Texas Department of Transportation

TECHNICAL PROVISIONS FOR

ENERGY SECTOR ROADWAY REPAIR PROJECT

Design-Build Project

November 5, 2013

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1 GENERAL

1.1 Project Scope

Design-Build (DB) Contractor is to construct, rehabilitate and resurface identified roadways in the Corpus Christi, Yoakum, Laredo and San Antonio Districts of the Texas Department of Transportation (TxDOT). Scope of work will involve widening, reconstruction, rehabilitation, restoration and/or resurfacing.

The scope of the Project shall be consistent with the Final Design Documents and is further described in the Section 1.2.

1.2 Facility Description

The Project is proposed to include thirty-one (31) roadways spanning four (4) TxDOT Districts and may involve widening, reconstruction, rehabilitation, restoration and/or resurfacing. A description of the proposed Work for the facility is provided below:

RANK	DISTRICT	CSJ	HIGHWAY	COUNTY	PHYSICAL LIMITS (FROM)	PHYSICAL LIMITS (TO)	DESCRIPTION OF WORK
1	LAREDO	0237-01-018	FM 133	LASALLE	IH 35	DIMMIT C/L	PAVEMENT WIDEN/RESURFACE
2	CORPUS CHRISTI	0991-01-025, etc	FM 882	BEE	FM 626	SH 72	PAVEMENT WIDEN/RESURFACE
3	CORPUS CHRISTI	0100-05-070	US 181	KARNES	FM 887 W.	FM 1144	PAVEMENT WIDEN/REHAB/SUPER 2
4	LAREDO	0963-01-029	FM 190	DIMMIT	13TH STREET	US 83 NORTH	PAVEMENT WIDEN/RESURFACE
5	SAN ANTONIO	0517-03-030	SH 16	MCMULLEN	TILDEN CITY LIMITS	DUVAL C/L	PAVEMENT RESURFACE/SUPER 2
6	YOAKUM	0839-01-016	FM 443	GONZALES	DEWITT C/L	US 90	PAVEMENT WIDEN/RESURFACE
7	YOAKUM	0942-02-009	FM 2067	GONZALES	US 183	END OF STATE MNT.	PAVEMENT WIDEN/RESURFACE
8	LAREDO	1852-01-027, ETC 02	FM 469	LASALLE	IH 35 E. FR INTERSECTION	SH 97	PAVEMENT WIDEN/REHAB
9	LAREDO	0017-08-082	IH 35 (W. FR)	LASALLE	LASALLE/FRIO C/L	N. INT. BI-35	PAVEMENT WIDEN/REHAB
10	CORPUS CHRISTI	0943-01-018, etc.	FM 627	KARNES	FM 2724	FM 81	PAVEMENT WIDEN/RESURFACE
11	CORPUS CHRISTI	1959-01-013	FM 2049	LIVE OAK	IH 37	SH 72	PAVEMENT WIDEN/RESURFACE
12	YOAKUM	0573-05-018, etc.	FM 240	DEWITT	0.2 MIILES N. OF VFW RD.	US 87	PAVEMENT WIDEN/RESURFACE
13	LAREDO	0017-08-083	IH 35 (E. FR)	LASALLE	N.INT. BI-35	FRIO/LASALLE C/L	PAVEMENT WIDEN/REHAB
14	CORPUS CHRISTI	1123-02-017	FM 81	KARNES	SH 123	SH 80	PAVEMENT WIDEN/RESURFACE
15	CORPUS CHRISTI	0991-02-011, etc.	FM 81	KARNES	FM 1144	SH 123	PAVEMENT WIDEN/RESURFACE
16	CORPUS CHRISTI	1553-01-013	FM 1042	LIVE OAK	US 281	FM 1545	PAVEMENT WIDEN/REHAB
17	YOAKUM	0839-02-012	FM 443	DEWITT	GONZALES C/L	SH 111	PAVEMENT WIDEN/RESURFACE
18	YOAKUM	1442-04-007	FM1680	LAVACA	FM 532	GONZALES C/L	PAVEMENT WIDEN/REHAB
19	LAREDO	0236-03-024	FM 117	ZAVALA	US 57	ZAVALA/FRIO C/L	PAVEMENT WIDEN/RESURFACE
20	SAN ANTONIO	0748-05-039	FM 140	ATASCOSA	SH 16	CHARLOTTE CITY LIMITS	PAVEMENT WIDEN/RESURFACE
21	CORPUS CHRISTI	3297-01-006	FM 3192	LIVE OAK	FM 2049	FM 882	PAVEMENT WIDEN/REHAB
22	SAN ANTONIO	1739-02-015	FM 791	ATASCOSA	US 281A	KARNES C/L	PAVEMENT WIDEN/REHAB
23	CORPUS CHRISTI	0989-01-034	FM 624	JIM WELLS	US 281	SH 359	PAVEMENT WIDEN/RESURFACE
24	YOAKUM	0941-02-017	FM 952	DEWITT	SH 72	FM 2656	PAVEMENT WIDEN/RESURFACE
25	YOAKUM	1442-03-016	FM 1680	GONZALES	US 90	LAVACA C/L	PAVEMENT WIDEN/REHAB
26	SAN ANTONIO	1739-04-009	FM 791	ATASCOSA/MCMULLEN	ATASCOSA/MCMULLEN C/L	SH 16	PAVEMENT WIDEN/REHAB
27	CORPUS CHRISTI	0359-04-023	SH 119	KARNES	SH 80	DEWITT C/L	PAVEMENT REHAB
28	LAREDO	0652-04-051	FM 624	LASALLE	SH 97	3.16 MILES S. OF FM 469	PAVEMENT REHAB
29	SAN ANTONIO	1739-03-009	FM 791	ATASCOSA/MCMULLEN	US 281A	MCMULLEN/ATASCOSA C/L	PAVEMENT WIDEN/REHAB
30	YOAKUM	0687-01-012	FM 77	GONZALES	US 87	FM 108	PAVEMENT WIDEN/REHAB
31	LAREDO	1435-01-022	FM 469	LASALLE	SH 97	FM 624	PAVEMENT WIDEN/REHAB

1.3 Project Requirements

1.3.1 Compatibility with Existing Configuration

The design documents furnished to and by DB Contractor shall provide for a smooth transition from the Project's scope of Work to the existing configuration of each roadway. The Project scope of work shall be designed and built to minimize the cost of throw-way construction associated with providing for the transitions to the existing configuration. DB Contractor shall also provide for minimal disruption to traffic operations throughout the performance of the Work.

1.3.2 Specific Project Requirements

DB Contractor shall construct the Project as shown in the Final Design Documents. If the DB Contractor receives approval for an Alternate Technical Concept (ATC) that changes the design of a Location, the DB Contractor shall adhere to the requirements set forth in these Technical Provisions. If a Design Change ATC is approved, DB Contractor shall adhere to the requirements set forth in these Technical Provisions, such as reports, calculations, studies, etc.

With respect to Location numbers 3, 5, 9 and 13 (as identified on Exhibit I of the ITP), ATCs with respect to any elements will be permissible for submission. With respect to all other Locations, ATCs will be considered only with respect to pavement design and traffic control management. All ATCs must be signed and sealed by an engineer licensed in the State of Texas.

2 PROJECT MANAGEMENT

DB Contractor shall establish and maintain an organization that effectively manages all elements of the Work. This project management effort shall be defined by and follow the Project Management Plan (PMP), which is a collection of several management plan elements (PMP elements) describing discrete elements of the Work as described in Table 2-1 below. The Project Management Plan is an umbrella document that describes DB Contractor's managerial approach, strategy, and quality procedures to design and build the Project and achieve all requirements of the Contract Documents. Within the timelines for implementing each element of the PMP, the plan shall include details of external auditing procedures.

Table 2-1: elements of the Project Management Plan

Chapter Title	Section of Book 2 That Defines the Chapter Requirements
Project Administration	Section 2
Quality Management Plan • **Design Quality Management** • **Construction Quality Management** • **Maintenance Management**	Sections 2 and 19
Safety Plan	Section 2
TxDOT – DB Contractor Communications Plan	Section 2
Comprehensive Environmental Protection Program	Section 4

A listing of documents to be included in the Project Management Plan is contained in Attachment 2-1, Project Management Plan Contents, which also indicates when each document must be submitted to TxDOT.

TxDOT shall audit and monitor the activities described in the management plans to assess DB Contractor performance. All commitments and requirements contained in the PMP shall be verifiable.

2.1 Administrative Requirements

2.1.1 Project Schedule

2.1.1.1 General Requirements

The Project Schedule shall define the timeframe for completion of the Project and achievement of milestones, and be used to monitor progress and denote changes that occur during design and construction, as well as serving to determine the amount due to DB Contractor for a progress payment.

Before the commencement of any Schedule Activity, DB Contractor shall submit a Project Baseline Schedule (PBS) in accordance with the Work Breakdown Structure (WBS)(Attachment 2-2).

The scheduling software employed by DB Contractor shall be compatible with the current and any future scheduling software employed by TxDOT (currently Primavera 6.2). Compatible shall mean that the DB

Contractor-provided electronic file version of a schedule may be loaded or imported by TxDOT using TxDOT's scheduling software with no modifications, preparation, or adjustments to do so.

DB Contractor shall include the required Railroad Joint Use Agreement with Missouri Pacific Railroad (MPRR) for the IH 35 (E. FR) Location in their PBS. TxDOT will obtain the Railroad Joint Use Agreement and it is anticipated by December 2014.

2.1.1.2 Project Baseline Schedule

DB Contractor shall use the preliminary schedule submitted with the Proposal to prepare a PBS and shall submit a draft of the PBS to TxDOT for review and approval. Approval of the PBS shall be a condition of NTP2.

DB Contractor shall submit a single hardcopy of the PBS on full-size (11" x 17") color plot sheets, along with an electronic version of the schedule in its native format.

The PBS shall include a separate narrative report which describes, in general fashion, DB Contractor's proposed methods of operation for designing and constructing the major portions of the Work in accordance with the Contract Documents. The schedule narrative shall describe the general sequence of design and construction per Location, the proposed Critical Path of the Project, and all Milestone Schedule Deadlines.

The PBS shall include all major Work activities required under the Contract Documents, in sufficient detail to monitor and evaluate design and construction progress, from commencement of the Work to Final Acceptance of the Work.

The PBS shall also include activities Utility Adjustments, permit acquisitions, and interfaces with other projects, localities, municipalities and other Governmental Entities. For each major activity, DB Contractor shall indicate the duration (in Days) required to perform the activity and the anticipated beginning and completion date of each activity. In addition, the PBS shall indicate the sequence of performing each major activity and the logical dependencies and inter-relationships among the activities.

The PBS shall include a listing of all submittals as called out in the Contract Documents. Submittal activity durations shall include specific durations for TxDOT review and/or approval of DB Contractor's submittals as called out elsewhere in the Design-Build Contract and these Technical Provisions.

With the exception of activities relating to Environmental Approvals by Governmental Entities, each activity depicting DB Contractor's operations shall have duration of not more than 20 Days, and not less than one Day, except as otherwise approved by TxDOT. All activities shown in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor activity.

Float shall not be considered as time for the exclusive use of or benefit of either TxDOT or DB Contractor but shall be considered as a jointly owned, expiring resource available to the Project and shall not be used to the financial detriment of either party. Any method utilized to sequester Float calculations will be prohibited without prior approval of TxDOT. Any schedule, including the PBS and all updates thereto, showing an early completion date shall show the time between the scheduled completion date and the applicable Milestone Schedule Deadline as "Project Float."

DB Contractor shall allocate the total contract price and quantities throughout the Project activities in the Project Schedule. Such allocation shall accurately reflect DB Contractor's cost for each Project activity and shall not artificially inflate, imbalance, or front-load line items. The price of each Project activity shall be all-inclusive and shall include all direct and indirect costs, overhead, risks, and profit. Note that cost information will be suppressed on the Proposal submission, but shall be included with DB Contractor's first monthly Project Schedule Update(s) and submitted with DB Contractor's first Draw Request.

Percent complete shall be used to show activity progress as of the status date. The definition of percent complete for activities shall be made in consultation with TxDOT prior to beginning of scheduled Work. It should only be altered with TxDOT's consent.

DB Contractor shall establish a WBS in line with the WBS shown in Attachment 2-2 with clearly identifiable linkage between the Price Proposal and DB Contractor-designated Project activities, and phases represented in the Project Schedule. The WBS for each Work element shall indicate the duration, timing, and logical relationship to other Work elements, including relationships to Project activities other than the parent Project activity of the particular Work element. The WBS for each Project activity shall be defined in terms of Work elements reflecting the types of Work shown in the Price elements (see Design-Build Contract (DBC)). Project activities shall be broken down at a minimum to Work elements (e.g., bridges may be broken down into foundations, substructure, superstructure, and decks). All Work shall be broken down to similar manageable Work elements. For Utility Adjustment Work, if Work is not shown as a Project activity itself, such Work shall be shown as a Work element, where applicable. For mobilization, DB Contractor shall provide a list of Work items that are included in each Project activity or Work element.

2.1.1.3 Project Status Schedule Updates

DB Contractor shall update, on at least a monthly basis, the approved PBS to reflect the current status of the Project, including approved Change Orders.

Each Project Status Schedule Update shall accurately reflect the status of all activities as of the effective date of the updated Project Baseline Schedule. Each Project Status Schedule Update shall indicate the overall completion percentage of the Project.

No changes in activity durations, calendar assignments, logic ties, or constraints will be allowed in the Project Status Schedule Update without the written approval of TxDOT.

The Project Status Schedule Update shall include a schedule narrative report which describes the status of the Project in detail, including progress made that period, plans for the forthcoming period, all potential delays and problems, their estimated effect on the Project Schedule and an overall completion, and whether on, ahead of, or behind schedule.

2.1.1.4 Project Schedule Revisions

Until TxDOT approves a schedule revision, all Project Schedule submittals shall be tracked against the previously approved Project Schedule. Accepted revisions shall be incorporated into the Project Schedule at the next monthly schedule update.

2.1.2 Document Management

All electronic information submitted to TxDOT shall be searchable and legible.

2.1.2.1 Document Storage and Retrieval Requirements

DB Contractor shall establish and maintain an Electronic Document Management System (EDMS), compatible with TxDOT's EDMS system, to store, catalog, and retrieve all Contract Documents using the applicable control section job (CSJ) numbers. Unless otherwise directed by TxDOT, record retention shall comply with the requirements of the *Texas State Records Retention Schedule*, and shall be provided to TxDOT at the time of the expiration or earlier termination of the DBC.

Construction quality acceptance test results shall be automatically transmitted to TxDOT's I2MS system using TxDOT's extensible markup language (XML) web service. A sample is shown in Attachment 2-3, I2MS Test Form Fields. DB Contractor shall coordinate with TxDOT to obtain the most current version prior to commencing construction quality acceptance testing. The responsible technician and his/her supervisor shall sign the daily test reports and the results of the daily tests shall be provided to TxDOT within 48-hours after test completion.

In the provision of a document management system, the DB Contractor shall:

a) Use data systems, standards and procedures compatible with those employed by TxDOT and implement any new operating practices required as a result of TxDOT's amendments to any such systems, standards and procedures.

b) Provide a secure location for any interface as may be provided by TxDOT, such that only authorized users have access and that it is protected from loss, theft, damage, unauthorized or malicious use.

c) Employ appropriate standards and procedures, and train DB Contractor personnel to operate any TxDOT data management system, which TxDOT may require in connection with the Project.

d) Provide a mechanism for the electronic transfer of meta data along with the associated portable document format (PDF) images for uploading into an EDMS employed by TxDOT.

To allow for disaster recovery, the DB Contractor shall back-up all Project-related documents on a nightly basis and store all Project-related documents in a secure off-site area on a weekly basis.

DB Contractor shall provide TxDOT at DB Contractor's expense, sufficient access to DB Contractor's document control database as deemed necessary by TxDOT.

2.1.2.2 Services to be Provided by TxDOT

The type of available data may vary dependent on the level of project development. Typical types of data TxDOT will provide to the DB Contractor, if available, are:

1. Final Design Documents
2. Data that TxDOT has on file concerning the project. (Examples include as-built plans, field notes, etc.)
3. Electronic data of topography, roadway alignments and edge lines, pavement markings, criteria files, cross sections, and Digital Terrain Models that TxDOT or their consultant contractor have concerning the Project.
4. Drawings, sketches, renderings and/or photographs of special design elements such as, sidewalk paving materials, crosswalk details, landscaping, and any architectural treatments.
5. Elevation data that may be needed in some areas where the terrain changes abruptly and special design features are required, such as retaining walls or elevated structures.

2.1.2.2.1 Services to be Provided by the DB Contractor

DB Contractor shall provide all CADD data in electronic format and native to TxDOT's CADD architecture using Bentley Systems, Inc.'s MicroStation to provide complete compatibility between the contractor and TxDOT. The current CADD architecture and standards can be viewed at http://www.txdot.gov/business/contractors_consultants/v8.htm.

The DB Contractor shall collect, review, and evaluate all of the available existing data pertaining to the Project. The data will include MicroStation design files, GEOPAK geometry files, existing terrain models, and digital ortho photography.

2.2 Quality Management Plan

DB Contractor shall submit a comprehensive Quality Management Plan to TxDOT for approval that is consistent with and expands upon the preliminary Quality Management Plan submitted with the Proposal. The Quality Management Plan shall comply with ISO 9001:2000 for quality systems, quality plans and quality audits, or most current version, as updated by the International Standards Organization. DB Contractor may elect to obtain formal ISO 9001 certification, but will not be required to do so. DB

Contractor Quality Management Plan shall comply with the requirements of current *TxDOT Design-Build Quality Assurance Program Implementation Guide*.

2.2.1 General Requirements

DB Contractor shall develop, implement, and maintain the Quality Management Plan for the Term. The Quality Management Plan shall describe the system, policies, and procedures that ensure the Work meets the requirements of the Contract Documents and provides documented evidence of same.

The complete Quality Management Plan shall incorporate the following features:

a) DB Contractor shall make all quality records immediately available to TxDOT for review. DB Contractor shall provide TxDOT with a copy of any and/or all quality records when requested.

b) The Quality Management Plan shall encompass all Work performed by DB Contractor and Contractors of all tiers.

c) DB Contractor shall submit to TxDOT the results of all Project quality audits within seven Days of their completion.

d) DB Contractor shall promptly submit to TxDOT non-conformance reports both upon issuance and resolution.

The Quality Management Plan shall contain detailed procedures for DB Contractor's quality control and quality assurance activities. DB Contractor's quality process shall incorporate planned and systematic verifications and audits undertaken by an independent party. DB Contractor shall conduct all quality control, quality assurance, performance verification, and design overlay and coordination among design disciplines, all in accordance with the Quality Management Plan and the requirements of the Contract Documents.

Inspections, reviews, and testing shall only be performed by personnel with appropriate training and qualifications for each appropriate item of Work (items produced on and off the Project site) using appropriate equipment that is accurately calibrated and maintained in good operating condition at an AASHTO (AASHTO R18-10, *Establishing and Implementing a Quality System for Construction Materials Testing Laboratories*) accredited facility, or at a facility with comparable accreditation (e.g., ISO 17025, *General Requirements for the Competence of Testing and Calibration Laboratories*).

2.2.2 Quality Terminology

Quality terminology, unless defined or modified elsewhere in the Contract Documents, shall have the meaning defined in ISO 9001. Terms used in ISO 9001 shall have the meanings defined below:

a) Organization: DB Contractor's organization, including any Affiliates and Contractors.

b) Customers: the Users of the roadways, TxDOT, Customer Groups, and key stakeholders that have an adjacent property interest or connecting roadway.

c) Product: the Work.

2.2.3 Quality Management Organization

DB Contractor shall regularly maintain the Quality Management Plan to contain current versions of the following information:

a) The organizational chart that identifies all quality management personnel, their roles, authorities and line reporting relationships.

b) Description of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work.

c) Identification of testing agencies, including information on each agency's capability to provide the specific services required for the Work, certifications held, equipment and location of laboratories for products produced both on and off the Project site.

d) Resumes for all quality management personnel.

2.2.4 Quality Policy

The Quality Management Plan shall contain a complete description of the quality policies and objectives that DB Contractor will implement throughout its organization. The policy shall demonstrate DB Contractor senior management's commitment to implement and continually improve the quality management system for the Work.

2.2.5 Inspection and Testing

The Quality Management Plan shall contain detailed descriptions of the inspection and test plans, including the timing, quantities represented and frequency of testing, that DB Contractor will use to meet quality control and quality assurance requirements of the Work

DB Contractor shall revise its Quality Management Plan when its own quality management organization detects a systemic or fundamental non-conformance in the work performed or in the manner the Work is inspected or tested, or when TxDOT advises DB Contractor of such a problem.

2.2.5.1 TxDOT Construction Notices

On a weekly basis, DB Contractor shall provide TxDOT with a rolling three-week inspection notice. The inspection notification shall include the fabrication schedule and planned construction activities for items where TxDOT is performing the fabrication inspection.

2.2.5.2 Reporting, Recordkeeping, and Documentation

DB Contractor shall develop and maintain inspection and testing records that include, but are not limited to:

a) Quality control inspection reports and process control material sampling/testing results and control charts shall be submitted to TxDOT within twenty-four (24) hours following the inspection or test.

b) The Construction Quality Acceptance Firm (CQAF) shall maintain, electronically, a daily log of all inspections performed for both DB Contractor and Subcontractor operations in a format acceptable to TxDOT and transmitted to TxDOT daily. The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The responsible technician and supervisor shall sign the daily inspection reports. The results of the daily inspections shall be provided to TxDOT in an electronic format within twenty-four (24) hours after the work shift.

c) The CQAF shall be responsible for establishing an electronic system for recording all material test results. The responsible technician and his/her supervisor shall sign the daily test reports. The results of the daily test shall be provided within one (1) Day of test completion.

d) The CQAF's inspection and materials quality program shall electronically deliver the laboratory and field test results to TxDOT in the database format provided in Attachment 2-3. This electronic reporting is intended to allow the DB Contractor and TxDOT to make timely and accurate decisions on workmanship and material quality issues.

2.2.5.3 Laboratory Requirements

DB Contractor shall perform testing in accordance with, but not limited to:

a) Quality acceptance tests shall be conducted by the CQAF's testing laboratory identified in the CQMP that complies with the requirements of the AASHTO Accreditation Program (AAP) or other appropriate accreditation acceptable to TxDOT for the pertinent test. A copy of AAP accreditation certificate(s) shall be transmitted to TxDOT upon their receipt by the testing laboratory.

b) Equipment in all laboratories shall be certified prior to commencing any construction activities and shall retain the certification by AASHTO, or TxDOT, as applicable for the duration of the Work.

2.2.5.4 Supply Source and Material Quality

Quality of all materials shall conform to requirements contained in the Contract Documents and to any requirements of affected Utility Owners. The CQAF shall provide plant inspection and aggregate sampling and testing at concrete and asphalt plants. Manufacturers' test reports may supplement, but not replace, the QA inspections, sampling, testing and certification provisions.

2.2.6 Responsibility and Authority of DB Contractor Staff

Personnel assigned to perform inspection, testing, or monitoring of characteristics for acceptance shall not be those personnel performing or directly supervising the Work being accepted.

DB Contractor's Construction Quality Control Manager and Construction Quality Acceptance Manager and quality staff shall have no responsibilities in the production of the Work. Quality acceptance staff shall remain independent of the quality control staff.

The Construction Quality Control Manager shall prepare a monthly report of the quality inspections and tests performed, results of such inspections and tests, and occurrences and resolution of non-conformance discoveries. DB Contractor shall submit the monthly reports to TxDOT for review.

DB Contractor's Construction Quality Control Manager and Construction Quality Acceptance Manager shall have the authority to stop Work for quality-related issues.

2.2.7 Design Quality Management Plan

DB Contractor shall prepare and submit to TxDOT for review and approval a Design Quality Management Plan (DQMP) that describes its policies, procedures, and staffing to manage design quality in accordance with the requirements of this Section 2.2.7.

2.2.7.1 Released for Construction Documents

Should the DB Contractor receive approval for proposed design changes, the DB Contractor shall submit to TxDOT all Released for Construction Documents in accordance with the submittal requirements of the Design Quality Management Plan. DB Contractor's Released for Construction Documents shall comply with the requirements of the Design-Build Contract documents, and shall be detailed, complete, constructible, and shall allow verification of the design criteria and compliance with Design-Build Contract documents.

Not later than two Business Days after DB Contractor has completed design of any particular Released for Construction Document, DB Contractor shall submit the signed and sealed document to TxDOT.

The DB Contractor shall prepare and provide all Project related Submittals and documents using English units of measure.

The DB Contractor shall furnish all Submittals by electronic copy in accordance with Section 2.1.2. Unless otherwise stated in the Contract Documents, the DB Contractor shall provide TxDOT and the Design Manager (DM) each with four paper copies and a single electronic copy of each Submittal. Each Submittal shall have the signature of an authorized representative of the DB Contractor, unless otherwise expressly stated for a particular Submittal. The electronic copy shall be in a suitable format (e.g. PDF) or in the format in which the Work was originally created unless stated otherwise in the Contract Documents.

The DB Contractor shall include with each Submittal a transmittal cover sheet in a form acceptable to TxDOT.

The minimum sheet size for the Submittals shall be 8.5 inches by 11 inches. The maximum sheet size shall be 36 inches by 120 inches. Every page in a Submittal shall be numbered in sequence.

Each Submittal shall be full and complete, and shall be assigned a unique, sequential number, clearly noted on the transmittal cover sheet. Original Submittal shall be assigned a unique numeric Submittal number. Revised Submittals shall bear an alphanumeric designation which consists of the unique Submittal number assigned to the original Submittal followed by a letter of the alphabet to represent that it is a subsequent Submittal of the original.

Any changes made on a revised Submittal, other than those made or requested by TxDOT, shall be identified and noted on the revised Submittal.

Design deliverables shall include a title block, consistent with the standard Project drawing format established as part of the Quality Management Plan, with the following information:

a) Date of issuance and including all prior revision dates.

b) Contract title and number.

c) The names of the DB Contractor and applicable Affiliates.

d) Stage of development.

e) Reference to applicable Technical Documents and amendments.

f) If required, review and acceptance or approval from a Governmental Entity, prior to submission to TxDOT.

g) Review stamp.

h) Action block space – All deliverables shall include a sufficient blank space in which the DB Contractor may list required actions to be taken.

i) When calculations accompany drawings in a Submittal, include cross-references from the body of the calculations to the individual drawing to which pages the calculations pertain.

j) Organization of the CAD drawings and associated documents in a logical manner, having a uniform and consistent appearance, and clearly depicting the intention of the design.

2.2.7.2 Record Drawings and Documentation

Within 90 Days of Final Acceptance of all or part of the Project, DB Contractor shall submit to TxDOT a complete set of Record Drawings in hard copy and native electronic format for the portion of the Project actually opened to traffic. The Record Drawings and Documentation shall be an organized, complete record of Plans and supporting calculations and details that accurately represent what DB Contractor constructed.

DB Contractor shall ensure that the Record Drawings reflect the actual condition of the constructed Work. DB Contractor shall submit to TxDOT the electronic files used to prepare the Record Drawings and documentation.

2.2.7.3 DQMP General Requirements

The DQMP shall describe and include the following general requirements:

a) The quality control and quality review procedures for Professional Services products shall be organized by discipline (such as structural, civil, utilities). These procedures shall specify measures to ensure that appropriate quality requirements are specified and included in the Professional Services product and to control deviations from such requirements.

b) Specific quality control and quality review procedures, including all required forms and checklists, shall be specified for preparing, verifying and checking all Professional Services

products to ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices in the State of Texas and the requirements of the Contract Documents. The checking of structural design shall include a set of independent calculations performed by the DB Contractor's Design Firm for all structural elements.

c) The designer and checker shall be clearly identified on the face of all Final Design Documents. The DQMP shall also include specific procedures for verifying the Professional Services product along with any computer programs being used for such purposes. Design Documents shall be stamped, signed and dated by the engineer in responsible charge for that item, element, or phase of the Work.

d) Procedures shall be described for coordinating Professional Services performed by different individuals or firms working in the same area, in adjacent areas, or on related tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications. This shall also include the coordination of the review, approval, release, distribution and revision of documents involving such parties.

e) Procedures shall: (1) ensure that DB Contractor personnel are familiar with all the provisions of the DBC concerning their respective responsibilities; (2) provide for the education, training and certification, as appropriate, of personnel performing activities affecting or assessing the quality of the Work to assure that such personnel achieve and maintain reasonable proficiency; and (3) ensure that the Work is performed according to the DQMP, generally accepted engineering practices in the State of Texas and the Contract Documents.

f) Procedures shall be established for meeting documentation requirements; the filing of design criteria, reports and notes, calculations, plans, specifications and supporting materials needed during the Final Design; and the specific responsibilities of personnel to satisfy these requirements. All Design Documents shall be maintained, organized and indexed by DB Contractor and copies made available to TxDOT upon request.

g) Procedures and schedules for the Design Manager (DM) to perform audits of the design firm's quality control procedures under the DQMP.

2.2.7.4 Personnel and Staffing

2.2.7.4.1 Design Manager

DB Contractor shall assign a DM who shall be responsible for management of quality control program for the design, environmental, Utilities and survey. The DM shall be involved with direct scheduling or production activities; and shall report directly to DB Contractor's management team. The DM shall see that the methods and procedures contained in the approved DQMP are implemented and followed by DB Contractor design staff in the performance of the Work. The DM shall be a Registered Professional Engineer.

2.2.7.4.2 Personnel in Responsible Charge

DB Contractor shall designate (by name) the personnel in responsible charge for each item, element, or phase of the Work. The personnel in responsible charge shall possess the necessary registrations in the State of Texas and shall be personally responsible for directly supervising the Work and who will stamp, sign and date the Professional Services product for a given item, element, or phase of the Work as applicable.

2.2.7.4.3 Reviewing Professional Services

The DB Contractor personnel performing the quality control check of the Professional Services shall not be directly involved with the original development of the item, element, or phase being checked.

2.2.7.4.4 Design Quality Assurance Staff

A quality assurance staff shall be provided under the direction of the DM to perform oversight and review of all design, environmental, Utilities and survey performed by any member of DB Contractor's group.

The quality assurance staff shall be experienced in the various aspects of roadway design undertaken by the DB Contractor. The training and experience of the quality assurance staff shall be commensurate with the scope, complexity, and nature of the design work to be reviewed. Qualifications shall include appropriate experience, certifications, training and licensure. Design quality assurance staff shall report to the DM.

2.2.7.4.5 Design Quality Assurance Staff Levels

The size of the quality assurance staff shall reflect the volume of quality assurance activities necessary for the Work in progress and shall be maintained in accordance with the approved DQMP. The CQAF staff will perform quality assurance oversight and review typically performed by TxDOT on traditional projects.

The design quality assurance staffing requirements shall be updated as necessary throughout the Term of Work to reflect changes in the actual design schedule. DB Contractor shall ensure that adequate design quality assurance staff is available and that DQMP activities are undertaken in a manner consistent with the Project Schedule and in a manner that will enable DB Contractor to achieve the Substantial Completion and Final Acceptance deadlines.

Should TxDOT determine that DB Contractor is not complying with the DQMP because of lack of staff or ethical standards, TxDOT shall have the right, without penalty or cost, including time extensions or delay damages, to restrict Work efforts until appropriate levels of staffing consistent with the DQMP and satisfactory to TxDOT are obtained, or TxDOT may contract with a separate firm to perform these services and withhold payment to DB Contractor for such services.

2.2.7.5 Professional Services Submittal Review Process

DB Contractor shall conduct a series of working meetings with its Professional Services staff, the internal quality control of DB Contractor staff, the DM and TxDOT to establish workflow processes and procedures to be utilized during the design review process that are consistent with the Contract Documents. The working meetings are also to develop an understanding on general design concepts such as geometrics, drainage, traffic control, utility conflicts and structures. The DB Contractor is responsible for verifying utility information shown in the Final Design Documents and is responsible for coordinating utility conflicts not shown in the Final Design Documents, which are encountered during construction.

DB Contractor and TxDOT shall collaborate and mutually agree upon (i) a list of proposed sections (i.e., Station x+xx to Station y+yy) for the Work; (ii) Professional Services packaging and content (such as drainage, individual structures, roadway, traffic sequencing, and others); (iii) a list of mandatory submittals; and (iv) a proposed submittal schedule. The Professional Services reviews shall be evenly scheduled over the duration of the Professional Services phase of the Work. Sections and packages shall be logically organized into manageable pieces and shall contain sufficient information and details to confirm DB Contractor intent and to validate conditions. DB Contractor shall obtain TxDOT's written approval of the sections, packages and contents, the schedule, and the methodology prior to making the first submittal.

The DM shall chair the submittal reviews with TxDOT, and DB Contractor shall maintain formal documentation of these meetings for TxDOT's audit.

The purpose of the submittal reviews is for TxDOT and the DM to review Professional Services products for general compliance with Project requirements, sound engineering practice, applicable Law, the Governmental Approvals and the Contract Documents. All submittals are subject to review and comment by persons designated in the Technical Provisions.

If the DB Contractor and TxDOT cannot come to an agreement on the list of mandatory submittals, the following list shall be provided at minimum:

- Corridor Structure Type Study and Report submittals
- Preliminary Bridge Layout submittals
- Preliminary Design submittal
- Final Design Document
- Any deliverables described in the Technical Provisions
- Exhibits Supporting Railroad Agreements
- Design Exception, Design Waiver and Design Variance Requests
- Local Floodplain Administrator Correspondence

2.2.7.5.1 Final Design Submittal

The Final Design Submittal shall be submitted to TxDOT for general review, and the DM shall provide certification of compliance. Construction packages for individual Work items, elements or phases shall be organized such that the final document package can be assembled in a manner similar to the standard construction documentation typically provided to TxDOT for conventional project letting, as mutually agreed upon by DB Contractor and TxDOT.

When DB Contractor has completed the Final Design Submittal for an item, element, or phase and wishes to obtain TxDOT concurrence of such a design, the DM shall certify that:

a) The design meets all applicable requirements of the Contract Documents, applicable Law and the Governmental Approvals.

b) The design has been checked in accordance with DB Contractor's approved DQMP.

c) The item or element is ready for construction.

d) DB Contractor has obtained all required Governmental Approvals, and Utility Owner approvals.

The Final Design Submittal shall be complete Design Documents incorporating all of the design submittal review comments. All documentation, including copies of TxDOT's approval of deviations for design standards and/or Design Exceptions shall be provided with the Final Design Submittal.

Prior to certifying the above items, elements, or phases, and upon review and comment of the Final Design Submittal by TxDOT, the DM shall schedule a formal review with TxDOT.

2.2.7.5.2 Formal Review

The DM will conduct a formal review presentation to TxDOT at a location acceptable to TxDOT. The formal review presentation will be held following TxDOT review of and comment on the mandatory submittals.

At least five (5) Business Days prior to the applicable formal review presentation dates, DB Contractor will assemble and submit drawings or other documents to TxDOT for information and review.

Draft minutes of formal review presentations shall be submitted to TxDOT within five (5) Business Days after completion of each review.

2.2.7.6 Resubmittal Process

Resubmittals of any design submittal may be required if deemed necessary by TxDOT or any Governmental Entities with jurisdiction over the Project. Each resubmittal must address all comments received from a prior submittal in a manner satisfactory to the commenting party. Submittals shall be

resubmitted as many times as necessary to address comments from TxDOT or any Governmental Entity with jurisdiction over the project.

If TxDOT had requested additional information during the final formal review, the DM will conduct an additional formal review of the resubmitted items, elements, or phases. A copy of all correspondence relating to each submittal made to any Governmental Entity with jurisdiction over the project shall be concurrently provided to TxDOT.

2.2.7.7 Design Changes

DB Contractor or TxDOT may initiate design changes. Design changes may occur either on items, elements, or phases undergoing construction or after Final Design. In order to process these types of changes, DB Contractor shall submit, when the problem or change occurs, a Request for Information (RFI) for TxDOT's approval.

All design changes submitted under the RFI procedure shall undergo the same DQMP checks as the original design.

The designer responsible for the original design shall approve design changes during construction, or design changes to Final Design Documents in writing. If the original designer is no longer available, then after notification to the original designer, a Registered Professional Engineer shall provide documentation of design changes. All plans, final submittals, specifications, calculations, and reports for design changes shall be stamped, signed and dated by a Registered Professional Engineer. In all cases, the DM shall certify in writing that the design change has been:

a) Designed in accordance with the requirements of the Contract Documents, applicable Law and the Governmental Approvals,

b) Checked in accordance with DB Contractor's approved DQMP, and

c) Prepared consistently with other elements of the original design.

DB Contractor shall request and schedule interim and final RFI formal design review(s) by TxDOT and the DM for all design changes made during construction or to the Final Design Plans. Design changes submitted under an RFI that are minor may not warrant interim review in addition to final formal design review(s) by TxDOT and the DM. Design changes eligible for a single review shall be defined in the DQMP and approved by TxDOT and the DM. All changes made through the RFI process shall be documented in the As-Built drawings.

2.2.7.8 Early Start of Construction

The following will set forth the circumstances under which certain items, elements, or phases of the Work may be packaged by DB Contractor to initiate an Early Start of Construction prior to obtaining TxDOT's concurrence of the Final Design for the item, element or phase. The "Early Start of Construction" requirements shall apply to any Work that is performed by DB Contractor prior to receiving TxDOT and the DMs written concurrence of the Final Design Submittal for the Work. All such Work is performed at the sole risk of DB Contractor. TxDOT does not consider any items as satisfying the DQMP requirements until TxDOT and the DM have issued a written concurrence therewith.

TxDOT, at its sole discretion, may defer Early Start of Construction for any portions of the Work as requested by DB Contractor.

Any Work constructed by DB Contractor prior to receiving TxDOT's concurrence of the Final Design Submittal for the Work, and later determined to be unacceptable by TxDOT, in its sole discretion, shall be revised, removed or otherwise reconfigured to the satisfaction of TxDOT at DB Contractor's sole cost and expense, and without any consideration given to an extension of the Completion Deadline.

TxDOT and DB Contractor shall agree on procedures for Early Start of Construction, which procedures shall among other things, include a process for distributing construction documents signed and sealed by a Registered Professional Engineer to TxDOT and DB Contractor's field staff. In order for DB Contractor to proceed with early phases of construction of a portion of the Work, specific pertinent items of the design shall have been previously reviewed by TxDOT and comments from TxDOT shall have been transmitted to the DB Contractor. For example, Early Start of Construction may be rough grading of a specific portion of the Project, for which specific pertinent items of the design may include:

a) Horizontal and vertical drainage system

b) Typical sections

c) Related elements of the drainage system

d) Related elements of the Traffic Control Plan specifically applicable during the term of the Early Start of Construction scope

e) Subsurface geotechnical investigations and recommendations

f) Slope stability analysis and recommendations

g) Preliminary structure general plans (if a structure is within the element or portion of the nonstructural Work)

h) Settlement monitoring program

i) Construction specifications

An Early Start of Construction shall be at the sole and complete risk of DB Contractor, and does not release DB Contractor from any of the requirements described in Section 2.2.8 (Construction Quality Management Plan). If, as a result of the review process, construction modification or changes to already completed Work elements performed under the Early Start of Construction are required, DB Contractor shall make any and all construction modifications to already completed construction activities at its sole cost and expense without any entitlement to time extensions or adjustments in the Price.

2.2.8 Construction Quality Management Plan

DB Contractor shall construct the Work in accordance with the Final Design Documents or DB Contractor prepared Released for Construction Documents, following a reasonable timeframe for TxDOT review and comment, together with the relevant requirements and specifications of the Contract Documents.

DB Contractor's Construction Quality Management Plan (CQMP) shall contain detailed procedures for the DB Contractor's quality control and quality assurance activities for construction activities. The CQMP shall be consistent with the applicable procedures contained in the current TxDOT *Contract Administration Handbook for Construction* and establish a clear distinction between quality control and quality acceptance activities and persons performing them. At a minimum, the CQMP shall specify:

a) Methods and procedures that clearly define the distinction/authority/responsibility for the administration of DB Contractor's CQMP.

b) That DB Contractor, Supplier, and Subcontractors designate an individual on each crew to be responsible for performing daily field inspections of their own Work and for preparing a daily QC report to document the inspection performed.

c) The review and approval of all Portland cement concrete and hot mix asphaltic concrete mix designs by a CQAF Registered Professional Engineer.

d) Methods and procedures to be utilized by DB Contractor to obtain active participation of the work force in quality control operations to achieve a quality project, reporting forms to be used by the responsible quality control personnel shall be included.

e) A construction quality control organization and staffing plan. The period of time that the quality control staff member will be present on the site shall be shown, resumes of the Key Personnel shall be included, and the experience/knowledge/skill levels of the quality control support staff shall be stated.

f) CQAF organizational and staffing plans. The period of time that the quality acceptance staff member will be present on the site shall be shown; resumes of key staff members shall be included; and the required minimum knowledge, technical skills, and experience level of the personnel related to the various inspection functions, such as grading, drainage, pile-driving and structures inspections, that will occur on the Work shall be stated. The administrative/clerical support staff for maintenance and management of records/documents pertinent to quality acceptance for the CQMP activities shall be identified.

g) Procedures for inspecting, checking, and documenting the Work. Inspection, examinations and measurements shall be performed for each operation of the Work to assure quality.

h) Procedures to ensure that all activities affecting the quality of the Work are accomplished under controlled conditions, using appropriate equipment for the task being performed.

i) Procedures to ensure that the education, training, and certification of personnel performing CQMP activities are achieved and maintained and that all Work is performed in accordance with the approved designs, plans, and specifications.

j) Procedures to ensure that critical elements of the Work are not started or continued without inspection and testing by the quality acceptance personnel on site. Inspection or hold points shall be identified and communicated to the CQAF, Construction Quality Acceptance Manager (CQAM), and TxDOT. Procedures to proceed beyond inspection points shall be developed.

k) Description of specific procedures to ensure that all Work conforms to the requirements of the Contract Documents, Governmental Approvals and applicable Law, and the Design Documents, as well as that all materials, equipment, and elements of the Work will perform satisfactorily for the purpose intended.

l) Documents specify that all activities undertaken by or on behalf of DB Contractor affecting the quality of the Work shall be prescribed and accomplished by documented instructions, procedures, and appropriate drawings. Such instructions, procedures and drawings shall include quantitative and qualitative criteria to be used to determine compliance.

m) Measures to ensure that purchased materials, equipment, and services conform to the Contract Documents, and Governmental Approvals, applicable Laws, Rules, and the Design Documents. These measures shall be consistent with Good Industry Practice and shall include provisions for source evaluation and selection, objective evidence of quality furnished by Subcontractors and Suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery.

n) Procedures for identification and control of materials, equipment, and elements of the Work. These procedures shall be consistent with the Good Industry Practice to ensure that identification of the item is maintained by appropriate means, either on the item or on records traceable to the item, as necessary, throughout fabrication, erection, installation and use of the item.

o) Procedures to ensure that materials, equipment or elements of the Work that do not conform to requirements of the Contract Documents, the Governmental Approvals, applicable Law or the

Design Documents are not used or installed. These procedures shall include identification, documentation, segregation, disposition and notification to TxDOT and, if appropriate, Governmental Entities and other affected third parties, as well as procedures for TxDOT to review Nonconforming Work.

p) Procedures for processing a RFI to resolve discrepancies and/or questions in the plans and specifications so that all changes are documented and approved by DB Contractor's design engineers, TxDOT and the DM.

q) Procedures to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the Work.

r) A program for inspection for each operation of all Work examinations, measurement and test of materials or elements of the Work to assure quality.

s) A program for coordination of all inspection and testing with the inspections and tests of Governmental Entities and Utility Owners.

t) A program to ensure performance of all testing required to demonstrate that all materials, equipment and elements of the Work will perform satisfactorily for the purpose intended and meet the standards specified in the Contract Documents. It shall specify written test procedures which include provision for ensuring that all prerequisites for the given test have been met and that adequate test instrumentation is available and used. The CQMP shall require test results be documented and evaluated to ensure that test requirements have been satisfied. The CQMP shall also demonstrate how the CQAF will track its testing frequencies to ensure compliance with the Contract Documents.

u) Procedures for reviewing and approving acceptance test results, categorizing test results in a manner acceptable to TxDOT, transmitting acceptance test results to TxDOT in a format acceptable to TxDOT for use in fulfilling its statistical validation requirements, and working collaboratively with TxDOT to resolve statistical non-validation between CQAF and TxDOT test results.

v) Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified and adjusted at specified periods to maintain accuracy within industry standards.

w) Procedures to control the handling, storage, shipping, cleaning and preservation of materials and equipment to prevent damage or deterioration.

x) Procedures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations and other Nonconforming Work are promptly identified and corrected. The procedures shall ensure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition and the corrective action taken shall be documented and reported to TxDOT in writing and to appropriate levels of DB Contractor's management to ensure corrective action is promptly taken.

y) A comprehensive system of planned and periodic audits of DB Contractor's CQMP to determine adherence to and the effectiveness of the CQMP. CQAF personnel shall perform the audits in accordance with the written procedures or checklists. Audit results shall be documented, reviewed, and acted upon by DB Contractor. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken where indicated.

z) Measures to control the receipt and issuance of documents, such as instructions, procedures, training manuals and drawings, including changes thereto, which prescribe activities affecting

quality. These measures shall ensure that approved documents, including authorized changes thereto, are reviewed for adequacy and approved for release by authorized personnel of DB Contractor and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless TxDOT consents, in writing, to another responsible organization.

aa) The requirements and methods for controlling documents. DB Contractor's document control system shall be compatible with TxDOT's.

bb) Procedures and personnel to be used to assure that specified instrumentation is installed and monitored in accordance with applicable specification.

cc) The form and distribution of certificates of compliance.

dd) Procedures for quality acceptance in the CQMP with respect to checking and verifying the accuracy and adequacy of construction stakes, lines, and grades established by DB Contractor.

2.2.8.1 Personnel and Staffing

2.2.8.1.1 Construction Quality Control Manager

DB Contractor shall assign a Construction Quality Control Manager (CQCM) who shall be responsible for management of the quality control aspect of the CQMP. The CQCM shall not be involved with scheduling or production activities, and shall report directly to DB Contractor's management team. The CQCM shall see that the methods and procedures contained in the approved CQMP are implemented and followed by DB Contractor and Subcontractors in the performance of the Work.

2.2.8.1.2 Construction Quality Control Staff

DB Contractor and Subcontractors' construction work force are all considered to be members of DB Contractor's quality control staff as each and everyone is responsible for the quality of the Work. Personnel performing QC inspection shall ensure quality of workmanship and QC sampling/testing shall ensure that materials meet the required specifications prior to acceptance testing performed by the CQAF. Personnel responsible for performing quality control inspection shall be knowledgeable and receive training to perform their quality control duties. Personnel performing quality control sampling/testing shall be knowledgeable in the testing methods and procedures and do not need to be certified or direct employees of the DB Contractor, but cannot be employees of the CQAF.

2.2.8.1.3 Construction Quality Acceptance Manager (CQAM)

DB Contractor's CQAF shall assign an on-site Construction Quality Acceptance Manager (CQAM) who shall be responsible for management of the quality acceptance aspect of the CQMP. The CQAM shall be a Registered Professional Engineer and shall be an employee of the CQAF. The CQAM shall report jointly to DB Contractor's management team and TxDOT. The CQAM shall not report to any person or party directly responsible for design or construction production.

The CQAM shall review, approve, authorize, examine, interpret and confirm any methods or procedures requiring the "Engineers' review, approval, authorization, examination, interpretation, confirmation, etc." which are contained in the TxDOT Standards.

2.2.8.1.4 Construction Quality Acceptance Staff

A quality acceptance inspection and material sampling/testing staff shall be provided under the direction of the CQAM to perform inspection and material sampling/testing of all Work performed and materials incorporated into the Project by any member of DB Contractor's group. If approved in writing in advance by TxDOT, qualified individuals who are employees of or retained by manufacturers, vendors or Suppliers may inspect certain portions of Work.

The quality acceptance inspection and testing staff shall be employees of the CQAF and shall have been trained in the applicable inspection and material sampling and testing procedures. The quality acceptance staff shall be experienced in highway inspection and material testing. The training and experience of the quality acceptance staff shall be commensurate with the scope, complexity, and nature of the activity to be controlled and tested. Qualifications shall include appropriate TxDOT or State Highway Agency certification for testing and inspection as well as nationally recognized certifications such as ACI certification in applicable inspection or testing activities. Construction quality acceptance staff shall report to the CQAM.

The quality acceptance staff shall provide oversight and perform audits of the quality control inspection and material sampling/testing operation.

The quality acceptance inspection staff shall check compliance of all material, equipment, construction, installations, and operations. Construction activities requiring continuous field quality acceptance inspection or sampling and testing, in the sole discretion of TxDOT, shall proceed only in the presence of assigned QA personnel. The CQMP shall identify those activities.

2.2.8.1.5 Construction Quality Acceptance Staff Levels

The size of the quality acceptance staff shall reflect the volume of quality acceptance activities necessary for the Work in progress and shall be maintained in accordance with the approved CQMP. The CQAF staff will perform quality acceptance oversight, inspection, and testing services typically performed by TxDOT on traditional projects, with the exception of monitoring testing.

The Construction quality acceptance staffing requirements shall be updated as necessary throughout the Term of Work to reflect changes in the actual construction schedule. DB Contractor shall ensure that adequate Construction quality acceptance staff is available and that CQMP activities are undertaken in a manner consistent with the Project Schedule and in a manner that will enable DB Contractor to achieve the Substantial Completion and Final Acceptance deadlines.

Should TxDOT determine that DB Contractor is not complying with CQMP because of lack of staff, TxDOT shall have the right, without penalty or cost, including time extensions or delay damages, to restrict Work efforts until appropriate levels of staffing consistent with the CQMP and satisfactory to TxDOT are obtained or TxDOT may contract with a separate firm to perform these services and withhold payment to DB Contractor for such services.

2.2.9 Maintenance Management Plan

Section 19 (Maintenance) includes requirements for maintenance management.

2.3 Comprehensive Environmental Protection Plan

Section 4 (Environmental) includes requirements for environmental management.

2.4 Public Information and Communications Plan

Section 3 (Public Information and Communication) includes internal/external requirements for public information and communications.

2.5 Safety Plan

DB Contractor shall be responsible for the safety of its personnel and of the general public affected by the Project.

DB Contractor shall submit to TxDOT for review a comprehensive safety plan ("Safety Plan") that is consistent with and expands upon the preliminary safety plan submitted with the Proposal. The Safety Plan shall fully describe DB Contractor's staffing plan, policies, plans, training programs, Work Site

controls, and Incident response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project during the Term of the DBC.

DB Contractor's Safety Plan shall address procedures for immediately notifying TxDOT of all Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Project.

2.6 TxDOT-DB Contractor Communications Plan

DB Contractor shall submit to TxDOT for approval a TxDOT–DB Contractor Communications Plan (Communications Plan) that is consistent with and expands upon the preliminary communications plan submitted with the Proposal. DB Contractor shall maintain and update the Communications Plan throughout the Term.

The Communications Plan shall describe the procedures for communication of Project information between the DB Contractor's organization and TxDOT across multiple Districts.

The Communications Plan shall describe how DB Contractor's organization will respond to unexpected requests for information, communicate changes or revisions to necessary DB Contractor personnel, and notify affected stakeholders before and after changes are made to the Contract Documents.

2.7 Right of Way Acquisition Plan

Not applicable

2.8 TxDOT Offices and Equipment

DB Contractor shall provide TxDOT office space (i.e., available for occupancy) within thirty (30) Days of issuance of Notice To Proceed 1 (NTP1). The location, condition, and amenities of the office space for TxDOT are subject to TxDOT's prior written approval. The locations of each field office (minimum of one per district) shall be within ten (10) miles of the largest Location within the district or as approved by TxDOT. The office space requirements for field offices are provided below.

2.8.1 Computers and Equipment

The DB Contractor shall provide, install, and maintain the following for the TxDOT office spaces:

- The DB Contractor shall provide, install, and maintain the following telephones, copiers, printers and fax equipment, and premise wiring for the TxDOT office space:
    - At least one touch-tone telephone for each personal office area, each with a status indicator, access to all outside lines, and conference-call capability; and including speakers for the telephones in the enclosed offices rooms.
    - One;
        - High-speed Internet connections. (Internet service must be provided on a line separate from required phone service.)
        - High-speed laser computer printer capable of handling 11x17 prints.
        - High-speed color photocopy machine capable of handling 11x17 prints.
        - High-speed color scanner capable of handling 11x17 prints.

      A multipurpose piece of equipment capable of meeting multiple parts of the requirements above will be considered to meet the requirements.
    - All office supplies including copier paper, toners and other miscellaneous office supplies.

2.8.2 Field Offices

DB Contractor shall provide field office space, at a minimum of one per District and as approved by TxDOT, for the exclusive use of TxDOT's field construction staff for the Project as specified herein. Co-locating will be considered if all the requirements specified therein are met.

Subject to TxDOT's prior written approval, DB Contractor shall provide separate facilities for TxDOT's engineer staff located within the same complex as DB Contractor's field office. Should DB Contractor elect to construct the Work using field offices other than the one specified, corresponding facilities shall be provided for TxDOT's exclusive use and shall be at least of the same quality as DB Contractor's counterpart management and field staff.

DB Contractor shall provide the field staff facilities at least ten (10) Business Days prior to starting any Work activity involving staff that will occupy the field staff facilities. Unless otherwise specified, the DB Contractor shall provide TxDOT field office facilities meeting the requirements stated below.

The size of each field office shall not be less than 700 square feet of gross floor area in rooms eight (8) feet high. Partition the floor area into at least three (3) interconnected rooms with doors, 2 exterior doors, and at least 2 windows in each room. The DB Contractor may make use of permanent buildings or rental space meeting the requirements for field offices instead of portable buildings if approved. Maintain the TxDOT field office for the Term of the DBC.

When facilities are allowed in the right-of-way (ROW), remove buildings and other facilities and restore the ROW before project acceptance.

Field Office and Laboratory Appurtenances. Provide workbenches, desks and tables at least three (3) feet wide and six (6) feet long, chairs, and filing cabinets in the quantity acceptable to TxDOT. Provide solar screens, blinds, or shades for each window, or as approved by TxDOT.

Each field office shall provide a closet within the facility or a separate structure for storage.

Office Condition. The field office(s) shall be in good and serviceable condition, at least of the same quality as those of DB Contractor's counterpart management and field staff, respectively, and available for occupancy as specified herein. Both Parties shall participate in a facility condition survey prior to and at the completion of occupancy. TxDOT shall return possession of DB Contractor-provided facilities to DB Contractor in essentially the same condition as when TxDOT occupied the facilities, except for reasonable wear and tear and except for alterations, loss, or damage caused by any member of DB Contractor-Related Entity.

Loss or Damage. If office space(s) or related facilities are destroyed, damaged or stolen during the Work, except as a direct result of willful misconduct of TxDOT or its personnel, DB Contractor shall, at its cost and within ten (10) Business Days after the occurrence of such destruction or damage, replace those items that it had provided or repair them to their original condition; however, in the case of lost, damaged, or stolen office equipment (e.g., computers, fax machines, copy machines, printers, etc.) necessary for normal office operations, replacement shall occur within two (2) Business Days. If loss or damage is caused as a direct result of willful misconduct of TxDOT or its personnel, DB Contractor shall replace the facilities noted herein within the timeframes specified herein, except that TxDOT shall reimburse DB Contractor for actual, reasonable, and documented costs incurred.

Office Facilities and Equipment. For the facilities it provides, DB Contractor shall:

1. General. Secure sites, obtain all site permits, install and pay for all utility services, and maintain the facilities as part of the Work.
2. Access and Security. Provide separate buildings or trailers for TxDOT staff that include at least two entrances/exits, from each building or trailer. Each entrance/exit shall be secured with a door lock plus a deadbolt lock.

3. Lighting and Electricity. Include with all interior spaces overhead lighting meeting the requirements of the Occupational Safety and Health Administration (OSHA) and of building and electrical codes for office space. Each office space shall have at least two duplex receptacles. The minimum circuit capacity shall be twenty (20) amperes.

4. Janitorial and Trash Service. Provide daily janitorial service (except Saturdays, Sundays and Holidays) and maintain trash containers and trash pickup service. This will include, but not be limited to, sweeping and mopping floors, cleaning the toilet, and lavatory and emptying wastebaskets.

5. Exterior Maintenance. Maintain the exterior areas of office spaces, including access to parking areas.

6. Accessibility. Meet all access requirements of the Americans with Disabilities Act, as amended (42 USC §§12101, et seq.).

7. Utility Service. Provide potable water, sewer service, and electricity to the office facility.

8. HVAC. Provide heating, ventilation, and air conditioning (HVAC) systems capable of maintaining temperatures between 65 and 70 degrees Fahrenheit in all spaces through the year.

9. Code Requirements. Meet all local building and fire code requirements. DB contractor shall provide fire extinguishers, per fire code and fire marshall with jurisdiction.

10. Disposal and Removal. Be responsible for disposal or removal of all DB Contractor-provided facilities and any site restoration Work as required.

Space Requirements. Although actual space requirements will depend upon Work schedule and geographic locations of the field offices, a typical field office should include the following elements:

1. Site Amenities. A well-graded site for the office with access road, parking area, and security fence with lockable drive-in gates sufficient to enclose the office and parking area.

2. Staff Parking Area. A parking area for at least five (5) vehicles that is reasonably level (all-weather surface and all-weather access) within the boundaries of a security fence.

3. Visitor Parking Area. An all-weather level surface outside the security fence to accommodate visitor parking (all-weather surface and all-weather access-minimum of 1,000 square feet).

4. Security. A 24-hour security service or silent watchmen-type security system.

5. Exterior Lighting. Sufficient exterior security lighting that is automatically activated at low light levels to maintain two (2) foot-candles of lighting within the fenced field office site.

6. Window Security. Security bars on all windows.

7. Laboratory Facility. A completed facility suitable to accommodate a functioning portable lab (approximately 1,500 square feet). Each facility shall provide a closet within the facility or a separate structure for storage of a nuclear gauge, if appropriate and as approved by TxDOT, as far as possible from the normal office work. For all doors allowing access to the nuclear gauge, provide internal keyed deadbolt locks and hinges with pins on the inside of the storage area.

8. Restrooms. Restroom including toilet and sink.

9. First Aid Facilities. Emergency first aid facilities.

3 PUBLIC INFORMATION AND COMMUNICATIONS

3.1 General Requirements

DB Contractor shall assist TxDOT with public information activities to ensure that necessary and relevant Project information is being disseminated accurately to the traveling public. The public will better support TxDOT and DB Contractor if they are kept abreast of Project information in a timely manner and notified in advance of potential impacts.

DB contractor shall assist TxDOT in working with residents, communities and neighborhoods within the general vicinity of the Project to mitigate construction impacts to the neighborhoods, particularly during Off-Peak Hours. All material to be presented to the public or the media shall be provided to TxDOT at least three business days prior to dissemination.

3.2 Administrative Requirements

3.2.1 Public Information and Communication Plan

At least 30 Days prior to NTP2, the DB Contractor shall submit to TxDOT for approval a comprehensive Public Information and Communication Plan (PICP), based upon the preliminary communication plan submitted with the DB Contractor's Proposal, which informs, educates, and engages the Customer Groups throughout delivery of the Project. Although TxDOT will lead Public Information activities, the PICP shall identify specific outreach activities, the frequency of those activities and the format in which it will be provided to TxDOT for dissemination to Customer Groups. TxDOT approval of the PICP shall be a condition of issuing NTP2.

In preparing this plan, DB Contractor shall identify the Customer Groups and support TxDOT in developing specific plans to respond to their concerns and needs in all respects regarding the Project. After incorporation of comments from TxDOT on the PICP, DB Contractor shall implement the various activities and initiatives contained therein. DB Contractor shall work with TxDOT to continually maintain the plan to ensure delivery of high-quality, well-executed communications throughout the Term of the DBC.

The PICP shall be flexible to capture the full magnitude of the yet-to-be-determined impacts from Project activities such as design, construction, maintenance, and the public's reaction to these and other impacts. Together with TxDOT's designated point of contact for the Public Information Office, the DB Contractor shall support TxDOT in periodically reviewing the PICP on a basis not less than annually to forecast, plan and coordinate updates in the plan and strategies needed to effectively accomplish TxDOT's goals and objectives for the Project. The PICP shall also be resilient to successfully implement the outlines strategies, given the ever-changing desires for depth, breadth, and frequency of information by a variety of important Customer Groups such as the media, elected officials, and the general public.

The PICP shall include a general timeline listing public information activities for the Project over the entire Term of the DBC. The timeline shall be used as an initial guide and shall be updated by DB Contractor, as requested by TxDOT, as the Project is implemented by no less than on a yearly basis.

The DB Contractor shall provide sufficient qualified staff to support TxDOT in effectively implementing and maintaining a Public Information and Communication Program.

The PICP shall detail the communication hierarchy for information distribution related to compliance with the Comprehensive Environmental Protection Plan, as described in Section 4 (Environmental). The PICIP shall include names and contact information, including emergency contact information.

3.2.2 Project Manager

The DB Contractor shall assign the duties of Public Information Coordinator to the Project Manager (PM) to support TxDOT with public involvement activities throughout the Term of the DBC.

The PM shall assist TxDOT by providing materials regarding Project-related subjects, using all appropriate methods, including, but not limited to: meetings, email, Highway Conditions Report, dynamic message signs, maps, displays and presentations.

3.2.3 Emergency Event Communications

For all Emergency events, such as vehicle collisions, ice/snow conditions, and Hazardous Material spills, the PM shall take timely and appropriate action to inform TxDOT so that TxDOT can inform appropriate Customer Groups of all pertinent details. The PM shall continue to provide updated information, as available and on a timely basis, until the Emergency no longer exists.

In the event of an unforeseen Emergency, timely notification shall mean as soon as practicable, but in no event longer than within one hour of the occurrence. If advanced warning is available for an Emergency event such as ice/snow, timely notification shall mean as soon as practicable, but in no event longer than within one hour of the time the information is available. In both situations, the PM shall continue to provide updated information, as available and on a timely basis, until the Emergency no longer exists.

3.2.3.1 Lane Closures

Subject to the lane closure restrictions set forth in Section 18 (Traffic Control), DB Contractor shall provide TxDOT and appropriate Customer Groups a minimum of two weeks advance notice for lane closures and/or traffic switches planned to be in effect longer than 24 hours, and a minimum of 48 hours advance notice for lane closures that are planned to be in effect less than 24 hours, using all appropriate tools as needed. The Project Manager shall input all lane closures (or an event that results in lane closures) into the TxDOT Highway Conditions Report.

For planned lane closures and Emergency event lane closures, as appropriate, DB Contractor shall coordinate lane closures that may affect crossing TxDOT facilities with appropriate TxDOT district and area offices, as needed, to ensure that no conflicts occur. DB Contractor shall provide advance notification of all lane closure notices to the appropriate TxDOT district and area office. TxDOT will provide appropriate contacts and information upon request.

4 ENVIRONMENTAL

4.1 General Requirements

The DB Contractor shall comply and deliver the environmental commitments required by the RFP, Contract Documents, Environmental Laws, Governmental Entities, Governmental Approvals, and all applicable federal and state Laws and regulations in accordance with Good Industry Practice. DB Contractor shall protect the Environment and document the measures taken during the performance of the Work to avoid and minimize impacts on the Environment from the design, construction, maintenance, operation, and rehabilitation activities of the Project.

The DB Contractor shall cause Work to comply with Environmental Approvals and compliance requirements for any additional actions throughout the Term of the DBC. The DB Contractor shall monitor and document Work activities so that documents providing evidence for compliance are available to TxDOT for inspection at any time.

4.2 Environmental Approvals

4.2.1 New Environmental Approvals and Amended TxDOT-Provided Approvals

TxDOT-Provided Approvals are based on the Final Design Documents and as presented in the Environmental Approvals. Changes to the Final Design Documents or incorporation of Additional Properties into the Project shall require the validity of existing Environmental Approvals to be reassessed and may require new Environmental Approvals.

The DB Contractor shall be responsible for coordination with Governmental Entities necessary to obtain new Environmental Approvals or amendments to the TxDOT-Provided Approvals except where TxDOT has agreements with Governmental Entities to perform such coordination.

The DB Contractor shall be responsible for ensuring compliance with the conditions and schedules set forth in amendments to any TxDOT-Provided Approvals or new Environmental Approvals. TxDOT may, in its discretion, provide assistance in securing new Environmental Approvals or amendments to TxDOT-Provided Approvals.

4.2.2 Responsibilities Regarding Environmental Studies

DB Contractor shall be responsible for conducting continuing environmental studies based on the Project's approved environmental documents.

DB Contractor shall be responsible for conducting environmental studies and re-evaluations caused by actions not identified in the Environmental Approvals, actions not covered specifically by existing resource agency coordination, or incorporation of Additional Properties into the Project. The DB Contractor shall be responsible for all coordination of environmental studies with appropriate Governmental Entities, except where TxDOT has agreements with Governmental Entities to perform such coordination.

4.2.3 TxDOT Review and Approval of DB Contractor Submissions

TxDOT reserves the right to review, comment on, require revisions to, and reject for resubmission documentation submitted for environmental compliance or Environmental Approvals. Documentation shall conform to current TxDOT submission standards and the requirements of all applicable Governmental Entities, laws, and regulations. TxDOT shall return approved documentation to the DB Contractor for submittal to the appropriate Governmental Entity in cases where the DB Contractor performs coordination. TxDOT, acting reasonably, shall approve those submissions for which TxDOT signature or other approval is required. Documentation not meeting current submission standards or

requirements of Governmental Entities will be returned to the DB Contractor, and shall be revised by the DB Contractor to meet standards or requirements.

4.2.4 TxDOT-Provided Approvals

The TxDOT-Provided Approvals (see Attachment 4-1)

4.3 Comprehensive Environmental Protection Program (CEPP)

As part of the PMP, the DB Contractor shall develop and implement a Comprehensive Environmental Protection Program, applicable throughout the Term of the DBC to establish the approach, requirements and procedures to be employed to protect the environment. The CEPP shall be developed in the form of a comprehensive environmental management system incorporating all features and guidelines outlined in ISO 14001. All component parts shall reflect in order of priority: impact avoidance, minimization and as last resort mitigation. The CEPP shall satisfy FHWA, TxDOT and resource agency requirements, as applicable, including those detailed as commitments in any Environmental Approvals.

The CEPP shall be the overarching system by which the DB Contractor shall cause environmental commitments made during the Environmental Approval and permitting processes, and other environmental requirements to be carried forward and reflected, as appropriate, in the design and implemented throughout the Work. The DB Contractor shall utilize the CEPP to track on-going issues, identify environmental compliances, non-compliances and identify actions required/taken to correct any such non-compliance.

At a minimum, the CEPP shall include the following component parts:

a) Environmental Management System (EMS)

b) Construction Quality Management Plan (CQMP)

c) Environmental Protection Training Program (EPTP)

d) Hazardous Materials Management Plan (HMMP)

e) Communication Plan (CP)

f) Construction Monitoring Plan (CMP)

The dates by which component parts comprising the CEPP are to be submitted for TxDOT approval are set forth throughout these Technical Provisions. Amendments and updates to the CEPP as necessary to address changing conditions and environmental requirements shall be in accordance with the procedures for amendments to the PMP.

4.3.1 Environmental Management System (EMS)

The EMS shall be the overarching system by which the DB Contractor shall cause environmental commitments made during the Environmental Approval and permitting processes, and other environmental requirements to be carried forward and reflected, as appropriate, in the design and implemented throughout the Work. The DB Contractor shall utilize the EMS to track on-going issues, identify environmental compliances, non-compliances and identify actions required/taken to correct any such non-compliance.

The EMS shall establish a schedule for periodic CEPP review to ensure it is up to date. The EMS shall provide a means to track the reviews and results. At a minimum, the EMS shall require documents in the following list to be on file at the Site and available at any time for TxDOT review:

a) CEPP component parts

b) Weekly Environmental Monitoring Reports

c) Investigative Work Plans, Site Investigation Reports, and Remedial Action Plans as necessary for hazardous material discovery/remediation

d) Wetlands Delineations and appropriate Section 404 Permit Application if changes to the design or temporary construction impacts are necessary

e) Mitigation or resource monitoring reports, as required by resource-specific mitigation plans

f) Designs for wetland and floodplain mitigation

g) TPDES Construction General Permit (TXR150000), Notice of Intent

h) TPDES Construction General Permit (TXR150000), Notice of Termination for Work completed

i) Storm Water Pollution Prevention Plan (SW3P) and amendments, as required to reflect Project development and staging, including off-site plans, controls and reporting from borrow sites, waste sites, and plant location sites

j) Completed Permit applications and permits as issued

k) Pre-Construction Inspection Report

l) Training Documentation

m) DB Contractor's final noise analysis, if different than that included in the TxDOT-Provided Approvals

n) Environmental Permits, Issues, and Commitments (EPIC) Sheets

4.3.2 Construction Quality Management Plan (CQMP)

The CQMP shall document and fully detail compliance strategies and procedures to be employed to cause Work performance in accordance with requirements of applicable Environmental Laws and Environmental Approvals. This plan shall establish and/or document schedules, protocols, and methodologies to be used in accomplishing Work, with an emphasis on monitoring, reporting, corrective actions and adaptive management. The plan shall include a Compliance Action Plan (CAP). The CAP shall consist of a decision-making matrix, which will define the triggers for initiating or re-initiating environmental compliance actions for construction and maintenance activities including construction noise mitigation measures and the triggers for initiating mitigation measures. For each trigger, the CAP shall identify the appropriate type or level of environmental study or other compliance action necessary to ensure the ongoing validity of Project Environmental Approvals and commitments. In addition, the CQMP shall detail any mitigation required by Environmental Approvals and the DB Contractor's approach to satisfying mitigation requirements, including mitigation requirements identified after completion of the CQMP.

The CQMP shall include the following components:

- **Environmental Permits, Issues, and Commitments (EPIC) Sheets**

The DB Contractor shall maintain an EPIC construction plan sheets for each roadway project. Applicable permits and environmental commitments identified on EPIC sheets shall be updated throughout the construction period to identify on-Site conditions.

The State shall ensure that EPIC sheets shall include the Environmental Commitments required to ensure that any discharge from the Project site into a sanitary sewer system complies with appropriate codes and standards of the sanitary sewer owner.

- **Clean Water Act - Sections 404 and 401: Waters and Wetlands of the United States**

The DB Contractor shall document how they will comply with the terms and conditions for Section 404 permit(s) issued to TxDOT by the USACE (U.S. Army Corps of Engineers) and associated Section 401

State Water Quality Certification(s) as administered by the Texas Commission on Environmental Quality (TCEQ) as well as any additional Section 404 permits and 401 certifications issued to the DB Contractor during the life of the Project. The documentation at a minimum shall include:

a) Process for training personnel to recognize Waters of the U.S. that fall under the jurisdiction of the USACE,

b) Process for communicating the terms and conditions of all USACE 404 permits and TCEQ 401 certifications and other permits as necessary,

c) Procedures for carrying out any required mitigation, and

d) Procedures for handling off-right-of-way Project Specific Locations (PSL) as required by all Section 404 permit(s) issued to either TxDOT or the DB Contractor by the USACE.

- **Clean Water Act - Sections 402: Texas Pollutant Discharge Elimination System (TPDES)**

The DB Contractor shall document how they will comply with Section 402 of the CWA. The documentation shall include that the DB Contractor has day-to-day operational control over activities necessary to ensure compliance with the Storm Water Pollution Prevention Plan (SW3P) and has the sole responsibility for any potential non-compliance issue. The documentation shall also include that the DB Contractor is responsible for submitting a Notice of Intent (NOI) to TCEQ. The documentation at a minimum shall include:

a) Process for training personnel on the requirements and conditions of the Texas Construction General Permits for Storm Water Discharges from Construction Sites (CGP),

b) Procedures for incorporating Additional Properties outside the Final Design Documents and any off- right-of-way PSL within one linear mile of the project limits to comply with the CGP and the Project's SW3P,

c) Procedures for handling non-compliance issues, and

d) Escalation procedures for SW3P items.

- **State Listed Species and Unregulated Habitat**

DB Contractor shall document how they will address state listed species and unregulated habitat. The documentation shall be in agreement with all MOU's and MOA TxDOT has with the Texas Parks and Wildlife Department (TPWD) including the requirement for coordination with TPWD to be conducted by TxDOT. The documentation at a minimum shall include:

a) Process for communicating any commitments regarding state listed species and unregulated habitat, and

b) Procedures for complying with any commitments addressed in the Environmental Document, the MOUs between TxDOT and TPWD and coordination agreements with USFWS.

- **Endangered Species Act and Fish and Wildlife Coordination Act**

DB Contractor shall document how they shall comply with the Endangered Species Act (ESA) and the Fish and Wildlife Coordination Act (FWCA). The documentation shall reflect that coordination with U.S. Fish and Wildlife Service (USFWS) shall be conducted by TxDOT. The documentation at a minimum shall include:

a) Process for training personnel on the requirements of the ESA and FWCA,

b) Process for communicating any commitments regarding ESA and FWCA on the Project, and

c) Procedures for complying with any commitments including mitigation measures or activities.

DB Contractor shall be responsible for all coordination with adjacent property owners and Governmental Entities necessary to obtain all amendments to TxDOT-Provided Approvals and for ensuring compliance with the conditions and schedules set forth in the amendment of any TxDOT-Provided Approvals.

Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Structures

Bridge and culvert construction operations cannot begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1) By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.

2) By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts.

- **Water Well Impacts and Requirements**

DB Contractor shall document how they will address wells (such as municipal, domestic, irrigation, oil and gas, or monitoring and observation wells) encountered during the life of the project. The documentation shall include that the DB Contractor is responsible for plugging and abandoning all wells in accordance with Item 103, Disposal of Wells, from TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*, as well as the DB Contractor is responsible for any required remediation efforts. The documentation at a minimum shall include:

a) Process for training personnel on recognition of wells,

b) Procedures for handling wells, and

c) Procedures for handling contamination of a well that results from the DB Contractor's work. Procedures shall include a requirement to notify TxDOT and with TxDOT's concurrence notify appropriate regulatory agency within 24 hours of the discovery.

- **Cultural Resource Studies**

DB Contractor shall be responsible for ensuring compliance with cultural resource Laws on the Project through the Term of the DBC. TxDOT shall perform consultation for the Project according to current procedures for implementing Section 106 of the National Historic Preservation Act, and the Antiquities Code of Texas.

DB Contractor shall be responsible for performing any necessary cultural resource surveys, evaluations, testing, and mitigation in those areas outside the footprint of the Project ROW shown on the Final Design

Documents and within the area of potential effects. The DB Contractor shall coordinate all necessary Antiquities Permits through TxDOT. Antiquities Permits shall be obtained from the Texas Historical Commission (THC) for archeological surveys, testing, monitoring, and data recovery.

DB Contractor shall document efforts to avoid impacts to cultural resources that are listed on or determined to meet the eligibility criteria for listing to the National Register of Historic Places (NRHP) as specified in 36 CFR 60.4, or that are designated or determined to meet the criteria for designation as State Archeological Landmarks as specified in 13 TAC 26.8.

If evidence of a possible historic property is encountered during the course of the Work, the DB Contractor shall immediately cease Work in the immediate area and contact TxDOT to initiate post-review discovery procedures under the provisions of the PA among TxDOT, SHPO and ACHP as well as the MOU between TxDOT and the THC. The DB Contractor shall undertake appropriate measures to protect the site from further intrusion to the extent feasible until a qualified representative can make an appropriate evaluation of the site. Work shall not be resumed in the area until the DB Contractor receives notification and approval from TxDOT.

- **Public Involvement**

If necessary, DB Contractor shall document how they will comply with all public involvement requirements, including public involvement requirements specifically related to cultural resources. The documentation shall comply with all applicable requirements including, but not limited to, 43 TAC §2.4, Section 106 of the National Historic Preservation Act (36 CFR 800), Chapter 26 of the Texas Parks and Wildlife Code, the Civil Rights Act of 1964, and the Civil Rights Restoration Act of 1987. The documentation shall include that the DB Contractor is responsible for conducting all public involvement requirements for the life of the project except where TxDOT has agreements with Governmental Entities to perform public involvement requirements. The documentation at a minimum shall include:

a) Process for handling public involvements requirements, and

b) Procedures for documenting public involvement.

- **Standard Operating Procedures**

DB Contractor shall develop standard operating procedures for the following activities and include them in the CQMP:

a) Controlling dust during construction;

b) Mitigating vibration during construction;

c) Mitigating light intrusion on adjacent properties; and

d) Complying with jurisdictional waters and wetlands permits.

e) Complying with ESA/FWCA and implementing mitigation measures specified for Endangered Species habitat mitigation.

f) Identifying and protecting Slender Rush Pea and South Texas Ambrosia plant communities that occur within the project area in accordance with USFWS coordination requirements.

g) Complying with ESA/FWCA and implementing mitigation measures for protection of Slender Rush Pea and South Texas Ambrosia plant communities necessary for environmental clearance under an Environmental Document.

4.3.3 Environmental Protection Training Program (EPTP)

The DB Contractor shall develop and implement an Environmental Protection Training Program that shall meet the minimum requirements set forth herein. The EPTP shall include methods and procedures documented in the CQMP to:

a) Educate every worker to:

- Recognize the overall importance of environmental issues to constructing, operating and maintaining a successful Project.
- Recognition of Federally Listed Species that could occur in the project area.
- Appreciate the various environmental sensitivities of the Project.

b) Train every worker to:

- Recognize environmentally sensitive resources that may be encountered during the Work.
- Avoid or take appropriate action to minimize environmental impacts from the Work.
- Know the required actions, practices, and procedures regarding regulated resources.
- Understand protocols for meeting environmental commitments for post-review discoveries.

c) Foster the DB Contractor's management and supervisory personnel's attitude of commitment to the Project's environmental quality.

d) Convey to all workers, the DB Contractor's management commitment to the Project's environmental quality.

e) Convey to all workers, TxDOT's and the DB Contractor's commitment to zero tolerance for violations.

4.3.3.1 EPTP Scope and Content

The goal of the EPTP is to educate Project personnel about the following:

a) Overall importance of environmental protection to the Project

b) Compliance responsibility and Governmental Entity authority including background and environmental issues regulatory overview.

c) Overview of the DB Contractor's environmental commitments and responsibilities at the Project level.

d) Worker responsibilities.

e) Wetlands and jurisdictional waters of the U.S. identification.

f) Environmental Approvals terms and conditions including an overview of the provisions of the ESA, Migratory Bird Treaty Act, and Stormwater Pollution Prevention Program (SW3P).

g) BMPs for environmental compliance, including pollution prevention, erosion, sedimentation, post construction controls, and dust control.

h) Control measures to maintain water and air quality.

i) Required mitigation measures for ESA/FWCA compliance.

j) Procedures and precautions in the event of spills of or discovery of Hazardous Materials or unknown chemicals or contamination.

k) Procedures and precautions in the event human skeletal remains or other archeological or paleontological resources are discovered.

l) Procedures regarding the relocation of historical markers (i.e. Texas Historic Commission Subject Markers, Texas Centennial Markers, Texas Highway Department Markers, and local/county markers), if present.

m) Groundwater protection requirements, if any.

n) CWA regulations and surface water protection requirements.

o) Overview of noise and residential impact reduction procedures.

p) Air quality requirements.

q) Penalties and/or fines for violations of and noncompliance with Environmental Approvals and Environmental Laws, including termination of employment.

DB Contractor shall submit to TxDOT for review and approval course outlines containing learning objectives designed to achieve stated goals and suggested staff attendance for all anticipated training requirements through the Term of the DBC. Course outlines shall be submitted within ninety (90) Days after NTP1.

4.3.4 EPTP Participation

DB Contractor shall require all non-administrative employees to participate in the EPTP and shall keep accurate records documenting attendance, as well as materials presented.

4.3.4.1 EPTP Schedule

DB Contractor shall include activities for implementation of the EPTP in the Project Schedule. The length of training sessions and their frequency shall be sufficient to achieve the goals set forth above. Periodic training sessions at key times (e.g., prior to construction or major maintenance in sensitive areas or construction timing restrictions to protect threatened and/or endangered species) shall be used to update workers on specific restrictions, conditions, concerns, and/or requirements.

4.3.5 Hazardous Materials Management Plan (HMMP)

DB Contractor shall prepare an HMMP for the safe handling, storage, treatment and/or disposal of Hazardous Materials, brought onto the Project Site by the DB Contractor, encountered or brought onto the Project site by a third party, or otherwise, during the Term of the DBC. The DB Contractor shall submit the final Hazardous Materials Management Plan to TxDOT for review and approval in its good faith discretion within sixty (60) Days of NTP1; approval of the Plan by TxDOT shall be a condition of commencement of Construction Work.

The Hazardous Materials Management Plan shall include procedures compliant with all applicable Environmental Laws and include, at a minimum:

a) For all chemicals to be used on the Project, the DB Contractor shall keep and update Material Safety Data Sheets (MSDS), per OSHA requirements, for the Term of the DBC.

b) Designated individuals responsible for implementation of the plan,

c) Procedures for identifying and documenting potential contaminated sites which might impact Project development,

d) Procedures for mitigation of known contaminated sites anticipated to impact construction,

e) Procedures for mitigation of unanticipated contaminated sites encountered during construction,

f) Procedures for mitigation of contamination during the operation and maintenance of the Project,

g) Procedures for developing a detailed Spill Response Plan for the Term of the Project,

h) Process for training personnel for responding to and mitigating Incidents involving contamination or waste

i) Provisions for appropriate storage and disposal of all waste encountered or disposed of on the Project for the Term.

j) Provision for a Hazardous Materials training module as an element of the EPTP component of the CEPP.

k) Identification and contact information for designated responsible individuals.

l) Procedure for notifying TxDOT within 2 hours of discovering Hazardous Materials

The HMMP shall include provisions for making all on-Site workers aware of and able to recognize the potential Hazardous Materials to which they may be exposed, limiting Contractors and other Site workers' exposure to Hazardous Materials and providing all necessary personal protection equipment to protect workers from exposure. The HMMP shall require DB Contractor to provide any non-DB Contractor personnel who visit the Project with the appropriate personal protection equipment.

The HMMP shall include procedures for ensuring that all applicable certifications, licenses, authorizations and Governmental Approvals for DB Contractor personnel handling Hazardous Materials are current and valid through the duration of the Work.

4.3.5.1 Investigative Work Plans (IWP) and Site Investigation Reports (SIR)

If Hazardous Materials are encountered or brought onto the site within any of the Project ROW the DB shall notify TxDOT immediately.

If any Hazardous Materials are encountered on any additional Properties used as DB Contractor's staging area, field office site, plant sites, borrow site, or stockpile location, the DB Contractor shall initiate a preventative or corrective action and coordinate with the appropriate Federal or State agencies.

4.3.6 Communication Plan (CP)

The DB Contractor shall develop a CP, which describes in detail the communication hierarchy for information distribution related to the compliance with the CEPP. The CP will include names and contact information, including emergency contact information, and the preferred methods of routine, and emergency communication distribution.

4.3.7 Construction Monitoring Plan (CMP)

The CMP shall identify times, locations, and other conditions where monitoring of construction activities are to be performed to maintain and cause compliance with Environmental Laws, Environmental Approvals, and the Contract Documents. The CMP shall establish and/or document schedules, protocols and methodologies to be used for monitoring Work with an emphasis on timely reporting, corrective actions and adaptive management. The CMP shall establish reporting procedures, identify reporting requirements and establish controls for report distribution and records retention. All Environmental Monitoring Reports shall be made available for review by the DB Contractor at TxDOT's request. Should any non-compliance or violation be observed that represents an imminent danger to human health or the environment, the CMP shall include procedures to cause immediate notification of TxDOT.

Prior to NTP2, DB Contractor and TxDOT shall jointly inspect existing facilities, structures, and environmentally sensitive areas in the vicinity of the Site but not included as part of the Work. DB Contractor shall provide a minimum 2-week advance notice to TxDOT of this joint inspection. The inspection shall document the pre-construction condition of vegetation, streets, sidewalks, landscaping, residential and commercial property, creeks, storm drainage and infrastructure. The purpose of the inspection is to provide a point of reference from which TxDOT can determine if any facility, structure and environmentally sensitive area damaged or impacted during the Work is restored to its pre-construction condition. DB Contractor shall document the inspection with a report that shall include photographs, sketches, maps, and narratives clearly depicting the pre-construction Site condition.

All photographs shall be archival quality and shall be accompanied by a caption describing the date; time of day; location and direction in which the photograph was taken. If the photograph shows existing damage, the damage must be clearly shown and noted in the caption. All sketches and maps must be no larger than 11"x17". All photographs must be 4"x6".

The post award inspection shall inspect the municipal separate storm sewer system located within and adjacent to the Site. During the inspection, DB Contractor shall note the following:

a) Storm drains, culverts, swales, and other components of the municipal separate storm sewer system that DB Contractor verified as free of floatable trash, silt, debris, and functioning as originally intended.

b) Storm drains or culverts that do not function or appear not to function as originally intended.

c) Siltation of culverts, concrete swales, and other components of the municipal separate storm sewer system.

d) The presence of construction on adjacent, up-gradient, or down-gradient properties. If construction on other properties is noted, DB Contractor shall photographically document the general condition of these properties and their compliance with storm water regulations.

e) Pre-existing off-site tracking from the Site or surrounding properties.

f) Potential pre-existing contamination (i.e., any areas of soil discoloration or distressed vegetation).

g) Any other pre-existing condition that, by its nature, could be construed as a violation of the TPDES General Construction Permit.

Following construction of the Project, and on an annual basis the DB Contractor shall conduct an inspection to monitor and repair any of the above mentioned deficiencies in the storm water system.

4.4 Environmental Personnel

DB Contractor, acting through the Construction Quality Assurance Manager (CQAM), shall designate an Environmental Team (ET), as detailed in this section, to prevent, minimize, and/or correct any violation of or noncompliance with Environmental Approvals. The ET shall include, Environmental Training Staff, Environmental Compliance Inspectors (ECIs), and a Hazardous Materials Manager. All of the ET shall be deemed other principal personnel.

In the CEPP, DB Contractor shall establish a detailed approach, procedures and methods for:

a) Staffing and availability of CQAM ET personnel.

b) ET staff response times during the Work.

4.4.1 Environmental Compliance

The CQAM shall report and coordinate all issues directly with TxDOT and the DB Contractor's Project Manager. In the event the CQAM, in consultation with DB Contractor's Project Manager and TxDOT, is unable to reach satisfactory resolution of environmental issues, the CQAM shall provide written notification to the DB Contractor and TxDOT outlining the concerns, actions taken in attempt to correct the concerns, and provide a recommendation as to the suggested course of action.

The CQAM shall direct the work of the ET and shall monitor, document, and report the current status of environmental compliance for the Work. The CQAM shall report immediately to TxDOT and the DB Contractor any violation or non-compliance, and shall include with any such report the appropriate recommendations for corrective action including stoppage of Work.

The CQAM shall coordinate with TxDOT, the DB Contractor, and appropriate Governmental Entities. The CQAM shall submit all necessary environmental documentation and monitoring reports to the appropriate Governmental Entities and when applicable, through TxDOT, to the extent necessary to maintain compliance with applicable Environmental Approvals.

DB Contractor shall not have the ability to relieve the CQAM of his or her duty without the written consent of TxDOT. Should DB Contractor desire to replace CQAM, DB Contractor shall submit to

TxDOT the resume of a replacement candidate. The replacement candidate shall be available fulltime within thirty (30) Days after delivery of TxDOT's written acceptance.

The CQAM candidate shall have at least five years experience successfully managing environmental compliance of rural freeway construction. The qualifying experience used to evaluate a CQAM candidate must include the following experience:

a) Developing and managing a storm water pollution prevention plan;

b) Developing and managing a hazardous substance and petroleum products management plan;

c) Implementing environmental mitigation plans;

d) Providing environmental and personal protection training; and

e) Monitoring compliance with Section 404 Permit conditions.

CQAM's qualifying experience must demonstrate the Manager is familiar with:

a) Provisions of the TPDES Construction General Permit (TXR 150000), and

b) Requirements of Section 404 and permit provisions.

4.4.2 Environmental Training Staff

Under the direction of the CQAM, the environmental training staff shall develop, schedule and conduct environmental awareness and environmental compliance training for the DB Contractor's personnel. All training shall be in accordance with the requirements set forth in Section 4.3.3. Environmental Training Staff members shall have at least one year of experience providing environmental compliance inspection for freeway construction.

4.4.3 Environmental Compliance Inspectors (ECI)

The CQAM shall designate as needed ECIs, who shall conduct on-Site environmental monitoring, prepare documentation, and report to the CQAM daily all violations, compliance, and non-compliance with Environmental Approvals.

The ECIs shall report immediately to the CQAM any violation or non-compliance and shall include with any such reports, the appropriate recommendations for corrective action, including, but not limited to stoppage of Work.

The ECIs shall have at least one-year operational control experience of Storm Water Pollution Prevention Plan activities.

4.5 Property Access

To fulfill the obligation of the TxDOT-Provided Approvals to maintain current access during and after construction, DB Contractor shall make reasonable efforts to minimize the inconvenience to vehicles, bicycles and pedestrians during the Term of DBC. The DB Contractor shall maintain access to adjacent properties during construction and ensure that visibility of businesses is maintained.

4.6 Dust Control

DB Contractor shall institute dust control measures to minimize air quality impacts. The measures shall be adjusted as necessary based on construction traffic, forecasted wind speeds, and persistent dry weather conditions.

5 THIRD PARTY AGREEMENTS

5.1 General Requirements

TxDOT has existing agreements with local Governmental Entities along the Project corridor that define the requirements for construction, maintenance, and operation of traffic signals, illumination, and roadway maintenance. These agreements specify the local Governmental Entities responsibilities and TxDOT's responsibilities with respect to the requirements and are provided in the Reference Information Documents.

For the purpose of the DBC, DB Contractor will assume and execute TxDOT's responsibilities and duties as defined in the current and future agreements. DB Contractor is responsible for providing TxDOT and Governmental Entities with all information necessary for it to fulfill TxDOT's responsibilities under these agreements.

In accordance with current and subsequent agreements requiring TxDOT to reimburse the local Governmental Entity for their role in operating and/or maintaining certain facilities, DB Contractor shall reimburse TxDOT the said costs. DB Contractor shall make payment to TxDOT within 30 days from receipt of TxDOT's request for payment.

5.2 Traffic Signals

Not applicable

5.2.1 Red Light Cameras

Not applicable

5.3 Roadway Illumination

Not applicable

5.4 Other Affected Third Parties

When Work interfaces with other third party facilities, DB Contractor is responsible for coordinating the Work with all third parties potentially affected by the Work. DB Contractor shall prepare a plan, the Affected Third Parties Plan, which describes how the DB Contractor will mitigate the impact of the Work upon potentially impacted third parties. DB Contractor will submit the plan for TxDOT's review prior to initiating discussions with potentially impacted third parties.

6 UTILITY ADJUSTMENTS

6.1 General Requirements

A number of existing Utilities are located within or in the vicinity of the Project ROW, some pursuant to statutory rights and some pursuant to property rights. Certain of those existing Utilities will need to be relocated or otherwise adjusted in order to accommodate the Project. This Section 6 establishes procedures and requirements for Utility Adjustments including such processes as coordination with Utility Owners, administration of the engineering, construction and other activities necessary for Utility Adjustments, and required documentation. This Section 6 references certain TxDOT forms for DB Contractor's use in Utility Adjustments. Copies of those forms are included in Attachment 6.1, Utility Forms. Except as otherwise provided in this Section 6 or directed by TxDOT, whenever a TxDOT form is provided, DB Contractor shall prepare all forms of the same type using the TxDOT form and is required to notify TxDOT of all changes to the forms for TxDOT's approval prior to execution by the Utility Owner.

DB Contractor shall cause all Utility Adjustments necessary to accommodate construction, operation, maintenance and/or use of the Project. TxDOT will assist DB Contractor in the Utility Adjustment process, to the extent described in the Contract Documents. Some Utility Adjustments may be performed by the Utility Owner with its own forces and/or contractors and consultants (i.e., Owner-Managed); DB Contractor shall perform all others with its own forces and/or Contractors and consultants (subject to any approval rights required by the Utility Owner for those working on its facilities) (i.e., DB Contractor-Managed). The allocation of responsibility for the Utility Adjustment Work between DB Contractor and the Utility Owners shall be specified in the Utility Agreements as described in Section 6.1.3.

DB Contractor's obligations regarding reimbursement to Utility Owners for eligible costs of Utility Adjustment Work, and DB Contractor's obligations regarding the accommodation of Utilities from and after the Service Commencement Date, are set forth in Section 6.5 of the DBC.

This Section 6 does not address Utility services to the Project. Utility services to the Project shall be the subject of separate agreements between DB Contractor and Utility Owners.

6.1.1 When Utility Adjustment is Required

A Utility Adjustment may be necessary to accommodate the Project for either or both of the following reasons: (a) a physical conflict between the Project and the Utility, and/or (b) an incompatibility between the Project and the Utility based on the requirements in Section 6.2.1 (Standards), even though there may be no physical conflict. The physical limits of all Utility Adjustments shall extend as necessary to functionally replace the existing Utility, whether inside or outside of the Project ROW. Section 6.2.4.2 (Acquisition of Replacement Utility Property Interests) contains provisions that address the acquisition of easements for Utilities to be installed outside of the Project ROW.

Utilities may remain in their existing locations within the Project ROW if (a) the requirements of Section 6.2.1 (Standards) are met, and (b) the existing location will not adversely affect the construction, operation, safety, maintenance and/or use of the Project and Utility. The Utility Owner must agree to its facilities remaining in its existing location.

Existing utilities that cross the ROW and are located on an existing compensable property interest may be allowed to occupy the existing compensable property interest and cross at less than 90 degrees, up to 30 degrees, measured from the highway centerline station. The crossing may not bisect or cross through any connecting roadway intersection or other major highway design feature and must meet the requirements of the UAR, other than the 90 degree reference above. The affected Utility Owners must agree and approve all proposed Utility Adjustment plans.

6.1.2 Certain Components of the Utility Adjustment Work

6.1.2.1 Coordination

DB Contractor shall communicate, cooperate and coordinate with TxDOT, the Utility Owners and potentially affected third parties, as necessary for performance of the Utility Adjustment Work. DB Contractor shall be responsible for preparing (unless prepared by the Utility Owner) and securing execution (by DB Contractor and the Utility Owner) of all necessary Utility Agreements.

TxDOT must approve all Utility Agreements prior to taking effect.

6.1.2.2 Betterments

Replacements for existing Utilities shall be designed and constructed to provide service at least equal to that offered by the existing Utilities, unless the Utility Owner specifies a lesser replacement. Utility Enhancements are not included in the Work; however, any Betterment work furnished or performed by DB Contractor as part of a Utility Adjustment shall be deemed added to the Work, on the date the Utility Agreement providing for same becomes fully effective. DB Contractor shall perform all coordination necessary for Betterments.

6.1.2.3 Protection in Place

DB Contractor shall be responsible for Protection in Place of all Utilities impacted by the Project as necessary for their continued safe operation and structural integrity and to otherwise satisfy the requirements described in Section 6.2.1 (Standards). The Utility Owner must agree to all Protection in Place work that pertains to Utility Owner's facilities.

6.1.2.4 Abandonment and Removal

DB Contractor shall make all arrangements and perform all work necessary to complete each abandonment or removal (and disposal) of a Utility in accordance with the requirements listed in Section 6.2.1 (Standards), including obtaining Governmental Approvals and consent from the affected Utility Owner and any affected landowner(s), or shall confirm that the Utility Owner has completed these tasks. Abandonment of Utilities in place shall require approval by TxDOT.

6.1.2.5 Service Lines and Utility Appurtenances

Whenever required to accommodate construction, operation, maintenance and/or use of the Project, DB Contractor shall cause Service Line Adjustments and Utility Appurtenance Adjustments. The Service Lines shall have a definitive point of termination such as a meter or point of sale. On completion of these, DB Contractor shall cause full reinstatement of the roadway, including reconstruction of curb, gutter, sidewalks, and landscaping, whether the Utility Adjustment Work is performed by the Utility Owner or by DB Contractor.

6.1.2.6 Early Adjustments

Not applicable

6.1.3 Agreements Between DB Contractor and Utility Owners

Except as otherwise stated in this Section 6 or in the DBC, each Utility Adjustment shall be specifically addressed in a Project Utility Adjustment Agreement (PUAA) or in a Utility Adjustment Agreement Amendment (UAAA), as described elsewhere in this Section 6. DB Contractor is responsible for preparing, negotiating (to the extent allowed by this Section 6) and obtaining execution by the Utility Owners, of all Utility Agreements, (including preparing all necessary exhibits and information about the Project, such as reports, Plans and surveys). A Utility Agreement is not required for any Utility Adjustment consisting solely of Protection in Place in the Utility's original location within the Project ROW, unless the Utility Owner is being reimbursed for costs incurred by it on account of such Protection in Place. If no reimbursement is required to the Utility Owner in accordance with Transportation Code 203.092, a Utility Joint Use Acknowledgement, certification form and set of plans detailing UAR

compliance is required pertaining to the adjustment or Protection in Place work. However, if a Utility owner requests that the DB Contractor relocate a Utility, and the cost of that Utility Adjustment Work is the Utility Owner's sole responsibility, then the DB Contractor shall enter into a DB Contractor managed PUAA with the Utility Owner providing for the Utility Owner to be responsible for all costs of that Utility Adjustment Work.

6.1.3.1 Project Utility Adjustment Agreements (PUAA)

DB Contractor shall enter into one or more PUAAs with each affected Utility Owner that is reimbursable, or where the Utility Owner has requested the DB Contractor to perform the Utility Adjustment Work at the Utility Owner's cost, to define the design, material, construction, inspection, and acceptance standards and procedures necessary to complete Utility Adjustments, as well as to define DB Contractor's and the Utility Owner's respective responsibilities for Utility Adjustment costs and Utility Adjustment activities such as material procurement, construction, inspection and acceptance. A PUAA may address more than one Utility Adjustment for the same Utility Owner. Additional Utility Adjustments may be added to an existing PUAA by a Utility Adjustment Agreement Amendment (UAAA).

DB Contractor shall prepare each PUAA using the standard form of TxDOT Project Utility Adjustment Agreement (Owner-Managed) or TxDOT Project Utility Adjustment Agreement (DB Contractor-Managed), Attachment 6-1, Utility Forms. DB Contractor shall not modify the standard forms except by approval of TxDOT.

On issuance of NTP1, DB Contractor shall begin negotiations with each affected Utility Owner and reach agreement on one or more PUAAs that are determined to be reimbursable based on the utility owner having a compensable property interest in the land occupied by the facility to be relocated, or that are requested by Utility Owner to be performed by DB Contractor at the Utility Owner's cost. DB Contractor shall finalize the necessary PUAAs with each affected Utility Owner within a reasonable time period after issuance of NTP1. DB Contractor shall include any proposed changes to a standard form (other than filling in blanks specific to a particular Utility Owner) in a Utility Owner-specific addendum. Each PUAA (including the Utility Adjustment Plans attached thereto) shall be subject to TxDOT review and approval as part of a Utility Assembly.

TxDOT shall approve language modification to a PUAA prior to the submission of a Utility Assembly.

6.1.3.2 Utility Adjustment Agreement Amendments

Except where Utility Adjustment Field Modifications are permitted pursuant to Section 6.4.7 (Utility Adjustment Field Modifications), modification of an executed PUAA or any component thereof, after it has been approved by TxDOT as part of a Utility Assembly, shall be stated in a Utility Adjustment Agreement Amendment (UAAA). A UAAA may be used only when the allocation of responsibility for the Utility Adjustment Work covered by that UAAA is the same as in the underlying Utility Agreement; otherwise, an additional PUAA will be required.

Each UAAA (including any Utility Adjustment Plans attached thereto) shall be subject to TxDOT's approval as part of a Supplemental Utility Assembly. Except as otherwise directed by TxDOT or provided in an applicable Utility Agreement, DB Contractor shall prepare all UAAAs using the standard form included in Attachment 6-1, Utility Forms. DB Contractor shall not modify the standard forms except by approval of TxDOT. DB Contractor shall include any proposed changes to a standard form (other than filling in the blanks specific to a particular Utility Owner) in a Utility Owner specific addendum.

TxDOT shall approve language modification to a UAA prior to the submission of the UAAA.

6.1.4 Recordkeeping

DB Contractor shall maintain construction and inspection records in order to ascertain that Utility Adjustment Work is accomplished in accordance with the terms and in the manner proposed on the

approved Utility Adjustment Plans and otherwise as required by the Contract Documents and the applicable Utility Agreement(s).

6.2 Administrative Requirements

6.2.1 Standards

All Utility Adjustment Work shall comply with all applicable Laws, Codes, Regulations, UAR and Technical Provisions of the DBC, including the Utility Adjustment Standards, the TxDOT *Utility Manual*, Section 6 of the DBC, and the requirements specified in this Section 6.

6.2.2 Communications

6.2.2.1 Communication with Utility Owners

DB Contractor is responsible for holding meetings and otherwise communicating with each Utility Owner as necessary to timely accomplish the Utility Adjustments in compliance with the Contract Documents. TxDOT shall be notified of all meetings and will participate in these meetings if requested by the Utility Owner or DB Contractor, or otherwise, as TxDOT deems appropriate.

Before distribution of any mass mailings to Utility Owners, DB Contractor shall submit to TxDOT, 21 Days in advance of distribution, for its review and comment the form, content, and addressees of any such mass mailings. For purposes of this Section 6, the term "mass mailing" means correspondence that is sent to 50 percent or more of Utility Owners within a three-week time period, and contains substantially the same content with respect to each Utility Owner.

6.2.2.2 Meetings

At least three Business Days in advance of each scheduled meeting, DB Contractor shall provide notice and an agenda for the meeting separately to TxDOT and, if necessary, to the appropriate Utility Owner. DB Contractor shall prepare minutes of all meetings and shall keep copies of all correspondence.

DB Contractor shall prepare meeting minutes within five Business Days after the conclusion of such meetings. At a minimum, DB Contractor shall include the following items in the meeting minutes:

- A complete list of attendees (including their affiliations, telephone numbers, and e-mail addresses)
- Documentation of the issues discussed and any associated solutions
- Description of remaining open issues and action items (including the person(s) responsible for follow-up and target date for resolution)

DB Contractor shall submit draft versions of all meeting minutes to TxDOT for review before distributing final versions to the meeting attendees and appropriate Customer Groups.

6.2.3 Utility Adjustment Team

DB Contractor shall provide a Utility Adjustment team with appropriate qualifications and experience for the Utility Adjustment Work. DB Contractor shall provide the names and contact details, titles, job roles, and specific experience of the team members in the PMP. Specifically, DB Contractor shall provide a Utility Manager (UM) and a Utility Design Coordinator (UDC). The UM's primary work responsibility shall be the performance of all DB Contractor's obligations with respect to Utility Adjustments. The Utility Manager shall have a bachelor's degree, and have at least four (4) years of relevant experience in coordinating and solving complex utility adjustments on highway improvement projects. The Utility Manager should be authorized by the DB Contractor to approve all financial and technical modifications associated with utility adjustments, and modifications to the utility agreement.

The UDC shall be a Registered Professional Engineer. The UDC shall be responsible for coordinating the Utility Adjustment design with the overall highway design features during the planning, design, and construction phases of the Work.

6.2.4 Real Property Matters

DB Contractor shall provide the services described below in connection with existing and future occupancy of property by Utilities.

6.2.4.1 Documentation of Existing Utility Property Interests -- Affidavits

For each Existing Utility Property Interest within the Project ROW claimed by any Utility Owner, DB Contractor shall include an Affidavit of Property Interest in the applicable Utility Assembly, with documentation of the Existing Utility Property Interest (e.g., an easement deed) attached. Any such claim shall be subject to TxDOT's review as part of a Utility Assembly approval. Except as otherwise directed by TxDOT, DB Contractor shall prepare all Affidavits of Property Interest using the standard forms included in Attachment 6-1, Utility Forms.

6.2.4.2 Acquisition of Replacement Utility Property Interests

Each Utility Owner will be responsible for acquiring any Replacement Utility Property Interests that are necessary for its Utility Adjustments. DB Contractor shall have the following responsibilities for each acquisition:

1. DB Contractor shall coordinate with, and provide the necessary information to, each Utility Owner as necessary for the Utility Owner to acquire any Replacement Utility Property Interests required for its Utility Adjustments.
2. If any of DB Contractor-Related Entities assists a Utility Owner in acquiring a Replacement Utility Property Interest, such assistance shall be by separate contract outside of the Work, and DB Contractor shall ensure that the following requirements are met:
   a) The files and records must be kept separate and apart from all acquisition files and records for the Project ROW.
   b) The items used in acquisition of Replacement Utility Property Interests (e.g., appraisals, written evaluations and owner contact reports) must be separate from the purchase of the Project ROW.
   c) Any DB Contractor-Related Entity personnel negotiating the acquisition of Replacement Utility Property Interests must be different from those negotiating the acquisition of Project ROW.

DB Contractor is not responsible for Utility Owner condemnation proceedings.

6.2.4.3 Relinquishment of Existing Utility Property Interests

DB Contractor shall cause the affected Utility Owner to relinquish each Existing Utility Property Interest within the Project ROW, unless the existing Utility occupying such interest is either (i) remaining in its original location or (ii) being reinstalled in a new location still subject to such interest.

6.2.4.4 Quitclaim Deeds

Except as otherwise directed by TxDOT, DB Contractor shall prepare a Quitclaim Deed for each relinquishment of an Existing Utility Property Interest using TxDOT's standard form included in Attachment 6-1, Utility Forms. Each Quitclaim Deed shall be subject to TxDOT's approval as part of a Utility Assembly approval as described below.

DB Contractor understands and expects that a Utility Owner will not relinquish any Existing Utility Property Interest until after the Utility Adjustment has been accepted by the Utility Owner in its new location. Accordingly, instead of an executed Quitclaim Deed, the Utility Assembly for such a Utility

Adjustment shall include a letter signed by the Utility Owner's authorized representative confirming that the interest will be quitclaimed upon completion of the Utility Adjustment, and a copy of the unsigned Quitclaim Deed. In these cases, DB Contractor shall obtain the executed Quitclaim Deed within 90 Days of completion of the Utility Adjustment or unless otherwise approved by TxDOT in writing. TxDOT must approve the Quitclaim Deed prior to recording.

6.2.4.5 Utility Joint Use Acknowledgements

DB Contractor shall prepare a Utility Joint Use Acknowledgment (UJUA) for:

1. Each Utility proposed to be relocated within the Project ROW
2. Each Utility proposed to remain in its existing location within the Project ROW
3. Any Existing Utility Property Interest located within the Project ROW that is not required to be relinquished pursuant to Section 6.2.4.3 (Relinquishment of Existing Utility Property Interests), and is not addressed in the foregoing clause (1) or clause (2).

DB Contractor shall prepare all Utility Joint Use Acknowledgments using TxDOT's standard form included in Attachment 6-1, Utility Forms. DB Contractor also shall prepare all required documentation to be included with each Utility Joint Use Acknowledgment.

DB Contractor shall arrange for the Utility Owner to execute each Utility Joint Use Acknowledgment. Each Utility Joint Use Acknowledgment (executed by the Utility Owner) shall be subject to TxDOT's approval as part of a Utility Assembly.

6.2.4.6 Documentation Requirements

DB Contractor shall prepare, negotiate (to the extent permitted by this Section 6.2.4 (Real Property Matters), and obtain execution by the Utility Owner of (and record in the appropriate jurisdiction, if applicable) all agreements and deeds described in this Section 6.2.4, including all necessary exhibits and information concerning the Project (e.g., reports, Plans, and surveys). Each agreement or deed shall identify the subject utility(ies) by the applicable Utility Assembly Number (*[four-digit number beginning with 0001]*)(ex. US77-U-0001), and shall also identify any real property interests by parcel number or highway station number, or by other identification acceptable to TxDOT.

6.3 Design

6.3.1 DB Contractor's Responsibility for Utility Identification

DB Contractor bears sole responsibility for ascertaining, at its own expense, all pertinent details of Utilities located within the Project ROW or otherwise affected by the Project, whether located on private property or within an existing public ROW, and including all Service Lines. The DB shall notify TxDOT of an unidentified utility at the time it is discovered. A determination will be made by TxDOT whether the utility was previously identified in the RID's or the Final Design Documents prior to the adjustment or protection in place of the utility.

6.3.2 Technical Criteria and Performance Standards

All design plans for Utility Adjustment Work, whether furnished by DB Contractor or by the Utility Owner, shall be consistent and compatible with the following:

a) The applicable requirements of the Contract Documents, including Section 6.2.1 (Standards)

b) The Project as initially designed

c) Any Utilities remaining in, or being installed in, the same vicinity

d) All applicable Governmental Approvals

e) Private approvals of any third parties necessary for such work

6.3.3 Utility Adjustment Concept Plans

If the DB Contractor receives approval for an ATC that changes the design of a Location, the DB Contractor shall adhere to the requirements set forth in these Technical Provisions. DB Contractor shall prepare a proposed conceptual Utility design (a Utility Adjustment Concept Plan) for the Project (or proposed Utility Adjustment Concept Plans for various segments of the Project, as appropriate), showing the approximate location of each existing Utility, the existing Utilities to remain, proposed location of each Utility and DB Contractor's Utility Adjustment recommendations.

In accordance with the PMP, DB Contractor shall submit the proposed Utility Adjustment Concept Plans(s) to TxDOT for its review. The Utility Adjustment Concept Plan(s) shall be submitted in both tabular and plan formats. The plan(s) shall be color-coded and shall utilize a scale that clearly depicts all of the required information. DB Contractor shall coordinate with the affected Utility Owners as necessary to obtain their respective concurrence with the Utility Adjustment Concept Plan(s) as initially submitted to TxDOT and with any subsequent revisions. The Utility Adjustment Concept Plan is a working document. DB Contractor shall update the Utility Adjustment Concept Plan as the Work progresses

6.3.4 Utility Adjustment Plans

Utility Adjustment Plans, whether furnished by DB Contractor or by the Utility Owner, shall be signed and sealed by a Registered Professional Engineer (PE) per governmental regulations and industry practice.

6.3.4.1 Plans Prepared by DB Contractor

Where DB Contractor and the Utility Owner have agreed that DB Contractor will furnish a Utility Adjustment design, DB Contractor shall prepare and obtain the Utility Owner's approval of plans, specifications, and cost estimates for the Utility Adjustment (collectively, "Utility Adjustment Plans") by having an authorized representative of the Utility Owner sign the plans as "reviewed and approved for construction." The Utility Adjustment Plans (as approved by the Utility Owner) shall be attached to the applicable Utility Agreement, which DB Contractor shall include in the appropriate Utility Assembly for TxDOT's approval.

Unless otherwise specified in the applicable Utility Agreement(s), all changes to Utility Adjustment Plans previously approved by the Utility Owner (excluding estimates, if the Utility Owner is not responsible for any costs) shall require written Utility Owner approval. DB Contractor shall transmit any TxDOT comments to the Utility Owner, and shall coordinate any modification, re-approval by the Utility Owner and re-submit to TxDOT as necessary to obtain TxDOT's approval.

6.3.4.2 Plans Prepared by the Utility Owner

For all Utility Adjustment Plans to be furnished by a Utility Owner, DB Contractor shall coordinate with the Utility Owner as necessary to confirm compliance with the applicable requirements as referenced in Section 6.2.1. Those Utility Adjustment Plans shall be attached to the applicable Utility Agreement, which DB Contractor shall include in the appropriate Utility Assembly for TxDOT's approval. DB Contractor shall transmit any TxDOT comments to the Utility Owner, and shall coordinate any modification, review by DB Contractor and re-submittal to TxDOT as necessary to obtain TxDOT's approval.

6.3.4.3 Design Documents

Each proposed Utility Adjustment shall be shown in the Design Documents, regardless of whether the Utility Adjustment Plans are prepared by DB Contractor or by the Utility Owner.

6.3.4.4 Certain Requirements for Underground Utilities

Casing as specified in the Utility Accommodation Rules (UAR) shall be used for all underground Utilities crossing the Project ROW. However, high-pressure gas and liquid petroleum pipelines may be allowed to cross the Project ROW without steel casing as long as the requirements of the Utility Accommodation Rules are met. All high-pressure gas pipelines within the Project ROW shall comply with a design factor "F" = 0.6 or less as required by the class location of the pipeline. The Utility Owner is required to submit or approve the Barlows calculation(s) in writing to be included in the Utility Assembly.

6.3.4.5 Utility Assemblies

Each Utility Adjustment in addition to each Utility remaining in place in the Project ROW and not requiring any Protection in Place or other Utility Adjustment shall be addressed in a Utility Assembly prepared by DB Contractor and submitted to TxDOT for its review and comment, and for TxDOT's approval of any items for which this Section 6 requires TxDOT's approval. Temporary Adjustments that are installed within the final ROW must also be included with an assembly for TxDOT's prior approval unless TxDOT waives or allows other approval methods concerning Temporary Adjustments. Each reimbursable Utility Adjustment shall be addressed in a full Utility Assembly, unless it is appropriate for a Supplemental Utility Assembly or Abbreviated Utility Assembly, as described below. DB Contractor shall coordinate with the Utility Owner to prepare all components of each Utility Assembly. Completion of the review and comment process for the applicable Utility Assembly, as well as issuance of any required TxDOT approvals, shall be required before the start of construction for the affected Utility Adjustment Work.

Provisions governing the procedure for and timing of Utility Assembly submittals are in Section 6.5 (Deliverables).

All Utility Adjustments covered by the same initial PUAA can be addressed in a single full Utility Assembly.

Each set of the required Utility Assembly shall include the following:

a) A transmittal memo recommending approval and detailing any unique characteristics or information pertaining to the adjustment.

b) A completed Utility Assembly Checklist.

c) A TxDOT approved Utility Adjustment Agreement.

d) Plans which:

   1. Show the existing and proposed Utility facilities,
   2. Show existing and proposed grades for all utility crossings,
   3. Show the existing and final ROW lines along with the Control of access denial line,
   4. Show an offset distance from the final ROW line to all longitudinal Utilities within the final ROW.
   5. Present sufficient information to enable TxDOT to verify compliance with the UAR requirements for each Utility located within the final ROW, including highway design features.
   6. Are folded to 8.5" x 11" size unless waived by TxDOT.

e) Estimate(s) from the Utility Owner (and also from DB Contractor, where DB Contractor is furnishing design and/or performing construction), which estimates shall, without limitation, detail material type and quantity (material quantities detailed on the estimates must correlate to the materials shown on the plans described in (d) above. The estimate must list the estimated

amount of reimbursement to the Utility Owner, taking into consideration the betterment credit calculation, salvage credit and any applicable eligibility ratio.

f) A proposed Utility Joint Use Acknowledgement

g) Statement of Work form, if applicable

h) Affidavit(s) of Property Interest form (With property interest instrument of conveyance attached), if applicable; and

i) A ROW map showing the existing and proposed utility facilities identified on a plan view. This ROW map will only be required to be included with TxDOT's copy of the Utility Assembly.

j) All utility no conflict sign off forms.

Utility Adjustment Amendment Agreements (UAAA). For each reimbursable UAAA, DB Contractor shall prepare an additional Utility Assembly for the relevant initial PUAA (an Assembly), covering all Utility Adjustments addressed in the UAAA. The UAAA Assembly shall contain a transmittal memo, Utility Assembly Checklist, proposed UAAA cost estimate, a proposed UAAA which has been executed by the Utility Owner and DB Contractor (one original in each of the two original Supplemental Utility Assemblies), including all required attachments, and applicable revisions to the Utility Adjustment Plans, as well as Utility Joint Use Acknowledgement(s) and Affidavit(s) of Property Interest, if applicable. The transmittal memo shall briefly describe the desired amendment and explain why the amendment is necessary including an estimated start date and duration.

Abbreviated Utility Assemblies. DB Contractor shall prepare an Abbreviated Utility Assembly for each Utility proposed to remain at its original location within the Project ROW that is not required to be addressed in a PUAA or UAAA, unless an Adjustment is required pursuant to Section 6.1.1. If DB Contractor is reimbursing the Utility Owner any of its costs, a PUAA or UAAA is required. Each Abbreviated Utility Assembly shall contain a transmittal memo, Utility Joint Use Acknowledgment, certification form and plans detailing UAR compliance. Each of the foregoing items shall comply with the requirements for same described in Attachment 6-1, Utility Forms.

6.4 Construction

6.4.1 Reserved

6.4.2 General Construction Criteria

All Utility Adjustment construction performed by DB Contractor shall conform to the requirements listed below. In addition, DB Contractor is responsible for verifying that all Utility Adjustment construction performed by each Utility Owner conforms to the requirements described below. In case of non-conformance, DB Contractor shall cause the Utility Owner (and/or its contractors, as applicable) to complete all necessary corrective work or to otherwise take such steps as are necessary to conform to these requirements.

a) All criteria identified in Section 6.3.2 (Technical Criteria and Performance Standards)

b) The Utility Adjustment Plans included in the Utility Agreement approved by TxDOT (other than Utility Adjustment Field Modifications complying with Section 6.4.7 (Utility Adjustment Field Modifications)

c) All Project safety and environmental requirements

d) All pre-construction meeting requirements

e) The ROW acquisition schedule described in Section 7 (ROW)

f) Utilities standards provided in the Utility Agreement

6.4.3 Inspection of Utility Owner Construction

DB Contractor shall set forth procedures in the PMP for inspection of all Utility Adjustment Work performed by Utility Owners (and/or their contractors) to verify compliance with the applicable requirements described in Section 6.4.2 (General Construction Criteria). DB Contractor is responsible for Quality Control and Quality Assurance for all Work performed by the Utility Owners and/or their contractors.

6.4.4 Scheduling Utility Adjustment Work

The Utility Adjustment Work (other than construction) may begin at any time following issuance of NTP2. Refer to Section 4.4 of the DBC for the conditions to commencement of Utility Adjustment Construction Work by DB Contractor. DB Contractor shall not arrange for any Utility Owner to begin any demolition, removal, or other construction work for any Utility Adjustment until all of the following conditions are satisfied:

a) The Utility Adjustment is covered by an executed Utility Agreement (and any conditions to commencement of such activities that are included in the Utility Agreement have been satisfied);

b) Pre-construction meeting, in accordance with Section 6.2.2.2, shall be required after execution of the Utility Agreement and prior to commencement of any construction activities, unless otherwise approved by TxDOT.

c) Availability and access to affected Replacement Utility Property Interests have been obtained by the Utility Owner (and provided to DB Contractor, if applicable);

d) If any part of the Utility Adjustment construction work that will affect the Project ROW, availability and access to that portion of the Project ROW has been obtained in accordance with the applicable requirements of the Contract Documents.

e) If applicable, the Alternate Procedure List has been approved by FHWA, and either (a) the affected Utility is on the approved Alternate Procedure List, as supplemented, or (b) the Utility Owner is on the approved Alternate Procedure List, as supplemented.

f) The review and comment process has been completed and required approvals have been obtained for the Utility Assembly covering the Utility Adjustment.

g) All Governmental Approvals necessary for the Utility Adjustment construction have been obtained, and any pre-construction requirements contained in those Governmental Approvals have been satisfied.

h) All other conditions to that Work stated in the Contract Documents have been satisfied.

6.4.5 Standard of Care Regarding Utilities

DB Contractor shall carefully and skillfully carry out all Work impacting Utilities and shall mark, support, secure, exercise care, and otherwise act to avoid damage to Utilities. At the completion of the Work, the condition of all Utilities shall be at least as safe and permanent as before.

6.4.6 Emergency Procedures

DB Contractor shall provide Emergency procedures with respect to Utility Adjustment Work in the PMP. DB Contractor shall obtain Emergency contact information from, and establish Emergency procedures with each Utility Owner in the event of rupture, break or damage to Utility Owner's Utility facilities.

6.4.7 Utility Adjustment Field Modifications

DB Contractor shall establish a procedure to be followed if a Utility Adjustment Field Modification is proposed by either DB Contractor or a Utility Owner, after the Utility Assembly (which includes the

Utility Adjustment Plans) has been approved. The procedure shall contain, at minimum, the following processes:

a) The Utility Owner's review and approval of a Utility Adjustment Field Modification proposed by DB Contractor, or DB Contractor's review and approval of a Utility Adjustment Field Modification proposed by the Utility Owner. The UAFM shall have approval prior to commencement of construction. All revisions shall be signed and sealed by a PE and formally submitted to TxDOT for review and approval;

b) Transmittal of Utility Adjustment Field Modifications to the appropriate construction field personnel;

c) Inclusion of any Utility Adjustment Field Modifications in the Record Drawings for the Project.

DB Contractor shall cause the procedure to be followed for all Utility Adjustment Field Modifications, whether the construction is performed by DB Contractor or by the Utility Owner.

6.4.8 Switch Over to New Facilities

After a newly Adjusted Utility has been accepted by the Utility Owner and is otherwise ready to be placed in service, DB Contractor shall coordinate with the Utility Owner regarding the procedure and timing for placing the newly Adjusted Utility into service and terminating service at the Utility being replaced.

6.4.9 Record Drawings

DB Contractor shall provide Record Drawings to each Utility Owner for its Adjusted Utilities, in accordance with the applicable Utility Agreement(s).

DB Contractor shall provide Record Drawings to TxDOT (regardless of whether design and/or construction of the subject Utilities was furnished or performed by DB Contractor or by the Utility Owner). These drawings shall show the location of, and label as such, all abandoned Utilities, shall show and label all other Utilities, whether remaining in place or relocated, located within the Project ROW or otherwise impacted by the Project, and shall otherwise comply with Section 2 (Project Management). DB Contractor shall provide the Record Drawings for each Adjustment to TxDOT not later than 90 Days after Utility Owner acceptance as defined in the Utility Agreement, the Adjustment or before such earlier deadline as is specified elsewhere in the Contract Documents.

DB Contractor shall provide, within 90 days after the final utility adjustment is complete, a complete plan view of all final utility facility locations both Owner Managed and Developer Managed which includes utilities that remained in place, were adjusted in place and/or relocated. The plan must detail the utility facility horizontal alignment with highway stationing, ROW lines, roadway features, Utility owners name, Utility facility type/size and U Number. This overall inventory set of plans is separate from the individual record drawings required for each utility assembly.

6.4.10 Maintenance of Utility Service

All Utilities shall remain fully operational during all phases of construction, except as specifically allowed and approved in writing by the Utility Owner. DB Contractor shall schedule Utility Adjustment Work in order to minimize any interruption of service, while at the same time meeting the Project Schedule and taking into consideration seasonal demands. Each Utility Adjustment or remain in place location must allow for adequate access to the Utility Facility that is agreed to by the Utility Owner.

6.4.11 Traffic Control

DB Contractor shall be responsible for the Traffic Management Plan. The Traffic Management Plan shall cover, all traffic control made necessary by Utility Adjustment Work, whether performed by DB Contractor or by the Utility Owner. Traffic control for Adjustments shall be coordinated with, and subject

to approval by, the local agency(ies) with jurisdiction. Traffic control shall comply with the guidelines of the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD) and of Section 18 (Traffic Control).

6.4.12 Temporary Water Lines

It is anticipated that temporary water lines will be present in some existing cross-drainage structures. When the temporary water lines interfere with the construction of the roadway or cross-drainage structure, notify TxDOT 30 days prior to performing work in this area.
DB Contractor shall obtain from each TxDOT District, on a weekly basis, an inventory of recently approved temporary utility permits.

6.5 Deliverables

DB Contractor shall time all submittals described in this section to meet the Project Schedule, taking into account the maximum number of submittals set forth in this Section 6.5 or, if not stated therein, then as stated in Section 3.1.2.2 of the DBC. All deliverables shall conform to the standards required in the Project Management Plan.

6.5.1 Maximum Number of Submittals

DB Contractor shall coordinate all Submittals required pursuant to this Section 6.5, so as not to overburden TxDOT's staff and consultants. In each calendar week, DB Contractor shall not submit more than:

a) Four Utility Assemblies (excluding Supplemental or Abbreviated Utility Assemblies)

b) Four of any documentation constituting any of the following:

- A modified or additional item submitted in response to TxDOT comments on a particular Utility Assembly
- A Quitclaim Deed
- Any other type of relinquishment document

c) Four Supplemental Utility Assemblies;

d) Four Utility Adjustment Agreements, Amendment Assemblies.

Where the number of Submittals exceeds these limits, the Submittals shall be considered excess and TxDOT may defer its review of any such excess Submittals to a subsequent calendar week (or weeks), as necessary.

6.5.2 DB Contractor's Utility Tracking Report

DB Contractor shall maintain a Utility Tracking Report (UTR) in tabular form, listing all Utilities located within the Project ROW or otherwise potentially affected by the Project. DB Contractor shall submit the Utility Tracking Report to TxDOT on a monthly basis in the format described below unless otherwise approved by TxDOT. The Utility Tracking Report shall, at a minimum, contain the following information for each utility:

a) The name of the Utility Owner and a unique tracking number starting with the prefix "Highway-U-" followed by a four digit number starting with 0001- to be assigned by the DB Contractor;

b) Utility size and type;

c) Location of the Utility based upon station and offset;

d) The proposed method of treatment;

e) State whether the adjustment will be Owner or DB Contractor Managed;

f) Dates on which the PUAA/UAAA was executed by TxDOT, Utility Owner, Design-Build Contractor, DB Contractor;

g) Dates on which the UJUA was executed by the Utility Owner and TxDOT;

h) The Utility Owner's existing right of occupancy of the right of way for each Utility (e.g. UJUA, permit, easement or combination);

i) Whether any Replacement Utility Property Interest will be necessary;

j) Estimated cost approved in the PUAA or UAAA;

k) Amounts and dates of payments made by the DB Contractor to the Utility Owner, listing in each case the type of payment (final, partial or lump sum);

l) Scheduled start and completion date for construction of each adjustment;

m) Percent complete of construction;

n) Whether any Betterment is included in the adjustment.

o) Whether any utility is considered Unidentified

The Utility Tracking Report shall also include a separate section for Replacement Utility Property Interest including each necessary Replacement Utility Property Interest with the names of property owners or parcel number(s), Utility Assembly Numbers, status of the acquisition, acquisition cost, and other information as necessary. DB Contractor shall maintain this section of the Utility Tracking Report and submit to TxDOT in the same manner as all other portions of the Utility Tracking Report.

6.5.3 Utility Assembly Submittals

The following procedure shall govern submittal and review of each Utility Assembly, including Supplemental and Abbreviated Utility Assemblies:

a) Before submitting a Utility Assembly to TxDOT, DB Contractor shall:

- Verify that each subject Utility (or the Utility Owner) is on the approved Alternate Procedure List, if applicable;
- Submit the complete Utility Assembly to the quality control/quality assurance entity designated by DB Contractor in accordance with the PMP; and
- Resolve all comments made by the quality control/quality assurance entity, coordinating with the Utility Owner as appropriate.

b) DB Contractor shall submit to TxDOT three identical and complete originals of each Utility Assembly, each of which shall be bound and labeled "DB Contractor Copy," "TxDOT Copy," or "Utility Owner Copy," as appropriate. The "TxDOT Copy" shall be color-coded and shall include the Project ROW map with the existing and proposed Utility facilities identified on a plan view. These submittals shall be for TxDOT's review and comment, except for any components of the Utility Assembly for which TxDOT's approval is required by this Section 6.5.

TxDOT will review the Utility Assembly for compliance with the requirements of this Section 6.5.3, and within ten (10) Business Days will return the Utility Assembly to DB Contractor with the appropriate notations pursuant to Section 3.1.3 of the DBC to reflect its responses. DB Contractor shall transmit any TxDOT comments to the Utility Owner, and shall coordinate any modification, review and approval by the Utility Owner and re-submittal to TxDOT, as necessary to resolve all TxDOT comments and/or obtain TxDOT's approval, as applicable. Upon (a) TxDOT's approval of any Utility Assembly components for which TxDOT's approval is required, and (b) completion of the review and comment process for all other

Utility Assembly components, TxDOT will sign three originals of any approved UJUA and of any other components of the Utility Assembly for which this Section 6 requires TxDOT's signature.

6.5.4 FHWA Alternate Procedure

The DB Contractor will develop the Alternate Procedure List that includes the utility owner's name, approximate station numbers and estimated cost. TxDOT will then submit to the FHWA the Alternate Procedure List in order to obtain FHWA authorization for federal reimbursement Promptly upon determining that any additional Utility Owner not referenced on the Alternative Procedure List is impacted by the Project, DB Contractor shall submit to TxDOT all documentation as referenced above in order to update the Alternative Procedure List.

TxDOT will forward the approved Alternate Procedure List (and any amendments thereto) to DB Contractor, promptly upon receipt of same from the FHWA.

7 RIGHT OF WAY (ROW)

Not applicable.

8 GEOTECHNICAL

8.1 General Requirements

Pavements shall be constructed consistent with the Final Design Documents provided in this RFP. The DB Contractor may propose alternate designs through the Alternate Technical Concept (ATC) process. Pavement design ATCs will be subject to the requirements of this Section 8. The DB Contractor shall submit all necessary calculations, assumptions and data, as requested by TxDOT, to properly evaluate the ATC.

DB Contractor is responsible for designs of all pavements not provided by TxDOT.

DB Contractor shall perform all geotechnical investigations, testing, research, and analysis necessary to effectively determine and understand the existing surface and subsurface geotechnical conditions of the Project ROW to be used by DB Contractor to carry out the Work. DB Contractor shall ensure the geotechnical investigations and analyses are in accordance with the *TxDOT Geotechnical Manual and/or TxDOT Pavement Design Guide.*

The DB Contractor is responsible for all geotechnical analyses and designs to ensure the Project is in accordance with the *TxDOT Geotechnical Manual and/or TxDOT Pavement Design Guide.*

8.2 Design Requirements

8.2.1 Subsurface Geotechnical Investigation by DB Contractor

Available subsurface geotechnical exploration information, in the form of boring logs, test results and reports, are presented as Reference Information Documents (RIDs). All subsurface geotechnical exploration information is representative of conditions at the time and location of the exploration. The DB Contractor is responsible for reviewing and analyzing the geotechnical information provided.

The DB Contractor shall determine the scope of geotechnical investigations for each Location. DB Contractor shall determine the specific locations, frequency, and scope of all subsurface geotechnical investigations, testing, research, and analysis DB Contractor considers necessary to provide a safe and reliable roadway, pavement, foundation, structure, embankment, excavation, slope and other facilities in accordance with TxDOT and FHWA geotechnical requirements.

DB Contractor shall prepare and amend, as needed, their Geotechnical Engineering Reports documenting the assumptions, conditions, and results of the geotechnical investigations and analyses, including the following:

a) The geology of the Project area, including soil and/or rock types, and drainage characteristics.
b) Field investigations and laboratory test results used to characterize conditions. Field investigations shall include descriptions of the soil/rock, Texas Cone Penetration test results and RQD for rock cores. If required, laboratory test reports shall include moisture content, plasticity index, gradations for each major soil strata change, percent organic content, levels of shrink/swell potential, levels of sulfate (on-site and borrow), soil compressibility, compaction characteristics (Proctor tests), resilient modulus tests, and short-term and long-term strength properties. Other field exploration and laboratory testing may be performed as appropriate.
c) A discussion of conditions and results with reference to specific locations on the Project
d) Design and construction parameters resulting from the geotechnical investigation and analysis, including parameters for the design of pavements, pipes, structures, slopes, and embankments in accordance with TxDOT and FHWA geotechnical requirements
e) Slope stability analyses for embankment and excavation and retaining wall slopes including both short-term (undrained) and long-term (drained) conditions, and discussion of design measures

undertaken to ensure stability and safety of all slopes. The design minimum factor of safety required for global stability of all slopes and walls shall be in accordance with the TxDOT *Geotechnical Manual*. The analysis shall consider the potential for long-term surficial slide failures common to high plasticity clays in Texas, and specific recommendations shall be provided to minimize their occurrence

f) Plan view locations of field sampling, boring logs and other field data, laboratory test results, calculations, and analyses that support design decisions

The report shall:

a) Ensure that adequate investigation, testing, analysis, design, mitigative measures and construction planning are applied to assess and provide for the effects of swell pressures from expansive soil and rock materials on foundations and earth retaining structures. They shall address all design features and facility characteristics that could affect expansive soil behavior.

b) Provide design and construction parameters derived from geotechnical investigations for the design of structure foundations, pipes, pavements, slopes, embankments and earth retaining structures.

c) Assess the corrosion potential of the soil and rock materials and conditions that will be encountered, and the impacts to planned surface and subsurface facilities.

d) Layout of boring/test locations along corridor.

Each Geotechnical Engineering Report, upon completion and including any later supplements or amendments shall be submitted to TxDOT for review and comment.

8.2.2 Pavement Design

Use the latest edition of TxDOT *Pavement Design Guide* as the basis for all pavement designs. The *Pavement Design Guide* is supplemented with the requirements contained within the Contract Documents. AASHTO's Pavement Mechanistic Empirical Design program and method will not be allowed.

DB Contractor should expect that subgrade materials will vary throughout the Project limits. DB Contractor shall verify that the materials encountered or imported meet the minimum requirements contained in the Final Design Documents.

8.2.2.1 Related Pavement Materials Specifications

Unless otherwise specified herein, pavement material requirements are defined in the most current version of the TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* (hereafter referred to as the TxDOT *Standard Specifications*) and per special specifications and provisions as provided in the Contract Documents. Test procedures shall conform to the most current version of TxDOT Materials Test Procedures, AASHTO or ASTM standards; or equivalent guidance as approved or provided by TxDOT.

8.2.2.1.1 Flexible Pavement

Design Methodology. The DB Contractor shall use the TxDOT online *Pavement Design Guide*. The pavement designs shall utilize either the TxDOT FPS 21 procedure or the 1993 *AASHTO Guide for the Design of Pavement Structures* and software applicable to this procedure. All designs shall be sufficient to prevent premature failure from rutting, rupture, and fatigue. Where single suggested values are listed in the TxDOT Pavement Design Guide, they will be interpreted as a requirement.

Design Modulus. Except as supplemented in the subparagraphs that follow, the DB Contractor shall establish and/or verify the design modulus as appropriate for the design procedure being used. All supporting data, test reports and analyses used to determine material properties shall be submitted to, reviewed, and approved by TxDOT.

(a) Subgrade Modulus. Where multiple layers of material are present, the modulus refers to material that is the predominant soil within three feet in depth from the finished pavement subgrade elevation

(b) Unbound Base and Subbase. Only material meeting the definition of Unbound Base in Section 8.3.1 will be considered; all other unbound materials used as a pavement layer that do not meet this definition shall be considered subgrade/embankment. For materials meeting the requirements of Item 247, TxDOT *Standard Specifications,* the design modulus shall not exceed three times the subgrade modulus for the layer immediately below the unbound base or subbase layer, and shall not exceed 75,000 psi.

(c) Stabilized Base. Stabilized base materials shall meet the requirements of Stabilized Base in Section 8.3.1, or shall be considered a subgrade or subbase material that may require additional stabilization. The design moduli of stabilized base materials shall be established by the greater of: (a.) the ratio of stress to strain in a near-linear portion of the loading curve during Unconfined Compressive Strength (UCS) testing, or (b.) ten times the subgrade modulus, whichever is greater. Where appropriate, the DB Contractor shall document testing and establish the appropriate design value for asphalt stabilized base, Item 292.

(d) ***Stabilized Subbase and Stabilized Subgrade.*** Materials shall meet the requirements of Subbases in Section 8.3.1 or the material shall be regarded as subgrade material and not considered a structural layer. Stabilized subgrade and stabilized subbases may be incorporated as a structural layer and shall have a design modulus equal to the greater of: (a.) the ratio of stress to strain in a near linear portion of the loading curve during UCS testing, or (b.) two times the subgrade modulus.

(e) ***Design Structural Values.*** For materials not listed in the TxDOT *Pavement Design Guide*, provide documented testing establishing the design value appropriate for the design procedure being used.

8.3 Construction Requirements

8.3.1 Pavement Materials Requirements

Pavement material requirements are defined in the most current version of the TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* (hereafter referred to as the TxDOT *Standard Specifications*) and per TxDOT required special specifications and provisions and those provided in these Contract Documents. Test procedures identified herein shall be the most current version identified in the TxDOT Testing Procedures, AASHTO or ASTM standards or equivalent guidance as approved, provided or identified by TxDOT. Alternate materials, specifications and construction requirements may be proposed by the DB Contractor, through the ATC process, provided the objectives of the Project are met and an equivalent pavement structure is provided.

Subgrade Material Composition. The DB Contractor shall implement construction procedures to eliminate soluble sulfate induced heave. When soluble sulfates may present a potential for a reaction detrimental to the pavement structure or its ride quality, DB Contractor shall submit alternate designs and/or construction procedures for TxDOT approval. Fill material will be a soil with a plasticity index between 10 and 25.

Unbound Base. Unbound base will be provided in accordance with the TxDOT *Standard Specifications,* Item 247. Recycled base is considered unbound base Where an unbound base grade is not identified in the contract documents, select and place an appropriate unbound base as identified in the TxDOT *Pavement Design Guide*.

Recycled Base. Except as shown on the plans or identified as onsite base to be reclaimed or reused, provide recycled base in accordance with the TxDOT *Standard Specifications,* Item 247, Section 3 Recycled Material. Provide the base grade identified.

Stabilized Base. Produce stabilized base as presented in the Contract Documents, or where information is not specified, stabilize using the guidance that follows. Stabilized base may either be modified with chemical additives or asphaltic binders. New unbound base to be stabilized shall meet the requirements of either Grade 1, Grade 2, or Grade 5 base as defined by Item 247 of the TxDOT Standard Specifications or appropriate special provisions, and shall have a minimum thickness of 6 inches of stabilized base layer. Asphalt stabilized base will meet the requirements of Item 292 of the TxDOT Standard Specifications. Item 292 may only be used in lieu of subbases or unbound base. Achieve the unconfined compressive strength as measured using Tex-120-E between 300 psi and 450 psi when chemical additives are used. Achieve the unconfined compressive strength immediately following a 7-day curing period in accordance with Tex-120-E and a 10-day capillary moisture conditioning. Moisture conditioning will be conducted in a similar method as that used in TEX-121-E and a 10-day capillary moisture conditioning.

Subbases.

(a) ***Stabilized Subbase.*** Unless otherwise shown in the Contract Documents, materials that have a Plasticity Index (PI) value less than 25 may be stabilized and used as a structural layer. For structural layers, provide a minimum 8-inch thickness of compacted material. Stabilized subbase materials shall be designed to achieve not less than 100 psi unconfined compressive strength as tested immediately following a 10-day capillary moisture conditioning. Moisture conditioning will be conducted in a similar method as that used in TEX-121-E. These materials shall be designed as defined in test methods used for the selected additive.

(b) ***Stabilized Subgrade.*** Unless otherwise shown in the Contract Documents, provide a minimum 8-inch thickness of compacted material. The stabilized subgrade shall achieve not less than 100 psi unconfined compressive strength as tested immediately following a 10-day capillary moisture conditioning conducted in a method similar to that used in TEX-121-E.

Underseal. The DB Contractor shall place a one (1) course surface treatment as an underseal directly on top of any untreated or treated base layer prior to placement of a bituminous mix. Use any Tier I, II or III binder from the TxDOT standard sheet, Seal Coat Material Selection Table 8-1.

Seal Coats. Except for Underseals, use a Tier I binder as shown below in TxDOT standard sheet, Seal Coat Material Selection Table 8-1, 2011. Provide the aggregate identified in the Contract Documents. If no aggregate is identified, select an aggregate from the Seal Coat Material Selection Table 8-1 corresponding to the binder tier selected.

Tack Coat. A tack coat is required between each successive bituminous layer. Provide appropriate binder from Item 300 evenly distributed across the pavement surface.

Table 8-1 – Material Selection Table

SEAL COAT MATERIAL SELECTION TABLE		
TIER I: HEAVY USE (>5,000 ADT) - USE ONLY THE SELECTED MATERIALS.		
TYPE	ASPHALT RUBBER (A-R) ☐ A-R ONLY	ASPHALT CEMENT (AC) ☐ AC ONLY
ASPHALT	☐ A-R TY II ☐ A-R TY III ☐ SP 300-	☐ AC-20-5TR ☐ AC-20XP ☐ AC-15P ☐ SP 300-
AGGREGATE TYPE	☐ TY PA ☐ TY PB ☐ TY PC ☐ TY PD ☐ TY PE ☐ TY PL	☐ TY PA ☐ TY PB ☐ TY PC ☐ TY PD ☐ TY PE ☐ TY PL
AGGREGATE TYPE	☐ 3S ☐ 4S ☐ 3NON-LW ☐ 4 ☐ 3LW ☐ SP 302-	☐ 3S ☐ 4S ☐ 5S ☐ 3NON-LW ☐ 4 ☐ 5 ☐ 3LW ☐ SP 302-
AGGREGATE SAC	☐ A ☐ B	☐ A ☐ B
TIER II: MODERATE USE (500-5,000 ADT) - USE THESE MATERIALS OR ANY SELECTED TIER I MATERIAL COMBINATIONS OF THE ALLOWED TYPES.		
TYPE	ASPHALT CEMENT (AC) ☐ AC ONLY	ASPHALT EMULSION ☐ EMULSION ONLY
ASPHALT	☐ AC-10-2TR ☐ AC-15P ☐ AC-20XP ☐ AC-10 W/2%SBR ☐ AC-5 W/2%SBR ☐ SP 300-	☐ CHFRS-2P ☐ HFRS-2P ☐ CRS-2P ☐ SP 300-
AGGREGATE TYPE	☐ TY PA ☐ TY PB ☐ TY PC ☐ TY PD ☐ TY PE ☐ TY PL ☐ ALLOW UNCOATED AGGREGATE	☐ TY A ☐ TY B ☐ TY C ☐ TY D ☐ TY E ☐ TY L
AGGREGATE GRADE	☐ 3S ☐ 4S ☐ 5S ☐ 3NON-LW ☐ 4 ☐ 5 ☐ 3LW ☐ SP 302-	☐ 3S ☐ 4S ☐ 5S ☐ 3NON-LW ☐ 4 ☐ 5 ☐ 3LW ☐ SP 302-
AGGREGATE SAC	☐ A ☐ B	☐ A ☐ B
TIER III: LIGHT USE (<500 ADT) - USE THESE MATERIALS OR ANY SELECTED TIER I OR TIER II MATERIAL COMBINATIONS OF THE ALLOWED TYPES.		
TYPE	ASPHALT CEMENT (AC) ☐ AC ONLY	ASPHALT EMULSION ☐ EMULSION ONLY
ASPHALT	☐ AC-10 ☐ AC-5 ☐ SP 300-	☐ CRS-2 ☐ CRS-2H ☐ HFRS-2 ☐ SP 300-
AGGREGATE TYPE	☐ TY PA ☐ TY PB ☐ TY PC ☐ TY PD ☐ TY PE ☐ TY PL ☐ ALLOW UNCOATED AGGREGATE	☐ TY A ☐ TY B ☐ TY C ☐ TY D ☐ TY E ☐ TY L
AGGREGATE GRADE	☐ 3S ☐ 4S ☐ 5S ☐ 3NON-LW ☐ 4 ☐ 5 ☐ 3LW ☐ SP 302-	☐ 3S ☐ 4S ☐ 5S ☐ 3NON-LW ☐ 4 ☐ 5 ☐ 3LW ☐ SP 302-
AGGREGATE SAC	☐ A ☐ B	☐ A ☐ B
COOL WEATHER ALTERNATES: USE THESE MATERIALS FOR WORK IN COOLER CONDITIONS AS DIRECTED/APPROVED.		
☐ CRS-2 ☐ RC-250	☐ HFRS-2 ☐ MC-800	☐ CRS-1P ☐ AC-12-5TR
☐ RS-1P ☐	☐ ☐ SP 300-	
DISTRICTWIDE SEAL COAT PROJECT SEASONS: REFER TO ITEM 316 FOR TEMPERATURE AND WEATHER RESTRICTIONS.		
SEASON 1:	AMA, CHS, LBB	MAY 15 TO AUG 31
SEASON 2:	ABL, ATL, BWD, DAL, FTW, LFK, ODA, PAR, SJT, TYL, WAC, WFS	MAY 1 TO AUG 31
SEASON 3:	AUS, BMT, BRY, ELP, HOU, SAT, YKM	MAY 1 TO SEP 15
SEASON 4:	CRP, LRD, PHR	APR 1 TO SEPT 30
NOTE: SEAL COATS ON ROUTINE MAINTENANCE CONTRACTS MUST BE COMPLETED BY AUGUST 31 UNLESS OTHERWISE SHOWN ON THE PLANS.		

Final Surface Course. Provide the final surface of the type and/or grade as identified in the DBC documents. No recycled shingles are allowed in the final surface mix.

No recycled shingles are allowed in the first layer of bituminous mix where that mix is placed adjacent to an Unbound Base or on a seal coat that is adjacent to an Unbound Base.

8.3.2 Construction Verification

General. The independent Construction Quality Assurance Firm (CQAF) shall perform the DB Contractor's quality acceptance. The construction verification tasks described below are part of the CQAF quality acceptance efforts.

When performing construction activities under or adjacent to existing structures or Utilities, the DB Contractor shall limit vertical settlements and ground deformations so as to not damage structures, including foundation elements, and/or Utilities. For those occurrences involving third party structures and Utilities, the DB Contractor shall coordinate excavation activities with Section 5 and 6. For those occurrences involving TxDOT's structures and Utilities, the DB Contractor shall coordinate excavation activities with TxDOT.

Smoothness Specification.

Flexbase ride quality:

Unless otherwise shown on the plans, this section applies to the final travel lanes where a surface treatment is the final surface.

Measure ride quality of the base course after placement of the prime coat and before placement of the surface treatment. Use a high speed or lightweight inertial profiler certified at the Texas Transportation Institute. Provide the Engineer with equipment certification documentation. Display a current decal on the equipment indicating the certification expiration date. Use a certified profiler operator from the Construction Division's approved list. When requested, furnish the Engineer documentation for the person certified to operate the profiler.

Within 3 days after placement of the prime coat, provide all profile measurements to the Engineer in electronic data files 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 0.1-mi. sections having an average international roughness index (IRI) value greater than 125.0 in. per mile to an IRI value of 125.0 in. per mile or less for each wheelpath, unless otherwise shown on the plans.

Re-profile and correct sections that fail to maintain ride quality after placement of the prime coat, as directed by the Engineer. Correct re-profiled sections until specification requirements are met. Perform this work at no additional expense to the Department.

Measure the transverse profile of the finished riding surface with a straightedge to verify proper cross slope and smooth transition between existing and widened surface layers. Correct surface defects greater than ¼-inch variation between any two contact points on a 10-foot straightedge using methods approved by TxDOT. Maintain surface cross slope and correct deviations as necessary throughout the Location construction.

Ride quality for all other pavement surfaces:

Smoothness of the pavement constructed shall conform to the requirements of TxDOT Item 585, for full depth and full travel-lane construction; Ride Quality for Pavement Surfaces is amended as cited below:

Article 585.3D. Acceptance Plan and Pay Adjustments. The entire section is voided and replaced by the following:

TxDOT will evaluate profiles based on the Construction Quality Acceptance Firm (CQAF) test results to determine acceptance and corrective action. Corrective action acceptable to TxDOT is required, at DB Contractor's sole expense, for any 0.1-mile section that measures an average IRI in excess or in excess of 65 inches per mile for flexible pavements. Take corrective action when the IRI exceeds 95 where a single

bituminous mix layer is the only bituminous layer placed. After making corrections, re-profile the pavement section to verify that corrections have produced the required improvements. Use diamond grinding or other methods approved by TxDOT to correct surface areas that have more than 1/8-inch variation between any two contacts on a 10-foot straightedge. Use diamond grinding or other approved methods to remove localized roughness as determined using an inertial profiler in accordance with TEX-1001-S. For asphalt concrete pavements, fog seal the aggregate exposed from diamond grinding.

Article 585.4 Measurement and Payment. The entire section is voided.

8.3.3 Other Requirements

Type A flex base shall be limestone.

For Type E material, furnish crushed limestone produced and graded from oversize quarried aggregate that originates from a single, naturally occurring source. Do not use gravel or multiple sources.

Flexible Base (Complete In Place)(TY E GR 4)(Final Position)(CY)

Type E material is caliche composed of argillaceous limestone, calcareous or calcareous clay particles, with or without stone, conglomerate, gravel sand or granular materials.

If the flexible base comes from a stockpile, test the stockpile before delivery to the project. The Contractor's attention is called to the fact that the preliminary test will require approximately 30 days and it is the Contractor's responsibility to advise the Engineer of the location of the flexible base source sufficiently in advance to avoid delays. Blade the side slopes to remove all grass from the area of construction before placing flexible base on that portion of the roadway to be widened, level-up, seal coat, or HMAC overlay. Blade the sod back onto the side slopes after the proposed items of work have been completed. Consider subsidiary to pertinent Items.

Conform to the following flexible base (TY E GR 4) requirements:

Before **cement** is added:

Percent retained on each sieve						Soil constants			Wet ball mill max
2"	1 1/4"	7/8"	1/2"	#4	#40	LL max	PI max	PI min	
0	-	-	20-60	40-75	60-85	-	12	2	*50

* The maximum increase in material passing the no 40 sieve is not to exceed 20.

If **cement** (no curing period required) is added, refer to Test Method Tex-120-E, Soil – Cement Stabilized. This percentage of cement will be incorporated into the flexible base at a rate required to meet specification requirements. The percentage of cement to be added will be determined according to Tex-120-E, and as specified on the plans.
A pre-placement meeting must be conducted at least 48 hrs. prior to flex base placing operations.

[1]Flexible Base (Complete In Place)(TY A GR 2)(Final Position)(CY)

This flexible base will need to be limestone aggregate material.

Conform to the following flexible base (TY A GR 4) requirements:

Percent retained on each sieve						Soil constants			Wet ball mill
2"	1 1/4"	7/8"	1/2"	#4	#40	LL max	PI max	PI min	

									max
0	-	-	20-60	40-75	60-85	-	12	2	*50

* The maximum increase in material passing the no 40 sieve is not to exceed 20.

Test Method Tex-117-E shall conform to the following minimum compressive strength requirements:

Lateral Pressure	Triaxial Strength
0 PSI	32 PSI
15 PSI	175 PSI

Addition of baghouse fines will not be permitted in the production of pre-coated material.

8.3.3.1 Flexible Pavement Structure Repair

For Location 3 in the Corpus Christi District, the DB Contractor shall remove 6" of existing material and replace with 6" of Hot Mix Asphalt TY B placed in two equal lifts, or as directed by TxDOT.

The areas of flexible pavement repair will be directed based on field observations.

Flexible pavement structure repair for other Locations will be performed as shown in the Final Design Documents.

The material removed may be retained only if incorporated into the Location.

Use of motor grader will not be permitted unless approved by TxDOT.

9 LAND SURVEYING

9.1 General Requirements

DB Contractor shall provide accurate and consistent land surveying and mapping necessary to support design and construction of the Project.

DB Contractor shall review existing survey data and determine the requirements for updating or extending the existing survey and mapping data. DB Contractor is responsible for the final precision, accuracy, and comprehensiveness of all survey and mapping.

9.2 Administrative Requirements

9.2.1 Standards

DB Contractor shall ensure that all surveying conforms to the *General Rules of Procedures and Practices* of the Texas Board of Professional Land Surveying. DB Contractor shall ensure that any person in charge of a survey field party is proficient in the technical aspects of surveying.

9.2.2 Right-of-Entry

DB Contractor shall secure written permission prior to entering any private property outside the ROW. It shall be DB Contractors' sole responsibility to negotiate this permission and DB Contractor shall be responsible for any and all damages and claims resulting from that ingress. Proper documentation of right-of-entry shall be maintained at all times by DB Contractor.

9.2.3 Survey by TxDOT

In performing surveys for other adjoining projects, TxDOT may need to verify and check DB Contractor's survey work. DB Contractor shall coordinate with the Contractor of the adjoining project regarding planned construction activities. DB Contractor shall notify TxDOT within 2 Business Days if TxDOT stakes and marks are altered or disturbed.

9.3 Design Requirements

9.3.1 Units

All survey Work shall be performed in U.S. Survey Feet. Work shall conform to state plane coordinates. TxDOT will provide the surface adjustment factors for each Location.

9.3.2 Survey Control Requirements

DB Contractor shall base all additional horizontal and vertical control on the control provided by TxDOT.

DB Contractor shall establish and maintain additional survey control as needed throughout the duration of the Project. DB Contractor shall tie any additional horizontal and vertical control for the Project to the TxDOT-supplied control network. If DB Contractor chooses to use GPS methods, DB Contractor shall meet the accuracy of the appropriate level of survey as defined in the TxDOT *Survey Manual* and shall utilize the survey control to be provided by TxDOT.

All survey control points shall be set and/or verified by a Registered Professional Land Surveyor licensed in the State of Texas.

Monuments shall be TxDOT 3.5 inch Aluminum disks set in concrete per M-92 standard and marked as directed by the most current edition of the TxDOT *Survey Manual*. DB Contractor shall make all survey computations and observations necessary to establish the exact position of all other control points based on the primary control provided.

DB Contractor shall deliver to TxDOT a listing of all control coordinate values, original computations, survey notes, and other records, including GPS observations and analysis made by DB Contractor, as the data are available.

9.3.3 Conventional Method (Horizontal & Vertical)

If DB Contractor chooses to use conventional methods to establish additional horizontal control, DB Contractor shall meet the accuracy of the appropriate level of survey as defined in the TxDOT Survey Manual.

Horizontal control is to be established on the Texas State Plane Coordinate System, South or South Central Zone, as applicable, North American Datum of 1983 (NAD83) 2010 Epoch adjustment.

Vertical control shall be established on the North American Vertical Datum of 1988 (NAVD 88) using Geoid 2012A elevation model.

9.3.4 Access to TxDOT VRS GPS Network

If DB Contractor chooses to use the TxDOT VRS GPS Network, DB Contractor shall contact the local TxDOT District Survey Coordinator for the appropriate application and usage agreement.

9.3.5 Right of Way Surveys

Not applicable.

9.3.6 Survey Records and Reports

DB Contractor shall produce documentation that adheres to TxDOT's *Survey Control Guidelines* on horizontal and vertical control coordinate listing, maps showing control, preparation of standard TxDOT data sheets for all primary control, monument description and location description of all primary and secondary survey control points installed, marked and referenced along with a listing of the existing control used to create the installed control points. Control from adjoining, incorporated, or crossed roadway projects, which are currently in design, will be located and a comparison of the horizontal and vertical values will be shown. DB Contractor shall provide survey records and reports to TxDOT upon request.

DB Contractor may use an electronic field book to collect and store raw data. The DB Contractor shall use the current TxDOT06 Survey feature table when gathering topographic data. This survey feature table will be made available from the local District Survey Coordinator. DB Contractor shall preserve original raw data and document any changes or corrections made to field data, such as station name, height of instrument, or target. DB Contractor shall also preserve raw and corrected field data in hardcopy output forms in a similar manner to conventional field book preservation.

Field survey data and sketches that cannot be efficiently recorded in the electronic field book shall be recorded in a field notebook and stored with copies of the electronic data.

All field notes shall be recorded in a permanently bound book. (Loose-leaf field notes will not be allowed.) DB Contractor shall deliver copies of any or all field notebooks to TxDOT upon request.

9.4 Construction Requirements

9.4.1 Units

All survey Work shall be performed in U.S Survey Feet. Work shall conform to the appropriate State Plan Zone, either TXSP 4205-South or TXSP 4204-South Central as dictated by the project location.

Contact the local District Survey Coordinator to obtain the surface adjustment factors for each Location.

9.5 Deliverables

9.5.1 Survey Records

DB Contractor shall deliver to TxDOT, for its review and acceptance, a listing of all primary, secondary control coordinate values, original computations, survey notes and other records including GPS observations and analysis made by DB Contractor within 90 days of Final Acceptance.

10 GRADING

10.1 General Requirements

DB Contractor shall conduct all work necessary to meet the requirements of grading, including clearing and grubbing, excavation and embankment, removal of existing buildings, pavement and miscellaneous structures, subgrade preparation and stabilization, dust control, aggregate surfacing and earth shouldering, in accordance with the requirements of this Section 10.

DB Contractor shall demolish or abandon in place, all existing structures within the Project ROW, including but not limited to, pavements, bridges, and headwalls that are no longer required for service, or are required to be treated as described in Section 4 (Environmental). Any features that are abandoned in place shall be removed to at least two (2) feet below the final finished grade or one (1) foot below the pavement stabilized subgrade and drainage structures. DB Contractor shall ensure that abandoned structures are structurally sound after abandonment.

10.2 Preparation within Project Limits

DB Contractor shall develop, implement, and maintain, for the Term of the DBC, a Demolition and Abandonment Plan that considers types and sizes of Utilities and structures that will be abandoned during the Term. The plan shall ensure that said structures are structurally sound after the abandonment procedure. The plan shall be submitted to TxDOT for approval no later than 60 days prior to the scheduled date for NTP2.

TxDOT reserves the right to require DB Contractor, at any time, to salvage and deliver to District Office or as directed by TxDOT. TxDOT reserves the right to require DB Contractor to salvage and deliver to a location within the TxDOT District for which the roadway is located, any signal, sign, barrier and guardrail equipment and materials designated and deemed salvageable by TxDOT in an undamaged condition.

Unless otherwise specified by TxDOT, the material from structures designated for demolition shall be DB Contractor's property. All material removed shall be properly disposed of by DB Contractor outside the limits of the Project.

10.3 Slopes and Topsoil

DB Contractor shall use the latest edition of the *TxDOT Roadway Design Manual* regarding design limitations and roadside safety guidelines associated with the design of slopes along roadways. DB Contractor shall adjust grading to avoid disturbance to any identified waters of the U.S.

DB Contractor shall perform finished grading and seeding in all areas suitable for vegetative slope stabilization (and areas outside the limits of grading that are disturbed in the course of the Work) that are not paved. DB Contractor shall use only materials and soils next to pavement layers that do not cause water or moisture to accumulate in any layer of the pavement structure. For slopes steeper than 4:1, DB Contractor shall submit to TxDOT a slope stability analysis that demonstrates the adequacy of DB Contractor's design. DB Contractor shall submit the slope stability analysis to TxDOT for approval with the Released for Construction Documents.

10.4 Construction

Burning of brush will not be permitted.

Do not begin any clearing operations until the trees and areas of vegetation that should not be removed or disturbed by construction activities have been identified. To ensure that these areas are not disturbed, place protection fencing as shown in the plans or as directed/approved by TxDOT.

11 ROADWAYS

11.1 General Requirements

The objectives of the Project include the provision of a safe, reliable, cost-effective corridor for the traveling public. The requirements contained in this Section 11 provide the framework for the design and construction of the roadway improvements to help attain the Project objectives.

DB Contractor shall coordinate roadway design, construction, and maintenance with other elements of the Project to achieve the objectives of the Project.

Where changes to the roadway geometrics result in revisions to the Project ROW, DB Contractor is responsible for demonstrating the proposed change is an equally safe alternative as well as the initiation and progression of all environmental and public involvement processes in coordination with TxDOT. DB Contractor shall perform all ROW services that are necessitated by proposed changes in accordance with the Contract Documents.

The DB contractor shall refer to the environmental documents and TxDOT provided design plans for the limits of each roadway related to this Project.

11.2 Design Requirements

DB Contractor shall coordinate its roadway design with the design of all other components of the Project. The Project roadways shall be designed to integrate with streets and roadways that are adjacent or connecting to the Project. All design transitions to existing facilities shall be in accordance with the latest edition of the TxDOT *Roadway Design Manual*.

DB Contractor shall design all elements in accordance with the applicable design criteria and Good Industry Practice based on the Design Speeds for various elements. Specifically, the roadway geometric design shall be in accordance with the latest English edition of the TxDOT *Roadway Design Manual*.

Unless otherwise specified in the DB Contract documents, current TxDOT policies, specifications, standards, manuals, guidelines, and technical memoranda, including all addenda, supplements, and revisions thereto, shall govern the roadway design. Generally, the design shall comply with the criteria established by TxDOT and AASHTO. The current version (current version as of the issue date of the Proposal) of these references shall be used unless otherwise specified.

When no particular standard or criterion is specified in the DBC, then the following hierarchy of standards applies:

- TxDOT
- TMUTCD
- AASHTO
- Applicable local public agency standards

In all cases desirable values will be used. Minimum values may only be used with approval by TxDOT. The DB Contractor must provide justification for the usage of any minimum standard. Justification based soley of cost or schedule will not result in approval.

The Project roadways shall be designed to incorporate roadway appurtenances, including fences, noise attenuators, barriers, and hazard protection as necessary to promote safety and to mitigate visual and noise impacts on neighboring properties.

11.2.1 Control of Access

Unless shown to be deleted in the Final Design Documents, DB Contractor shall maintain all existing property accesses, including those not shown on the Final Design Document, and shall not revise control of access without TxDOT review and the written agreement of the affected property owner.

11.2.2 Roadway Design Requirements

DB Contractor shall design the elements of the Project to meet or exceed the geometric design criteria as specified in the latest edition of the TxDOT *Roadway Design Manual* for each appropriate roadway classification.

DB Contractor shall coordinate, design and construct the improvements on crossing streets in accordance with the Governmental Entity having jurisdiction of said roadway.

11.2.2.1 Superelevation

Pavement widening may be constructed by extending the existing pavement cross slope. Superelevation transitions shall be designed and constructed such that zero percent cross-slopes will not occur unless otherwise approved by TxDOT.

DB Contractor shall remove existing crowns at overlay locations, except at existing bridge ends where a transition is required to match an existing crowned bridge section. The DB Contractor may not place HMAC on uncompacted ground on the shoulder edges; the DB Contractor, if necessary, shall extend and compact the existing base before placing HMAC and possibly re-grade the existing ditch per TxDOT's *Roadway Design Manual* slope requirements. DB Contractor shall inspect and adjust existing guardrails for proper heights in overlay areas.

11.2.2.2 Roadway Design Deviations

Roadway design deviations will require approval by TxDOT.

11.2.3 Miscellaneous Roadway Design Requirements

The DB Contractor shall provide traffic barriers, which protect traffic from roadside hazards such as overhead signs, culvert headwalls, non-traversable side slopes, bridge piers and other obstructions within the horizontal clear zone. All new guardrails and traffic barriers shall meet current guidelines for traffic barriers. All blunt ends shall be protected with an appropriate safety end treatment including impact attenuators. The DB Contractor shall comply with the TxDOT *Roadway Design Manual* and AASHTO *Roadside Design Guide* regarding the design standards, guidance, and requirements for traffic barrier design and horizontal clear zone design.

Driveways shall be designed in accordance with the guidelines, which will be considered requirements, specified in TxDOT's *Roadway Design Manual* – Appendix C, "Driveways Design Guidelines" to be functionally adequate for land use of adjoining property, and in accordance with the Final Design Documents.

Guard fence posts placed in proposed and/or existing areas of riprap, sidewalks or other concrete shall have an 18-inch +/- (square or round) block out in the concrete. After the posts are installed, the blocked out area shall be topped off with 4 inches of low strength grout/mortar consisting of about 1 sack of cement per cubic yard of mix.

11.3 Construction Requirements

DB Contractor shall construct each roadway Location width to the proposed roadway width whether or not the existing roadway width is accurately depicted on the Final Design Documents. All driveways and/or mailboxes affected by the Project shall be restored to a condition equal to or better than previous condition.

12 DRAINAGE

12.1 General Requirements

Efficient performance of the drainage system is an integral part of the performance of each Location within the Project. DB Contractor shall construct the Project as shown in the Final Design Documents. If the DB Contractor receives approval for an ATC that changes the design of a Location, the DB Contractor shall account for all sources of runoff that may reach that Location within the Project, whether originating within or outside the Project ROW, in the design of the drainage facilities.

If existing drainage patterns are revised as a result of an design change ATC, then the DB Contractor shall design and construct a solution that does not adversely impact property owners outside the ROW.

The DB Contractor shall comply with Section 12 requirements if submitting a design change ATC.

12.2 Administrative Requirements

12.2.1 Data Collection

To establish a drainage system that complies with the requirements and accommodates the historical hydrologic flows in the Project limits for each Location, DB Contractor is responsible for collecting all necessary data, including those elements outlined in this Section 12.2.1.

DB Contractor shall collect available data identifying all water resource issues, including water quality requirements as imposed by State and federal government regulations; National Wetland Inventory and other wetland/protected waters inventories; in FEMA mapped floodplains; and official documents concerning the Project, such as the EA or other drainage and environmental studies. Water resource issues include areas with historically inadequate drainage (flooding or citizen complaints), environmentally sensitive areas, localized flooding, maintenance problems associated with drainage, and areas known to contain Hazardous Materials. DB Contractor shall also identify watershed boundaries, protected waters, county ditches, areas classified as wetlands, floodplains, and boundaries between regulatory agencies (e.g., watershed districts and watershed management organizations).

DB Contractor shall acquire all applicable municipal drainage plans, watershed management plans, and records of citizen concerns. DB Contractor shall acquire all pertinent existing storm drain plans and/or survey data, including data for all culverts, drainage systems, and storm sewer systems within the Project limits. DB Contractor shall also identify existing drainage areas that contribute to the highway drainage system and the estimated runoff used for design of the existing system.

DB Contractor shall obtain photogrammetric and/or geographic information system (GIS) data for the Project limits that depicts the Outstanding National Resource Waters and/or impaired waters as listed by the TCEQ. DB Contractor shall conduct surveys for information not available from other sources.

If documentation is not available for elements of the existing drainage system within the Project limits and scheduled to remain in place, DB Contractor shall investigate and videotape or photograph the existing drainage system to determine condition, size, material, location, and other pertinent information.

The data collected shall be taken into account in the Final Design of the drainage facilities.

Within 30 Days of Substantial Completion, DB Contractor shall submit to TxDOT, as part of the Record Drawings, a Drainage Design Report, which shall be a complete documentation of all components of the Project's drainage system. At a minimum, the Drainage Design Report shall include:

a) Record set of all drainage computations, both hydrologic and hydraulic, and all support data.
b) Hydraulic notes, models, and tabulations
c) Storm sewer drainage report

d) Bridge and culvert designs and reports for major stream crossings

e) Correspondence file (i.e.: Letters, Memorandums, and decisional emails)

f) Provide all computation and supporting documentation for the drainage design shown on plans sheets.

g) Drainage system data (location, type, material, size, and other pertinent information) in a suitable electronic format as approved by TxDOT.

12.2.2 Coordination with Other Agencies

DB Contractor shall coordinate all water resource issues with affected interests and regulatory agencies. DB Contractor shall document the resolutions of water resource issues.

12.3 Design Requirements

DB Contractor shall design all elements of the drainage facilities in accordance with the applicable design criteria and Good Industry Practice.

Unless otherwise specified in the Final Design Documents and approved by TxDOT, the DB Contractor shall comply with design criteria established in the latest edition of the *TxDOT Hydraulic Design Manual.*

DB Contractor may make use of existing drainage facilities, provided overall drainage requirements for the Project is achieved and the combined drainage system functions as intended.

DB Contractor shall base its Final Design on design computations and risk assessments for all aspects of Project drainage.

The DB Contractor shall provide a drainage system that maintains or improves the existing drainage.

12.4 Drainage Design Report

Unless otherwise specified in the Final Design Documents and approved by TxDOT, the DB Contractor shall comply with design criteria established in the latest edition of the *TxDOT Hydraulic Design Manual.*

12.5 Construction Requirements

DB Contractor shall design drainage to accommodate construction staging. The design shall include temporary erosion control ponds and other Best Management Practices needed to satisfy the NPDES and other regulatory requirements. The water resources notes in the plans shall include a description of the drainage design for each stage of construction.

13 STRUCTURES

13.1 General Requirements

The structural elements of the Project, including bridges, culverts, drainage structures and signage supports, shall be designed and constructed in conformance with the requirements of the Contract Documents, in order to provide the general public a safe, reliable, and aesthetically-pleasing facility.

13.2 Design Requirements

DB Contractor shall provide to TxDOT both an inventory and an operating rating of the constructed structures using a form provided by TxDOT.

DB Contractor shall obtain National Bridge Inventory (NBI) numbers from TxDOT for all bridges and bridge class culverts. The NBI numbers shall be shown on the applicable layout sheets of the Final Design Documents.

All electronic and paper files and calculation design notebooks shall be made available at TxDOT's request.

13.2.1 Design Parameters

For all specifications listed herein, the latest edition, including interims, at the time of Notice to Proceed shall be used. The plans shall clearly show the specifications, including the edition and dates, employed in each design.

Unless otherwise noted, design for all roadway structural elements shall be based on the Load and Resistance Factor Design (LRFD) methodology included in TxDOT's *Bridge Design Manual – LRFD,* Bridge Design Specifications listed at http://www.txdot.gov/inside-txdot/division/bridge/specifications.html and the most recent AASHTO *LRFD Bridge Design Specifications.*

Design of foundations shall be in compliance with provisions of the *TxDOT Geotechnical Manual.*

Steel bridge design shall comply with *TxDOT Preferred Practices for Steel Bridge Design, Fabrication, and Erection.*

Corrosion protection measures shall be in accordance with TxDOT Bridge Division and District practices. These can be found at: http://ftp.dot.state.tx.us/pub/txdot-info/library/pubs/bus/bridge/district_corrosion.pdf .

Hydraulic design shall be in accordance with *TxDOT Hydraulic Manual, FHWA Hydraulic Engineering Circular (HEC)-18 and HEC-23.*

Structural design of signs shall be in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*

Falsework, shoring and other temporary supports shall be designed in accordance with AASHTO's *Guide Design Specifications for Bridge Temporary Works.*

Alignments shall meet the requirements indicated in Section 11 for the functional classification of each roadway.

Load ratings shall be in accordance with AASHTO's *Manual for Condition Evaluation of Bridges* and *TxDOT's Bridge Inspection Manual.*

DB Contractor shall inspect all structures that are to be reused, lengthened or widened in accordance with AASHTO's *Manual for Bridge Evaluation* and *TxDOT Bridge Inspection Manual.*

DB Contractor shall design sidewalks to meet the criteria of the AASHTO *Roadside Design Guide.*

13.2.2 Bridge Design Loads and Load Ratings

a) Live Loads

All roadway bridges and bridge class culverts shall be designed to accommodate the following live loads:

An HL-93 truck or a tandem truck plus lane load as defined in the AASHTO *LRFD Bridge Design Specifications* shall be utilized for bridges except pedestrian bridges.

b) Additional Loads

Bridges (except pedestrian bridges) shall also be designed to accommodate a minimum future overlay load of 25 psf.

13.2.3 Bridge Decks and Superstructures

Fracture critical members shall not be used for bridges without written authorization from TxDOT and if allowed by TxDOT, fracture critical members shall be designed to allow full access for inspection.

The type of bridge shall not be restricted to those typically used by TxDOT. Other types and components may be used, but will be allowed only if:

a) They have been accepted for general use by the Federal Highway Administration (FHWA); and

b) DB Contractor can demonstrate that the design of the bridge type and components will meet the functional requirements of the Project.

The DB Contractor shall proportion bridge spans to avoid uplift at supports.

Modular joints shall be used when anticipated movement exceeds 5 inches and shall be designed and tested for fatigue loading.

DB Contractor shall minimize the number of deck joints wherever possible. DB Contractor shall locate joints to provide for maintenance accessibility and future replacement. Joints for all grade separation structures shall be sealed.

To the extent possible, DB Contractor shall make bridge superstructures, joints, and bearings accessible for long-term inspection and maintenance. DB Contractor shall make open-framed superstructures accessible with walkways or by use of ladders or an under-bridge inspection truck.

13.2.4 Bridge Foundations

Integral abutments, where the superstructure is structurally framed (either completely or partially) into the abutment, shall not be permitted. Mechanically Stabilized Earth (MSE) walls shall not serve as structural foundations for bridges on the Project and shall not be subjected to vertical loads from the bridges. Bridge approach slabs or other settlement mitigation measures shall be designed and constructed to mitigate settlement immediately behind abutment backwalls.

Spread footing foundations are not allowed.

Do not use the Slurry Displacement Method for drilled shaft foundations.

Sulfate resistant concrete shall be used in all situations for concrete structures in contact with the natural ground.

Sulfate resistant cement concrete shall be used in all situations for structural elements in contact with the natural ground. These includes, but is not limited to, all concrete box culverts, drill shafts, bridge columns, bridge abutments, wingwalls, approach slabs,

13.2.5 Bridge Railing and Barriers

All barrier systems used on the Project shall meet current crash test and other safety requirements as determined by TxDOT. All testing and associated costs for non-standard railings shall be the sole responsibility of DB Contractor and shall be accomplished through a third party acceptable to TxDOT. A current list of standard railing is provided in TxDOT *Bridge Railing Manual.*

DB Contractor shall protect sidewalks from vehicular impact by using TxDOT-approved bridge railings as required in the TxDOT *Bridge Railing Manual* based on roadway Design Speed.

For the Project, pedestrian rail shall be used along structure pavement edges.

13.2.6 Drainage Structures

Hydraulic Design for Drainage Structures shall be in accordance with Section 12.

In developing the design of drainage structures, DB Contractor shall account for maximum anticipated loadings.

DB Contractor shall ensure that bridges crossing over waterways withstand a 100-year frequency event with no loss of structural integrity.

Energy dissipaters, if used, shall be considered as structural elements.

13.2.7 Sign Supports

The sign supports shall accommodate sign areas up to and including 16 square feet.

13.2.8 Widenings

DB Contractor shall complete a load rating and condition survey of existing structures to be widened. Ratings shall be based on current TxDOT procedures.

13.3 Construction Requirements

13.3.1 Concrete Finishes

All concrete surfaces that do not have aesthetic treatments shall have a uniform texture and appearance. Color treatment, where required as an aspect of the aesthetic treatment of the concrete, shall be uniform in appearance. Ordinary Surface Finish as defined by the TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*, latest version, shall be applied to the following as a minimum:

a) Inside and top of inlets

b) Inside and top of manholes

c) Inside of sewer appurtenances

d) Inside of culvert barrels

e) Bottom of bridge slabs between girders or beams

f) Vertical and bottom of surfaces of interior concrete beams or girders.

g) Wingwalls, Headwalls, Safety End treatments

h) Ripraps, mowstrips and flumes

13.3.2 Structure Metals

Welding shall be in accordance with the requirements of the AASHTO/AWS DI.5 2010 Bridge Welding Code and *TxDOT Standard Specification Item 448, Structural Field Welding*.

13.3.3 Steel finishes

Except for weathering steel, all structural steel shall be protected. The color for structural steel paint shall be approved by the Districts.

If weathering steel is used, the DB Contractor shall protect all components of the structure (superstructure and substructure) that are susceptible to corrosion and/or staining from weathering steel run-off.

14 RAIL

14.1 General Requirements

DB Contractor's PMP shall set forth an approach, procedures, and methods for rail coordination during construction in accordance to the DBC.

14.2 Railroad Design Standards

All work involving railroad companies, work on railroad Right of Way (ROW), and the development and execution of railroad programs shall be in accordance with State and Federal law and the practices, guidelines, procedures and methods contained in the *Texas Manual on Traffic Control Devices* (TMUTCD). Additionally, the requirements of the owner of each facility crossed shall be compared to the requirements in the TxDOT manual, and the most restrictive criteria shall be utilized.

At highway-rail grade crossings, the roadway and drainage design parameters shall be maintained at the crossing with exception to the cross slope of the pavement which may be transitioned to match the grade across the rail line. The structural design of any Utilities, including drainage structures, installed by the DB Contractor and crossing a rail line, shall be in accordance with the operating railroad's design criteria. DB Contractor shall coordinate, design and construct the construction staging, including any shooflies, with the operating railroad.

DB Contractor shall comply with all existing Joint-use Agreements with rail companies.

DB Contractor's shall minimize service interruptions to existing rail lines.

14.3 Administrative Requirements

14.3.1 Railroad Agreement

TxDOT will obtain the applicable Railroad Joint Use Agreement with Missouri Pacific Railroad (MPRR) for the IH 35 (E. FR) Location. Railroad Joint Use Agreement is anticipated by December 2014.

DB Contractor shall be responsible for obtaining any additional required approvals, permits, and agreements as required for the Work, including any railroad related Work.

DB Contractor shall be responsible for obtain required Railroad Right of Entry agreements.

14.3.2 Project Work Affecting Railroad Operations

Should a Location cross a railroad ROW owned by an operating railroad, DB Contractor shall coordinate the Work with the operating railroad. DB Contractor shall be responsible for obtaining the required approvals, permits, and agreements as required for the railroad-related Work and shall coordinate the design and installation of all railroad warning devices and traffic signals with the appropriate Governmental Entities and operating railroads.

14.3.3 Agreement for Construction, Maintenance, and Use of Right of Way

Whenever a license agreement for construction, maintenance, and use of railroad ROW (hereinafter called the "License Agreement") between the operating railroad and TxDOT is required, DB Contractor shall prepare all the documentation required to obtain the License Agreement, including the Plans and specifications, making necessary modifications as required by TxDOT or the Railroad. Plans and specifications shall clarify all work to be performed within Railroad right of way, and identify all construction phasing affecting railroad right of way.

DB Contractor shall submit the draft License Agreement to TxDOT for transmittal to the operating railroad. After all comments have been incorporated or satisfactorily resolved by either DB Contractor,

railroad or TxDOT, DB Contractor shall submit a complete and final License Agreement to TxDOT for execution.

14.3.4 Operation Safety

DB Contractor shall arrange with the operating railroad for railroad flagging as required. DB Contractor shall comply with the operating railroad's requirements for contractor safety training as stated in the Railroad's Right of Entry agreement prior to performing Work or other activities on the operating railroad's property. TxDOT will reimburse the Railroad directly for any flagging or other force account work and withhold this amount from the DB on future billing.

14.3.5 Railroad Right of Entry Agreement

In order to enter the operating railroad's ROW to perform the Work, DB Contractor shall secure a railroad Right of Entry Agreement and shall coordinate the arrangements of the necessary agreements directly with the operating railroad. DB Contractor shall be responsible for paying any fees associated with the Right of Entry agreement.

Executed railroad agreements in entirety, shall be submitted as part of the Final Design Documents.

14.3.6 Insurance Requirements

DB Contractor shall procure and maintain, prior to working adjacent to and entry upon operating railroad property, insurance policies naming TxDOT, the DB Contractor, TxDOT's Consultants, and railroad as named insured.

DB Contractor shall obtain the following types of insurance for work on Railroad rights of way:

1. Railroad Protective Liability Insurance Policy
2. Commercial General Liability Insurance
3. Workers Compensation Insurance
4. Business Automobile Insurance

All insurance policies shall be in a form acceptable to the operating railroad. Coverage amounts will vary depending on scope of work to be performed within Railroad rights of way. DB Contractor shall submit copies of all insurance policies to TxDOT prior to any entry upon operating railroad property.

14.4 Construction Requirements

DB Contractor shall comply with all construction requirements and specifications set forth by the operating railroad.

DB Contractor shall be responsible for accommodating and including the work to be completed by the operating railroad in the Project schedule as well as the work to be completed by its own forces. DB Contractor shall be responsible for all costs associated with the railroad/transit force account work.

15 AESTHETICS AND LANDSCAPING

Not applicable

16 SIGNING, DELINEATION AND PAVEMENT MARKINGS

16.1 General Requirements

This Section 16 includes requirements with which DB Contractor shall design, construct, and maintain all signing, delineation, pavement markings, signalization, and lighting, for the Project.

16.2 Administrative Requirements

16.2.1 Meetings

DB Contractor shall arrange and coordinate all meetings with local agencies as required. DB Contractor shall provide TxDOT with notification of such meetings a minimum of 48 hours prior to the start of the meeting. TxDOT, in its discretion, may attend such meetings.

DB Contractor shall arrange and coordinate all meetings with requesting agencies or individuals regarding special signs.

16.3 Design Requirements

The DB Contractor shall design all signing, delineation, pavement marking, and signalization in accordance with the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD), TxDOT's *Standard Highway Sign Design for Texas* (SHSD), TxDOT's *Sign Crew Field Book*, TxDOT's *Signs and Markings Manual*, TxDOT's *Freeway Signing Handbook* and TxDOT's Traffic Engineering Standard Sheets and TxDOT specifications.

16.3.1 Final Design

DB Contractor shall advance the Final Design of the signing, delineation, pavement marking, signalization, and lighting based on the preliminary operational signing schematic received with the Proposal. If a preliminary operational signing schematic does not exist, DB Contractor shall prepare and submit a preliminary operational signing schematic for review and approval by TxDOT prior to commencing Final Design. Before placing any signs, delineation, third party signs, non-standard sign structures, pavement markings, and lighting, DB Contractor shall provide TxDOT a layout indicating the proposed location of such items.

16.3.2 Signing and Delineation

DB Contractor shall design and install all new signs based on their proposed design. DB Contractor's design shall include the locations of ground-mounted and overhead signs, graphic representation of all signs, proposed striping, delineation placement, guide sign and special sign details, and structural and foundation requirements. Signs shall be located in a manner that avoids conflicts with other signs, vegetation, dynamic message signs (DMS), lighting, and structures.

DB Contractor shall ensure that signs are clearly visible, provide clear direction and information for users, and comply with all applicable TMUTCD requirements.

DB Contractor shall review with TxDOT all requests for new signs, including traffic generators, or modifications of existing sign text. Such requests are subject to TxDOT's approval.

DB Contractor's design of delineators and object markers shall comply with TMUTCD requirements.

Signs shall meet the requirements of TxDOT's *Standard Highway Sign Design for Texas*.

The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

Furnish and place two OM-2Y Object Markers on mailbox supports, one in each direction.

16.3.3 Project Signs – Outside the Project ROW

For signs located outside the Project ROW but within a public ROW, DB Contractor shall install the signs in existing rights-of-way controlled by local or other State agencies. DB Contractor shall coordinate with appropriate Governmental Entities for the design and installation of such signs.

16.3.4 Third-Party Signs

In addition to the warning, regulatory, and guide signs within the Project ROW, TxDOT or Governmental Entities may request that third-party signs, including logo signs, be installed by a third party. DB Contractor shall coordinate and cooperate with any third party performing such work. TxDOT may solicit input from DB Contractor in reviewing applications for new third-party signs, but will retain sole authority for approving installation of these signs. All costs associated with fabricating and installing these signs shall be borne by the sign applicant. If approved by TxDOT, TxDOT may require DB Contractor to fabricate and/or install these signs as a TxDOT-Directed Change.

The company currently under contract with TxDOT for logo signs is Lone Star Logos, whose phone number is (866) 627-5646.

16.3.5 Sign Support Structures

DB Contractor shall determine foundation types and design sign foundations based upon geotechnical surveys/tests using Good Industry Practices. Designs for sign supports shall also comply with requirements in Section 13 (Structures).

DB Contractor shall design sign support structures to provide a vertical clearance of not less than 19'-6" between the roadway and the bottom of the sign.

16.3.6 Pavement Marking

DB Contractor shall ensure that the design and installation of all pavement markings comply with applicable TMUTCD requirements and TxDOT's Traffic Engineering Standard sheets.

DB Contractor shall mark median noses of all raised islands and inside edges of exclusive turn lanes (channelized curbs) in accordance with the requirements of TMUTCD and TxDOT's Traffic Engineering Standard sheets.

DB Contractor shall use contrast markings for skip lines on the controlled access mainlanes where rigid pavement is proposed. Contrast markings consist of black background in combination with standard TMUTCD marking colors.

Reflectorized pavement markings shall meet the retro-reflectivity requirements described in TxDOT Special Specification 8251.

Milled in shoulder texturing shall be required in rural areas for centerline of each Location using flexible pavement.

16.3.7 Signalization

Not Applicable

16.3.8 Lighting

Not Applicable

16.3.8.1 Additional Requirements

Additional requirements are as follows:

a) At a minimum, underground conduit in interchange areas or temporary detours shall not be less than 2" or Schedule 80 polyvinyl chloride (PVC); all other underground conduit installations shall not be less than 2" or Schedule 40 PVC.

b) The minimum conductor size shall be #8 AWG copper. DB Contractor shall not use duct cable for illumination purposes.

c) DB Contractor shall place bridge lighting brackets no more than 10 feet from abutments or bents; however, in special circumstances, the bridge lighting brackets may be placed a maximum of 20 feet from abutments and piers.

d) If overhead electric lines confine the placement of luminaires, DB Contractor may use special davit-arm luminaires.

e) Minimum inside dimensions for ground boxes shall be 15.25 inches (width) by 28.25 inches (length) by 10 inches (depth).

f) Ground box covers shall be 2-inch-thick (nominal), non-conducting material and labeled "Danger High Voltage Illumination".

g) Riprap aprons shall be provided to ground boxes located in grassy areas.

h) Lights shall have an identification tag denoting a contact person or office in case of emergency or for maintenance, and the address and telephone number.

i) Electrical part of the installation shall be designed and installed in conformance with the National Electrical Code (NEC).

16.4 Construction Requirements

16.4.1 Permanent Signing and Delineation

DB Contractor shall use established industry and utility safety practices to erect and remove signs located near any overhead or underground utilities, and shall consult with the appropriate Utility Owner(s) prior to beginning such Work. DB Contractor shall stake each sign location in the field and provide TxDOT 72 hours notice prior to installation of any sign.

DB Contractor shall leave all applicable signs in place at all times and shall not obstruct the view of the signs to the motorist. DB Contractor shall replace any other removed signs before the end of the workday.

DB Contractor shall affix a sign identification decal to the back of all signs for inventory purposes and shall submit inventory information to TxDOT in a TxDOT-compatible format.

All installed signs are required to meet the minimum retro-reflectivity values specified in TMUTCD Table 2A-2.1 (Minimum Maintained Retroreflectivity Levels).

Table 16-2: Retroreflectivity Values

Sign Colors	Sheeting Type (ASTM D4956-04)				Additional Criteria
	I	II	III	VII, VIII, IX	
White on Green	W*; G _	W*; G 15	W*; G 25	W 250; G 25	Overhead
	W*; G 7	W 120; G 15			Ground-mounted
Black on Orange or Black on Yellow	Y*; O*	W _50; G 50			See Note 1
	Y*; O*	W 75; G 75			See Note 2
White on Red	W 35; R 7				See Note 3
Black on White	W 50				—

Notes:

The minimum maintained retro-reflectivity levels shown in this table are in units of candelas per lux per square meter (cd/lx/m^2), measured at an observation angle of 0.2° and an entrance angle of -4.0°.

1 For text and fine symbol signs measuring at least 1200 millimeters (mm) (48 inches) and for all sizes of bold symbol signs

2 For text and fine symbol signs measuring less than 1200 mm (48 inches)

3 Minimum Sign Contrast Ratio _ 3:1 (white retroreflectivity ÷ red retroreflectivity)

* This sheeting type should not be used for this color for this application.

Bold Symbol Signs

W1-1, -2 – Turn and Curve	W3-1 – Stop Ahead	W11-2 – Pedestrian Crossing
W1-3, -4 – Reverse Turn and Curve	W3-2 – Yield Ahead	W11-3 – Deer Crossing
W1-5 – Winding Road	W3-3 – Signal Ahead	W11-4 – Cattle Crossing
W1-6, -7 – Large Arrow	W4-1 – Merge	W11-5 – Farm Equipment
W1-8 – Chevron	W4-2 – Lane Ends	W11-6 – Snowmobile Crossing
W1-10 – Intersection in Curve	W4-3 – Added Lane	W11-7 – Equestrian Crossing
W1-11 – Hairpin Curve	W4-5 – Entering Roadway Merge	W11-8 – Fire Station
W1-15 – 270 Degree Loop	W4-6 – Entering Roadway Added Lane	W11-10 – Truck Crossing
W2-1 – Cross Road	W6-1, -2 – Divided Highway Plaques Begins and Ends	W12-1 – Double Arrow
W2-2, -3 – Side Road	W6-3 – Two-Way Traffic	W16-5p, -6p, -7p – Pointing Arrow Plaques
W2-4, -5 – T and Y Intersection	W10-1, -2, -3, -4, -11, -12 – Highway-Railroad Advance	W20-7a – Flagger
W2-6 – Circular Intersection		W21-1a – Worker

Fine Symbol Signs – Symbol signs not listed as Bold Symbol Signs.

Special Cases

W3-1–Stop Ahead: Red retroreflectivity, 7

W3-2–Yield Ahead: Red retroreflectivity, 7, White retroreflectivity, 35

W3-3–Signal Ahead: Red retroreflectivity, 7, Green retroreflectivity, 7

W3-5–Speed Reduction: White retroreflectivity, _50

For non-diamond-shaped signs such as W14-3 (No Passing Zone), W4-4p (Cross Traffic Does Not Stop), and W13-1, -2, -3, -5 (Speed Advisory Plaques), use largest sign dimension to determine proper minimum retroreflectivity level.

16.4.2 Permanent Pavement marking

DB Contractor shall meet the following minimum retroreflectivity values for edge line markings, centerline/no passing barrier line markings, and lane line markings when measured anytime after three (3) days but not later than ten (10) days after application:

a) Type I, Thermoplastic, Pavement Markings:

- White markings: 250 millicandelas per square meter per lux (mcd/m2/lx)

- Yellow markings: 175 mcd/m2/lx

b) Type II, Paint & Beads, Pavement Markings:

- White markings: 175 mcd/m2/lx
- Yellow markings: 125 mcd/m2/lx

17 INTELLIGENT TRANSPORTATION SYSTEMS

Not Applicable

18 TRAFFIC CONTROL

18.1 General Requirements

DB Contractor shall design and construct the Project, in conformance with TxDOT provided plans and the requirements stated in this Section 18, to provide for the safe and efficient movement of people, goods, and services, through and around the Project, while minimizing negative impacts to Users, residents, and businesses. DB Contractor shall coordinate with TxDOT on the development of the Traffic Control Plans (TCPs).

The DB Contractor shall manage all traffic control work in strict compliance with the requirements of the TxDOT District CAD Standards, TxDOT Statewide CAD Standards, TxDOT *Standard Specifications for Construction and Maintenance of Highways, and Bridges*, *Texas Manual on Uniform Traffic Control Devices* (TMUTCD) and all other Contract Documents.

It shall be the responsibility of the DB Contractor to gain approval from the appropriate Governmental Entity or property owner for each intersecting street, or driveway closure or use of local streets as a detour or hauling route.

During all phases, temporary or existing streetlights and traffic signals shall remain in operation such that the new and existing equipment operate as a coherent system.

18.2 Administrative Requirements

18.2.1 Traffic Management Plan

DB Contractor shall prepare and implement a Traffic Management Plan (TMP) that includes coordination with all affected parties and the following items:

a) The DB Contractor shall construct or prepare the roadway in accordance with the Traffic Control Plan (TCP) specified in the Final Design Documents. If a TCP is not shown and/or a modification is requested, the DB Contractor TCP must be submitted for approval. The general constraint for any proposed TCP is that no construction phase of any Location may require the traveling public to drive on subgrade material overnight.

b) Descriptions of the qualifications and duties of the traffic engineering manager, traffic control coordinator, and other personnel with traffic control responsibilities

c) Procedures to identify and incorporate the needs of transit operators, Utility Owners, Governmental Entities, local governmental agencies, Emergency Service providers, school districts, business owners, and other related Users, Customer Groups or entities in the Project corridor and surrounding affected areas

d) Procedures for obtaining acceptance of detours, road and lane closures and other traffic pattern modifications from applicable Governmental Entities, and implementing and maintaining those modifications

e) Procedures for signing transitions during construction from one stage to the next and from interim to permanent signing

f) Procedures for maintenance and replacement of traffic control devices, including pavement markings and traffic barriers, if used

g) Procedures to regularly evaluate and modify, if necessary, traffic signal timings, and the procedures for the development, TxDOT approval, implementation, testing, and maintenance of all affected signals

h) Procedures to coordinate with the appropriate Governmental Entities operating signal networks along the Project or Project detour routes to ensure temporary system compatibility, establish responsibilities for temporary signal installation, maintenance, operation and removal, and coordinate traffic signal timing with local signal networks

i) Procedures and process for the safe ingress and egress of construction vehicles in the work zone

j) Provisions to provide continuous access to established truck routes and Hazardous Material (HazMat) routes, and to provide suitable detour routes, including obtaining any approvals required by the appropriate governmental entities for these uses

k) Procedures to modify plans as needed to adapt to current Project circumstances including a contingency plan to alleviate unreasonable construction-related back-ups that can be implemented immediately upon notification from TxDOT

l) Procedures to communicate TMP information to DB Contractor's public information personnel and notify the public of maintenance of traffic issues in conjunction with the requirements of Section 3

m) Descriptions of contact methods, personnel available, and response times for any deficiencies or Emergency conditions requiring attention during off-peak hours

n) Procedures for night work to include a work zone light system design in accordance with NCHRP Report 498 – *Illumination Guidelines for Nighttime Highway Work*

o) DB Contractor shall notify the traveling public by placing changeable message signs a minimum of seven (7) Days in advance of actual roadway closure or major traffic modifications.

p) DB Contractor shall provide and utilize uniformed police officers to effect road closures and signalized intersections.

TxDOT must approve the TMP prior to the start of construction activities. DB Contractor shall provide TxDOT sufficient time for review of, and comment on, the TMP. TxDOT retains the right to require revision and re-submittal of the TMP within a reasonable amount of time.

18.3 Design Requirements

18.3.1 Traffic Control Plans

DB Contractor shall use the procedures in the TMP and the standards of the TMUTCD to develop detailed traffic control plans, which provide for all construction stages and phasing, as well as all required switching procedures.

DB Contractor shall produce a traffic control plan for each and every phase of Work that impacts traffic and involves traffic control details and shall coordinate with appropriate Governmental Entities on the development of the plan. DB Contractor is responsible for obtaining all necessary permits from such local entities to implement the plans.

Each traffic control plan shall be submitted to TxDOT for review a minimum of 10 Days prior to implementation. The traffic control plan shall include details for all detours, traffic control devices, striping, and signage applicable to each phase of construction. Information included in the traffic control plans shall be of sufficient detail to allow verification of design criteria and safety requirements, including typical sections, alignment, striping layout, drop off conditions, and temporary drainage. The traffic control plans shall clearly designate all temporary reductions in speed limits. Changes to posted speed limits will not be allowed unless TxDOT grants specific prior approval.

DB Contractor shall utilize a temporary portable traffic signal in accordance with TxDOT Standard for Long Term One-Lane Two-Way Control at the conclusion of each working day.

One-way traffic control shall be limited to:

- 1.5 mile for CSJ 0517-03-030:
- The length of the one-way traffic control section is limited to ½ miles for CSJ 0748-05-039, etc. This item will be used for seal coat operations only.

Opposing traffic on a normally divided roadway shall be separated with appropriate traffic control devices in accordance with Good Industry Practice and TMUTCD based on roadway design speed. Approved traffic control devices can be found in the *Compliant Work Zone Traffic Control Device List* (CWZTCD list).

DB Contractor shall maintain signing and pavement marking continuity on all active roadways within or intersecting the Project at all times.

Throughout the duration of the Project, DB Contractor shall ensure all streets and intersections remain open to traffic to the greatest extent possible by constructing the Work in stages. DB Contractor shall maintain access to all adjacent streets and shall provide for ingress and egress to public and private properties at all times during the Project.

The DB Contractor shall obtain Law Enforcement for applicable Locations to provide for the safe and efficient movement of people, goods, and services, through and around the Project, while minimizing negative impacts to Users, residents, and businesses.

The following Locations will require a Temporary Speed Reduction, which will be authorized by Minute Order executed by the Texas Transportation Commission:

Corpus Christi District

- FM 624
- SH 199
- FM 2049
- FM 627
- US 181

San Antonio District

- FM 791

18.3.1.1 Design Parameters for Traffic Control Plans

Design Vehicle. Turning movement on all local streets and driveways shall, at a minimum, provide similar characteristics as existing.

Design Speed. On Interstate and State Highways, the design speed shall be the existing posted or greater, except for major alignment transitions, where the design speed may be reduced by 10 mph if requested by Developer , agreed to and sought by TxDOT, in its sole discretion, and granted by the Texas Transportation Commission.

Number of Lanes. The minimum number of lanes to be maintained shall be the number of lanes currently available on each facility, except for closures allowed under Section 18.3.1.2.

Lane Widths. During construction, the minimum lane width is 11 feet or as approved by TxDOT. For minor crossing streets, TxDOT may, in its sole discretion, allow 10-foot lanes in limited circumstances during construction for short distances after reviewing the DB Contractor's traffic control plan.

Shoulders. A minimum one-foot offset from the edge of travel way to the edge of pavement or traffic barrier is required.

18.3.1.2 Permitted Lane and Roadway Closures

Closures will only be permitted when the DB Contractor can demonstrate that the closure will provide clear benefit to the progress of the Work. Closures must be coordinated with adjacent projects and priority shall be given to the closure submitted first.

Lane Closure. DB Contractor shall seek TxDOT approval if a reduction in the current number of lanes is required. Any complete roadway closure will require a Traffic Control Plan to be submitted and approved by TxDOT.

Driveway Closures. DB Contractor shall maintain a minimum of one driveway per business at all times. For businesses with multiple driveways, when driveway closure is necessary to progress Work, no driveway may be closed for more than 30 consecutive days or more than 45 days in a 90-day period.

18.3.1.3 Detour Usage

DB Contractor shall use State routes for detour routes, wherever applicable. If State routes are unavailable, DB Contractor shall use local roadways, provided that DB Contractor has obtained the necessary permits from the Governmental Entity having jurisdiction.

DB Contractor shall provide motorists with guidance on diverting around the construction, detouring around specific construction sites, and traveling through the construction areas. This shall include the installation and maintenance of temporary regional signs to divert traffic around the Project. Motorist guidance to and along detour routes shall be provided, together with regional guidance.

18.3.2 Restricted Hours

Developer shall maintain existing capacity, from 12:00 p.m. (noon) on the preceding day, to 10:00 pm on the day of the following dates or range of dates. No additional closures that restrict or interferes with traffic shall be allowed. TxDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual traffic conditions may warrant.

a) New Year's Day

b) Easter Holiday Weekend (Friday through Sunday)

c) Memorial Day Weekend (Saturday through Monday)

d) Independence Day

e) Labor Day Weekend (Saturday through Monday)

f) Thanksgiving Holiday (Thursday through Sunday)

g) Christmas Holiday (December 23 through December 26)

18.3.3 Hurricane Evacuations

DB Contractor shall provide a Hurricane Evacuation plan by May 15th of each year, for TxDOT's approval, demonstrating how to keep one (1) lane in the evacuation direction open to traffic within two (2) days of TxDOT's notification. The yearly-approved Hurricane Evacuation plan must be updated continuously throughout each Hurricane season to reflect changes due to the ongoing construction operation. The following roadways are designated as evacuation routes:

- FM 624, Corpus Christi District, CSJ-0989-01-034, etc.
- US 181, Corpus Christi District, CSJ-0100-05-070
- IH-35 (West), Laredo District, CSJ-0017-08-082

- IH-35 (East), Laredo District, CSJ-0017-08-083
- SH 16, San Antonio District, CSJ-0517-03-030

Hurricane Season is from June 1 thru November 30. Each TxDOT District will coordinate these restrictions at a minimum of 120-hours from any projected impact to the Texas Coast.

No time charges will be made if TxDOT determines that work on the project was impacted by the hurricane.

TxDOT may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work.

18.4 Construction Requirements

Construction shall be in accordance with DB Contractor's TMP, the manufacturer's directions or recommendations where applicable, and the applicable provisions of the TMUTCD.

18.4.1 DB Contractor Responsibility

If at any time TxDOT determines DB Contractor's traffic control operations do not meet the intent of the TMP or any specific traffic control plan, DB Contractor shall immediately revise or discontinue such operations to correct the deficient conditions.

DB Contractor shall provide TxDOT the names of the traffic control coordinator and support personnel, and the phone number(s) where they can be reached 24 hours per day, seven days per week.

18.4.2 Access

Existing bicycle and pedestrian access and mobility shall be maintained parallel with the frontage roads and across all cross streets. Access to existing transit stop locations shall be maintained during construction or reasonable alternative locations shall be provided.

18.4.3 Pavement Markings

DB Contractor shall be required to remove existing pavement markings that conflict with temporary or permanent pavement markings. These pavement markings shall be removed by any method that does not materially damage the surface or texture of the pavement. Pavement marking removal by over-painting is prohibited.

18.4.4 Reinstatement of Utility Cuts

After installation of drainage structures, storm sewers, or any other public or private Utility facility by open cut beneath existing pavements carrying traffic during construction, the pavement shall be restored to provide a normal satisfactory riding surface.

18.4.5 Hauling Equipment

DB Contractor shall keep traveled surfaces used in its hauling operations clear and free of dirt or other debris that would hinder the safe operation of roadway traffic.

Rubber-tired equipment shall be used for moving dirt or other materials along or across paved surfaces.

Where DB Contractor moves any equipment not licensed for operation on public highways on or across any pavement, DB Contractor shall protect the pavement from all damage caused by such movement. Any damage caused by the operation of DB Contractor shall be repaired at the expense of DB Contractor.

All haul routes utilizing any street of an adjacent Governmental Entity shall be coordinated with the appropriate Governmental Entity.

18.4.6 Final Clean-Up

DB Contractor shall clear and remove from the site all surplus and discarded materials and debris of every kind and leave the entire Project in a smooth and neat condition, after any construction process.

18.4.7 Stockpiles

Barricades and warning signs are to be placed at stockpiles to adequately warn motorists of a hazard in accordance with TxDOT's Traffic Engineering Standard sheets and the TMUTCD. Material stockpiles shall not be located within the clear zone of any traveled lane, unless positive protection is provided.

19 MAINTENANCE

19.1 General Requirements

DB Contractor shall maintain the Project in a manner that provides a safe and reliable transportation system for improved mobility.

The Maintenance Services shall include all activities to be performed by DB Contractor to satisfy the Performance Requirements with respect to the maintained elements, together with other duties described in this Section 19.

19.1.1 *General Maintenance Obligations*

DB Contractor shall take all necessary actions to achieve the following:

- Maintain a Location in a manner appropriate for a project of similar character from initial placement of barricades to Location acceptance.
- Minimize delay and inconvenience to Users to the extent DB Contractor is able to control.
- Monitor and observe weather and weather forecasts to proactively deploy resources to minimize delays, safety hazards and erosion due to heavy rains, or other severe weather events.
- Minimize the risk of damage, disturbance, or destruction of third-party property during the performance of maintenance activities.
- Coordinate with and enable TxDOT and others with statutory duties or functions in relation to the Project to perform such duties and functions.
- Perform systematic project inspections and maintenance in accordance with the provisions of DB Contractor's Maintenance Management Plan (MMP) and DB Contractor's Safety Plan.

DB Contractor is responsible for providing all resources necessary for the performance of all activities in the Maintenance Management Plan.

The Performance and Measurement Table Baseline is included in Table 19-1.

19.1.2 *DB Contractor's Obligation to Remedy and Repair*

19.1.2.1 Performance Requirements during DB Phase of Existing elements

TxDOT will be responsible for maintaining each project Location to a MNT score of "Average 2" prior to the setting barricades. DB Contractor shall assume maintenance responsibilities once project limit barricades are installed. Prior to this, DB Contractor shall score each component of each element using the Maintenance (MNT) Scoring System defined in Table 19-1. TxDOT and DB Contractor will concur on a baseline MNT score for each roadway. Each component is scored individually on each roadway.

DB Contractor MNT responsibilities are complete and returned to TxDOT at substantial completion of each Location.

DB Contractor is responsible for maintenance of all elements listed in Table 19-1 within the project limits at each location, including the existing elements.

DB Contractor shall prepare and submit to TxDOT, for review, comment, and implementation MMP that includes measures to improve and/or maintain the baseline MNT score for each element to a level at or above the "Average 2" score if Work does not begin within 30 days after barricades are set. The MNT score for each element not meeting a "Average 2" or above score will be brought up to a level of "Average 2" or above as the first project work task and this MNT level shall be maintained throughout construction of each roadway project.

- If TxDOT determines that a component in the original baseline MNT score falls one point, the DB Contractor will be notified about the change. The DB Contractor must take corrective action within 48 hours to maintain baseline score.

- If a score for a particular component scores in the "Below Average 1" condition during the baseline MNT scoring, then the DB Contractor shall immediately take action to improve that component to a "Average 2" score.
- If any party determines that an unsafe condition exists that constitutes immediate action, the DB Contractor will be notified about the change and corrective action shall be immediate.

The DB Contractor shall take necessary action such that the "Below Average 1" hazards to motorists are mitigated within 24 hours. A "Below Average" hazard is any component that is scored: 1.

- The 24-hour period shall be deemed to start upon the date DB Contractor first obtained knowledge of, or first reasonably should have known of, the Defect. For this purpose DB Contractor shall be deemed to first obtain knowledge of the failure not later than the date of delivery of the initial notice to DB Contractor. DB Contractor shall investigate reports and complaints on the condition of the Project received from all sources. DB Contractor shall record these as Operations & Maintenance (O&M) Records together with details of all relevant inspections and actions taken in respect of Defects, including temporary protective measures and repairs.

19.1.2.2 Performance Requirements of Temporary Diversions

Temporary diversion routes that require modification for the maintenance of traffic during Construction Work are to be maintained in a functional and fair condition consistent with the MNT scoring system.

19.1.3 *Transition of Maintenance*

The DB Contractor shall coordinate with TxDOT to achieve a smooth transition of maintenance activities to and from TxDOT.

19.2 Maintenance Management Plan (MMP)

DB Contractor shall prepare a Maintenance Management Plan (MMP) that is consistent with the general maintenance obligations described in Section 19.1 (General Requirements) and defines the process and procedures for the maintenance of each Location until substantial completion. The MMP shall include inspection procedures and frequencies, and subsequent maintenance to address noted deficiencies, for each physical element of the Project in accordance with Table 19-1.

DB Contractor shall submit the MMP to TxDOT for review and approvals as part of their Proposal. Approval by TxDOT of the MMP shall be a condition of NTP1.

The MMP shall include procedures for managing records of inspection and maintenance activities, including appropriate measures for providing protected duplication of the records. Inspection and maintenance records shall be kept for the Term of the Warranty period and shall be provided to TxDOT at the time that each project Location is delivered to TxDOT, at either the expiration of the Term or earlier termination of the DBC.

19.3 General Inspections

DB Contractor shall cause trained and competent personnel to plan and implement a program of inspections of the Project which:

- Verifies the continuing safety of the Project for Users.
- Prioritizes "Below Average 1" defects requiring immediate and urgent attention because they are likely to create a danger or serious inconvenience to Users. .
- Is responsive to reports or complaints received from Customer Groups.
- Takes account of Incidents and Emergencies affecting the Project.
- Monitors the effects of extreme weather conditions.

- Collates data to monitor performance of the Project and to establish priorities for future maintenance operations and renewal Work.

DB Contractor shall ensure that personnel performing inspections of road pavements and structures are certified as inspectors and/or raters in accordance with the Contract Documents.

19.3.1 *General Inspections and Inspection Frequency*

DB Contractor shall establish inspection procedures and carry out inspections so that all category defects are identified and remedied such that the hazard to Users is mitigated.

DB Contractor shall perform general inspections in accordance with the MMP so that the repairs of all defects are included in planned programs of work.

O&M Records in respect of general inspections shall include details of the manner of inspection (e.g. center lane closure or shoulder), the weather conditions and any other unusual features of the inspection.

19.3.2 *Inspection Standards*

In performing inspections, DB Contractor shall ensure that all elements conform at a minimum to the concurred baseline MNT score for that element or "Average", whichever is higher.

Table 19-1 - Performance and Measurement Table Baseline

Defined elements and Corresponding Components

element	Components
Roadbed	Failures, Edges, Driveways.
Traffic Operations	Regulatory Large Signs, Regulatory Small Signs, Striping Graphics/Pavement Markings, Attenuators
Roadside	Graded Shoulders, Guardrail, GET's, Ditches, Drains, TAS's.

Maintenance (MNT) Scoring System

Component	Excellent	Above Average	Average	Below Average
Roadbed	**4**	**3**	**2**	**1**

Failures	No repairs of any type.	All patched and repaired areas are smooth and level. Small depressed areas, (settled areas)	Moderate failures (small areas that have minor pavement movement and/or tight cracking, that you will need to dig in near future). Several small depressed areas. Un-level repairs. Small open potholes.	Major failures (areas in need of repair, that have cracking and may have some pavement movement, needs repairs now). Has several moderate failures. Large open potholes.
Edges Raveling/ broken area first 1foot of pavement and drop-off area foot off pavement.	No repairs made. May have complete edge seal.	Minor drop-offs (short lengths < 50' and < 2" deep) and/or minor broken edge (areas < 100' and up to 3" wide. All repaired.	Moderate drop-offs (short areas of < 50' and 2" to 4" deep. Long areas of minor drop-offs. moderate broken edge (areas under 100' and up to 6" wide). Long areas of minor broken edge. Not all repaired	Major drop-offs (over 4" to 6"). Long areas of moderate drop-offs. Major broken edge (areas over 6" wide). Long areas of moderate broken edge.
Traffic Operations	**4**	**3**	**2**	**1**
Regulatory Large Signs (Installed on I or H beams or sign bridge)	Signs like new, with all back ground, lettering, borders and shields clean and reflective. No damage. Per TMUTCD	Signs generally good; background, lettering, borders and shields may be slightly faded. May have very minor damage.	Signs borderline acceptable; background, lettering, borders and shields may be slightly faded or mildewed. May have some damage.	Signs unacceptable with dirt or mildew. May be faded or have substantial damage. May have one or two high or low bases.
Regulatory	Signs like	All on standard	All on standard	All on standard

Small Signs (Chevrons are signs)	new, on standard posts, no repairs needed. All straight. Per TMUTCD	supports. Very minor repairs needed. All required signs are in place. No high or low bases. Most are straight.	supports, < 50% leaning or with dirty, damaged or bad sign faces. No high or low bases	supports, most leaning or dirty, damaged or bad sign faces. One non-regulatory maybe missing. Some may have high or low bases.
Striping Graphics/Pavement Markings	New or like new. All required graphics are in place and like new, placed to meet the TMUTCD and TxDOT's Pavement Marking Standard Sheets	Stripes in very good shape with no obvious loss of reflectivity. All required graphics are in good condition	Stripes in acceptable shape with some cracking or minor loss of reflectivity. May have crack seal slightly obscuring some stripe. Required graphics are present.	Stripes unacceptable with cracking, fading, or severely worn. May be substantially covered with crack seal material. Needs to be replaced. Graphics are missing.
Attenuator, Delineator, and Object Markers	New or like new to current standards with no damage.	Attenuator not damaged; may not be latest standard.	Attenuator functional but with very minor damage. May need painting.	Attenuator with moderate damage but will still function as designed.
Roadside	**4**	**3**	**2**	**1**
Rail (Structural Rail, Guardrail, Foundation, etc.)	Rail like new, appropriately placed, installed to the latest standards.	Rail all functional. May have one minor dent or may not be the latest standard.	Rail all functional with several minor dents or out of alignment.	Rail has been hit and is not functional. Rail has standup ends instead of turn down or turn down instead of GET. Rail is low.
GET / TAS	GET /TAS like new, in correct alignment and installed properly.	GET/TAS still aligned properly may have minor damage to O.M.	GET/TAS has minor damage but still functional.	GET/TAS damaged not functional needs repairs.

20 BICYCLE AND PEDESTRIAN FACILITIES

Not Applicable

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ENERGY SECTOR ROADWAY REPAIR PROJECT

Attachment 2-1

Project Management Plan Contents

Attachment 2-1 – Project Management Plan Contents

The Project Management Plan Contents and Schedule for provision of the component parts.

Legend:
A = Submitted by DB Contractor within 30 days of NTP 1 and approved by TxDOT prior to Commencement of Design and issuance of NTP 2
B = Submitted by DB Contractor within 90 days of NTP 1 and approved by TxDOT prior to Commencement of Construction

Part	Ref	Section	Contents	Required by
1. Project Administration				
	1.1	Organization	Organization diagram	A
	1.2	Personnel	Names and contract details, titles, and job roles	A
	1.3	Contractors	Procedures to establish how the DB Contractor will manage Contractors	A
	1.4	Schedule	Project Baseline Schedule in accordance with the Technical Provision Section 2	A
	1.5	Quality Control	Procedures to establish and encourage continuous improvement	A
	1.6	Audit	Procedures to facilitate review and audit by TxDOT and/or the Independent Reviewers	A
			Auditing and management review of DB Contractor's own activities under the PMP	A
			Auditing and management review of Contractor's activities and management procedures	A
	1.7	PMP Update	Procedures for preparation of amendments and submission of amendments to any part of the PMP	A
	1.8	Document Management	The manner in which records will be maintained in compliance with the Technical Provisions	A
			Document management procedures in compliance with the Technical Provisions Section 2	A
			Procedures for documenting all required Plans not specifically stated in this attachment, including but not limited to: Haul Route Plan, Maintenance Management Plan (MMP), Emergency Response Plan, etc	
2. Quality Management Plan				
2A. Design Quality Management				
	2A.1	Organization	Organizational structure covering the activities to be performed in accordance with the Contract Documents	A
			Resource Plan for the DB Contractor and its subcontractors	A
	2A.2	Personnel		

2. Quality Management Plan				
2A. Design Quality Management				
	2A.2	Personnel	Arrangements for coordinating and managing staff interaction with TxDOT	A
			Names and contact details, titles, job roles and specific experience required for the Key Personnel	A
			Names and contact details, titles, job roles and specific experience required for the principal personnel for Contractors and any third party with which DB Contractor will coordinate activities	A
	2A.3	Offices and equipment	Description of the necessary offices and office equipment to be provided by DB Contractor	A
	2A.4	Contractors	Overall control procedures for Contractors, including consultants and Subconsultants	A
			Responsibility of Contractors and Affiliates	A
			Steps taken to ensure Contractors and Suppliers meet the obligations imposed by their respective Contracts	A
	2A.5	Interfaces	Interfacing between the DB Contractor, Contractors and the Independent certifiers during the period of Design Work	A
			Coordination with Utility Owners	A
	2A.6	Environmental	Integration of the interface between environmental requirements and the design of the Project	A
	2A.7	Procedures	Procedures describing how the principal activities will be performed during the design stage: to include geotechnical site investigation, surveys and mapping, environmental management, safety audit, structural audit, and checking	A
	2A.8	Quality Control	Quality Management Plan (QMP), including control procedures including a resource table for monitoring and auditing all design services, design review and certification, and verification of plans	A
			Procedures for environmental compliance	A
			Procedures to establish DB Contractor's hold points in the design process at which checking and review will take place	A
			Procedures to ensure accuracy, completion, and quality in submittals to TxDOT, Governmental Entities and other third parties.	A
			Procedures to establish and encourage continuous improvement	A
	2A.9	Audit	Name of DB Contractor's representative(s) with defined authority for establishing, maintaining, auditing and reporting on the PMP	A
			Name, title, roles and responsibilities of supporting quality management staff reporting to the person with defined authority	A
	2A.10	Document Management	The manner in which records will be maintained in compliance with the Technical Provisions, including any specific systems DB Contractor will use	A
			Document management procedures in compliance with the Technical Provisions Section 2	A
			Identify environmental documentation and reporting requirements, including Environmental Permits, Issues and Commitments (EPIC) sheets	A
2B. Construction Quality Management				
	2B.1	Organization	DB Contractor's main contractual arrangements	A

			Organizational structure covering the activities to be performed in accordance with the Contract Documents	A
	2B.2	Personnel	Resource Plan for the DB Contractor and its Contractors	B
			Arrangements for coordinating and managing staff interaction with TxDOT and its consultants including collocation of Key Personnel and description of approach to coordinating work of off-site personnel	B
			Names and contact details, titles, job roles and specific experience required for the Key Personnel as related to construction	A
			Names and contact details, titles, job roles of principal personnel for Contractors and any third party with which DB Contractor will coordinate his activities	B
			Procedures for implementation of the Environmental Protection Training Plan (EPTP) for all employees in accordance with the Technical Provisions Section 4	B
	2B.3	Offices and equipment	Description of the necessary offices and office equipment to be provided by DB Contractor	A
	2B.4	Contractors	Overall control procedures for Contractors, including consultants and subconsultants	B
			Responsibility of Contractors and affiliates	B
			Steps taken to ensure Contractors and Suppliers meet the obligations imposed by their respective Contracts	B
			Procedures for implementation of Environmental Protection Training Plan (EPTP) for employees of subcontractors in accordance with the Technical Provisions Section 4	B
	2B.5	Interfaces	Interfacing between the DB Contractor, Contractors, including any testing contractor, and the Independent verifiers during construction	A
	2B.6	Procedures	List of Project specific construction procedures	B
			Construction detailed procedure for each major activity whether directly undertaken or subcontracted to include pavement, structures, drainage, communications	B
			Traffic Management Plan	B
	2B.7	Quality Control/ Quality Assurance	Construction Quality Management Plan (CQMP)	B
			Integration of component parts of the Comprehensive Environmental Protection Program (CEPP) into construction quality management	B
			Control, identification and traceability of materials, including any material or samples temporarily or otherwise removed from site for testing or other reasons.	B
			Examinations and audit of Construction Work, review of examination and audit, issue of certificates	B
			Observation and reporting of all tests in compliance with the Technical Provisions Section 2	B
			Procedures for tests and inspections for the purpose of the Contractor certifying that prior to burying, each part of the Works is complete and conforms to the DBC	B
			Quality control procedures including a resource table for monitoring and auditing during construction any work and testing undertaken by Contractors and Suppliers both on and off Site	B

2B. Construction Quality Management (continued)				
	2B.7	Quality Control	Procedures to establish DB Contractor's hold points in construction	B
			Procedures to ensure accuracy, completion, and quality in submittals to TxDOT, Governmental Entities and other third parties	B
			Procedures to establish and encourage continuous improvement	A
	2B.8	Audit	Inspection and test plans that identify the proforma and/or databases to be used for recording the inspection and test results and a methodology for transmitting acceptance testing and inspection reports to TxDOT	B
			Name of DB Contractor's representative with defined authority for establishing, maintaining, auditing and reporting on the PMP	A
			Name, title, roles and responsibilities of supporting quality management staff reporting to the person with defined authority.	B
	2B.9	Document Management	The manner in which records will be maintained in compliance with the Technical Provisions, including any specific systems DB Contractor will use	B
			Document management procedures in compliance with the Technical Provisions Section 2	A
2C. Maintenance Management				
	2C.1	Procedures	Procedures describing how the principal activities will be performed during the maintenance period including the general maintenance and operations obligations	A
			Procedures for managing records of inspection and maintenance activities	A
			Procedures setting out DB Contractor's response to maintenance issues such as mitigation of hazards, and defects that require prompt attention or are a safety concern	A
	2C.2	Performance Standards	Procedures to be followed by DB Contractor pursuant to the Technical Provisions to comply with all applicable maintenance requirements for the term of the DBC	A
	2C.3	Emergency Response	Procedures setting out how DB Contractor will respond to accidents and incidents at each Location within the Project	A
3. Comprehensive Environmental Protection Program (CEPP)				
	3.1	Organization	DB Contractor's main contractual arrangements	A
			Organizational structure covering the activities to be performed in accordance with the Contract Documents	A
			Environmental Contact Tree	A
	3.2	Personnel	Resource Plan for the DB Contractor and its Contractors	B
			Arrangements for coordinating and managing staff interaction with TxDOT and its consultants	A
			Names and contact details, titles, job roles and specific experience required for Key Personnel and for other environmental personnel	A
			Implement Environmental Protection Training Plan (EPTP) for all employees in accordance with the Technical Provisions Section 4	A

3. Comprehensive Environmental Protection Plan (continued)				
	3.3	Contractors	Overall control procedures for Contractors, including consultants and subconsultants	A
			Responsibility of Contractors and Affiliates	A
			Implement Environmental Protection Training Plan (EPTP) for employees of Contractors in accordance with the Technical Provisions Section 4	
	3.4	Environmental	Establishment of the component parts of the Construction Quality Management Plan (CQMP)	B
	3.5	Quality Control	Procedures to ensure accuracy, completion, and quality in submittals to TxDOT, Governmental Entities and other third parties	A
			Procedures to establish and encourage continuous improvement	A
			Procedures for environmental compliance	A
	3.6	Audit	Name, title, roles and responsibilities of supporting quality management staff reporting to the person with defined authority	B
	3.7	Document Management	The manner in which records will be maintained in compliance with the Technical Provisions, including any specific systems DB Contractor will use	A
			Identify environmental documentation and reporting requirements	A
4. Not Applicable				
5. Safety				
	5.1		Policies, plans, training programs, Work Site controls, and Incident response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project	A
	5.2		Procedures for notifying TxDOT of Incidents arising out of or in connection with the performance of the Work	A
6. TxDOT - DB Contractor Communications Plan				
	6.1		The manner in which the DB Contractor's organization will respond to unexpected requests for information, communicate changes or revisions to necessary DB Contractor personnel and notify the affected stakeholders before and after the changes are made.	A
	6.2		Processes and procedures for communication of Project information between the DB Contractor's organization and TxDOT	A

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Attachment 2-2

Work Breakdown Structure

Table 1 represents the minimum levels of the WBS that all schedule information shall rollup to once the Project Baseline Schedule is fully developed.

The WBS in general shall conform to level structure as follows or as otherwise approved by TxDOT:

Table 1: WBS Minimum Requirements

1 Project

- **1.1. Location**
  - **1.1.1 Project Administration**
    - 1.1.1.1. Mobilization
    - 1.1.1.2. Submittals and Permitting
  - **1.2. Utility Adjustments**
    - 1.2.1. Utility Coordination
    - 1.2.2. Utility Relocations
  - **1.3. Design**
    - 1.3.1. General Activities and Field Work
    - 1.3.2. Design Packages
  - **1.4. Construction and Maintenance**
    - 1.4.1. General

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ENERGY SECTOR ROADWAY REPAIR PROJECT

Attachment 2-3

I2MS Test Field Forms

I2MS Test Field Report

File: I2MSFieldReport.xls
File Type: Microsoft Excel (spreadsheet)
File Description: Describes what fields are required to be submitted per test, including pertinent header and footer information. All fields are required to be submitted if possible.

I2MS Test Form Fields

Purpose

The purpose of this document is to provide information on the tables and fields within I2MS.

Material Test Forms

Material Test Forms are forms used to run tests for a sample. A test form contains header and footer information which all forms have in common. Each test form also has a form body containing fields specific to the test method(s) being performed.

Header Fields

The header information is the metadata of the form. It is vital for searching for and analyzing records. All of the test forms have similar header information.

Table Name: HEADER_VALUE_OVT **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Course Lift	course_lift	nvarchar	250		TRUE
Direction	direction	nvarchar	250	CVL	TRUE
Distance From CL	dist_from_cl	nvarchar	250		TRUE
Feature	feature	nvarchar	250	CVL	TRUE
Grade	grade	nvarchar	100	CVL	TRUE
Material	material	nvarchar	100	CVL	TRUE
Misc	misc	nvarchar	250		TRUE
Report Type	report_type	nvarchar	250	CVL	TRUE
Roadway	roadway	nvarchar	250	CVL	TRUE
Sample ID	sample_id	nvarchar	13		TRUE
Sample Location	sample_location	nvarchar	250		TRUE
Sample Type	sample_type	nvarchar	100	CVL	TRUE
Sampled By	sampled_by	nvarchar	250	CVL	TRUE
Sampled Date	sampled_date	datetime		MM/dd/yyyy	TRUE
Section	section	nvarchar	100	CVL	TRUE
Spec Item	spec_item	nvarchar	100	CVL	TRUE
Spec Year	spec_year	nvarchar	250		TRUE
Special Provision	special_provision	nvarchar	250	CVL	TRUE
Split Sample ID	split_sample_id	nvarchar	250		TRUE
Station	station	nvarchar	250	Pattern: [0-9]+\+[0-9][0-9](\ [0-9][0-9])?	TRUE
Structure Number	structure_number	nvarchar	250	CVL	TRUE
Supplier	supplier	nvarchar	100	CVL	TRUE

Footer Fields

The footer contains approval data and comments for each of the test forms.

Table Name: FOOTER_VALUE_OVT **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Authorized By	authorized_by	nvarchar	100	CVL	TRUE
Authorized Date	authorized_date	smalldatetime		MM/dd/yyyy	TRUE
Completed Date	completed_date	smalldatetime		MM/dd/yyyy	TRUE
Digital Signature ID 1	dig_sig_id1	int			FALSE
Digital Signature ID 2	dig_sig_id2	int			FALSE
Remarks	remarks	text			TRUE
Reviewed By	reviewed_by	nvarchar	100	CVL	TRUE

Body Fields

Moisture Content of Aggregates (DB-103-E)

Table Name: VALUE_DB103E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Dish No.	dish_no	nvarchar	100		FALSE
Mass of Dry Sample	dry_sample_tare	decimal	(19, 8)		FALSE
Moisture Content	moisture_content	decimal	(19, 8)		TRUE
Payable Weight of Class 2 Flex Base	payable_weight	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tare Mass	tare_mass	decimal	(19, 8)		FALSE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Mass of Wet Sample Tare	wet_sample_tare	decimal	(19, 8)		FALSE

Liquid Limit, Plastic Limit, Plastic Index (DB-104-6)

Table Name: VALUE_DB104E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Liquid Limit	liquid_limit_total	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB104E_SAMPLE **Maximum Rows: 6**

Field Description	Field Name	Datatype	Length	Values	Required
Dish No.	dish_no	nvarchar	100		FALSE
Liquid Limit (%)	liquid_limit	decimal	(19, 8)		FALSE
Mass of Dry Sample + Tare (g)	mass_dry_sample	decimal	(19, 8)		FALSE
Mass of Wet Sample + Tare (g)	mass_wet_sample	decimal	(19, 8)		FALSE
Moisture Content, %	moisture_content	decimal	(19, 8)		FALSE
Number of Blows	number_blows	int			FALSE
Tare Mass (g)	tare_mass	decimal	(19, 8)		FALSE

Table Name: VALUE_DB105E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Plastic Limit	plastic_limit_total	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB105E_SAMPLE **Maximum Rows: 3**

Field Description	Field Name	Datatype	Length	Values	Required
Dish No.	dish_no	nvarchar	100		FALSE
Mass of Dry Sample + Tare (g)	mass_dry_sample	decimal	(19, 8)		FALSE
Mass of Wet Sample + Tare (g)	mass_wet_sample	decimal	(19, 8)		FALSE
Plastic Limit (%)	plastic_limit	decimal	(19, 8)		FALSE
Tare Mass (g)	tare_mass	decimal	(19, 8)		FALSE
Mass of Water (g)	water_mass	decimal	(19, 8)		FALSE

Table Name: VALUE_DB106E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Plastic Index	plasticity_index	int			TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE
Use Bar Linear Shrinkage to Calculate Plasticity Index?	use_bar_linear	nvarchar	100	{Yes, No}	FALSE

Bar Linear Shrinkage (DB-107-E)

Table Name: VALUE_DB107E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Calculate Plasticity Index	calculate_plasticity_index	bit		{Yes, No}	FALSE
Final Length	final_length	decimal	(19, 8)		FALSE
Initial Length	initial_length	decimal	(19, 8)		FALSE
Linear Shrinkage	linear_shrinkage	decimal	(19, 8)		TRUE
Maximum By Specification	maximum_by_specification	decimal	(19, 8)		FALSE
Minimum By Specification	minimum_by_specification	decimal	(19, 8)		FALSE
Plasticity Index	plasticity_index	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Unit	unit	nvarchar	100		FALSE

Particle Size Analysis (DB-110-E)

Table Name: VALUE_DB110E_SIEVE **Maximum Rows: 6**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Percent Retained	cumulative_pct_retained	decimal	(19, 8)		TRUE
Cumulative Weight Retained	cumulative_weight_retained	decimal	(19, 8)		FALSE
Lower Spec Limit	lower_spec_limit	decimal	(19, 8)		FALSE
Master Grading	master_grading	nvarchar	100		TRUE
Sieve Size	sieve_size	nvarchar	100	CVL	TRUE
Upper Spec Limit	upper_spec_limit	decimal	(19, 8)		FALSE
Weight Retained	weight_retained	decimal	(19, 8)		FALSE

Table Name: VALUE_DB110E_TEST **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Method	individual_cumulative	nvarchar	100	{Cumulative, Individual}	FALSE
Negative No.40	negative_no_40	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE
Total	total	nvarchar	100		FALSE

Moisture-Density Work Sheet (DB-113-E)

Table Name: VALUE_DB113E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Dry Density Scale Max	dry_density_scale_max	decimal	(19, 8)		FALSE
Dry Density Scale Min	dry_density_scale_min	decimal	(19, 8)		FALSE
Dry Density Scale unit	dry_density_scale_unit	decimal	(19, 8)		FALSE
Hygroscopic Moisture	hygroscopic_moisture	decimal	(19, 8)		FALSE
Max Density(kg)	max_density_kg	decimal	(19, 8)		FALSE
Max Density (pcf)	max_density_pcf	decimal	(19, 8)		TRUE
Moisture scale max	moisture_scale_max	decimal	(19, 8)		FALSE
Moisture scale min	moisture_scale_min	decimal	(19, 8)		FALSE
Moisture scale unit	moisture_scale_unit	decimal	(19, 8)		FALSE
Optimum Moisture	optimum_moisture	decimal	(19, 8)		TRUE
Oven Dry Weight	oven_dry_weight	decimal	(19, 8)		FALSE
Soil Description	soil_desc	nvarchar	100		TRUE
Specific Gravity (Apparent)	specific_gravity	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Weight of Aggr., Pycn. & Water	weight_of_aggr	decimal	(19, 8)		FALSE
Weight of Pycnometer & Water	weight_of_pycnometer	decimal	(19, 8)		FALSE

Table Name: VALUE_DB113E_SPECIMEN **Maximum Rows: 4**

Field Description	Field Name	Datatype	Length	Values	Required
Dry Density	dry_density	decimal	(19, 8)		FALSE
Dry Mass Material	dry_mass_material	decimal	(19, 8)		FALSE
Dry Mass Pan & Specimen	dry_mass_pan_specimen	decimal	(19, 8)		FALSE
Estimated Dry Density	est_dry_density	decimal	(19, 8)		FALSE
Height of Specimen	height_specimen	decimal	(19, 8)		FALSE
Mass Material	mass_material	decimal	(19, 8)		FALSE
Mass Water	mass_water	decimal	(19, 8)		FALSE
Mass Water Added	mass_water_added	decimal	(19, 8)		FALSE
Percent Water Content	pct_water_content	decimal	(19, 8)		FALSE
Percent Water On Total	pct_water_total	decimal	(19, 8)		FALSE
Tare Mass Mold	tare_mass_mold	decimal	(19, 8)		FALSE
Tare Mass Pan	tare_mass_pan	decimal	(19, 8)		FALSE
Volume Per Linear	volume_per_linear	decimal	(19, 8)		FALSE
Volume of Specimen	volume_specimen	decimal	(19, 8)		FALSE
Wet Density of Specimen	wet_density_specimen	decimal	(19, 8)		FALSE
Wet Mass Of Pan & Specimen	wet_mass_pan_specimen	decimal	(19, 8)		FALSE
Wet Mass Specimen	wet_mass_specimen	decimal	(19, 8)		FALSE
Wet Mass Specimen & Mold	wet_mass_specimen_mold	decimal	(19, 8)		FALSE

Moisture-Density Relationship of Subgrade and Embankment Soils (DB-114-E)

Table Name: VALUE_DB114E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Dry Density Scale Max	dry_density_scale_max	decimal	(19, 8)		FALSE
Dry Density Scale Min	dry_density_scale_min	decimal	(19, 8)		FALSE
Dry Density Scale unit	dry_density_scale_unit	decimal	(19, 8)		FALSE
Hygroscopic Moisture	hygroscopic_moisture	decimal	(19, 8)		FALSE
Max Density (kg)	max_density_kg	decimal	(19, 8)		FALSE
Max Density (pcf)	max_density_pcf	decimal	(19, 8)		TRUE
Moisture scale max	moisture_scale_max	decimal	(19, 8)		FALSE
Moisture scale min	moisture_scale_min	decimal	(19, 8)		FALSE
Moisture scale unit	moisture_scale_unit	decimal	(19, 8)		FALSE
Optimum Moisture	optimum_moisture	decimal	(19, 8)		TRUE
Oven Dry Weight	oven_dry_weight	decimal	(19, 8)		FALSE
Soil Descript	soil_description	nvarchar	100		TRUE
Specific Gravity	specific_gravity	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Weight of Aggr., Pycn. & Water	weight_of_aggr	decimal	(19, 8)		FALSE
Weight of Pycnometer & Water	weight_of_pycnometer	decimal	(19, 8)		FALSE

Table Name: VALUE_DB114E_SPECIMEN **Maximum Rows: 4**

Field Description	Field Name	Datatype	Length	Values	Required
Dry Density	dry_density	decimal	(19, 8)		FALSE
Dry Mass Material	dry_mass_material	decimal	(19, 8)		FALSE
Dry Mass Pan & Specimen	dry_mass_pan_specimen	decimal	(19, 8)		FALSE
Estimated Dry Density	est_dry_density	decimal	(19, 8)		FALSE
Height of Specimen	height_specimen	decimal	(19, 8)		FALSE
Mass Material	mass_material	decimal	(19, 8)		FALSE
Mass Water	mass_water	decimal	(19, 8)		FALSE
Mass Water Added	mass_water_added	decimal	(19, 8)		FALSE
Percent Water Content	pct_water_content	decimal	(19, 8)		FALSE
Percent Water Total	pct_water_total	decimal	(19, 8)		FALSE
Tare Mass Mold	tare_mass_mold	decimal	(19, 8)		FALSE
Tare Mass Pan	tare_mass_pan	decimal	(19, 8)		FALSE
Volume Per Linear mm	volume_per_linear	decimal	(19, 8)		FALSE
Volume of Specimen	volume_specimen	decimal	(19, 8)		FALSE
Wet Density of Specimen	wet_density_specimen	decimal	(19, 8)		FALSE
Wet Mass of Pan & Specimen	wet_mass_pan_specimen	decimal	(19, 8)		FALSE
Wet Mass Specimen	wet_mass_specimen	decimal	(19, 8)		FALSE
Wet Mass Specimen & Mold	wet_mass_specimen_mold	decimal	(19, 8)		FALSE

Nuclear Density and Moisture Determination (DB-115-1)

Table Name: VALUE_DB115_1 **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Density Count	density_count	int			FALSE
Density, %	density_pct	decimal	(19, 8)		TRUE
Pass/Fail	density_pct_pass_fail	nvarchar	100		FALSE
Max Density Specification Requirement	density_specification_req_max	decimal	(19, 8)		FALSE
Low Density Specification Req	density_specification_req_min	decimal	(19, 8)		FALSE
density_standard	density_standard	int			FALSE
Determined By Test Method	determined_by_test_method	nvarchar	100	{DB-113-E, DB-114-E}	FALSE
Dry Density, pcf	dry_density_pcf	decimal	(19, 8)		TRUE
Gauge No.	gauge_no	nvarchar	100		TRUE
Maximum Dry Density	max_dry_density_pcf	decimal	(19, 8)		TRUE
Moisture Content, %	moisture_content_pct	decimal	(19, 8)		TRUE
Moisture Content Pct Pass or Fail	moisture_content_pct_pass_fail	nvarchar	100	{Pass, Fail}	FALSE
Moisture Count	moisture_count	int			FALSE
Max Moisture Specification Requirement	moisture_specification_req_max	decimal	(19, 8)		FALSE
Low Moisture Specification Req	moisture_specification_req_min	decimal	(19, 8)		FALSE
Moisture Standard	moisture_standard	int			FALSE
Optimum Moisture Content	optimum_moisture_content_pct	decimal	(19, 8)		TRUE
Probe Depth	probe_depth	decimal	(19, 8)		TRUE
Soil Description	soil_desc	nvarchar	100		TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE
Wet Density , pcf	wet_density_pcf	decimal	(19, 8)		FALSE

Soil /Aggregate Field Unit Weight Tests (DB-115-2)

Table Name: VALUE_DB115_2 **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Compaction, %	compaction_pct	decimal	(19, 8)		FALSE
Compaction Required	compaction_req_pct	decimal	(19, 8)		FALSE
Dry unit weight	dry_unit_weight	decimal	(19, 8)		FALSE
Dry Weight Total Moisture Sample	dry_weight_total_moisture	decimal	(19, 8)		FALSE
Final Weight Apparatus & Sand	final_weight_apparatus	decimal	(19, 8)		FALSE
Final Weight of Sand	final_weight_sand	decimal	(19, 8)		FALSE
Initial Weight Apparatus & Sand	initial_weight_apparatus	decimal	(19, 8)		FALSE
Initial Weight of Sand	initial_weight_sand	decimal	(19, 8)		FALSE
Maximum dry unit weight	max_dry_unit_weight	decimal	(19, 8)		FALSE
Moisture Required	moisture_req_pct	decimal	(19, 8)		FALSE
Optium Moisture (% if of dry unit weight)	optimum_moisture	decimal	(19, 8)		FALSE
Pass/Fail % Density	pass_fail_pct_density	nvarchar	100		FALSE
Pass/Fail % Moisture	pass_fail_pct_moisture	nvarchar	100		FALSE
% Moisture	pct_moisture	decimal	(19, 8)		FALSE
Sand bulk unit weight	sand_bulk_unit_weight	decimal	(19, 8)		FALSE
Soil Descript	soil_desc	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Total Volume-Sand Userd	total_volume	decimal	(19, 8)		FALSE
Volume of Hole	volume_hole	decimal	(19, 8)		FALSE
Volume of Surface	volume_surface	decimal	(19, 8)		FALSE
Weight of Material From Hole	weight_material_hole	decimal	(19, 8)		FALSE
Wet Unit Weight	wet_unit_weight	decimal	(19, 8)		FALSE
Wet Weight Total Moisture Sample	wet_weight_total_moisture	decimal	(19, 8)		FALSE

Test Resistance to Degradation By Wet Ball Mill Method (DB-116-E)

Table Name: VALUE_DB116E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Method	cumulative_method	nvarchar	50	{Cumulative, Individual}	FALSE
Total of 3000g weight retained	individual_weight_retained_3000g_total	decimal	(19, 8)		FALSE
Total of 3500g weight retained	individual_weight_retained_3500g_total	decimal	(19, 8)		FALSE
Percent Soil Binder	pct_soil_binder	decimal	(19, 8)		FALSE
Percent Soil Binder Increase	pct_soil_binder_increase	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Wet Ball Mill -No.40 Individual Percent Retained	wbm_individual_pct_retained_minusno40	decimal	(19, 8)		FALSE
Wet Ball Mill No.40 Individual Percent Retained	wbm_individual_pct_retained_no40	decimal	(19, 8)		FALSE
Wet Ball Mill Initial Weight	wbm_initial_weight	decimal	(19, 8)		FALSE
Wet Ball Mill Value	wbm_value	decimal	(19, 8)		TRUE
Wet Ball Mill -No.40 Weight Retained	wbm_weight_retained_minusno40	decimal	(19, 8)		FALSE
Wet Ball Mill No.40 Weight Retained	wbm_weight_retained_no40	decimal	(19, 8)		FALSE
Total of weight retained	weight_retained_total	decimal	(19, 8)		FALSE
Washed Sieve Analysis No.40 Individual Percent Retained	wsa_individual_pct_retained_no40	decimal	(19, 8)		FALSE
Washed Sieve Analysis -No.40 Individual Percent Retained	wsa_inidividual_pct_retained_minusno40	decimal	(19, 8)		FALSE
Washed Sieve Analysis Initial Weight	wsa_initial_weight	decimal	(19, 8)		FALSE
Washed Sieve Analysis -No.40 Weight Retained	wsa_weight_retained_minusno40	decimal	(19, 8)		FALSE
Washed Sieve Analysis No.40 Weight Retained	wsa_weight_retained_no40	decimal	(19, 8)		FALSE

Table Name: VALUE_DB116E_SIEVE **Maximum Rows: 7**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Percent Retained	cumulative_pct_retained	decimal	(19, 8)		FALSE
3000g Cumulative Weight Retained	cumulative_weight_retained_3000g	decimal	(19, 8)		FALSE
3500g Cumulative Weight Retained	cumulative_weight_retained_3500g	decimal	(19, 8)		FALSE
Individual Percent Retained	individual_pct_retained	decimal	(19, 8)		FALSE
3000g Individual Weight Retained	individual_weight_retained_3000g	decimal	(19, 8)		FALSE
3500g Individual Weight Retained	individual_weight_retained_3500g	decimal	(19, 8)		FALSE
Sieve Size	sieve_size	nvarchar	100		FALSE
Weight Retained	weight_retained	decimal	(19, 8)		FALSE

Triaxial Compression Tests (DB-117-E)

Table Name: VALUE_DB117E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Average Corrected Strength, 00 psi	average_corrected_strength_0psi	decimal	(19, 8)		TRUE
Average Corrected Strength, 15 psi	average_corrected_strength_15psi	decimal	(19, 8)		TRUE
Classification	classification	nvarchar	100		FALSE
Cohesion, psi	cohesion_psi	decimal	(19, 8)		FALSE
Correlation Factor	correlation_factor	decimal	(19, 8)		FALSE
Grade, 00 psi	grade_0psi	nvarchar	100		FALSE
Grade, 15 psi	grade_15psi	nvarchar	100		FALSE
Internal Angle of Friction	internal_angle_friction	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB117E_SPECIMEN **Maximum Rows: 8**

Field Description	Field Name	Datatype	Length	Values	Required
Area, in.^2	area	decimal	(19, 8)		FALSE
Avg. Cross Sectional Area, in^2	avg_cross_sectional_area	decimal	(19, 8)		FALSE
Average Diameter, in.	avg_diameter	decimal	(19, 8)		FALSE
Corrected Stress, psi.	corrected_stress_psi	decimal	(19, 8)		FALSE
Dry Density of Specimen, pcf	dry_density_specimen_pcf	decimal	(19, 8)		FALSE
Final Weight of Stones	final_weight_stones	decimal	(19, 8)		FALSE
Height of Stone 1, in.	height_stone1	decimal	(19, 8)		FALSE
Height of Stone 2, in.	height_stone2	decimal	(19, 8)		FALSE
I-Strain, in./in.	i_strain	decimal	(19, 8)		FALSE
Initial Height of Specimen, in.	initial_height	decimal	(19, 8)		FALSE
Lateral Pressure, psi.	lateral_pressure_psi	decimal	(19, 8)		FALSE
New Height of Specimen, in.	new_height	decimal	(19, 8)		FALSE
Moisture of Specimen, %	pct_moisture_specimen	decimal	(19, 8)		FALSE
% Strain , in./in.	pct_strain	decimal	(19, 8)		FALSE
Uncorrected Stress, psi.	uncorrected_stress_psi	decimal	(19, 8)		FALSE
Weight of Specimen	weight_specimen	decimal	(19, 8)		FALSE
Weight of Stones and Specimen	weight_stones_specimen	decimal	(19, 8)		FALSE

Determining Soil pH (DB-128-E)

Table Name: VALUE_DB128E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Soil pH	soil_ph	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Measuring Resistivity of Soil Materials (DB-129-E)

Table Name: VALUE_DB129E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Resistance using resistivity meter	resistance_using_meter	decimal	(19, 8)		FALSE
Resistivity	resistivity_result	decimal	(19, 8)		TRUE
A= Area of one electrode	sbf_area	decimal	(19, 8)		FALSE
Distance between electrodes	sbf_distance	decimal	(19, 8)		FALSE
Soil Box Factor	sbf_factor	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Measuring Thickness of Pavement Layer (DB-140-E)

Table Name: VALUE_DB140E **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Average Depth:	avg_depth	decimal	(19, 8)		TRUE
Depth 1:	depth_1	decimal	(19, 8)		FALSE
Depth 2:	depth_2	decimal	(19, 8)		FALSE
Depth 3:	depth_3	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

OVF HMAC Test Data: DB-200-F, DB-207-FPR, DB-227-F, DB-236-F, DB-207-F (DB-200/07/36)

Table Name: VALUE_DB207F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Specific Gravity of Asphalt Binder	specific_gravity	decimal	(19, 3)		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	FALSE
Voids in Mineral Aggregate (VMA)	vma	decimal	(19, 1)		TRUE

Table Name: VALUE_DB207FPR **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Average Actual Specific Gravity (Ga):	GA	nvarchar	100		TRUE
Lab Molded Density, %:	LMD	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	nvarchar	100	CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB227F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Rice Specific Gravity (Gr):	rice_specific_gravity	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	nvarchar	100	CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB229F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Stamp Code	stamp_code	nvarchar	100	CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB229F_SIEVE **Maximum Rows: 10**

Field Description	Field Name	Datatype	Length	Values	Required
Current JMF	Current_JMF	nvarchar	100		FALSE
Design JMF	Design_JMF	nvarchar	100		FALSE
Adjusted Individual % Retained	pct	decimal	(19, 8)		TRUE
Sieve Size	sieve_size	nvarchar	100	CVL	TRUE

Table Name: VALUE_DB236F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Asphalt Content, %:	AC	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	nvarchar	100	CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Sieve Analysis of Non-Surface Treatment Aggregates (DB-200-F)

Table Name: VALUE_DB200F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Weight Retained Minusno14	cumulative_weight_retained_minusno14	decimal	(19, 8)		FALSE
Dry Weight After Washing	dry_weight_after_washing	decimal	(19, 8)		FALSE
Limit As Percent	limit_as_percent	nvarchar	100	{Passing, Retained}	FALSE
Original Dry Weight	original_dry_weight	decimal	(19, 8)		FALSE
Sieve Analysis Result 1	sieve_analysis_result1	nvarchar	100		FALSE
Sieve Analysis Result 2	sieve_analysis_result2	decimal	(19, 8)		FALSE
Sieve Analysis Result 3	sieve_analysis_result3	decimal	(19, 8)		FALSE
Sieve Analysis Result 4	sieve_analysis_result4	decimal	(19, 8)		FALSE
Sieving Loss	sieving_loss	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Total Weight	total_weight	decimal	(19, 8)		FALSE
Washing Loss	washing_loss	decimal	(19, 8)		FALSE

Table Name: VALUE_DB200F_SIEVE **Maximum Rows: 12**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Percent Passing	cumulative_pct_passing	decimal	(19, 8)		TRUE
Cumulative Percent Retained	cumulative_pct_retained	decimal	(19, 8)		FALSE
Cumulative Weight Retained	cumulative_weight_retained	decimal	(19, 8)		FALSE
Individual Weight Retained	individual_weight_retained	decimal	(19, 8)		FALSE
Lower Limit Grading	lower_limit_grading	decimal	(19, 8)		FALSE
Sieve Size	sieve_size	nvarchar	100	{2", 1-3/4", 1-1/2", 1-1/4", 1", 7/8", 3/4", 5/8", 1/2", 7/16", 3/8", 5/16", 1/4", No. 4, No. 6, No. 8, No. 10, No. 14, No. 16, No. 20, No. 30, No. 40, No. 50, No. 80, No. 100, No. 200 }	TRUE
Upper Limit Grading	upper_limit_grading	decimal	(19, 8)		FALSE
Within Grading Limits	within_grading_limits	bit			TRUE

Sand Equivalent (DB-203-F)

Table Name: VALUE_DB203F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Average Sand Equivalent	average_sand_equivalent	decimal	(19, 8)		TRUE
Clay No.1 Reading	clay1_reading	decimal	(19, 8)		FALSE
Clay No.2 Reading	clay2_reading	decimal	(19, 8)		FALSE
Sand No.1 Calculated	sand1_calculated	decimal	(19, 8)		FALSE
Sand No.1 Reading	sand1_reading	decimal	(19, 8)		FALSE
Sand No.1 Reported	sand1_reported	decimal	(19, 8)		FALSE
Sand No.2 Calculated	sand2_calculated	decimal	(19, 8)		FALSE
Sand No.2 Reading	sand2_reading	decimal	(19, 8)		FALSE
Sand No.2 Reported	sand2_reported	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

QC/QA Test Data (DB-207-FPL)

Table Name: VALUE_DB207FPL **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
In Place Air Void %	air_void	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	nvarchar	100	CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Deleterious Material & Decantation For Coarse Aggr (DB-217-F)

Table Name: VALUE_DB217F **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Original Weight Retained	part1_orig_weight_retained	decimal	(19, 8)		FALSE
Percent Deterious Material	part1_pct_deleterious_material	decimal	(19, 8)		TRUE
Sieve Size	part1_sieve_size	nvarchar	100		FALSE
Weight Deleterious Material	part1_weight_deleterious_material	decimal	(19, 8)		FALSE
Dry Weight after Washing	part2_dry_weight_after_washing	decimal	(19, 8)		FALSE
Percent Loss By Decantation	part2_loss_by_decantation	decimal	(19, 8)		TRUE
Original Weight Retained	part2_orig_weight_retained	decimal	(19, 8)		FALSE
Sieve Size	part2_sieve_size	nvarchar	53		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Sieve Analysis for Fine & Coarse Aggregate (DB-401-A)

Table Name: VALUE_DB401A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Equivalent Exceed 85	equivalent_exceed_85	bit			FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Total	total	decimal	(19, 8)		FALSE

Table Name: VALUE_DB401A_SIEVE **Maximum Rows: 8**

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Percent Passing	cumulative_pct_passing	decimal	(19, 8)		FALSE
Cumulative Percent Retained	cumulative_pct_retained	decimal	(19, 8)		TRUE
Cumulative Weight Retained	cumulative_weight_retained	decimal	(19, 8)		FALSE
Individual Weight Retained	individual_weight_retained	decimal	(19, 8)		FALSE
Lower Spec Limit	lower_retained_spec_limit	decimal	(19, 8)		FALSE
Sieve Size	sieve_size	nvarchar	100		TRUE
Upper Spec Limit	upper_retained_spec_limit	decimal	(19, 8)		FALSE
Within Master Grading	within_master_grading	varchar	20		TRUE

Table Name: VALUE_DB402A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Fineness Modulus	fineness_modulus	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	FALSE

Decantation Test For Concrete Aggregates (DB-406-A)

Table Name: VALUE_DB406A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Dry Mass After Washing	dry_mass_after_washing	decimal	(19, 8)		FALSE
Mass of Pycnometer Containing Sample and Water To Fill After Washing	mass_of_pycnometer_after_washing	decimal	(19, 8)		FALSE
Mass of Pycnometer Containing Sample and Water To Fill Before Washing	mass_of_pycnometer_before_washing	decimal	(19, 8)		FALSE
Mass of Pycnometer Filled With Water at Approx. Same Temperature as above	mass_of_pycnometer_with_water	decimal	(19, 8)		FALSE
Original Dry Mass of Sample	original_dry_mass	decimal	(19, 8)		FALSE
% Loss	percent_loss_part1	decimal	(19, 8)		TRUE
Percent Loss	percent_loss_part2	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Test By:	test_by	nvarchar	100	{Part I - Lab Method, Part II - Field Method}	FALSE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested By - Part II	tested_by_part2	nvarchar	100	CVL	FALSE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Tested Date - Part II	tested_date_part2	datetime		MM/dd/yyyy	FALSE

Organic Impurities in Fine Aggregate for Concrete (DB-408-A)

Table Name: VALUE_DB408A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Color of the Supematant Liquid	color_of_supematant_liquid	nvarchar	100	{LIGHTER THAN STANDARD, EQUAL TO STANDARD, DARKER THAN STANDARD}	TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Deleterious Material (DB-413-A)

Table Name: VALUE_DB413A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Clay	clay_value1	decimal	(19, 8)		FALSE
Clay Percentage	clay_value2	decimal	(19, 8)		TRUE
Friable	friable_value1	decimal	(19, 8)		FALSE
Friable Percentage	friable_value2	decimal	(19, 8)		TRUE
Laminated	laminated_value1	decimal	(19, 8)		FALSE
Laminated Percentage	laminated_value2	decimal	(19, 8)		TRUE
Other	other_value1	decimal	(19, 8)		FALSE
Othesr Percentage	other_value2	decimal	(19, 8)		FALSE
Deleterious Material Retained	percent_deleterious_material_retained	decimal	(19, 8)		TRUE
Shale	shale_value1	decimal	(19, 8)		FALSE
Shale Percentage	shale_value2	decimal	(19, 8)		TRUE
Sieve Size	sieve_size	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE
Total	total	decimal	(19, 8)		FALSE
Total Weight Sample	total_weight_sample	decimal	(19, 8)		FALSE

Field Form Concrete Sample - Cylinders (DB-418-A)

Table Name: VALUE_DB418A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Actual Water	actual_water	nvarchar	100		TRUE
Agg. Correction Factor	agg_correction_factor	nvarchar	100	CVL	TRUE
Agg. Size	agg_size	nvarchar	100	CVL	TRUE
Air Temperature	air_temperature	nvarchar	100		TRUE
Batch Size	batch_size	nvarchar	100		TRUE
Batch Time	batch_time	nvarchar	100		TRUE
Class of Concrete	class_of_concrete	nvarchar	100	CVL	TRUE
Concrete Temperature	concrete_temperature	nvarchar	100		TRUE
Corrected Air Content	corrected_air_content	decimal	(19, 8)		TRUE
Design Water	design_water	nvarchar	100		TRUE
Mix ID	mix_id	nvarchar	100		TRUE
Placement Air	placement_air	decimal	(19, 8)		TRUE
Placement Slump	placement_slump	decimal	(19, 8)	CVL	TRUE
Pump Air Loss	pump_air_loss	decimal	(19, 8)		TRUE
Pump Slump Loss	pump_slump_loss	decimal	(19, 8)		TRUE
Req. Strength	req_strength	nvarchar	100		TRUE
Sample Time	sample_time	nvarchar	100		TRUE
Average 7 Day Compressive Strength	seven_day_average	decimal	(19, 8)		FALSE
Slump	slump	decimal	(19, 8)		TRUE
Specimen Size	specimen_size	nvarchar	100	{4x8, 6x12}	TRUE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Ticket #	ticket_number	nvarchar	100		TRUE
Total Water	total_water	nvarchar	100		TRUE
Truck #	truck_number	nvarchar	100		TRUE
Average 28 Day Compressive Strength	twenty_eight_day_average	decimal	(19, 8)		FALSE
Unit Wt.	unit_weight	nvarchar	100		TRUE
Water Added	water_added	nvarchar	100		TRUE

Table Name: VALUE_DB418A_AVERAGE **Maximum Rows: 3**

Field Description	Field Name	Datatype	Length	Values	Required
Average Age	average_age	nvarchar	100		TRUE
Average Strength	average_strength	decimal	(19, 8)		TRUE

Table Name: VALUE_DB418A_SPECIMEN **Maximum Rows: 7**

Field Description	Field Name	Datatype	Length	Values	Required
Age(days)	age	nvarchar	100	CVL	TRUE
Area	area	decimal	(19, 8)		TRUE
Load(lbs)	load_lbs	decimal	(19, 8)		TRUE
Pass/Fail	pass_fail	nvarchar	5		FALSE
Specimen	specimen	nvarchar	100		FALSE
Strength	strength	decimal	(19, 8)		TRUE
Test Date	test_date	smalldatetime		MM/dd/yyyy	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Type Fracture	type_fracture	varchar	50	{A, B, C, D, E}	TRUE

Determining Pavement Thickness By Direct Measurement (DB-423-A)

Table Name: VALUE_DB423A **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Measure Unit	measure_unit	nvarchar	100	{Inches, Millimeters}	FALSE
Pavement Depth	pavement_depth	decimal	(19, 8)		TRUE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB423A_LOCATION **Maximum Rows: 1**

Field Description	Field Name	Datatype	Length	Values	Required
Average	average	decimal	(19, 8)		TRUE
Measurement 1	measurement_1	decimal	(19, 8)		FALSE
Measurement 2	measurement_2	decimal	(19, 8)		FALSE
Measurement 3	measurement_3	decimal	(19, 8)		FALSE
Measurement Identification / Location	measurement_id_location	nvarchar	100		FALSE

Soil-Cement, Soil-Lime Testing (DB-120-E) ** INACTIVE **

Table Name: VALUE_DB120E

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Avg. Corrected Stress, psi:	avg_corrected_stress_psi	decimal	(19, 8)		FALSE
Percent Cement, (%)	percent_cement	decimal	(19, 8)		TRUE
Performed By DB-120-E:	performed_by	nvarchar	200		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Target Percent Cement, %:	target_percent_cement	decimal	(19, 8)		FALSE
Target Stress, psi:	target_stress_psi	decimal	(19, 8)		FALSE
Tested By	tested_by	nvarchar	200	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB120E_SPECIMEN

Maximum Rows: 3

Field Description	Field Name	Datatype	Length	Values	Required
Area, in.^2:	area	decimal	(19, 8)		FALSE
Avg. Corrected Stress, psi:	avg_corrected_stress	decimal	(19, 8)		FALSE
Avg. Cross Sectional Area, in^2:	avg_cross_section_area	decimal	(19, 8)		FALSE
Average Diameter, in.:	avg_diameter	decimal	(19, 8)		FALSE
Circumference, in.:	circumference	decimal	(19, 8)		FALSE
Corrected Stress, psi.:	corrected_stress	decimal	(19, 8)		FALSE
Dead Load, lbs.:	dead_load	decimal	(19, 8)		FALSE
Deformation at Max Load, in.	deformation_at_max_load	decimal	(19, 8)		FALSE
Height of Stone 1, in.	height_stone1	decimal	(19, 8)		FALSE
Height of Stone 2, in.	height_stone2	decimal	(19, 8)		FALSE
I-Strain, in./in.:	i_strain	decimal	(19, 8)		FALSE
Initial Height of Specimen, in.:	initial_height_specimen	decimal	(19, 8)		FALSE
Lateral Pressure, psi.:	lateral_pressure	decimal	(19, 8)		FALSE
Max. Load Reading, div.	max_load_reading	decimal	(19, 8)		FALSE
New Height of Specimen, in.:	new_height_specimen	decimal	(19, 8)		FALSE
% Strain , in./in.:	pct_strain	decimal	(19, 8)		FALSE
Percent Cement, (%)	percent_cement	decimal	(19, 8)		FALSE
Ring Factor, lbs./div	ring_factor	decimal	(19, 8)		FALSE
Specimen Number:	specimen_no	int			FALSE
Uncorr'd Stress, psi.:	uncorrected_stress	decimal	(19, 8)		FALSE

Soil-Lime Testing: DB-121-E (DB-121-E) ** INACTIVE **

Table Name: VALUE_DB121E

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Average Corrected Strength, 00 psi	average_corrected_strength_0psi	decimal	(19, 8)		TRUE
Average Corrected Strength, 15 psi	average_corrected_strength_15psi	decimal	(19, 8)		FALSE
Classification	classification	nvarchar	100		FALSE
Cohesion, psi	cohesion_psi	decimal	(19, 8)		FALSE
Correlation Factor	correlation_factor	decimal	(19, 8)		FALSE
Grade, 00 psi	grade_0psi	nvarchar	100		FALSE
Grade, 15 psi	grade_15psi	nvarchar	100		FALSE
Internal Angle of Friction	internal_angle_friction	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE

Table Name: VALUE_DB121E_SPECIMEN

Maximum Rows: 8

Field Description	Field Name	Datatype	Length	Values	Required
Area, in.^2	area	decimal	(19, 8)		FALSE
Avg. Cross Sectional Area, in^2	avg_cross_sectional_area	decimal	(19, 8)		FALSE
Average Diameter, in.	avg_diameter	decimal	(19, 8)		FALSE
Corrected Stress, psi.	corrected_stress_psi	decimal	(19, 8)		FALSE
Dry Density of Specimen, pcf	dry_density_specimen_pcf	decimal	(19, 8)		FALSE
Final Weight of Stones	final_weight_stones	decimal	(19, 8)		FALSE
Height of Stone 1, in.	height_stone1	decimal	(19, 8)		FALSE
Height of Stone 2, in.	height_stone2	decimal	(19, 8)		FALSE
I-Strain, in./in.	i_strain	decimal	(19, 8)		FALSE
Initial Height of Specimen, in.	initial_height	decimal	(19, 8)		FALSE
Lateral Pressure, psi.	lateral_pressure_psi	decimal	(19, 8)		FALSE
New Height of Specimen, in.	new_height	decimal	(19, 8)		FALSE
Moisture of Specimen, %	pct_moisture_specimen	decimal	(19, 8)		FALSE
% Strain , in./in.	pct_strain	decimal	(19, 8)		FALSE
Uncorrected Stress, psi.	uncorrected_stress_psi	decimal	(19, 8)		FALSE
Weight of Specimen	weight_specimen	decimal	(19, 8)		FALSE
Weight of Stones and Specimen	weight_stones_specimen	decimal	(19, 8)		FALSE

Density of Asphalt Stabilized Base (DB-126-E) ** INACTIVE **

Table Name: VALUE_DB126E

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Percent Asphalt in Mix(max)	asphalt_pct_max	decimal	(19, 8)		FALSE
Percent Asphalt in Mix(min)	asphalt_pct_min	decimal	(19, 8)		FALSE
Broken Method	broken_method	nvarchar	20	{Fast Break, Slow Break}	FALSE
Date Broken(max)(max)	date_broken_max	smalldatetime		MM/dd/yyyy	FALSE
Date Broken(min)	date_broken_min	smalldatetime		MM/dd/yyyy	FALSE
Density of Specimen(max)	density_of_specimen_max	decimal	(19, 8)		FALSE
Density of Specimen(min)	density_of_specimen_min	decimal	(19, 8)		FALSE
Gauge Reading(max)	gague_reading_psi_max	decimal	(19, 8)		FALSE
Gauge Reading (min)	gague_reading_psi_min	decimal	(19, 8)		FALSE
Height of Specimen(max)	height_max	decimal	(19, 8)		FALSE
Height of Specimen(min)	height_min	decimal	(19, 8)		FALSE
Measured Weight(max)	measured_weight_max	decimal	(19, 8)		FALSE
Measured Weight(min)	measured_weight_min	decimal	(19, 8)		FALSE
Minimum Allowable Density	min_allowable_density	decimal	(19, 8)		FALSE
Minimum Percent Density	min_pct_density	decimal	(19, 8)		FALSE
Minimum Specimen Unconfined Compressive Strength	min_specimen_UCS	decimal	(19, 8)		FALSE
Mold Number(max)	mold_number_max	nvarchar	100		FALSE
Mold Number(min)	mold_number_min	nvarchar	100		FALSE
Date Molded(max)	molded_date_max	smalldatetime		MM/dd/yyyy	FALSE
Date Molded(min)	molded_date_min	smalldatetime		MM/dd/yyyy	FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Unconfined Compressive Strength (max)	UCS_max	nvarchar	100		FALSE
Unconfined Compressive Strength (min)	UCS_min	nvarchar	100		FALSE
Volume of Mold(max)	volume_of_mold_max	decimal	(19, 8)		FALSE
Volume of Mold(min)	volume_of_mold_min	decimal	(19, 8)		FALSE
Volume of Specimen(max)	volume_of_specimen_max	decimal	(19, 8)		FALSE
Volume of Specimen(min)	volume_of_specimen_min	decimal	(19, 8)		FALSE
Weight of Filters(max)	weight_of_filters_max	decimal	(19, 8)		FALSE
Weight of Filters(min)	weight_of_filters_min	decimal	(19, 8)		FALSE
Weight of Material(max)	weight_of_mat_max	decimal	(19, 8)		FALSE
Weight of Material(min)	weight_of_mat_min	decimal	(19, 8)		FALSE
Weight of Plates(max)	weight_of_plates_max	decimal	(19, 8)		FALSE
Weight of Plates(min)	weight_of_plates_min	decimal	(19, 8)		FALSE
Weight of Specimen(max)	weight_of_specimen_max	decimal	(19, 8)		FALSE
Weight of Specimen(min)	weight_of_specimen_min	decimal	(19, 8)		FALSE

Sieve Analysis of Surface Treatment Aggregate (DB-200-ST) ** INACTIVE **

Table Name: VALUE_DB200ST

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Sphalt	asphalt_pct	decimal	(19, 8)		FALSE
Dry Weight After Washing	dry_weight_after_washing	decimal	(19, 8)		FALSE
Moisture	moisture_pct	decimal	(19, 8)		FALSE
Original Dry Weight	orig_dry_weight	decimal	(19, 8)		FALSE
Total	pan_weight	decimal	(19, 8)		FALSE
Percent Difference	percent_difference	decimal	(19, 8)		FALSE
Sieving Loss	sieving_loss	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Total Weight	total_weight	decimal	(19, 8)		FALSE
Type	type	nvarchar	100	{A, B, C, D, E, L, PA, PB, PC, PD, PE, PL}	FALSE
Washing Loss	washing_loss	decimal	(19, 8)		FALSE
Weight Difference	weight_difference	decimal	(19, 8)		FALSE
PrePan	weight_retained	decimal	(19, 8)		FALSE

Table Name: VALUE_DB200ST_SIEVE

Maximum Rows: 8

Field Description	Field Name	Datatype	Length	Values	Required
Cumulative Percent Passing	cumulative_percent_passing	decimal	(19, 8)		FALSE
Lower Retained Limit	lower_retained_limit	decimal	(19, 8)		FALSE
Cumulative Percent Retained	percent_retained_cumulative	decimal	(19, 8)		FALSE
Individual Percent Retained	percent_retained_individual	decimal	(19, 8)		FALSE
Sieve Size	sieve_size	nvarchar	100		FALSE
Upper Retained Limit	upper_retained_limit	decimal	(19, 8)		FALSE
Cumulative Weight Retained	weight_retained_cumulative	decimal	(19, 8)		FALSE
Individual weight Retained	weight_retained_individual	decimal	(19, 8)		FALSE
Within Master Grading	within_master_grading	nvarchar	100		FALSE

Determining Flakiness Index (DB-224-F) ** INACTIVE **

Table Name: VALUE_DB224F

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Flakiness Index	flakiness_index	decimal	(19, 8)		TRUE
Number of Particles	num_particles_1	decimal	(19, 8)		FALSE
Number of Particles	num_particles_2	decimal	(19, 8)		FALSE
Number of Particles	num_particles_3	decimal	(19, 8)		FALSE
Number of Particles Passing for 1/4" slot	slot_1_4	decimal	(19, 8)		FALSE
Number of Particles Passing for 3/8" slot	slot_3_8	decimal	(19, 8)		FALSE
Number of Particles Passing for 5/32" slot	slot_5_32	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE
Total Particles	total_particles	decimal	(19, 8)		FALSE
Total Passing Particles	total_passing_particles	decimal	(19, 8)		FALSE

Determining Draindown Characteristics in Bituminous Materials (DB-235-F) ** INACTIVE **

Table Name: VALUE_DB235F

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Average Percent of Draindown for Two Samples	avg_pct_draindown	decimal	(19, 8)		FALSE
Final Weight Plate	final_weight_plate_1	decimal	(19, 8)		FALSE
Final Weight Plate	final_weight_plate_2	decimal	(19, 8)		FALSE
Initial Sample Weight	init_sample_weight_1	decimal	(19, 8)		FALSE
Initial Sample Weight	init_sample_weight_2	decimal	(19, 8)		FALSE
Initial Weight Plate	init_weight_plate_1	decimal	(19, 8)		FALSE
Initial Weight Plate	init_weight_plate_2	decimal	(19, 8)		FALSE
Percent Of Draindown	pct_draindown_1	decimal	(19, 8)		FALSE
Percent Of Draindown	pct_draindown_2	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	datetime		MM/dd/yyyy	TRUE

Resistance To Degradation By Abrasion & Impact in Los Angeles Machine (DB-410-A) ** INACTIVE **

Table Name: VALUE_DB410A

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Final Weight	final_weight	decimal	(19, 8)		FALSE
Initial Weight	initial_weight	decimal	(19, 8)		FALSE
La Abrasion Type	la_abrasion_type	nvarchar	100	CVL	FALSE
La Abrasion Value	la_abrasion_value	decimal	(19, 8)		FALSE
Loss of Weight	loss_of_weight	decimal	(19, 8)		FALSE
Number of Spheres	number_of_spheres	int			FALSE
Percent Loss	percent_loss	decimal	(19, 8)		FALSE
Sieve	sieve	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Weight of Charge	weight_of_charge	nvarchar	100		FALSE

Table Name: VALUE_DB410A_SAMPLE

Maximum Rows: 4

Field Description	Field Name	Datatype	Length	Values	Required
Actual Weight	actual_weight	decimal	(19, 8)		FALSE
Passing Sieve	passing_sieve	nvarchar	100		FALSE
Projected Weight	projected_weight	nvarchar	100		FALSE
Retained Sieve	retained_sieve	nvarchar	100		FALSE
Within Range	within_range	bit			FALSE

Magnesium Sulfate Soundness (DB-411-M) ** INACTIVE **

Table Name: VALUE_DB411M

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Normalized Individual Percent Retained Total	ni_pct_retained_total	decimal	(19, 8)		FALSE
% Loss Total	pct_loss_total	decimal	(19, 8)		FALSE
Soundness Loss	soundness_loss	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Weighted Average % Loss Total	weighted_avg_pct_loss_total	decimal	(19, 8)		FALSE

Table Name: VALUE_DB411M_CYCLE

Maximum Rows: 5

Field Description	Field Name	Datatype	Length	Values	Required
Cycle	cycle	nvarchar	5		FALSE
In Oven Date	in_oven_date	smalldatetime		MM/dd/yyyy	FALSE
In Oven Time In	in_oven_time_in	smalldatetime		MM/dd/yyyy	FALSE
In Oven Time Out	in_oven_time_out	smalldatetime		MM/dd/yyyy	FALSE
In Solution Date	in_solution_date	smalldatetime		MM/dd/yyyy	FALSE
In Solution Time In	in_solution_time_in	smalldatetime		MM/dd/yyyy	FALSE
In Solution Time Out	in_solution_time_out	smalldatetime		MM/dd/yyyy	FALSE
Out Oven Date	out_oven_date	smalldatetime		MM/dd/yyyy	FALSE
Out Oven Time In	out_oven_time_in	smalldatetime		MM/dd/yyyy	FALSE
Out Oven Time Out	out_oven_time_out	smalldatetime		MM/dd/yyyy	FALSE
Out Solution Date	out_solution_date	smalldatetime		MM/dd/yyyy	FALSE
Out Solution Time In	out_solution_time_in	smalldatetime		MM/dd/yyyy	FALSE
Out Solution Time Out	out_solution_time_out	smalldatetime		MM/dd/yyyy	FALSE
Remarks	remarks	nvarchar	250		FALSE

Table Name: VALUE_DB411M_PARTICLE

Maximum Rows: 8

Field Description	Field Name	Datatype	Length	Values	Required
Final Weight (g)	final_weight	decimal	(19, 8)		FALSE
Initial Weight (g)	initial_weight	decimal	(19, 8)		FALSE
Loss of Weight (g)	loss_of_weight	decimal	(19, 8)		FALSE
Normalized Individual Percent Retained	ni_pct_retained	decimal	(19, 8)		FALSE
% Loss	pct_loss	decimal	(19, 8)		FALSE
Particle Size Range Passing	size_range_passing	nvarchar	100		FALSE
Particle Size Range Retained	size_range_retained	nvarchar	100		FALSE
Weighted Average % Loss	weighted_avg_pct_loss	decimal	(19, 8)		FALSE

Testing Of Drilled Cores Of Portland Cement Concrete (DB-424-A, Part III) ** INACTIVE **

Table Name: VALUE_DB424A

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested By - Part II	tested_by_part2	nvarchar	100	CVL	FALSE
Tested By - Part III	tested_by_part3	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Tested Date - Part II	tested_date_part2	datetime		MM/dd/yyyy	FALSE
Tested Date - Part III	tested_date_part3	datetime		MM/dd/yyyy	FALSE

Table Name: VALUE_DB424A_CORE

Maximum Rows: 4

Field Description	Field Name	Datatype	Length	Values	Required
Age (Days)	age	int			FALSE
Compressive Strength	compressive_strength1	decimal	(19, 8)		FALSE
Compressive Strength	compressive_strength2	decimal	(19, 8)		FALSE
Diameter of Core (inches)	core_diameter1	decimal	(19, 8)		FALSE
Diameter of Core (inches)	core_diameter2	decimal	(19, 8)		FALSE
Length of Core (inches)	core_length1	decimal	(19, 8)		FALSE
Length of Core (inches)	core_length2	decimal	(19, 8)		FALSE
Core Number	core_number1	nvarchar	100		FALSE
Core Number	core_number2	nvarchar	100		FALSE
Failure Type	failure_type1	nvarchar	100		FALSE
Failure Type	failure_type2	nvarchar	100		FALSE
Max Load (Lbs)	max_load1	decimal	(19, 8)		FALSE
Max Load (Lbs)	max_load2	decimal	(19, 8)		FALSE

Texture Depth By Sand Patch Method (DB-436-A) ** INACTIVE **

Table Name: VALUE_DB436A

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Average Diameter	avg_diameter	decimal	(19, 8)		FALSE
Diameter 1	measurement_1	decimal	(19, 8)		FALSE
Diameter 2	measurement_2	decimal	(19, 8)		FALSE
Diameter 3	measurement_3	decimal	(19, 8)		FALSE
Diameter 4	measurement_4	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	varchar	200	CVL	FALSE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	FALSE
Thickness	thickness	decimal	(19, 8)		FALSE
Volume of Cylinder	vol_cylinder	decimal	(19, 8)		FALSE

Concrete Sample - Beams (DB-448-A) ** INACTIVE **

Table Name: VALUE_DB448A

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Actual Water	act_water	decimal	(19, 8)		FALSE
Added Gal	added_gal	decimal	(19, 8)		FALSE
Agg. Correction Factor	agg_corr_factor	decimal	(19, 8)	CVL	FALSE
Agg Size	agg_size	nvarchar	100	CVL	FALSE
Air Temperature	air_temp	decimal	(19, 8)		FALSE
Batch Size	batch_size	decimal	(19, 8)		FALSE
Batch Time	batch_time	smalldatetime		MM/dd/yyyy	FALSE
Class of Concrete	class_concrete	nvarchar	100	CVL	FALSE
Concrete Temperature	concrete_temp	decimal	(19, 8)		FALSE
Corrected Air Content	corrected_air_content	decimal	(19, 8)	CVL	FALSE
Design Water	des_water	decimal	(19, 8)		FALSE
Mix ID	mix_id	nvarchar	100	CVL	FALSE
Qty Load	qty_load	decimal	(19, 8)		FALSE
Req. Strength, psi	req_strength	decimal	(19, 8)		FALSE
Sample Time	sample_time	smalldatetime		MM/dd/yyyy	FALSE
Slump	slump	decimal	(19, 8)	CVL	FALSE
Specimen Dimensions	spec_dimensions	nvarchar	100	CVL	FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE
Ticket Number	ticket_num	decimal	(19, 8)		FALSE
Total Water	total_water	decimal	(19, 8)		FALSE
Truck Number	truck_num	decimal	(19, 8)		FALSE
Unit Weight	unit_weight	decimal	(19, 8)		FALSE

Table Name: VALUE_DB448A_SPECIMEN

Maximum Rows: 6

Field Description	Field Name	Datatype	Length	Values	Required
Age	age	nvarchar	100	CVL	FALSE
Avg Depth	avg_depth	decimal	(19, 8)		FALSE
Avg. Width	avg_width	decimal	(19, 8)		FALSE
Correction Factor	corr_factor	decimal	(19, 8)		FALSE
Max Load, lbs	max_load_psi	decimal	(19, 8)		FALSE
Mod Rupture	mod_rupture	decimal	(19, 8)		FALSE
Pass Fail	pass_fail	nvarchar	100		FALSE
Specimen	specimen	nvarchar	100		FALSE
Test Date	test_date	smalldatetime		MM/dd/yyyy	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE

Coarse Aggregate Angularity By Fractured Faces Count (DB-460-A) ** INACTIVE **

Table Name: VALUE_DB460A

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Number of Particles w/ one or no FF	number_of_particles_with_one	int			FALSE
Number of Particles w/ 2 or more FF	number_of_particles_with_two	int			FALSE
Number of Questionable Particles	number_of_questionable_particles	int			FALSE
Percent Crushed Particles	percent_crushed_particles	decimal	(19, 8)		FALSE
Percent Crushed Particles	percent_crushed_particles_result	decimal	(19, 8)		TRUE
Sieve Size	sieve_size	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	TRUE
Tested By	tested_by	nvarchar	100	CVL	TRUE
Tested Date	tested_date	smalldatetime		MM/dd/yyyy	TRUE
Total Number of Particles	total_number_of_particles	int			FALSE

Effect of Water On Bituminous Paving Mixtures (DB-530-C) ** INACTIVE **

Table Name: VALUE_DB530C

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Estimated Percent of Stripping	est_pct_stripping	nvarchar	100		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	datetime		MM/dd/yyyy	FALSE

Determining Chloride and Sulfate Content in Soils (DB-620-J) ** INACTIVE **

Table Name: VALUE_DB620J

Maximum Rows: 1

Field Description	Field Name	Datatype	Length	Values	Required
Chloride (CL) (PPM)	chloride_ppm	decimal	(19, 8)		FALSE
Crucible + Residue Weight	crucible_residue_weight	decimal	(19, 8)		FALSE
Crucible Weight	crucible_weight	decimal	(19, 8)		FALSE
Ending	ending	decimal	(19, 8)		FALSE
Normality of AgNO3	normality_of_agno3	decimal	(19, 8)		FALSE
Residue Weight	residue_weight	decimal	(19, 8)		FALSE
Sample Weight	sample_weight_chloride	decimal	(19, 8)		FALSE
Sample Weight	sample_weight_sulfate	decimal	(19, 8)		FALSE
Stamp Code	stamp_code	int		CVL	FALSE
Starting	starting	decimal	(19, 8)		FALSE
Sulfate (SO4) (PPM)	sulfate_ppm	decimal	(19, 8)		FALSE
Tested By	tested_by	nvarchar	100	CVL	FALSE
Tested Date	tested_date	nvarchar	100		FALSE
Total	total	decimal	(19, 8)		FALSE

CQAF Sample

File: CQAFSample.xml
File Type: XML (Extensible Markup Language). The de facto standard for transferring data.
File Description: An example of an electronic submission that can be read into I2MS. The example provided was used for a previous project and passed the verification process for that particular project's inputs. This file can be submitted to I2MS via a web service run on I2MS using SOAP (Simple Object Access Protocol), which is a standard programming protocol by which software developers send data between systems.

CQAF Sample


```xml
<?xml version='1.0' encoding='UTF-8'?>
<form name="DB-115-1" version_no="1.0" key="0020905270501151" date="2009-05-27T00:00:00" display_key="00209052705">
	<owner_name value="CQAF" />
	<security username="CQAFDataXfer" password="as9-3958$h@" />
	<header>
		<column name="sample_id" value="00209052705" />
		<column name="sampled_date" value="5/27/2009 12:00:00 AM" />
		<column name="sample_type" value="Random-Independent" />
		<column name="split_sample_id" />
		<column name="report_type" value="Original" />
		<column name="section" value="5.1" />
		<column name="sampled_by" value="Al Jones" />
		<column name="spec_year" value="2004" />
		<column name="material" value="14" />
		<column name="spec_item" value="247" />
		<column name="supplier" value="Pit" />
		<column name="special_provision" />
		<column name="structure_number" />
		<column name="grade" value="1" />
		<column name="sample_location" />
		<column name="feature" value="Mainlane" />
		<column name="course_lift" value="2" />
		<column name="station" value="342+49" />
		<column name="dist_from_cl" value="5' LT" />
		<column name="misc" />
		<column name="roadway" value="Loop 375" />
		<column name="direction" value="NB" />
	</header>
	<test name="DB-115-1"> <!-- This can be the same value as the form name. -->
		<table name="VALUE_DB115_1">
			<row>
				<column name="determined_by_test_method" value="DB-113-E" />
				<column name="max_dry_density_pcf" value="132.5" />
				<column name="optimum_moisture_content_pct" value="7.7" />
				<column name="density_standard" value="4200" />
				<column name="moisture_standard" value="420" />
				<column name="density_count" value="1045" />
				<column name="moisture_count" value="231" />
				<column name="probe_depth" value="10" />
				<column name="wet_density_pcf" value="140.5" />
				<column name="dry_density_pcf" value="133.5" />
				<column name="moisture_content_pct" value="5.2" />
				<column name="gauge_no" value="3242" />
				<column name="moisture_content_pct_pass_fail" />
				<column name="density_pct" value="100.7" />
				<column name="density_pct_pass_fail" />
```

CQAF Sample


```
                <column name="density_specification_req_max" />
                <column name="moisture_specification_req_max" />
                <column name="soil_desc" />
                <column name="density_specification_req_min" value="100" />
                <column name="moisture_specification_req_min" value="5.2" />
                <column name="tested_by" value="Al Jones" />
                <column name="tested_date" value="5/27/2009 12:00:00 AM" />
                <column name="stamp_code" value="1" />
            </row>
        </table>
    </test>
    <footer>
        <column name="remarks" />
        <column name="reviewed_by" />
        <column name="completed_date" />
        <column name="authorized_by" />
        <column name="authorized_date" />
    </footer>
</form>
```

Web Form Validation

File: WebFormValidation.xsd
File Type: XSD (XML Schema Document). Describes a schema used for an XML document.
File Description: Describes elements, annotations, and documentation used in the aforementioned XML. XSD files are the standard used to describe XML file formats and are often used to assist in developing XML files with added features such as intellisense (which is an added type ahead feature used by developers).

Web Form Validation

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="FormValidation" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="form">
    <xs:complexType>
      <xs:sequence>
        <xs:choice minOccurs="1" maxOccurs="1" id="owner">
            <xs:annotation>
                <xs:documentation>
                    The owner of the record must be supplied to upload successfully.  The
user login provided in the security element
                    must have permission to add a record for the owner as part of the
validation process.

                    The record owner can be identified by a variety of properties.  In general,
when submitting XML from an external source,
                    the owner_name attribute is the preferred method.
                </xs:documentation>
            </xs:annotation>
          <xs:element name="owner_name" minOccurs="1" maxOccurs="1">
            <xs:annotation>
                <xs:documentation>
                    The name of the owner of this record.  For example, "OVF" or "CQAF".
                </xs:documentation>
            </xs:annotation>
            <xs:complexType>
              <xs:attribute name="value" type="xs:string" use="required" />
            </xs:complexType>
          </xs:element>
          <xs:element name="owner_guid" minOccurs="1" maxOccurs="1">
            <xs:complexType>
              <xs:attribute name="value" type="xs:string" use="required" />
            </xs:complexType>
          </xs:element>
          <xs:element name="owner_id" minOccurs="1" maxOccurs="1">
            <xs:complexType>
              <xs:attribute name="value" type="xs:int" use="required" />
            </xs:complexType>
          </xs:element>
        </xs:choice>
        <xs:element name="security" minOccurs="1" maxOccurs="1">
            <xs:annotation>
                <xs:documentation>
                    User login credentials must be provided to upload a record.  Supply a
username and password.
                </xs:documentation>
            </xs:annotation>
          <xs:complexType>
```

Web Form Validation

```
        <xs:attribute name="user_guid" type="xs:string" />
      <xs:attribute name="username" type="xs:string" />
      <xs:attribute name="password" type="xs:string" />
    </xs:complexType>
  </xs:element>
  <xs:element name="header" minOccurs="0" maxOccurs="1">
      <xs:annotation>
            <xs:documentation>
                  The collection of header column values common to multiple forms.
            </xs:documentation>
      </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element name="column" type="ColumnType" maxOccurs="unbounded" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="test" minOccurs="0" maxOccurs="unbounded">
      <xs:annotation>
            <xs:documentation>
                  Container element for Body Table elements, which contain the data
specific to the form type being uploaded.
                  This element can be used to logically group the body tables by the test
method they represent, but it is not required to do so.
                  All body table elements can be placed under one test element, and the
test name attribute is inconsequential.
            </xs:documentation>
      </xs:annotation>
    <xs:complexType>
      <xs:sequence>
        <xs:element name="table" minOccurs="1" maxOccurs="unbounded">
            <xs:annotation>
                  <xs:documentation>
                        A collection of rows of form data for a specific table.

                        The number of rows permitted for each table depends on the
form and table name. For testing forms, the number of rows allowed for each table can be found in the
I2MS Test Form Fields report.
                  </xs:documentation>
            </xs:annotation>
          <xs:complexType>
            <xs:sequence>
              <xs:element name="row" minOccurs="0" maxOccurs="unbounded">
                  <xs:annotation>
                        <xs:documentation>
```

```
                    A collection of body column values.
                </xs:documentation>
            </xs:annotation>
                <xs:complexType>
              <xs:sequence>
                <xs:element name="column" type="ColumnType" minOccurs="0"
maxOccurs="unbounded" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
        <xs:attribute name="name" type="xs:string" use="required">
          <xs:annotation>
                <xs:documentation>
                        The name of the body table.

                        For testing forms, the list of supported table names can be found
in the I2MS Test Form Fields report.
                </xs:documentation>
          </xs:annotation>
        </xs:attribute>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required" />
</xs:complexType>
</xs:element>
<xs:element name="footer" minOccurs="0" maxOccurs="1">
    <xs:annotation>
          <xs:documentation>
                The collection of footer column values common to multiple forms.
          </xs:documentation>
    </xs:annotation>
  <xs:complexType>
    <xs:sequence>
      <xs:element name="column" type="ColumnType" minOccurs="0"
maxOccurs="unbounded" />
    </xs:sequence>
  </xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="name" form="unqualified" type="xs:string" use="required" >
 <xs:annotation>
    <xs:documentation>
```

The short name of the I2MS form for which data is being submitted. This value determines the data columns that are supported and required
for the header, body, and footer elements.

For testing forms, the list of supported form names can be found in the I2MS Test Form Fields report.

Web Form Validation

The form name is the value in parentheses for each subheading under the Body Fields section.

```
            </xs:documentation>
        </xs:annotation>
        </xs:attribute>
        <xs:attribute name="key" form="unqualified" use="required">
        <xs:annotation>
            <xs:documentation>
                A value representing the test record in I2MS. This value is required to be unique
for each owner (OVF/CQAF).
                The same key is used for all revisions of the record. To add a new revision,
supply the same key with the new form data and a
                new value for the version_no attribute.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="100"></xs:maxLength>
            </xs:restriction>
        </xs:simpleType>
        </xs:attribute>
        <xs:attribute name="version_no" use="required">
            <xs:annotation>
                <xs:documentation>
                    The version number of this revision within the series of revisions
identified by the key attribute.
                    The revision in the series with the greatest version number will be
considered the latest revision regardless of the order in which revisions were submitted to I2MS.
                    Submitting a record with the same key and version number as another
record in the system is an error.
                </xs:documentation>
            </xs:annotation>
            <xs:simpleType>
                <xs:restriction base="xs:decimal">
                    <xs:totalDigits value="19" />
                    <xs:fractionDigits value="9" />
                </xs:restriction>
            </xs:simpleType>
        </xs:attribute>
```

<xs:attribute name="display_key">
<xs:annotation>
<xs:documentation>
The value displayed to users as the ID value of the record (for example, Sample ID for testing forms).
This value is not required to be unique.
</xs:documentation>
</xs:annotation>
<xs:simpleType>
<xs:restriction base="xs:string">

Web Form Validation

<xs:maxLength value="100"></xs:maxLength>
</xs:restriction>
</xs:simpleType>
</xs:attribute>
<xs:attribute name="version_key">
<xs:annotation>
<xs:documentation>
An optional identifier for this revision. For example, when submitting XML to I2MS from an external source,
this could be the Version ID of the record in the external system.
</xs:documentation>
</xs:annotation>
<xs:simpleType>
<xs:restriction base="xs:string">
<xs:maxLength value="100"></xs:maxLength>
</xs:restriction>
</xs:simpleType>
</xs:attribute>
<xs:attribute name="action_name" type="xs:string">
<xs:annotation>
<xs:documentation>
The name of a custom workflow action to execute when submitting the form. The user login submitting the form
must have permissions in I2MS for the action and validation rules must pass before allowing the action.

When submitting XML to I2MS from an external source, this attribute should generally be omitted unless other
instructions have been provided.
</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute name="date" type="xs:dateTime">
<xs:annotation>
<xs:documentation>

The value displayed to users as the date of the record (for example, Sampled Date for testing forms).

```
                </xs:documentation>
            </xs:annotation>
            </xs:attribute>
        </xs:complexType>
    </xs:element>

        <xs:complexType name="ColumnType">
        <xs:attribute name="name" type="xs:string" use="required">
                <xs:annotation>
                        <xs:documentation>
                                The name of the column for which a value is being provided.
```

Web Form Validation

For testing forms, the list of supported data columns can be found in the I2MS Test Form Fields report.

```
                        </xs:documentation>
                </xs:annotation>
        </xs:attribute>
    <xs:attribute name="value" type="xs:string" use="optional">
        <xs:annotation>
                <xs:documentation>
                        The value of the column.
                </xs:documentation>
        </xs:annotation>
    </xs:attribute>
        </xs:complexType>

</xs:schema>
```

Form Submission Service

File: FormSubmissionService.wsdl
File Type: WSDL (Web Services Description Language). Describes a web service and its respective protocols in XML format.
File Description: Describes the web service used by I2MS for submitting data electronically for the purposes of Validation (i.e. Verification) and Submission. The I2MS system takes in data electronically via a web service (often via the SOAP protocol), for the purposes of verifying or submitting a test (submitted in XML format).

Form Submission Service


```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:s="http://www.w3.org/2001/XMLSchema"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/" xmlns:tns="http://tempuri.org/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:tm="http://microsoft.com/wsdl/mime/textMatching/"
xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/" targetNamespace="http://tempuri.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
  <wsdl:types>
    <s:schema elementFormDefault="qualified" targetNamespace="http://tempuri.org/">
      <s:element name="SubmitForm">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="xmlForm" type="s:string" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="SubmitFormResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="1" maxOccurs="1" name="SubmitFormResult" type="s:int" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="ValidateForm">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="xmlForm" type="s:string" />
          </s:sequence>
        </s:complexType>
      </s:element>
      <s:element name="ValidateFormResponse">
        <s:complexType>
          <s:sequence>
            <s:element minOccurs="0" maxOccurs="1" name="ValidateFormResult" type="s:string" />
          </s:sequence>
        </s:complexType>
      </s:element>
    </s:schema>
  </wsdl:types>
  <wsdl:message name="SubmitFormSoapIn">
    <wsdl:part name="parameters" element="tns:SubmitForm" />
  </wsdl:message>
  <wsdl:message name="SubmitFormSoapOut">
    <wsdl:part name="parameters" element="tns:SubmitFormResponse" />
```

</wsdl:message>

Form Submission Service


```
<wsdl:message name="ValidateFormSoapIn">
  <wsdl:part name="parameters" element="tns:ValidateForm" />
</wsdl:message>
<wsdl:message name="ValidateFormSoapOut">
  <wsdl:part name="parameters" element="tns:ValidateFormResponse" />
</wsdl:message>
<wsdl:portType name="FormSubmissionServiceSoap">
  <wsdl:operation name="SubmitForm">
    <wsdl:input message="tns:SubmitFormSoapIn" />
    <wsdl:output message="tns:SubmitFormSoapOut" />
  </wsdl:operation>
  <wsdl:operation name="ValidateForm">
    <wsdl:input message="tns:ValidateFormSoapIn" />
    <wsdl:output message="tns:ValidateFormSoapOut" />
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="FormSubmissionServiceSoap" type="tns:FormSubmissionServiceSoap">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http" />
  <wsdl:operation name="SubmitForm">
    <soap:operation soapAction="http://tempuri.org/SubmitForm" style="document" />
    <wsdl:input>
      <soap:body use="literal" />
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal" />
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="ValidateForm">
    <soap:operation soapAction="http://tempuri.org/ValidateForm" style="document" />
    <wsdl:input>
      <soap:body use="literal" />
    </wsdl:input>
    <wsdl:output>
      <soap:body use="literal" />
    </wsdl:output>
  </wsdl:operation>
</wsdl:binding>
<wsdl:binding name="FormSubmissionServiceSoap12" type="tns:FormSubmissionServiceSoap">
  <soap12:binding transport="http://schemas.xmlsoap.org/soap/http" />
  <wsdl:operation name="SubmitForm">
    <soap12:operation soapAction="http://tempuri.org/SubmitForm" style="document" />
    <wsdl:input>
      <soap12:body use="literal" />
    </wsdl:input>
    <wsdl:output>
      <soap12:body use="literal" />
```

Form Submission Service


```
  </wsdl:output>
   </wsdl:operation>
   <wsdl:operation name="ValidateForm">
    <soap12:operation soapAction="http://tempuri.org/ValidateForm" style="document" />
    <wsdl:input>
     <soap12:body use="literal" />
    </wsdl:input>
    <wsdl:output>
     <soap12:body use="literal" />
    </wsdl:output>
   </wsdl:operation>
  </wsdl:binding>
  <wsdl:service name="FormSubmissionService">
   <wsdl:port name="FormSubmissionServiceSoap" binding="tns:FormSubmissionServiceSoap">
    <soap:address location="https://i2ms-sh130.txdot.gov/i2ms/i2ms/formsubmissionservice.asmx" />
   </wsdl:port>
   <wsdl:port name="FormSubmissionServiceSoap12" binding="tns:FormSubmissionServiceSoap12">
    <soap12:address location="https://i2ms-sh130.txdot.gov/i2ms/i2ms/formsubmissionservice.asmx" />
   </wsdl:port>
  </wsdl:service>
</wsdl:definitions>
```

Texas Department of Transportation

TECHNICAL PROVISIONS

ENERGY SECTOR ROADWAY REPAIR PROJECT

Attachment 4-1

ENVIRONMENTAL STATUS

Rank	District	Location	Type of Document	Environmental Clearance
1	LAREDO	FM 133	BCE	10/3/13
2	CORPUS CHRISTI	FM 882	BCE	8/20/13
3	CORPUS CHRISTI	US 181		
4	LAREDO	FM 190	BCE	10/3/13
5	SAN ANTONIO	SH 16	BCE	8/29/13
6	YOAKUM	FM 443	BCE	1/30/13
	YOAKUM (17)	FM 443	BCE	1/30/13
7	YOAKUM	FM 2067	BCE	2/8/13
8	LAREDO	FM 469	BCE	10/3/13
	LAREDO (31)	FM 469	BCE	10/3/13
9	LAREDO	IH 35 (W. FR)	BCE	9/24/13
10	CORPUS CHRISTI	FM 627	BCE	3/20/13
11	CORPUS CHRISTI	FM 2049	BCE	3/1/13
12	YOAKUM	FM 240	BCE	1/30/13
13	LAREDO	IH 35 (E. FR)	BCE	9/24/13
14	CORPUS CHRISTI	FM 81	BCE	3/19/13
	CORPUS CHRISTI (15)	FM 81	BCE	3/19/13
16	CORPUS CHRISTI	FM 1042	BCE	3/1/13
18	YOAKUM	FM1680	CE dated 5/27/07	8/16/2007
	YOAKUM (25)	FM 1680	CE dated 5/27/07	8/16/2007
19	LAREDO	FM 117	BCE	9/24/13
20	SAN ANTONIO	FM 140	BCE	8/29/13

21	CORPUS CHRISTI	FM 3192	BCE	3/21/13
22	SAN ANTONIO	FM 791	BCE	8/29/13
	SAN ANTONIO (26)	FM 791	BCE	8/29/13
	SAN ANTONIO (29)	FM 791	BCE	8/29/13
23	CORPUS CHRISTI	FM 624	BCE	3/19/13
24	YOAKUM	FM 952	BCE	3/28/13
27	CORPUS CHRISTI	SH 119	BCE	3/1/13
28	LAREDO	FM 624	BCE	10/2/13
30	YOAKUM	FM 77	BCE	8/16/13

Texas Department of Transportation

TECHNICAL PROVISIONS

ENERGY SECTOR ROADWAY REPAIR PROJECT

Attachment 6-1

UTILITY FORMS

County:
Highway:
Limits:
Fed. Proj. No.:
ROW CSJ No.:
Const. CSJ No.:

UTILITY ADJUSTMENT AGREEMENT AMENDMENT (Developer Managed)

(Amendment No. to Agreement No.: -U-__)

THIS AMENDMENT TO PROJECT UTILITY ADJUSTMENT AGREEMENT (this "Amendment"), by and between , hereinafter identified as the "**Developer**", and _____, hereinafter identified as the "**Owner**", is as follows:

20.1 WITNESSETH

WHEREAS, the STATE of TEXAS, acting by and through the Texas Department of Transportation, hereinafter identified as "TxDOT", proposes to construct the toll project identified above (the "Project", as more particularly described in the "Original Agreement", defined below); and

WHEREAS, pursuant to that certain Comprehensive Development Agreement ("CDA") by and between TxDOT and the Developer with respect to the Project, the Developer has undertaken the obligation to design, construct, and potentially maintain the Project, including causing the removal, relocation, or other necessary adjustment of existing utilities impacted by the Project (collectively, "Adjustment"); and

WHEREAS, the Owner and Developer are parties to that certain executed Project Utility Adjustment Agreement designated by the "Agreement No." indicated above, as amended by previous amendments, if any (the "Original Agreement"), which provides for the adjustment of certain utilities owned and/or operated by the Owner (the "Utilities"); and

WHEREAS, the parties are required to utilize this Amendment form in order to modify the Original Agreement to add the adjustment of Owner facilities not covered by the Original Agreement; and

WHEREAS, the parties desire to amend the Original Agreement to add additional Owner utility facility(ies), on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the agreements contained herein, the parties hereto agree as follows:

1. **Amendment.** The Original Agreement is hereby amended as follows:

1.1 **Plans.**

(a) The description of the Owner Utilities and the proposed Adjustment of the Owner Utilities in the Original Agreement is hereby amended to add the following utility facility(ies) ("Additional Owner Utilities") and proposed Adjustment(s) to the Owner Utilities described in the Original Agreement *[insert below a description of the affected facilities (by type, size and location) as well as a brief description of the nature of the Adjustment work to be performed (e.g., "adjust 12" waterline from approximately Highway Station 100+00 to approximately Highway Station 200+00)];* and

(b) The Plans, as defined in Paragraph 1 of the Original Agreement, are hereby amended to add thereto the plans, specifications and cost estimates attached hereto as Exhibit A.

(c) The Plans attached hereto as Exhibit A, along with this Amendment, shall be submitted upon execution to TxDOT in accordance with Paragraph 2 of the Original Agreement, and Paragraph 2 shall apply to this Amendment and the Plans attached hereto in the same manner as if this Amendment were the Original Agreement. If the Owner claims an Existing Interest for any of the Additional Owner Utilities, documentation with respect to such claim shall be submitted to TxDOT as part of this Amendment and the attached Plans, in accordance with Paragraph 15(a) of the Original Agreement.

1.2 **Reimbursement of Owner's Indirect Costs.** For purposes of Paragraph 6 of the Original Agreement, the following terms apply to the Additional Owner Utilities and proposed Adjustment:

(a) Developer agrees to reimburse the Owner its share of the Owner's indirect costs (e.g., engineering, inspection, testing, ROW) as identified in Exhibit A. When requested by the Owner, monthly progress payments will be made. The monthly payment will not exceed 80% of the estimated indirect work done to date. Once the indirect work is complete, final payment of the eligible indirect costs will be made. Intermediate payments shall not be construed as final payment for any items included in the intermediate payment.

(b) The Owner's indirect costs associated with Adjustment of the Owner Utilities shall be developed pursuant to the method checked and described below *[check only one box]*:

☐ (1) Actual related indirect costs accumulated in accordance with (i) a work order accounting procedure prescribed by the applicable Federal or State regulatory body, or (ii) established accounting procedure developed by the Owner and which the Owner uses in its regular operations (either (i) or (ii) referred to as "Actual Cost") or,

☐ (2) The agreed sum of $___ ("Agreed Sum") as supported by the analysis of the Owner's estimated costs attached hereto as part of Exhibit A.

1.3 **Advancement of Funds by Owner for Construction Costs.**

(a) Advancement of Owner's Share, if any, of estimated costs

Exhibit A shall identify all estimated engineering and construction-related costs, including labor, material, equipment and other miscellaneous construction items.

Exhibit A shall also identify the Owner's and Developer's respective shares of the estimated costs.

The Owner shall advance to the Developer its allocated share, if any, of the estimated costs for construction and engineering work to be performed by Developer, in accordance with the following terms:

☐ The adjustment of the Owner's Utilities does not require advancement of funds.

☐ The adjustment of the Owner's Utilities does require advancement of funds and the terms agreed to between the Developer and Owner are listed below.

[Insert terms of advance funding to be agreed between Developer and Owner.]

(b) Adjustment Based on Actual Costs or Agreed Sum

[Check the one appropriate provision, if advancement of funds is required]:

☐ The Owner is responsible for its share of the Developer actual cost for the Adjustment, including the identified Betterment. Accordingly, upon completion of all Adjustment work to be performed by both parties pursuant to this Amendment, (i) the Owner shall pay to the Developer the amount, if any, by which the actual cost of the Betterment (as determined in Paragraph 9(b)) plus the actual cost of Owner's share of the Adjustment (based on the allocation set forth in Exhibit A) exceeds the estimated cost advanced by the Owner, or (ii) the Developer shall refund to the Owner the amount, if any, by which such advance exceeds such actual cost, as applicable.

☐ The Agreed Sum is the agreed and final amount due for the Adjustment, including any Betterment, under this Amendment. Accordingly, no adjustment (either up or down) of such amount shall be made based on actual costs.

1.4 **Reimbursement of Owner's Indirect Costs.** For purposes of Paragraph 6 of the Original Agreement, the following terms apply to the Additional Owner Utilities and proposed Adjustment:

(a) Developer agrees to reimburse the Owner its share of the Owner's indirect costs (e.g., engineering, inspection, testing, ROW) as identified in Exhibit A. When requested by the Owner, monthly progress payments will be made. The monthly payment will not exceed 80% of the estimated indirect work done to date. Once the indirect work is complete, final payment of the eligible indirect costs will be made. Intermediate payments shall not be construed as final payment for any items included in the intermediate payment.

(b) The Owner's indirect costs associated with Adjustment of the Owner Utilities shall be developed pursuant to the method checked and described below *[check only one box]*:

☐ (1) Actual related indirect costs accumulated in accordance with (i) a work order accounting procedure prescribed by the applicable Federal or State regulatory body, or (ii) established accounting procedure developed by the Owner and which the Owner uses in its regular operations (either (i) or (ii) referred to as "Actual Cost") or,

☐ (2) The agreed sum of $___ ("Agreed Sum") as supported by the analysis of the Owner's estimated costs attached hereto as part of Exhibit A.

1.5 **Responsibility for Costs of Adjustment Work.** For purposes of Paragraph 4 of the Original Agreement, responsibility for the Agreed Sum or Actual Cost, as applicable, of all Adjustment work to be performed pursuant to this Amendment shall be allocated between the Developer and the Owner as identified in Exhibit A hereto and in accordance with §203.092, Texas Transportation Code. An allocation percentage may be determined by application of an eligibility ratio, if appropriate, as detailed in Exhibit A, provided however, that any portion of an Agreed Sum or Actual Cost attributable to Betterment shall be allocated 100% to the Owner in accordance with Paragraph 9 of the Original Agreement.

1.6 **Betterment.**

(a) Paragraph 9(b) (Betterment and Salvage) of the Original Agreement is hereby amended to add the following *[Check the one box that applies, and complete if appropriate]*:

☐ The Adjustment of the Additional Owner Utilities, pursuant to the Plans as amended herein, does not include any Betterment.

☐ The Adjustment of the Additional Owner Utilities, pursuant to the Plans as amended herein, includes Betterment to the Additional Owner Utilities by reason of *[insert explanation, e.g. "replacing 12" pipe with 24" pipe]*: ___. The Developer has provided to the Owner comparative estimates for (i) all work to be performed by the Developer pursuant to this Amendment, including work attributable to the Betterment, and (ii) the cost to perform such work without the Betterment, which estimates are hereby approved by the Owner. The estimated cost of the Developer work under this Amendment which is attributable to Betterment is $___, calculated by subtracting (ii) from (i). The percentage of the total cost of the Developer work under this Amendment which is attributable to Betterment is ___ %, calculated by subtracting (ii) from (i), which remainder is divided by (i).

(b) If the above Paragraph 1.6(a) identifies Betterment, the Owner shall advance to the Developer, at least **fourteen (14) days** prior to the date scheduled for commencement of construction for Adjustment of the Additional Owner Utilities, the estimated cost attributable to Betterment as set forth in Paragraph 1.6(a) of this Amendment. If the Owner fails to advance payment to the Developer on or before the foregoing deadline, the Developer shall have the option of commencing and completing (without delay) the Adjustment work without installation of the applicable Betterment. *[Check the one appropriate provision]*:

☐ The estimated cost stated in Paragraph 1.6(a) of this Amendment is the agreed and final amount due for Betterment under this Amendment, and accordingly no adjustment (either up or down) of such amount shall be made based on actual costs.

☐ The Owner is responsible for the Developer Actual Cost for the identified Betterment. Accordingly, upon completion of all Adjustment work to be performed by both parties pursuant to this Amendment, (i) the Owner shall pay to the Developer the amount, if any, by which the actual cost of the Betterment (determined as provided below in this paragraph) exceeds the estimated cost advanced by the Owner, or (ii) the Developer shall refund to the Owner the amount, if any, by which such advance exceeds such actual cost, as applicable. Any additional payment by the Owner shall be due within **sixty (60) days** after the Owner's receipt of the Developers invoice therefor, together with supporting documentation; any refund shall be due within **sixty (60) days** after completion of the Adjustment work under this Amendment. The Actual Cost of Betterment incurred by the Developer shall be calculated by multiplying (i) the Betterment percentage stated in Paragraph 1.6(a) of this Amendment, by (ii) the Actual Cost of all work performed by the Developer pursuant to this Amendment (including work attributable to the Betterment), as invoiced by the Developer to the Owner.

(c) The determinations and calculations of Betterment described in this Amendment shall exclude right-of-way acquisition costs. Betterment in connection with right-of-way acquisition is addressed in Paragraph 15 of the Original Agreement.

1.7 **Miscellaneous.**

(a) Owner and Developer agree to refer to this Amendment, designated by the "Amendment No." and "Agreement Number" indicated on page 1 above, on all future correspondence regarding the Adjustment work that is the subject of this Amendment and to track separately all costs relating to this Amendment and the Adjustment work described herein.

(b) [*Include any other proposed amendments allowed by applicable law.*]

2. **General.**

(a) All capitalized terms used in this Amendment shall have the meanings assigned to them in the Original Agreement, except as otherwise stated herein.

(b) This Amendment may be executed in any number of counterparts. Each such counterpart hereof shall be deemed to be an original instrument but all such counterparts together shall constitute one and the same instrument.

(c) Except as amended hereby, the Original Agreement shall remain in full force and effect. In no event shall the responsibility, as between the Owner and the Developer, for the preparation of the Plans and the Adjustment of the Owner Utilities be deemed to be amended hereby.

(d) This Amendment shall become effective upon the later of (a) the date of signing by the last party (either the Owner or the Developer) signing this Amendment, and (b) the completion of TxDOT's review and approval as indicated by the signature of TxDOT's representative, below.

APPROVED BY:

TEXAS DEPARTMENT OF TRANSPORTATION

By: _____
Authorized Signature

Printed Name: _____

Title: _____

Date: _____

OWNER

_____
[Print Owner Name]

By: _____
Duly Authorized Representative

Printed Name: _____

Title: _____

Date: _____

DEVELOPER

By: _____
Duly Authorized Representative

Printed Name: _____

Title: _____

Date: _____

County:
Highway:
Limits:
Fed. Proj. No.:
ROW CSJ No.:

Const. No.: **UTILITY ADJUSTMENT AGREEMENT AMENDMENT (Owner Managed)**

(Amendment No. to Agreement No.: -U-)

THIS AMENDMENT TO PROJECT UTILITY ADJUSTMENT AGREEMENT (this "Amendment"), by and between, hereinafter identified as the "**Developer**", and ___, hereinafter identified as the "**Owner**", is as follows:

WITNESSETH

WHEREAS, the STATE of TEXAS, acting by and through the Texas Department of Transportation, hereinafter identified as "TxDOT", proposes to construct the toll project identified above (the "Project", as more particularly described in the "Original Agreement", defined below); and

WHEREAS, pursuant to that certain Comprehensive Development Agreement ("CDA") by and between TxDOT and the Developer with respect to the Project, the Developer has undertaken the obligation to design, construct, and potentially maintain the Project, including causing the removal, relocation, or other necessary adjustment of existing utilities impacted by the Project (collectively, "Adjustment"); and

WHEREAS, the Owner and Developer are parties to that certain executed Project Utility Adjustment Agreement designated by the "Agreement No." indicated above, as amended by previous amendments, if any (the "Original Agreement"), which provides for the adjustment of certain utilities owned and/or operated by the Owner (the "Utilities"); and

WHEREAS, the parties are required to utilize this Amendment form in order to modify the Original Agreement to add the adjustment of Owner utilities facilities not covered by the Original Agreement; and

WHEREAS, the parties desire to amend the Original Agreement to add additional Owner utility facility(ies), on the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the agreements contained herein, the parties hereto agree as follows:

1. **Amendment.** The Original Agreement is hereby amended as follows:

   (a) The description of the Owner Utilities and the proposed Adjustment of the Owner Utilities in the Original Agreement is hereby amended to add the following facility(ies) ("Additional Owner Utilities") and proposed Adjustment(s) *[insert below a description of the affected facilities (by type, size and location) as well as a brief description of the nature of the Adjustment work to be performed (e.g., "adjust 12" waterline from approximately Highway Station 100+00 to approximately Highway Station 200+00")]*:

(b) The Plans, as defined in Paragraph 1 of the Original Agreement, are hereby amended to add thereto the plans, specifications and cost estimates attached hereto as Exhibit A.

(c) The Plans attached hereto as Exhibit A, along with this Amendment, shall be submitted upon execution to TxDOT in accordance with Paragraph 2 of the Original Agreement, and Paragraph 2 shall apply to this Amendment and the Plans attached hereto in the same manner as if this Amendment were the Original Agreement. If the Owner claims an Existing Interest for any of the Additional Owner Utilities, documentation with respect to such claim shall be submitted to TxDOT as part of this Amendment and the attached Plans, in accordance with Paragraph 16(a) of the Original Agreement.

(d) Paragraph 4(f) of the Original Agreement is hereby amended to add the following deadline for the Adjustment of the Additional Owner Utilities *[check one box that applies]*:

☐ Owner shall complete all of the utility reconstruction and relocation work, including final testing and acceptance thereof, on or before ___, 20___.

☐ Owner shall complete all of the utility reconstruction and relocation work, including final testing and acceptance thereof, within ___ calendar days after delivery to Owner of a notice to proceed by Developer.

(e) For purposes of Paragraph 5(b) of the Original Agreement, the Owner's costs associated with Adjustment of the Additional Owner Utilities shall be developed pursuant to the method checked and described below, *[check only one box]*:

☐ (1) Actual costs accumulated in accordance with a work order accounting procedure prescribed by the applicable Federal or State regulatory body ("Actual Cost"); or

☐ (2) Actual costs accumulated in accordance with an established accounting procedure developed by the Owner and which the Owner uses in its regular operations ("Actual Cost"); or

☐ (3) The agreed sum of $___("Agreed Sum"), as supported by the analysis of estimated costs attached hereto as part of Exhibit A

(f) For purposes of Paragraph 6 of the Original Agreement, responsibility for the Agreed Sum or Actual Cost, as applicable, of all Adjustment work to be performed pursuant to this Amendment shall be allocated between the Developer and the Owner as identified in Exhibit A and in accordance with §203.092 of the Texas Transportation Code. An allocation percentage may be determined by application of an eligibility ratio, if appropriate, as detailed in Exhibit A; provided, however, that any portion of an Agreed Sum or Actual Cost attributable to Betterment shall be allocated 100% to the Owner in accordance with Paragraph 10 of the Original Agreement.

(g) Paragraph 10(b) of the Original Agreement is hereby amended to add the following *[Check the one box that applies]*:

☐ The Adjustment of the Additional Owner Utilities, pursuant to the Plans as amended herein, does not include any Betterment.

☐ The Adjustment of the Additional Owner Utilities, pursuant to the Plans as amended herein, includes Betterment to the Additional Owner Utilities by reason of *[insert explanation, e.g. "replacing 12" pipe with 24" pipe]*: ___. The Owner has provided to the Developer comparative estimates for (i) all costs for work to be performed by the Owner pursuant to this Amendment, including work attributable to the Betterment, and (ii) the cost to perform such work without the Betterment, which estimates are hereby approved by the Developer. The estimated amount of the Owner's costs for work under this Agreement which is attributable to Betterment is $___, calculated by subtracting (ii) from (i). The percentage of the total cost of the Owner's work hereunder which is attributable to Betterment is ___%, calculated by subtracting (ii) from (i) which remainder shall be divided by (i).

(h) The following shall apply to any Betterment described in Paragraph 1(g) of this Amendment:

(i) If the Owner's costs are developed under procedure (3) described in Paragraph 1(e) of this Amendment, then the agreed sum stated in that Paragraph includes any credits due to the Developer on account of the identified Betterment, and no further adjustment shall be made on account of same.

(ii) If the Owner's costs are developed under procedure (1) or (2) described in Paragraph 1(e) of this Amendment, the parties agree as follows *[check the <u>one</u> appropriate provision]*:

☐ The estimated cost stated in Paragraph 1(g) of this Amendment is the agreed and final amount due for Betterment under this Amendment. Accordingly, each intermediate invoice submitted for Adjustment(s) of the Additional Owner Utilities pursuant to Paragraph 7(b) of the Original Agreement shall credit the Developer with an appropriate amount of the agreed Betterment amount, proportionate to the percentage of completion reflected in such invoice. The final invoice submitted for Adjustment(s) of the Additional Owner Utilities pursuant to Paragraph 7(a) of the Original Agreement shall reflect the full amount of the agreed Betterment credit. For each invoice described in this paragraph, the credit for Betterment shall be applied before calculating the Developer's share (pursuant to Paragraph 1(e) of this Amendment) of the cost of the Adjustment work. No other adjustment (either up or down) shall be made based on actual Betterment costs.

☐ The Owner is responsible for the actual cost of the identified Betterment, determined by multiplying (a) the Betterment percentage stated in Paragraph 1(g) of this Amendment, by (b) the actual cost of all work performed by the Owner pursuant to this Amendment (including work attributable to the Betterment), as invoiced by the Owner to the Developer. Accordingly, each invoice submitted for Adjustment of the Additional Owner Utilities pursuant to either Paragraph

7(a) or Paragraph 7(b) of the Original Agreement shall credit the Developer with an amount calculated by multiplying (x) the Betterment percentage stated in Paragraph 1(g) of this Amendment, by (y) the amount billed on such invoice.

(i) The determinations and calculations of Betterment described in this Amendment shall exclude right-of-way acquisition costs. Betterment in connection with right-of-way acquisition is addressed in Paragraph 16 of the Original Agreement.

(j) Owner and the Developer agree to refer to this Amendment, designated by the "Amendment No." and "Agreement number" indicated on page 1 above, on all future correspondence regarding the Adjustment work that is the subject of this Amendment and to track separately all costs relating to this Amendment and the Adjustment work described herein.

(k) [*Include any other proposed amendments in compliance with the applicable law.*]

2. **General.**

(a) All capitalized terms used in this Amendment shall have the meanings assigned to them in the Original Agreement, except as otherwise stated herein.

(b) This Amendment may be executed in any number of counterparts. Each such counterpart hereof shall be deemed to be an original instrument but all such counterparts together shall constitute one and the same instrument.

(c) Except as amended hereby, the Original Agreement shall remain in full force and effect. In no event shall the responsibility, as between the Owner and the Developer, for the preparation of the Plans and the Adjustment of the Owner Utilities be deemed to be amended hereby.

(d) This Amendment shall become effective upon the later of (a) the date of signing by the last party (either the Owner or the Developer) signing this Amendment, and (b) the completion of TxDOT's review and approval as indicated by the signature of TxDOT's representative, below.

APPROVED BY:

TEXAS DEPARTMENT OF TRANSPORTATION

By: _____
Authorized Signature

Printed Name: _____

Date: _____

OWNER

_____
[Print Owner Name]

By:
Duly Authorized Representative

Printed Name: _____

Title: _____

Date: _____

DEVELOPER

By:
Duly Authorized Representative

Printed Name: _____

Title: _____

Date: _____