STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
CONSTRUCTION DIVISION
SUITE 700, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-2414

BUTCH ELEY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

July 27, 2022

Re: ADDENDUM #2
Contract No.: DB2101
County: Hamilton

To Whom It May Concern:

This addendum revises the RFP Contract Book 1, 2, and 3. Attached are the revised sheets. Special Provision 108C has been removed from the contract.

You must acknowledge this addedendum 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,

Clayton Markham, P.E.
CE Manager 2, Alternative Contracting

DESIGN-BUILD
RFP CONTRACT BOOK 1
INSTRUCTIONS TO
DESIGN-BUILDERS (ITDB)

TENNESSEE DEPARTMENT OF TRANSPORTATION

I-75 Interchange Modification at I-24, Phase 2 (IA)

Hamilton County- TENNESSEE

CONTRACT NUMBER: DB2101

May 27, 2022

Addendum #1 July 8, 2022

Addendum #2 July 27, 2022

2. *PROJECT OVERVIEW*

Project Description: I-75 Interchange Modification at I-24 (Phase 2) (Design Build) (IA)

This project will consist of:

Segment 1 (I-24 from Germantown Road to just west of Spring Creek Road)

- Reconstruct all concrete pavement and shoulders on I-24 from Germantown Road to Spring Creek Road with asphalt pavement;
- Replace the existing median barrier with a 51-inch single slope concrete median barrier from Germantown Rd. to Spring Creek Rd along I-24;
- Reconstruct the existing interstate access ramps between Germantown Road and Spring Creek Road to the configuration shown on the approved IAR;
- Replace the storm sewer system from Germantown Rd. to Spring Creek Rd along I-24 for a complete operational system designed in accordance with TDOT's Drainage Manual. Drainage structures that can be retained and reused are limited to the following: STA 91+98 – 30" RCP, STA 99+52 – 36" RCP, STA 142+44 – 24" RCP, STA 145+02 – 24" RCP, STA 155+34 – DBL 8x7 RCBC, STA 175+78 (westbound roadway) - 48" RCP, and STA 176+52 (eastbound roadway) - 48" RCP, Ramp O STA 3008+80 – DBL 8x7 RCBC;
- Widen to add an additional lane eastbound and westbound from Germantown Rd. to S. Moore Rd. and two (2) additional lanes eastbound and westbound from S. Moore Rd. to Spring Creek Rd. along I-24 as shown on the Functional Plans;
- Remove the existing temporary ramps between Germantown Road and Belvoir Avenue from N. Terrace and S. Terrace to I-24;
- Add new noise walls along I-24;
- Replace the S. Moore Road and McBrien Road overpass bridges and approaches, including new 6'-0" sidewalks on both sides of the roadway, 5'-0" bike lanes on both sides of the roadway, 6'-0" paved shoulder on each side of the roadway, a single 11'-0" through lane in each direction, a single 11'-0" northbound left turn lane, 11'-0" southbound left turn lane (dual 11'-0" left turn lanes required on S Moore Road), lighting, traffic signals, and fencing;
- Mill and resurface all existing asphalt pavement on N. Terrace and S. Terrace from Germantown Road to Spring Creek Road;
- Remove and replace all guardrail. Install new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Clean and place new texture coat on all existing median barrier to be retained;
- Replace all roadway lighting on I-24 between Germantown Road and Spring Creek Road. ~~Replace all roadway lighting on N. Terrace and S. Terrace between Germantown Road and Spring Creek Road.~~ Replace all roadway lighting on S. Moore Road between N. Terrace and S. Terrace. Replace all roadway lighting on McBrien Road between N. Terrace and S. Terrace;

- Coordinate utility relocations in Segment 1;
- Relocate and improve ITS facilities in Segment 1;
- Install new overhead signs and sign structures and update existing signs and sign structures to the ultimate build configuration as shown in the roll plots for Segment 1; and
- Replace control access fence at locations detailed in this RFP for Segment 1.

Segment 2 (I-75 from approximately 455' west of the CSX Railroad Bridge to near E. Brainard Road Interchange)

- Widen I-75 northbound and southbound from approximately 400 ft. south of the CSX Railroad bridge to the East Brainerd Road interchange;
- Replace the existing I-75 bridge over the CSX Railroad with a new structure (no modifications to the existing structure allowed) that meets the minimum horizontal and vertical clearance requirements of the approved Deviation from Standards;
- Replace the existing median barrier with a 51-inch single slope concrete median barrier from approximately 750 ft. south of the CSX railroad crossing bridge to approximately 500 ft. north of the CSX Railroad bridge (areas of profile change) along I-75;
- Rehabilitate the existing concrete pavement from approx. 300 ft. north of the CSX Railroad bridge to East Brainerd Road;
- Remove and replace all guardrail. Install new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Clean and place new texture coat on all existing median barrier to be retained on I-75 from 400 ft. south of the CSX Railroad bridge to the East Brainerd Road bridge;
- Replace all lighting on I-75 from 400 ft. south of the CSX Railroad bridge to the East Brainerd Road bridge;
- Coordinate utility relocations in Segment 2;
- Relocate and improve ITS facilities in Segment 2;
- Install new overhead signs and sign structures and update existing signs and sign structures to the ultimate build configuration as shown in the roll plots for Segment 2; and
- Replace control access fence at locations detailed in this RFP for Segment 2.

Segment 3 (Interchange)

- Mill, resurface, and install permanent pavement markings in all areas necessary to achieve the ultimate build configuration as shown in the Signing and Marking Roll Plot. This includes all areas affected by temporary pavement markings.

DESIGN-BUILD
RFP CONTRACT BOOK 2
DESIGN-BUILD CONTRACT

TENNESSEE DEPARTMENT OF TRANSPORTATION

I-75 Interchange Modification at I-24, Phase 2 (IA)

Hamilton County- TENNESSEE

CONTRACT NUMBER: DB2101

May 27, 2022

Addendum #1 July 8, 2022

Addendum #2 July 27, 2022

APPENDIX B

SPECIAL PROVISIONS

TITLE	SP#
EMPLOYING AND CONTRACTING WITH ILLEGAL IMMIGRANTS	102I
SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION	102LC
SPECIAL PROVISIONS RELATIVE TO PROTECTION OF RAILROAD PROPERTY RAILROAD FLAGGING AND INSURANCE REQUIREMENTS	105C
BUY AMERICAN REQUIREMENTS	106A
PROHIBITION OF CERTAIN TELECOMMUNICATIONS & VIDEO SURVEILLANCE SERVICES OR EQUIPMENT	106B
AIR QUALITY FOR MOWING	107AQ
CONTRACTOR PAYROLL REQUIREMENTS IN AASHTOWARE PROJECT CIVIL RIGHTS & LABOR (CRL)	107CP
WATER QUALITY AND STORM WATER PERMITS	107FP
PROJECT COMPLETION AND LIQUIDATED DAMAGES	108B
~~LIQUIDATED DAMAGES FOR CEI ADMINISTERED CONTRACTS~~	~~108C~~
PAYMENT ADJUSTMENT FOR FUEL	109A
PRICE ADJUSTMENT FOR BITUMINOUS MATERIAL	109B
ELECTRONIC TICKET DELIVERY SYSTEM FOR ASPHALT	109ETAS
REMOVAL OF ASBESTOS CONTAINING MATERIALS (ACM)	202ACM
SCALING AND TRIMMING	203E
COMPACTION GROUTING	204CG
EMBANKMENT (COMPACTED IN PLACE)	205A
BITUMINOUS PLANT MIX ROADWAY DENSITY	407DEN
INTELLEGENT COMPACTION (IC) FOR HOT MIX ASPHALT (HMA)	407IC
ASPHALT PAVEMENT SAFETY EDGE	407SE
SECTION 411-ASPHALT CONCRETE SURFACE	411B
SECTION 411 ASPHALT CONCRETE SURFACE (HOT MIX)	411C
FULL DEPTH AND PARTIAL DEPTH CONCRETE PAVEMENT REPAIR	502A
FULL DEPTH AND PARTIAL DEPTH CONCRETE PAVEMENT REPAIR (HIGH EARLY STRENGTH)	502C
ROLLER COMPACTED CONCRETE	502FRP

SP 718NB
July 27, 2022

STATE OF TENNESSEE

Contract No. DB2101
Hamilton County

Regarding Sound-Absorbing Noise Barriers

1.0 General

1. The sound-absorbing noise barrier system shall be of post and panel design with the sound-absorbing side facing the highway.

2. The sound-absorbing noise barrier system shall meet or exceed requirements for sound absorption, freeze/thaw, and sound transmission loss, as specified below.

3. The system shall include a reinforced concrete component, and the panels shall be cast such that the sound-absorbing material is integral with the reinforced concrete component. No adhesives or mechanical fasteners may be used to attach the sound-absorbing material to the structural concrete.

4. The sound-absorbing material shall be durable under all weather conditions and shall resist rotting; mold and mildew build-up; rusting; warping; bird, rodent or insect nesting or infestation; and delamination, crumbling or spalling.

5. Adequate drainage shall be provided at the base of the panel.

6. The contractor shall obtain concrete and sound-absorbing products from a single manufacturer.

2.0 Sound Absorption Test Requirements

1. The Noise Reduction Coefficient (NRC) of the proposed sound-absorbing noise barrier panels shall equal or exceed 0.70 when tested per current ATSM C423 requirements, mounting type A (sample laid directly against the test surface).

2. Testing shall be completed prior to beginning the production run as specified below. The test panel sample shall:

   a. be produced in the same precast yard that will produce the actual panels for the project by the exact same process and material sources as those to be used on the project;

   b. be taken from the same panels or lot of panels that is the source of the samples used in the Freeze/Thaw Test; and,

   c. have the same thicknesses of sound-absorbing material and the same pattern, texture, and stain as the actual panels to be used in this project.

3. The contractor shall provide the TDOT Structures Division with the name of the certified testing laboratory and the scheduled date of testing prior to conduct of the Sound Absorption Test and shall provide TDOT with all Sound Absorption Test results within seven days of receipt of the test results from the laboratory.

4. If the sample fails the Sound Absorption Test, the contractor, at his own expense, shall have the option of testing new samples from that source, or selecting another material or another noise barrier supplier that then passes the test. The failure to pass the Sound Absorption Test shall not constitute cause for an excusable project time extension.

5. TDOT will accept previously conducted Sound Absorption Test results in lieu of the testing described above as long as the following requirements are met:

   a. The tested panels were produced in the same precast yard that will produce the actual panels for the project by the exact same process and material sources as those to be used on the project;

   b. The panels have the same thicknesses of sound-absorbing material and the same pattern, texture, and stain as the actual panels to be used in this project;

   c. The process by which the project panels will be produced is the same as that used to produce the tested panels;

   d. The tests were completed within two years prior to the date the project is advertised for bid; and,

   e. The manufacturer provides a notarized letter explicitly stating that the conditions in 5(a), 5(b), 5(c), and 5(d) have been met.

6. The contractor shall provide full documentation of the Sound Absorption Test results to TDOT for review and approval.

3.0 Freeze/Thaw Test Requirements

1. The Freeze/Thaw Test shall be performed prior to the production run in accordance with the test procedure in the current version of ASTM C 666 using Method A or Method B (for 300 cycles) at a certified testing laboratory. Weight loss shall not exceed 7% and no physical distress (no cracking or breaking) shall be allowed. The test panel samples shall:

   a. be produced in the same precast yard that will produce the actual panels for the project by the exact same process and material sources as those to be used on the project;

   b. be taken from the same panels or batch of panels that is the source of the samples used in the Sound Absorption Test; and,

   c. have the same thickness of sound-absorbing material and concrete, and the same pattern, texture and surface coating as the actual panels to be used in this project.

2. The contractor shall provide the TDOT Structures Division with the name of the certified testing laboratory and the scheduled date of testing prior to conduct of the Freeze/Thaw Test and shall provide TDOT with all Freeze/Thaw Test results within seven days of receipt of the test results from the laboratory.

3. If the sample fails the Freeze/Thaw Test, the contractor, at his own expense, shall have the option of testing new samples from that source, or selecting another material or another noise barrier supplier that then passes the test. Failure to pass the

Freeze/Thaw Test shall not constitute cause for an excusable project time extension.

4. TDOT will accept previously conducted Freeze/Thaw Test results in lieu of the testing described above as long as the following requirements are met:

   a. The panels were produced in the same precast yard that will produce the actual panels for the project by the exact same process and material sources as those to be used on the project;

   b. The panels have the same thickness of sound-absorbing material and concrete, and the same pattern, texture, and surface coating as the actual panels to be used in this project;

   c. The process by which the project panels will be produced is the same as that used to produce the tested panels;

   d. The tests were completed within two years prior to the date the project is advertised for bid; and,

   e. The manufacturer provides a notarized letter explicitly stating that the conditions in 4(a), 4(b), 4(c), and 4(d) have been met.

5. The contractor shall provide full documentation of the Freeze/Thaw Test results to TDOT for review and approval.

4.0 Sound Transmission Loss Requirements

1. The contractor shall submit test results by current ASTM E90 requirements for the expected thickness (or smaller thickness) of the proposed concrete and /or concrete plus sound-absorbing panels. These results may be from representative tests completed within five years prior to the date the project is advertised for bid. The transmission loss in each tested 1/3-octave band shall be at least 20 dB.

5.0 Sound-Absorbing Material Fire Rating Requirement

1. The sound-absorbing material shall exhibit a Flame Spread Index of 25 or less (Class A) when tested according to current ASTM E84 requirements.

6.0 Noise Barrier System Surface Finish

1. Concrete formliners shall be used to achieve the specified pattern and texture on both the sound-absorbing side of the barrier and the community side of the barrier. Methods that involve rolling of any kind to achieve the specified pattern and texture will not be permitted.

2. The formliner used on the sound-absorbing side of the noise barrier that will face the highway shall have an appearance aesthetically uniform in accordance with the existing noise walls (match nearby existing walls).

3. The formliner used on the community side of the noise barrier shall have an

appearance of Random Cut Stone #1106 manufactured by Custom Rock or approved equal by the TDOT Environmental Division. The color of the community side of the noise barrier will be
Federal Spec. No. 36373 gray. Top noise barrier panels shall include a 12-inch-wide smooth band across the top of each panel on both sides. A minimum 1-inch depth of reveal at joints shall be achieved on both the sound-absorbing and community sides of the noise barrier.

4. All posts shall be cut flush with the panel tops.

5. The formliners for both the community side and the highway side of the noise barrier shall be approved by TDOT Environment Division, Hazardous Materials, Air Quality and Noise Section (615-532-9948 or 615-532-8684), TDOT Structures Division (615-741-3351), and TDOT Region 2 Construction (423-892-3430, ext. 6) prior to the manufacture of the demonstration panel for product acceptance as specified below.

7.0 Noise Barrier System Surface Treatment

1. The sound-absorbing side of the barrier shall be stained using a weather-resistant water based acrylic stain approved by the manufacturer of the sound-absorbing material. The color shall be aesthetically uniform in accordance with the existing noise walls (match nearby existing walls).

2. The sides of the noise barrier posts on the sound-absorbing side of the noise barrier shall be texture coated aesthetically uniform in accordance with the existing noise walls (match nearby existing walls).

3. The community side of the noise barrier and the sides of the barrier posts on the community side of the noise barrier shall be texture-coated and have an appearance of Random Cut Stone #1106 manufactured by Custom Rock or approved equal by the TDOT Environmental Division. The color of the community side of the noise barrier will be Federal Spec. No. 36373 gray. Top noise barrier panels shall include a 12-inch-wide smooth band across the top of each panel on both sides.

4. The colors for both the community side and the highway side of the noise barrier shall be approved by TDOT Environment Division, Hazardous Materials, Air Quality and Noise Section (615-532-9948 or 615-532-8684), TDOT Structures Division (615-741-3351), and TDOT Region 2 Construction (423-892-3430, ext. 6) prior to the manufacture of the demonstration panel for product acceptance as specified below.

5. Surface preparation, application rate and application procedure shall be as specified by the stain manufacturer. Surfaces must be clean and free of any contaminants that could prevent good adhesion. Stain shall not be applied when the air temperature is below 45 degrees F or above 90 degrees F, or when the surface is damp, or when weather conditions such as rain, fog or dew would not permit full drying of material.

6. Staining and texture coating shall result in panels and posts that appear uniform in color. The contractor shall obtain approval from the TDOT Environment Division, Hazardous Materials, Air Quality and Noise Section (615-532-9948) that the noise barrier surfaces are uniform in color before ceasing staining of texture coating

operations.

7. The stain and texture coat applications shall be performed either at the production site or the construction site but shall not be applied until after the material is cured. The contractor shall be responsible for any damage to the finish that occurs during shipping and installation. The contractor shall reapply stain and texture coat as needed after installation to correct any problems, in accordance with requirements of the stain manufacturer and the sound-absorbing material manufacturer, and to the satisfaction of the State inspector and the TDOT Environmental Division to ensure color uniformity.

8.0 Demonstration Panel for Product Acceptance

1. The contractor shall cast a sample barrier panel with the approved formliner and color. If the sample meets the requirements of this provision, TDOT will approve the panel and this panel shall serve as a standard for acceptance of subsequent noise barrier panels.
If accepted, the demonstration panel can be incorporated into the completed project.

2. The demonstration panel shall be delivered to the project site. The delivery location should be approved in advance by Environment Division, Hazardous Materials, Air Quality and Noise Section (615-532-9948 or 615-532-8684) and TDOT Region 2 Construction at (423-892-3430, ext. 6).

9.0 Panel Transportation and Installation

1. Written procedures to protect the posts and panels and sound-absorbing material from damage during all phases of transportation and installation shall be incorporated into shop drawing notes. The installer shall consult with manufacturer and/or licensee to determine the proper procedures.

2. The manufacturer and trucking company shall insure that all panels are protected during all aspects of truck loading/unloading and transport to the project installation location. Straps or other devices used to hold the panels in place on the truck shall not make contact with the sound-absorbing material at any time.

3. Panels having deficiencies such as delamination, crumbling, cracking, crazing, scaling, spalling, efflorescence or segregation, or panels having mottling of stain or finish shall be rejected. Prior to installation, the contractor shall inspect delivered product for any defects.

4. Field patching of damage to the sound-absorbing material surface that occurs during installation shall not be permitted unless the contractor can successfully demonstrate such patching in the precast yard by a method approved by the manufacturer of the sound-absorbing material. Any field patching must be accomplished with the same sound-absorbing material as is on the precast panel and must result in a finish that is consistent with the undamaged sound-absorbing material finish.

5. Installation shall be done such that the horizontal joints between panels shall line up from one bay of panels to the next. The panels shall be installed so that they are flush with one another. There shall be no more than a 2-foot difference in top elevations between adjacent panels. Gaps between barrier panels shall not be permitted.

6. Panels that exhibit deficiencies or damage after installation shall be replaced or repaired by the contractor at the discretion of TDOT and to the satisfaction of TDOT at the expense of the contractor.

7. After installation, the contractor shall remove dirt from panels with water.

10.0 List of Possible Suppliers

1. The following are known suppliers of sound-absorbing noise barriers for the contractor's information only. There may be products from other suppliers that will meet the requirements of the plans and this specification.

Durisol
8640 Broad Street
Rural Hall, NC 27045
Phone: 1-866-801-0999
info@durisol.com

Custom Rock Formliner
2020 West 7th Street
St. Paul, MN 55116
Phone: 651-699-1345
Fax: 615-699-1830

Concrete Precast Systems
4215 Lafayette Center Drive, Suite 1
Chantilly, VA 20151
Phone: 703-222-9700
Fax: 703-222-6998
www.cpsprecast.com

Concrete Solutions, Inc.
3300 Bee Cave Road, Suite 650
Austin, TX 78746
Phone: 512-327-8481
Fax: 512-327-5111
csi@soundsorb.com

DESIGN-BUILD
RFP CONTRACT BOOK 3
PROJECT SPECIFIC INFORMATION

TENNESSEE DEPARTMENT OF TRANSPORTATION

I-75 Interchange Modification at I-24, Phase 2 (IA)

Hamilton County- TENNESSEE

CONTRACT NUMBER: DB2101

May 27, 2022

Addendum #1 July 8, 2022

Addendum #2 July 27, 2022

Segment 1

- Reconstruct all concrete pavement and shoulders on I-24 from S Germantown Road to Spring Creek Road with asphalt pavement;
- Replacing the existing median barrier with a 51-inch single slope concrete median barrier from Germantown Rd. to Spring Creek Rd along I-24;
- Reconstruct the existing interstate access ramps between Germantown Road and Spring Creek Road to the configuration shown on the approved IAR with new concrete pavement from the nose of the new physical gore at the ties to I-24 to the nose of the physical gore at the ties to the Terraces;
- Replacing the storm sewer system from Germantown Rd. to Spring Creek Rd along I-24 for a complete operational system designed in accordance with TDOT's Drainage Manual. Drainage structures that can be retained and reused are limited to the following: STA 91+98 – 30" RCP, STA 99+52 – 36" RCP, STA 142+44 – 24" RCP, STA 145+02 – 24" RCP, STA 153+34 – DBL 8x7 RCBC, STA 175+78 (westbound roadway) - 48" RCP, ~~and~~ STA 176+52 (eastbound roadway) - 48" RCP and Ramp O STA 3008+80 – DBL 8x7 RCBC;
- Widening to add an additional lane eastbound and westbound from Germantown Rd. to Moore Rd. and two (2) additional lanes eastbound and westbound from Moore Rd. to Spring Creek Rd along I-24 as shown on the Functional Plans;
- Removal of the existing temporary ramps between Germantown Road and Belvoir Avenue from N Terrace and S Terrace to I-24;
- Adding new noise walls along I-24;
- Replacing the S Moore Road and McBrien Road overpass bridges and approaches including new 6'0" sidewalks on both sides of the roadway, 5'0" bike lanes on both sides of the roadway, 6'0" paved shoulder on both sides of the roadway, a single 11'0" through lane in each direction, a single 11'0" northbound left turn lane, 11'0" southbound left turn lane (dual 11'0" left turn lanes required on S Moore Road), lighting, traffic signals and fencing;
- Full depth repairs as required and milling and resurfacing all existing asphalt pavement on N Terrace and S Terrace from Germantown Road to Spring Creek Road;
- Repairing and stabilizing an existing slide on N Terrace located between Belvoir Avenue and S Moore Road;
- Removing and replacing all guardrail. Installing new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Cleaning and placing new texture coat on all existing median barrier to be retained;
- Replacing all roadway lighting on I-24 between Germantown Road and Spring Creek Road. ~~Replace all roadway lighting on N Terrace and S Terrace between Germantown Road and Spring Creek Road.~~ Replace all roadway lighting on S Moore Road between N Terrace and S Terrace. Replace all roadway lighting on McBrien Road between N Terrace and S Terrace;

- Installing new overhead signs and sign structures and update existing signs and sign structures to the ultimate build configuration as shown in the roll plots for Segment 1; and
- Replacing control access fence at locations detailed in this RFP for Segment 1.

Segment 2

- Widen I-75 northbound and southbound from approximately 400 ft south of the CSX Railroad bridge to the E Brainerd Road interchange;
- Replace the existing I-75 bridge over the CSX Railroad with a new structure (no modifications to the existing structure allowed) ~~with a minimum vertical clearance of 23' 6" above top of rail and shall provide a minimum horizontal clearance to provide offsets from the existing track and one future track without requiring crash walls~~ that meets the minimum horizontal and vertical clearance requirements of the approved Deviation from Standards;
- Reconstruct portions of I-75 necessary to achieve a new vertical profile to accommodate the new bridge over the CSX Railroad with new concrete pavement in accordance with the design criteria. All existing overhead structures to be retained in the area of reconstruction shall be modified to maintain the required minimum vertical clearance of 17' 6". The existing retaining wall along the shoulder of I-75 NB approximately between STA 440+50 and 443+50 shall be modified as required to accommodate the new vertical profile;
- Replacing the existing median barrier with a 51-inch single slope concrete median barrier from approx. 750 ft south of the CSX railroad crossing bridge to approximately 500 ft north of the CSX Railroad bridge (areas of profile change) along I-75;
- Rehabilitating the existing concrete pavement from approx. 300 ft north of the CSX Railroad bridge to East Brainerd Road;
- Removing and replacing all guardrail. Installing new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Cleaning and placing new texture coat on all existing median barrier to be retained on I-75 from 400 ft south of the CSX Railroad bridge to the E Brainerd Road bridge;
- Replacing all lighting on I-75 from 400 ft south of the CSX Railroad bridge to the E Brainerd Road bridge;
- Coordinating utility relocations in Segment 2;
- Relocating and improving ITS facilities in Segment 2;
- Installing new overhead signs and sign structures and update existing signs and sign structures to the ultimate build configuration as shown in the roll plots for Segment 2; and
- Replacing control access fence at locations detailed in this RFP for Segment 2.

3. ROADWAY

The roadway shall be designed to adhere to the latest editions of all appropriate TDOT Roadway Standard Drawings, TDOT Roadway Design Guidelines and Instructional Bulletins, TDOT Drainage Manual, TDOT Traffic Design Manual, TDOT Design CADD Standards, TDOT Survey Manual and the Department accepted AASHTO *Policy on Geometric Design of Highways and Streets,* and *Manual on Uniform Traffic Control Devices (MUTCD)* in effect at the time of procurement.

Microstation and Geopak or OpenRoads Designer (ORD) shall be used in the development of 3D parametric modeling to provide model-centric design deliverables. If the Design-Builder uses ORD, the Design-Builder shall use ORD in accordance with requirements and guidelines provided on TDOT's website:

www.tn.gov/tdot/roadway-design/tdot-cadd-support/tdot-openroads-designer.html

0 GENERAL

The Project shall consist of the following I-24 and I-75 Segments:

Segment 1 (I-24 from S. Germantown Road to Spring Creek Road) shall consist of:

- Reconstruct all concrete pavement and shoulders to asphalt pavement;
- Replace the median barrier with a 51-in single slope concrete median barrier;
- Reconstruct the existing interstate access ramps to the configuration shown in the approved IAR with new concrete pavement from the nose of the new physical gore at the ties to I-24 to the nose of the physical gore at the ties to the Terraces;
- Replace the storm sewer system for a complete operational system designed in accordance with TDOT's Drainage Manual. Drainage structures that can be retained and reused are limited to the following: STA 91+98 – 30" RCP, STA 99+52 – 36" RCP, STA 145+02 – 24" RCP, STA 155+34 – DBL 8x7 RCBC, STA 175+78 (westbound roadway) - 48" RCP, and STA 176+52 (eastbound roadway) - 48" RCP, Ramp O STA 3008+80 – DBL 8x7 RCBC;
- Widening to add an additional lane eastbound and westbound from Germantown Rd. to Moore Rd. and two (2) additional lanes eastbound and westbound from Moore Rd. to Spring Creek Rd. along I-24 as shown on the Functional Plans;
- Removal of the existing temporary ramps between Germantown Road and Belvoir Avenue from N Terrace and S Terrace to I-24;
- Adding new noise walls along I-24;
- Replacing the S Moore Road and McBrien Road overpass bridges and approaches including new 6'0" sidewalks on both sides of the roadway, 5'0" bike lanes on both sides of the roadway, 6'0" paved shoulder on both sides of the roadway, a single 11'0" through lane in each direction, a single 11'0" northbound left turn lane, 11'0" southbound left turn lane (dual 11'0" left turn lanes required on S Moore Road), lighting, traffic signals and fencing;
- Full depth repairs as required and milling and resurfacing all existing asphalt pavement on N Terrace and S Terrace;

- Repairing and stabilizing an existing slide on N Terrace between Belvoir Avenue and S Moore Road;
- Removing and replacing all guardrail. Installing new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Cleaning and placing new texture coat on all existing median barrier to be retained;
- Replacing all roadway lighting on I-24. Replace all roadway lighting on N Terrace and S Terrace. Replace all roadway lighting on S Moore Road between N Terrace and S Terrace. Replace all roadway lighting on McBrien Road between N Terrace and S Terrace;
- Coordinating utility relocations;
- Relocating and improving ITS facilities;
- Installing new overhead signs and sign structures and update existing signs and sign structures to the ultimate build configuration; and
- Replacing control access fence.

Segment 2 (I-75 from approximately 400' south of the CSX Railroad bridge to near the E. Brainerd Road Interchange) shall consist of:

- Widen I-75 northbound and southbound;
- Replace the existing I-75 bridge over the CSX Railroad with a new structure (no modifications to the existing structure allowed) ~~with a minimum vertical clearance of 23' - 6" above top of rail and shall provide a minimum horizontal clearance to provide offsets from the existing track and one future track without requiring crash walls~~ that meets the minimum horizontal and vertical clearance requirements of the approved Deviation from Standards;
- Reconstruct portions of I-75 necessary to achieve a new vertical profile to accommodate the new bridge over the CSX Railroad with new concrete pavement in accordance with the design criteria. All existing overhead structures to be retained in the area of reconstruction shall be modified to maintain the required minimum vertical clearance of 17' 6". The existing retaining wall along the shoulder of I-75 NB approximately between STA 440+50 and 443+50 shall be modified as required to accommodate the new vertical profile;
- Replacing the existing median barrier with a 51-inch single slope concrete median barrier from approx. 750 ft south of the CSX railroad crossing bridge to approximately 500 ft north of the CSX Railroad bridge;
- Rehabilitating the existing concrete pavement from approx. 300 ft north of the CSX Railroad bridge to East Brainerd Road;
- Removing and replacing all guardrail. Installing new guardrail in accordance with TDOT's Roadway Design Guidelines;
- Cleaning and placing new texture coat on all existing median barrier to be retained;
- Replacing all lighting;

performed by the Design-Builder. 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 non-payment for overrun quantities. Prices below shall include all necessary equipment, materials labor and incidentals for work complete in place.

ITEM	TYPE	UNIT	UNIT PRICE	QUANTITY
Uniformed Police Officer	As specified by Special Provision 712DB-PO	HOUR	$60	Hours exceeding 20,000
Temporary Traffic Control	Changeable Message Sign (CMS) Unit	EACH	$6,500	Signs exceeding 15 Note: CMS for PSWZ not included in quantity.
Concrete Repairs	FULL DEPTH PCC PAVEMENT REPAIR	C.Y.	$750	Quantity that exceeds 2,000 C.Y.
	HOT APPLIED FIBER-POLYMER PATCHING MATERIAL	POUND	$4.50	Quantity that exceeds 6500 POUNDs

Design Requirements

Reference DB Standard Guidance: § 9.2.6, 9.2.7 & 2.11.2 The proposed horizontal and vertical alignments of I-75 and I-24 shall be designed and constructed to meet or exceed a minimum 60-mph design speed for a rolling urban freeway. TDOT Design Standards supersede Green Book requirements where applicable.

All proposed ramps shall be designed and constructed to meet or exceed a minimum 45 mph design speed and crossroads shall be designed and constructed to meet or exceed a minimum 30~~45~~-mph design speed for rolling urban freeway. On-ramps that merge into mainline lanes (do not become a continuous lane) shall be designed in accordance with the minimum acceleration length required in the Green Book. In cases where sight distance may be limited by an obstruction between the ramp and the mainline lanes, the minimum length shall be increased to include stopping sight distance as required by the Green Book once the obstruction is cleared plus the minimum acceleration length required.

All ramps: Traffic lanes on ramps with 2 or more lanes shall be 12 ft. wide. Traffic lanes on one-lane ramps shall be 16 ft. wide. Outside shoulders shall be a minimum of 6 ft. wide (stabilized) and inside shoulders shall be a minimum of 4 ft. wide (stabilized).

I-24: Typical section shall consist of 12-ft inside shoulders, 12-ft traffic lanes (one lane draining toward the median barrier with total number of lanes as shown in the Functional Plans), and 12-ft outside shoulder (10-ft stabilized if open shoulder and full width stabilized if adjacent to concrete barrier rail) except in areas where a design exception has been previously approved at the Belvoir Avenue underpass.

Terraces: Existing pavement shall be milled and repaved from S. Germantown Rd to Spring Creek Rd, except the Belvoir Ave intersections. Milling depth shall be a minimum of 1.25". Existing profile and cross slopes can be matched unless required as part of the Design-Builder's construction. Full depth pavement replacement, subgrade repair, and drainage repair will be required in certain locations as shown in the below table.

Location	Approx. Beg STA	Approx. End STA	Repair
North Terrace	90+15	95+70	Full depth pavement replacement and resolve drainage issues. Water ponds on right side of road at bottom of sag.
North of I-24 WB	100+55	102+60	Fix drainage issues at along N. Terrace. Remove/upgrade existing area drainage
North Terrace	104+70	114+85	Full depth pavement replacement, left lane
North Terrace	140+70	144+10	Full depth pavement replacement, left lane
South Terrace	606+50	608+60	Replace guardrail

All local roads and terraces: All disturbed storm sewer manhole lids will be reset to be flush with the pavement in accordance with City of Chattanooga standards. Adjustments to other utilities will be made by the utility company. Existing catch basin grates shall be replaced with bicycle/pedestrian safe grates.

S. Moore Road: Bridge and approach typical sections (between the bridge ends and the Terraces) shall consist of 5 @ 11-ft. traffic lanes, 5-ft. bicycle lane with a 6-ft. buffer (paved shoulder) on both sides of the roadway, and 6-ft. sidewalk on both sides of the roadway. The roadway typical section beyond the Terraces will transition back to the existing conditions using the Department accepted AASHTO *Policy on Geometric Design of Highways and Streets* criteria for tapers/transitions.

McBrien Road: Bridge and approach typical sections (between the bridge ends and the Terraces) shall consist of 4 @ 11-ft. traffic lane, 5-ft. bicycle lane with a 6- ft. buffer (paved shoulder) on both sides of the roadway, and 6-ft. sidewalk on both sides of the roadway. The roadway typical section beyond the Terraces will transition back to the existing conditions using the Department accepted AASHTO *Policy on Geometric Design of Highways and Streets* criteria for tapers/transitions.

I-75: Typical section for widening only shall consist of existing 11-ft inside shoulder (stabilized), 12-ft traffic lanes (total number of lanes as shown in the Functional Plans), 12-ft outside shoulder (10-ft stabilized if open shoulder and full width stabilized if adjacent to concrete barrier rail). Reconstructed roadway for profile changes: Inside shoulder shall be 11-ft wide, 5 travel lanes shall be 12-ft wide (maximum of two lanes draining toward the median barrier) and outside shoulder shall be 12-ft wide (10-ft stabilized).

Vertical clearances over roadways for all alignments (entire roadway width including the full shoulder width) shall have a 16 ft., 6 in. minimum vertical clearance and all overhead sign

structures for all alignments shall have a 17 ft., 6 in. minimum vertical clearance. Vertical clearance over the CSX Railroad shall be a minimum of 23 ft., 6in. over the highest point of existing and future track. Reduction of existing vertical clearances will not be allowed during any construction phases of the Project. This requirement shall include all temporary roadway surfaces used during construction. The Design-Builder shall submit plans as outlined in the TDOT Design Guidelines to the TDOT Structures Division for Grade Approval.

The Design-Builder shall 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. CSX will be responsible for approving clearances relative to the Railroad facilities.

The Design-Builder shall be responsible for preparation of final signed and sealed construction plans used to construct the proposed improvements. They shall be prepared in accordance with TDOT's Design Guidelines and the previous design standards referenced in this section.

If the Design-Builder wishes to change the horizontal or vertical alignment or deems that additional ROW is needed outside of the proposed ROW as shown in the Functional Plans, they shall be responsible for any and all additional environmental technical studies and completion of the re-evaluation of the NEPA document modification and approvals to the Interstate Access Request (IAR), ROW appraisals and acquisitions, utilities coordination/relocation and any permits necessary.

The ramp construction and closures shall be phased in accordance with Special Provision 108B. Access to all side roads shall be maintained throughout the duration of construction except where specifically allowed in Special Provision 108B.

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

The Design-Builder shall ensure that all applicable "General and Special Notes" found in Section VI of the current edition of the TDOT Roadway Design Guidelines are adhered to during construction.

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 in accordance with the requirements of the roadway typical section as shown in the Functional Plans. Design-Builder shall provide hydraulic calculations (including spread calculations) to the Department.

All permanent proposed slopes associated with the roadway shall be sodded.

All existing access-control fence located within the Project limits as shown on the Functional Plans shall be replaced with new access-control fence except in those areas where a noise wall is required, and the fence can be tied to it and maintain a continuous control of access.

Design Requirements

All drainage analysis and design shall be in accordance with the Department's Drainage Manual.

The Design-Builder shall use a 50-year design storm for all new (and existing to remain) storm sewer systems in accordance with the Department's Drainage Manual. However, any new box culverts must be designed with a minimum of 5' vertical height for maintenance purposes.

All drainage systems shall be designed to convey the 50-year storm without overtopping of any existing or proposed drainage or transportation elements.

The Design-Builder shall design culvert outfalls, channels and ditches within the Project limits in accordance with requirements of the Drainage Manual. Appropriate energy dissipation devices shall be designed at culvert outlets to prevent scouring and appropriate channel linings shall be designed such that erosion within and downstream of the channels and ditches is minimized. Energy dissipation devices shall be designed to fit within the existing right-of-way.

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

The Design-Builder shall re-grade existing ditches to remain in-place and disturbed by construction by creating a straight-line profile along the centerline of the channel, as measured along the flow line.

The Design-Builder shall re-establish drainage in situations where sedimentation has changed the flow line from the existing profile. No Work should be done to Waters of the State or US, which might appear to be a ditch, without proper permits.

The Design-Builder shall provide erosion control for the construction Project per the guidelines specified in the Department's Drainage Manual.

The Design-Builder shall design the drainage system to accommodate construction staging. The design shall include temporary erosion control, sediment basins, and other BMPs needed to satisfy NPDES, local municipality, and other regulatory requirements. All environmental approval commitments related to drainage design and erosion control shall be included as "notes" on the plans for each stage of construction.

Existing Drainage Systems

The Design-Builder shall obtain the Department's acceptance to utilize any existing stormwater system (any and all pipes, structures, ditches, detention/retention systems, or any other component necessary for the conveyance of stormwater) within or outside of the Project limits.

The design of stormwater management facilities shall be compatible with existing or any known proposed improvements to drainage systems on adjacent properties and shall preserve existing drainage patterns wherever possible.

If existing drainage patterns must be altered due to a temporary or permanent aspect of the design of the Project, the Design-Builder shall provide documentation of any/all impacts to downstream and/or adjacent properties and/or road crossings for approval prior to alteration of existing drainage patterns. Survey data shall be collected for all downstream/adjacent

properties that are impacted, such as road crossing information, structure damage elevations, and channel cross sections (at a minimum), and shall be used in support of hydraulic calculations for the offsite drainage systems. Engineering analyses and certifications shall be provided to the Department and the local jurisdiction for approval prior to performing the alteration.

The Design-Builder shall acquire all applicable municipal drainage plans, watershed management plans, and records of citizen concerns. The Design-Builder shall acquire all pertinent existing storm drain plans, bridge hydraulic studies, and/or survey data, including data for all culverts, drainage systems, storm sewer systems, and bridge sites within the Project limits. The Design-Builder shall also identify existing drainage areas and calculate the estimated runoff to the highway drainage system. The Design-Builder shall analyze existing storm drainage systems, culverts (boxes and cross pipes), and open channels impacted or affected by the Project design.

Damage to existing infrastructure due to the Design-Builder's operation shall be immediately repaired to maintain existing system capacity and TDOT's Drainage Manual requirements at all times. This permanent repair shall be at the Design-Builder's expense.

The use of blind junctions and/or non-accessible structures shall not be allowed unless otherwise approved in writing by the Department. Manholes shall not be allowed in paved areas unless otherwise approved in writing by the Department. The Design-Builder shall not install and/or utilize longitudinal storm sewer pipes under travel lanes unless otherwise approved in writing by the Department. If no modification or upgrading of the existing stormwater management system is required, the Design-Builder shall, at a minimum, maintain the existing system. This maintenance includes, but is not limited to, silt removal from any pipe, ditch, or structure, and removal of any debris prior to the use of any existing stormwater system. This maintenance shall be at the Design- Builder's expense.

If documentation is not available for certain components of the existing drainage system within the Project limits and these components are planned to remain in place, the Design-Builder shall investigate and video record or photograph these components to determine condition, size, material, location, and other pertinent information.

There are existing floodwalls within the project limits along the north side of I-24 at approximately STA 143+50 to STA 179+00 owned and maintained by the City of Chattanooga. The Design-Builder shall not impact these floodwalls or their functionality either during construction or in the final condition. If the walls or their functionality are impacted, re-certification with FEMA will be required by the Design-Builder.

The Design-Builder shall replace all drainage structures along I-24 for Segment 1 from station 74+00 to station 179+00 for a complete, operational drainage system designed in accordance with TDOT's Drainage Manual. The following pipes may be retained and reused in the new system: STA 91+98 - 30" RCP, STA 99+52 – 36" RCP, STA 142+44 – 24" RCP, STA 145+02 – 24" RCP, STA 155+34 – DBL 8x7 RCBC, STA 175+78 (westbound roadway) – 48" RCP, ~~and~~ STA 176+52 (eastbound roadway) - 48" RCP and Ramp O STA 3008+80 – DBL 8x7 RCBC, unless pipes are deemed hydraulically or structurally deficient.

The Design-Builder can use the existing cross drainage structures for Segment 2 unless corrugated metal pipe (CMP) is existing or if the existing cross drainage structures are deemed

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.

If the Design-Builder uses ORD, the Design-Builder shall provide the following four (4) deliverables as outlined in TDOT's Requirements for Model-Centric Design document (also detailed in the Survey (ORD) training manual Appendix A):

1. Survey file containing 2D graphics imported from the original Field Book(s) (e.g., utilities (plan), pavement edges, buildings, vegetation, etc).
2. Terrain file containing the existing DTM features (e.g., contours, triangles, etc).
3. Alignment file containing the survey preliminary alignment and projected utilities (profile).
4. Utility file containing the existing drainage and utility model (plan).

Note that these do not substitute the survey checklist for field and office procedures, as referenced and outlined in the TDOT Survey Manual, but instead accompanies it and other procedural documents in place.

0 *PAVEMENT DESIGN REPORT*

The Pavement Design Report for this Project has been developed by the Department.

Proposed asphalt and concrete pavements shall be constructed utilizing the pavement designs provided in this report unless otherwise approved by an ATC in advance by the Department. Design-Builder shall place a prime coat complying with TDOT Standard Specifications Section 402 to any untreated or treated flexible base layer unless otherwise approved in advance by the Department. Design-Builder shall place a tack coat complying with TDOT Standard Specifications Section 403 to any previously prepared base or surface course unless otherwise approved in advance by the Department.

For Segments 1, paving on inside shoulders shall be full depth pavement.

For Segment 2, Work on inside concrete shoulders shall include concrete pavement repair and joint repair.

The Pavement Design and minimum criteria for pavement related Alternative Technical Concepts (ATC) are in **Appendix A**, shall include the structural number and designs shall be in accordance with *AASHTO Guide for Design of Pavement Structures 1993*.

bridge median barriers shall be in accordance with Standard Drawing STD-1-3SS. The new bridge on mainline I-75 shall have a split 51-inch bridge median barrier. The modified 51-inch barrier shall be detailed on the bridge plans. An applied texture finish is required on the inside (traffic) face and top of the parapet rail. The color shall be white, AMS STD-595 color No. 37886.

ITS conduits shall be provided inside the barriers when required. The Department will determine if additional conduits will be required for future needs.

For all bridges, the Design-Builder shall perform a hydraulic analysis for bridge deck drainage and shall meet the criteria in the TDOT Design Procedures for Hydraulic Structures. Any conduits proposed for deck drainage shall be encapsulated in the bridge components. No drainage conduits shall be exposed.

Existing utility conduits attached to existing bridges are to be removed and replaced. New and relocated utilities shall be placed between the beams so they are out of view from the traveling public and protected against vehicular impact. Utilities shall not be placed on the cantilevers of new structures. The utilities shall be relocated as indicated by other sections in this RFP.

The replacement bridges for S. Moore Rd. and McBrien Rd over I-24 shall have under bridge lighting to properly light I-24. All electrical conduits required for the bridge and roadway lighting shall be encapsulated in the structure. No electrical conduits shall be exposed.

The Design-Builder shall submit shop drawings for bridge components, erection plans and calculations for concurrence by the Department. For demolition of the existing S. Moore Rd. and McBrien Rd. bridges, the Design-Builder shall submit demolition plans and calculations for concurrence by the Department. The shop drawings, erection plans, and demolition plans shall be submitted in a timely manner allowing ten (10) calendar days for the Department's review.

The Design-Builder shall conduct and submit a load rating analysis for each of the bridges to be widened and new bridges that are to be constructed. The load ratings are to be completed and approved before completion of the Project. They shall be submitted in a format to be concurred with by the Department.

The Design-Builder shall propose a MASH TL-3 guardrail attachment to bridge end detail (to be concurred with by the Department) for locations where the existing guardrail is attached to bridges. The Design-Builder shall perform repairs to existing bridges as shown in the TDOT Bridge Inspection Reports and Deck Surveys included on the Project website. The Design-Builder is to verify the information shown in the above referenced documents.

The Design-Builder shall maintain a 16-foot, 6-inch minimum vertical clearance over travel lanes at all times. Reduction of existing vertical clearances will not be allowed during any construction phases of the Project. The I-75 bridge over CSXT Railroad shall have ~~a minimum vertical clearance of 23' – 6" above the top of rail and shall provide a minimum horizontal clearance to provide offsets from the existing track and one future track without requiring crash walls.~~ that meets the minimum horizontal and vertical clearance requirements of the approved Deviation from Standards.

Place a 51-inch single slope concrete median barrier (reference TDOT Standard Drawing STD-1-3SS).

Place concrete parapets on the new bridges (reference TDOT Standard Drawing STD-1-1SS and Standard Drawing STD-11-1).

All exposed surfaces of the parapets, slab cantilevers, concrete beams surfaces, abutment beams, end walls, wing walls, bent caps, and columns of the bridges shall receive a texture finish, mountain grey, AMS STD-595 Color No. 36440 except the top and traffic face of the parapets which shall be white, AMS STD 595 Color No. 37886.

Drilled shafts shall be constructed according to Special Provision 625 Drilled Shaft Specifications and shall be socketed at least two times the shaft diameter into competent bedrock.

The bridges shall be constructed while maintaining the minimum number of lanes open to traffic during construction as specified in this RFP. The minimum vertical and horizontal clearances shall be maintained during construction as specified in this RFP and TDOT's Standard Specifications for Road and Bridge Construction.

Bridges shall be designed and detailed according to current TDOT Structural Design Guidelines & Memorandums Structural Design Guidelines (tn.gov).

For the I-75 over CSX Railroad Bridge, the Design-Builder shall provide all necessary and pertinent information as outlined in the TDOT Design Guidelines to the State Railroad Coordinator in the preliminary design phase. All railroad coordination, including procurement phase coordination, must be done through the TDOT State Railroad Coordinator. The Design-Builder shall not contact the railroad or any of its representatives directly. TDOT has an approved Deviation from Standard letter from the Railroad for the design included in the Functional Plans. This letter waives the requirement to span the Railroad's right of way. Any deviation from the bridge design shown in the Functional Plans will require a separate Deviation from Standard letter from the Railroad unless the design meets all Railroad and TDOT design criteria.

0 *NOISE BARRIER WALLS*

The Design-Builder shall be responsible for the design and construction of noise barrier walls per the Noise Technical Report dated December 2021, which is included in the approved NEPA document, SP718NB, and Functional Plans. If the Design-Builder elects to design noise walls that vary from that shown in the Noise Technical Report dated December 2021 and the Functional Plans, the altered design must comply with the current TDOT Environmental Procedures manual, Chapter 5 (provided on the project website), and TDOT's Noise Policy, *Policy on Highway Traffic Noise Abatement*. The Design-Builder shall use individuals that meet the qualifications of Section 5.3.4.2 to conduct the required noise studies. The noise barrier walls shall be designed using the AASHTO LRFD Bridge Design Specifications, Edition (2017), Section 15. The Noise Barrier Evaluation includes the preliminary noise barrier design information based on the Functional Plans. The FHWA TNM files are included in the Reference Documents and should be used by the Design-Builder to assess proposed design changes. TDOT will require all revised TNM files to evaluate any modifications to the noise barrier proposed by the Design-Builder.

The Design-Builder shall ensure that all proposed Work is completed within existing Right-of-Way (ROW). The Design-Builder shall be responsible for securing any additional ROW in accordance with Section 7 of **Contract Book 3 (Project-Specific Information).**

The noise barrier shall be continuous within the limits as shown in Noise Technical Report date December 2021, and shall meet the "with barrier" noise reduction levels for each receptor in the Noise Technical Report dated December 2021. Gaps between sections will be allowed to accommodate road crossings or interstate ramps. The Design-Builder shall provide overlap of the noise barrier where horizontal gaps are required. If noise barrier overlap is not feasible due to safety requirements, the Design-Builder shall request a variance from the Department. The Design-Builder shall submit an updated noise study based on their design to the TDOT Environment Division, Hazardous Materials, Air and Noise Section for approval.

~~The top of wall elevation shall not be less than the top of wall elevation as shown in the Noise Technical Report~~. There shall be no more than a 2-foot difference in top elevations between adjacent panels. The bottom of the wall shall not provide any gaps between the wall and the final

grade except as required to accommodate drainage.

Ground-mounted barriers and barriers on bridges shall be connected to ensure no gaps.

The traffic face of the walls shall be absorptive and meet the following requirements:

- Concrete formliners shall be used to achieve the specified pattern and texture on both the highway and community sides of the barrier. Methods that involve rolling of any kind to achieve the specified pattern and texture shall not be permitted.
- A minimum 1-inch depth of reveal at joints shall be achieved on both the highway and community sides of the noise barrier.
- Top noise barrier panels shall include a 12-inch-wide smooth band across the top of each panel on both sides.
- All posts shall be cut flush with the highest adjacent panel.
- The formliners for both the highway and community sides of the noise barrier shall be approved by the TDOT Environmen~~tal~~ Division, Hazardous Materials, Air Quality and Noise Section (~~Tammy Sellers, 615.741.5367~~615-532-9948 or 615-532-8684), TDOT Structures Division (~~Robert Lefevre, 615.741.0798~~615-741-3351), and TDOT Region 2 Construction (423-892-3430 ext. 6) prior to the manufacture of the noise wall panels.
- The highway side of the noise barrier shall be Architectural Polymers #905O Small Aged Ohio Ashlar or an approved equal. Four custom form liners, each with a unique pattern, (5’ X 10’) shall be developed with 20” tall coursing and 2” average joint relief.
- The Design-Builder shall apply an Anti-Graffiti product to the highway side of the Noise Wall. The product must be on TDOT’s QPL 26 list and be intended for wall applications. It must be applied in accordance with the manufacturer’s specifications.
- The highway side of the noise barrier (including posts) shall be texture coated to match other structures.
- The formliner used on the community side shall be Random Cut Stone #1106 manufactured by Custom Rock or an approved equal.
- The community side of the noise barrier (including posts) shall be texture coated using Federal Standard Color 36373.
- Texture coating shall be applied to ensure all panels and posts appear uniform in color. Several applications shall be applied to ensure all color uniformity. The Design-Builder shall obtain approval from TDOT Region 2 that the noise barrier surfaces are uniform in color before ceasing texture coating operations.
- The Design-Builder shall cast a sample barrier panel with the approved formliners and colors. If the sample meets the requirements of this provision, TDOT will approve the panel and this panel shall serve as a standard for acceptance of subsequent noise barrier panels. If accepted, the demonstration panel can be incorporated into the completed Project.
- The demonstration panel shall be delivered to the Project Site. The delivery location shall be approved in advance by the TDOT Environmental Division and Region 2 Construction Division.
- The Design-Builder shall insure all panels are protected during all aspects of truck loading/unloading and transport to the Project installation location.
- The panels shall be flush with one another; gaps between barrier panels shall not be permitted.
- The horizontal joints between panels shall line up from one bay of panels to the next. Horizontal joints shall have tongue-and-groove configurations.
- No gaps shall exist between the base of the barrier panels and the ground except as required to accommodate drainage.

Utility	Owner	Contact	Phone Number Email Address
Telephone	AT&T	Joe Perrel	O:423-266-1566 M:423-488-2825 Jp1389@att.com
Electric and Fiber	Electric Power Board of Chattanooga	~~David Henderson~~ Brad Smith	O:423-648-3~~257~~324 M:~~423-802-7562~~ ~~Henderson~~desmithjb@epb.net
Water	TN American Water	Grady Stout OR Caroline Archer	O:423-771-4713 M:423-486-5879 Grady.stout@Amwater.com OR 423-596-9081 Caroline.Archer@amwater.com
Sewer	Hamilton County W&WW Treatment Authority	Michael Patrick OR Eric Brooks	423-209-7842 Mpatrick@HamiltonTN.gov OR 423-762-4120 ericb@HamiltonTN.gov
Sewer	City of Chattanooga, Public Works	Dennis Malone OR Bill Payne	O:423-643-6188 M:423-421-5035 dmalone@chattanooga.gov OR 423-643-6160 bpayne@chattanooga.gov
Gas	Chattanooga Gas	Brandon Stephens OR Socrates Alvarez	O:404-584-3915 M:404-323-4038 bstephen@southernco.com OR 423-661-4528 ssalvare@southernco.com
CATV	Comcast/Xfinity	Tim Gregory	706-252-4185 Tim_gregory@comcast.com
Electric	TVA	Stephen Williams	862-255-6272 sewilliams@tva.gov
Fiber	ATT Long Distance	Trina Ivey	678-641-5522 Ki2863@att.com
Telephone	Centurylink-Lumen	Jim Arterburn	423-626-6882 Jim.arterburn@Centurylink.com
Fiber	Zayo Group	Amber Bell	423-598-2937 Amber.bell@zayo.com
Petroleum	Plantation Pipeline Company	Tom Bickel	770-330-1696 Tom_Bickel@Kindermorgan.com
	Colonial Pipeline Company	Kevin Raley	706-891-7584 kraley@colpipe.com

agreements are available from the Department.

Sampling, testing, monitoring and reporting shall be performed by the Design-Builder in accordance with standard industry practices for water, wastewater, oil, and gas and in accordance with the Utility Owners standard specifications and requirements.
For the I-75 over CSX Railroad Bridge, design and construction activities shall be in accordance with the Special Provision 105C Protection of Railroad Property, Railroad Flagging and Insurance requirements as included in Contract Book 2 (Design-Build Contract), the current CSX Public Project Information manual as included in the Reference Documents, and the Design-Build Standard Guidance.

0 *CONSTRUCTION REQUIREMENTS*

The Design-Builder shall provide all necessary protective measures to safeguard existing utilities from damage during construction of this Project. In the event that special equipment is required to work over and around the utilities, the Design-Builder shall be required to furnish such equipment.

Any damage to the existing facilities associated with the construction activities shall be the sole responsibility of the Design-Builder to repair the damaged utility at no additional cost to the Department or the respective Utility Owner.

Temporary pavement line markings shall be reflective tape or reflectorized paint installed to permanent standards at the end of each day's Work. Short, unmarked sections will not be allowed.

Prior to opening to traffic the Design-Builder shall meet the following requirements: i) temporary pavement marking on detours, lane shifts and median cross-overs shall be installed and maintained to the same standards as for permanent markings on the main roadway, ii) transitional markings on the existing roadway must be in place and all existing markings in the area of these transitional markings shall be obliterated and all existing raised pavement markers shall be removed to eliminate conflicting markings and iii) all temporary lane shifts and detours shall be paved, striped, signed and the vertical panels are to be in place.

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.

The Design-Builder shall provide acceleration distance meeting Green Book requirements for temporary ramps where distance is available.

All temporary pedestrian detours shall be ADA compliant.

Temporary Modification of Existing Signals

The Design-Builder may make modifications to existing traffic signals within the Project Limits to accommodate detours, construction, incidents, etc. with prior approval from TDOT and City of Chattanooga and/or City of East Ridge. The Design-Builder shall install video detection used for temporary signals that can be integrated into the City of Chattanooga's ITS system. Any modifications must be restored to their original or proposed condition.

Temporary Signage

All temporary signage shall be in accordance with *TDOT Standard Specifications for Road and Bridge Construction*, TDOT Standard Drawings, TDOT Standard Traffic Operations Drawings, *TDOT Traffic Design Manual*, *TDOT Design Guidelines*, *TDOT Work Zone Safety and Mobility Manual*, and the latest edition of the *Manual of Uniform Traffic Control Devices*.

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.

Emergency Signage

All existing "emergency reference markers" and "hospital signs" shall be maintained within full view of the motoring public throughout all phases of construction.

Tourist Oriented Directional Signs (TODS)

All existing "Tourist Oriented Directional Signs" shall be maintained within full view of the mo~~ni~~toring public throughout all phases of construction.

Construction Work Zone

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

Bridge Deck Preparation for Traffic during Phased Construction

Design-Builder shall provide skid resistance prior to opening any bridge decks to traffic. The deck and approaches shall be ground for rideability in accordance with TDOT Standard Specifications when the entire bridge is complete.

Pavement Edge Drop-off Traffic Control

Differences in elevation between adjacent traffic lanes or traffic lane and shoulder where the traffic lane is being used by traffic, caused by base, paving or resurfacing:

- Differences in elevation between adjacent roadway elements greater than 0.75 inch and not exceeding 1.75 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 2,000 feet with a minimum of 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 workdays.
    - Differences in elevation between adjacent traffic lanes being utilized by traffic caused by cold planing shall be eliminated within three workdays.
    - 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 workdays after the condition is created.
- Differences in elevation between adjacent roadway elements greater than 1.75 inches and not exceeding 6 inches, traffic is not to be allowed to traverse this difference in elevation.
    - Separation shall be accomplished by drums, barricades or other approved devices in accordance with the following:
        - Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.
        - Where posted speeds are less than 50 mph, the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater.

11. MISCELLANEOUS

0 *CHATTANOOGA AIRPORT – HEIGHT RESTRICTIONS*

The Project is in the immediate proximity of the Chattanooga Airport and in-line with the runway glide slope. Height restrictions may apply to proposed structures including but not limited to bridges, lighting (including poles), ITS devices, utilities, and overhead signing. Height restrictions may also apply to construction equipment including but not limited to cranes.

The Design-Builder shall be responsible for filing notice with the FAA for all construction activities, proposed structures, or alterations that may affect navigable airspace. The Design-Builder shall file a Notice of Proposed Construction or Alteration (FAA Form 7460-1) and provide copies to the Department of all filings. Guidance can be found on the FAA website.

0 *CONSULTANT FIRM EXCLUSIONS FROM CEI SERVICES*

No members of the consulting firm, its subsidiaries, its affiliates, and sub-consultants shall be selected for CEI services on a design-build project if they are a part of ~~a~~ the awarded design-build team. Any consultant firm that was selected for procurement development of the RFP and functional plans is ineligible to submit for CEI services on the design-build project as a prime or sub-consultant. Firms performing preliminary studies and reports that had no direct role in development of the RFP document are eligible to submit.

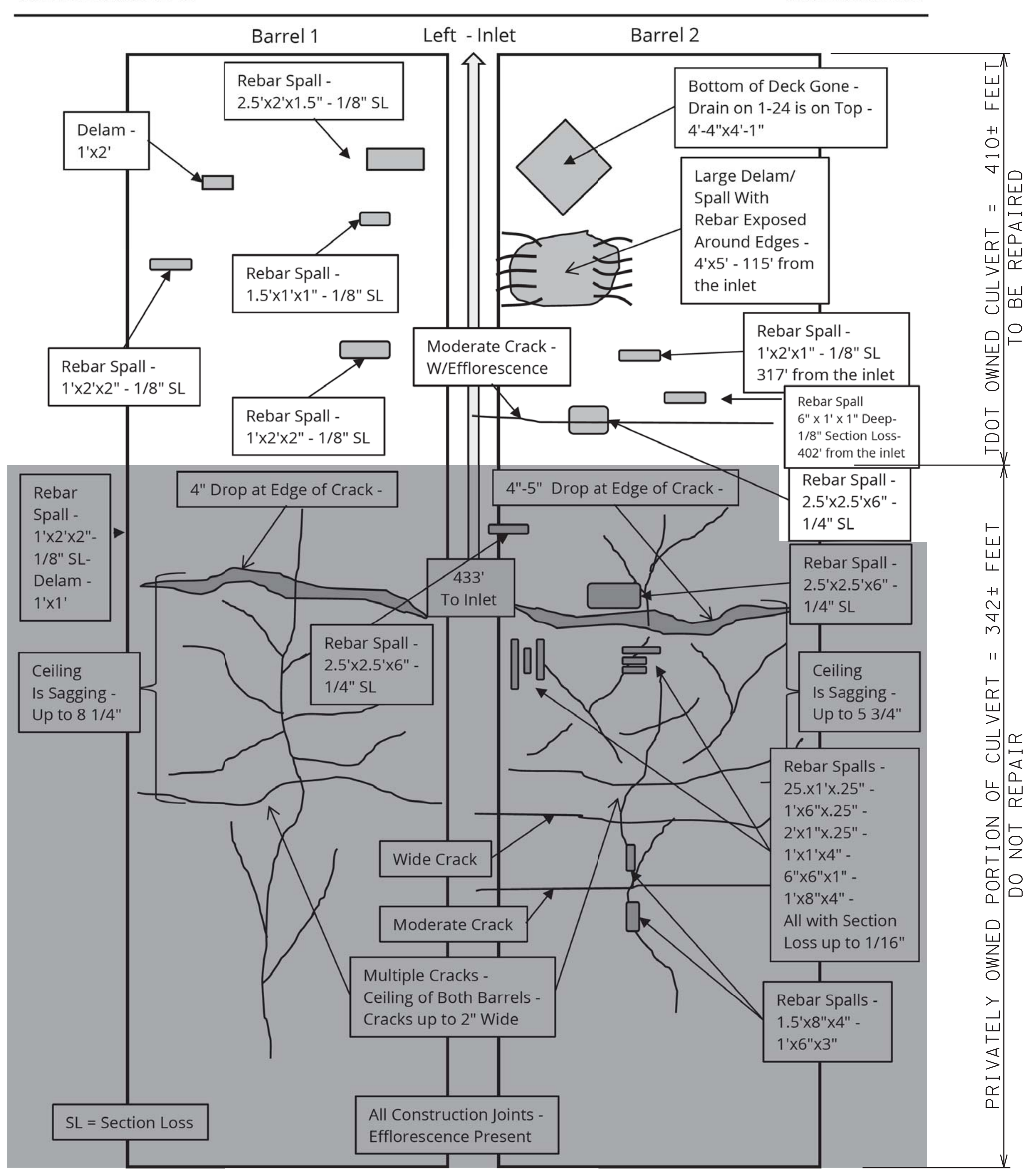
Appendix B: Box Culvert Repair Recommendations

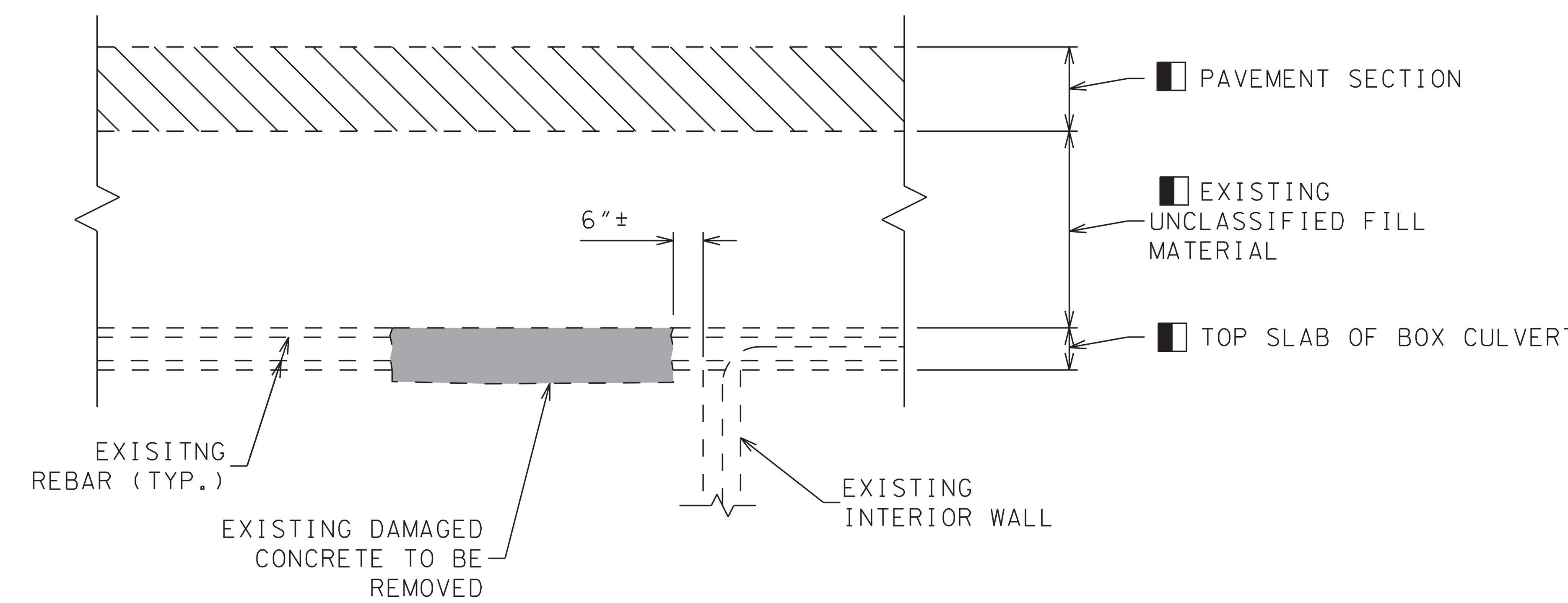
FED. AID. PROJ. NO.: NH-I-75-1(155)

PROJECT NO.	YEAR	SHEET NO.
33I075-F0-006	2022	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION





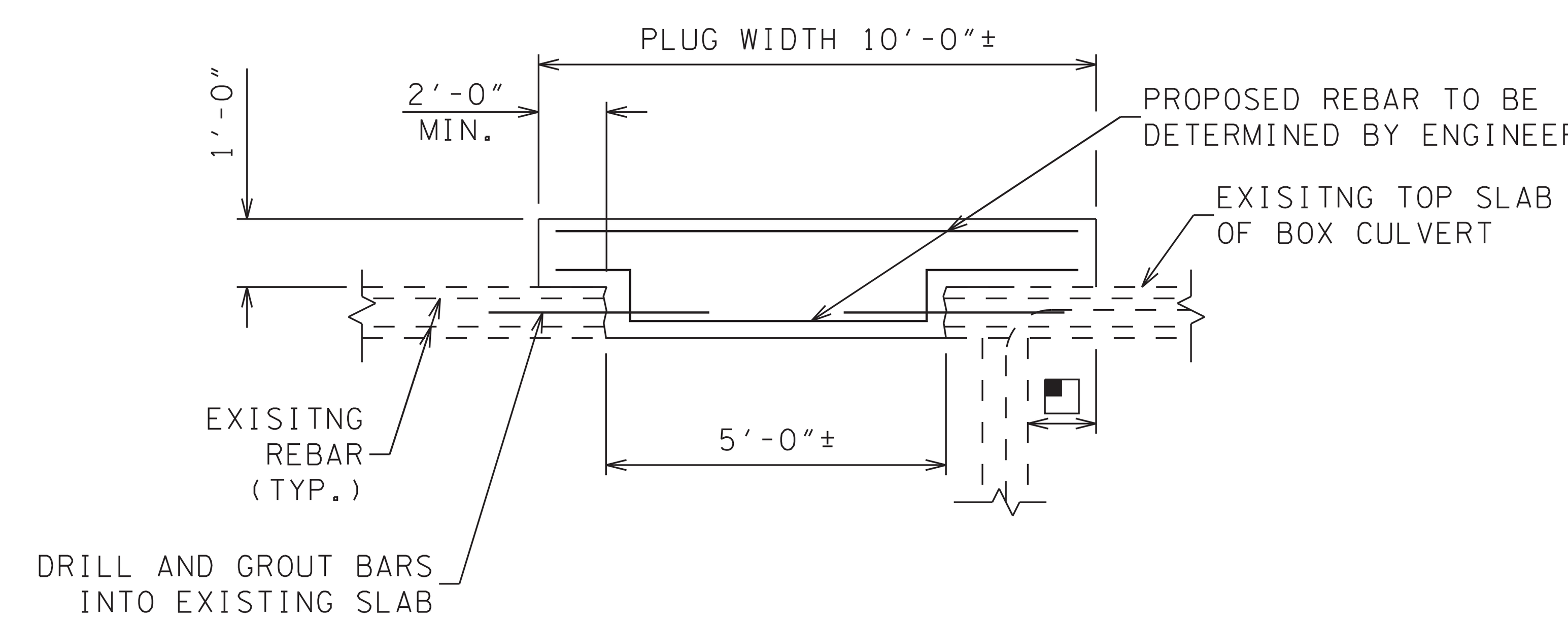
TYPICAL SECTION TOP OF BOX CULVERT

SHOWING 4'x5' DELAM/SPALL
LOCATED 115' FROM INLET
NOT TO SCALE

NOTE: CONTRACTOR SHALL EXCAVATE THRU INTERSTATE 24 AND EXISTING FILL IN ORDER TO EXPOSE THE TOP LARGE DELAM/SPALL (LOCATED AT 115FT FROM THE INLET). THE WORK SHALL BE COORDINATED WITH LANE CLOSURES ON INTERSTATE 24. THE DEPTH OF PAVEMENT SECTION, FILL, AND TOP SLAB ARE UNKNOWN.

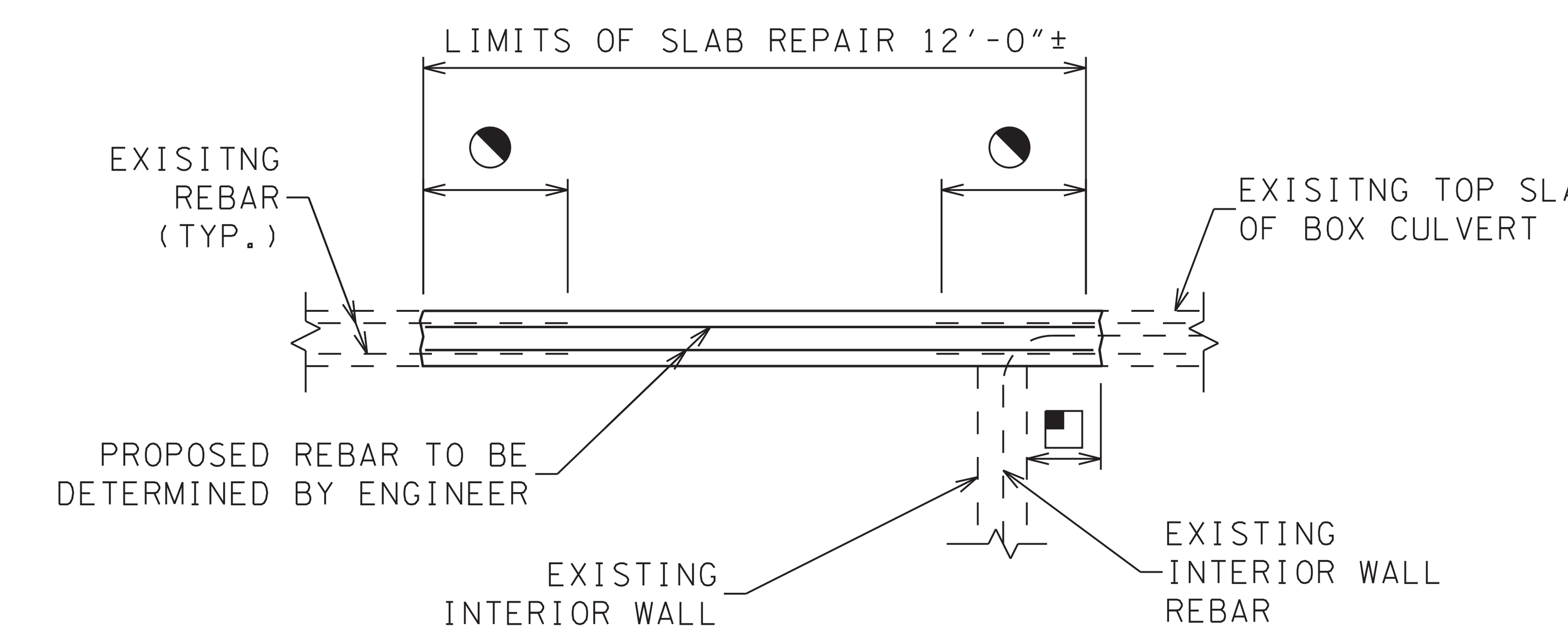
NOTE: CONTRACTOR SHALL EXPOSE THE EXISTING REBAR TO FULLY DEVELOP A SPLICE WITH NEW REBAR. THE EXISTING REBAR SIZES ARE UNKNOWN AND WILL NEED TO BE DETERMINED IN THE FIELD.

NOTE: CONTRACTOR SHALL CAST PLUG OR FULL DEPTH SLAB A MINIMUM OF 2'-0" PAST FACE OF INTERIOR WALL.



REPAIR OPTION 1

SHOWING SHOWING CAST-IN-PLACE PLUG
LOCATED 115' FROM INLET
NOT TO SCALE



REPAIR OPTION 2

SHOWING FULL DEPTH SLAB REPLACEMENT
LOCATED 115' FROM INLET
NOT TO SCALE

GENERAL CONCRETE REPAIR NOTES:

1. CONCRETE REPAIR AREAS SHALL BE LOCATED BY THE ENGINEER.
2. REPAIR AREAS OF SPALLED OR DELAMINATED CONCRETE ON TOP SLAB AND SIDE WALLS OF BOX CULVERT WITH QUICK SET PATCHING MATERIAL AND/OR HIGH EARLY STRENGTH CONCRETE.
3. THE AREAS TO BE REPAIRED SHALL BE SUFFICIENTLY LARGER THAN THE SPALLED AREAS TO ENSURE THAT PATCHES EXTEND INTO SOUND CONCRETE. SEE BRIDGE REPAIR DETAILS ON SHEET BR-2 FOR LIMITS OF CONCRETE REPAIR.
4. UNSOUND CONCRETE SHALL BE REMOVED TO A MINIMUM DEPTH OF ¾" BEHIND EXISTING REINFORCEMENT.
5. COST OF REMOVING ALL UNSOUND AND DETERIORATED CONCRETE, PLACING OF NEW CONCRETE, AND ALL LABOR AND MATERIALS NECESSARY FOR COMPLETING THE WORK SHALL BE INCLUDED IN OTHER ITEMS BID ON.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING REPAIRS, INCLUDING TEMPORARY SHORING. COST OF SHORING, IF REQUIRED, TO BE INCLUDED IN OTHER ITEMS BID ON.
7. SEE DRAWING BR-2 FOR MORE DETAILS OF SPALLED CONCRETE REPAIR.

PROCEDURE FOR CONCRETE REPAIRS DEEPER THAN 3 INCHES:

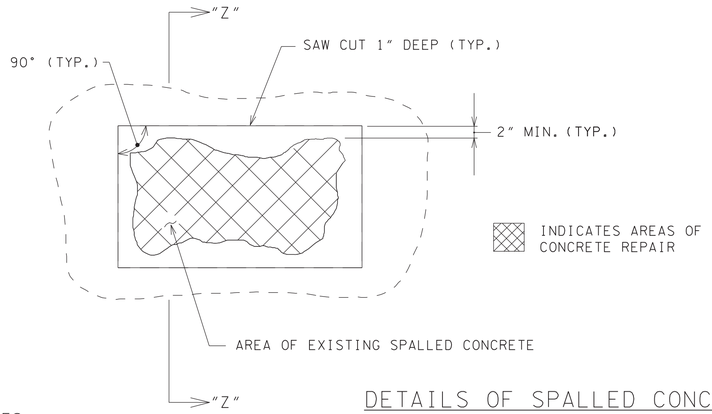
1. SAW CUT RECTANGULAR AREA (ONE INCH DEEP) FOR LENGTH (HORIZONTALLY AND VERTICALLY) AS NEEDED TO OBTAIN MINIMUM SPLICE LENGTH SHOWN IN NOTE 3.
2. CLEAN EXISTING REINFORCING STEEL PRIOR TO PERFORMING SPLICE REPAIRS.
3. SPLICE NEW IN-KIND REINFORCING STEEL AS DIRECTED BY ENGINEER.
4. IF A PORTION OF EXISTING BAR HAS EXCESSIVE LOSS OF SECTION, A NEW BAR SHALL BE SPLICED TO THE EXISTING BAR. FOLLOW TDOT SPLICE REQUIREMENTS.
5. POUR BACK TO ORIGINAL LINES WITH HIGH EARLY STRENGTH CONCRETE ACCORDING TO DETAILS ON SHEET BR-2 AND MANUFACTURER'S SPECIFICATIONS.

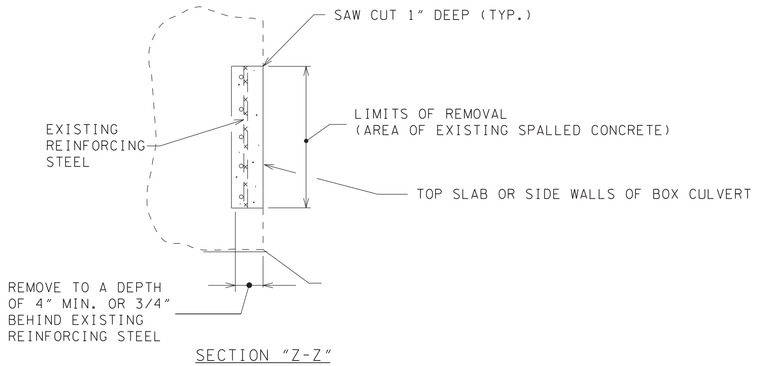
DESIGNED BY	---	DATE	----
DRAWN BY	JMT	DATE	07/2022
SUPERVISED BY	WHP	DATE	07/2022
CHECKED BY	WHP	DATE	07/2022

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BOX CULVERT REPAIR
DETAILS (1 OF 2)

INTERSTATE 24 (EB & WB) AND
MCBRIEN RD. OVER BRANCH
BRIDGE NO 33-I0024-13.58
FED. ID NO.:33I00240075
HAMILTON COUNTY
2022





SECTION "Z-Z"

FED. AID. PROJ. NO.: NH-I-75-1(155)

PROJECT NO.	YEAR	SHEET NO.
331075-F0-006	2022	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

DETAILS OF SPALLED CONCRETE SURFACE AND REPAIR

NOTES:

EXTREME CARE SHALL BE TAKEN WHEN REMOVING THE EXISTING SPALLED OR DELAMINATED CONCRETE SO AS NOT TO DAMAGE THE EXISTING REINFORCING STEEL. ALL EXPOSED REINFORCING SHALL RECEIVE A COMPLETE CLEANING TO REMOVE ALL RUST. ALL EXISTING REINFORCEMENT SHALL REMAIN IN PLACE AND INCORPORATED INTO THE NEW CONSTRUCTION. ALL WORK MUST MEET WITH THE FULL APPROVAL OF THE ENGINEER.

LIMITS AND LOCATION OF REPAIRS TO BE DESIGNATED BY THE ENGINEER. ALL UNSOUND CONCRETE IN THESE AREAS SHALL BE REMOVED AND REPOURED WITH PATCHING MATERIAL. THE MINIMUM DEPTH OF REPAIR SHALL BE 4 INCHES. DEPTH MAY BE INCREASED TO EXTEND INTO SOUND CONCRETE AS DIRECTED BY THE ENGINEER. EDGES OF THE REPAIR AREAS SHALL HAVE A MINIMUM 1 INCH SAW CUT PERPENDICULAR TO THE FACE OF THE CONCRETE.

PATCHING MATERIAL FOR REPAIRS LESS THAN 3 INCHES DEEP SHALL BE POLYMER MODIFIED CEMENTITIOUS STRUCTURAL PATCHING MATERIAL FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST 13.009,POLY MOD CEMENT STRUCT PATCH VERT & OVER, PATCHING MATERIAL FOR REPAIRS DEEPER THAN 3 INCHES SHALL BE RAPID SET HIGH EARLY STRENGTH CEMENTITIOUS PATCHING MATERIAL. PATCHING MATERIALS SHALL BE FROM THE TENNESSEE DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST 13.004, RAPID SET CEMENTITIOUS PATCHING MATLS.

SAW CUT EXISTING CONCRETE SURFACES SO AS TO OBTAIN SQUARED CORNERS.

NOTES:

POWER DRIVEN HAND TOOLS USED FOR THE REMOVAL OF UNSOUND CONCRETE ARE SUBJECT TO THE FOLLOWING RESTRICTIONS.

1) PNEUMATIC HAMMERS HEAVIER THAN A 35 LB. CLASS SHALL NOT BE USED.
2) CHIPPING HAMMERS OF THE 15 LB. CLASS SHALL BE USED TO REMOVE CONCRETE FROM BEHIND THE REINFORCING STEEL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING REPAIRS. DETAILS OF ANY TEMPORARY SUPPORT SYSTEM (IF REQUIRED) SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND SHALL MEET WITH THE FULL SATISFACTION OF THE ENGINEER BEFORE REPAIRS HAVE BEGUN. COST TO BE INCLUDED IN ITEMS BID ON.

COST OF REMOVING DETERIORATED CONCRETE, CLEANING EXISTING REINFORCING STEEL, FORMING, PATCHING MATERIAL AND ALL ADDITIONAL MATERIALS AND LABOR NECESSARY TO COMPLETE REPAIRS SHOWN IN THIS DETAIL TO BE INCLUDED IN OTHER ITEMS BID ON.

NOTES FOR EPOXY INJECTION:

UNLESS OTHERWISE NOTED, THE INTENT OF THIS SPECIFICATION IS FOR DESIGNATED CRACKS TO BE INJECTED THEIR FULL LENGTH AND DEPTH.

DESIGNATED CRACKS SHALL BE INJECTED WITH AN APPROVED EPOXY RESIN ADHESIVE FILLING ALL VOIDS FOR THE CRACK DEPTH OR THICKNESS OF THE MEMBER. THE EPOXY RESIN ADHESIVE SHALL BE ON THE CURRENT QUALIFIED PRODUCTS LIST MAINTAINED BY THE DIVISION OF MATERIALS AND TEST. ALL CRACKS SHALL BE INJECTED USING AN ADHESIVE SUITABLE FOR THE FIELD CONDITIONS (CRACK WIDTH, TEMPERATURE, HUMIDITY, ETC.) RECOMMENDED BY THE ADHESIVE MANUFACTURER AS SHOWN ON MATERIAL DATA SHEETS. FOLLOWING INJECTION, ALL INJECTION PORTS AND CAPPING MATERIAL SHALL BE REMOVED FROM EXPOSED SURFACES LEAVING THE SURFACE SMOOTH AND FLUSH WITH THE SURROUNDING CONCRETE SURFACES.

THE CONTRACTOR SHALL HAVE SUFFICIENT EXPERIENCE AND TRAINING TO PERFORM THE EPOXY INJECTION IN ACCORDANCE WITH THESE PLANS. PRIOR TO PERFORMING ANY WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A WRITTEN PROCEDURE FOR PERFORMING THE EPOXY INJECTION. THE PROCEDURE SHALL DESCRIBE IN DETAIL HOW THE WORK WILL BE PERFORMED. THE PROCEDURE SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING INFORMATION.

1) DESCRIPTION OF EQUIPMENT
   - A. THE INJECTION EQUIPMENT SHALL BE OF THE TYPE THAT MIXES ADHESIVE COMPONENTS AT THE INJECTION HEAD.
   - B. THE INJECTION EQUIPMENT SHALL BE CAPABLE OF DISCHARGING MIXED ADHESIVE AT ANY PRESSURE UP TO 300 PSI. THE INJECTION EQUIPMENT SHALL BE EQUIPPED WITH GAUGES WHICH CAN MEASURE THE INJECTION PRESSURE AND VOLUME.
2) EQUIPMENT CALIBRATION PROCEDURES AND SCHEDULE.
3) MATERIALS TO BE USED (INCLUDING MANUFACTURER DATA SHEETS).
   - A. CAPPING MATERIAL
   - B. EPOXY ADHESIVE (TYPE TO BE APPROPRIATE FOR CRACK SIZES TO BE INJECTED).
4) PORT SPACING
   - A. PORT SPACING SHALL NOT BE LESS THAN THE THICKNESS OF THE CONCRETE IN THAT LOCATION.
5) INJECTION SEQUENCE
   - A. INJECTION SHALL PROCEED FROM LOWER END OF CRACK ALONG ADJACENT PARTS.
   - B. SKIPPING OF PORTS DURING INJECTION SHALL NOT BE ALLOWED.

THE CONTRACTOR SHALL HAVE THE MANUFACTURER'S INSTRUCTIONS FOR PROPORTIONING AND MIXING AVAILABLE AT THE JOB SITE AT ALL TIMES AND SHALL ENSURE THAT THE EQUIPMENT IS SUPPLYING THE MIXED ADHESIVE IN THE CORRECT PROPORTIONS.

TO ENSURE PROPER MIXING AND PROPORTIONING, SAMPLES SHALL BE TAKEN FROM THE INJECTOR HEAD. SAMPLES SHALL BE TAKEN AT THE START OF EACH WORKDAY AND EACH TIME THE ADHESIVE RESERVOIRS ARE REFILLED. THE SAMPLES SHALL BE IN A TEST CUP. THE SAMPLE SHALL BE MONITORED TO ENSURE THAT THE CURE TIME IS IN COMPLIANCE WITH THE MANUFACTURER'S DATA SHEET. IF THE SAMPLES DO NOT CURE IN THE SPECIFIED TIME THEN THE EQUIPMENT USED TO PRODUCE THE SAMPLE SHALL NOT BE USED UNTIL THE PROBLEM IS CORRECTED.

CORE SAMPLES SHALL BE TAKEN AS VERIFICATION OF THE QUALITY OF WORK. THE CONTRACTOR SHALL TAKE ONE (1) ONE (1) INCH DIAMETER (FULL DEPTH OF CONCRETE AT LOCATION CORED) CORE SAMPLE STARTING WITH THE FIRST REPAIR LOCATION THEN EVERY 3RD REPAIR LOCATION AFTERWARDS. WORK SHALL NOT PROCEED UNTIL THE CORE SAMPLE IS TAKEN AND ACCEPTED. ALL CORE SAMPLES AND HOLES SHALL BE INDEXED FOR FUTURE REFERENCE. THE ENGINEER SHALL DESIGNATE ALL LOCATIONS TO BE CORED. IF ANY CORES SHOW UNACCEPTABLE RESULTS, ALL WORK SHALL BE STOPPED UNTIL THE CONTRACTOR SUBMITS A PROPOSAL FOR CORRECTING UNACCEPTABLE WORK.

THE INITIAL CORE WILL ALSO SERVE TO QUALIFY THE FOREMAN OF THIS WORK. IF AT ANY TIME A NEW FOREMAN IS USED, HE SHALL BE QUALIFIED WITH A CORE SAMPLE.

THE CONTRACTOR, AT HIS EXPENSE, SHALL REPAIR ALL CORE HOLES WITH AN APPROVED CEMENTITIOUS PATCHING MATERIAL.

CORE SAMPLES SHALL BE VISUALLY INSPECTED TO CONFIRM THAT CRACKS ARE COMPLETELY FILLED WITH ADHESIVE. ANY CORE HAVING LESS THAN 95% OF THE CRACK FILLED WITH ADHESIVE SHALL BE CONSIDERED UNACCEPTABLE AND BE REJECTED.

CORE SAMPLES SHALL BE TESTED FOR BOND STRENGTH. SAMPLES MAY BE FRACTURED BY HAMMER BLOW TO CRACK AREA OR THROWN AT A HARD SURFACE. IF ADHESIVE FAILURE OCCURS BEFORE CONCRETE FAILURE, THE CORE SHALL BE CONSIDERED UNACCEPTABLE AND REJECTED.

PAYMENT FOR EPOXY INJECTION CRACK REPAIR SHALL INCLUDED IN OTHER ITEMS BID. THE WORK SHALL INCLUDE: COST OF ALL LABOR AND MATERIALS (EXCEPT ADHESIVE) FOR GRINDING AND FOR SURFACE PREPARATION, CRACK PREPARATION, CAPPING, INJECTION OF ADHESIVE, ALL SAMPLING AND TESTING, REMOVAL OF CAPPING MATERIAL AND PORTS, ADHESIVE MATERIAL INJECTED, AND OTHER INCIDENTALS. CRACKS SHALL BE MEASURED FOR PAYMENT ALONG THE LENGTH OF THE VISIBLE SURFACE CRACK.

NO PAYMENT SHALL BE MADE FOR REWORK DEEMED NECESSARY BY FAILURE OF ADHESIVE SAMPLES OR CORE SAMPLES.

ALL WORK INCLUDING SAMPLING AND TESTING SHALL BE IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE OR CONTRACT INSPECTORS. ANY WORK DONE WITHOUT INSPECTORS PRESENT SHALL NOT BE PAID FOR. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH WEEKLY SCHEDULES OF WORK TO BE PERFORMED. SCHEDULES SHALL BE SUBMITTED AT LEAST THREE (3) DAYS IN ADVANCE OF WORK TO BE DONE. THE ENGINEER SHALL BE NOTIFIED OF ANY CHANGE IN THE SCHEDULE A MINIMUM OF TWENTY-FOUR (24) HOURS IN ADVANCE OF CHANGE.

SEE BR-1 FOR ESTIMATED CRACK LOCATIONS TO RECEIVE EPOXY FOR THE BOX CULVERT.

DESIGNED BY	---	DATE ----
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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

BOX CULVERT REPAIR DETAILS (2 OF 2)

INTERSTATE 24 (EB & WB) AND MCBRIEN RD. OVER BRANCH
BRIDGE NO 33-I0024-13.58
FED. ID NO.:33I00240075
HAMILTON COUNTY
2022