid, provide a smooth surface after the curb removal. Planing or grinding is considered an acceptable method at these locations. Measurement and payment is in accordance with this item.

Sawing of concrete is not paid for directly, but is considered subsidiary to this item.

Item 110:
Scarify and loosen the excavated areas, unpaved surface areas, except rock, to a depth of at least 8 inches and compact in accordance with the specifications.

Perform the following test by an approved laboratory on excavated soils when used for roadway embankment: 1- Tex-145-E (Sulfate Content in Soils), 2- Tex-106-E (Plasticity Index). Provide the above-mentioned test results on sources outside of the right of way at no expense to the department. Contact the engineer for a list of approved laboratories. Notify the engineer 72 hours before sampling and testing material. Perform split-sample verification testing with the engineer when directed. The engineer will sample and test soils produced by the construction project for specification requirements or material sources specified in the plans.

Excavated shale is not an acceptable material for embankment.

Items 110 and 132:
Excavation and embankment for driveways, sleeper slabs, alleys and intersections will not be paid for directly, but will be considered subsidiary to these items.

Item 132:
Excavated material from the project site has not been determined to be suitable for embankment. The bidder assumes all risk for the use of excavated materials for embankment and is expected to meet all material requirements for embankment regardless of the source.

Earth embankment Type C1 and C2, are mainly composed of material other than shale. Furnish material that is free from vegetation or other objectionable material and that conforms to the requirements of Table 1 (Sheet B). If necessary, add lime slurry in accordance with Item 260, "Lime Treatment (Road-Mixed)" in order to meet these requirements. Use Tex-121-E, figure 1, page 5 to calculate the amount of lime required. Furnish material containing sulfate at or below the threshold of 5000 parts per million (ppm). For material with sulfate levels greater than 3000 ppm, allow the mixture to mellow for at least three days, or as directed. Test soil for sulfate levels in accordance with Tex-145-E. Use an approved laboratory to perform tests for sulfate and plasticity index and provide results on sources outside the right of way to the department. Contact the engineer for a list of approved laboratories. Notify the engineer 48 hours before sampling and testing material. Perform split-sample verification testing with the engineer when directed. The engineer will sample and test material produced by the construction project for specification requirements or material sources specified in the plans. The engineer will test material placed or excavated to a depth of one foot below and laterally to one foot outside the proposed treatment limit. Lime treatment and testing of this material will not be paid for directly, but will be considered subsidiary to this item.

Do not use shaley clays in embankment unless approved in writing.

Use embankment material Type C2 described in Table 1 "Soil Constants Requirements" for embankments behind bridge abutments to the extent of the bridge approach slabs, and other embankments enclosed by an abutment and / or retaining walls.

Item 161:
Provide tickets representing quantity of compost delivered to site.

Item 247:
Compact to at least 98% of the maximum density determined by Tex-113-E. Construct uniform layer thickness of 12 inches, or less with the required density and moisture content. Triaxial class is required for Grade 1 and 2. Minimum PI is equal to three (3) for all grades.

The use of contractor-owned recycled crushed concrete is allowed provided it meets the Departmental Material Specification, DMS-11000 requirements.

Item 301:
Provide liquid antistripping agents unless otherwise directed. Provide manufacturer's instruction for liquid antistripping agent.

Add the minimum percentage determined by the manufacturer and try subsequent trials at 0.25% increments, unless otherwise instructed by the manufacturer.

Items 305 and 354:
Separate the asphalt pavement from the base material. Stockpile the asphalt pavement at

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TxDOT (Colquitt Road Stockpile)
7055 FM 598
Terrell, TX 75160
(817) 292-6510

Place the asphalt pavement material in a stockpile that meets the dimensions and requirements designated by the engineer.

Stockpile materials in uniform piles up to 15 feet in height unless otherwise instructed. Furnish adequate equipment at the stockpile to keep and leave the materials in a neat and orderly manner.

Properly dispose of unsalvageable material at your own expense.

Slope longitudinal faces greater than 1 ¼" to a minimum of 1:1 slope at the end of the work period if traffic is able to traverse the joint. Slope transverse tapers to a minimum of 36:1 at the end of the workday. Remove the taper prior to continuing the milling.

For open shoulder sections, plane the asphalt so the flow of water is not impeded at the shoulder edge or across the surface. Added planing up to three feet in width outside the lines and grades of the plans, necessary to provide proper drainage, will be subsidiary to the bid item.

Saw existing asphalt along neat lines where portions are to be left in place temporarily or permanently. Sawing is not paid for directly, but is subsidiary to this item.

Item 310:
Do not use MC-30 on base courses placed between April 16 and September 15.

Item 320:
Material Transfer Device is required.

The use of windrow pick-up equipment is allowed except on the first course of roadway material placed over the subgrade.

Item 354:
Remove the loose material from the roadway before opening to traffic.

Patch pavement cut to excessive depth by equipment failure with an approved epoxy material. Re-plane patched area to an acceptable approved ride quality. Payment for these corrections is subsidiary to this item.

Item 360:
Use of multiple piece tiebars will be required. Provide chairs for multiple piece tiebars, threaded connectors or other adequate devices, used in concrete paving, or tie them to the pavement reinforcing steel. If approved by the engineer for specific areas, in lieu of multiple piece tiebars, drill holes into the pavement and grout straight tiebars in place with epoxy. Use a non-impact, rotary core drill to prevent damage to the pavement unless otherwise directed. Clean the drill holes and then completely fill with epoxy before inserting the tiebar. Do not bend the tiebars or insert them into plastic concrete without the approval of the engineer.

Unless otherwise directed by the Engineer, use coarse aggregate with a coefficient of thermal expansion (CoTE) less than or equal to 5.50 microstrain/ºF when tested in accordance with Tex-428-A. Provide samples as directed and allow 30 calendar days for testing and reporting results. TxDOT will perform the testing and the results are conclusive. Testing is required only for naturally occurring aggregates.

Provide curbs monolithically constructed with the concrete pavement. If continuous monolithic curb has to be temporarily omitted for any reason, provide dowelled curbs in the proposed areas, as detailed in the plans, and apply an approved epoxy resin to the pavement to receive the curb as directed. This work and materials will not be paid for directly, but is considered subsidiary to this item.
If asphalt curing is used, cure the concrete pavement with MS-2.

Stockpile the concrete aggregates at the plant site.

Provide pavement widening joints, as detailed in the plans, at all locations where concrete pavement is placed adjacent to existing concrete pavement. Installation of these joints is not paid for directly, but is considered subsidiary to this item.

Payment for furnishing and installing the pre-molded expansion joint material between the retaining walls and concrete pavement is not paid for directly, but is considered subsidiary to this item.

Provide a curing machine equipped with rubber tires, or other acceptable arrangement, so that the machine will span the pavement and monolithic curb.

Curb transition is paid for as Conc Curb (Mono) Type II.

The installation of curb openings is not paid for directly, but is considered subsidiary to this item.

Place construction, sawed and contraction joints in accordance with the pavement detail sheet and as directed. Joint locations, other than as shown on the plans, are subject to approval. Pavement leaveouts are required on this project as necessary to provide for traffic at driveways and side streets as shown in the plans or as directed. The cost of providing these leaveouts, including the construction of a suitable crossover connection at each site, is not paid for directly but is considered subsidiary to this item.

If a traveling form paver is used, provide one equipped with an electronically operated horizontal control device.

Provide tiebars in longitudinal joints but do not place them within 15 inches of transverse joints.

Use "mechanical steel placing equipment" at the discretion of the engineer.

Contractor personnel performing job-control testing on concrete must be ACI- Certified. Provide a copy of certification paper to the Engineer upon arrival and before testing at job site. Furnish hard copies of calibration reports for testing equipment when non-TxDOT approved equipment is used to test concrete.

The engineer may allow the use of local commercial laboratories under contract to provide these services.

If more than 30% of an area in any 1000-Ft section of roadway requires grinding, action will be taken by the Contractor to make that 1000-Ft full width section uniform without changing ride quality, compromising quality of pavement and decreasing skid resistance. Approved blasting method or other method approved by the Engineer will be performed at the Contractor's expense.

Item 400:

Structural Excavation is not paid for directly but is considered subsidiary to pertinent Items.

When placing concrete storm drain pipe on slopes of greater than 10 percent, provide cement stabilized backfill to a depth shown on the plans. The aggregate shall conform to the requirements of Article 421.2.E.2.

Item 416:

Provide a minimum of one core per bent, regardless of placement method.

Extend drilled shaft foundations for overhead sign structures five feet into rock at locations where rock is encountered at a depth less than the drilled shaft lengths shown in the plans.

Form the above-grade portion of drill shafts, or the top two inches if flush with the grade, and provide a smooth finish for all portions of drill shafts extending above proposed ground. Include cost for this work in the unit bid price for this item.

Base all drilled shaft foundations for overhead sign structures on the lengths shown on the plans or as approved in writing. Make calculations for measurement of foundations in accordance with Article 9.1 of the standard specifications. Measure increase or decreases in the quantities required by change in design as specified and the revised quantities will be the basis for payment.

Use concrete classified as "miscellaneous concrete" for ground mounted sign foundations, with the exception of large roadside signs and overhead sign structures.

Do not install PVC and/or rigid metal conduit in sign foundations for sign structures without sign lights.

Form the top 2 inches of drill shafts and provide a satisfactory smooth finish. Include the cost of the work in the unit bid price for this item.

Payment will be made only once for drilling the shaft regardless of the extra work caused by obstructions

Traffic signal pole and/or illumination pole foundations will be paid for once regardless of extra work caused by obstructions.

Install a 5/8”x10’ copper clad ground rod in each traffic signal pole foundation. The ground rod for each foundation will protrude above the finish grade of the foundation a minimum of 1” and a maximum of 2”.

Concrete removal required for installation of drilled shafts will be subsidiary to Item 416.

Item 420:
Mass concrete is a plans quantity item.

Apply an ordinary surface finish to all concrete surfaces within 30 days after form removal.

Form columns to a point a minimum of one foot below the proposed future or existing bottom of channel elevation indicated on the bridge layouts by an acceptable method. This form work is not paid for directly, but is considered subsidiary to this item.

BENT NUMBERING:
For bridges with four or more spans, number every third bent (counting the abutments) on the up-station and down-station faces of the outside column(s) at approximately the mid height of the column. For structures with three columns or less per bent, place numbers on column A. Where there are four or more columns per bent, place numbers on both outside columns. Bent numbers shall be as shown on the bridge layout.

Provide block numbers with a height of 6". Place numbers using appropriate die cut stencils and black paint.

All materials, labor and incidentals associated with placing bent numbers are subsidiary to the various bid items.

For bridges with aesthetic treatments, the numbering will be incorporated into the aesthetics package.

NATIONAL BRIDGE INVENTORY NUMBERS:
Provide National Bridge Inventory (NBI) numbers on all bridge structures and bridge class culverts.

Where beam types allow access to the face of abutment backwall, place NBI numbers on the face of each abutment backwall using 3" block numbers. Locate NBI numbers between the outside beams at opposite corners of the bridge.

Where beam types do not allow access to the face of abutment backwall, place NBI numbers on the face of each abutment cap using 3" block numbers. Locate NBI numbers below the outside beams at opposite corners of the bridge.

Where a bridge begins, ends or contains a bent common to multiple structures, place NBI numbers on both faces near both ends of the common bent cap. The number placed at each of the four locations will correspond to the NBI number assigned to the bridge immediately above the number. Locate NBI numbers below the outside beam. Place using 3" Block Numbers.

For Bridge Class Culverts, place National Bridge Inventory numbers at the middle of the downstream headwall using 3" block letters.

For all conditions, use appropriate die cut stencils and black paint for placement. All materials, labor and incidentals associated with placing NBI numbers are subsidiary to the various bid items.

Item 421:

Furnish mix designs to the Engineer in a format compatible to the latest version of the Department's Construction Management System (Site Manager). Mix Design templates will be provided by the Engineer.

Provide High Performance Concrete (HPC) of the class specified for the following bridge components: approach slabs, abutments, bents, columns, slabs, sidewalks and medians.

Provide High Performance Concrete (HPC) of the class specified for all railing and permanent concrete traffic barrier placed on bridges or approach slabs. HPC concrete is not required for portions of rail or concrete traffic barrier not located on a bridge.

Provide sulfate resistant concrete for box culverts and all drilled shafts. At the contractor's option, a sulfate resistant high performance concrete may be used; however, high performance concrete is not considered sulfate resistant concrete when Class C fly ash and Type I cement is used in the mix design.

Strength evaluation using maturity testing, Tex-426-A, may be used for all concrete elements except drilled shafts and mass concrete pours.

Maturity meters may be used for temperature gradient determination in mass concrete pours.

Provide a digital hydraulic compression testing Machine and accessories. The machine shall have a minimum testing range of 2500 pounds force to 250,000 pounds force with a hydraulic switching valve to allow for rapid advancing, hold, controlled advancing and rapid retracting. The machine shall have a load cell to measure compressive forces within the testing range and shall be calibrated and verified in accordance with ASTM latest version. The Machine can meet or exceed the following when approved by the Engineer:

ELE International ACCU-TEK250 Digital Compression Tester including accessories or Forney F-250EX Standard Compression Machine including accessories or TxDOT approved equal.

Air-entrain all cast-in-place concrete except for Class "B" and concrete used in drilled shafts. For structural concrete, if the air content is more than 1.5% below the required air, follow manufacturer recommendations to add the necessary approved air bags to increase the air content at the job site. Limit the adding of air bags in the field to one trial. For structural concrete in abutments, bents and columns do not reject the load of concrete due to low air content; accept concrete based on strength tests. Structural concrete in approach slabs, slabs, sidewalks, medians and rails shall meet the provisions of the specification. Precast structural members do not require air entrainment.

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Item 423:
For Mechanically Stabilized Earth (MSE) walls, provide a system from one of the following approved suppliers:

REINFORCED EARTH WALLS
THE REINFORCED EARTH COMPANY
1331 AIRPORT FREEWAY, SUITE 302
EULESS, TEXAS 76040-4150
817-283-5503

REINFORCED SOIL EMBANKMENT WALLS
TEXAS WELDED WIRE, INC.
645 W. HURST BLVD.
HURST, TEXAS 76053
817-282-4560

RETAINED EARTH WALLS
FOSTER GEOTECHNICAL
901 NORTH HIGHWAY 77
HILLSBORO, TEXAS 76645
254-580-9100

STABILIZED EARTH WALL
T&B STRUCTURAL SYSTEMS
637 WEST HURST BLVD.
HURST, TEXAS 76035
888-280-9858

STRENGTHENED EARTH WALLS
HANSON CONCRETE PRODUCTS
3500 MAPLE AVE.
DALLAS, TEXAS 75219
214-525-5877

STRENGTHENED SOIL WALLS
SHAW TECHNOLOGIES INC.
P.O. BOX 271448
FLOWER MOUND, TEXAS 75027
817-490-1924

STRUCTURAL EMBANKMENT SYSTEMS
ROBERTSON ENGINEERING INC.
327 N. DENTON STREET, SUITE 100
WEATHERFORD, TEXAS 76086
817-596-7500

TENSAR RETAINING WALL SYSTEM
TENSAR EARTH TECHNOLOGIES, INC.
5775-B GLENRIDGE DRIVE
ATLANTA, GEORGIA 30328
404-250-1290

TRICON RETAINED SOIL WALLS
TRICON PRECAST, INC.
15055 HENRY RD.
HOUSTON, TEXAS 77060
713-931-9832

VP WALL SYSTEM
VALLEY PRESTRESS PRODUCTS, INC.
P.O. BOX 1367
MISSION, TEXAS 78573
956-584-5701

All retaining walls will have a uniform texture and appearance.

Unless otherwise noted in the plans, the top of the leveling pad is located 2 feet below the proposed ground.

Square foot surface area of retaining wall is measured from the top of retaining wall to the top of the leveling pad. Footing adjustments made to accommodate the available optional retaining walls are not measured.

Unless otherwise shown on the plans, provide Type A backfill as defined under this item for permanent MSE or concrete block (CB) walls not subject to inundation. Unless otherwise shown on the plans, provide type D backfill as defined under this item for permanent MSE or CB walls subject to inundation.

Supply drainage aggregate meeting the requirements of this item for use as filter material with the retaining wall.

Cement-Stabilized Backfill (CSB) is not permitted.
RAP is not acceptable as backfill for MSE retaining walls.

Unless otherwise noted on the plans, provide flowable backfill meeting the requirements of Item 401 between the back of panels and inlets or drainage pipes where the required compaction cannot be achieved. Flowable backfill used for this purpose is subsidiary to this item.

Provide earth reinforcements with a length greater than or equal to 70 percent of the wall height or 8 feet whichever is greater. Earth reinforcement length is measured perpendicular to the wall. Adjust skewed earth reinforcements as necessary of obtain required length.

Submit design calculations supporting the details necessary to incorporate coping, railing, inlets, drainage, electrical conduits and any additional necessary features.

The contractor has the option of constructing any of the types of retaining walls for which details and specifications are included in the plans. Footing adjustments made to accommodate the available optional retaining walls are not measured. Regardless of option or options chosen, use the same fascia pattern throughout the entire project, including cast in place full height retaining walls or retaining wall type abutments.

Submit detailed drawings depicting the patterns and matching of precast with cast-in-place for approval.

At contractor's expense, repair all damage to the precast units (such as chips) as required to match the fascia pattern.

Use Embankment Type C2 as non-select embankment backfill as defined under Item 423.2.C.1.

For non-select embankment fill behind retaining walls provide and install fill in accordance with Item 132, Type C2.

For cut walls, the backfill between the select fill zone and the existing ground shall be either select material as required for the select fill zone or backfill meeting or exceeding the requirements of Item 132, type C2. Place material in accordance with Item 132, Type C2 requirements. If existing ground is laid back (i.e. not vertical), the lay back shall be done as a series of equal height benches so as to prevent the formation of a smooth surface at the material interface.

Avoid distinct vertical joints between select backfill and embankment (Non-Select) backfill as required by Section 423.3.E. This may be conveniently done by providing a zone of material behind the strap zone (1' min width) in which alternating lifts of select and non select materials are interlaced.

Items 423 and 427:

Unless otherwise noted on the plans, provide a vertical striated finish on all retaining walls and retaining wall type bridge abutments. Supply form liners providing a finish similar to that derived from "Fractured Granite" by Symons, "Fractured Granite – Pattern 16987" by Fitzgerald or equal. Maximum depth of the striations id ¾ inch.

For cast in place walls, cast the top two feet smooth.

Retaining wall colors are shown elsewhere in the plans.

Item 425:

Repair "Safety Harness Pole Holes" in beams in accordance with Item 429 prior to placement of the Bridge Slab. This work is considered subsidiary to the various bid items.

Item 427:

Finish concrete structures surface area I with an opaque sealer of the color(s) shown elsewhere in the plans in accordance Item 427.

Apply a 4-SF sample of each color on the project surfaces for approval. Adjust color as required by Engineer to compensate for surroundings and natural lighting conditions on the project site.

Ensure that surfaces are free of weak surface material, curing compounds and other surface contaminants prior to coating.

FORM LINER FINISHES: Place architectural concrete treatments as shown. Placement is subsidiary to this item.

Where used, provide fractured fin/ribs/striations that are continuous with no apparent curves or discontinuities. Variations of the fractured ribs from true vertical exceeding ¼" for each 4'-0" of panel height are not acceptable.

Provide form liners that release without leaving pieces of liner material on the concrete and without pulling or breaking concrete from the textured surface. Provide form release agents as recommended by the manufacturer. Replace form liners as directed that have become damaged or worn. Replacement of form liners is considered incidental to the work and no additional compensation is provided.

No horizontal splices in the form liner are permitted. Vertical splices may occur only in valleys between fractured ribs.

Provide sample panels a minimum of ten days in advance of starting construction of the textured concrete surfaces. Construct sample panel(s) in accordance with Item 427.4.B.2.d "Form Liner Finish" using each type of approved form liner. Sample panels must meet the requirements of the plans and specifications and be approved before any construction form liners may be ordered, obtained or used. Provide panels having a textured portion at least 5'-0" by 5'-0" with a representative un-textured surrounding surface. If directed, construct and finish additional test panels until a satisfactory concrete surface texture is obtained.

The approved sample panel is the standard of comparison for the production concrete surface texture. If directed, build a new test panel to demonstrate acceptability of any proposed change in construction method.

Tool or replace areas requiring surface treatment that do no match their associated sample panels. Upon completion, tooled or replaced panels must match the associated sample panel. Tooling or replacement is at the contractor's expense.

For proper placement of the expansion joint behind the rail, omit surface finish from the top of T551 (RW) (DAL) rail to bottom of panel as directed.
Joint reveal details and location may vary slightly from what is shown to match the adjacent MSE walls as directed. No additional compensation will be allowed.

Item 440:
Provide reinforcing steel with epoxy coating meeting the requirements of item 440 for the following bridge components: approach slab, slab, sidewalk, median, concrete traffic barrier, and rail.

Epoxy coated reinforcing is not required for portions of rail or concrete traffic barrier not located on a bridge.

Reinforcing for abutments, bents and columns are not required to be epoxy coated.

R-bars (I-beams, U-beams and TX Girders), Z-bars (boxes), H-bars (Slab beams), and C-bars (DT beams) are not required to be epoxy coated**.**

All ties, chairs and other appurtenances used with epoxy coated reinforcing shall be epoxy coated or non-metallic.

Fiber Reinforced Concrete (FRC) can be used as a substitute for Non-Structural Class Reinforced Concrete in Mow-Strip and Rip Rap Items as approved. FRC may also be used for other Non-Structural Class Reinforced Concrete Items as approved.

Item 464:
The concrete collars and the connections of pipes to existing or proposed concrete boxes or pipe will not be paid for directly but will be considered subsidiary to the various bid items.

At locations where storm drains dead-end, plug with a concrete plug of a thickness equal to 1 ½ inches per foot of diameter of pipe with a minimum thickness of 3 inches. The cost of the plugs shall be included in the unit price bid per foot of the various storm drain pipes.

Item 471:
deletedTackweld all inlet grates and manhole covers to the frame with two 1-inch welds. Supply un-painted cast iron inlet grate and frame and/or cast iron manhole frame and cover.

Item 496:
Concrete pavement removed as a result of removing the inlets will not be paid for directly but will be considered as subsidiary to Item 496.

Inlet grates and manhole covers become the property of the contractor for disposal.

Item 502:
In the event that utilities are not clear by 120 calendar days after the date of written authorization to begin work, the Contractor is directed to work in areas that are not impacted by existing utilities. Time charges will begin when the utility conflicts identified in SP 000-2886 are clear. The following areas do not contain existing utilities or are not impacted by existing utilities: Stations 131+00-136+75, 142+00-149+75, 151+75-164+00, 165+00-201+00 and 203+00-220+00.

Provide written proposed lane closure information by 1:00 pm on the business day prior to the proposed closures. Do not close lanes when this requirement is not met.

Project Number: DMO 1102(478) **Control: 0173-03-015**

County: Kaufman

Highway: SH 34

When excavation is required next to a pavement lane carrying traffic and the widening is not completed by the end of the work day, backfill against the edge of the pavement with at least a 3:1 slope using an acceptable material to support vehicular traffic. Carefully remove and dispose of this material when work resumes. Backfilling pavement edges, and the materials required for the work will be subsidiary to this item.

Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.
Provide rectangular shape (CW12-2P) Temporary Clearance Signs on all bridges where the existing vertical clearance has changed. Install Signs to the satisfaction of the Engineer prior to opening to traffic. Plywood sign blanks will have minimum dimensions of 84" X 12". Work performed and materials are subsidiary to this item.

Do not operate or park any equipment/machinery closer than 30 feet from the traveled roadway after sunset unless authorized by the engineer.

When moving unlicensed equipment on or across any pavement or public highways, protect the pavement from all damage using an acceptable method.

Provide one shadow vehicles equipped with truck mounted attenuators as shown on the traffic control plan.

As approved by the Engineer, provide uniformed off duty police officers and squad cars during lane or ramp closures, night time work or other situations that indicate a need for additional traffic control to protect the traveling public or the construction workforce. Provide documentation such as payroll, log sheets with signatures and badge number, or invoices from the government entity providing the officers for reimbursement. Complete the weekly tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided. Reimbursement will not be made for coordination fees charged by the police department.

Project Number: DMO 1102(478) **Control: 0173-03-015**

County: Kaufman

Highway: SH 34

Freeway Lane Closures				
Category of Work	**Number of Rdwy Lanes** per direction	**Peak Times** Monday-Friday 6:00 am - 9:00 am 3:30 pm - 7:00 pm Major Events and Major Holidays**	**Off Peak Times** Monday-Friday 9:00 am - 3:30pm 7:00 pm - 10:30 pm and Saturday	**Lowest Volume Time** Monday-Friday 10:30 pm to 6:00 am and Sunday
Placement of CTB & Bridge Beams, Pavement Markings, Full Depth Roadway Repair, Bridge or Similar Demolitions*	**5**	None	2	3
	4	None	2	3
	3	None	1	2
	2	None	1	2
Adjacent Construction, Lanes for Construction Traffic or Similar Operations	5	None	1	2
	4	None	1	2
	3	None	1	1
	2	None	None	1

* Provide a traffic control plan where bridge demolition cannot be accomplished with lane closures. Freeway closures will only be done during Lowest Volume Times.
** Major Holidays are defined under Item 1.82 and also include the Easter Weekend.
*** The Table above is only to be used when traffic counts do not exceed 2000 Vehicles per Lane per Hour. (The capacity of all remaining open lanes must not exceed 2000 Vehicles per Lane per Hour). When traffic counts do or will exceed 2000 Vehicles per Lane per Hour, Director of Construction, Assistant District Engineer or District Engineer approval will be required for lane closures.

Additional lanes may be closed during Off Peak Times or Lowest Times with written permission of the Engineer. Lane Closures during Off Peak Times may be started earlier or be extended later with written permission of the Engineer.
Traffic Control Plans with Lane Closures causing backups of 20 minutes or greater in duration will be modified by the Engineer.
Work in other areas of the project is not restricted to this time frame.

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

Item 504:
Furnish one Laboratory (Type A) for this project.

Furnish one Asphalt Mix Control Laboratory (Type D) for this project.

Meet the dimensional requirements specified for a Field Laboratory (Type A) for the Asphalt Mix Control Laboratory (Type D).

Provide one local phone line to the field office. Supply one phone jack and one telephone per each room in the field office. The cost of the phone installation and various monthly phone service charges will be the contractor's responsibility.

Chain link fencing will be provided around the field office/laboratory and parking areas.

Provide an all in one printer/scanner/fax/copier with software that is compatible with TxDOT equipment, cost not in excess of $300. This is subsidiary to the various bid items.

Item 508:
Testing of materials used in the construction of a temporary detour may be waived when approved by the Engineer.

Item 512:
The contractor will furnish pre-cast F Shape Barriers for traffic control, and remove and retain possession of non-permanent barriers at the end of the project. Pre-cast F Shape Barriers must have drainage slots as detailed on the Concrete Safety Barrier Standards. Submit for approval the type of barrier joint connection proposed for the project.

Item 529:
Provide grooved joints at 10-foot intervals and ¾ inch expansion joint material for doweled curb at the same locations as on the existing pavement.

For Curb and Gutter sections, provide grooved joints at 10-foot intervals and ¾ inch expansion joint material at a maximum of 50-foot centers and at all radius points and inlets.

Curb and Gutter transitions will be paid for by the foot at the unit price for the corresponding curb or curb and gutter section.

Saw joints at the same location as on the existing pavement.

Item 536:
Use Class "B" concrete for concrete medians and directional islands.

Item 540:
Furnish one type of post throughout the project except as specifically noted in the plans.

Item 542:
Salvage metal beam guard fence removed from this project and haul to and stockpile at

(Colquitt Road Stockpile)
7055 FM 598
Terrell, TX 75160
(817) 292-6510

The work involved in hauling this material will not be paid for directly, but will be considered subsidiary to this item.

Remove or cut off existing anchor bolts and fill holes with grout in bridge slabs as directed.

Item 545:
Stockpile crash cushion attenuators at

TxDOT (Colquitt Road Stockpile)
7055 FM 598
Terrell, TX 75160
(817) 292-6510

Item 585:
Use Surface Test Type A on all intersections and driveways.

Use Surface Test Type B pay adjustment schedule 2 on the travel lanes.

Use Surface Test Type B pay adjustment schedule 3 on the service roads.

Use Surface Test Type B pay adjustment schedule 2 on the ramps.

Item 610:
Provide to the Engineer, in addition to any submittals required by the specifications and elsewhere in the general notes, a list of pre-qualified material to be used on the project.

Fabricate steel roadway illumination poles in accordance with TxDOT standards RIP-11 (Roadway Illumination Poles -2011). Poles fabricated according to RIP-11 require no shop drawings. Alternate designs to RIP-11 or the use of aluminum to fabricate poles will require the submission of shop drawings electronically.

For instructions on submitting shop drawings electronically go to TxDOT home page, Business with TxDOT, Bridge information, Shop drawings.
File is titled: Guide to Electronic Shop Drawing Submittal.

Item 618:
Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) - Construction Division's (CST) materials producers list. Category is "Roadway Illumination and Electrical Supplies."

The location of conduits and ground boxes are diagrammatic only and may be shifted to accommodate field conditions as directed.
Secure permission and approval from the proper authority prior to cutting into or removing any sidewalks or curbs for installation of this Item.

When holes are drilled through concrete structures, use a coring device. Do not use masonry or concrete drills.

Place conduit under existing pavement by an approved boring method. Do not place boring pits closer than 2 feet from the edge of the pavement unless otherwise directed. Do not use water jetting. When conduits are bored, do not exceed 18 inches in the vertical and horizontal tolerances as measured from the intended target point.

Do not use a pneumatically driven device for punching holes beneath the pavement (commonly known as a "missile").

Furnish and install a non-metallic pull rope in conduit runs in excess of 50 feet.

Use a colored cleaner-primer on all PVC to PVC joints before application of PVC cement.

Seal all conduit ends with a permanently soft, non-toxic duct seal. Use a duct seal that does not adversely affect other plastic materials or corrode metals.

Furnish and install non-metallic pull ropes in conduit installed for future use and cap using standard weather-tight conduit caps, as approved. This work will not be paid for directly, but is subsidiary to this Item.

Item 620:

The equipment grounding conductor shall be identified by a continuous green colored jacket insulation or bare wire. Grounded conductors (Neutral) shall be identified by a continuous white colored jacket. Ungrounded conductors (Hot) in a 120/240v or 240/480v system shall be identified by each pole or leg. For 240-volt branch circuit fed from 120/240 source and 480-volt branch circuit fed from 240/480 source, ensure one leg is identified by a continuous black colored jacket and the other leg by a continuous red colored jacket.

Item 624:

Ground all junction boxes mounted on bridges and underpasses with a ground rod.

Slack conductors required by Standard Sheet ED(2)-03 will be subsidiary to Item 624.

Concrete removal required for installation of ground boxes will be subsidiary to Item 624.

Item 628:

Contact the appropriate utility company during the first three weeks of the project lead-time period to allow adequate time for any necessary utility adjustments, transformer installation, etc.

Granite concrete service pole embedment depth shall be 10’.

Label the service enclosures indicating service address as well as all required information as shown on the Electrical Detail (ED) standard sheets. Labeling shall be silk screening or other acceptable method. This work will not be paid for directly, but is subsidiary to this Item.
When concrete for service pole foundations is required, use Class A in accordance with Item 421, "Hydraulic Cement Concrete", except consider the concrete subsidiary to Item 628 for

payment purposes. When reinforcing steel for service pole foundations is required, it will be in accordance with Item 440,"Reinforcing Steel", except consider the steel subsidiary to Item 628 for payment purposes.

Use only white insulated wire for neutral wire.

Bill the electrical service power usage to the Texas Department of Transportation.

Item 636:

Leave the advance guide sign and/or the exit direction sign for an interchange in place at all times unless prior written approval is given. Replace signs removed by the Contractor before the end of the work day.

Manufacture all white legends using Clearview font on overhead and large ground-mounted guide signs. This includes destinations, cardinal directions, exit information and exit numbers. Use the font shown on the existing standard sheets for all route markers (including interstate shields) and “Exit Only” panel information.

Provide six (2) sets of shop drawings for signs. The shop drawings shall conform to the details shown on the plans. The shop drawings shall show the details of the panels, wind beams, stiffeners, joint backing plates, splices, joint backing plates, splices, fasteners, brackets, and sign support connections. The shop drawings shall show letter types and sizes, interline spacing and message arrangements.

Affix a sign identification decal to the back of all signs in accordance with Item 643.

Attach sheeting applied to extruded aluminum panels to each individual extrusion. Lap each extrusion’s horizontal edge with sheeting and do not bridge horizontal gaps between extrusions

Items 644, 647, and 650:

Prior to taking elevations to determine lengths for fabrication of sign posts and/or sign support towers, obtain verification of all proposed locations.

Provide field galvanizing and metallizing equipment, as per Item 445, at all times and make repairs to galvanized surfaces according to the above specification item at intervals as directed.

After sign supports with signs attached have been erected, wash individual units requiring cleaning with an approved cleaning solution to remove all grease, oil, dirt, smears, streaks, and other foreign particles.

All sign mounts shall have a clamp base system for all small roadside sign assemblies.

A 3 inch strip of red reflective sheeting shall be placed on all Do Not Enter sign assemblies. This sheeting shall be placed directly below the Do Not Enter sign for the entire length of the sign post facing wrong way traffic. This work will be considered subsidiary to Item 644.

Torque the anchor bolts for only the Exit Gore signs to 60 foot-pounds.

Item 656:

Form a 3/4-inch chamfer on the top edge of each pedestal pole foundation.

Probe for utilities and underground structures prior to drilling foundations. Foundations shall be paid for once regardless of extra work caused by obstructions.

Item 672:
White adhesive will be used on concrete pavements.

Item 677:
A water blasting method approved by the Engineer will be the only method allowed for the removal of permanent and temporary pavement markings.

Item 680:
Requirements for this Item include the following work, all of which are subsidiary to this Item:

1. Notify the District Signal Maintenance Office at (214)320-6682 and Construction Office at (214)320-6694 one week before beginning any work involving traffic signals.
2. Provide submittal literature for all traffic signal equipment before installation.
3. Furnish and install a new eight-phase NEMA TS2 Type 2 controller and cabinet, meeting the requirements of Departmental Materials Specifications DMS-11170. Provide the cabinet (NEMA TS2 Type 1) with an "A" connector harness (for NEMA TS2 Type 2 controller). Provide detector panel toggle switches that additionally permit the user to disconnect the detector. Provide cabinet configuration 4 (16 position load bay) in a TS2 Size 6 cabinet. Install a 1 inch PVC conduit from the cabinet to the nearest ground box for the phone line.
4. Deliver the cabinet, controller, and accessories (with all cabinet components completely connected and securely strapped down) to the District Signal Shop, 4777 E Hwy 80, Mesquite, for testing. Notify the District Signal Shop two working days before delivery at (214)320-6682.
5. Install the controller cabinet in an orientation as directed.
6. Connect all field wiring to the controller assembly, including SSR coaxial cable termination into the polyphaser. The District will assist in determining how the detection cables are to be connected, and will also program the controller for operation, hook up the malfunction management unit (MMU) or conflict monitor, detector units, and other equipment, and turn on the controller. Pick up the signal cabinet from the District Signal Shop.
7. Furnish and install all sign panels for mounting on signal poles and mast arms. Fabricate the sign panels in accordance with Item 636, and mount with Astro-Sign Brac, Signfix aluminum channel, or equal as approved by the Engineer. Submit five (5) sets of shop drawings for street name signs.
8. Use multi-tap ballasts (120/240 volts) for luminaires on signal poles.
9. Have a qualified technician on the project site to place the traffic signal in operation.
10. Use qualified personnel to respond to and diagnose all trouble calls during the thirty-day test period. Repair any malfunction to Contractor-supplied signal equipment. Provide to the Engineer a local telephone number, not subject to frequent changes and available on a 24-hour basis, for reporting trouble calls. Response time to reported calls must be less than 2 hours. Make appropriate repairs within 24 hours. Place a logbook in the controller cabinet and keep a record of each trouble call reported. Notify the Engineer of each trouble call. Do not clear the error log in the conflict monitor or MMU during the thirty-day test period without approval.
11. Prevent any damage to property owner's poles, fences, shrubs, mailboxes, etc. Protect all underground and overhead utilities and repair any damage. Provide access to all driveways during construction.

12. Integrate the proposed traffic signal(s) into the existing closed loop system as shown on the plans. Aries closed loop software, which utilizes Econolite controllers, is currently in use in the Dallas District. Provide controllers on this project that fully communicate with the existing closed loop system.
13. The concrete foundation for the controller as shown on the TS-CF-04 is diagrammatic and the dimensions will be adjusted in the field to fit existing conditions.

Item 682:

Install signal head attachments so that the wiring to each signal head passes from the mast arm through the attachment hardware to the signal head. Do not leave cable or wiring exposed.

Provide signal head attachments that allow for adjustment about the horizontal and vertical axis.

Provide aluminum signal heads and aluminum tubing in the following color: Federal Yellow #13538 of Federal Standard 595. Provide back plates, louvers, and the inside of visors with a flat black finish. Provide vented back plates for all traffic signal heads.

Turn down signal heads or cover with burlap or other material, as approved, until traffic signal is placed in operation.

Mount signal heads level and plumb and aimed as directed.

Item 684:

Provide stranded 14 AWG Type A signal cables.

Provide a separate multi-conductor signal cable (14 AWG) inside pedestal poles and signal poles from the terminal strip to each signal head as shown on the plans.

Identify each cable as shown on the plans (cable 1, etc.) with permanent marking labels (Panduit Type PLM standard single marker tie, Thomas&Betts Type 548M, or equal) at each ground box, pole base, and controller.

Item 686:

Provide 12 circuit Buchanan Type 112SN, Kulka Type 985-GP-12 CU, or equal terminal strips in the signal pole access compartment. Provide additional terminal strips of 8 circuits each when more than 12 circuits are required. The conductors for the Line and Load side of the terminal strip shall be identified with a plastic label with two straps per tag. The line side shall have each signal head, PED head, and push button identified on the tag.

Mark pole shafts and mast arms with the identification numbers from the plans to facilitate field-assembly. Identify pole shafts and mast arms by intersection for projects with multiple intersections.

Provide nuts on top and bottom (double nuts) of the base plate as shown on the plans.

Set anchor bolts for mast arm signal poles and strain poles so that two are in tension and two are in compression. Obtain approval of anchor bolt placement before placing concrete.

Provide vertical clearance of 17 to 19 feet from the roadway to the lowest point of the signal head or mast arm. Place signal heads 40 feet minimum and 180 feet maximum from the stop line. If the nearest signal is more than 180 feet from the stop line, place a supplemental near-side signal head. Determine the field measurements and elevations from the actual field location of the poles, considering all above and below ground utilities and existing roadway elevations.

Provide vibration dampers for mast arms 28 feet to 48 feet in length. Install as shown on MA-DPD-12.

Item 730:
At the discretion of the Engineer, mow non-paved areas within the project prior to placement of permanent vegetation. Mow up to three (3) cycles per growing season.

Item 1122:
Take all practicable precautions to prevent debris from being discharged into the Waters of Texas or a designated wetland. Install Best Management Practices before demolition begins and maintain them during the demolition. Remove any debris or construction material that escapes containment devices and are discharged into the restricted areas, before the next rain event or within 24 hours of the discharge.

If temporary construction stream crossings are allowed under a Nationwide Permit, submit in writing for approval the type and location of each temporary stream crossing. Use temporary bridges, timber mats, or other structurally sound and non-eroding material for temporary stream crossings. A temporary culvert crossing will consist of storm sewer pipes and 4- to 8-inch nominal size rock. Temporary stream crossings must not cause more than minimal changes to the hydraulic flow characteristics of the stream, increase flooding, or cause more than minimal degradation of water quality. Remove the temporary stream crossings in their entirety and return the affected areas to their pre-existing elevation. All work and materials use for temporary construction stream crossings will not be paid for directly but are subsidiary to pertinent Items.

Provide SW3P Signs. Obtain from the Engineer a copy of the project's completed TPDES Storm Water Program Construction Site Notice and signed Contractor Certification Statement. Laminate the sheets and bond with adhesive to 36" X 36" plywood sign blanks. Ensure the sheets remain dry. Apply Type C Blue reflective sheeting as the background and add the text "SW3P" in 5" white lettering, centered at the top. Attach the signs to approved temporary mounts and locate at each of the project limits just inside the right of way line at a readable height or as directed by the Engineer. If the sign cannot be placed outside the clear zone, it must adhere to the TMUTCD. SW3P signs, maintenance, and repostings (for replacement or as needed to ensure readability) will be subsidiary to Item 502.

Item 3267:
Tack Coat is required.

Design for a target Laboratory-molded density of 97.0% when using the TGC (Tex-204-F, Part I).

Use aggregate that meets the Surface Aggregate Classification (SAC) requirement of Class B.

Provide the engineer the opportunity to witness all mixture design tests. The engineer may require a retest if not given the opportunity to witness.

Dilution of tack is not allowed.

Provide PG binder PG 64-22 in Type B mixture.

Provide PG binder PG 70-22 in Type C mixture.

Item 3268:
Tack Coat is required.

Design for a target Laboratory-molded density of 97.0% when using the TGC (Tex-204-F, part I).

Use aggregate that meets the Surface Aggregate Classification (SAC) requirement of Class B.

Provide the engineer the opportunity to witness all mixture design tests. The engineer may require a retest if not given the opportunity to witness.

Dilution of tack is not allowed.

Provide PG binder PG 64-22 in Type B mixture.

Provide PG binder PG 70-22 in Type C mixture.

Dense-Graded Hot-Mix Asphalt used as concrete pavement underlayment is deemed as "Exempt Production".

Item 6006:
Supply one spare uni-directional antenna, and one spare spread spectrum radio. Deliver to the District Signal Shop at 4777 E. Hwy 80, Mesquite.

Install the coaxial cable so that it is not exposed to the outdoor environment.

Ensure yagi antenna installation allows for vertical and horizontal adjustment of the antenna. Provide a PCTEL MYK10 antenna bracket or approved equal for yagi antenna installation.

Provide the latest version of the applicable SSR diagnostic software to the District on CD-ROMs, and ensure that it will operate under Windows 98, 2000, 7, Vista and XP operating systems.

Provide new spread spectrum radios that are compatible with the existing radios in the closed loop system. The 5 existing radios in the system are Encom, and the master radio is located at SH 34 and FM 1388.

Provide eight (8) hours of operational and maintenance training for all brands of radio provided on this project to designated personnel. Provide this training for a maximum of 10 people, at a

time and location approved by the Engineer. Provide training which includes, but not be limited to, "hands-on" operation for each type of equipment; explanation of all system commands, functions, and usage; required preventative maintenance procedures; and system "trouble-shooting" or problem identification. Submit an outline of the proposed training material for approval at least 60 days before the training begins.

Item 6007:

Salvage the existing traffic signals at US 175 & S. WASHINGTON STREET as shown on the plans. Salvage mast arm, signal heads, VIVDS cameras, radar, and any other equipment as directed. This equipment remains the property of the Texas Department of Transportation. The material listed above is to be stockpiled at the TxDOT Signal Shop yard, 4777 E US 80, Mesquite as directed. Contact Mr. Lanny Surratt at 214-320-6682 48 hours in advance of delivery. All other material removed in this project will become the property of the Contractor. Dispose of material off the right of way in accordance with federal, state, and local regulations. Maintain the operation of the existing traffic signal until directed to remove it.

Item 8317:

The BBU will be installed with the controller on the concrete pad paid for under Item 680. If a larger pad is needed to accommodate the BBU, the additional labor and material will be subsidiary to this item.

The list of material below is for the Contractor's information only.
It is the responsibility of the Contractor to verify
all items and quantities listed below.

LIST OF MATERIAL/LABOR
SUBSIDIARY TO ITEM 680

DESCRIPTION	UNIT	QUANTITY
250W HPS LUMINAIRE	EA	4
8 PHASE NEMA CONTROLLER COMPLETE W/ CABINET AND ACCESSORIES	EA	1
TRAFFIC SIGNAL CONTROLLER BASE	EA	1
REGULATORY SIGN PANEL (R10-12,ETC)	EA	8
SINGLE STREET NAME SIGN PANEL	EA	6
CONCRETE FOUNDATION (8' X 9' X 6", CLASS B)	CY	1.3