

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

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PART 3 - DESIGN REQUIREMENTS AND
PERFORMANCE SPECIFICATIONS



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1.0 GENERAL

1.1 PURPOSE

This Part 3 – Design Requirements and Performance Specifications establishes basic design and performance requirements to be used in the design and construction of the Project. In addition, directive and indicative Plans (*see* Part 4 – Scope of Services Package Plans) have been prepared during Preliminary Engineering (PE) to standardize and guide the design activities through final design and the preparation of procurement and construction documents.

Section 2.0 provides direction on certain aspects of design applicable throughout the Project and the requirements to be followed for the design in the event a Project element or component is not covered by a performance specification.

Section 3.0 includes both the broad design and performance parameters, usually in the form of recognized standards, under which components and elements of the Project are to be designed and the specifically defined design and performance requirements relative to the Project. The performance specifications also relate the applicability of the Plans contained in Part 4 – Scope of Services Package Plans.

2.0 DESIGN REQUIREMENTS

Design is to be directed toward minimum feasible costs for design, construction, and maintenance expense and minimum disruption of local access and communities.

2.1 SCOPE

The design requirements, both broad and flexible as defined by standards and references and Project specific as defined under Section 2.6, are contained in each performance specification and govern the design of that Project element. Each performance specification lists the precedence of the design requirements.

In the case where a Project element or component is not covered by a performance specification, the design shall be governed by the most recent edition of the Louisiana Department of Transportation and Development's (LA DOTD) Standard Specifications for Roads and Bridges, including addenda, special provisions, supplemental specifications, S-items, and all other applicable engineering codes and standards, including those of the various federal, state, and local jurisdictions. The LA DOTD's Standard Specifications for Roads and Bridges shall take precedence over all other standards except those fixed by legislation, unless the LA DOTD's Chief Engineer specifically approves an exception.

2.2 PROCEDURES

2.2.1 Format

The Design-Builder shall prepare Design Plans and Project Specifications for the Project to the LA DOTD's standards for general content and format and in accordance with the Contract.

2.2.2 Deviations

Deviations may be made within the framework of these design requirements to meet the requirements of this Section 2.0 and the performance specifications to meet the requirements of a particular problem. However, any deviation, discrepancy, or unusual solution requires Approval by the LA DOTD's Project Manager before it can be included in the design. It is the responsibility of the Design-Builder to identify, explain, and justify any deviation from the established criteria and to secure the necessary Approval from the LA DOTD's Project Manager as described in the Project's management plan.

2.3 SUPPORTING ENGINEERING INFORMATION

2.3.1 Surveying

Existing survey information is contained in Part 5 - Engineering Data.

2.3.2 Geotechnical

Existing geotechnical data is contained in Part 5 - Engineering Data. The Design-Builder shall conduct additional geotechnical investigations, analyses, design, and construction in accordance with the Geotechnical Performance Specification (*see* Appendix A to this Part 3 – Design Requirements and Performance Specifications).

2.3.3 CADD

CADD formatting for Design and As-Built Plans shall conform to the LA DOTD's CADD drafting standards and CADD design standards.

2.3.4 Traffic Data

See Part 5 - Engineering Data.

2.4 DESIGN CODES AND MANUALS

In addition to these requirements listed in this Section 2.0 and the performance specifications, the Designer must comply with all other applicable and currently effective engineering codes and standards, including those of the various federal, state, and local jurisdictions.

If codes, standards, and/or manuals are specified herein for the design of an element of the Project, then the edition(s) in effect at the date of issuance of the Scope of Services Package (or date of subsequent addendum revising the code or manual) shall be applicable to the Project. Responsibility for design remains with the Design-Builder in accordance with the terms and conditions of the Contract. If a code, manual, or standard is subsequently modified, the Design-Builder shall notify the LA DOTD of such modification(s) and request the LA DOTD's decision regarding application of the modification(s). If the LA DOTD directs the Design-Builder to comply with the modifications and any change in the cost or time of performance results, such change shall be covered by a change order.

Specific codes and standards include, but are not limited to, the following:

- A) LA DOTD Design Standards for Freeways (F3 Roadway Classification);
- B) AASHTO A Policy on Geometric Design of Highways and Streets (Green Book), Fifth Edition, 2004;
- C) AASHTO Roadside Design Guide, Third Edition, 2006; and
- D) Manual of Uniform Traffic Control Devices (MUTCD), 2003 Edition with revisions number 1 and 2.

2.5 HISTORIC PRESERVATION

Historic preservation shall comply with the environmental documents and the Environmental Mitigation and Compliance Performance Specification (*see* Appendix A to this Part 3 – Design Requirements and Performance Specifications).

2.6 PROJECT-SPECIFIC DESIGN PARAMETERS

Project-specific design parameters are included under their appropriate and respective performance specifications. Project-specific design parameters may include, but are not limited to, design parameters specific to the Project, such as, bridge loadings, design life, design speed, forecasted traffic volumes, number of lanes and lane widths, stopping sight distance, horizontal curvature, superelevation, vertical curves, horizontal and vertical alignments, grades, roadside clear zone width, and minimum main span bridge navigational clearances.

2.7 SAFETY CONSIDERATIONS

2.7.1 Geometrics

Safety geometrics are included in the applicable performance specifications in Appendix A to this Part 3 – Design Requirements and Performance Specifications.

2.8 DESIGN EXCEPTIONS OR NON-STANDARD FEATURES

~~At this time, no design exceptions have been determined.~~ Design exceptions shall only be considered by the ~~Design-Builder~~LA DOTD when the exception supports an alternative technical concept 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. Design exceptions or the use of non-standard features will require the approval of LA DOTD and the FHWA.

3.0 PERFORMANCE SPECIFICATIONS

The performance specifications included in this Part 3 – Design Requirements and Performance Specifications establish requirements that the Design-Builder's Work shall achieve. The performance specifications are intended to provide clear requirements for how the finished product is to perform while allowing the Design-Builder considerable flexibility in selecting the design, means, materials, components, and construction methods used to achieve the specified performance.

3.1 STANDARDS AND REFERENCES

Standards and references are cited within the performance specifications. The following distinction between "standards" and "references" apply. Standards constitute a further elaboration of the requirement. References constitute advisory or information material, provided for the Design-Builder's benefit, that need not be followed but in some cases provide acceptable solutions already in use by the LA DOTD. In some cases, specific parts of the reference are cited in performance specifications as requirements.

3.2 RELATION TO PART 4 – SCOPE OF SERVICES PACKAGE PLANS

The performance specifications contained in Appendix A to this Part 3 – Design Requirements and Performance Specifications also govern the applicability of the Scope of Services Package Plans contained in Part 4 – Scope of Services Package Plans. Individual performance specifications establish which of the Scope of Services Package Plans apply and the extent to which those Scope of Services Package Plans apply. Indicative Plans are, for the most part, for reference as described in Section 3.1. The presence or lack of presence of an indicative plan, or the lack of a directive plan, relative to an element or component of the Project should not be interpreted as reducing the flexibility or range of choices provided to the Design-Builder under a performance specification. Part 4 – Scope of Services Package Plans further address the distinction between directive and indicative Plans and the applicability of directive and indicative Plans.

3.3 LIST OF PERFORMANCE SPECIFICATIONS

The following is a list of the performance specifications contained in Appendix A to this Part 3 – Design Requirements and Performance Specifications:

- A) Roadway
- B) Drainage
- C) Geotechnical
- D) Pavement Structure
- E) Structures
- F) Traffic Management Plan
- G) Public Information
- H) Lighting
- I) Permanent Signage
- J) Environmental
- K) Kansas City Southern Railroad Coordination
- L) Utilities
- M) Maintenance During Construction
- N) Project Office and Field Office