

STATE OF LOUISIANA
INTERSTATE-10 WIDENING
DESIGN-BUILD PROJECT

SIEGEN LANE INTERCHANGE TO HIGHLAND ROAD INTERCHANGE
EAST BATON ROUGE PARISH
STATE PROJECT NOS. 450-10-0159
FEDERAL AID PROJECT NO. ARR-1709(503)

CONTRACT DOCUMENTS

CONFORMED COPY

PART 3 - PERFORMANCE
SPECIFICATIONS

APPENDIX A



Louisiana Department of Transportation and Development

TABLE OF CONTENTS OF PERFORMANCE SPECIFICATIONS

ROADWAY PS-1

DRAINAGE..... PS-5

GEOTECHNICAL..... PS-8

PAVEMENT STRUCTURE PS-20

STRUCTURES PS-24

TRAFFIC MANAGEMENT PLAN..... PS-32

PUBLIC INFORMATION..... PS-36

LIGHTING PS-38

PERMANENT SIGNAGE..... PS-41

ENVIRONMENTAL PS-43

KANSAS CITY SOUTHERN RAILROAD COORDINATION PS-46

UTILITIES..... PS-49

MAINTENANCE DURING CONSTRUCTION PS-54

PROJECT OFFICE AND FIELD OFFICE PS-58

ROADWAY PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall design and construct roadways and related work, including main roadways, crossroads, intersections, ramps, travel lanes, shoulders, barriers, transitions and all other roadway-related facilities as required by this specification and by the project scope, required for the safe operation of the new roadways. The design shall provide a workable solution to the project's needs. The roadway and bridge geometry shall meet the Goals established herein, as well as all Standards for Roadway design as outlined within this specification.

The Design-Builder may, however, find ways to improve this geometry. Any innovative alternatives that increase benefits and/or savings to the Department and/or the Design-Builder are encouraged and will be evaluated accordingly.

2.0 PERFORMANCE GOALS

The roadway designs required by this section shall be performed and completed such that the roadways and other features are designed and constructed in a manner that is equal to a standard of care which is practiced by engineers performing successful designs for LA DOTD. All roadway geometries shall be designed in accordance with the Standards listed and referenced in this Roadway Performance Specification. The objective of this design work is to result in constructed project facilities within specified criteria while allowing the Design-Builder the flexibility to make changes that produce benefits or savings to the LA DOTD or the Design-Builder without impairing essential functions and characteristics of the Project, including, safety, traffic operations, desired appearance, and maintainability. The primary performance goals for the Project include the following:

- A) Roadway and related features designed & constructed to National Interstate standards;
- B) Design of horizontal alignment that is typical of National Interstate standards and that produces horizontal curves of at least 2,100 feet in length;
- C) Use of horizontal reverse curvature, if necessary, only at the Highland Road end of the project;
- D) Provide a safe facility for the traveling public;
- E) Permanent lighting that will provide a well-lighted corridor and a safe and comfortable environment for those that use and maintain the systems;
- F) Permanent signage that is clearly visible, provides clear direction and information for users, and complies with all applicable MUTCD requirements;
- G) Permanent pavement markings that give sufficient illumination and reflectorization in daytime and at night and comply with all applicable MUTCD and LADOTD requirements;
- H) Provide driver safety and awareness features (i.e. Rumble strips/stripes);

- I) Smooth horizontal and vertical ride for the traveling public;
- J) Roadway and median barriers that meet NCHRP 350, Test Level requirements and provide a functional and safe environment for the public and maintenance crews, as well as provide adequate glare screening;
- K) Adequate sight distance provided for curves and at intersections; and

3.0 STANDARDS AND REFERENCES

Standards and references specifically cited in the body of this Roadway Performance Specification establish DOTD's Standards and suggested Reference guidelines. Should the requirements in any standard or reference conflict with those in another, the standard or reference highest on the lists presented below shall govern. Listed under References are guidelines that the Contractor may use in addressing the project requirements as he deems appropriate. It is the Contractor's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

3.1 STANDARDS

- A) LA DOTD Design Standards for Freeways (F3 Roadway Classification. With a design exception a 10' outside shoulder will be permitted.).
- B) Manual of Uniform Traffic Control Devices (MUTCD)
- C) LA DOTD Engineering Directives and Standards Manual (EDSM)
- D) AASHTO Policy on Geometric Design of Highways and Streets (Green Book).
- E) AASHTO Roadside Design Guide
- F) LADOTD Standard Plans
- G) LADOTD Software and Deliverable Standards for Electronic Plans (http://www.altivasoft.com/ladotd/PDFs/DOTD_Software_Standards_for_Electronic_Plans.pdf)

3.2 REFERENCES

- A) LA DOTD Roadway Design Procedures and Details¹
- B) A Guide to Constructing Operating and Maintaining Highway Lighting Systems
- C) Highway Capacity Manual, Special Report 209. Third Edition.
- D) FHWA Code of Federal Regulations (CFRs)
- E) Louisiana Standard Specifications for Roads and Bridges, 2006
- F) LA DOTD Highway Specifications Workbook

- G) LA DOTD Special Details
- H) National Cooperative Highway Research Program Report 350.

¹ Section 2.3 EXCEPTIONS TO DESIGN STANDARDS AND POLICIES. Delete the first paragraph in its entirety and replace with the following:

“Every effort shall be made to meet the approved LA DOTD Design Standards for all roadway or bridge projects. Exceptions to design standards shall only be considered when the exception supports an alternative technical concept or value engineering or on a case-by-case basis, at specific locations, where the Design-Builder demonstrates that substantial benefits to the Department and the public would accrue from the Design-Builder’s recommendation. However, no assurance is made that such Design Exceptions will be approved. All Design Exception Requests shall be submitted in accordance with the Louisiana DOTD Design Exception Request Process utilizing the “Design Exception/Design Waiver Form.”

4.0 SCOPE

The Design-Builder shall design all roadway geometrics including, but not limited to, horizontal alignments, vertical alignments, superelevation, typical sections, median barriers, permanent pavement markings, rumble strips/stripes, and all other required roadway features. The design and construction of this project will be a six-lane divided interstate in accordance with the requirements of the Scope of Services Package. The new 6-lane roadway will be built completely within the existing state-owned right-of-way.

The Design-Builder shall clearly document any changes to the alignment and stationing of the centerline and maintain a complete record of all such changes for LA DOTD reference.

5.0 REQUIREMENTS

5.1 Design Criteria

- A) The roadway design criteria shall be in accordance with Section 3.1 of this Specification.
- B) Ramp modifications and ramp design will be in accordance with LA DOTD Standard plans SC-01 and SC-02.
- C) Highway guardrail design shall be in accordance with LADOTD Standard Plans GR-200, GR-201 and GR-202.

5.2 Permanent Pavement Markings

- A) 1½ inch black contrast backing will be required for white centerline pavement striping used on concrete pavements.
- B) All other requirements for pavement markings shall be in accordance with Manual of Uniform Traffic Control Devices (MUTCD) and LADOTD Standard Plan PM-01.

5.3 Rumble Strips

- A) Rumble strips are required at the edges of the innermost and outermost travel lanes and according to LA DOTD special details.
- B) Rumble strips are not allowed more than 2” beyond the inside edge of final striping.
- C) Rumble Strip application will be as follows:

Type of Surfacing	Inside Shoulder	Outside Shoulder
Asphaltic Concrete Pavement	Raised Pavement Markings	Existing Rumble Strip to Remain
PCC Pavement	Raised Pavement Markings	Existing Rumble Strip to Remain

5.4 Median Barriers

- A) Median Barriers are required if the final median width (travel lane to travel lane) is less than 60 feet.
- B) Required median barriers will be concrete and constructed at a location beyond the 12-foot width of the inside shoulder section and on an independent reinforced concrete footing.
- C) Median Barriers shall meet NCHRP 350 Test Level 5 requirements.
- D) Median Barriers shall not be less than 54” in height.
- E) Cable barriers will not be allowed.
- F) Incidental concrete paving shall be provided within the median if median width between the barrier rails is equal to or less than 20 feet.

**DRAINAGE
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall provide drainage facilities designed to safely and efficiently handle stormwater runoff, and to satisfy environmental commitments. The Design-Builder shall abide by the standards in this Performance Specification and elsewhere in the Design-Build Contract as they pertain to drainage facilities, including NPDES and other permit requirements. The Design-Builder shall obtain clarification of any unresolved ambiguity prior to proceeding with design and/or construction.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, (in the sole determination of the LA DOTD):

- A) Cross drain pipes must be sized to accommodate 50-year design peak discharge using SCS Method and, selected material must have 70-year service life.
- B) Side drain pipes must be sized to accommodate 5-year design peak discharge. If the channel is providing an outfall or the major approach channel for a cross drain, side drain pipes must be sized to accommodate 50-year design peak discharge and, selected material must have 30-year service life.
- C) Hydraulic design that does not create design exception requirements.
- D) Hydraulic design that does not increase the magnitude of existing deficiencies.
- E) Effective drainage throughout the project limits.
- F) Drainage structures extended beyond clear zone.

3.0 STANDARD PERFORMANCES

The Design-Builder shall plan, design, construct, and implement drainage in accordance with this Drainage Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Performance Specification establish requirements that have precedence over all others. In this Drainage Performance Specification, if the requirements in any standard conflicts with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibilities to obtain clarification of any ambiguity within this Performance Specification prior to proceeding with design and/or construction.

3.1 STANDARDS

The standards for this Drainage Performance Specification are contained in the Engineering Directives and Standard Manual (EDSM), Louisiana Department of Transportation and Development <http://webmail.dotd.louisiana.gov.ppmemos.nsf>. Standards are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD

Louisiana Department of Transportation and Development

will govern. See the table below for applicable EDSMs.

EDSM Reference	Title	Comment
II-2.1.1	Design Policy for Cross Drains, Side Drains, Underdrains, Storm Drains	The (3-20-07) "Revised Pipe Policy" will have precedence over any conflicting requirements
II-2.1.6	Procedures for Determining Coating And Thickness Requirements for Metal Pipe	
II-2.1.8	Shoulder Drainage Systems	
II-2.1.12	Pavement Structure Design	
II-2.1.13	Procedure for determining Type of Plastic Pipes, Permissible Usage, Quality Control and Installation Requirement.	
III-1.1.4	Form No. 4206 Right of Entry	
III-1.1.13	Encroachments	
III-1.1.23	Development of a Traffic Control Plan	
III-2.5.1	Construction Joints Bridges and Structures	
III-2.6.3	Conduit Backfill Requirements	
IV-2.6.3	Communication Cable Installation on Highway Structures	
IV-2.1.9	Pipeline Crossings and the Use of Thermoplastic Pipe	
V-1.1.1	Policy for Using Embankment Materials with swell potential	

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The Louisiana Department of Transportation and Development's Roadway Design Procedures and Details.
- B) The Louisiana Department of Transportation and Development's Hydraulics Manual.
- C) The Louisiana department of Transportation and Development's User's Manual for Hydraulics Programs.
- D) The FHWA HEC-18 and HEC-20 For Scour Analysis

4.0 SCOPE

The design and construction of all drainage and other culvert facilities must adequately address runoff control, safety, functionality, erosion mitigation, durability, ease of maintenance, maintenance access,

and current uses. All ditches, outfalls, and pipe crossings must be designed to address all performance goals as well as functionality, headwater, discharge, design storm, minimum cover, and pipe/RCB size.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that the drainage design and materials will meet the performance goals and that the design and system will provide effective drainage throughout the project limits.

6.0 REQUIREMENTS

- A) Plastic pipe will not be allowed except in the application as described in the referenced Revised Pipe Policy (EDSM II-2.1.1).
- B) Metal culverts are not allowed.

**GEOTECHNICAL
PERFORMANCE SPECIFICATION**

1.0 INTRODUCTION

The Design-Builder shall conduct geotechnical investigations, analyses, design, and construction in accordance with all applicable criteria and standards cited herein and in accordance with this Geotechnical Performance Specification.

2.0 APPLICABLE STANDARDS AND REFERENCES

The geotechnical investigation and design shall be in accordance with this Geotechnical Performance Specification and the relevant requirements of the following standards unless otherwise stated in this Performance Specification. Standards and references specifically cited in the body of this Geotechnical Performance Specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list presented below shall govern. The Design-Builder may use References as guidelines in addressing the requirements. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Geotechnical Performance Specification shall be the most recent version available at the time of issuance of the Scope of Services Package.

2.1 STANDARDS

- A) AASHTO LRFD Bridge Design Specifications, 4th Edition, 2007 with 2008 and 2009 Interim Revisions;
- B) AASHTO LRFD Bridge Construction Specifications, 2nd Edition with applicable Interim Revisions;
- C) Louisiana Standard Specifications for Roads and Bridges, 2006 Edition except Section 804; and
- D) Revised Section 804 of the Louisiana Standard Specifications for Roads and Bridges (Revised for LRFD).

2.2 REFERENCES

- A) Subsurface Investigations, FHWA-HI-97-021, 1997;
- B) Drilled Shafts: Construction Procedures and Design Methods Manual, FHWA IF-99-025, 1999;
- C) Design and Construction of Driven Pile Foundations, Volumes 1 and 2, FHWA HI-95-038, 1998;
- D) Soils and Foundation Workshop Manual, FHWA;
- E) Earth Retaining Structures, FHWA-NHI-99-025, 1999;

- F) Prefabricated Vertical Drains, Vol. No. 1, FHWA- RD-86-168, 1986;
- G) XSTABL, Version 5, Interactive Software Designs, Inc. 1994 or PCSTABL4;
- H) LA DOTD MSEW Design Guide, Pavement and Geotechnical Services Section;
- I) Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines, FHWA NHI-00-0043, 2001;
- J) Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, FHWA Demonstration Project 82 Ground Improvement, FHWA NHI-00-044, 2000;
- K) Geosynthetic Design and Construction guidelines, FHWA HI-95-038, current edition;
- L) Geotechnical Instrumentation Manual, FHWA HI-98-034, 1998;
- M) Advanced Technology for Soil Slope Stability, Volume 1: Slope Stability Manual FHWA-SA-94-005, 1994;
- N) LA DOTD Bridge Design Manual, including memorandums and any revisions issued by the State Bridge Engineer prior to date of the Final Scope of Services Package;
- O) LA DOTD Special Provisions and Supplemental Specifications;
- P) LA DOTD Standard Drawings; and
- Q) Soil Borings.

3.0 REQUIREMENTS

3.1 GEOTECHNICAL PLANNING REPORT

The Design-Builder shall prepare a Geotechnical Planning Report for the Project and submit the Geotechnical Planning Report within 60 days from Notice to Proceed for review and written comment. The Geotechnical Planning Report shall include a detailed method statement describing the general philosophy and methods of design and construction and the rationale for selection of the proposed construction methods for all geotechnical and foundation aspects of the Project. The method statement shall indicate how material and design details are chosen to match selected construction methods, construction details, and the soil and groundwater environment for the site.

The Design-Builder shall provide details of equipment and methods proposed for foundation and earthwork construction and demonstrate how they are consistent with the design approach and assumptions. The details presented shall demonstrate compliance with the Geotechnical Performance Specification requirements and shall demonstrate an understanding of the ground conditions and Project constraints as defined within this Contract.

The Design-Builder shall submit the following technical information with the Geotechnical Planning Report:

Louisiana Department of Transportation and Development

- A) Description of geology and various ground types to be encountered along the alignment;
- B) A description of the geotechnical information that was collected and analyzed in developing the interpretation used to develop the Design-Builder's Proposal and pricing for the Project;
- C) Assessment of the engineering properties of all soil types, including the expected average and range of soil strengths and deformation properties;
- D) Recommended design parameters (preliminary) for all soil types;
- E) Anticipated ground behavior and categorization of ground during excavation, filling, and foundation and retaining structure construction;
- F) Support of excavation and groundwater control considerations;
- G) A narrative describing how any interpretation was derived from the geotechnical data;
- H) Consideration for, discussion of, and rationale for protection of existing structures, bodies of water, and environmentally or historically sensitive areas; and
- I) Any pertinent geotechnical data used as a basis for selection, design, and installation of the proposed foundation elements.

The Geotechnical Planning Report shall define the engineering and design approach that will be followed in order to develop technically and environmentally acceptable and durable foundations, cut and fill slopes, retaining structures, and geotechnical designs for the Project. The Geotechnical Planning Report shall discuss all aspects of the required geotechnical effort and design and analysis, including the following:

- 1) Additional Subsurface investigations;
- 2) Determination of geotechnical and foundation design parameters;
- 3) Erosion control measures and design and analysis;
- 4) Embankment and fill settlement and slope stability analysis;
- 5) Retaining wall design and analysis;
- 6) Planned field testing programs, including pile and drilled shaft integrity and load testing and ground improvement testing;
- 7) Ground improvement or treatment of in-situ soils;
- 8) Selection, design, and analysis of foundation systems;
- 9) Lateral and vertical earth pressures;
- 10) Instrumentation and monitoring programs; and

11) Expected serviceability and durability of proposed solutions.

The Geotechnical Report shall be prepared and signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana meeting the qualification requirements in Appendix 108C – Key Personnel Qualifications and Requirements.

3.2 SUBSURFACE INVESTIGATION AND DATA ANALYSIS

3.2.1 General

A systematic subsurface investigation of the Project site has been performed by the LA DOTD. Information generated from the completed investigations conducted by the LA DOTD has been provided to the Design-Builder for evaluation of the subsurface conditions along the alignment and for concept level design of the various structures. The Design-Builder shall conduct additional investigations in accordance with the scope specified herein and any additional investigations the Design-Builder deems necessary to establish the geotechnical conditions and to perform all geotechnical and foundation design and analyses.

These additional investigations and testing shall be conducted in accordance with the reference items identified in Section 2.2.

The Design-Builder shall form its own interpretation of the existing geotechnical data and satisfy itself as to the nature of the ground and sub-soil, the form and nature of the site, and nature of the Work that may affect its detailed design, construction method, and tools. LA DOTD neither assumes nor implies any other warranty regarding the data provided, other than that the information was obtained at locations and depths indicated and to the accuracy of the data at the time of testing.

The additional investigations to be performed by the Design-Builder shall supplement the data provided by the LA DOTD. The Design-Builder shall determine the number and location of additional investigations in accordance with the requirements presented in Table 10.4.2-1 of the AASHTO LRFD Bridge Design Specifications (herein after AASHTO Specifications). Subsurface investigation requirements not covered in the AASHTO Specifications are presented in Table 3.2.1. Existing investigation borings may be combined with the additional investigations to comply with the requirements presented in Table 3.2.1. Cone Penetration Test soundings may be considered as an alternative to all borings where the Design-Builder considers it appropriate provided that a sufficient number of borings are performed at Cone Penetration Test sounding location to develop reliable correlation between the boring and Cone Penetration Test results. The Design-Builder shall provide the results of investigations to the LA DOTD in a memo as follows:

- A) The logs of borings,
- B) Cone Penetration Test soundings,
- C) the field records of any field investigations; and
- D) Laboratory test results.

Table 3.2.1 Minimum Requirements for Additional Investigations

Geotechnical Feature	Minimum Investigation Locations
Roadways	The spacing of borings or Cone Penetration Tests along the roadway alignment shall not exceed 200 feet. The spacing and location of the borings shall be selected considering the geologic complexity and soil/rock strata continuity within the Project area with the objective of defining the vertical and horizontal boundaries of distinct soil units within the Project limits.
Embankments and Cuts	The spacing between borings shall be no greater than 200 feet. At critical locations, provide a minimum of three borings in the transverse direction to define the existing geological conditions for stability analysis.
Culverts	A minimum of one boring at each culvert with embankment height greater than five feet. Additional borings shall be provided for long culverts or in areas of erratic subsurface conditions.

Note: Except as specified herein, LA DOTD and AASHTO standards shall be followed with respect to planning and performing subsurface exploration programs.

3.3 FOUNDATION DESIGN

Maximum pile loads, foundation embedment and geotechnical design for Project structures shall conform to AASHTO Specifications, 4th Edition. The Design-Builder shall not use screw piles or existing foundations. Timber piles and spread footing foundations shall not be used for bridge foundations, but may be considered for support of retaining walls in accordance with Section 3.4 of the Geotechnical Performance Specification.

The LRFD method shall be used to design the foundations. Foundation types that are not included in the AASHTO Specifications shall be allowed, if the Design-Build provides the properly calibrated resistance factors for Louisiana soils based on the calibration methods presented in NCHRP 507. All backup of the calibration shall be submitted for review and approval. LA DOTD may reject the resistance factors at its discretion.

3.3.1 Deep Foundations

Allowable pile loads for piles fully laterally supported shall not exceed the values Listed in the LADOTD Bridge Design Manual (herein after Bridge Design Manual).

Pile bent structures shall meet buckling requirements as per the Bridge Design Manual. The Design-Builder shall consider non-axial pile loads and shall analyze pile bent structures considering slenderness limitations to determine if they are acceptable.

For shaft penetration considerations, the geotechnical support capacity of the drilled shafts shall be determined and shall be verified by appropriate number of field load testing acceptable to LADOTD.

Concrete for drilled shafts shall be in accordance with Class S Concrete as specified in the LA DOTD Standard Specifications for Roadways and Bridges (herein after Standard Specifications), except that, a) the minimum concrete strength shall be 3,800 psi, b) the coarse aggregate shall be Grade P, but with a maximum size of $\frac{3}{4}$ inch, and c) the slump shall be between 7 and 9 inches.

The center to center spacing of drilled shafts and piles shall be at least three times the larger diameter (drilled shaft or pile) of the adjacent foundation elements. This spacing requirement applies to both between the new foundations and between the new and existing foundations. At the locations where the available space does not allow for the space of foundations to meet this requirement, the Design-Builder shall design the foundation so that interaction between the closed spaced foundations does not induce more than 1/8 inch of movement of the existing foundation.

3.3.2 Vertical Capacity

Deep foundations shall be analyzed for axial compression and uplift resistance, using static analysis methods in accordance with AASHTO Specifications. A resistance factor consistent with the level of construction control (i.e., test piles, wave equation, and dynamic monitoring) and site variability shall be applied to the ultimate capacity in accordance with AASHTO Specifications. The capacity shall be verified by appropriate number of field tests as specified in the AASHTO Specifications. The effectiveness of base preloading, if used for drilled shafts, shall be demonstrated by Osterberg load tests conducted both prior to and following preloading operations, with the number of Osterberg load tests determined in accordance with Article 3.3.7 of this Geotechnical Performance Specification.

3.3.3 Settlement

The design of deep foundations shall consider the total and differential settlement tolerances of the proposed structures. Settlement and differential settlement shall not exceed the design tolerances, or the tolerances specified in the Bridge Design Manual, whichever is less. Settlement induced by the deep foundation group in the subsoil shall be evaluated. In addition, settlement of the individual deep foundation elements shall also be evaluated.

The foundation at the KCS railroad crossing should be designed to reduce the impact to the existing bridge foundation. The Design-Builder shall show that the new foundation shall induce no more than 1/8 inch of additional settlement of the existing foundation using appropriate method. This settlement value shall be verified by instrumentation at the existing foundation.

3.3.4 Downdrag (Negative Skin Friction)

The design of deep foundations shall consider the effect of downdrag (negative skin friction) from ongoing ground settlement, construction dewatering, variable groundwater conditions, placement of fill or embankments, and/or pile installation. Downdrag loads shall be determined by considering the load transfer distribution along the deep foundation element as well as the group layout. Appropriate load factors in accordance to the AASHTO Specifications shall be applied to evaluate the foundation behavior.

3.3.5 Lateral Load Capacity

Deep foundations shall be designed to adequately resist the lateral loads transferred to them from the structure without exceeding the allowable deformation of the structure or overstressing the structure or

foundation elements.

Where the lateral resistance of the soil surrounding the piles is inadequate to resist the applied loads, the use of batter piles may be considered. Where battered piles are proposed, the battered piles shall not encroach on property outside the Right-of-Way (ROW). Battered drilled shafts shall not be used.

3.3.6 Wave Equation Analyses

The constructibility of a pile design and the development of pile driving criteria shall be performed using a wave equation computer program. The use of dynamic pile driving formulas will not be an acceptable method for developing driving criteria or performing drivability studies to determine hammer energy requirements.

3.3.7 Deep Foundation Testing and Monitoring

Field testing shall be performed for deep foundations to evaluate foundation capacity and integrity, to verify design assumptions, to determine foundation installation characteristics, to evaluate the pile driving system performance, and to establish foundation depths. The foundation testing and monitoring shall include indicator, monitor, and test piles or drilled shafts; dynamic testing; static load testing; non-destructive integrity testing; and Quality Control (QC) testing. All foundation testing shall be performed by the Design-Builder, using testing personnel or Subconsultants, qualified and experienced in performing and interpreting the required foundation testing.

A pile driving analyzer shall be used to determine if each hammer is delivering the energy required by the design. Dynamic pile testing and static load testing shall be performed in accordance with the Bridge Design Manual and the Standard Specifications, except as specified herein. Dynamic testing shall be performed on all test piles, indicator piles and monitoring piles. Not less than five percent of the production piles shall be used as monitoring piles.

Static load tests shall be performed on piles in accordance with the Bridge Design Manual and the revised Section 804.11 of the Standard Specification (revised for LRFD), except as specified herein. Static load tests shall be performed at each of the locations representative of the different subsurface conditions, pile types, pile capacities, and pile depths. The number and locations of these other load test piles shall be determined by the Design-Builder and included in their cost estimate and planning report.

Osterberg Load Cell tests shall be performed on drilled shafts at each of the locations representative of different subsurface conditions, drilled shaft capacities, and drilled shaft diameter and depths in accordance with LA DOTD EM804. The number and locations of these other load test shafts shall be determined by the Design-Builder.

Integrity testing consisting of Crosshole Sonic Logging shall be performed on all drilled shafts. The testing shall be performed in accordance with Section 814.19 of the Standard Specifications.

Prior to the start of construction activities, the Design-Builder shall prepare and submit a detailed description of the proposed foundation testing and monitoring programs to the LA DOTD for their review and comment. The description shall include specifications and plans presenting the type, purpose, number, location, and procedures for each test and the recording and reporting procedures. Testing and monitoring of deep foundations shall be in accordance with the applicable LA DOTD, ASTM, and AASHTO specifications.

3.3.8 Drilled Shaft Foundations

Drilled shaft foundations may be considered. In addition to the structural requirements, the design of the drilled shaft foundations will consider minimizing the impact to the existing foundations. The new drilled shaft foundation shall be designed to cause no more than 1/8 inch of settlement to the existing foundations. The DesignBuilder shall show the calculations and monitor the settlement during construction and one year post construction to verify the achievement of the design objectives.

3.4 RETAINING WALL DESIGN

Retaining walls may consist of mechanically stabilized earth (MSE) walls, cast-in-place concrete cantilever walls, or other types of walls suitable to the required application and all performance requirements. Wall types that shall not be used for permanent applications are identified in the Structures performance Specifications. All walls shall be designed for a minimum service life of 75 years for general case and for a minimum service life of 100 years when the walls support structure loads.

MSE walls used for the Project shall include only those wall systems included on the LA DOTD's list of qualified wall systems. The Design-Builder may propose a MSE wall system that is not currently included on the LA DOTD list of qualified wall systems, but it will be necessary to submit all information required by LA DOTD regarding the proposed wall system and for LA DOTD to add the proposed wall system to the LA DOTD list of approved wall systems before the proposed wall system can be used for the Project.

Design of MSE walls shall be in accordance with procedures presented in the FHWA's "Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines" (referenced in Section 2.2). Design of other types of retaining walls shall conform to current engineering practice as defined in the AASHTO Standard Specifications for highway Bridges indicated in Section 2.1 as applicable to the specific type of wall used.

3.4.1 Design Loads

3.4.2 Vertical Loads

The loads used in the design of permanent Work shall be in accordance with the requirements of the relevant design codes and Standards, except where herein modified or augmented.

Estimation of live loads due to pedestrian, or highway traffic shall be in accordance with the requirements of AASHTO LRFD Specifications.

Loads due to soils or backfill shall be derived using the maximum values of the saturated densities. Only where it can be clearly demonstrated that the fill is well drained, and will remain well drained in the future, shall any reduction in the degree of saturation be allowed. The submerged densities shall be used for soil unless the location is above the standing water table.

3.4.3 Lateral Pressure

Lateral earth pressures shall be estimated on the basis of the anticipated movement of the structure. For yielding retaining structures, Rankine's active pressure theory shall be used. However, for unyielding structures, where the movement of the structures is not sufficient to mobilize active pressures, and/or

where compacted backfill is placed behind the structure, the lateral pressure on the structures shall be evaluated on the basis of anticipated movements, site-specific subsurface conditions and construction methods. The pressure on unyielding structures shall not be less than at-rest pressure. The design of the retaining structures shall be based on the maximum lateral pressures that will develop behind the structures.

Hydrostatic pressure induced by the groundwater table, when present, shall be included in the lateral pressures. Additional hydrostatic pressures and variations in groundwater conditions due to flooding and rapid drawdown conditions shall be considered in the design of the retaining structures.

3.4.4 Deep Foundations

Deep foundations for retaining walls shall be designed in accordance with Subsection 3.3.

3.4.5 Shallow Foundations

Shallow foundations for retaining walls are permitted where there is a suitable bearing stratum near the surface. But shallow foundations shall not be used where scour or erosion could undermine or adversely impact the performance of the foundation.

Shallow foundations shall be analyzed for bearing capacity in accordance with AASHTO Specifications. Punching and local failure of the footing shall also be evaluated. Walls shall be proportioned so that the resultant of all forces acting falls within the middle third of the footing base.

Analyses shall be conducted to estimate the total and differential soil settlement, induced by the foundation loads. The analyses shall consider immediate settlement for granular soils and immediate settlement, primary consolidation and secondary compression for cohesive soils. Shallow foundations shall be designed to maintain wall settlements (total and differential) within the applicable tolerances specified in the FHWA Manual on Earth Retaining Structures (Reference E in Section 2.2.).

3.4.6 External and Internal Stability

Both external and internal stability analyses shall be conducted in accordance with the AASHTO Specifications.

3.5 FILL/EMBANKMENT DESIGN

3.5.1 Excavation and Embankment

Excavations and embankment construction shall be in accordance with the requirements of Section 203 of the Standard Specifications for Roads and Bridges. Embankment cross sections shall be in accordance with the requirements of the Roadway Performance Specification.

3.5.2 Slope Stability

Particular attention shall be given to the design of all soil and rock embankment side slopes, whether temporary or permanent. The analyses shall consider the effects of deterioration and loss of soil resistance due to local climatic and construction conditions. All slopes shall be designed to minimize erosion by rainfall and runoff. Adequate drainage and erosion control provisions should be incorporated

in the design and construction of the embankments in accordance with Subsection 3.9.

Slope stability analyses shall be conducted using a suitable computer program acceptable to LA DOTD. Circular and wedge type failures shall be analyzed for potential occurrence for each embankment configuration and slope. The evaluation of global slope stability shall consider potential seepage forces and any weak deposits and seams that are adversely impacted by water flow. The minimum factors of safety for static load conditions shall be 1.3 for non-critical slopes and 1.5 for critical slopes (at bridge abutments, wingwalls and existing structures) for permanent embankment slopes. The minimum factor of safety for a rapid drawdown condition shall be 1.1. For non-permanent embankment and earthwork slopes, the minimum safety factor shall be 1.3 under static load conditions.

3.5.3 Settlement

Analyses shall be conducted to estimate the soil settlement induced by the embankment loads. Immediate settlement in granular soils and both immediate and consolidation settlements in cohesive soils shall be considered. Embankments shall be designed to keep estimated total long term settlements limited to one inch during a period of 75 years after completion of the pavement construction. Differential settlement both within fill sections and across fill/structure interfaces shall be limited to 1/300. Embankment settlement shall be monitored and assessed during the duration of the Contract to verify that the specified settlement criteria will be achieved.

3.6 REINFORCED SOIL SLOPE (RSS) DESIGN

The design procedures and considerations for reinforced soil slopes shall conform to the requirements of the FHWA Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines, [see Section 2.2(I)]. Performance requirements are presented in Table 3.6 as follows:

Table 3.6 Minimum Factors of Safety for Design of RSS

Failure Mode	Minimum Safety Factor
External Stability:	
Sliding	1.5
Local Bearing Capacity	1.5
Global Slope Stability	1.5
General Bearing Capacity	3.0
Settlement	See Subsection 3.5.3
Internal Stability:	
Compound Failure	1.5
Slope Stability	1.5
Rupture Strength	> Allowable Reinforcement Tension
Pull-out Resistance	1.5 (granular soils)
Pull-out Resistance	2.0 (cohesive soils)

Adequate drainage provisions, slope protection and erosion control provisions shall be incorporated into the RSS designs in accordance with requirements of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines and as required in Subsection 3.9.

3.7 SOIL IMPROVEMENT

The use of soil improvement to increase soil strength and reduce compressibility in order to increase the safety factors for external and internal stability and reduce settlements to the allowable range specified herein will be allowed in the design. It shall be necessary to demonstrate their suitability for local conditions and installation methods. Techniques such as vertical drains, surcharge, stone columns, vibrocompaction, lime columns, cement columns, deep soil mixing, rammed aggregate pier, and grouting may be included in the design in order to expedite consolidation of the subsoils, where it is required to increase bearing capacity or reduce post-construction settlements.

All soil improvement systems shall be designed using current practice and procedures. The performance of all ground improvement techniques shall be verified with a pre-production field testing program developed to demonstrate that the proposed methods and design will provide the ground improvement level required to satisfy the performance requirements specified herein.

3.8 SOIL CUT SLOPES

Geotechnical analyses of soil cut slopes shall be performed to assess soil slope stability along new and existing soil cuts.

Potential circular and wedge type failure modes shall be analyzed for each soil cut and each slope and orientation. Geotechnical analysis of soil cut slopes shall be performed using suitable computer programs approved by LA DOTD (see Section 2.2, Reference G). A minimum factor of safety of 1.5 or greater shall be assured.

3.9 EROSION CONTROL AND DRAINAGE

Slopes in both cut and fill areas are subject to erosion and deterioration through the action of water, wind and freeze/thaw cycles. Numerous existing slopes along the Project alignment have been significantly affected by erosion. Erosion control and drainage measures shall be evaluated, considered and designed for all new and existing slopes. Erosion of slopes presents a significant maintenance issue and stability problem on slopes. Soil strata that are susceptible to erosion shall be mapped and delineated for all existing and new fills and cuts. Slope protection measures shall be evaluated on site-specific conditions, such as surface and subsurface conditions, cut geometry, and susceptibility of erosion or deterioration. Each cut and fill slope that requires erosion control and drainage measures shall be evaluated for the following:

- A) Reduction of Water Flow across Slope;
- B) Slope Revegetation;
- C) Slope Armor;
- D) Subsurface Water Control.

3.10 CONSTRUCTION INSTRUMENTATION MONITORING PROGRAM

The Design Builder shall prepare a geotechnical instrumentation program to monitor settlement, lateral movement of temporary and permanent embankments, cuts and structures during construction. Consideration shall be given to extending instrumentation monitoring for a period after completion of construction when long-term performance issues are a concern. For foundations placed within 3 diameters (the larger of the adjacent pile, pile group, or drilled shaft) of the foundation element, the Design-Builder shall provide settlement monitoring for the new and the existing foundations during construction and one year post construction to verify the design objectives are met. The Design-Builder shall prepare a report detailing the proposed program of instrumentation and monitoring, establishing threshold values of monitored parameters, and describing the response plans that will be implemented when threshold parameters are exceeded. Upon acceptance of the instrumentation plan, threshold values and response plan, the Contractor shall provide, install and monitor the instrumentation during and after construction and interpret the data. Construction instrumentation monitoring reports shall be submitted to the LA DOTD not less than every two weeks. Corrective actions shall be taken where the instrumentation data so warrant.

The design shall protect adjacent structures and utilities against damage due to the construction of the permanent Work. Limiting values of movement (horizontal and vertical) and distortion on each structure and utility within the zone of influence of the Work shall be established and submitted to LA DOTD for review. Instrumentation shall be used to monitor all preload embankments to verify the effectiveness and duration of the surcharge loading. Vibration monitoring shall be performed in accordance with the requirements in the Environmental Mitigation and Compliance Performance Specification. The extent of the monitoring program will depend on the size and type of the facilities.

A detailed monitoring program shall be prepared for each structure, utility and embankment affected by the Work, subject to review by LA DOTD. The instrumentation and monitoring program shall include appropriate types and quantities of monitoring instruments capable of measuring horizontal and vertical movements, soil pore water pressures, vibrations, and noise, as applicable.

The design and distribution of instrumentation shall demonstrate an understanding of the need, purpose and application of each proposed type.

3.11 AS-BUILT PLANS

As-Built Plans shall include foundation detail sheets signed and sealed by the Geotechnical Engineer; a Licensed Professional Engineer registered in the State of Louisiana. These sheets shall include appropriate information necessary to detail the design and construction of foundations. Examples of such information to be provided include the following:

- A) Pile data tables;
- B) Pile lengths;
- C) Pile tip elevations; and
- D) Pile cutoff elevations.

PAVEMENT STRUCTURE PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

This Pavement Structure Performance Specification (PSPS) outlines performance goals and measures that the Design-Builder shall utilize in designing and constructing pavement sections such that the pavement will perform under the conditions (climate and loading) for the specified periods. These criteria apply to all pavements to be constructed as a part of the Project, and must result in the construction of a pavement structure that will be acceptable to the Federal Highway Administration (FHWA) for an Interstate system.

2.0 PERFORMANCE GOALS

Pavement sections must be designed and constructed to accommodate 20 years of projected traffic from the date of Final Acceptance for either Portland Cement Concrete Pavements (PCCP), Stone Matrix Asphalt (SMA), or Superpave Hot Mix Asphalt Concrete Pavements. Shoulders should be designed appropriately for any anticipated temporary or permanent traffic loadings. Additionally, the Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

- A) Performance of a Life Cycle Cost Analysis;
- B) A typical pavement section that is carried through the travel lanes where any new pavement is placed, base courses of the travel lanes will be carried through the shoulders;
- C) Pavement sections that are designed for projected ESAL loadings plus any percentage increases;
- D) Pavement that provides necessary load transfer (where applicable);
- E) Pavement that is designed to meet in-situ soil properties;
- F) Performance of adequate dust abatement during construction; and
- G) The same surface type material on all travel lanes.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and construct pavement structures in accordance with this PSPS and the requirements of the following standards. Standards and references specifically cited in the body of this PSPS establish requirements that have precedence over all others. In this PSPS, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. The Design-Builder may use References as guidelines in addressing the requirements. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this PSPS prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this PSPS are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) AASHTO Guide for Design of Pavement Structures (1993); and
- B) The Louisiana Department of Transportation and Development's Special Provisions;
- C) The Louisiana Department of Transportation and Development's Supplemental Specifications;

- D) The Louisiana Department of Transportation and Development's Standard Plans;
- E) Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition;
- F) The Louisiana Department of Transportation and Development's Testing Procedures Manual;
- G) The Louisiana Department of Transportation and Development's Qualified Products List (QPL); and
- H) ASTM E274, Standard Test method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- ~~AB~~) DARWin Pavement Design Software.

4.0 SCOPE

The Design-Builder shall design and construct pavement to accommodate 20 years of projected traffic. The Design-Builder shall provide either a rigid, flexible, or composite pavement structure according to the criteria set forth in this PSPS that gives due consideration to surface and subsurface drainage as well as the elimination of trapped water.

5.0 PERFORMANCE MEASURES

The parameters that will be used by the LA DOTD to evaluate performance of all newly constructed and rehabilitated pavements at Final Acceptance for this Project are identified in Sections 5.1 through 5.4.

These parameters will be evaluated by the Design-Builder in coordination with the LA DOTD, both during construction and at Final Acceptance.

5.1 RIDE QUALITY

Ride quality will be evaluated in newly constructed full depth travel lanes using an inertial profiler (or equivalent substitute device as outlined in LA DOTD's Standard Specifications for Roads and Bridges 2006 Edition Sections 502 and DOTD-TR 644-06).

For new PCCP, the IRI must be 75 or less with no individual 0.05 mile segment having greater than an average of 95 in/mile IRI using the testing procedure described in LA DOTD's DOTD-TR 644-06. The IRI for new structural hot mix asphalt must be 65 or less using the testing procedure described in LA DOTD's Standard Specifications for Roads and Bridges 2006 Edition Section 502 and DOTD-TR 644-06.

5.2 SKID RESISTANCE

Final Acceptance will require a value of skid resistance greater than 36 for new or existing pavement. Test method will be ASTM E274, "Standard Test Method for Skid Resistance of Paved Surfaces Using a Full-Scale Tire."

5.3 STRUCTURAL CAPACITY

LA DOTD shall be satisfied that the structural capacity of the pavement will provide 20 years of satisfactory service. The structural capacity (thickness and strength) of pavement sections must be evaluated during the construction phase through the Design-Builder's approved Quality Control (QC) program. The parameters that will be evaluated include thickness, flexural strength, and quality of materials. The thickness, strength, and quality of materials will be evaluated to ensure compliance with

the approved design.

5.4 MATERIAL QUALITY

LA DOTD shall be satisfied that the materials used meet or exceed LA DOTD Standard Specifications. Material quality must be evaluated prior to and during construction through the Design-Builder's approved QC program.

6.0 REQUIREMENTS

During construction, the Design-Builder shall achieve 95% base course density after compaction as per Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition.

6.1 DESIGN

The Design-Builder shall design for both existing and new pavements which will include, but not be limited to, the following:

- A) Information on design criteria and methods;
- B) Details of materials/mixes to be used;
- C) Load transfer/contact/joint details between pavement types and repair details for existing pavement types;
- D) Assess the condition of all approach slabs and repair or replace as necessary;
- E) Patching/rehabilitation of existing pavements which remain in place with like materials and pavement types;
- F) Coefficients of thermal expansion between any new and old portland cement concrete structures shall be compatible with one another;
- G) Internal drainage of new aggregate base courses;
- H) A flexible pavement design ~~consisting of hot mix asphalt~~ must have an open graded friction course (OGFC) as a wearing surface, which will also be carried across the existing travel lanes. If an OGFC is used, the existing pavement must be water blasted and cleaned immediately prior to the application of the overlay.

The following design ~~matrix~~matrices are examples of typical pavement sections that may be considered for use on this project:

Matrix of Pavement Options for I-10 (New Construction)		
	Rigid Pavement	Flexible Pavement
<u>Open Graded Friction Course</u>	<u>N/A</u>	<u>3/4"</u>
JPCP thickness (inches)	13*	-
SMA Wearing Course (inches)	-	2
Superpave AC Wearing Course (Level 2) (inches)	-	2
Superpave AC Binder Course (Level 2) (inches)		9
Class II Base Course (stone) (inches)	4	4
Class II Base Course (Soil Cement) (inches)	6	6

*Based on Modulus of Rupture of 750 psi (appropriate testing would be required)

7.0 FINAL ACCEPTANCE

There will be no defects in any pavement structures constructed under this project at Final Acceptance.

STRUCTURES
PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall design and construct permanent structures necessary for the widened Interstate 10 facility, such as, widened and/or replacement bridges, retaining walls, box culvert drainage structures, and any major overhead sign structures in accordance with the criteria established in this Structures Performance Specification.

The completed structures shall provide functionality, durability, ease of inspection and maintenance, safety, and pleasant aesthetics.

1.1 WIDENING OR REPLACEMENT BRIDGE ALTERNATES

The Design-Builder will have the option to widen the existing bridges or to replace the existing bridges as per the Contract documents.

1.2 SCOPE

The design and construction of this project will be a six lane divided interstate with inside and outside shoulders in accordance with the performance specifications. The new structures shall be built completely within the existing state owned right-of-way. The Design-Builder shall design and construct all structures to account for and include, but not be limited to, all applicable loads, bridge geometry, bridge decks, bridge joints, bridge bearings, bridge traffic barriers, bridge drainage, approach slabs, substructure and superstructure, retaining walls, temporary retaining walls and all other required bridge components and features.

The structure related objective of this Project is to provide constructed facilities within the specified criteria while allowing the Design-Builder the flexibility to develop innovative solutions that benefit the LA DOTD and the Design-Builder while providing the essential functions and characteristics of the project, including safety, traffic operations, desired appearance and maintainability. The project includes the following four (4) bridge structures.

- Wards Creek Diversion Canal Bridges, Structure Nos. 4501010831 and 4501010832
- KCS Railroad Overpass Bridges, Structure Nos. 4501011261 and 4501011262

2.0 PERFORMANCE GOALS

- A) Provide a safe structure for the traveling public.
- B) New structures shall provide a 75 year design life.
- C) Smooth ride for the traveling public transitioning from the roadway surface and bridge structure.
- D) Structures designed for all applicable loads and predicted scour.
- E) Ease of access for long term inspection of superstructure, joints, bearings, etc.
- F) Structures preserve and enhance the environment.

3.0 STANDARDS AND REFERENCES

The design and construction of structures shall be in accordance with this Structures Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated in this performance specification. Standards and references specifically cited in the body of the Structures Performance Specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Structures Performance Specification shall be the most recent version available at the time of issuance of the Scope of Services Package.

3.1 STANDARDS

- LA DOTD Design Standards for Freeways (F3 Roadway Classification), ;
- AASHTO LRFD Bridge Design Specifications, Fourth Edition, 2007, 2008 and 2009 Interims;
- LA DOTD LRFD Bridge Design Manual, First edition, including revisions and memorandums;
- LA DOTD Bridge Design Manual, Fourth English editions and revisions;
- LA DOTD Standard Plans and Standard Bridge Details; La DOTD Permanent Sign Standard Details;
- AASHTO LRFD Bridge Construction Specifications, 2nd Edition with 2006, 2007, 2008, and 2009 Interims;
- AASHTO A Policy on Geometric Design of Highways and Streets, Fifth Edition, 2004;
- AASHTO/AWS D1.5M/D1.5:2008 Bridge Welding Code, with 2009 AASHTO Interim;
- AASHTO Manual for Bridge Evaluation, 1st Edition, 2008;
- LA DOTD, The policy and guidelines for Bridge Rating and Evaluation, March 3, 2009;
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 5th Edition, 2009;
- LA DOTD Standard Specifications for Roads and Bridges, 2006 Edition;
- LA DOTD Specifications for High Performance Concrete bridge members;
- FHWA Hydraulic Engineering Circular No. 21 "Design of Bridge Deck Drainage";
- Kansas City Southern railroad clearance requirements, exhibit "A";
- LADOTD Software and Deliverable Standards for Electronic Plans.
(http://altivasoft.com/ladotd/PDFs/DOTD_Software_Standards_for_Electronic_Plans.pdf)
; and
- LA DOTD Standard plans and Standard Details for Bridge, Guardrail and bridge barrier brush curb retrofit.

3.2 REFERENCES

- Preliminary plans for I-10 KCS railroad bridge, bridge widening alternate;
- LA DOTD as-built bridge plans for Wards creek diversion bridge and I-10 KCS railroad overpass bridge;
- AASHTO Guide Design Specifications for Bridge Temporary Works, latest edition with interims;
- NCHRP Report 314, Guidelines for the Use of Weathering Steel in Bridges, 1989;
- NCHRP 445, Forces on Highway Bridges;

- ACI 305 R-99, Hot Weather Concreting;
- ACI 207.1 R-99, Mass Concrete;
- FHWA NHI-001, Hydraulic Engineering Circular Manual 18;
- NCHRP Report 489, Design of Highway Bridges for Extreme Events, 2003;
- LA DOTD Bridge Inspection report for Wards creek bridge and I-10 KCS RR bridge;
- The Environmental Documents and permits for the project; and
- AASHTO Construction Handbook for Bridge Temporary Works, latest edition with interims.

4.0 REQUIREMENTS

4.1 MATERIALS

As a minimum, all materials shall satisfy the requirements listed in the LA DOTD Standard Specifications for Roads and Bridge, 2006 Edition. All materials not meeting Contract requirements will be addressed through the Non-Conformance Report procedures as outlined in the Contract Documents.

4.2 DESIGN PARAMETERS

4.2.1 GENERAL

The structures shall be designed and detailed using the customary English units. Structural design shall be in accordance with the AASHTO LRFD Bridge Design Specifications 4th edition 2007 with 2008 and 2009 interims and the LA DOTD LRFD Bridge Design Manual first edition. The LA DOTD Bridge Design English Manual fourth edition and any revisions and technical memoranda issued by the State Bridge Design Engineer prior to the issue date of the Scope of Services Package shall also be used. Plans shall be prepared in accordance with the LA DOTD Bridge Design English Manual, Chapter 1. All submittals and submittal requirements shall be as per the performance specifications. The LA DOTD Bridge Design Manuals and Technical Memorandums can be downloaded from the LA DOTD Bridge Section Website at: (http://www.dotd.la.gov/highways/project_devel/design/home.asp?ID=BRIDGE)

4.2.2 Loads And Forces

The following load factors shall be used for ductility and importance.

$$\eta_D, \text{ ductility} = 1.00$$

$$\eta_I, \text{ importance} = 1.05$$

For redundancy load factor, η_R , follow the LA DOTD LRFD Bridge Design manual to select the required load factor.

4.2.2.1 Dead Loads

Add 12 psf unit dead load for a future wearing surface to all bridge structures except slab span structures. Add 19 psf for unit dead load for a future wearing surface for slab span bridges. Metal stay in place forms may be used on this project. If these forms are used, the additional dead load due to the stay in place forms shall be included in the design of the structure. The top 1/2" of the roadway concrete slab shall be considered non-structural and shall be accounted for as dead load.

4.2.2.2 Live Loads

Bridges shall be designed for HL-93 vehicular live load. For fatigue use ADT and traffic data provided by LADOTD. The Louisiana Special Design Vehicles specified in Figure 3.1 of LADOTD LRFD Bridge Design Manual shall be included in the design for Strength II Limit State.

4.2.2.3 Earthquake

The seismic performance category for all structures shall be Zone 1. The importance classification for all bridges shall be Critical.

4.2.2.4 Stream Pressure

The forces shall include the effects of debris in accordance with NCHRP 445.

4.2.2.5 Bridge Load Rating

Load rate all new and existing bridges based on existing as-built conditions in accordance with the AASHTO Manual for Bridge Evaluation and the LA DOTD Policies and Guidelines for Bridge Rating and Evaluation. The Design-Builder shall submit the load rating prior to the final acceptance of the bridges.

4.3 CORROSION PROTECTION

The Design-Builder shall provide for review and approval by LA DOTD a Corrosion Control Plan including material selection modeling process and estimates of life-cycle costs, to assure the stated service lives for the structural elements of the bridges. Cathodic protection is not required.

For post-tensioned bridges, the Corrosion Protection Plan shall include specific detailed provisions for post-tensioning tendons corrosion protection. The plan shall specify corrosion allowances and outline detailed provisions with regards to reinforcing steel and structural steel protection. In regards to concrete performance, the plan shall assess the effects on concrete permeability, corrosion thresholds, corrosion rate, impacts on cracked concrete, time-to-repair and provide recommendations on the use of calcium nitrate, silica fume, sealers, membranes, reinforcing coatings, increased cover, corrosion inhibitors, etc.

4.4 AESTHETICS

At a minimum, bridge aesthetics shall meet the requirements of the LA DOTD Bridge Design Manual Chapter 3, Bridge Aesthetics. If weathering steel is used, the requirements listed in NCHRP, Report 314 should be followed.

4.5 GEOMETRY

The minimum typical section for the bridge structures shall consist of 3 travel lanes, inside and outside shoulders and a bridge barrier on each side.

New bridge construction shall meet the LA DOTD design standards and the required vertical and horizontal clearances shall be as per the LA DOTD Bridge Design English Manual, Chapter 3 Normal Highway Clearances and Chapter 3, Bridge Finish Grade Elevation for debris prone areas. The Design Builder shall also meet any required vertical and horizontal clearance required by the Kansas City Southern Railway Company for the I-10 KCS RR overpass structures.

4.6 BRIDGE TYPE

Bridge type will not be restricted to those traditionally used by the LA DOTD. Other types and components may be used, but will be allowed only if they have been accepted for general use by other United States transportation authorities and the Design-Builder can demonstrate that its design of the bridge type and components will perform according to these specifications.

Experimental bridge types, pre-cast concrete flat slab bridges, timber bridges, masonry bridges, and structural plate arches are not permitted..

The Design-Builder shall minimize the number of expansion joints through the use of continuous superstructure units.

4.7 INSPECTION ACCESS

All bridge superstructures, joints, and bearings shall be designed so as to provide easy access for long term inspection.

4.8 RAILROAD AND UTILITY COORDINATION

The Memorandum of Understanding (MOU) between the LA DOTD and the KCS RR is attached and incorporated in the KCS RR Coordination Performance Specification in this Scope of Services Package. The Design-Builder shall comply with all the terms of the MOU. Vertical and horizontal clearances and crash walls for existing and new bridge bents will be required as per the MOU with the KCS RR. The Design-Builder is alerted to the fact that a 230KV transmission line owned by ENTERGY crosses I-10 overhead at the KCS RR Overpass Structure and should coordinate and schedule construction activities in accordance with Section 6.1 of the Utilities Performance Specification

4.9 HOT WEATHER CONCRETE

Hot weather concrete shall be in accordance with ACI 305 R-99 Hot Weather Concreting.

4.10 HURRICANE PREPAREDNESS

The Design-Builder shall have a plan to address securing and protection of the project site during a hurricane event. The Design-Builder shall provide a copy of the plan within 90 days of NTP to LA DOTD for review and comment.

4.11 COMPONENTS

4.11.1 Traffic Railing Barrier

New outside bridge traffic railing barriers shall be a cast-in-place concrete F-shape 32 inch high TL-4 test level. For all existing bridge rails that remain in place, the LA DOTD standard detail for retrofitting brush curb rails ~~may~~ shall be used. Bridge traffic railing barriers on the median side shall be a minimum total height of 54 inches high. Glare screens may be used.

4.11.2 Approach Slabs

The Design-Builder will assess the condition of all approach slabs and repair or replace as necessary. The Design-Builder shall provide a minimum 40'-0" long approach slab at the end of each bridge in accordance with the LA DOTD Bridge Design Manual. Any settlement of the approach slab shall be taken into consideration when designing the approach slab.

4.11.3 Decks

Decks shall be of concrete with a designed deck thickness of 7.5 inches including 0.5 inch wearing surface, not to be included in the structure design. The LRFD empirical deck design method is not allowed. Pre-tensioned, pre-cast concrete deck forms may be used provided that a minimum of four inches of cast in place deck thickness is provided over the pre-cast deck forms. Open or filled grating decks and orthotropic decks are not permitted.

For new bridge decks, the IRI must be 95 in/mile IRI or less using the testing procedure described in LA DOTD's DOTD-TR 644-06.

In order to maintain adequate coverage of the top reinforcing steel in the bridge deck, the Design-Builder shall submit a remediation plan, if surface correction is required, to the Department's Project Manager for approval.

4.11.4 Deck Joints

Avoid or minimize joints wherever possible. Use only strip seal and finger joints. Strip seals can only be used for total movement not exceeding 3.5 inches. Movement greater than 3.5 inches shall use finger joints. Aluminum finger joints are permitted if fatigue requirements are met. Steel plate finger joints shall be hot dipped galvanized.

Design-Builder shall replace at a minimum the joints located at Bents 2, 3, 7, 8, 9 and 10 on the eastbound KCS Railroad Overpass Bridge and the joints located at Bents 2, 3, 4, 5, 9, 10 and 11 on the westbound KCS Railroad Overpass Bridge. Design-Builder shall repair or replace all other existing joints as necessary to result in deck joints that ARE structurally sound, provide adequate structural movement and/or continuous across existing and new portions of the structure.

4.11.5 Post-Tensioning

All post-tensioning details and grouting operations shall be in accordance with current industry standards for detailing and grouting post-tensioning tendons, which meet or exceed the American Segmental Bridge Institute's recommended practices.

4.11.6 Structural Steel

Structural steel members shall be weathering steel. The design and details for preventing staining of concrete by weathering steel shall be in accordance with the LA DOTD Bridge Design manual, Chapter 5, Subsection for guidelines for Weathering Steel Design. All bolted steel connections shall use Direct Tension Indicators.

4.11.7 Bearings

Design and location of bearings shall provide for maintenance accessibility and future replacement. Elastomeric bearings are preferred.

4.11.8 Pier Caps

The type of pier cap shall be consistent with the bridge system and shall meet the aesthetic requirements of the LA DOTD Bridge Design manual Chapter 3, Bridge Aesthetics.

4.11.9 Embankment Slope Protection

Embankment slope protection shall be in accordance with the details contained in the LA DOTD's Bridge Design English Manual, Chapter 6, Embankment protection and shall be consistent with the bridge hydraulic analysis and permits.

4.11.10 Foundations

Maximum pile load demands shall be determined using the AASHTO LRFD Bridge Design Specifications. The structural capacity of the foundation elements shall be designed per LRFD Specifications for all required LRFD load combinations.

The effects of scour shall be considered with all load combinations except for extreme event provisions allowed by NCHRP 489. Scour determination shall be done for each pier exposed to stream flow using FHWA NHI 01-001, HEC-18 Manual as a guideline, likewise other related manuals shall apply. The forces due to stream pressure shall include the effects of debris.

Foundations shall be designed in accordance with AASHTO LRFD Bridge Design Specifications, LA DOTD Bridge Design English Manual, LADOTD LRFD Bridge Design Manual and Geotechnical Performance Specification in this Scope of Services Package. Spread footings and timber piles are not permitted. No exposed steel piles will be allowed above ground elevation.

4.11.11 Deck Drainage

The deck drainage shall be based on hydrologic analysis and satisfy all permit requirements. Deck drains shall extend a minimum of 12 inches below the bottom of steel girders. This requirement is not applicable to concrete girders. Avoid drainage over existing and proposed roadways and railroad right-of-ways.

The deck drainage shall be in accordance with FHWA Hydraulic Engineering Circular no. 21 “Design of Bridge Deck Drainage”.

4.11.12 Retaining Walls

Retaining walls shall be designed in accordance with Geotechnical Performance Specifications.

4.12 MAJOR DRAINAGE STRUCTURES

Major drainage structures shall be designed in accordance with AASHTO LRFD Bridge Design Specification.

4.13 PERMANENT SIGN STRUCTURES

Sign structures and supports shall be designed in accordance with the LA DOTD’s Bridge Design English Manual, Chapter 10, Permanent Signing and the latest edition of the AASHTO Standard specifications of Structural Supports of Highway Signs, Luminaries and Traffic Signals. It is preferred that the LA DOTD standard sign details be used for the project. The LA DOTD preferred overhead standard sign detail is based on a 4 chorded pipe box truss. Completed designs for the LA DOTD sign structures are available upon request based on the contractor supplying the span lengths and sign panel areas.

4.14 GUARDRAIL

All approach guard rail on I-10 for the bridges shall be replaced. The guard rail shall be designed and replaced in accordance with the LA DOTD guard rail Standard plans.

4.15 EXISTING LEAD PAINT

~~The Design-Builder is warned that t~~The paint system for the existing structural steel on the I-10 KCS RR bridge may contain lead ~~in the paint system~~. It shall be the Design-Builder’s responsibility to comply with all applicable federal, state and local laws, rules and regulations with respect to disturbance of these substances and pertaining to worker safety and environmental safety. Any disposal of lead based structural steel must also follow applicable state, local and federal regulations for proper disposal and is the responsibility of the Design-Builder.

5.0 FINAL SUBMITTALS

5.1 PLANS

Final plans shall be signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana. The Design-Builder shall produce electronic final plan deliverables in conformance with “DOTD Software and Deliverable Standards for Electronic Plans”.

5.2 CALCULATIONS FOR FINAL DESIGN AND BRIDGE RATING

Louisiana Department of Transportation and Development

The Design-Builder shall submit all design calculations in an electronic .pdf file. The design calculations shall include a table of contents, design criteria and design assumptions. Reference computer programs input and output files and the appropriate code sections in the calculations. All computer program input and output files shall be submitted with the calculations. All calculations shall be signed by the designer and the reviewer. The bridge rating shall use the Virtis Software and the rating calculations shall be submitted in accordance with LADOTD The Policy and Guidelines for Bridge Rating and Evaluation. Final design calculations and rating calculations shall be signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana.

TRAFFIC MANAGEMENT PLAN PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall implement a Traffic Management Plan for this Project that meets or exceeds the Performance Goals and Measures as outline in this Specification. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

2.0 PERFORMANCE GOALS

- A) Provide a Traffic Management Plan (TMP) that maintains or improves safe traffic flows through the project limits for the duration of the Project.
- B) No injury or loss of life to the Public or Design-Builder's workforce.
- C) Minimize & Mitigate Liability with traffic-related incidents.
- D) No Claims as a result of traffic operations for the duration of the Project.
- E) Expeditious handling of incident and emergency operations.
- F) Provide 2-lanes of through traffic in both directions at all times. Temporary lane closures will be considered based on Que Analysis results.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and construct pavement structures in accordance with this Traffic Management Plan Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Traffic Management Plan Performance Specification establish requirements that have precedence over all others. In this Pavement Structure Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Traffic Management Plan Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

- A) LA DOTD Standard Specification for Roads and Bridges 2006, Section 713
- B) LA DOTD Temporary Traffic Control Details (TC-00 – TC-19)
- C) Manual of Uniform Traffic Control Devices (MUTCD)
- D) Design-Builder's own Standard Special Provisions and Specifications
- E) LA DOTD EDSM No. V1 1.1.4

3.2 REFERENCES

- A) LA DOTD Highway Design Manual
- B) AASHTO Roadside Design Guide, 2002
- C) LA DOTD Traffic Signal Details (TSD-00 – TSD-10)
- D) LA DOTD Qualified Products List (QPL)
- E) MUTCD Standard Highway Signs Policy
- F) LA DOTD Public Convenience Specifications
- G) National Cooperative Highway Research Board (NCHRP) Report 350
- H) ATSSA “Quality Guideline for Work Zone Traffic Control Devices”

4.0 SCOPE

The Design-Builder shall plan, design, construct and implement temporary traffic control measures that provide a safe construction work zone while simultaneously maintaining traffic flow through the project limits for the duration of the Project. The Design-Builder shall maintain 2-lanes of traffic in each direction at all times except where the Design-Builder’s Que Analysis allows night-time or off-peak lane restrictions. The Design-Builder shall also provide documentation for the mitigation of accident litigation.

5.0 PERFORMANCE MEASURES

- A) Management and inspection of traffic control activities.
- B) Protection and adequate guidance for traffic control during construction.
- C) Traffic control operations within the Project Site during construction and periods of suspension of the Work, particularly at intersections with State or local highways and Interstate Accesses.
- D) Placement, condition, maintenance and protection of traffic control devices (TCD).
- E) Traffic control methods relating to access to private and public properties within the Project Site.
- F) Traffic control operations related to Incident and Emergency activities (including hurricane evacuation and contra-flow as applicable).
- G) Quality control of submittals
- H) Modeling and model updating

6.0 REQUIREMENTS

The Design-Builder will be required, for potential litigation and claims purposes, to provide a Mitigation and Limitation of Liability/Claims Plan (M&LP).

6.1 M&LP EVALUATION CRITERIA

- A) Documentation of on-site conditions
- B) Qualifications of traffic control supervisors and technicians
- C) Accident investigation documentation (written and visual)
- D) Responsibility and authority assignments
- E) Submittals for permanent records (written and visual)

6.2 DESIGN-BUILDER'S RESPONSIBILITIES (EXECLUSIVE OF M&LP)

- A) Perform Que Analysis/time through Project to determine the effectiveness of Traffic Management Plan. This analysis will be repeated as necessary and compared to actual conditions to valid predictions. Changes will be implemented as necessary. The Design-Builder shall maintain 2-lanes of traffic in each direction at all times except where the Design-Builder's Que Analysis allow night time or off-peak lane restrictions.
- B) Properly supervise the implementation, maintenance and Inspection of Traffic Control Plan (TCP) measures and details, through certified and accepted Traffic Control Supervisors (TCSs) and Traffic Control Technicians (TCTs).
- C) Record crash details; time and date of notification; take photos at the scene; video the project signs in the approach direction and provide to the Design Builder PM and LA DOTD PM.
- D) Perform daily video of the project signage prior to starting work and changes at work locations.
- E) Perform night video of project signage once per week.
- F) Provide weekly reports certifying adherence to the Design-Builder's TMP and that all traffic controls meet the standards.
- G) The Design-Builder Quality Control (DBQC) will review and certify that the TMP has been checked and meets all contract requirements.
- H) Provide daily Traffic control inspection reports.
- I) Provide TMP Diary(ies) and Project Video(s).
- J) Provide TMP Details and Inspection frequency.

- K) Provide copies of the TMP Diary(ies) with the Monthly Progress Report.
- L) Provide Motorist Assistance Patrol (MAP) services within the limits of the Project while traffic control measures are in place.

PUBLIC INFORMATION
PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

It is anticipated that during the course of the I-10 Widening Design-Build Project public information needs will arise. The Department intends to designate the primary responsibility for presenting information to the public to an entity separate from the Design-Build Team. Therefore, for the purposes of this Public Information Performance Specification references to the Department will be taken to mean the Louisiana Department of Transportation and Development (LA DOTD) and/or its designee for public information activities. The Department and/or its designee will be responsible for disseminating information to the public. The Design-Builder will be responsible for supporting the public information efforts of and cooperating with the Department and/or its designee.

2.0 PERFORMANCE GOALS

The goal of the Design-Builder's involvement in the public information efforts will include the timely response to requests for information by the Department, and close coordination of the design and construction activities to assure that the Department has the ability to provide the public with timely information that allows the public to keep abreast of the project developments and make travel decisions accordingly.

3.0 STANDARDS AND REFERENCES

No Standards or References apply to this Public Information Performance Specification.

4.0 SCOPE

The Design-Builder's Project Manager or his designee will be responsible for interfacing with the Department to assure that the Department is apprised of upcoming activities that might impact or otherwise be of interest to the traveling public. This will include but is not limited to the regularly scheduled meetings and briefings as well as impromptu meetings and teleconferences to discuss the public information needs of the Project.

The Design-Builder will develop resources that document and explain the Project and will make these resources available to the Department for purposes of public information efforts. The Design-Builder will maintain and update these resources as necessary to assure that current information is available for use by the Department in the public information activities.

The Design-Builder will assist the Department in preparing presentations, articles, and interviews to address public concerns or promote a better public understanding of the project.

The Design-Builder will not make any verbal or written statements to the public or media without the prior consent of the Department's Project Manager.

5.0 PERFORMANCE MEASURES

The Design-Builder's performance will be measured by the Department's satisfaction with the timeliness of the response for information and overall quality and clarity of the materials supplied by the Design-Builder.

6.0 REQUIREMENTS

The Design-Builder shall provide information necessary to interface with the public. This information shall include but not be limited to the following:

- A) High resolution photographs taken at regular intervals that document the Project progress.
- B) Video clips that document the construction phasing and operations.
- C) Graphic layout drawings that show project sequencing and maintenance of traffic plans.
- D) Aerial photographs that show the key work zones of the Project, as well as the completed Project.
- E) Written descriptions of the design and construction work suitable for use in technical and non-technical articles.
- F) Project briefings and site tours as requested by the Department.

LIGHTING
PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall design and construct a well-lighted corridor that will provide a safe and comfortable environment for those that use and maintain the systems. All design and development of Contract Drawings shall strictly adhere to LA DOTD standards and criteria established in this Roadway Lighting Performance Specification. The lighting will be either for correction/replacement to existing systems or preparation work for future lighting.

2.0 STANDARDS AND REFERENCES

The design and construction of roadway lighting and related equipment shall be in accordance with this Lighting Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated on the Plans or in this specification. Standards and references specifically cited in the body of the specification establish requirements that shall have precedence over all others. Should the requirements in any standard conflict with those in another, the standard highest on the list shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction. Items listed as standards or references in this Lighting Performance Specification shall be the most recent version available at the time of issuance of the Scope of Services Package.

2.1 STANDARDS

- A) Special Provisions for the Project;
- B) LA DOTD "A Guide to Constructing, Operating, and Maintaining Highway Lighting Systems";
- C) LA DOTD Standard Plans, Standard Lighting Details, and Lighting Notes & Specifications;
- D) National Electric Code;
- E) National Electric Safety Code, NFPA 70E;
- F) LA DOTD Standard Specifications for Roads and Bridges, 2006 Edition;
- G) LA DOTD Special Provisions and Supplemental Specifications; and LA DOTD Bridge Design Manual, Fourth English Edition including memorandums and any revisions issued by the State Bridge Engineer prior to date of the Scope of Services Package;
- H) UL, Underwriters Laboratories, Inc.;
- I) NEMA, National Electrical Manufacturers Association;
- J) ANSI, American National Standards Institute;
- K) ASTM, American Society for Testing and Materials;
- L) FCC, Federal Communications Commission;
- M) OSHA , Occupational Safety and Health Administration; and
- N) IBC/ASCE Wind Speed Map.

2.2 REFERENCES

- A) Final and/or Partial Preliminary Plans;

- B) IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (Green Book);
- C) IEEE Recommended Practice for Powering and Grounding Electronic Equipment (Emerald Book);
- D) IEEE Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems (Blue Book);
- E) AASHTO “Roadway Lighting Design Guide”; and
- F) SOARES Book on Grounding and Bonding, 10th Edition.

3.0 REQUIREMENTS

3.1 DESIGN PARAMETERS

General

The Project shall be designed and detailed using the customary English units. Engineering, Plans, Specifications, and Operation & Maintenance Manuals shall be in accordance with the above Standards. Lighting systems shall be designed to deliver a minimum of 25 years service life. Final Plans shall be signed and sealed by a Licensed Professional Engineer registered in the State of Louisiana.

For areas with existing lighting:

The Design-Builder shall design and construct a replacement lighting system that meets current Standards in Section 2.1. Untouched portions of the existing system that fit in the new system are to be reconditioned as necessary to bring them up to original working order and are to remain as part of the new system. Any section of the existing lighting system that proves in the photometric report to meet the illumination requirements of the new roadway shall be considered “untouched”. Every new segment of lighting that is required to be added shall interface seamlessly with the original segments. Design-Builder shall deliver the photometric report covering the entire system showing compliance prior to construction.

3.1.1 Illumination Design

Illumination design shall be in accordance with the Standards listed in Section 2.1. Design-Builder shall minimize light trespass. Glair shall not exceed AASHTO maximum. Layout/system style shall match existing and/or neighboring systems, using highmast, low mount, and underpass lights in appropriate configurations. All luminaries will be high pressure sodium (HPS) or equivalent lumens-per-watt efficiency and color temperature.

3.1.2 Electrical Design

Maximum voltage drop shall not exceed 5% in relation to the service point. Loads for each Service Point are to be centrally controlled and system shall Fail On. Conductors downstream from the controller shall be energized only when controller turns lights on. Conduit fill shall be designed around a 25% capacity except in sections where National Electric Code allows for greater than 40% fill. Minimum bury depth of underground conduit shall be 36”. Service and system voltage shall be single phase 480 volts center tapped. No system conductor shall be greater than 240 volts to ground.

3.1.3 Equipment

Equipment shall be specified with a 25 year service life in mind, with the exclusion of normal owner-serviceable parts such as lamps and ballasts. Electrical equipment is to be UL listed for the use. Contactors shall be NEMA rated with current capacity no less than two times the expected steady-state

line current. All enclosures shall be rated to withstand weather conditions to a minimum of a NEMA 4X rating. Ground mount and structure mounted low mast luminaries shall be 3G vibration certified.

3.1.4 Light pole Foundation Design

Light pole foundation details for both low mount and highmast poles are provided by LA DOTD. Anchor bolt design as per Pole Manufacturer.

3.1.5 Wind Load Rating

Wind load calculations for light poles shall be according to IBC/ASCE Wind Speed Map.

3.1.6 Aesthetics

At a minimum, bridge aesthetics shall meet the requirements of the LA DOTD Bridge Design Manual Chapter 3, Bridge Aesthetics.

3.2 RECORDS

The Design-Builder shall submit the final plans in electronic form, dgn format. In addition, it is necessary to submit in electronic form, pdf files of the final electrical and illumination calculations documenting design, design assumptions, and engineering software outputs. Electronic submittal of photometric files shall be submitted in IES format.

3.3 PLAN REVIEW

Lighting plans shall be submitted to LA DOTD for review and comment.

3.4 GUARDRAILS

Any guardrails needed around highmast poles shall be designed and constructed according to the Structural Performance Specifications.

PERMANENT SIGNAGE
PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall design, prepare plans, and install all signs, including, new signs and modifications to existing sign panels and structures, necessary for the safe traffic operations of the final widened roadway. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

- A) Permanent signage that provides for safe and efficient traffic flow and operations;
- B) A permanent signing plan that is easily understood by the traveling public;
- C) A permanent signing plan that follows LA DOTD and national transportation standards; and
- D) Unobstructed views of permanent signs.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, and install permanent signage in accordance with this Permanent Signage Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Permanent Signage Performance Specification establish requirements that have precedence over all others. In this Permanent Signage Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Permanent Signage Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

The standard for this Permanent Signage Performance Specification is the Manual of Uniform Traffic Control Devices (MUTCD).

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The Louisiana Department of Transportation and Development's Standard Signing Details;
- B) The Louisiana Department of Transportation and Development's Bridge Design Manual; and
- C) AASHTO Roadside Design Guide.

4.0 SCOPE

The signing design must 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 must be located and installed in a manner that avoids conflicts with other signs, vegetation, DMS, lighting, and structures. The Design-Builder shall ensure

that signs are clearly visible, provide clear direction and information for users, and comply with all applicable MUTCD requirements.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that the permanent signing plan will meet the performance goals.

6.0 REQUIREMENTS

All new signs, including traffic generators, and modifications of existing sign text will be submitted to the LA DOTD for review and comment prior to installation.

ENVIRONMENTAL PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

This Environmental Performance Specification specifies general roles and responsibilities. Other than identified in Section 4.2, the LA DOTD will be responsible for obtaining all environmental permits required for this Project. The Design-Builder shall prepare its design and conduct its construction activities in accordance with this Environmental Performance Specification such that no action or inaction on the part of the Design-Builder shall result in non-compliance with state or federal environmental laws, regulations, and Executive Orders, including, but not limited to, the Clean Water Act, Sections 401, 402, and 404, as amended; the Clean Air Act, as amended; the Endangered Species Act, as amended; Section 106 of the National Historic Preservation Act, as amended; the State and Local Coastal Resources Management Act, as amended; and Title VI of the Civil Rights Act, as amended. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design and/or construction.

The Design-Builder shall not proceed with any Work within 200 feet on either side of the Ward's Creek Diversion Canal bridge prior to the LA DOTD's obtaining of any and all environmental permits necessary for this Project.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals, in the sole discretion of the LA DOTD:

- A) Environmentally friendly highway design and construction;
- B) Adherence/compliance with all environmental permits and their conditions throughout the life of the Project; and
- C) Minimization of impacts to the natural and social environment.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, construct, and implement the Work in accordance with this Environmental Performance Specification and the requirements of the following standards. Standards specifically cited in the body of this Environmental Performance Specification establish requirements that have precedence over all others. In this Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Environmental Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

- A) The terms and conditions listed in the United States Army Corps of Engineers' (USACOE) Section 23, Nationwide Permit; and
- B) The Louisiana Department of Transportation and Development's Standard Specifications for Roads and Bridges 2006 Edition, with specific reference to Section 204.

3.2 REFERENCES

Not Applicable

4.0 SCOPE

4.1 GENERAL PHILOSOPHY

The philosophy followed by the LA DOTD during the development of the Project is to avoid and minimize impacts to the natural and human environments to the extent feasible and practical. The Design-Builder shall continue this approach and philosophy during the preparation of design plans and through Project implementation and construction.

4.2 GENERAL ROLES AND RESPONSIBILITIES

The LA DOTD is responsible for obtaining the environmental permits (referenced below) for the widening of Interstate-10 (I-10) between the Siegen Lane and Highland Road interchanges. The scope of work for which the permit applications were submitted calls for the construction of additional lanes within the existing Right-of-Way (ROW) and the widening of the existing Wards Creek Diversion Canal Bridges and the Kansas City Southern Railroad Overpass Bridges. For this concept, the LA DOTD will provide the cultural resource concurrence letter from the State Historic Preservation Office (SHPO); the U. S. Army Corps of Engineers, Section 23 Nationwide Permits; the Department of Environmental Quality Clean Water Act Section 401, Water Quality Certification; and the Department of Environmental Quality Clean Water Act Section 402, Storm Water permit (Louisiana Pollutant Discharge Elimination System (LPDES) Storm Water General Permit for Construction Activities). All other permits and clearances are the responsibility of the Design-Builder.

Material changes to the original concept or highway alignment that result in environmental, cultural, or community impacts beyond those identified in the original permits will not be allowed without the prior written consent of the LA DOTD. All changes must be supported by the necessary investigations, documentation, and approvals of applicable resource management and permitting agencies. The Design-Builder is responsible for all work effort and document preparation required to obtain all necessary approvals, permits, or permit modifications prior to implementing any scope changes.

Any work performed by the Design-Builder that is determined by the LA DOTD or any relevant governmental agency to be outside the scope of the permits must be performed at the Design-Builder's own risk, including any additional environmental work, studies, reports, assessments, or permits that must be completed.

The Design-Builder shall be responsible for obtaining the necessary environmental and cultural resources permits and/or clearances for all construction related activities such as, but not limited to, material pits, staging yards, and haul roads that are located outside the scope of the original permits. The Design-Builder is responsible for ensuring that all required permits are obtained from the appropriate entities prior to implementing any work requiring such a permit.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that the design and construction meet all of the environmental performance goals, as well as all requirements as outlined and specified in the permits.

6.0 REQUIREMENTS

6.1 MITIGATION MEASURES AND COMMITMENTS

The mitigation measures and Project commitments included in the original permits must be incorporated in the Design-Builder's plans and Project Specifications and implemented as part of Project construction. The specific mitigation measures and commitments to be implemented by the Design-Builder are listed in Sections 5.1.1 through 5.1.4.

6.1.1 Threatened and Endangered Species Protection Plan

The proposed Project is not likely to adversely affect any threatened or endangered species. The Design-Builder shall adhere to the erosion control measures outlined in the Louisiana Standard Specifications for Roads and Bridges 2006 Edition to ensure water quality impacts are confined to the immediate Project area.

6.1.2 Wetland and Coastal Use Mitigation

The LA DOTD will obtain a Water Quality Certification from the Louisiana Department of Environmental Quality and a Section 23 Nationwide Permit from the USACOE for impacts to jurisdictional wetlands and other waters of the US for the Project. The Design-Builder shall adhere to the terms and conditions of these permits. The LA DOTD will contract with private sector mitigation banks to execute compensatory mitigation in the amount required by the New Orleans District, USACOE.

If the Design-Builder changes the scope of Work in a manner that requires a new permit or an amendment or modification to an existing permit, the Design-Builder shall obtain the new permit, amendment, or modification. Any fees or compensatory mitigation required by the permitting agencies will be the responsibility of the Design-Builder.

If the Design-Builder discovers an additional need for ROW as it selects borrow, staging, or other Project-related sites, the Design-Builder shall comply with all environmental laws and regulations and obtain the necessary approvals and permits. If the use of additional ROW requires a modification to the existing permits obtained by the LA DOTD, the Design-Builder shall obtain the required modifications. Any fees or compensatory mitigation required by the permitting agencies will be the responsibility of the Design-Builder.

6.1.3 Water Quality and Storm Water

The LA DOTD will be responsible for obtaining the Section 401 (Water Quality Certification) and 402 (LPDES Storm Water General) permits from the Louisiana Department of Environmental Quality. **As part of the Section 402 permit requirements, the Design-Builder shall prepare a Storm Water Pollution Prevention Plan (SWPPP).** This SWPPP must incorporate Best Management Practices (BMPs) for spill prevention, erosion control, and sediment control. During construction, the Design-Builder shall make every effort practicable to avoid and minimize the introduction of suspended solids and sediment into the Wards Creek Diversion Canal and its tributaries. The Design-Builder shall follow all applicable rules and regulations including, but not limited to, maintaining a copy of the LPDES permit and SWPPP on the construction site.

6.1.4 Cultural Resources

If archaeological sites or historic artifacts are encountered during construction, the Design-Builder will notify the LA DOTD immediately and comply with the provisions of Contract Documents, Part 2 – Design-Build (DB) Section 100, DB Section 107-26.

KANSAS CITY SOUTHERN RAILROAD COORDINATION PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall provide an overpass structure for the existing Interstate 10 (I-10) highway system over the Kansas City Southern Railroad (KCS RR) capable of carrying 3 travel lanes with inside and outside shoulders in both the eastbound and westbound directions. To safely and efficiently provide this overpass structure, the Design-Builder will meet or exceed the performance goals and measures as outlined in this Kansas City Southern Railroad Coordination Performance Specification.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals:

- A) Provide safe and efficient traffic operations for I-10 motorists during the construction phase(s);
- B) Coordinate with the Louisiana Department of Transportation and Development (LA DOTD) and the KCS RR to assure that all of the construction related activities allow safe and efficient operations on the railroad, and minimize any temporary operational restriction of the railroad;
- C) Meet the commitments of the Memorandum of Understanding, dated June 6, 2009 between KCS RR and the LA DOTD;
- D) Provide a completed overpass structure that meets the horizontal and vertical clearance requirements and necessary structural protection (crash walls, etc.) to allow safe and efficient operations of the KCS railroad and Interstate 10.
- E) Coordinate with KCS RR to provide temporary protection system that conforms to AREMA Standards as required for construction near the railroad.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, coordinate, design, and construct, the railroad overpass structure in accordance with this Kansas City Southern Railroad Coordination Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Kansas City Southern Railroad Coordination Performance Specification establish requirements that have precedence over all others. In this Kansas City Southern Railroad Coordination Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Kansas City Southern Railroad Coordination Performance Specification prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this Kansas City Southern Railroad Coordination Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Memorandum of Understanding (MOU) for the Project, dated June 6, 2009 between KCS RR and LA DOTD. The MOU is attached to this Kansas City Southern Railroad Coordination Performance Specification for reference;
- B) The Kansas City Southern Railway Company - Guidelines for the Design and Construction of Railroad Overpasses and Underpasses, dated May 2008;
- C) LA DOTD Standard Specifications for Roads and Bridge Construction, 2006. Section 107.08 with the exception of sub-sections 107.08(g) and 107.08(n)(3).
- D) Kansas City Southern Railway - Right of Entry Procedures/Application

3.2 REFERENCES

- A) The version of the following references in effect on the Proposal due date may apply:
- B) The Louisiana Department of Transportation and Development's Bridge Design Manual, 4th Edition;
- C) The American Association of State Highway and Transportations Officials' (AASHTO) LRFD Bridge Design Specification, 4th Edition with 2008 and 2009 interims; and
- D) The American Association of State Highway and Transportations Officials' (AASHTO) LRFD Bridge Construction Specification, 2nd Edition with 2006, 2007, 2008 and 2009 interims
- E) Engineering Directives and Standards Manual (EDSM), LA DOTD.

4.0 SCOPE

The Design-Builder will design the Interstate I- 10 overpass structure per the requirements of the Standards listed above. Preliminary conceptual design plan sheets are attached to the MOU between KCS RR and LA DOTD for this Project for the Design-Builder's reference. The preliminary conceptual design plan sheets shall in no way restrict the final product to look like these conceptual design sheets. The purpose of the preliminary conceptual design plan sheets is principally to provide the Design-Builder with at least one viable option for both a widened and replacement structure that adheres to the site requirements (e.g. track vertical & horizontal clearances, crash walls, etc.).

The Design-Builder shall develop final design details and plans for the overpass structure from which the construction will be performed. The Design-Builder will be required to submit final design/construction plans for the overpass structure to KCS RR as soon as possible for review and approval by the railroad. The Design Builder should allow 2 to 4 weeks per submittal for the KCS RR review and comment.

Review comments issued by KCS RR will be addressed and resolved by the Design-Builder before any construction begins in the KCS RR right-of-way.

The Design-Builder shall create an overpass agreement amendment to replace the Project MOU and amend the existing overpass agreement, per LA DOTD Railroad Unit template and submit to LA DOTD Headquarters Railroad Unit. LA DOTD will submit this overpass agreement amendment to KCS RR for approval. The Design-Builder shall submit the overpass agreement amendment as soon as possible and concurrently during the final design/construction plan review. Two to four weeks per submittal should be allowed for both LA DOTD and KCS RR to review, edit and approve each submittal.

Design-Builder shall contact the LA DOTD - Railroad Unit first with any railroad questions to the following:

- Trey Jesclard (Trey.Jesclard@LA.GOV, 225-379-1445), or
- William Shrewsberry (William.Shrewsberry@LA.GOV, 225-379-1543).

The principal KCS RR contact person for this project will be Mr. Sri Honnur (KCS Director of Tracks & Structures, SHonnur@KCSouthern.com, 816-983-1138).

5.0 PERFORMANCE MEASURES

The Design-Builder's performance will be evaluated based on the strict adherence to the commitments made in the Memorandum of Understanding (MOU) between KCS RR and LA DOTD for the Project, dated June 6, 2009 and *The Kansas City Southern Railway Company - Guidelines for the Design and Construction of Railroad Overpasses and Underpasses*, dated May 2008.

6.0 REQUIREMENTS

Any deviation from the Memorandum of Understanding (MOU) between KCS RR and LA DOTD for the Project, dated June 6, 2009 that is desired or required will be approved by KCS RR in writing prior to implementation by the Design-Builder.

UTILITIES PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder (D-B) may choose to design around existing utility lines where not restricted elsewhere; otherwise the D-B will be responsible for resolving the relocation of any utility conflicts in accordance to LADOTD policies and procedures so that there is no loss of service during the contract period.

2.0 PERFORMANCE GOALS

- A) Design that avoids all utility conflicts;
- B) Construction methods that ensure existing utilities are not disrupted.
- C) Design and construct the Kansas City Southern Railroad Overpass structure modification without conflict with the ENTERGY powerlines and consistent with the terms of the Agreement between ENTERGY and LA DOTD.

3.0 STANDARDS AND REFERENCES

The relocation of utility lines conflicting with the construction of the project shall be done in accordance with this Utility Relocation Performance Specification and the relevant requirements of the following standards, unless otherwise stipulated in this performance specification. Standards and references specifically cited in the body of the Utility Relocation Performance Specification establish requirements that shall have precedence over all others. Standards listed are placed in the descending order of precedence. In case of conflict between or among standards listed, the order of precedence established by the LADOTD shall govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design-Builder's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with design or construction.

3.1 STANDARDS

The standards for this Utility Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Louisiana Revised Statute 48:381.; and
- B) Louisiana Administrative Code, Title 70 – Transportation, Part II – Utilities.
- C) “ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.”; CI/ASCE 38-02.
- D) LADOTD “Standards Manual for Accommodating Utilities, Driveways and Other Facilities on Highway Right-of-Way”; September 1, 1994 edition.

3.2 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

A) Part I – General Provisions; Section 105.06: Cooperation with Utilities

- 1) Throughout. References to any mentioned action of duties by “the Department” shall be changed to refer to the “LADOTD’s representative/Design-Builder”.
- 2) Throughout. References to acceptance by “the Department” still remains “the Department”.

B) Part I – General Provisions; Section 107.20: Utility Property and Services

- 1) Throughout. References to any mention of “contractor” shall be changed to refer to the “LADOTD’s representative/Design-Builder”.

4.0 SCOPE

It is not anticipated that there will be any utility conflicts within the scope and limits of this Project. However, if the DB should encounter any conflicts between the existing facilities and the proposed design and/or construction, the DB shall follow the standards as outlined in this Performance Specification.

5.0 PERFORMANCE MEASURES

LA DOTD shall be satisfied that utility avoidance or relocation plan and its execution meets the stated performance goals.

6.0 REQUIREMENTS

6.1 EXISTING UTILITY LINES

The Design-Builder is responsible for gathering any additional information as may be required to determine any conflicts between utility lines and the scope of the project.

Utility lines may remain in their existing locations within the project R/W if the existing location will not adversely affect the construction, operation, safety, maintenance and/or use of the project.

The Design-Builder is alerted to the fact that a 230KV transmission line owned by ENTERGY crosses I-10 overhead of the Kansas City Southern Railroad Overpass Structure. **Prior to Contract award and execution, LA DOTD will negotiate with ENTERGY to allow de-energizing and grounding of the transmission lines to allow the Design-Builder to safely perform construction activities within close proximity of the transmission lines. Upon Contract award and execution, it will be the Design-Builder’s responsibility to schedule outages with ENTERGY based on planned construction activities. The Design-Builder will be responsible for costs associated with de-energizing and grounding the transmission lines, which are anticipated to be approximately \$3,000.00 per occurrence, and are to be included in the Proposer’s lump sum Price Proposal. Due to ENTERGY’s requirements, the transmission lines will only be de-energized and grounded during the months of February, March, April, October and November on a daily basis for periods not to exceed 12 hours, and preferably between the hours of 5:00 am and 5:00 pm.**

The Design-Builder may request approval for the lines to be de-energized and grounded for extended periods up to 72 hours, which will be reviewed and approved by ENTERGY on a case-by-case basis. If for any reason ENTERGY would need to unexpectedly keep the lines energized during an upcoming scheduled outage, the Design-Builder will be given a 12 hour minimum notice, and should reschedule the planned construction activities accordingly. If for any reason ENTERGY would need to unexpectedly re-energize the lines during an ongoing outage, the Design-Builder will be given a 4 hour minimum notice to suspend construction activities and remove and/or relocate construction equipment to a safe distance away from the transmission lines. The Design-Builder shall schedule construction activities accordingly, and shall not be entitled to a Change Order for increased costs of the Work resulting from, or for any extension of time for, delays associated with ENTERGY unexpectedly keeping the lines energized during an upcoming scheduled outage, or for ENTERGY unexpectedly re-energizing the lines during an ongoing outage. All construction activities performed within close proximity of the transmission lines shall be in conformance with OSHA Regulations. The Design-Builder shall comply with the documents entitled *Entergy Transmission Scheduled Outage Guidelines and Agreement for Payment for Transmission Line De-Energization*, which are both included on the enclosed CD.

6.2 RELOCATION OF UTILITY LINES

6.2.1 Coordination

If utility relocation is required, the Design-Builder shall communicate, cooperate, and coordinate with LADOTD, the Utility Owners and potentially affected third parties, as necessary for performance of the Utility Relocation Work.

When utility lines are to be relocated, the D-B shall coordinate with the Utility Owner to determine which of the following three options will be utilized:

- A) The Utility Owner produces the design of the relocation of the utility line and also physically relocates the line themselves.
- B) The Utility Owner produces the design of the relocation of the utility line and the D-B physically relocates the line.
- C) The D-B produces the design of the relocation of the utility line, and then after the Utility Owner approves the design, the D-B physically relocates the line.

In Cases B and C above, the D-B is to allow and/or provide the Utility Owner inspection of the construction of relocating the utility line. The D-B will work with the Utility Owner on a mutually agreed upon written procedure for the Utility Owner to notify the D-B of any unacceptable work in the construction of the relocation of the utility line. The D-B is to ensure complete satisfaction of the Utility Owner in the relocation of the utility line so that the Utility Owner will accept the utility line and responsibility for maintenance and upkeep to the utility line once it has been relocated.

The Design-Builder shall comply with any state and federal laws/codes governing the design and construction of a utility line.

6.2.2 Agreements & Permits

The LADOTD will not become owner or responsible for maintenance and upkeep of any utility line from a previous Utility Owner that must be relocated.

The Design-Builder shall be responsible for coordinating all efforts in the relocation of any utility lines located within the LADOTD right-of-way that are in conflict with the construction of the project, including the verification of existing lines, and preparing (unless prepared by the Utility Owner) all necessary agreements and permits for such relocation as described below. Subject to LADOTD's approval, the Design-Builder shall be responsible for (a) entering into all necessary agreements with the Utility Owners and securing execution (by the Utility Owner and the Design-Builder's authorized representative) of all such agreements, and (b) securing execution (by the Department and the Utility Owner) of all such permits.

Agreements between the Utility Owner and the Design-Builder and/or permits between the Utility Owner and the Department are required for the following situations:

- A) An agreement is required whenever a utility line located within LADOTD right-of-way is required to be relocated. In this agreement, the cost distribution and responsibility of the work to be done is specified.
- B) A permit is required whenever a utility line is to be relocated inside the LADOTD right-of-way.
- C) An agreement is required if the Utility Owner relocates their utility line outside of the LADOTD right-of-way stating that the utility line will be moved to private property and includes the cost distribution required between the Department and Utility Owner.

The said agreements must be approved by LADOTD and signed by the Utility Owner and the Design-Builder prior to taking effect. The said permits must be approved and signed by the Utility Owner and the LADOTD Utility Relocation Engineer prior to taking effect.

6.2.3 Federal Utility Requirements

The project is subject to 23 CFR Part 645 Subpart A (including without limitation its requirements as to plans, specifications, estimates, charges, tracking of costs, credits, billings, records retention, and audit) and FHWA's associated policies, and accordingly, all agreements between the Design-Builder and any Utility Owner shall incorporate by reference 23 CFR Part 645 Subpart A. The Design-Builder shall comply (and shall require the Utility Owners to comply) with 23 CFR Part 645 Subpart A and all associated FHWA policies as necessary for any utility relocation costs to be eligible for reimbursement from any federal financing or funding. The Design-Builder acknowledges, however, that (a) it is not anticipated that Design-Builder will be eligible for FHWA reimbursement of any utility relocation outlays, and (b) the Design-Builder will not have any share in any reimbursement from FHWA or other federal financing or funding that LADOTD may receive on account of utility relocations. All costs incurred by the Design-Builder in complying with 23 CFR Part 645 Subpart A and the associated FHWA policies are included in the Lump Sum Contract Price.

The project is being financed in part with funds made available pursuant to the Federal American Recovery and Reinvestment Act of 2009 (the "Recovery Act"). The Recovery Act imposes certain requirements on Utility Owners performing relocations reimbursed by Recovery Act funds. The Design-

Builder shall require all Utility Owners receiving reimbursement for their relocation costs to comply with all such requirements. Any utility relocation work performed by the Design-Builder is subject to the Recovery Act as part of the Work.

6.2.4 Status

The Design-Builder is responsible of providing written documentation to the LADOTD Headquarters Utility Relocation Section of any written agreements and procedures affecting the utilities on the project.

7.0 COST OF RELOCATING UTILITY LINES

7.1 PRIOR RIGHTS

When a Utility Owner can produce documents indicating prior rights, as per the LA Administrative Code, Title 70, the cost of relocating that portion of the Utility Owner's line will be paid out of the Design-Builder's funds for this project.

7.2 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. All betterments will be at 100% the Utility Owner cost, regardless of location.

MAINTENANCE DURING CONSTRUCTION PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

The Design-Builder shall implement a Maintenance Plan for the existing Interstate 10 highway system in the project corridor that meets or exceeds the performance goals and measures as outlined in this Maintenance During Construction Performance Specification.

2.0 PERFORMANCE GOALS

The Design-Builder shall meet the following performance goals:

- A) The roadway and shoulders, including pavement and bridge decks, must be maintained in a safe, smooth, debris free condition which allows for use as intended by interstate traffic;
- B) All roadside features, appurtenances, and devices, including, but not limited to, drainage structures, guard rail, and permanent signs must be maintained in a manner that allows these items to function as intended;
- C) The roadside vegetation must be maintained in a manner that allows the side slopes, end slopes, and ditches to function as intended and provide a pleasing aesthetic appearance which does not impede drainage or any other function of roadside features, appurtenances, or devices; and
- D) Litter and other roadside debris must be managed to maintain a pleasing, aesthetic appearance and to allow for the safe movement of traffic.

3.0 STANDARDS AND REFERENCES

The Design-Builder shall plan, design, construct, and implement drainage in accordance with this Maintenance During Construction Performance Specification and the requirements of the following standards. Standards and references specifically cited in the body of this Maintenance During Construction Performance Specification establish requirements that have precedence over all others. In this Maintenance During Construction Performance Specification, if the requirements in any standard conflict with those in another, the standard highest on the list will govern. Listed under references are guidelines that the Design-Builder may use in addressing the requirements as the Design-Builder sees fit. It is the Design Builder's responsibility to obtain clarification of any ambiguity within this Maintenance During Construction Performance Specification prior to proceeding with design or construction.

4.0 STANDARDS

The standards for this Maintenance During Construction Performance Specification are listed in descending order of precedence. In case of conflict between or among standards, the order of precedence established by the LA DOTD will govern.

- A) Manual for Uniform Traffic Control Devices (MUTCD), (2003 with Revisions 1 and 2); and
- B) The Louisiana Department of Transportation and Development's Guardrail Design Standards (GR-200 and GR-0201).

5.0 REFERENCES

The version of the following references in effect on the Proposal due date may apply:

- A) The Louisiana Department of Transportation and Development's Maintenance Manual. (LA DOTD Maintenance is currently revising this manual. If version REV. JULY 1, 1986 of this manual is used, disregard page M6-16 ;
- B) The American Association of State Highway and Transportations Officials' (AASHTO) Maintenance Manual for Roadways and Bridges (2007);
- C) The Louisiana Department of Transportation and Development's Policy for Roadside Vegetation Management;
- D) The American Association of State Highway and Transportation Official's Roadside Design Guide 3rd Edition 2006; and
- E) Engineering Directives and Standards Manual (EDSM), LA DOTD.

6.0 SCOPE

Within the Project limits, the Design-Builder shall provide all necessary maintenance of the existing Interstate-10 (I-10) roadway, bridges, and all associated roadside features, including, but not limited to, permanent signs guardrail, vegetation, and drainage structures for the duration of the Design-Build (DB) Contract.

7.0 PERFORMANCE MEASURES

The Design-Builder's performance will be evaluated in accordance with the measures identified in Sections 7.1 through 7.7 below.

7.1 PAVEMENT (TRAVEL LANES AND SHOULDERS)

The following measures will be used to evaluate pavement maintenance during construction:

- A) Surface defects;
- B) Drainage aspects;
- C) Pavement and shoulder edge conditions;
- D) Rutting;
- E) Joints and cracking;
- F) Ride quality;
- G) Friction;
- H) Timeliness of repair strategy; and

- I) Debris removal.

7.2 BRIDGES AND STRUCTURES

The following measures will be used to evaluate bridge and structures (other than structures covered in Section 5.3) maintenance during construction:

- A) Surface defects;
- B) Drainage aspects;
- C) Joints and cracking;
- D) Ride quality;
- E) Friction;
- F) Timeliness of repair strategy; and
- G) Debris removal.

Approval for repairs and/or replacement of bridge or structures must be obtained from the Department's Project Manager prior to Work being performed.

7.3 PIPES, CULVERTS, AND MISCELLANEOUS DRAINAGE STRUCTURES (SUCH AS, CATCH BASINS, DROP INLETS AND MEDIAN DRAINS)

The following measures will be used to evaluate pipe, culvert, and miscellaneous structure maintenance during construction:

- A) Effectiveness and function;
- B) Debris/vegetation;
- C) Erosion/scour;
- D) Structural condition; and
- E) Flooding.

7.4 RETAINING WALLS

The following measures will be used to evaluate retaining wall maintenance during construction:

- A) Effectiveness and function;
- B) Debris/vegetation;
- C) Erosion/scour; and
- D) Structural condition.

7.5 GUARDRAIL

The following measures will be used to evaluate guardrail maintenance during construction:

- A) Effectiveness and function; and
- B) Timeliness of repair strategy.

Approval for repairs and/or replacement of guardrail must be obtained from the Department's Project Manager prior to Work being performed.

7.6 PERMANENT SIGNS

The following measures will be used to evaluate permanent sign maintenance during construction:

- A) Visibility and legibility during daytime and nighttime;
- B) Timeliness of repair strategy;
- C) Functionality; and
- D) Debris.

7.7 ROADSIDE VEGETATION

The following measures will be used to evaluate roadside vegetation maintenance during construction:

- A) Maintenance of primary turf height;
- B) Landscaped areas and all other roadside vegetation; and
- C) Control of noxious weeds and the collection/disposal of litter.

8.0 REQUIREMENTS

8.1 LICENSES AND SPECIAL TRAINING

A) Pesticide Applicator

The Design-Builder shall possess, or employ a person who possesses, a Louisiana Department of Agriculture and Forestry (LD&F) Commercial Pesticide Applicator License, within the Right-of-Way (ROW) usage and turf and ornamental category, to apply pesticide/herbicide within the highway system, as required. The Design-Builder shall provide the LA DOTD with documentation of the Commercial Pesticide Applicator License prior to beginning Work. Mixing, transporting, handling, spraying, and disposal of materials must be done by licensed personnel.

B) Aquatic License

The Design-Builder shall possess an aquatic license to make pesticide applications to target species located in bodies of water.

PROJECT OFFICE AND FIELD OFFICE PERFORMANCE SPECIFICATION

1.0 INTRODUCTION

This Project Office and Field Office Performance Specification requires the Design-Builder to provide a Project Office and a Field Office for the use of LA DOTD personnel and their designated agents and representatives.

2.0 PROJECT OFFICE REQUIREMENTS

Within 45 calendar days of the Contract Notice to Proceed date, the Design-Builder shall provide a Project Office either at the Project site or within a 5-mile radius of the Project site, at the discretion of the Design-Builder. This Project Office shall be located on a site provided by the Design-Builder, which will allow adequate parking space.

The Project Office shall house the Design-Builder's Key Personnel, including the Design-builder's Project Manager, Construction Manager, and Design Manager; Project records and reports; and all equipment necessary for administering the Contract. The Project Office shall include four (4) offices of sufficient size to accommodate LA DOTD personnel and their designated agents and representatives. Also, the Project Office shall have at least one (1) conference room of sufficient size to accommodate Project-related meetings; and appropriate storage areas, restroom facilities and kitchen facilities for the Project.

The Project Office shall be equipped with all necessary office, conference room and kitchen furniture, refrigerator, microwave oven, stove, heating and air conditioning, and all necessary utilities including electricity, water, gas, sewer, telephones and telephone service, and internet service. The Project Office shall be handicapped accessible.

The Project Office shall remain in full service until final completion, acceptance, and close-out of the project.

3.0 FIELD OFFICE REQUIREMENTS

Within 30 calendar days of the Contract Notice to Proceed date, the Design-Builder shall provide a Field Office at the Project site or within close proximity of the Project Office, at the discretion of the Design-Builder. This Field Office shall be separate from the Design-Builder's Project Office and shall be solely for the use of LA DOTD personnel and their designated agents and representatives. This Field Office shall be located on a site provided by the Design-Builder, which will allow adequate parking space for LA DOTD personnel and their designated agents and representatives.

The Field Office shall be of sufficient size to accommodate LA DOTD personnel and their designated agents and representatives. The Field Office shall be a minimum of 1,700 S.F. in size, and shall include the following:

- Two (2) offices with minimum dimensions of 12' X 14'
- Two (2) offices with minimum dimensions of 10' X 12'
- One (1) work station area with minimum dimensions of 16' X 24'
- One (1) reception area with minimum dimensions of 10' X 12'
- One (1) kitchenette with minimum dimensions of 10' X 12'
- One (1) storage area with minimum dimensions of 10' X 12'
- One (1) conference room with minimum dimensions of 12' X 16'
- One (1) men's restroom
- One (1) women's restroom

The Field Office shall be equipped with all necessary office, conference room and kitchenette furniture, refrigerator, microwave oven, heating and air conditioning, and all necessary utilities including electricity, water, gas, sewer, telephones and telephone service, and internet service. The Field Office shall be handicapped accessible.

The Field Office shall remain in full service until final completion, acceptance, and close-out of the project.