



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

CONSTRUCTION DIVISION
SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402

CLAY BRIGHT
COMMISSONER

BILL LEE
GOVERNOR

August 21, 2020

Re: ADDENDUM #1
Contract No.: DB2001
County: Williamson

To Whom It May Concern:

This addendum revises the RFP Contract Book 1, 2, and 3. Attached are the revised sheets.

You must acknowledge this addendum by completing the "Addendum Letter Acknowledgement form C and the Technical Proposal Signature Page (Form TPSP) within your Technical Proposal. It is the bidder's responsibility to notify all affected manufacturers, suppliers and subcontractors of this change.

Sincerely,

A handwritten signature in blue ink, appearing to read "Lia Obaid".

Lia Obaid, P.E.
Assistant Director of Construction
Construction Division

**DESIGN-BUILD
RFP CONTRACT BOOK 1
INSTRUCTIONS TO
DESIGN-BUILDERS (ITDB)
TENNESSEE DEPARTMENT OF TRANSPORTATION**

**INTERSTATE 65 INTERCHANGE AT BUCKNER ROAD IN
SPRING HILL, TN**

WILLIAMSON COUNTY- TENNESSEE

CONTRACT NUMBER: DB2001



July 17, 2020

Addendum #1 August 21, 2020

The Design-Builders shall not contact stakeholder staff regarding the RFP content or the requirements for the Project. Stakeholder staff includes employees of the Department, city(ies) and county(ies) in which the Project or any part of it are located.

Prohibited communications do not include contact with regulatory/county/city/utility officials for the limited purpose of obtaining information regarding available detour routes and conditions associated with such use or regulatory/county/city guidelines.

5. PROCUREMENT SCHEDULE/SUBMITTAL DEADLINES

The Procurement Schedule and submittal deadlines are set out below. The Department will not consider requests on any submittal received by the Department after the deadline for its submittal date stated below. The Department will not consider requests on any submittals pertaining to an Addendum after the deadline established in the Addendum.

Confidential (One on One) Meetings with Each Proposer	<i>Week of August 3, 2020</i>
Deadline for Submittal of Alternate Technical Concepts	<i>On or before August 28September 14, 2020 4:00 p.m., CT.</i>
Deadline for Response to Alternate Technical Concepts	<i>September 1828, 2020 4:00 p.m., CT.</i>
Deadline for Submittal of Initial DDI Design, Lighting, and Right-Of-Way Acquisition(Exhibit)	<i>October 29, 2020</i>
Deadline for Response Initial DDI Design, Lighting, and Right-Of-Way Acquisition(Exhibit)	<i>October 16, 2020</i>
Deadline for Submittal of Question Requests, and Requests for QPL Determination	<i>October 23, 2020 4:00 p.m., CT.</i>
Technical Proposal and Price Proposal Due Date and Time	<i>November 13, 2020 4:00 p.m., CT.</i>
Price Proposal Opening	<i>December 18, 2020 9:00a.m., CT.</i>
Anticipated Award of Design-Build contract, or rejection of all proposal	<i>On or before January 8, 2021</i>
Anticipated Issuance of Initial Notice to Proceed	<i>January 22, 2021</i>

The Department will not consider any late Proposals. Proposals received after the Proposal Due Date will be returned to the unopened. The Department will not consider any Proposal modifications submitted after the Proposal Due Date. Nor will the Department acknowledge Proposal withdrawals submitted after the Proposal Due Date. Any such attempted withdrawal will be ineffective.

If the Design-Builder does not submit a Proposal by the Due Date and the Department chooses to issue a new, revised, or modified RFP, the Proposal will be considered non-responsive to the requirements set forth herein. As a result, the Design-Builder will not be eligible to respond to any additional RFP requests from the Department on this project.

- 1) Description. A detailed description and schematic drawings of the configuration of the ATC or other appropriate descriptive information (including, if appropriate, product details [i.e., specifications, construction tolerances, and special provisions] and a traffic operational analysis, if appropriate).
- 2) Usage. Where and how the ATC would be used on the Project.
- 3) Deviations. References to all requirements of the RFP that are inconsistent with the proposed ATC, an explanation of the nature of the deviations from said requirements, and a request for approval of such variance(s).
- 4) Analysis. An analysis justifying use of the ATC and why the variance to the requirements of the RFP should be allowed.
- 5) Impacts. Discussion of potential impacts on vehicular traffic, environmental impacts identified, community impact, safety and life-cycle Project impacts, and infrastructure costs (including impacts on the cost of repair and maintenance).
- 6) History. A detailed description of other projects where the ATC has been used, the success of such usage, and names and telephone numbers of project owners that can confirm such statements.
- 7) Risks. A description of added risks to the Department and other entities associated with implementing the ATC; and
- 8) Costs. A description of the ATC implementation costs to the Department, the Design-Builder, and other entities (right-of-way, utilities, mitigation, long term maintenance, etc.).

The ATC, if approved, shall be included in the Price Proposal if the Design-Builder elects to include it in their Technical Proposal. The Design-Builder shall not request more than ~~six~~eight ATCs.

c. REVIEW OF ATCs.

A panel will be selected to review each ATC, which may or may not include members of the Design-Build Review Committee. The Design-Builder shall make no direct contact with any member of the review panel, except as may be permitted by the Department Alternative Contracting Assistant Director. Unapproved contact with any member of the review panel will result in a disqualification of that ATC.

The Department may request additional information regarding a proposed ATC at any time. The Department will return responses to, or request additional information from, the Design-Builder within ten (10) business days of the original submittal. If additional information is requested, the Department will provide a response within ten (10) business days of receipt of all requested information.

Under no circumstances will the Department be responsible or liable to the Design-Builder or any other party as a result of disclosing any ATC materials, whether the disclosure is deemed required by law, by an order of court, or occurs through inadvertence, mistake or negligence on the part of the Department or their respective officers, employees, contractors, or consultants.

- Tack, Prime coat

604-10.82 Design-Build Bridge Aesthetics

- Bridge

604-10.95 Design-Build Bridges

- Components (steel, deck drains, etc.)
- Bridge (including ABC elements)
- Bridge Repairs and Shoring
- Inspections
- Removal of existing structures

604-50.50 Design-Build Minor Structures (Other)

- Removal of Existing Buildings and Improvements
- Box Culvert
- Retaining Walls
- Endwalls
- Wingwalls
- Temporary structures

610-10.50 Design-Build Drainage

- Catch Basins
- Storm Drainage System
- Side drain
- Under drain

712-01.75 Design-Build Maintenance of Traffic

- Work Zone Safety Plan
- Barrier Rail
- Changeable Message Sign
- Traffic Control

713-15.25 Design-Build Signing

- Footings
- Installation
- Removal and Disposal

714-40.75 Design-Build Utilities

- Interchange Lighting

716-99.50 Design-Build Striping/Pavement Markings

- Material
- Raised Pavement Markers
- Snowplowable Raised Pavement Markers

Note, Item No. 716-99.50 lump sum bid amount shall include cost of permanent pavement markings for LIC No. 1, Interchange, and LIC No. 2 segments as depicted in the Functional ~~Plans—Signing/Striping—Exhibit provided on the project web site. It is based on an interim design for segment LIC No. 1~~ from the western end of the proposed raised median to the ~~beginning end~~ beginning end of the project ~~to the start of the raised median as shown in the~~

~~Functional Plans.~~ The Design-Builder shall obtain approval from the Alternative Contracting Office prior to performing the ~~work-design and construction~~ under this item in segment LIC No. 1. ~~Note, Snowplowable Pavement Markings to be excluded thru interim design segment of LIC No. 1 under this pay item.~~

716-99.51 Design-Build Striping/Pavement Markings

- Material
- Raised Pavement Markers
- Snowplowable Raised Pavement Markers

Item No. 716-99.51 of the Design-Builder's lump sum bid shall include the ~~additional~~ cost of permanent pavement markings in segment LIC No. 1 (see **Contract Book 3 (Project Specific Information)** Section 3.1) from the beginning of the project to the start of the raised median section as necessary for constructing the future pavement markings as shown in the Functional Plans. ~~Under this pay-item, pavement markings shall be provided for two (2) through lanes, two (2) left turn lanes, and one (1) right turn lane. This work will be required if Project No. 1 and Project No. 2, as described in **Contract Book 3 (Project Specific Information)** Section 3.1, have been completed.~~ The Design-Builder shall obtain approval from the Alternative Contracting Office prior to performing the ~~work-design and construction~~ under this item. In the event the Department determines the work is not needed, the Department will notify the Design-Builder and reduce the lump sum contract amount by the amount bid for Item No. 716-99.51.

716-99.52 Design-Build Striping/Pavement Markings

- Material
- Raised Pavement Markers

~~Note, Item No. 716-99.52 lump sum bid amount shall include cost of permanent pavement markings for LIC No. 1 segments as depicted in the Functional Signing/Striping Exhibit provided on the project web site. It is based on an interim design for segment LIC No. 1 from the beginning of the project to the start of the raised median as shown in the Functional Plans. Under this pay-item, pavement markings shall be provided for one (1) through lane, one (1) left turn lane, and one (1) right turn lane. This work will be required if Project No. 1 and Project No. 2, as described in **Contract Book 3 (Project Specific Information)** Section 3.1, have not been completed at the proposed intersection to accommodate all traffic movements. The Design-Builder shall obtain approval from the Alternative Contracting Office prior to performing the design and construction under this item. In the event the Department determines the work is not needed, the Department will notify the Design-Builder and reduce the lump sum contract amount by the amount bid~~

for Item No. 716-99.52. Note, Snowplowable Pavement Markings to be excluded thru interim design segment of LIC No. 1 under this pay item.

717-99.95 Design-Build Mobilization

730-01.95 Design-Build Traffic Signals

Note, after award of the Contract the schedule of items must be separated into each of the three segments of work defined in **Contract Book 3 (Project Specific Information)** Project Specific Information.

4) Issues Resolution Plan

c. PROJECT MANAGEMENT

- 1) Describe the administrative and operational structure that would be used to perform the proposed work, including:
 - Management plan to attain the necessary staff required.
 - Describe how design personnel will interface with the construction personnel.
 - Communicating and coordinating between the Department and the Design-Builder. Include the approach for change management during construction for design initiated, field initiated, and the Department-initiated changes.
 - Describe existing design and/or construction quality management plan(s) that the Design-Builder may have already developed, and how it (they) will be implemented into work performed. Describe coordination of design and construction activities to ensure consistency in quality. Explanation of how independence of quality staff and function will be maintained.
 - Approach to managing costs under this Contract while fulfilling required tasks and assuring quality of work.
 - Describe or outline the process for constructability, durability, maintainability, safety, aesthetics and environmental mitigation in the design and construction processes.
 - Describe or outline the process for coordinating design and construction functions, including both design and construction components and all Subcontractor activities. Include a brief description (Construction Management Plan) of the Design-Builder proposes to deal with unexpected disruptions (e.g., weather- or accident-related).
 - Describe or outline the process (Design Review Plan) on how the Design-Builder will facilitate and implement Design Reviews as required under the Contract. Describe how the Designer and the design staff will be involved during construction. Also include the Design-Builder's Construction Staging and Phasing Plan, indicating timing and sequencing of major activities for the Project.
 - Describe or outline the process (Diversity Plan) of the plan to ensure projected subcontracting plan is applied at all tiers. Describe how the Design-Builder will achieve the goal set forth on this project. Participation shall be accomplished by including certified DBEs in any part of the Contract work

**DESIGN-BUILD
RFP CONTRACT BOOK 2
DESIGN-BUILD CONTRACT**

TENNESSEE DEPARTMENT OF TRANSPORTATION

**INTERSTATE 65 INTERCHANGE AT BUCKNER ROAD IN
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July 17, 2020

Addendum #1 August 21, 2020

b. DESIGN-BUILDER SUPPLIED

Design-Builder has established certain minimum Contract requirements located in *Exhibit A* (Design-Builder's Technical Proposal), consisting of those provisions of its Proposal that meet or exceed minimum Contract requirements established by the Department and upon which the Department has relied in awarding the Contract to the Design-Builder.

Any non-standard Department specification or provision shall be considered the Design-Builder-supplied Contract provisions and requires Department Review and Approval which will obligate the Design-Builder within this the Contract.

c. MANAGEMENT PLANS

A Transportation Management Plan is required, pursuant to the **Design-Build Standard Guidance**. A Quality Plan, Safety Plan and Health, Environmental Compliance Plan or other management plans (e.g. a Project Management Plan), pursuant to the **Design-Build Standard Guidance**, have to be submitted under this Contract.

8. RIGHT- OF-WAY/UTILITY COORDINATION SERVICES

Right-of--Way (ROW) ~~and Utility Coordination and acquisition~~ services ~~and construction related Utility Coordination~~ are ~~expected-included~~ under this Contract. See **Contract Book 3 (Project Specific Information)** for information on ROW services, ROW acquisition and ROW acquisition cost and/or Utility Coordination services required for the Design-Builder's Technical Proposal.

9. DESIGN SERVICES

The design services required under the Contract shall include, at a minimum, each of the following:

- Performance of all design services, including but not limited to roadway design, pavement design, geotechnical design, environmental design, drainage design, structural design, hydraulic/hydrologic design, traffic control and survey;
- Performance of all other engineering design services required under the Contract and/or otherwise necessary to complete the work in accordance with all Contract requirements; and
- All Design Documents and Design Reviews shall be provided by the Design-Builder and performed in accordance with the Design Review schedule established in the Critical Path Method (CPM) Schedule, and in accordance with all Contract requirements.

All design services to be performed under the Contract are appurtenant to construction services being provided by the Design-Builder.

a. LICENSE REQUIREMENTS; STANDARD OF CARE

Whether the Design-Builder is a design professional, has a design professional as a member or on staff, or will otherwise provide an outside source to perform the services of a design professional, all design services (whether constituting the practice of architecture, the practice of engineering, the practice of surveying, or

**DESIGN-BUILD
RFP CONTRACT BOOK 3
PROJECT SPECIFIC INFORMATION**

TENNESSEE DEPARTMENT OF TRANSPORTATION

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Addendum #1 August 21, 2020

- TDOT Structural Design Memorandums SMO-05 dated July 28, 2016, SMO-31 dated October 31, 2014, and SMO-55 dated November 24, 2014;
- TDOT Bridge Plans Notes dated March 11, 2020;
- **Buckner Road** Traffic Data developed by the Department's Project Planning Division, dated November 14, 2019;
- **Interstate 65 at Buckner Road Interchange Traffic Data, dated January 8, 2020.**
- Preliminary Report of Geotechnical Exploration, dated December 4, 2019 (for information only);
- Pavement design (see Appendix A), dated January 10, 2020;
- TDOT 2017 *Procedures for Providing Offsite Waste and Borrow on Construction Projects* (May 15, 2017 edition);
- Lighting Specifications;
- Bridge Aesthetics Renderings;
- City of Spring Hill Resolution 20-47;
- Vissim Template File;
- City of Spring Hill Traffic Systems Specifications; and
- Generic Bridge Load rating assignment letter (for information only).

The Design-Builder shall verify existing survey and provide all updated surveys, mapping, plans, verification of existing utilities, investigation, survey data file, and analysis required for completion of the work.

By submitting a response to this RFP, the Design-Builder acknowledges and agrees that TDOT does not make any warranties or representations as to the accuracy or completeness of the provided survey and geotechnical data. The Design-Builder shall bear the risk for any changes in its design or construction resulting from its failure to verify the survey and geotechnical data provided by the Department.

The Design-Builder shall adhere to all commitments stated in the NEPA document. The Design-Builder shall acknowledge that materials furnished by the Department are preliminary and provided solely to assist the Design-Builder in the development of the project design. The Design-Builder shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract and shall hold the Department harmless and shall be fully liable for any additional costs and all claims against the Department which may arise due to errors, omissions and negligence of the Design-Builder in performing the work required by this contract.

1.4 DBE GOAL

The assigned DBE goal for this Project is 14.0%.

The Design-Builder shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the total project cost as set forth above as the goal. The Design-Builder shall make good faith efforts in achieving this goal and shall comply with all requirements of 49 CFR part 26.

1.5 ON-THE-JOB/APPRENTICESHIP TRAINING

On-the-Job/Apprentice Training is required on this Project and shall be included in the bid document and special provision. See for further information §7.2.11 of the *DB Standard Guidance*.

2.0 PROJECT MANAGEMENT

The Design-Builder shall prepare and administer a Project Management Plan (PMP) containing the Design-Builder's approach to managing the design and construction activities of the Project in accordance with the *DB Standard Guidance* and the specific requirements defined herein.

The PMP shall contain, at a minimum, the following component parts:

- Organizational Structure and Staffing Plan
- Critical Path Method (CPM) Schedule
- Quality Management Plan
- Environmental Compliance Plan
- Safety and Health Plan (see Supplemental Requirements in Department provided materials)
- Public Relations and Public Information Plan
- Records Management Plan

The Design-Builder shall use the Project Understanding and Approach, and the Project Management and Approach submitted with the Proposal as a foundation to prepare the PMP component plans. The Design-Builder shall implement all elements of the PMP.

The successful Design-Builder shall be required to utilize PlanGrid software to transmit all submittals and RFIs for the project. The Design-Builder shall contact PlanGrid directly to obtain usage license and service information. Information about PlanGrid and contact information for purchasing licenses at TDOT's special rate can be found at the following link:

<https://www.tn.gov/tdot/tdot-construction-division/transportation-construction-division-resources/plangrid.html>

2.1 ORGANIZATIONAL STRUCTURE AND STAFFING PLAN

The Design-Builder shall prepare an Organization Structure and Staffing Plan for the purpose of ensuring that appropriate qualified staff are employed by the Design-Builder to perform the Work and are able to carry out the Work in a manageable and safe manner.

The plan shall identify the Key Personnel and key management staff including the Key Personnel level 1 and level 2 identified in the Statement of Qualifications (SOQ) and on the Response Category 2 form.

The Design-Builder shall provide an organizational chart that graphically represents the hierarchy and functional interaction of the Key Personnel and indicates the functional responsibilities of each. The organizational chart shall be part of the PMP.

The organization shall be monitored, and the chart updated and provided to the Department when changes to the Design-Builder's organizational chart occur.

Staffing Requirements

The Design-Builder shall provide to the Department, within 15 calendar days after the initial Notice to Proceed (NTP), a list of the contacts (and contact details) of Key Personnel on site and Key Personnel on call who are available 24 hours per day during the executions of the Work.

The Design-Builder shall include a procedure for a structured and managed replacement of Key Personnel on the project team of the Design-Builder.

Any licenses or certifications that are required to meet the requirements of the Request for Qualifications (RFQ) and RFP shall be in place by the time the first NTP is issued.

2.2 CRITICAL PATH METHOD (CPM) SCHEDULE

The Design-Builder shall prepare a cost-loaded Critical Path Method (CPM) Schedule, in accordance with Chapter 3 of the *DB Standard Guidance* and the requirements herein, for review at the Post-Award Meeting.

The Design-Builder shall use the preliminary CPM Schedule submitted with the Proposal as a foundation to prepare a Project CPM Schedule and shall submit it to the Department for Review and Acceptance. Acceptance of the initial Project CPM Schedule by the Department shall be a condition of starting any Work. The Design-Builder shall submit an updated Project CPM Schedule on a monthly basis for the Department's Review and Acceptance. Failure to submit an updated Project CPM Schedule may result in the withholding of progress payments.

The Design-Builder shall provide a narrative with each CPM Schedule submittal, which shall include:

- A detailed description of the status of the Project and changes to the CPM;
- Identification of strategies for mitigation of Project risks or issues impacting the CPM Schedule describing constraints and discussing contingencies;
- How the proposed project phasing and sequence of work and allocation of resources enables the Design-Builder to progress the work to achieve the contractual completion dates;
- How the phasing ensures timely deliveries of materials to achieve the CPM Schedule milestones;
- Identification of categories of work performed by Design-Builder's own direct labor force and those performed by Subcontractors; and
- Pay Item activities and all work included in the Pay Item activities corresponding to totals as reflected on the Schedule of Items.
- Cost Loaded CPM: Cost loading activities shall be distributed appropriately. Individual activities shall be cost loaded. Level of effort cost loading shall not be used unless approved by the Department. Cost loading shall be provided for the individual segments described in Section 3.1.

The Design-Builder shall include all Design Reviews submittals and any resubmittals in the CPM Schedule in order for the Department to appropriately allocate resources for performing the reviews and to track and document any possible schedule impacts.

TDOT and FHWA Review Time

The Design-Builder shall allocate ten (10) Business Days (excluding State holidays) in the CPM Schedule for activities requiring the Department's Review and Acceptance, or Review and Comment. Submittals requiring review and approval/acceptance from FHWA shall be allocated fifteen (15) Business Days (excluding Federal holidays) in the CPM Schedule for FHWA review. **Department and FHWA review periods can be assumed to occur concurrently.**

Monthly progress payment requests and CPM updates are due five (5) business days prior to estimate cutoff date.

- Crossover Angle: 40 – 50 degrees
- Lane widths: 15'
- Tangent length through crossover: 50' minimum
- Design Vehicle: WB-67
- Vertical Clearance: 17'-0" minimum over the ultimate number of lanes and shoulders of Interstate 65 described in Section 3.2 for the bridge over Interstate 65.
- Low points on sag curves shall not be located on bridges or pavement at bridge ends.

Typical Section Requirements for Buckner Road

The typical section for Buckner Road shall be designed for an Urban Arterial using Std. Dwg. RD11-TS-6A and modified using Std. Dwg. MM-TS-2 and MM-TS-3. The typical section consists of two 12' lanes in each direction except as noted below:

- Beginning 1,440' west of the intersection of the crossover tangents on the western side of Interstate 65 and extending east to the crossovers, the typical section shall consist of three 12' lanes in each direction.
- Within and between the crossovers, the lanes shall be 15' wide. The eastbound crossover shall carry three lanes through the western crossover and across the bridge over Interstate 65 after which it will split to carry two lanes on Buckner Road and two lanes to Ramp CC. The westbound crossover shall carry three lanes through the western crossover, two of which must be carried across the bridge over Interstate 65, after which it will split to carry two lanes on Buckner Road and two lanes to Ramp DD.

Grass strips (15' on the left and 11' on the right looking forward on survey) shall be provided. Grass strips and side slopes shall be **permanently stabilized by seeding with mulch or sodding in accordance with Part 8 of the Standard Specifications.** ~~sodded in accordance with Section 803 of the Standard Specifications.~~

Concrete barriers (51") shall be constructed to allow for a center 12' shared-use path on the bridge over Interstate 65.

The typical section shall include Type 6-33 curb and gutter on each side. A 14' raised grass median with 2' inside shoulders shall be constructed along Buckner Road beginning as close as possible to the end of the taper for the WB Buckner Road to SB Buckner Lane left turn lanes and extending to the crossover on the western side of Interstate 65. The raised median and 2' inside shoulders shall begin again at the crossover on the eastern side of Interstate 65 and extend to Lewisburg Pike.

Buckner Road shall be constructed to accommodate the turn lanes described in the table below. The intersection at EB Buckner Road and Lewisburg Pike will be constructed for three total lanes, but only one turn lane in each direction will be striped.

LOCATION	NUMBER OF TURN LANES	STORAGE LENGTH (FT)
WB Buckner Road to NB Buckner Lane	1	150
WB Buckner Road to SB Buckner Lane	2	750
EB Buckner Road to SB Lewisburg Pike	1	170

In cut sections, the Design-Builder shall size a ditch such that drainage does not convey across the sidewalk or shared-use path.

Buckner Road shall be constructed to include an additional 12' lane for added storage at the locations described in the table below.

LOCATION	STORAGE LENGTH (FT)
EB Buckner Road to Ramp B	550
WB Buckner Road to Ramp C	250

Typical Section Requirements for Interstate 65 and Ramps

The typical sections for ramps shall be designed per Std. Dwg. RD11-TS-4. Shoulders shall be 12' outside (10' paved) and 6' inside (4' paved). The number of lanes shall be as follows:

- Ramp A – varies from two to three 12' lanes
- Ramp AA – one 16' lane
- Ramp B – varies from one 16' lane to two 12' lanes
- Ramp BB – one 16' lane
- Ramp C – varies from one 16' lane to three 12' lanes
- Ramp CC – varies from two 12' lanes to two 15' lanes
- Ramp D – varies from one 16' lane to three 12' lanes
- Ramp DD – varies from two 12' lanes to two 15' lanes

The typical sections for auxiliary lanes for Interstate 65 shall be designed per Std. Dwg. RD11-TS-5. Lengths of auxiliary lanes shall be as required by the AASHTO *Policy on Geometric Design of Highways and Streets*, TDOT *Design Guidelines*, and TDOT Standard Drawings.

The cross slope of the shoulders for concrete ramps with asphalt shoulders shall conform to note M of standard drawing RD11-TS-4 for asphalt ramps.

The ultimate typical section of Interstate 65, on which the bridge length is to be based, consists of the following:

- Four 12' lanes in each direction
- 12' inside shoulders on each side of I65
- 12' outside shoulders on each side of I65

Typical Section Requirements for Lewisburg Pike

The typical sections for Lewisburg Pike shall be designed per Std. Dwg. RD11-TS-3. South of the intersection with Buckner Road, the Design-Builder shall construct a 150' long left turn lane and all required tapers and transitions. The typical section will vary from three 12' lanes with two 8' shoulders (6' paved) to two 12' lanes with 3' shoulders (1' paved). North of the intersection with Buckner Road, the Design-Builder shall construct a 180' long right turn lane and all required tapers and transitions. The

typical section will vary from four 12' lanes with two 8' shoulders (6' paved) to two 12' lanes with 3' shoulders (1' paved).

DDI Traffic Operations Design Requirements

The Design-Builder's DDI design shall provide adequate design year traffic operations that is supported by proof-of-concept microsimulation modeling results utilizing Vissim software. The proof-of-concept traffic analysis will not require calibration of the Vissim model. An operational analysis of the DDI using Vissim software shall be completed using TDOT provided design year traffic and Vissim global parameters. A Vissim template file is provided by TDOT (see project website) that includes driver behaviors and other modeling variables to be used for analysis. Any proposed changes to the template file will require TDOT approval. Operational results from the Vissim model shall be the average of 10 simulation runs and shall include a 15-minute seeding period preceding a one-hour analysis period. Analysis should be performed for 2041~~0~~ AM and PM peak periods.

Delay shall be compared to Highway Capacity Manual, 6th Edition (HCM) thresholds for signalized intersections to determine "estimated LOS" computed from microsimulation analysis. Acceptable operational measures of effectiveness shall meet the following criteria based on HCM thresholds:

- Minimum Intersection Level of Service D
- Minimum Movement Level of Service E

Traffic simulation model shall demonstrate that the Design-Builder's proposed signal timing is such that the queue lengths do not adversely affect the functionality of the interchange of the Interstate 65 mainline.

To reduce weaving movements, ramp geometry at the crossover intersections shall align the left turns from the off ramps with either the middle or right lane over Interstate 65. Also, lane continuity along Buckner Road shall be maintained through the Interstate 65 interchange cross overs. In addition, the distance from the I-65 exit gore to the associated ramp intersection stop bar shall meet or exceed the 95th percentile queue length at the intersection, plus the ramp deceleration distance from 70 mph to a complete stop. The Exit ramp 95th percentile queue lengths shall be determined using Vissim as described above.

The results of the microsimulation modeling shall be submitted with the Initial Design and Right-Of-Way Exhibit Submittal and in the Technical Proposal with Response Category IV (TECHNICAL SOLUTIONS) information with TDOT comments to the initial submittal addressed. See **Contract Book 1 (Instructions to Design-Builders)**. Any alternative technical concepts must include modeling of the base condition as well as the proposed condition. Any alternative concept must provide equal to or better operations with regard to network delay, network latent demand, and overall intersection performance.

Additional Design Requirements

The Design-Builder shall construct six-foot tall chain link CA fence at the following locations:

- Western Approach: Beginning at the western terminus of Segment 2 and extending east along Buckner Road and Ramps A and B to tie in with the existing controlled access fence on Interstate 65.
- Eastern Approach: Beginning at the eastern terminus of Segment 2 and extending west along Buckner Road and Ramps C and D to tie in with the existing controlled access fence on Interstate 65.

The Design-Builder will be responsible for the design and construction of all proposed overhead structures within the Project limits. The Design-Builder shall ensure minimum vertical clearance is

provided throughout the duration of construction and upon completion of the project as defined in the TDOT Roadway Design Guidelines. The Design-Builder shall submit plans as outlined in the TDOT Roadway Design Guidelines to the TDOT Structures Division for Grade Approval.

The Design-Builder shall ensure that all proposed overhead sign structures are of sufficient height so as to not adversely affect the sight distance for crossover signals.

The Design-Builder shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, retaining walls, concrete barrier designs, etc.) and shall provide special design drawings to the Department for Review and Acceptance.

The geometric configurations of all roadway components shall be designed to provide adequate drainage and prevent hydroplaning (during construction and when complete). Cross slopes shall be as shown on the applicable RD11 Standard Drawing for each route. The Design-Builder shall provide hydraulic calculations (including spread calculations) to the Department for review and acceptance.

The Design-Builder shall mill and overlay existing Interstate 65 as described in the Pavement Design Report (Appendix A). The mill and overlay limits shall be determined as follows:

- The southern log mile for the beginning of the mill and overlay section for both NB and SB Interstate 65 shall be the southernmost log mile for the beginning of the auxiliary lane taper for either Ramp B or Ramp D (whichever is furthest south)
- The northern log mile for the end of the mill and overlay section for both NB and SB Interstate 65 shall be the northernmost log mile for the end of the auxiliary lane taper for either Ramp A or Ramp C (whichever is furthest north)

Transitions from asphalt to concrete pavement along ramps shall occur at the end of the gore area with the joint placed radial to the ramp baseline.

The Design-Builder's Definitive Design Plan submittal(s) shall include traffic control plans.

Design of intersections must provide for future construction of cross walks and meet ADA requirements for future **sidewalk and** shared multi-use path.

If temporary construction activities disturb the existing pavement or pavement markings beyond the limits defined in Section 3.1, the Design-Builder shall extend the mill and overlay and restriping limits to include those areas.

The Design-Builder shall use 3:1 slopes or flatter with necessary recovery area to limit the amount of guardrail installed along Buckner Road. The use of 2:1 slopes along Buckner Road should be used based on Case II slopes as applicable within the interchange access control and only by approved Alternate Technical Concept along Buckner Road.

Where overhead sign supports fall on the side slopes outside the ROW, the Design-Builder's design shall accommodate a notch in the proposed ROW to provide a ten (10) foot perimeter around the overhead sign support foundation.

3.3 DEVIATIONS AND EXCEPTIONS

All proposed modifications require an Alternative Technical Concept (ATC) subject to Department approval. The Design-Builder shall not request more than eight ATCs.

3.5 DRAINAGE

The Design-Builder shall be responsible for design and construction of the entire stormwater management system within the Project limits and shall adhere to the latest edition of the TDOT *Drainage Manual*. The Design-Builder shall utilize a 10-yr frequency for the stormwater system design, a 50-yr frequency for crossings where Q50 is less than 500 cfs and 100-yr for crossings and encroachments for which Q50 is greater than 500 cfs. The design storm is the storm at which the flood elevation equals the roadway overtopping elevation. If design storm is greater than 100 year then 100-yr event should be reported. The Design-Builder shall utilize a 50-yr frequency for stormwater system design along Interstate 65.

All stormwater runoff that flows through the Project, whether originating within or outside of the Project, must be accounted for in the design of the Drainage System. The project drainage shall function independently of adjacent projects. Inlets and ditches shall not drain onto or through existing or future roads or drainage systems **excluding the culverts along Interstate 65**.

The analysis, design, and construction of all components of the stormwater management system shall address the interim conditions during construction of the Project and the final design. **Where not otherwise instructed by the TDOT Design Guidelines, TDOT Drainage Manual, TDOT Standard Drawings, TDOT Design Procedures for Hydraulic Structures 2012, or Permit requirements, the Design-Builder shall design interim open channels to collect and convey without damage, and to confine within any temporary roadside ditches or swales, stormwater flow using a 2-year design frequency. Interim design shall be based on the interim land cover and corresponding Manning coefficients.**

The drainage system shall have adequate capacity to convey all stormwater through the project without any adverse impacts to upstream and/or downstream adjacent properties.

The Design-Builder shall embed culverts for aquatic organism passage for all streams in accordance with the requirements of FHWA Hydraulic Engineering Circular 26, "Culvert Design for Aquatic Organism Passage".

All new culverts and pipes for closed drainage system shall have a slope of not less than 0.5%.

The Design-Builder shall slip line the existing 66" CMP culvert beneath Interstate 65 (just south of the Functional Plans interchange location) in accordance with Special Provision 607G without reducing hydraulic capacity.

The Design-Builder shall replace the existing 60" CMP culvert beneath Lewisburg Pike (south of the intersection of Buckner Road with Lewisburg Pike). The replacement structure shall be sized in accordance with the TDOT *Drainage Manual*.

The Design-Builder shall inspect the existing culverts within the project limits that are to remain to ensure that they are clean, operable, and structurally adequate. Any concrete spall or crack repairs or scour repairs shall be performed by the Design-Builder. Any debris in the culverts or near the culvert inlet/outlet shall be removed by the Design-Builder. All repairs shall be completed per Department guidelines and meet the full approval of the Engineer.

The Design-Builder shall provide aggregate pipe underdrains as specified in the pavement design (Appendix A) and shall provide appropriate outlets for the underdrains as specified by the TDOT Standard Drawings.

The Design Builder shall adhere to all permits, FEMA, and hydraulic design criteria when designing channel relocations, bridges, culverts and culvert extensions. The Design Builder shall use the *TDOT*

Drainage Manual found on the TDOT Design Division website, and *Design Procedures for Hydraulic Structures 2012* found on TDOT Structures Division’s website. Design Builder shall use FHWA scour publication HEC-18, and FHWA’s Hydraulic Engineering Circular 21 “Design of Bridge Deck Drainage” and Hydraulic Engineering Circular 22, “Urban Drainage Design Manual”. Hydraulic designs for structures and channel relocations with a 50-year flow rate higher than 500 cubic feet per second (cfs) shall include a HEC-RAS model of the ‘no-bridge’, existing structure and proposed structure conditions for flood events up to the 500-year flood. The Design-Builder shall submit a hydraulic design and all HEC-RAS files to the Department for approval; this design shall be sealed by a Professional Engineer licensed in Tennessee. If a stream is found to be in a FEMA AE Zone, the bridge hydraulic design shall meet the FEMA “No-rise” requirement (i.e., the proposed 100-year flood elevation is equal to or less than the existing). Otherwise, the Design-Builder shall meet the backwater criteria of not exceeding 1 ft of rise compared to the natural (no-bridge) conditions and not increasing flooding to any existing structures.

The Design-Builder's drainage design shall take into account the impervious surface of the future sidewalk and multi-use path.

3.6 PAVEMENT MARKINGS

The Design-Builder shall prepare pavement marking plans for the Department’s review and concurrence. The signing and striping in the Functional Plans and roll plot shall be used for reference only. High contrast markings shall be utilized on all concrete surface in accordance with the special provisions and TDOT Design Guidelines. ~~Pavement markings shall be designed and constructed for type and limits shown in the signing and striping Functional Plans and roll plot.~~ See **Contract Book 1 (Instructions to Design-Builders)** for additional information regarding striping items with specific attention to pay items 716-99.50 and 716-99.51. The design and installation of permanent pavement markings shall be in strict accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD), TDOT Roadway Design Guidelines, TDOT Standard Drawings, TDOT Standard Traffic Operations Drawings, TDOT Traffic Design Manual, and the current edition of the TDOT Standard Specifications. All pavement marking removal on final surfaces shall be accomplished by water blasting or another non-marring method. Any damage to the pavement surface caused by the selected method shall be removed and replaced at the contractor’s expense.

Permanent pavement line markings shall be thermoplastic installed to permanent standards at the end of each day’s work. Short unmarked sections shall not be allowed. Temporary pavement markings to be utilized for seven (7) calendar days or more shall be paint or tape. On the final surface, the Design-Builder shall have the option of using temporary pavement markings installed to permanent standards at the end of each day’s work and then installing the permanent markings after the paving operation is completed. All pavement markings beyond the immediate work area that are affected by the Work shall be reapplied to permanent standards.

3.7 SIGNING

The Design-Builder shall prepare signage plans for the Department’s concurrence/review prior to ordering. Signs shall be constructed as shown in the Signing and Marking Roll Plots. The design and installation of permanent roadway signs shall be in strict accordance with the current edition of the MUTCD, TDOT Roadway Design Guidelines and TDOT Standard Drawings, the current edition of the Standard Highway Signs, the TDOT Supplemental to the Standard Highway Signs, the current edition of the TDOT Standard Specifications, and TDOT Traffic Design Manual.

After the permanent sign locations have been staked, but prior to ordering any material for supports, there shall be a Field Review and Acceptance by the Department.

The Design-Builder shall verify all support lengths at the site prior to erection.

All overhead sign structures shall be truss span structures. Overhead cantilever signs will not be allowed. All overhead sign structures shall be designed per LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (current edition) and reviewed and concurred with by TDOT Structures Division prior to construction. The Design-Builder shall design the structure to support signs across the entire length of the travel way as described in Chapter 14 of the TDOT Traffic Design Manual.

All permanent signing plans; Signing Layouts, Sign Schedules, Overhead Structures Drawings & Miscellaneous Detail Sheets shall be reviewed by the Department prior to ordering and construction/installation.

All overhead support structures placed within the clear zone shall be protected as required by the TDOT Design Guidelines or Standard Drawings.

3.8 GROUND SURVEY

The ground survey including survey control will be provided by the Department.

The Design-Builder shall verify the ground survey and survey control before utilizing in the design of the project (see Section 1.3). In addition, the Design-Builder shall be responsible for field surveys and support activities, such as, but not limited to geotechnical investigations, ROW stakeout, construction stakeout, etc.

If the Design-Builder's design footprint extends beyond the limits of the survey provided by the Department, the Design-Builder shall be responsible for securing the necessary additional survey.

All field survey activities shall be performed in accordance with the latest version of the TDOT Survey manual and any other applicable design standards previously referenced

3.9 PAVEMENT DESIGN

The Pavement Design Report for this Project has been developed by the Department and is located in Appendix A.

Prime Coat and Tack Coat are required and shall be applied as part of the Project.

3.10 PAYMENT FOR SELECT QUANTITY OVERRUNS

The following table is provided to cover select quantities that are above those anticipated in the scope. When the Design-Builder utilizes any item in the table below, he must provide the Department with an invoice detailing the location, purpose, and quantity used, for tracking purposes. Failure to provide invoices throughout the progress of the project may result in nonpayment for overrun quantities.

ITEM	TYPE	UNIT	UNIT PRICE	QUANTITY
Temporary Traffic Control	Changeable Message Sign Unit	EACH	\$6,500	Signs exceeding 6

use path, two STD-1-1SS parapets, and two 51" single slope barrier half walls). The new structure shall provide a minimum of 17'-0" of vertical clearance as described in Section 3.2.

New ramp bridge(s) shall be wide enough to incorporate the full roadway width as presented in Section 3.2 and two STD-1-1SS parapets.

Deck drains (if needed) shall be as shown on STD-1-2SS and follow the requirements of the TDOT *Design Procedures for Hydraulic Structures 2012*.

All guardrail (including guardrail terminal, anchor and hardware) shall be MASH TL-3 compliant.

Should the Design-Builder elect to construct bridges on Buckner Road in lieu of the box bridges shown in the Functional Plans, they shall be of sufficient width to accommodate the future sidewalk and multi-use path. The area denoted as "grass strip" in Section 3.2 shall be constructed as a sidewalk with STD-11-1 parapets.

All exposed concrete surfaces shall receive an applied texture coated finish of Mountain Grey (AMS STD-595 color No. 36440), except that the top and side of the bridge rail facing traffic shall receive a white finish (AMS STD-595 color No. 37886).

The Design-Builder shall conduct and submit a load rating analysis report for each of the new bridges that are constructed. The load ratings are to be completed using AASHTOWare Bridge Rating (BrR) software and submitted with the Bridge Construction Plans for review. The load rating analysis report and BrR file shall be updated for the as-built conditions with the final as-built plans. For a listing of the specific vehicles to be load rated as well as a description of the report format, see the reference material on the project website.

4.2 BUCKNER ROAD OVER INTERSTATE 65 BRIDGE AESTHETICS

~~The bent cap for the bridge over Interstate 65~~ If a bent is required for the Design-Builder's design for the bridge over Interstate 65, the cap shall have a hammerhead appearance similar to that shown in the Functional Plans. The end faces of the bent cap shall include a 3'-0" Tri-Star emblem as shown on the TDOT Standard Drawing STD-8-6. The columns of the bridge bent shall be a minimum width of 6'-0" (measured along interstate 65) with a minimum dry-stack stone finish width of 5'-0" on each column. The areas receiving the dry-stack stone finish shall be stained as described below.

Each abutment wingwall shall receive a dry-stack stone finish that shall be stained as described below. A 2'-0" Tri-Star emblem as shown on TDOT Standard Drawing STD-8-6 shall be included on each wingwall.

The vertical faces of the 51" single slope barrier half walls adjacent to the shared-use path shall receive a dry-stack stone finish that shall be stained as described below. The vertical face of the 51" single slope barrier half walls not receiving a dry-stack stone finish shall receive a Mountain Grey finish (AMS STD-595 color No. 36440). All other faces of the 51" single slope barrier half walls shall receive a white finish (AMS STD-595 color No. 37886).

The exposed face of the retaining walls at the bridge over Interstate 65 shall receive a dry-stack stone finish that shall be stained as described below.

The dry-stack stone form liner used by the Design-Builder shall be approved by the Department and the City of Spring Hill. The maximum relief shall be between 1.5" and 2".

5.0 TRAFFIC SIGNALS AND LIGHTING SCOPE OF WORK

The Design-Builder shall install a minimum of three 2” conduits in the parapets on each side of the bridge over Interstate 65. Two of these conduits on each side are spares for future use by the City and shall not be used by the Design-Builder. **The two spare 2” conduits shall run for the full length of project along each side of Buckner Road terminating near the signal at Lewisburg Pike.**

All materials required for installation of lighting and signals, including but not limited to wire, conduit, pull boxes, etc., shall meet or exceed the requirements of the Middle Tennessee Electric Membership Corporation (MTEMC) standards.

The Design-Builder shall coordinate with the City and/or MTEMC to determine electric feed points.

5.1 TRAFFIC SIGNALS

The Design-Builder shall construct the proposed traffic signals (including but not limited to cabinet, controller, traffic signal heads, wiring, detection equipment, conduit and pull boxes, traffic signal poles and associated traffic signal timing and all other materials and methods required to provide a fully functional and operational traffic signal) at the following locations:

- Intersection of Buckner Road and Lewisburg Pike
- Interchange crossovers

To allow for full synchronization capabilities within the existing and future traffic signal system serving the City of Spring Hill, the Design-Builder shall use the following:

- Eight Phase Omni ATC EX2 NEMA Controllers with ABC harness manufactured by McCain
- MMU or Signal Monitor EDI SSM-16LE(ip) Enhanced NEMA MMU
- Preemption – Sonem Model #2000
- Load Switches – Power Distribution & Control, Inc. (PDC SSS86I/O)
- Wavetronix Radar Detection Units

The Design-Builder shall design the signal system servicing the DDI using NCHRP 03-113 *Guidance for Traffic Signals at Diverging Diamond Interchanges and Adjacent Intersections* and the FHWA *Diverging Diamond Interchange Informational Guide*.

The Design-Builder’s signal design shall include supplemental advanced signals for the following locations:

- Eastbound Buckner Road through the western crossover
- Westbound Buckner Road through the eastern crossover
- Southbound Interstate 65 off-ramps to Buckner Road (Ramp A and Ramp AA)
- Northbound Interstate 65 off-ramps to Buckner Road (Ramp D and Ramp DD)

Supplemental advanced signal heads shall be mounted to the pole for the main signal mast arms where possible.

The Design-Builder shall be responsible for active management of signals and operations until final acceptance of the Project. During this time, the final signal timing will be implemented and modified to provide optimal traffic signal operations.

Traffic signals shall be designed and constructed in accordance with Supplemental Specification 700SS (See **Contract Book 2 (Design-Build Contract)**), Special Provision 700SIG, City of Spring Hill Traffic Systems Specifications, and the TDOT *Traffic Design Manual*.

The Design-Builder shall provide final signal timing settings to the City of Spring Hill at the completion of the Project.

The Design-Builder shall coordinate the signals at the interchange using a fiber optic connection.

5.2 LIGHTING

The Design-Builder shall construct Complete Interchange Lighting (CIL) in accordance with the TDOT *Traffic Design Manual*. The installation shall provide relatively uniform lighting for the interchange through the installation of high mast, standard lighting, and underpass lighting fixtures in the area of the interchange. The area of the interchange is defined as follows:

- Interstate 65 northbound and southbound lanes from northern ramp junctions to the southern ramp junctions.
- All four ramps of the interchange
- Buckner Road from the Interstate 65 southbound terminal intersection to the Interstate 65 northbound terminal intersection

Transition lighting is required beyond the limits described above in accordance with Section 5.2 of the TDOT *Traffic Design Manual*.

All lighting shall be 4000k LED lighting. The Design-Builder shall prepare lighting designs/plans in accordance with TDOT Standard Specifications for Road and Bridge Construction, TDOT Standard Drawings, TDOT Standard Traffic Operations Drawings, TDOT *Traffic Design Manual*, Chapter 15, and the latest edition to the National Electric Code, National Fire Protection Association (NFPA) 70.

The Design-Builder shall submit a preliminary lighting design with the Initial Design and Right-Of-Way Exhibit Submittal and in the Technical Proposal with Response Category IV (TECHNICAL SOLUTIONS) information with TDOT comments to the initial submittal addressed. See **Contract Book 1 (Instructions to Design-Builders)**. The design package shall include electronic design files using AGI32 software, layout sheets which illustrate the photometrics, and high mast foundation information.

The Design-Builder shall not allow light pollution/light hindrance into residential areas during construction.

The Design-Builder shall only use light fixtures for offset lighting approved by MTEMC. Allowable high mast, offset lighting, and wall packs are provided as reference material on the project website.

The Design-Builder shall obtain all permits required for installation of interchange lighting.

No high-mast lighting poles shall be placed outside the interchange quadrants.

The maximum distance between offset or mast arm light poles shall not exceed 250 feet.

The distance between light poles and bridges must be a minimum of 50 feet.

8.0 UTILITY SCOPE OF WORK

The project's utility coordination will be performed by TDOT, inclusive of submitting plans, receiving, reviewing, and approving responses, reimbursement agreements, easement agreements, and authorization to proceed with utility relocation.

Immediately after submittal of the accepted final Definitive Design Plans to TDOT, TDOT will begin the utility coordination according to the statute (TCA 54-5-854) which requires the utility to respond within 120 -165 Calendar Days. The Design Builder will include the TDOT coordination in their CPM for Utility Investigation.

The Design-Builder shall be responsible for all additional costs associated with utility relocations due to revisions to the definitive plans after submittal to the utilities for coordination. These revisions include but are not limited to changes to haul roads and/or any other temporary conditions resulting from the Design-Builder's methods of operation or sequence of work.

Some adjustment of utility facilities will be required due to the Design-Builder design. Exact locations shall be determined in the field by contacting the utility companies involved. Notification by calling the Tennessee One Call System, Inc., at 1-800-351-1111 as required by TCA 65-31-106 will be required.

Prior to submitting the proposal, the Design-Builder shall be solely responsible for contacting owners of all affected utilities in order to determine the extent to which utility relocations and/or adjustments will have upon the schedule of work for the Project. While some work may be required 'around' utility facilities that will remain in place, other utility facilities may need to be adjusted concurrently with the Design-Builder's operations. Advance clear cutting may be required by the Department at any location where clearing is called for in the specifications and clear cutting is necessary for a utility relocation.

If the Design-Builder elects to make arrangements with a utility company to incorporate a new utility installation as part of the highway construction, the utility work done by the Design-Builder and the associated costs for the work shall be negotiated and agreed upon between the Design-Builder and the utility company with the costs and work being outside of the state contract.

In the event the Design-Builder performs any utility work outside of the state contract, it is their responsibility to obtain any and all applicable permits.

The Design-Builder shall be familiar with 1680-6-1 Rules and Regulations for Accommodating Utilities within Highway Rights-of-Way, Tennessee Code Annotated (TCA) Part 8 Relocation of Utilities 54-5-801 through 54-5-856, 23 CFR Part 645 "Utilities", and TDOT Policy 240-7 (Chapter 86). Adherence to the above referenced regulations and procedures are mandatory.

The Design-Builder shall notify each individual utility owner of their plan of operation in the area of the utilities. Prior to commencing ~~work~~construction, the Design-Builder shall contact the utility owners and request them to properly locate their respective utility on the ground. This notification shall be given at least three (3) business days prior to commencement of operations around the utility in accordance with TCA 65-31-106.

The Design-Builder shall provide all necessary protective measures to safeguard existing utilities from damage during construction of this Project. The cost of protecting utilities from damage and furnishing special equipment will be included in the price bid for other items of construction.

https://www.tn.gov/content/dam/tn/tdot/construction/old_web_page/WasteBorrowManual.pdf

Borrow and waste disposal areas shall be located in non-wetland areas and above the 100-year, Federal Emergency Management Agency floodplain. Borrow and waste disposal areas shall not affect any Waters of the State/U.S. unless these areas are specifically covered by an ARAP, §404, and/or NPDES permit, obtained solely by the Design-Builder.

9.9 EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

All EPSC designs and implementation shall be the responsibility of the Design-Builder.

Grass strips and side slopes shall be permanently stabilized by seeding with mulch or sodding in accordance with Part 8 of the Standard Specifications ~~Sod or seed and mulch shall be used for permanent stabilization and shall be placed at locations~~ to prevent damage to adjacent facilities and property due to erosion on all newly graded cut and fill slopes that have permanently ceased.

- Pre-construction vegetative ground cover shall not be destroyed, removed or disturbed (i.e. clearing and grubbing initiated) more than 14 calendar days prior to grading or earth moving activities unless the area is mulched, seeded with mulch or other temporary cover is applied.
- Clearing, grubbing, and other disturbances to riparian vegetation shall be limited to the minimum necessary for slope construction and equipment operations. Existing vegetation, including stream and wetland buffers (unless permitted), should be preserved to the maximum extent possible. Unnecessary vegetation removal is prohibited.

Temporary stabilization shall be initiated within 14 calendar days when construction activities on a portion of the site are temporarily ceased and earth disturbing activities shall not resume until after 14 calendar days. Permanent stabilization measures in disturbed areas shall be initiated within 14 calendar days after final grading of any phase of construction.

Steep slopes shall be temporarily stabilized not later than 7 calendar days after construction activity on the slope has temporarily or permanently ceased. For this project, steep slopes shall be defined as natural or created slopes of greater than 3H:1V, regardless of height.

Permanent stabilization shall replace temporary measures as soon as practicable. Priority shall be given to finishing operations and permanent EPSC measures over temporary EPSC measures.

Inspection, repair, and maintenance of EPSC structures shall be performed on a regular basis and sediment shall be removed from sediment control structures when the design capacity has been reduced by fifty percent (50%). During sediment removal, the Design-Builder shall take care to ensure that structural components of EPSC structures are not damaged and thus made ineffective. If damage does occur, the Design-Builder shall repair the structures at their own expense.

EPSC controls shall be inspected according to permit requirements to verify measures have been installed and maintained in accordance with TDOT standard drawings, specifications, and good engineering practices. EPSC inspections shall be documented on the TDOT EPSC inspection report and a copy of each inspection report shall be provided to the Department.

Changeable Message Signs

Changeable Message Signs shall be used in advance of changed roadway conditions such as lane closures, road closures, lane shifts, or detour routes. The locations of these Changeable Message signs shall be reviewed by the Department prior to implementation. Portable changeable message signs should be used as a supplement to and not as a substitute for conventional signs and pavement markings. Portable changeable message sign trailers should be delineated on a permanent basis by affixing retroreflective material, known as conspicuity material, in a continuous line on the face of the trailer as seen by oncoming road users.

Queue Protection Devices

Queue Protection Devices shall be used in strict accordance with the special provisions outlined in the contract documents.

Digital Speed Limit Sign Assembly

Digital Speed Limit Sign Assemblies shall be used in strict accordance with the special provisions outlined in the contract documents. The locations of the Digital Speed Limit Sign Assembly shall be reviewed and concurred with by the Department prior to implementation.

Detour and Construction Signage

All detour and construction signing shall be in strict accordance with the current edition of the MUTCD.

11.5 CONSTRUCTION WORK ZONE

Traffic control devices shall not be displayed or erected unless related conditions are present necessitating warning.

Pavement Edge Drop-off Traffic Control

Differences in elevation between adjacent traffic lanes or between the traffic lane and shoulder where the traffic lane is being used by traffic, which is caused by base, paving or resurfacing, shall be handled as follows:

- Differences in elevation between adjacent roadway elements greater than 0.75 inch and not exceeding 2.0 inches:
 - Warning signs, uneven lanes (W8-11) and/or shoulder drop-off with plaque (W8-17 and W8-17P), shall be placed in advance of and throughout the exposed area. Maximum spacing between signs shall be two thousand (2,000) feet with a minimum of two (2) signs per exposed area. Where uneven pavement is encountered, signs shall be placed on each side of the roadway.
 - Differences in elevation between adjacent traffic lanes being utilized by traffic caused by added pavement shall be eliminated within three (3) business days.
 - Differences in elevation between adjacent traffic lanes being utilized by traffic caused by cold planing shall be eliminated within three (3) business days.
 - When the difference in elevation is between the traffic lane being utilized by traffic and shoulder the difference in elevation shall be eliminated within seven (7) business days after the condition is created.
- Differences in elevation between adjacent roadway elements greater than 2.0 inches and not exceeding six (6) inches: (Traffic is not to be allowed to traverse this difference in elevation):