

ODOT  
DESIGN BUILD  
SCOPE OF SERVICES

PID: 115388 State Project Number: 481288  
County: Greene Route: US 68 Section: 12.65

- 1 PROJECT IDENTIFICATION & GENERAL INFORMATION..... 4
  - 1.1 Design Designation..... 4
  - 1.2 Existing Plans and Project Information ..... 5
  - 1.3 Railroad Coordination ..... 7
  - 1.4 Airway/Highway Clearance ..... 7
- 2 PRE-BID MEETING ..... 7
- 3 CONTRACTOR PRE-QUALIFICATION ..... 7
- 4 DESIGNER..... 8
- 5 SCOPE OF WORK..... 9
  - 5.1 Interim Completion Date Requirements ..... 10
- 6 FIELD OFFICE..... 11
- 7 GENERAL PROVISIONS FOR THE WORK ..... 11
  - 7.1 Governing Regulations ..... 11
  - 7.2 CADD files supplied by the DBT ..... 12
  - 7.3 Pre-Award Conference ..... 13
  - 7.4 Partnering Agreement..... 13
  - 7.5 Communication..... 14
    - 7.5.1 Task Force Design Meetings..... 14
  - 7.6 Permits ..... 14
  - 7.7 Entry on Private Property..... 15
- 8 ENVIRONMENTAL ..... 15
  - 8.1 NEPA & Environmental Commitments..... 15
  - 8.2 Environmental Permits..... 17
  - 8.3 Temporary Sediment and Erosion Control..... 18
  - 8.4 Regulated Materials ..... 19
    - 8.4.1 Asbestos..... 19
  - 8.5 Ecological ..... 21
  - 8.6 Cultural Resources ..... 22
  - 8.7 4(f) ..... 22
  - 8.8 Unhoused Populations ..... 22
  - 8.9 Noise Analysis and Noise Barriers..... 22
- 9 RIGHT OF WAY (ROW) ..... 22
  - 9.1 Temporary Easements..... 23

|        |  |    |
|--------|--|----|
| 10     | UTILITIES.....   | 23 |
| 10.1   | .Existing Utilities.....   | 23 |
| 10.2   | Utility Coordination Responsibilities .....                          | 24 |
| 10.3   | Subsurface Utilities Engineering (SUE).....                          | 25 |
| 11     | MAINTENANCE OF TRAFFIC (MOT).....                                    | 25 |
| 11.1   | General .....  | 25 |
| 11.2   | MOT Requirements.....  | 26 |
| 11.3   | Traffic Engineering Manual Notes .....                               | 27 |
|        | SURVEY.....  | 28 |
| 12     | PAVEMENT .....   | 29 |
| 13     | ROADWAY.....   | 30 |
| 13.1   | Design Exceptions.....   | 32 |
| 13.2   | Interchange Modification/Justifications Studies .....                | 32 |
| 14     | DRAINAGE.....  | 32 |
| 15     | Geotechnical .....   | 36 |
| 15.1   | Subsurface Investigation .....                                       | 37 |
| 15.2   | Permissible Permanent Cut and Fill Slopes.....                       | 37 |
| 15.3   | Retaining Walls.....   | 38 |
| 16     | LANDSCAPING .....  | 45 |
| 17     | ADDITIONAL DESCRIPTION OF REQUIRED WORK AND SPECIAL PROVISIONS ..... | 45 |
| 17.1   | Aesthetics .....   | 45 |
| 18     | STRUCTURES .....   | 46 |
| 18.1   | General Requirements .....   | 46 |
| 18.2   | Design and Construction Requirements of Structure .....              | 47 |
| 18.2.1 | Proposed ODOT Structure: SFN: 2901139 (Span #1).....                 | 47 |
| 18.2.2 | Proposed ODNr Structure: SFN: 2926107 (Spans #2, #3, & #4).....      | 48 |
| 18.3   | Noise Barrier.....   | 49 |
| 19     | TRAFFIC CONTROL.....   | 49 |
| 19.1   | Pavement Markings and Delineators .....                              | 49 |
| 19.2   | Signing.....   | 50 |
| 19.2.1 | Flat Sheet Signs .....   | 50 |
| 19.2.2 | Extrusheet Signs.....  | 50 |
| 19.2.3 | Ground Mounted Post Supports.....                                    | 50 |
| 19.2.4 | Ground Mounted Beam Supports.....                                    | 50 |
| 19.3   | Lighting.....  | 50 |
| 19.4   | Traffic Signals .....  | 51 |
| 19.5   | Intelligent Transportation Systems (ITS) .....                       | 51 |
| 20     | PROJECT SCHEDULE REQUIREMENTS.....                                   | 51 |
| 21     | PLAN SUBMITTALS AND REVIEW REQUIREMENTS .....                        | 51 |
| 21.1   | Plan Components.....   | 51 |
| 21.2   | Quality Control .....  | 52 |
| 21.3   | Buildable Units .....  | 53 |
| 21.4   | Comment Resolution Process.....                                      | 54 |
| 21.5   | Document Management .....  | 58 |
| 21.6   | Optional Pre-submission Meeting.....                                 | 59 |
| 21.7   | Optional Over-the-Shoulder Reviews.....                              | 59 |

21.8 Major Design Decision ..... 59  
21.9 Interim Design Review Submission..... 59  
21.10 FINAL DESIGN Review Submission..... 60  
21.11 Released for Construction Plans ..... 61  
21.12 Railroad Submittals ..... 62  
21.13 Plan Distribution Addresses..... 63  
21.14 Plan Revisions ..... 64  
21.15 As-Built Construction Record-Drawing Plans ..... 64

# 1 PROJECT IDENTIFICATION & GENERAL INFORMATION

Table 1-1: Project Identification

|   |                            |
|---|----------------------------|
| <b>PID</b>  | 115388                     |
| <b>State Project Number</b>                                       | 481288                     |
| <b>County-Route-Section</b>                                       | GRE-68-12.65               |
| <b>Local Route Name (if applicable)</b>                           | Springfield-Xenia Road     |
| <b>Highway Functional Classification &amp; Federal Aid System</b> | Principal Arterial (Urban) |

## 1.1 Design Designation

The DBT shall use the design designations for each of the facilities below various design elements as specified within the Scope of Services.

Table 1-2: Design Designation

|  | US 68                               | Brush Row Road                      |
|--|-------------------------------------|-------------------------------------|
| <b>Location:</b>                         | Xenia Township, Greene County, Ohio | Xenia Township, Greene County, Ohio |
| <b>Current ADT:</b>                      | 8,600 vpd                           | 1,400 vpd                           |
| <b>Design Year ADT:</b>                  | 8,800 vpd                           | 1,460 vpd                           |
| <b>Design Hourly Volume:</b>             | 1,200                               | 180                                 |
| <b>Directional Distribution:</b>         | 50%                                 | 57%                                 |
| <b>Trucks:</b>                           | 7%                                  | 2%                                  |
| <b>Design Speed:</b>                     | 45 mph                              | 55 mph                              |
| <b>Legal Speed:</b>                      | 45 mph                              | 55 mph                              |
| <b>Design Functional Classification:</b> | Principal Arterial (urban)          | Minor Collector (urban)             |
| <b>NHS Project:</b>                      | Yes                                 | No                                  |

## 1.2 Existing Plans and Project Information

Available information related to the Project is available in the Document Inventory shown in Table 1-3. The Document Inventory will identify whether the document is designated as “Reference Documents” or “Contractual Appendices”.

Reference Documents appendices are provided for informational purposes only. The Department makes no representation or warranty as to the accuracy, adequacy, applicability, or completeness of the Reference Documents. Except to the extent set forth to the contrary in the Contract Documents, reliance upon the Reference Documents shall be at the Proposer’s risk, and the Department shall have no liability or obligation because of the inaccuracy, inadequacy, inapplicability, or incompleteness of the Reference Documents, regardless of the contents thereof.

Contractual Appendices in the Document Inventory are considered binding obligations of the DBT. The DBT shall meet requirements identified in the Contractual Appendices and shall implement the Work in accordance with these requirements.

The Offerors (i.e. prospective Design-Build Teams) shall examine the information provided in the Document Inventory to determine if the information accurately depicts existing field conditions.

The following existing plans are considered part of the Document Inventory and are available for review:

- **Existing Plans (For Reference Only)**
- GRE-68-11.00\_1923
- GRE-68-11.00\_1937
- GRE-68-11.37\_1948
- GRE-68-13.40\_Bridge Massie Creek\_1981
- 2022.03.11\_DNR-210003\_Rii\_Geotechnical Report (Final)
- 2022.06.16\_DNR-210003\_Conformed\_Drawings (1)

The plans identified in the Document Inventory are not as-built plans. All existing plans are considered Reference Documents.

In addition to the existing plans, appendices to the Scope of Services are listed in the Document Inventory and posted on the FTP site.

<https://ftp.dot.state.oh.us/pub/Districts/D08/115388/AppendicesPID115388>

*Table 1-3: Document Inventory*

| Appendix #        | Appendix Title  | Contractual/Reference Designation |
|-------------------|---|-----------------------------------|
| <b>Appendix A</b> | Project Mapping<br>- Aerial<br>- USGS Topographic Map   | Reference                         |
| <b>Appendix B</b> | Aerial Drone Footage  | Reference                         |
| <b>Appendix C</b> | Feasibility Study   | Reference                         |
| <b>Appendix D</b> | Red Flag Displays<br>- Constructability<br>- Switchback Exit Ramp Design  | Reference                         |
| <b>Appendix E</b> | Preliminary Sub-Surface Investigations  | Reference                         |
| <b>Appendix F</b> | Survey Data - ODOT D8   | Reference                         |
| <b>Appendix G</b> | Existing Plans (See above)  | Reference                         |
| <b>Appendix H</b> | Utilities<br>- Preliminary Re-location Plan Sheet<br>- Example Utility Impacts Summary<br>- ODOT Utility Relocation Flow Chart      | Contractual                       |
| <b>Appendix I</b> | Environmental Forms<br>- GRE-115388-Section 106 Survey Map<br>- GRE-115388-Ecological Resources Map<br>- GRE-115388-Asbestos Survey | Contractual                       |
| <b>Appendix J</b> | USACE Waterway Permit   | Contractual                       |
| <b>Appendix K</b> | Hydraulics/Drainage/Structures<br>- Temporary Access Fill (TAF) Report<br>- FEMA Documentation<br>- Metal SIP Forms                 | Reference                         |
| <b>Appendix L</b> | RW Plan Sheets/Legal Descriptions   | Contractual                       |
| <b>Appendix M</b> | Architectural Concept Renderings 5-3-24   | Contractual                       |

### 1.3 Railroad Coordination

Not applicable.

### 1.4 Airway/Highway Clearance

The DBT shall prepare and submit the Airway/Highway Clearance Analysis in accordance with Location and Design Manual Volume 3, Section 1407.1. The DBT shall convey all relevant documentation to ODOT and coordinate with the ODOT Project Manager to obtain all necessary approvals. The DBT shall account for the required time to obtain approvals in their schedule and will not be able to start work until the approvals and documentation are received by the ODOT Project Manager.

The following airway facilities are within the vicinity (5-mile radius or 20,000 feet) of the Project:

**Greene County - Lewis A Jackson Regional Airport (public) (3.45 miles SW of project area)**

40 N Valley Rd, Xenia, OH 45385; Phone: (937) 376-8107

**Renegades Regional Airport/Fairborn Flying Aces RC Club (private) (4.87 miles NW of project area)**

3670 Byron Road, Fairborn OH 45324; Phone: (937) 727-4416

**Hammond Airport (private) (3.90 miles northeast of project area)**

3073 RT 68 N, Yellow Springs, OH 45387; Phone: (513) 767-8751

**Hydebrook Airport (private) (3.90 miles northeast of project area)**

665 E. Hyde Road, Yellow Springs, OH 45387; Phone: (513) 767-1185

**Skydive Greene County, Inc. Airport (private) (4.98 miles SE of project area)**

177 S Monroe-Siding Rd., Xenia, OH 45385; Phone: (513) 372-0700

**Kettering Health Greene Memorial Hospital Heliport (private) (2.06 miles SE of project area)**

1141 N. Monroe Dr., Xenia Ohio 45385; Phone: (937) 352-2000

## 2 PRE-BID MEETING

The Department shall hold meetings as described in the ITO for an RFP.

## 3 CONTRACTOR PRE-QUALIFICATION

It is required that the Bidder be a Contractor prequalified in accordance with Section 102.01 of PN97 Special - PID115388. The Contractor, or one of the subcontractors identified in the Proposal, must be prequalified for all Work Type Codes included in the Proposal. Retain, employ, and use the prequalified subcontractors specifically identified in the Statement of Qualifications.

The Bidder is also required to have engaged the services of an ODOT pre-qualified Consultant (Designer) in accordance with Section 4 of the Scope of Services to constitute the DBT.

If the Contractor, Designer, and/or the sub-consultant(s) submitted do not meet all the required qualifications, the Office of Contract Sales may reject the bid.

## 4 DESIGNER

Retain, employ, and use the prequalified subcontractors specifically identified in the Statement of Qualifications.

The Designer or sub-consultants of the Designer must be prequalified to perform design work associated with the following prequalification categories:

Bicycle Facilities and Enhancement Design

Non-Complex Roadway Design

Level 2 Bridge Design

Geotechnical Engineering Services

Geotechnical Engineering Inspection Services

Geotechnical Testing Laboratory

Geotechnical Field Exploration Services

Basic Traffic Signal Design

Limited Lighting Design

In accordance with Section 104.011 of PN 97, design services that require prequalification may only be performed by firms that are prequalified for those services at the time of performance of the services.

Restrictions on Participation in design-build contracts:

Any Consultant who provided services to the Department that have been directly utilized in this design-build Proposal or Scope of Services document will NOT be eligible to participate in this design-build contract for this Project, either as a prime consultant or as a sub-consultant.

The following consultants have been identified as being precluded from participation:



|   |
|---|
| <p>Fishbeck (2023 Feasibility Study)</p> <p>Woolpert (2023 Feasibility Study)</p> <p>Lawhon &amp; Associates (2023 Feasibility Study)</p> <p>Abbott Studios (2023 Feasibility Study)</p> <p>Stantec (2024 Preliminary Soil Borings)</p> |
|---|

## 5 SCOPE OF WORK

|                                    |  |
|------------------------------------|--|
| <p><b>Project Description:</b></p> | <p>The Ohio Department of Transportation is seeking to provide safe access for patrons visiting the newly constructed Great Council State Park and Shawnee Interpretive Center, located at 1575 US68, within Oldtown Ohio.</p> <p>Proposed improvements shall focus on the construction of a grade separated crossing, connecting the Little Miami Scenic Trail (LMST) with the new Shawnee Interpretive Center. Additional at-grade crossing improvements are to be installed at the US68 and Brush Row Road intersection, located approximately 400 feet north of the Shawnee Interpretive Center. The pedestrian facilities, within the defined project limits of the US68 roadway corridor will also be upgraded.</p> <p>Mapping and photo-documentation of the project area are provided in Appendices A and B.</p> <p>All work must remain within ODOT/ODNR right of way and as provided in the construction limit mapping provided in Appendix A.</p> <p>All facilities must be ADA compliant.</p> <p>All overhead utilities will be permanently located as illustrated in the proposed utility relocation plan sheet. (See Appendix H).</p> <p>The architectural features and design shall meet the conditions illustrated in the provided concept drawings. The four submitted options are under review, with a final selection to be determined by 4/14/24.</p> <p>(See Appendix M).</p> |
| <p><b>Project Goals:</b></p>       | <ul style="list-style-type: none"> <li>To substantially complete the Project by September 1, 2026, including opening of the pedestrian bridge for its intended use, aesthetic improvements, and landscaping features.</li> </ul>   |

|                         |  |
|-------------------------|--|
|                         | <ul style="list-style-type: none"> <li>• To deliver an aesthetically pleasing gateway structure and Project that safely connects pedestrians and bicyclists to the new Great Council State Park-Shawnee Interpretive Center with the LMST.</li> <li>• To safely construct the bridge within the current right-of-way limits and within the floodway and floodplain.</li> <li>• To successfully coordinate with public and private stakeholders, and abutting property owners in a positive manner.</li> <li>• To complete the project before June 01, 2027.</li> </ul> |
| <b>Completion Date:</b> | <p>End Construction: <b>10/01/2026</b> - Primary Project Components. (See Section 5.1 below)</p> <p>End Construction: <b>6/01/2027</b> - Project complete.</p> <p>The referenced completion dates must be met.</p>   |

### 5.1 Interim Completion Date Requirements

The Project has an interim completion date of **October 01, 2026**. On or before the interim completion date, the grade separated crossing connecting the Little Miami Scenic Trail (LMST) with the new Shawnee Interpretive Center shall be functionally complete. Functionally complete includes:

- All necessary approach work to the grade separation structure to allow functional unimpeded usage by pedestrian and cyclists, necessary pedestrian facilities within the defined project limits of the US68 roadway corridor ensuring functional access of the grade separation. All lanes of traffic for US68 and the shared use path shall be in place in their final configurations, temporary or permanent pavement markings/RPMs shall be in place, all lanes shall be open to traffic and functioning as intended. All aesthetic enhancements (structural and ground mountings) including final grading and landscaping elements shall be installed.

The DBT shall be assessed a disincentive of \$2500 per day for each day beyond the Interim Completion date.

The contract will be subject to daily disincentives for failure to complete all required work, and associated incidentals related to the work, as outlined in the table included in this note. Application of the disincentives will be based on the overall contract amount. Daily disincentives are applicable to the work required to the interim completion date only. The contract is still subject to liquidated damages as outlined in CMS 108.07 for the remainder of the contract.

The approximate Project Limits for each applicable roadway are provided in Table 5-1.

Table 5-1: Approximate Project Limits

| Roadway Name | Begin | End   |
|--------------|-------|-------|
| US 68        | 12.86 | 13.04 |

Work Limits shall be determined by the DBT.

The Consultant shall provide the engineering services, design, and preparation of detailed construction plans for the construction of the proposed Project.

The Contractor shall provide for the furnishing of materials, construction, and completion in every detail of all the work described in the Contract Documents and approved Plans to fulfill the intent of the Contract.

## 6 FIELD OFFICE

Field office Type C as required by Construction and Material Specification Item 619, shall be available and completely functional no later than 1 week prior to the start of construction work. The field office requirements are only applicable to the Department's personnel. The location of the field office shall be approved by the Department as per Construction and Material Specification Item 619.

## 7 GENERAL PROVISIONS FOR THE WORK

### 7.1 Governing Regulations

All services, including but not limited to survey, design, and construction work performed by the DBT and all subcontractors (including sub-consultants) shall be in compliance with all applicable ODOT Manuals and Guidelines.

It will be the responsibility of the DBT to acquire and utilize the necessary ODOT manuals that apply to the design and construction work required to complete this project.

The current edition, including updates released on or before the **Request For Proposal release 5/15/2024**, of the following ODOT Manuals and Guidelines shall be met or exceeded in the performance of the design and construction work required to complete this project:

- Aesthetic Design Guidelines
- Bridge Design Manual
- CADD Engineering Standards Manual
- CADD Standards for MicroStation and GEOPAK and other applications
- Construction and Material Specifications (excluding Section 100)
- Environmental Services Handbooks and Guidelines

Geotechnical Design Manual  
Geotechnical: Manual for Abandoned Underground Mine - Inventory and Risk Assessment  
Geotechnical: Specifications for Geotechnical Explorations  
Item Master  
Location and Design Manual, Volume One - Roadway Design  
Location and Design Manual, Volume Three - Plan Preparation  
Location and Design Manual, Volume Two - Drainage Design  
Multimodal Design Guide  
ODOT Analysis and Traffic Simulation (OATS) Manual  
Ohio Manual of Uniform Traffic Control Devices  
Pavement Design Manual  
Proposal Notes for Construction and Material Specifications  
Quality Standards for TTCDs & Acceptable Delineation Methods for Vehicles  
Real Estate Policies and Procedures Manual: Acquisition Manual  
Real Estate Policies and Procedures Manual: Appraisal  
Real Estate Policies and Procedures Manual: Certification of Right of Way Control  
Real Estate Policies and Procedures Manual: Property Management  
Real Estate Policies and Procedures Manual: Railroad Coordination  
Real Estate Policies and Procedures Manual: Relocation  
Real Estate Policies and Procedures Manual: ROW Plans  
Real Estate Policies and Procedures Manual: Utilities  
Sign Designs & Markings Manual (SDMM)  
Standard Drawings: Bridges | Plan Insert Sheets  
Standard Drawings: Construction - Hydraulics | Plan Insert Sheets  
Standard Drawings: Construction - Pavement | Plan Insert Sheets  
Standard Drawings: Construction - Roadway and Roadside | Plan Insert Sheets  
Standard Drawings: Traffic | Plan Insert Sheets  
State Highway Access Management Manual  
Supplemental Specifications for Construction and Material Specifications  
Survey & Mapping Specifications  
Traffic Engineering Manual  
Waterway Permits Manual

## 7.2 CADD files supplied by the DBT

The DBT shall comply with ODOT's CADD Standards, and supply files in accordance with the CADD Engineering Standards Manual for OHDOT CONNECT. All data shall be provided to the Department according to the provisions as detailed under the appropriate CADD links accessed from the Department's Division of Engineering's website. This includes, but is not limited to, the level assignments, symbols, lines, and line styles that are to be used, line weights, cells, placement of text and file naming conventions.

The standards and necessary downloads can be accessed at the following URL addresses:

<https://www.transportation.ohio.gov/working/engineering/cadd-mapping/cadd/>

The Department will accept CADD files through electronic media.

1. The DBT shall submit all CADD information produced in the process of plan development. All CADD information shall be submitted in the current version of MicroStation (\*.dgn) format as indicated in the CADD Engineering Standards Manual for OHDOT CONNECT. The DBT shall provide a comprehensive set of complete and accurate CADD data which is compatible with ODOT's CADD systems with no additional work or modification.
2. The DBT shall submit all information produced in the process of plan development according to L&D Volume 3, Section 1500.

The DBT shall use a separate file name for each horizontal or vertical alignment. The DBT shall provide required ASCII report content in accordance with the CADD Engineering Standards Manual.

These requirements and procedures may be updated from time to time with notification provided on the ODOT Division of Engineering website. The DBT shall use ODOT cell files and ODOT seed files consistent with the version of the requirements identified in Section 7.1 (Governing Regulations).

### 7.3 Pre-Award Conference

Within 7 days following Bid opening, the apparent successful DBT shall attend a mandatory pre-award conference. This confidential meeting will be held with the Office of Contract Sales in the Division of Construction Management to discuss the DBT's bid of the lump sum items. The DBT shall be prepared to discuss general items of Work included within the lump sum bid items, approximate amounts of Work included within the DBT's Bid Items, and general design approach and design concepts for the Work. Other Department representatives familiar with the Project may attend.

While not required, the DBT may prepare general engineering information to be presented to the Office of Contract Sales to help explain design concepts and quantities. This information will be used only by the Office of Contract Sales to assist in understanding the DBT's bid for award recommendation purposes.

No shared concepts, shared quantity information, discussions, comments made or shared by either party will be considered binding, a revision to the Contract Documents, or acceptance or validation of any design concept or assumed quantities of Work.

### 7.4 Partnering Agreement

The DBT is required to enter into a partnering agreement with the Department that is:

- Facilitated
- Self-Facilitated

A partnering agreement with the Department on this project. The objective of this agreement is the timely completion of the work and a quality product that will be a source of pride to both

the Department and the DBT. Partnering will not affect the terms and conditions of the contract. The partnering agreement is a document which is solely intended to establish an environment of cooperation between the parties. The costs associated with the partnering process will be in accordance with PN126 Special - PID115388

## 7.5 Communication

All communication during design and construction shall be with the District Project Manager and the District Project Engineer.

|                                    |  |
|------------------------------------|--|
| District's Project Manager's Name: | Katherine DeStefano, P.E.  |
| Phone number:                      | (513) 933-6583   |
| E-mail:                            | <a href="mailto:Katherine.DeStefano@dot.ohio.gov">Katherine.DeStefano@dot.ohio.gov</a> |

|                                     |  |
|-------------------------------------|--|
| District's Project Engineer's Name: | Dana Bicknell, P.E.  |
| Phone number:                       | 513-933-6161   |
| E-mail:                             | <a href="mailto:dana.bicknell@dot.ohio.gov">dana.bicknell@dot.ohio.gov</a> |

At the Pre-Design Meeting, the DBT shall name a Project Manager who will act as a liaison between the DBT and the Department.

### 7.5.1 Task Force Design Meetings

- Required
- Not Applicable

## 7.6 Permits

The DBT shall ensure that the Project is constructed and maintained in accordance with all requirements, regulations, and applicable permits required for the Project. This includes the permits described herein and any additional permits not specifically identified in the Contract Documents.

Unless noted otherwise in the Contract Documents, the DBT shall obtain all necessary permits and pay all charges, fees and taxes associated with these permits (e.g., city street opening permits, street crossing/equipment moving permits, water department fees, sewer permits, rail permits and fees, etc.). The DBT shall be responsible for any fines levied by regulatory agencies because of their construction activities or non-compliance with any permit, special or general, conditions.

The DBT shall obtain a permit from the State or local government having jurisdiction to perform any non-construction work within the existing Right of Way and/or limited access.

## 7.7 Entry on Private Property

The DBT, acting as The Department's agent, may enter upon any lands within the State for the purpose of inspecting, surveying, leveling, digging, drilling, or doing any work deemed necessary in the execution of any survey authorized by the Director of Transportation in accordance with Section 5517.01 of the Ohio Revised Code and ODOT's Survey Manual. Prior to performing said survey, the DBT will send notification letters indicating the date and duration of entry to the affected property owners no less than forty-eight hours nor more than 30 days prior to the date of entry for said survey in accordance with ODOT's Survey Manual. The DBT shall forward copies of all notification letters distributed to ODOT's Project Manager.

Any subsequent claims for compensation due to damages incurred while said activities were performed will be negotiated between the DBT and the affected property owners with final approval from ODOT's Project Manager. Crop and property damage minimization and reimbursement information, together with the crop damage reimbursement formula and Special Waiver of Damage form, will be provided to the DBT by ODOT's Project Manager.

Any subsequent entries onto private property for the purpose of obtaining additional survey or soil information prior to the submission of the Bid will be made in accordance with the procedures outlined in this section.

## 8 ENVIRONMENTAL

The DBT shall ensure that the Project is designed, constructed, and maintained in accordance with all environmental requirements, regulations, and applicable permits required for this Project.

### 8.1 NEPA & Environmental Commitments

The DBT shall perform all environmental commitments as described unless otherwise specified in the Contract Documents.

Table 8-1: Environmental Commitments

| Source            | Description of Commitment  |
|-------------------|--|
| <b>Ecological</b> | The DBT shall not work below the ordinary highwater mark of Oldtown Creek, or install, modify, or remove any existing instream fills during the ODNR instream work restriction period of 4/15 thru 6/30.   |
| <b>Ecological</b> | The project is located within the known habitat ranges of the federally listed and protected Indiana bat and northern long-eared bat. The DBT shall not remove trees under this project from April 1 through September 30. All necessary tree removal shall occur from October 1 through March 31. The DBT shall demarcate clearing limits in the field to avoid any |

|                   |   |
|-------------------|---|
|                   | <p>unauthorized tree clearing. This requirement is necessary to avoid and minimize impacts to these species as required by the Endangered Species Act. For the purposes of this note, a tree is defined as a live, dying, or dead woody plant, with a trunk three inches or greater in diameter at a height of 4.5 feet above the ground surface, and with a minimum height of 13 feet.</p>   |
| <b>Ecological</b> | <p>ODOT shall ensure a State permitted malacologist must complete a mussel salvage and relocation in accordance with the most recent version of the Ohio Mussel Survey Protocol prior to the initiation of construction activities below the ordinary highwater mark of Oldtown Creek. The permitted malacologist will submit the salvage and relocation work plan to ODNR for review and approval prior to any survey work. The results of the mussel survey and/or salvage work must be provided to the ODOT District Environmental Coordinator Keith Smith, P.E. (keith.smith@dot.ohio.gov) for coordination with ODNR. ODOT shall ensure the mussel survey and relocation occurs, and approval has been received from ODNR, prior to the Contractor performing any work below ordinary highwater mark of Oldtown Creek.</p> |
| <b>Permits</b>    | <p>The DBT shall not perform any work within the jurisdictional boundaries of any waterway, including wetlands, until ODOT obtains the necessary waterway permit(s). This includes the placement of any temporary or permanent fills.</p>   |
| <b>4(f)</b>       | <p>The DBT shall only restrict public access to Little Miami Scenic Trail for the necessary amount of time to complete construction activities that could compromise public safety. Access to Little Miami Scenic Trail shall remain open to the public at all other times throughout construction</p>  |
| <b>4(f)</b>       | <p>The DBT shall provide the construction schedule to ODOT District Environmental Coordinator Keith Smith, P.E. (keith.smith@dot.ohio.gov) and Greene County Parks &amp; Trails Interim Director Chuck Fraizer (CFrazier@co.greene.oh.us) 30 days prior to the start of construction activities.</p>  |
| <b>4(f)</b>       | <p>The DBT shall incorporate the known boundary of Little Miami Scenic Trail within the project area in the plans and label it accordingly.</p>   |
| <b>4(f)</b>       | <p>To protect the Little Miami Scenic Trail and the public, the DBT shall install and maintain temporary construction fencing along the known boundaries of Little Miami Scenic Trail within the project construction limits prior to the start of construction activities</p>  |
| <b>4(f)</b>       | <p>Prior to the start of construction activities, the DBT shall install signage approved by the Engineer to alert Little Miami Scenic Trail users of construction activities and access restrictions or closures, and to direct users to secondary access points.</p>   |



|                           |  |
|---------------------------|--|
| <b>Cultural Resources</b> | ODOT shall monitor the environmentally sensitive resource during construction to record and recover any archaeological material that might be uncovered. The Contractor shall notify the Engineer of the proposed construction schedule a minimum of 30 days prior to any excavation work. The Engineer will contact the District Environmental Coordinator, who will notify ODOT's Office of Environmental Services (OES) so that the OES staff can be present. No excavation work is allowed without the presence of OES staff unless the Contractor receives a written waiver from OES. |
|---------------------------|--|

The DBT shall:

1. Monitor and document Work to demonstrate compliance with environmental commitments.
2. Provide documentation of environmental commitment compliance at request of the Department.
3. Follow Department and local regulations regarding dust control, adhering to dust control measures outlined in C&MS 616.
4. Adhere to local City ordinances for vehicle idling and all current U.S. Environmental Protection Agency (EPA) air quality regulations.

If the DBT becomes aware of any failure to perform an environmental commitment, the DBT shall notify the Department immediately.

## 8.2 Environmental Permits

The required USACE Waterway permit for the project will be provided by ODOT prior to award. However, if the DBT finds it necessary to engage in work outside of the criteria stipulated in the permit, the DBT shall:

1. Be aware of all applicable environmental permits related to the Work.
2. Coordinate with the Department and prepare applications and other relevant information necessary to obtain all environmental permits required to perform the Work.
3. Comply with all conditions imposed by environmental permits and by the Department in design and construction.
4. Notify the Department regarding any failure to comply with conditions of the environmental permits.
5. Submit any necessary permit modifications requests to the Department. Monitor Work progress and if necessary, request reauthorization of permits nearing expiration.

If the DBT modifies elements of the Conceptual Design used as the basis for obtaining a permit, the DBT accepts all responsibility for associated cost and schedule impacts resulting from the permit modification process and accepts the risk that the regulatory agency may not approve the proposed permit modification.

At no time shall the DBT coordinate environmental permitting issues directly with the regulatory agencies, unless directed to do so by the Department. The DBT shall not commence with Work covered by environmental permits until the applicable permit(s) approval(s) are obtained from the regulatory agencies.

Table 8-2 identifies work performed by the Department related to various environmental permits and the status of Department activities. Table 8-2 is not a comprehensive list of the environmental permits required to perform the Work. The DBT shall be responsible for providing or obtaining all necessary outstanding information needed for the Department to complete the environmental permitting process as described in Table 8-2.

Table 8-2: Status of Department Activities for Environmental Permits

| Agency | Permit/Approval | Status   |
|--------|-----------------|--|
| USACE  | RGP-A           | The waterway permit determination has yet to be determined but a non-notifying RGP-A is anticipated to construct the TAF needed to complete the project. |

The DBT shall acquire required noise permits and/or variances from the local jurisdiction.

The DBT shall be responsible for any fines levied by regulatory agencies because of their construction activities or non-compliance with any permit special or general conditions.

### 8.3 Temporary Sediment and Erosion Control

The DBT shall be responsible for designing and implementing all temporary sediment and erosion controls in accordance with SS 832 and the Ohio NPDES general permit for storm water discharges from construction activities (NPDES Permit). For information about OEPA's NPDES Permit requirements, see: [https://epa.ohio.gov/dsw/permits/GP\\_ConstructionSiteStormWater](https://epa.ohio.gov/dsw/permits/GP_ConstructionSiteStormWater).

The DBT shall submit information to the Department for development of the Notice of Intent for the NPDES Permit, including the total acreage of earth disturbing activities for both off project and on project work. The DBT shall assume that approval from OEPA will require a minimum of 31 days following submittal to the ODOT Project Manager. Earth disturbing activity is not permitted prior to approval of coverage under the NPDES Permit. The Department will submit the NOI to the OEPA within 10 days after information is received from the DBT. Approval from the OEPA takes 21 days and the ODOT Project Manager has 10 days to file the NOI.

The DBT must develop a Storm Water Pollution Prevention Plan in accordance with SS832 and the NPDES Permit. The DBT shall not initiate any earth disturbing activity until the SWPPP is approved.

The DBT shall be compensated for furnishing and installing items related to temporary sediment and erosion control requirements. The Department will compensate the DBT through an encumbered amount included in the Proposal as a non-bid reference number. The Proposal specifies the unit prices for the temporary sediment and erosion control items. Payments for

temporary sediment and erosion control items that exceed the encumbered amount will be made through an Extra Work Change Order using the specified unit prices. The specified unit prices are fixed for the Contract Documents and may not be negotiated or adjusted for inflation or claimed changed condition.

Payment for this described work shall be paid for as follows:

- ITEM 832E99100 SPECIAL - CONSTRUCTION EROSION CONTROL.....60000 EACH
- ITEM 832E15000 STORM WATER POLLUTION PREVENTION PLAN.....LS
- ITEM 832E15002 LS STORM WATER POLLUTION PREVENTION INSPECTIONS.....LS
- ITEM 832E15010 LS STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE.....LS

All temporary erosion control items shall be removed before the project is accepted. Removed materials shall become the property of the DBT and shall be disposed of in accordance with the appropriate C&MS specifications.

### 8.4 Regulated Materials

The DBT shall meet all regulatory conditions imposed with regulated materials, including hazardous materials, associated with the Project. The DBT shall characterize, collect, contain, and properly dispose of all waste generated or encountered during the Work. The DBT shall ensure that the site is properly contained during construction so that regulated materials do not migrate off-site. The DBT shall prepare and implement a spill prevention and response plan that will address the proper storage and management of all fuels, oils, and chemicals being stored and/or used on the project and the actions to be taken if a release occurs on the project including notifying reportable releases and spills to the National Response Center and Ohio EPA Spill Hotline. The DBT is to address the project’s known areas of regulated materials in their health and safety plan. The DBT is to take reasonable actions to prevent the general public from accessing the regulated materials areas to prevent an exposure and/or a release of the regulated materials.

If any unknown regulated materials are discovered through work on the Project, the DBT shall notify the Department immediately and shall follow the spill prevention and response plan, as well as all appropriate regulations.

#### 8.4.1 Asbestos

The garage structure, 1609 US-68, to be demolished near the ramp on the west side of US-68 has been surveyed and found to have asbestos containing materials. An asbestos inspection report can be found in Appendix I.

##### Asbestos Abatement

A licensed Asbestos Hazard Evaluation Specialist inspected the structure scheduled for demolition and/or rehabilitation; the asbestos inspection determined that 150SF of non-friable & 50 SF of friable asbestos materials are present on the structure 1609 US-68 in excess of the allowable regulatory limits and requires abatement. The Hazard Evaluation Specialist

will prepare an Asbestos Inspection Report containing the quantities and locations of the asbestos containing materials. The Asbestos Inspection Report is available in Appendix I.

The Contractor shall ensure that the abatement, transport, and disposal of asbestos containing material is conducted in accordance with all federal, state, and local regulations. The Contractor shall ensure that all documentation related to the abatement, transport, and disposal of asbestos containing materials is submitted to the Project Engineer or District Environmental Staff for record keeping within 2 weeks of completion.

Electronic Submission: The Contractor shall submit electronically to OEPA a completed notification of demolition & renovation form (NDRF) and applicable fees along with the asbestos survey report. The completed NDRF must be submitted to OEPA at least 10 days prior to demolition &/or renovation activity. The Contractor is responsible for retaining an electronic copy of the NDRF (in PDF form) for submission to the District Environmental staff and a one hard copy to the Project Engineer. (Go to the OEPA eBusiness Center and submit the NDRF and payment along with the asbestos survey report)

Hard Copy Submission:

The Contractor may elect to submit a hard copy of the completed NDRF and payment along with the asbestos survey report to the following:

|                           |    |                           |
|---------------------------|----|---------------------------|
| Asbestos Program          |    | Asbestos Program          |
| Ohio EPA, DAPC            | or | Ohio EPA, DAPC            |
| P.O. Box 1049             |    | 50 W. Town St., Suite 700 |
| Columbus, Ohio 43216-1049 |    | Columbus, Ohio 43215      |

If the Contractor elects to submit a hard copy to OEPA they are responsible for retaining a hard copy of the NDRF for submission to the District Environmental staff and one hard copy to the Project Engineer. The completed NDRF must be submitted to OEPA at least 10 days prior to demolition &/or renovation activity.

The following plan note shall be included in the construction contract plans:

A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST SURVEYED THE GARAGE STRUCTURE SCHEDULED FOR DEMOLITION AND/OR REHABILITATION; THE SURVEY DETERMINED THAT 6 SF OF ASBESTOS IS PRESENT ON THE GARAGE LOCATED AT 1609 US-68.

ODOT SHALL PROVIDE A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE STRUCTURE OWNER, TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO ONE OF THE ADDRESSES BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

ASBESTOS PROGRAM

OHIO EPA, DAPC

P.O. BOX 1049  
 COLUMBUS, OH 43216-1049  
 OR  
 ASBESTOS PROGRAM  
 OHIO EPA, DAPC  
 50 W. TOWN ST., SUITE 700  
 COLUMBUS, OH 43215

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION. THE FORM SHALL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. COPIES OF THE OEPA FORM AND BRIDGE INSPECTION REPORT ARE AVAILABLE FOR REVIEW AT THE ODOT DISTRICT 8 OFFICE, 505 SOUTH STATE ROUTE 741, LEBANON, OHIO 45036.

**BASIS FOR PAYMENT**

THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

**Basis of Payment**

The Contractor shall ensure that the abatement, transport, and disposal of asbestos containing material is conducted in accordance with all federal, state, and local regulations. The Contractor shall ensure that all documentation related to the abatement, transport, and disposal of asbestos containing materials. The asbestos containing materials must be disposed of in a landfill licensed by the local health department and permitted by the Ohio Environmental Protection Agency - Division of Air Pollution Control to accept asbestos containing material. Payment for this work shall be made at the bid price of lump sum.

The following estimated quantity has been estimated for the work noted above:

- 690E70100 ASBESTOS ABATEMENT, NON-FRIABLE MATERIAL.....160 SF
- 690E70100 ASBESTOS ABATEMENT, FRIABLE MATERIAL.....50 SF
- 202E99200 SPECIAL BUILDING DEMOLISHED.....LUMP SUM

**8.5 Ecological**

The DBT shall not remove trees under this project from April 1 through September 30. All necessary tree removal shall occur from October 1 through March 31. The DBT shall demarcate clearing limits in the field to avoid any unauthorized tree clearing. This requirement is necessary to avoid and minimize impacts to these species as required by the Endangered Species Act. For the purposes of this note, a tree is defined as a live, dying, or dead woody plant, with

a trunk three inches or greater in diameter at a height of 4.5 feet above the ground surface, and with a minimum height of 13 feet.

The DBT shall submit an updated construction plan sheet that indicates where all tree clearing will be performed with the project prior to April 1, 2025.

## **8.6 Cultural Resources**

The DBT will need to perform all necessary cultural resources coordination, per CMS 107.10 when any work is performed outside of the defined areas that have been previously coordinated for this project. These areas are shown in the Section 106 Map included in Appendix I. Note the environmental commitment for ODOT-OES archaeological monitoring when any excavation is being performed for this project.

## **8.7 4(f)**

This project will have direct impacts with the 4(f) resource, Little Miami Scenic Trail (LMST), that is owned by the City of Xenia but is operated/maintained by Greene County Parks & Trails. The DBT shall coordinate LMST impacts with Greene County Parks & Trails Interim Director Chuck Fraizer ([CFraizer@co.greene.oh.us](mailto:CFraizer@co.greene.oh.us)). This includes, but is not limited to, final design and closure durations.

## **8.8 Unhoused Populations**

There have been reports of unhoused populations within the project's construction area. Three weeks prior to any work, notify David Krazl by phone at (513) 933-6641, or e-mail at [David.Krazl@dot.ohio.gov](mailto:David.Krazl@dot.ohio.gov) so that any resident(s) at this location can be notified of the upcoming construction work and have time to remove their belongings and seek shelter elsewhere.

## **8.9 Noise Analysis and Noise Barriers**

The project does not require a Noise Analysis.

# **9 RIGHT OF WAY (ROW)**

The DBT shall perform all necessary construction work for the project within the Project Right of Way (ROW). ROW extends to include parcels owned by ODNR, located within the cited construction limits.

The DBT shall locate existing right of way lines based on requirements specified in Chapter 4733-37 of the Ohio Revised Administrative Code (Board Rules) governed by regulations outlined in Chapter 4733, Ohio Revised Code (Regulation Laws). The DBT shall research existing right of way information from all available sources including but not limited to ODOT records, County

road records, Commissioners' Journals, and records of other County offices to the extent necessary to provide an accurate basis for the establishment of the existing right of way.

The DBT will stake and flag the existing right of way in the field prior to the start of construction and will maintain stakes and flags throughout the duration of the Project.

The DBT shall identify all right of way encroachments on the construction plans with the Interim Design submission. ODOT's Project Manager will be responsible for clearing all encroachments on Federal-aid projects in accordance with standard encroachment removal.

Right-of-way plans and legal descriptions acquired for the LMST connection to the new structure are provided for in Appendix L.

## 9.1 Temporary Easements

The project does not require the use of temporary easements.

# 10 UTILITIES

## 10.1 Existing Utilities

The District Utility Coordinator, in coordination with the registered underground utility protection services, Oil and Gas Producers Underground Protection Service (OGPUPS), and other utility owners that are non-members of any utility protection services, has determined that the utilities identified in Table 10-1 are located in the area of the Project.

List all known utilities on the Project site in Table 10-1. All utility relocations listed below will be completed by March 31, 2025. Utility coordination is ongoing by the District.

Table 10-1: Utility Contacts and Status

| Utility Owner  | Utility Contact  | Relocation Status   |
|--|--|---|
| <b>AES Ohio</b><br><b>1900 Dryden Rd.</b><br><b>Dayton, OH 45439</b> | William Ward<br>937-554-9063<br><a href="mailto:William.Ward@aes.com">William.Ward@aes.com</a> | ES Ohio to relocate facilities along west side of US 68. Facilities to go underground from south of Interpretive Center to approximately Sta. 101+50. AES to relocate and run aerially from approximately Sta. 101+50 to Sta. 104+50. AES will also replace pole line crossing over |

|  |   |   |
|--|---|---|
|  |   | bridge behind the houses on the east side of US 68.   |
| AT&T Ohio<br>7201 Far Hills Ave.<br>Dayton, Oh,45459                                 | Alan Stutes<br>937-708-1026<br><a href="mailto:As1634@att.com">As1634@att.com</a>   | AT&T Ohio to follow AES relocation plan for underground and aerial relocations.   |
| Charter Communications<br>10920 Kenwood Road<br>Blue Ash, Ohio 45242                 | Jeffrey Gammon<br>937-396-7290<br><a href="mailto:jeffrey.gammon@charter.com">jeffrey.gammon@charter.com</a>              | Charter Communications to follow AES relocation plan for underground and aerial relocations.  |
| Greene Co. Water and Sewer<br>Greene Co. Sanitary Eng. Dept.<br>667 Dayton Xenia Rd. | Randy Gilbert<br>937-562-7499<br><a href="mailto:Randy.gilbert@greencountyohio.gov">Randy.gilbert@greencountyohio.gov</a> | No impacts expected.  |
| Miami Valley Lighting (MVLT)   | Robyn Livesay<br><a href="mailto:robyn.livesay@aes.com">robyn.livesay@aes.com</a>   | Light on the pole located at the US68/Brush Row Road intersection is to be reinstalled during AES's pole relocation. This will be completed prior to project award. |

## 10.2 Utility Coordination Responsibilities

The DBT shall coordinate all utility adjustments for construction activities on the Project.

As soon as it is feasible, the DBT shall stake the existing ROW (and new ROW, if additional ROW has been acquired) in the field and shall perform clearing and grubbing within that ROW in accordance with the Contract Documents to facilitate utility relocation. The DBT shall maintain, and update ROW stakes as needed throughout the Project Limits for the duration of the Project.

The DBT shall design the project and perform construction work in a manner that minimizes the scope and extent of utility conflicts and adjustments. The DBT shall not design or construct the Work in a way that precludes legal occupancy of the highway right-of-way by the adjusted utility. The DBT shall minimize potential delays and coordinate efficient adjustments of utilities.

The DBT shall copy the ODOT Project Manager and the District Utility Coordinator on all correspondence or phone calls between the DBT and each utility. This shall include the submittal of plans to each utility. A meeting at or near the Interim Design submission shall be



held between the DBT, the District Utility Coordinator and the utility owners to determine if any significant utility relocations can be eliminated or mitigated.

Any betterment to the utility's facility and ineligible, or unnecessary, work shall not be included in the Project without Department approval. The Department will not compensate for betterments or other ineligible utility work. The DBT shall coordinate determination of eligibility through the District Utility Coordinator.

Payment for this described work shall be paid for as follows:

ITEM 107E99000 SPECIAL - UTILITY COORDINATION.....LUMP SUM

### 10.3 Subsurface Utilities Engineering (SUE)

Subsurface Utility Engineering Required:  Yes  No

## 11 MAINTENANCE OF TRAFFIC (MOT)

### 11.1 General

The DBT shall be responsible for designing, providing, and maintaining safe and effective traffic control 24 hours a day for the duration of the Project. The DBT shall furnish, install, maintain, and remove all traffic control devices. The DBT shall implement Maintenance of Traffic (MOT) in a manner that minimizes both construction duration and impact to the traveling public.

The DBT shall provide written notice to the Department fourteen (14) days in advance of modifications in MOT or traffic patterns, including modifications to the following:

1. MOT configuration
2. Access
3. Detours
4. Schedule
5. Duration

If access into the Shawnee Interpretive Center is to be restricted, then the Ohio Department of Natural Resources shall be notified as well. Contact information provided as follows:

Brant Fulks, Programs Administrator for SW Ohio  
1750 Osborn Road, Cowan Lake State Park, Wilmington, Ohio 45177  
(937) 382-1096  
[brant.fulks@dnr.ohio.gov](mailto:brant.fulks@dnr.ohio.gov)

The DBT shall furnish temporary MOT devices compliant with the National Cooperative Highway Research Program (NCHRP) 350 Hardware Report or the AASHTO Manual for Assessing Safety Hardware (MASH), as applicable.

All detour routes will be provided by the Department and shall be signed by the DBT.

## 11.2 MOT Requirements

The existing US68 pavement consists of a composite build-up. Brush Row Road is expected to be full depth asphalt. (See Appendix G).

The DBT shall design and implement the MOT in accordance with the requirements referenced in Table 11-1.

Table 11-1: MOT Requirements

| Requirement   | Detailed Requirement Information   |
|---|--|
| <b>Minimum number of lanes in each direction to remain open during construction</b>               | <p><b>US 68:</b> 1 lane of traffic in each direction shall remain open during construction.</p> <p>Use of flaggers is acceptable, either in conjunction with a lane shift or within the existing lanes.</p> <p>No restriction of hours is necessary.</p> <p>Use of temporary signals is not warranted and is not recommended.</p>  |
| <b>Minimum lane width</b>   | <b>11 ft. lane; 2 ft. shoulder</b>   |
| <b>Maximum duration of detour</b>   | <p><b>US 68</b> will need four (4) short-term/intermediate-term closures, lasting for up to 2 days. The following detour shall be as follows: US68, to SR343, to SR72, to US42, then back to US68 and vice-versa.</p> <p><b>Brush Row Road:</b> The roadway work can be performed during short-term closures from 8 am to 4 pm (or other hours as permitted/restricted by Xenia Township). During these closures, emergency vehicle access shall be maintained, including being routed through the township parking lot.</p> <p><b>Sidewalks:</b> Within the project limits, along the US68 roadway corridor, there is a sidewalk on each side of the road, and an RRFB at the US68-Brush Row Road intersection. One sidewalk shall be maintained at all times using either side of the road.</p> <p><b>LMST:</b> Close the LMST for the duration of the project. A bike detour will be provided along US 68 from Old Springfield Pike to Brush Row Road with the use of “Share the Road” signage.</p> |
| <b>Restrictions on lane closures during special events (sports events, fairs, concerts, etc.)</b> | <p>The DBT shall prepare MOT plans that take into account local needs and events including:</p> <ul style="list-style-type: none"> <li>- Greene County Fair</li> </ul>   |

|   |   |
|---|---|
|   | <ul style="list-style-type: none"> <li>- Dayton Hamvention</li> <li>- Events scheduled at the Shawnee Interpretive Center</li> </ul>  |
| <b>Restriction related to hospitals, fire and police, schools, etc.</b> | During closures, emergency vehicle access, at Fire Station #51, shall be maintained.  |
| <b>DBT Access to Work Zone</b>  | The DBT is responsible for maintaining access to the construction zone and employee parking that meets the requirements of the Temporary Traffic Control Manual (TTCM) section of the OMUTCD and does not unduly impact traffic and local residents and businesses. The DBT is required to provide a detail of access point requirements for construction ingress/egress area in accordance with MOT Manual and any designs per Plan Insert Sheets.   |
| <b>Multi-Year Project</b>   | <p>Pavement markings shall be installed to clearly delineate intended traffic patterns throughout duration of the project.</p> <p>The DBT shall define in their plans as to how to provide access for dealing with emergency closures related to accidents, breakdowns, tow trucks, snow removal, utility interruptions, etc.</p> <p>The DBT shall identify their contact for coordination with state police, local law enforcement and local officials for fire, hospitals, schools, environmental agencies, utilities, etc.</p> |
| <b>Bicycle and Pedestrian Traffic</b>                                   | <p>Bicycle detour route for the LMST shall begin at the Old Town Reserve Park, progress north along US68 up to Brush Row Road, continue east on Brush Row Road and end at the intersection of the LMST. “Share the Road” temporary signage shall be installed.</p> <p>Pedestrian detour, for LMST not required.</p> <p>Pedestrian detour US68 roadway work within Oldtown will be provided by the DBT.</p>  |

In addition to the requirements of C&MS 105.13, the Progress Schedule shall account for 30 Days for the Department to secure approval for haul routes.

### 11.3 Traffic Engineering Manual Notes

The DBT shall design and implement the MOT in accordance with the following TEM notes:

642-2; 642-4; 642-6; 642-8; 642-9; 642-11; 642-12; 642-19; 642-20; 642-22; 642-23; 642-25; and 642-55

Payment for this described MOT work shall be paid for as follows:

ITEM 614E99000 SPECIAL - MAINTAINING TRAFFIC.....LUMP SUM

## SURVEY

### A. ODOT Survey Responsibilities

The Department survey crews have provided the following survey information, listed below:

1. Centerline control and benchmarks
2. Beginning and ending centerline points for the project
3. At least two benchmarks for the project (the datum used was that which the project was originally laid out by)
4. Critical points such as P.C., P.I., P.T., T.S., C.S.
5. Vertical clearances for the overhead structures, to serve as a check for the existing vertical clearances

### B. DBT Survey Responsibilities

The DBT shall submit all survey data using ODOT's standard field codes and ODOT's standard mapping codes. Reduced point data, in comma delimited ASCII text format, will be provided for all surveyed points. This data will include point number, North (y) coordinate, East (x) coordinate, elevation and point ID.

The DBT shall not disturb existing monumentation. If the DBT disturbs the monumentation, then the DBT shall replace the monument, in-kind, using a Registered Surveyor, with current registration, recognized by the Ohio State Board of Registration for Professional Engineers and Surveyors. Costs associated with monument replacement caused by DBT disturbance shall be borne by the DBT. The DBT shall provide copies of all monumentation changes to the District Real Estate Administrator.

The DBT shall include all control points, provided by the Department in the ASCII file supplied by the DBT to the Department. They should retain the original point numbers and coordinate values as assigned by the Department.

The DBT shall provide the following items prior to final acceptance of the Record-Drawing plans:

1. Copies of all field notes (written or electronic) which shall include the following information:
  - a. Date
  - b. Crew members
  - c. Weather conditions, including temperature, barometric pressure, etc.

- d. Instrument(s) used (Serial Number)
  - e. Raw observation field data
  - f. Other notes as needed
2. Copies of all Deeds, Plats, Maps, and other written evidence used to establish points related to the project including summaries of all parole evidence acquired as a part of the survey operation.
  3. Listing of all found monumentation (Horizontal and Vertical).
  4. Listing of all monumentation set as part of the project (Horizontal and Vertical) including reference ties for recovery.
  5. All monumentation shall be located utilizing NAD 83 (Horizontal Data), NAVD 88 (Vertical Data).
  6. Short report indicating adjustment factors and methods, signed, and certified by a Registered Surveyor (State of Ohio). The Registered Surveyor (State of Ohio) shall include in the report the datum used and all associated adjustments used.

## 12 PAVEMENT

The existing US68 pavement consists of a composite build-up. Brush Row Road is expected to be full depth asphalt.

The following pavement operations will be required at the listed locations:

| Facility                          | Begin Station | End Station | Pavement Build-up  |
|-----------------------------------|---------------|-------------|--|
| US68 Roadway                      | 96+41.66      | 105+16.10   | Item 254 - 1 ½ Pavement Planing<br>Item 441 - 1 ½ Asphalt Concrete Surface Course, Type 1 (448)<br>PG64-22                   |
| US68 Curb                         | 96+41.66      | 105+16.10   | Item 609 - Type 6 Curb   |
| US68 Shared Use Path (SUP) - Rt.  | 99+32.00      | 103+48.62   | Item 608 - 6" concrete walk<br>Item 304 - 4" Aggregate Base  |
| US68 Sidewalk - Rt.               | 103+48.62     | 105+16.10   | Item 608 - 4" concrete walk*   |
| US68 Sidewalk - Lt.               | 97+60.00      | 105+16.10   | Item 608 - 4" concrete walk*   |
| US68 Shared Use Path (SUP) - Ramp | 0+00          | 5+00        | Item 608 - 6" concrete walk<br>Item 304 - 4" Aggregate Base<br>Configuration for switchback design shall meet the conditions |

|   |         |          |   |
|---|---------|----------|---|
|   |         |          | described under “switchback” design. (See Appendix D)   |
| LMST Shared Use Path -  | 0+11.28 | 2+69.18  | Item 441 - 1 ½ Asphalt Concrete Surface Course, Type 1 (448)<br>PG64-22<br>Item 441 - 3” Asphalt Concrete Intermediate Course, Type 2, (448)<br>Item 304 - 6” Aggregate Base<br>Item 407 - Non-Tracking Tack Coat<br>Item 204 - Proof Rolling |
| Grade Separated Shared Use Path   | 5+00    | 10+28.82 | 7” (min) reinforced concrete with 1” monolithic concrete wearing surface  |
| North Parking Lot for the Shawnee Interpretive Center - Lt.   | 99+10   | 99+90    | Gravel (~11,500 sq.ft.)   |
| * Additional sidewalk sections will be required to access proposed staircases, located on both sides of US68. Staircases must terminate at their base, outside the clear zone.<br>See preliminary plans in the Feasibility Study, Appendix C. |         |          |   |

Payment for this described pavement work shall be paid for as follows:

ITEM 690E20240 SPECIAL - ROADWAY..... LUMP SUM  
 ITEM 400E99000 SPECIAL - FLEXIBLE PAVEMENT..... LUMP SUM

### 13 ROADWAY

The DBT shall provide for the listed roadway design items:

| Criteria            | Dimension   |
|---------------------|-------------|
| Design/Posted Speed | 45 mph      |
| Minimum Thru Lane   | 12’         |
| Minimum TWLTL       | Minimum 10’ |

|  |  |
|--|--|
| SUP  | Minimum 11'  |
| Buffer Width for SUP                             | Minimum 5'   |
| Sidewalk Widths                                  | Minimum 5'   |
| Calculations for Horizontal Pavement Tapers      | $L$ (length of taper) = $(\text{Width} * \text{Speed}^2) / 60$   |
| Stopping Sight Distance                          | 45 mph - 360', 55 mph - 495'   |
| Intersection Sight Distance                      | Right turning vehicles - 430'<br>Left turning vehicles - 500'  |
| ADA Compliant Slopes for Crosswalks              | At intersection with Stop/Yield control - 2% max. cross slope;<br>At intersection with no Stop/Yield control - 5% max. cross slope;<br>Midblock Pedestrian Street Crossings - Cross slope = to roadway grade |
| ADA Compliant Longitudinal Slopes                | 5% max. longitudinal slope;<br>8% slopes allowable for 35' length with 2% landings   |
| Vertical Clearance Under Bridge                  | 17'-6"   |
| Min. Horizontal Clearance from Bridge to Roadway | 19'-0"   |

The existing US68 roadway alignment will be maintained.

The existing US68 roadway width, between face-of-curb SB and face of curb NB, shall be maintained.

Sidewalks:  Yes  No Width: 5 ft. on east side of US68, and west side north of Brush Row Road

Shared Use Path:  Yes  No Width: 11 ft. on west side US68 south of Brush Row Road, and then taper down to meet path in front of Interpretive Center.

Standard roadside grading is applicable to US68, Brush Row Road, LMST, and the ramp components of the graded separated SUP.

All driveway locations shall have their existing aprons replaced with Portland cement concrete.

Intersections shall be designed to accommodate proper WB-64 truck turning movements.

Existing curb ramps shall be replaced and/or installed per ADA criteria.

No hazards are permitted within the clear zone.

The clear zone restrictions shall be based upon a possible future TWLTL within the project limits.

Design and construct the Shared Use Path with the following Design Criteria:

| Criteria  | Dimension    |
|---|--------------|
| Path Cross Slope  | 1% maximum   |
| Path Profile Grade  | 5% maximum   |
| Path Shoulders  | 2'           |
| Railing   | 3.0-3.5'     |
| Design Speed  | 12 mph*      |
| Stopping Sight Distance   | 90' minimum* |
| Vertical Curve Length   | 50' minimum* |
| * Not applicable to the switchback design for the SUP exit ramp on the west side of US68. |              |

Proper sight distance shall be provided at all driveway intersections, roadway intersections, SUP intersections and curb ramps.

All vertical grades constructed for the SUPs shall be ADA compliant.

Railing on the SUP ramps shall be in compliance with ODOT's Multi-Modal Design Guide, Sections 5.3 & 5.4 and SCD RM-5.2.

### 13.1 Design Exceptions

The project is not expected to have any design exceptions. The DBT shall develop a design which does not require approval of additional design exceptions.

### 13.2 Interchange Modification/Justifications Studies

Not applicable.

## 14 DRAINAGE

Portions of the existing US68 roadway drainage system shall be replaced as a part of the curb and catch basin reconstruction.



The drainage design shall follow the current revision of the Location and Design Manual, Volume 2, Drainage Design. Provide all drainage calculations to the Department concurrent with the review of the associated buildable unit(s).

Nothing in this scope of services alters the requirement of the DBT to obtain coverage for this project under the Ohio EPA NPDES General Permit for Storm Water Discharge from Small and Large Construction Activities (OEPA Permit #OHC000006), as well as compliance with all requirements of said permit and Supplemental Specification 832.

Following the Greene County standards, the DBT shall determine the amount of detention required, if any, due to the amount of impervious area being added.

All existing storm sewer conduits and structures shall be removed with the project. Design and construct new storm sewers as required. The catch basins, manholes, and storm sewer pipes, placed as part of the Interpretive Center Construction, do not need to be replaced, unless they are determined to be undersized.

Within the R/W, all exposed soils not covered by hardened surfaces or other landscaping shall be seeded and mulched, or sodded, at or before the completion of the project. Water, lime, commercial fertilizer, repair seeding and mulching, and inter-seeding, shall be provided to promote the growth and care of permanent seeded areas. Water, lime, and commercial fertilizer shall be provided to promote growth and care of permanent sodded areas. Soil analysis testing per ODOT CMS 659.02A is not required. Soil analysis testing per 659.02B is required. All conduits 24 inches or greater that are not incorporated in the final design can be removed or abandoned per CMS 202 and L&D Volume 2, Appendix B Sample Plan Note D103.

#### Underdrain Design:

- Follow the Pavement Design Manual, Section 205, except as noted in this scope.
- Proposed underdrains shall be 6" in diameter and provided at the locations required per Pavement Design Manual, Section 205, wherever full depth pavement is proposed.
- If there is an undercut, the underdrain should be placed 6" below the undercut, if this is not possible, then place the underdrain at the bottom of the undercut.
- In locations with pavement planing and resurfacing, existing underdrains may remain in place.
- Underdrains are to be designed and constructed on both sides of proposed Type B, B1, C, or C1 median concrete barrier.
- Per L&D Volume 2, Appendix B, Sample Plan Note D123, provide unobstructed outlets for all existing underdrains encountered during construction.
- Pipe Underdrains shall be provided. Prefabricated Edge Drains and Aggregate Drains shall not be used.
- Underdrains which outlet to a slope shall be provided with an outlet per SCD DM-1.1.
- A fabric filter wrap shall be used when existing soils consist of a sandy or sandy-silt composition.

Evaluate all offsite drainage ditches and swales entering the construction limits. Design and construct any necessary ditch lining per L&D Volume 2, Section 1102.3.

Scuppers are needed near the end of each span to minimize spread and flow over the bridge expansion joints. Stormwater is not permitted to outlet into the floodway. Spread on the

Pedestrian Bridge should be checked for the 2 year storm to ensure there is a minimum of 2' of dry path along the center of the bridge.

Slotted drains shall not be permitted. Trench drains shall be used per Section 1103.9.

If a Bioretention cell is selected for this project, the following apply:

1. Follow L&D Volume 2 design requirements when sizing the bioretention cell.
2. Ensure L&D Volume 2, Appendix B, Sample Plan Note W101 is included in the plans.
3. Construction of the bioretention cell shall be during the months, March - October of the final year of construction.

Test Section:

- Prior to placement of the amended soil into the excavated bioretention cell "basin", the contractor shall prepare a "test section" of the amended soil to verify the percolation rate of 1.4 inches per hour is met.
  - The contractor shall dig a test hole, 10ft x 10 ft in size, within the limits of the bioretention cell. The test hole shall be excavated to the depth of the proposed bottom of the bioretention cell.
  - Prepare the percolation test holes - remove all loose soil material from the bottom of the test hole. Add the amended soil mixture into the test hole and test as per ASTM D3385, standard test method for infiltration rate of soils in field using Double-Ring Infiltrometer.
  - A second test is to be conducted within the bioretention cell to verify the percolation rate of 1.4 inches per hour. This test is to be completed prior to planting.
4. The contractor shall apply Native Grass and Wildflower Seed Mixture to the bioretention cell.
    - Thoroughly mix all seed, and evenly sow the seed over the prepared areas at the following required rates:
      - a. Apply at a rate of 70 lb/acre
      - b. 16% Little Bluestem (*Schizachyrium Scoparium*)
      - c. 3% Sideoats Grama grass (*Bouteloua Curtipendula*)
      - d. 3% Prairie Dropseed (*Sporobolus Heterolepis*)
      - e. 10% Purple Coneflower (*Echinacea Purpurea*)
      - f. 6% Black-Eyed Susan (*Rudbeckia Hirta*)
      - g. 6% Partridge Pea (*Chamaecrista Fasciculata*)
      - h. 28% Grain Oats (*Avena Sativa*)
      - i. 28% Grain Rye (*Secale Cereal*)
    - Rake the bioretention cell area lightly to loosen the bed area prior to seed application.
    - Do not sow seed during high winds.
    - Broadcast seed directly to bioretention cell area; do not apply using Hydroseeding methods.
    - Bioretention cell seeding shall be between April 1 and May 31st or between September 1st and October 31st.
    - Do not roll or compact the seeded area with equipment after broadcasting. Thoroughly water all seeded areas to help incorporate the seed. Do not apply lime or fertilizer to the bioretention cell areas.
    - Within 48 hours of applying seed to the bioretention areas, construct erosion control Mats Types A, B, C, or E Per CMS 671 over the surface of all bioretention cells. Place erosion control mats such that they extend a minimum of 1 foot outside the perimeter of the bioretention cells on all sides

to enable the mats to be secured to the soil outside of the bioretention cell. Thoroughly water the bioretention cell areas after installation of erosion control mats.

- The contractor shall water one inch per week for the first eight weeks keeping the seeded area moist until establishment.

The cost for all material, labor, and equipment to complete all other work described in Section 14 for drainage for the entire project including, but not limited to, BMP, storm sewer conduits, manholes, inlets, catch basins, underdrains, paved gutters, headwalls, pipes removed, manholes removed, catch basins removed, inlets removed, etc. shall be paid for under

ITEM 611E97800 SPECIAL - DRAINAGE.....LUMP SUM

### **14.1 Stream Crossing Investigation (Floodplain Analysis)**

The proposed crossing is located in a special flood hazard Zone AE with Floodway. The Consultant shall perform a detailed floodplain analysis for each waterway crossing. The analysis shall be as per the Location & Design Manual and The Bridge Design Manual and as follows:

1. Obtain the Effective Model (EM) from the Local Floodplain Administrator or FEMA;
2. Update the EM with any changes to the existing site that has occurred since the publication of the EM in order to create the Existing Model (XM);
3. Add the proposed crossing to the XM to create the Proposed Model (PM);
4. The extent of the models shall be far enough in the upstream and downstream direction in order for the water surface profiles from the PM to tie back into the XM;
5. The widths of the cross-sections shall, at a minimum, extend to the limits of the 100-year floodplain.

The results of the detailed floodplain study, supporting hydraulic calculations, and recommendations shall be submitted to the District for review and comment prior to construction. The detailed floodplain analysis shall be submitted to the local flood plain coordinator by the DBT, after the District has signed off on the submittal.

Once the floodplain and TAF analysis information is sent to Local Floodplain Coordinator, the D8 Hydraulics Engineer will sign Flood Impact Statement documentation, which in turn, will then be published on the public website. All Local, State, and Federal Requirements shall be met prior to sign-off. There is a 30 day notification period for the Flood Impact Statement documentation to be publicized on the website. **Construction cannot start until after this 30 day notification period.**

### **14.2 Temporary Access Fill:**

If the DBT decides to use a Temporary Access Fill within Oldtown Creek, the following conditions apply:

The Special Provisions detail the requirements for a TAF on this project. In addition to the 2xHMMF from StreamStats that the Special Provisions require, the project must also analyze the 100 year flow from the FIS. For the 2xHMMF, the TAF cannot cause a rise higher than the OHWM. For the 100 year FIS Flow, the TAF cannot cause a rise between Existing Conditions and TAF Conditions. This is because the project is located within a Zone AE floodplain.

The Preliminary TAF analysis has been completed for this project. As shown in Appendix K, two 30” conduits were found to meet the allowable headwater requirements for both the 2xHMMF and the 100 year FIS flow.

If the DBT is unable to meet these requirements, then the contractor will be required to buy Flood Insurance for the properties for the duration the TAF is in place.

See Appendix K: GRE-68-12.65 TAF Report.pdf

Fill material to be used to construct the temporary access fill shall conform to the requirements of CMS 703.19.B.1 and 703.19.B.2 (Dumped Rock Fill Type A or Type B).

The results of the detailed flood plain study, supporting hydraulic calculations, and recommendations shall be submitted to the District for review and comment prior to construction. The detailed flood plain and TAF analysis shall be submitted to the local flood plain coordinator, by the DBT, after the District has signed off on the submittal.

Once the floodplain and TAF analysis information is sent to Local Floodplain Coordinator, the D8 Hydraulics Engineer will sign the documentation, which in turn, will then be published on the public website. All Local, State, and Federal Requirements shall be met prior to sign-off. There is a 30 day notification period for the documentation to be publicized on the website. **Construction cannot start until after this 30 day notification period.**

### 14.3 Erosion Control/Best management Practices (BMPs):

Post-construction storm water Best Management Practices (BMP) are required as per Location and Design Manual, Volume 2.

All permanent erosion control for the entire project including, but not limited to, soil analyses, topsoil, commercial fertilizer, lime, water, seeding and mulching, repair seeding and mulching, inter-seeding, sodding, mowing, etc. required to complete the work specified in this scope shall be paid for under

ITEM 659E99000 SPECIAL - PERMANENT EROSION CONTROL.....LUMP SUM

## 15 Geotechnical

In addition to the manuals and specifications outlined in Section 4, the following FHWA manuals shall be utilized for various aspects of the project design. Utilize the most current edition as of the date of project letting. ODOT specifications and manuals control when a design conflict is identified.

- Geotechnical Engineering Circle No. 4 - Ground Anchors and Anchored Systems
- Geotechnical Engineering Circle No. 7 - Soil Nail Walls
- Geotechnical Engineering Circle No. 11 - Design and Construction of Mechanically Stabilized Earth Wall and Reinforced Soil Slopes, Vol. I and Vol. II.

### **15.1 Subsurface Investigation**

Preliminary geotechnical information has been provided within the project area. The DBT shall thoroughly review all available geotechnical information in final plan development for the project. Provide additional test borings, laboratory testing and geotechnical analyses as necessary to supplement the existing geotechnical data for the new proposed work to meet the requirements of the Specifications for Geotechnical Exploration and the Geotechnical Design Manual. Incorporate archive geotechnical borings available from the ODOT TIMS database into the final design as well as all Soil Profile and Structure Foundation Exploration drawings.

Final geotechnical evaluation is required as part of the final design activities. The report shall be submitted in a text searchable PDF format with appropriate table of content links. The reports are to include all design calculations supporting the recommendations.

The DBT shall submit a geotechnical report addressing all aspects of the project design, including but not limited to, roadway subgrade, roadway embankment and cut slopes, bridge foundations, bridge abutments and permanent and temporary retaining walls. The geotechnical report shall meet the requirements of the Specifications for Geotechnical Explorations (SGE) and shall be submitted with the Interim Design submission. Obtain additional borings as necessary to satisfy the SGE and to supplement the provided geotechnical information for completion of final design. Submit the draft geotechnical report, along with scaled draft Geotechnical Profile sheets, in PDF format. The Geotechnical Profile drawings shall follow the format and guidelines of the SGE. Incorporate all archive borings in addition to any recent borings in the Geotechnical Profile drawings.

The District will review the report and geotechnical drawings with the Interim Design submission. A corrected reported and geotechnical drawings are to be submitted with the Final Design submission. Submit a disposition of the Interim Design comments with the Final Design submission. The final geotechnical report, Geotechnical Profile sheets shall be included in the Final Record Drawings submitted to the District. Additionally, post the final geotechnical report and Geotechnical Profile sheets to the ODOT Geotechnical Data Management System (GeoMS) as outlined in Section 700 of the Specifications for Geotechnical Exploration.

### **15.2 Permissible Permanent Cut and Fill Slopes**

The maximum cut and fill slopes shall be 2H:1V. All final cut and fill slopes must remain within the right-of-way limits. All retaining walls and their components, are to be within the permanent right-of-way. The Geotechnical Engineer of record shall perform global stability analyses to evaluate both the long-term and short-term stability of the slopes (embankment or cut).

## 15.3 Retaining Walls

### General Wall Notes

All retaining walls, whether temporary or permanent, shall be designed to limit the top of wall deflection to be less than 1% of the exposed wall height, except as noted further in this scope. Walls supporting structures, utilities, and pavement, shall be designed to limit top of wall movement as to prevent damage to the adjacent structure or pavement. The DBT will be responsible for repairs to adjacent facilities that occurs due to excess wall deflection.

All permanent retaining walls shall be designed to allow ongoing maintenance, inspection, and access upon final completion.

Plan submissions shall provide each retaining wall (temporary and permanent) with unique designations. The designations shall clearly distinguish between the temporary and permanent walls.

The design of each wall type shall be performed per AASHTO LRFD guidelines.

### MSE Walls

In addition to the requirements of SS 840 and the Bridge Design Manual, design, and construction of any MSE wall shall include the following:

- For MSE walls with upper surfaces sloping towards top of the MSE panels, MSE walls shall include a paved gutter at the top of the wall to collect drainage. Utilize a standard paved gutter meeting the requirements of SCD.
- If a settlement waiting period is incorporated at bridge abutments supported by MSE walls, the waiting period cannot begin until the area above the MSE has been brought to the design subgrade elevation. The DBT must incorporate a temporary surcharge from the design bottom of bridge footing grade to the design roadway subgrade elevation to permit full soil load application during the settlement waiting period.
- Backfill from the bottom of the bridge footing to the subgrade elevation of the approach slab shall consist of Granular Material Type B. The granular material Type B shall meet the material requirements outlined in SS 840 if the reinforcing straps for the bridge wing walls will extend into the granular material, Type B.
- Do not use corners with interior angles of less than 90 degrees

### Temporary Retaining Walls

Temporary retaining walls, including but not limited to phase line sheet pile walls, soldier pile walls and temporary MSE wire walls, shall be designed with the requirement that during wall service, the top of wall deflection will be the lesser of 1% of the wall height or 1". The maximum wall deflection of 1" applies to both service and strength limit state loading conditions. All temporary wall designs shall be reviewed and accepted by the Geotechnical Engineer of Record and shall be designed per the latest LRFD guidelines. Submit all design calculations, with concurrence by the Geotechnical Engineer of Record, to the Department as outlined in CMS 501.05 with the Buildable Unit in which the wall is to be constructed.

## **15.4 Bridge Foundations**

Bridge foundations shall conform to the scope of services and provisions of this section in addition to the requirements of the Bridge Design Manual and the CMS. The top of bedrock for all bridge foundations is considered the top of gray interbedded shale and limestone.

Augercast piles, or continuous flight auger (CFA) piles, are not permitted.

Timber piles or permanent timber components are not permitted for any permanent structure.

For pile foundations, the DBT shall perform a drivability analysis using the wave equation method to select the pile driving impact hammer and the wall thickness required for installing the piles to the required ultimate bearing value, without damage. The geotechnical engineer of record shall perform the drivability analyses and submit the results with the geotechnical report. A dynamic load test is required at each substructure unit using piles, regardless of the pile type and ultimate bearing value.

When a significant height of new embankment is constructed over a compressible layer of soil and long-term settlement is anticipated, the possibility of downdrag loads on the piles shall be considered. The potential downdrag load shall be computed according to AASHTO LRFD or LRFD Bridge Design Specifications.

Pile setup may be effective and can be considered in the final pile design. Provide a dynamic load test during the initial driving as well as restrike test for all substructure units incorporating pile setup in the pile capacity. A minimum 7 day waiting period from the end of initial driving to the beginning of restrike is required for all piles in which the final Ultimate Bearing Value (UBV) will be determined using pile setup.

## **15.4 Geotechnical Instrumentation and Construction Vibration**

### **Monitoring Plan**

The Contractor shall develop, implement, and maintain a geotechnical instrumentation and construction vibration monitoring plan to monitor vibrations, accelerations, vertical settlement, and lateral movement of temporary support structures and adjacent ground, and existing structures, and infrastructure during construction.

Wherever vibration-producing activities could affect a structure, building, sewer, or utility, the Contractor shall prepare a Vibration Monitoring and Control Plan to address the potential impacts to nearby receptors due to construction or demolition activities associated with this Project. The term “receptor” includes buildings, structures, utilities, utility service connections, occupants, and sensitive operations/processes for which construction impacts or Work above recommended vibration limits may be detrimental. The plan shall include ground vibration threshold limits.

The monitoring plan shall address how the Contractor intends to complete vibration-related activities and meet the following minimum requirements:

- A. Develop a list of all anticipated vibration producing activities and where and when they are expected to occur;
- B. Develop a list of all potentially impacted receptors from these activities;
- C. Provide a vibration susceptibility analysis for each identified receptor, and establish a vibration control limit to preclude damage, including threshold damage, to each of the identified receptors and include in a susceptibility study;
- D. Provide a plan for notifying the public of potential vibration impacts, responsible Project personnel, receptors requiring precondition surveys, and vibration monitoring activities;
- E. Monitor construction related ground movement and vibrations at the nearest and most critical receptor(s), and notify Department in writing, immediately if established vibration limits are exceeded;
- F. Provide instrumentation locations, monitoring procedures, and a description of the monitoring devices and/or manufacturers’ brochures;
- G. Access any sensitive community or business operations that may be affected by ground movements and vibrations;
- H. Provide recommendations for vibration-limiting methods to meet the established maximum safe vibration levels;
- I. Develop Sewer Condition Reports;
- J. Develop Structures and Pavement Reports; and
- K. Develop Building Condition Reports.

List of receptors shall include:

- A. Utilities, including storm and sanitary sewers
- B. Storage tanks
- C. Buildings



- D. Newly constructed elements
- E. Existing structures within zone of influence of vibration producing activities
- F. Proposed bridge

The Contractor construction monitoring plan shall detail the proposed program of instrumentation and monitoring, set monitoring frequency, assess the impacts to existing structures and utilities, establish threshold values of the monitored parameters, and describe the response plan that will be implemented when threshold parameters are exceeded. Construction monitoring of the proposed bridge shall include vertical, horizontal, and tilt movements and vibration of bridge piers in sufficient locations as to determine adequate performance and safety of the proposed bridge and its foundations during construction.

The Contractor shall ensure that the instrumentation can be read remotely, and that data shall be uploaded to a website provided by the Contractor, and which shall be accessible remotely by both the Contractor and the Department. Remote-access functionality shall include the ability to extract data and to isolate an individual monitoring point or multiple points. The presentation system shall include the functionality to modify the extents and scale of data plotting such that arbitrary views are available.

The Contractor shall provide weekly construction instrumentation monitoring reports to the Department. Monitoring reports shall be interpretive in nature, and shall enumerate any corrections applied to the data including, but not limited to any notification measures taken regarding data. The weekly reports shall include clear and explicit statements of exceedances of any pre-determined threshold values. The Contractor shall maintain the instrumentation and monitor the measurements during and after construction up to Completion of the Contract.

### **Vibration Susceptibility Study**

Contractor shall prepare a Susceptibility Study to assess each building, structure, Utility, Utility Service Line, and other receptors with sensitive operations/processes and occupants in the survey area defined below and determine its susceptibility to disruption by vibration-producing Work. "Disruption" includes both cosmetic cracking (threshold damage) and impacts on sensitive equipment and its operation. Categorize the susceptibility of each building to cracking during Work as high, moderate, or low as defined below. Susceptibility to cracking is the threshold of cosmetic cracking, which is:

- A. Threshold damage (e.g., opening of old cracks and formation of new plaster cracks, dislodging of loose structural particles such as loose bricks from chimneys);

B. Architectural or minor damage that is superficial and does not affect the strength of the structure (e.g., broken windows, loose or fallen plaster, hairline cracks in masonry);

The categories of building susceptibility to vibration are:

A. High susceptibility: An identified receptor has high susceptibility if it has already experienced a significant amount of degradation of its primary structural or non-structural system, and additional vibrations may further degrade these elements and possibly result in injuries to persons in the building. Identified receptors with loose or unstable elements (such as loose bricks or structurally cracked terra-cotta cornices) are in this category.

B. Moderate susceptibility: An identified receptor has moderate susceptibility if, although some building deterioration has occurred prior to construction activities, it has not yet experienced a significant degradation of its primary structure or its non-structural systems that would lead to further building degradation due to construction vibrations. This category includes identified receptors with bricks that may be loose (as determined by visual inspection) and identified receptors with small to moderate quantities of fragile, potentially unstable contents that may be damaged by construction vibrations.

C. Low susceptibility: An identified receptor has low susceptibility if it is not expected to experience cosmetic cracking when subject to moderate levels of vibrations (such as those permitted by the U.S. Bureau of Mines, Office of Surface Mining (OSM) vibration criteria) and if its contents will not be damaged by moderate vibration levels.

As part of the Susceptibility Study, determine whether there are sensitive operations or equipment nearby, such as hospitals, computerized industries or banks, and industrial machinery. Include a list of buildings with sensitive equipment or procedures in the Susceptibility Study. The Susceptibility Study will include the three items listed below, which will be provided to Department as part of the Vibration Monitoring and Control Plan.

### **Anticipated Vibration-producing Activities**

Identify locations where moderate to heavy construction activities will occur that are capable of producing vibrations that may cause damage, interference, or annoyance to receptors. Heavy activities include operations such as blasting, pile-driving, dynamic compaction, and percussive demolition. Moderate construction activities include operations such as vibratory compaction and heavy equipment operation. Present locations on a plan sheet or map that shows in-place topography, including nearby structures and buildings.

### **Potentially Impacted Receptors**

Produce a map that includes the potential receptors established. Identify receptors by type of construction, size, material, address (if applicable), and owner. Identify all receptors in the

survey area and categorize them as high, medium, or low susceptibility. The survey area is defined as the area including:

- A. All buildings and structures within a distance at which vibrations of 0.1 inch per second or greater will occur from construction activities and/or contributing structures within historic districts or individually listed properties listed in or eligible for the National Register of Historic Places within 140 feet of proposed construction work.
- B. Any building that has sensitive operations or Utility that may be affected by vibration-producing activities.

### **Establish Vibration Limits**

Establish safe vibration levels that preclude damage to structures. Use these safe vibration levels as vibration limits for the Contract. Set separate levels for each receptor, if desired, but the limits may not be less stringent than those set forth in the OSM Alternative Blasting Level Criteria (Modified from Figure B1, RI 8507U.S. Bureau of Mines). Express the vibration criteria in peak particle velocity (PPV) with units of inches per second (ips).

### **Condition Surveys**

#### **Pre-Construction Condition Survey**

The Contractor shall conduct a pre-construction inspection and survey of the existing condition of all structures and properties for the purposes of generating photographic and video documentation of existing damage, leaks, and cracks of each receptor defined herein, prior to beginning any Work that produces perceptible ground vibrations. The pre-construction condition survey shall form the basis against which all new cracks, existing progressive cracks, or damage will be measured. The spatial extent of the pre-construction survey shall encompass the Project Limits plus certain areas beyond the Project Limits, as detailed under Section 8. The Contractor and Department will further coordinate receptor locations prior to the commencement of vibration causing construction activities.

The Contractor will coordinate with the Department to notify each household, institutional operator, Utility Owner, structure owners, and business establishment identified as receptors. Notify each contact via a registered letter at least three weeks prior to the survey. Obtain confirmation of receipt of notification letter. Include the following at a minimum in the letter:

- A. Explanation of the potential for producing vibrations;
- B. Steps the Contractor will take to avoid potential damage from those vibrations;
- C. Name and telephone number of a contact person to respond to any questions or concerns;

D. Description of the pre-construction survey, including probable dates that the survey will be conducted. Provide at least two dates;

E. Description of Vibration Monitoring Plan; and

F. Meeting Invitation to receptors to educate about the pre-construction survey process prior to commencing surveys.

The full spatial extent of the Contractor pre-construction condition survey necessarily depends upon the Contractor's design and proposed means and methods of construction. In its preparation for the pre-construction survey, the Contractor shall be responsible for predicting anticipated vibration and settlement effects at various offset distances from the Project Limits, and for ensuring that the pre-construction condition survey encompasses at a minimum all properties within areas that are identified by the Contractor to be potentially prone to: (i) ground vibration levels, expressed as resultant peak particle velocity, in excess of 0.10 inches per second or greater; and (ii) predicted ground settlements of greater than 0.25 inches. In addition, the spatial extent of the pre-construction condition survey shall be integrated with the Contractor's implementation of its strategy for conformance with the Environmental Commitments related to the protection of cultural resources (see Section 8 (Environmental)).

The Contractor shall submit to the Department the records and photographic and video documentation of the pre-construction condition survey, which shall be signed and stamped by a Professional Engineer registered in the State of Ohio. Submit the records prior to commencement of construction with the affected area.

### **Post-Construction Condition Survey**

The Contractor shall conduct a post-construction condition survey of the zone and properties covered by the pre-construction conditions survey herein. The post-construction condition survey shall be performed by the Contractor at Substantial Completion, and it shall compare the post-construction conditions with the conditions recorded in the pre-construction condition survey. The location and scope of the post-construction condition survey shall match those of the pre-construction condition survey. The survey shall provide information on whether the specific receptors have been damaged due to Construction Work and shall detail the extent of damage to each impacted receptor.

The complete documentation of the post-construction survey, describing the comparison with the preconstruction conditions and signed by a Professional Engineer registered in the State of Ohio, shall be submitted to the Department.

Damage identified in the Post-Construction Condition Survey that was not present in the Pre-Construction Survey shall be repaired by the Contractor to a condition approved by the Department.

## **15.5 Payment**

Payment for the geotechnical items is as follows:

ITEM 690E20080 SPECIAL-SUBSURFACE INVESTIGATIONS.....LUMP SUM

ITEM 530E99050 SPECIAL-RETAINING WALLS.....LUMP SUM

### 15.6 Inspection and Compaction Testing of Unbound Materials

Perform inspection and compaction testing of all unbound materials according to Supplemental Specification 878 - Inspection and Compaction Testing of Unbound Materials. All inspection and compaction testing of unbound materials shall be paid under:

ITEM 878E25000 INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS...LUMP SUM

## 16 LANDSCAPING

Landscaping Required:  Yes  No

Note: Regardless of other Landscaping requirements, the DBT shall permanently grade and seed all impacted areas.

The DBT shall rely upon the provided conceptual drawings, in conjunction with ODOT Landscaping criteria provided in L&D Vol. 1, Section 900, for proposed landscaping items. (See Appendix M).

Payment of landscaping items shall be bid under the following:

ITEM 661E99000 SPECIAL - LANDSCAPING.....LUMP SUM

## 17 ADDITIONAL DESCRIPTION OF REQUIRED WORK AND SPECIAL PROVISIONS

### 17.1 Aesthetics

The provided aesthetic options define what the final overall design will “look” like and shall serve as the template for the overall final design. The DBT shall develop detailed plans based upon the selected architectural renderings and construct the design accordingly. (See Appendix M).

Payment of all items associated with “enhanced” aesthetics shall be bid under the following:

ITEM 690E21000 SPECIAL - AESTHETICS.....LUMP SUM

## 18 STRUCTURES

### 18.1 General Requirements

All Shop Drawings shall comply with Item 501.

Initial foundation investigation will be provided by the Department. (See Appendix E). The DBT shall determine the need for additional subsurface investigations necessary to complete the Project. Geotechnical explorations shall be performed and documented in accordance with the Specifications for Geotechnical Explorations.

Stairs shall be incorporated on both the east and west side of US68 and shall terminate outside the clear zone.

- A. All Shop Drawings shall comply with Item 501.
- B. Initial foundation investigation will be provided by the Department. (See Appendix E). The DBT shall determine the need for additional subsurface investigations necessary to complete the Project. Geotechnical explorations shall be performed and documented in accordance with the Specifications for Geotechnical Explorations.
- C. Construct a pedestrian bridge and ramp compliant with the American Disabilities Act (ADA). The DBT is responsible for full compliance with all Stage and Federal policies/procedures.
- D. Span Arrangements (See Appendix C.)
  - a. Maximum of four spans
  - b. Span 1 (over US68) and span 4 (over Oldtown Creek) shall be trusses
  - c. Spans 2 and 3 shall be prestressed I-girders (minimum 3 girder lines - nontypical shapes are acceptable)
- E. The bridge shall accommodate a 90 psf pedestrian loading for the available width and an H15-44 vehicle without impact. Pedestrian and vehicle loading is not concurrent.
- F. Concrete reinforcement shall be galvanized steel reinforcement, minimum yield strength 60 ksi.
- G. Truss structural members shall be constructed of open section members (I-sections, H-sections, channels, angles, etc.). Hollow structural sections (HSS sections, tubes, etc.) shall not be used for truss structural members.
- H. The manufacturer shall design the truss for the design loads and design codes specifications using a 1.05 load modifier for non-redundancy design for the truss fracture critical members, in accordance with the AASHTO LRFD Bridge Design Specifications, Article 1.3.4. Include a list of all items considered non-redundant.

- I. When the collection of water at the end of a truss member is a possibility, either during construction or during service, the truss member shall be provided with a minimum 1 inch diameter drain hole at its lowest point where water would otherwise collect, to let water out.
- J. See Appendix K (Metal Stay in Place Forms) for additional requirements
- K. The fence fabric shall be welded wire fabric with an opening of 3 inch horizontal and ½ inch vertical. The core wire shall be 10.5 gage.
- L. Design and construct a fourteen foot tall fence (measured from top of walkway).
- M. Precast concrete deck panels are not permitted.
- N. Bituminous type wearing surfaces are not permitted for bridge decks.
- O. A minimum 17'-6" vertical clearance shall be maintained over US68 at all times.
- P. Seal the superstructure and substructure concrete per the BDM. The sealer shall be an epoxy urethane sealer. All substructure areas and pedestrian accessible areas of the superstructure shall also have graffiti coating meeting the requirements of Supplement 1803 on top of the epoxy-urethane sealer. Colors and patterns shall conform to the final architectural renderings.
- R. Stairs shall be incorporated on both the east and west side of US68, as depicted in the architectural renderings, and the last step on the ground surface shall terminate outside the clear zone.

## 18.2 Design and Construction Requirements of Structure

### 18.2.1 Proposed ODOT Structure: SFN: 2901139 (Span #1)

Structure Identification: ODOT Structure: Bridge No.: GRE-00068-1292  
SFN: 2901139, Proposed  
Feature Intersection: (Span #1 over US68)

#### Alignment & Profile

Alignment:  Follow Existing  
 Relocated:  Per ODOT  Per DBT

Profile:  Follow Existing  
 Relocate:  Per ODOT  Per DBT  
 Feathered (Adjustment):  Per ODOT  Per DBT

Span Configuration:  Per Original  
Span Lengths:  Per ODOT  Per DBT  
 Variable

Spans: 1 span maximum

Transverse Sections

Roadway Width: 15 feet between face of railing

Railing:  Yes  No Type: TBD

Fence:  Yes  No Height/Type: 14' tall (measured from top of walkway) Straight Vandal Protection Fence over US68

Sidewalks:  Yes  No Width: N/A

Shared Use Path - Exit Ramp:  Yes  No Width: 15 ft. on structure

Investigate the need for Prefabricated Structure:  Yes  No

Investigate the need for Retaining Walls:  Yes  No

Retaining walls are likely along the exit ramp, west of US68.

Required Work: For Bridge Alternative design, see Appendices C & D.

**18.2.2 Proposed ODNR Structure: SFN: 2926107 (Spans #2, #3, & #4)**

Structure Identification: ODNR Structure: Bridge No.: GRE-00068-1292

SFN: 2926107, Proposed

Feature Intersection: (Spans #2, #3, and #4 over floodplain and Oldtown Creek)

Alignment & Profile

Alignment:  Follow Existing

Relocated:  Per ODOT  Per DBT

Profile:  Follow Existing

Relocate:  Per ODOT  Per DBT

Feathered (Adjustment):  Per ODOT  Per DBT

Span Configuration:  Per Original

Span Lengths:  Per ODOT  Per DBT

Variable

Spans: 3 spans maximum

Transverse Sections

Roadway Width: [Insert Text]

Railing:  Yes  No Type: TBD

Fence:  Yes  No Height/Type: 42" high pedestrian railing

Sidewalks:  Yes  No Width: 15 ft.



Shared Use Path:  Yes  No Width: 15 ft. on structure

Investigate the need for Prefabricated Structure:  Yes  No

Investigate the need for Retaining Walls:  Yes  No

Retaining walls are likely at the intersection on the shared use path and the LMST for span 4.

Required Work: For Bridge Alternative design options, see Appendices C&D.  
The piers have to be outside of the floodway and the low chord has to be above the 100 year WSE. Floodplain coordination is expected to be completed prior to project award.

Payment of structure items shall be bid under the following:

- ITEM 512E99000 SPECIAL - SEALING OF CONCRETE.....LUMP SUM
- ITEM 514E99040 SPECIAL - BRIDGE PAINTING.....LUMP SUM
- ITEM 530E99010 SPECIAL - SUBSTRUCTURE.....LUMP SUM
- ITEM 530E99020 SPECIAL - SUPERSTRUCTURE.....LUMP SUM

### 18.3 Noise Barrier

Noise Barrier Construction Required:  Yes  No

## 19 TRAFFIC CONTROL

### 19.1 Pavement Markings and Delineators

The DBT shall perform Work related to pavement markings and delineators in accordance with Section 7.1 and the following sections.

- A. Pavement Marking Requirements and Locations:  
Remove and replace existing pavement markings in kind or as specified with the addition of a TWLTL.
- B. Raised Pavement Markers:  Yes  No.
- C. Delineators:  Yes  No.
- D. Barrier Reflectors:  Yes  No.
- E. Object Markers:  Yes  No.
- F. Rumble Strips:  Yes  No.

Payment of the above traffic control items shall be bid under the following:

- ITEM 630E99000 SPECIAL - PAVEMENT MARKINGS .....LUMP SUM

### 19.2 Signing

The DBT shall perform Work related to signs in accordance with Section 7.1 and the following sections.

#### 19.2.1 Flat Sheet Signs

A. Flat Sheet Sign work required:  Yes  No.

1. Redesign and replace all existing flat sheet signs with new signs. This includes all signs on the mainline. This also includes all STOP signs on intersecting roads. All newly installed signs, along US68, Brush Row Road and the LMST, shall be sized and designed in accordance with the OMUTCD.
2. Any signs associated with the existing RRFB located at the US68/Brush Row Intersection, shall be removed, and reinstalled in accordance with the OMUTCD.

Removed flat sheet signs shall become the property of the Contractor.

#### 19.2.2 Extrusheet Signs

1. Extrusheet Sign Work Required:  Yes  No.

#### 19.2.3 Ground Mounted Post Supports

A. Replace:  Yes  No.

1. Redesign and replace all existing ground mounted post supports with new supports. New sign installations shall be on new supports. No reuse of existing ground mounted supports shall be allowed.
2. Removed ground mounted supports shall become the property of the Contractor.

#### 19.2.4 Ground Mounted Beam Supports

A. Ground Mounted Beam required:  Yes  No.

B. Overhead Supports:  Yes  No

Payment of the above traffic control items shall be bid under the following:

ITEM 630E99000 SPECIAL - SIGNS AND SUPPORTS .....LUMP SUM

### 19.3 Lighting

The DBT shall perform Work related to lighting in accordance with Section 7.1 and the following sections.

- A. There are currently three luminaires installed on AES utility poles along the west side of US68. Only the luminaire located at the Brush Row Road intersection will be re-installed.

Payment of lighting items shall be bid under the following:

ITEM 625E99000 SPECIAL - LIGHTING .....LUMP SUM

## 19.4 Traffic Signals

The DBT shall perform Work related to lighting in accordance with Section 7.1 and the following sections.

- A. Signal Support work required:  Yes  No.
- B. Vehicle Signal Heads:  Yes  No
- C. Conduit:  Yes  No
- D. Cable and Wire:  Yes  No

Signal(s) part of an Intelligent Transportation System (as defined by the Traffic Engineering Manual, Part 13):  Yes  No

## 19.5 Intelligent Transportation Systems (ITS)

- A. ITS Work Required:  Yes  No

## 20 PROJECT SCHEDULE REQUIREMENTS

The DBT shall develop and maintain a project schedule in accordance with the selected note:

- CM&S 108.03 A. Progress Schedule
- Proposal Note 105 - Critical Path Method Progress Schedule for Single Season Projects
- Proposal Note 107 - Critical Path Method Progress Schedule for Multi-Season Projects
- Proposal Note 132 - Critical Path Method Progress Schedule for Design/Build Multi-Season Projects including updates released on or before the prebid meeting date, shall be met or exceeded.

## 21 PLAN SUBMITTALS AND REVIEW REQUIREMENTS

### 21.1 Plan Components

All plan format submitted by the DBT shall be in conformance with the following ODOT manuals:

- 1. Real Estate Policies and Procedures Manual Section 3100.  
Note: The DBT shall also identify all topographic features within the existing and proposed Right-Of-Way limits, including underground utilities.
- 2. Bridge Design Manual.  
Note: Bridge subsummaries are required.
- 3. Location and Design Manual, Volume 3:  
The following sections of the Location and Design Manual, Volume 3 are NOT required:

|         |                                  |
|---------|----------------------------------|
| 1302.13 | Plan Signatures                  |
| 1307.2  | General summary sheet            |
| 1307.4  | Quantity Calculations*           |
| 1310.3  | Earthwork and Seeding Quantities |

\* Quantity sheets and sub-summaries for the bridge shall be provided.

Units of measure are **NOT** required.

Simplified plans (section 1301.2) are **NOT** allowed.

Payment of plan deliverable items shall be bid under the following:

|   |          |
|---|----------|
| ITEM 690E20040 SPECIAL - PRELIMINARY DESIGN.....          | LUMP SUM |
| ITEM 690E20050 SPECIAL - FINAL DESIGN.....                | LUMP SUM |
| ITEM 690E20010 SPECIAL - AS-BUILT CONSTRUCTION PLANS..... | LUMP SUM |
| ITEM 690E20220 SPECIAL - CONSTRUCTION PLANS.....          | LUMP SUM |

### 21.2 Quality Control

The DBT is responsible for the professional quality, technical accuracy and adherence to the Governing Regulations listed in Section 7.1 (Governing Regulations) of this document, for all plan submittals required under this contract.

The DBT shall immediately notify the Department of any apparent discrepancy between the various design and construction manuals and the Contract Documents.

The Department shall have the discretion to dictate the level of Design review. The Department’s acceptance of the design or failure to identify improper design does not, in any way, relieve the DBT of the responsibility for the quality, accuracy, or feasibility of the Design.

In the event the Department determines that any required submission is incomplete, contains inaccuracies which preclude a meaningful review, or does not adhere to the Governing Regulations listed in Section 7.1 (Governing Regulations) of this document, the Department will advise the DBT of the shortcomings and direct the DBT to revise and resubmit the plan. No time extension will be granted because of such action. The Department will schedule a review meeting or issue review comments as appropriate.

### 21.3 Buildable Units

Buildable Units (BUs) are portions of the projects which can be designed, reviewed, and built with only limited controls and assumptions coming from the design of other portions of the project. Often a Buildable Unit will be defined by a geographic area within the plan, but it may also be defined by types of work or construction stages which may require or permit similar, nearby work to be divided into separate Buildable Units. All Buildable Units shall summarize the materials required to construct that portion of the project. The summary shall include the Construction and Material Specifications Item Number, and a description of the materials to be used.

For the Interim (Section [21.9](#)), Final (Section [21.10](#)), Released for Construction Plans (Section [21.11](#)) Design submittals, the DBT may break the project work into two or more separate BU which can be progressed through design and construction with minimal or known effect on each other and/or which can be dealt with sequentially such that sufficient data is available for design and review of each BU. In order that the design and construction of one BU may proceed without significant approved information from an associated BU, the DBT may develop and propose assumptions which will allow for the first BU to proceed through design and/or construction. These assumptions shall be submitted for review and comment but their accuracy and effort upon the final design are the sole responsibility of the DBT. Should error in these assumptions result in additional work, remedial work, or other changes to assure an acceptable design or should they result in the need to remove work and substitute additional work, the Contractor shall be responsible for all such costs including, removal of unacceptable materials from the site, modification, additional work, repairs, etc. as necessary to produce an acceptable result.

If the DBT elects to develop Buildable Units, the DBT shall prepare, for review by the Department, a table of Buildable Units for the project with each BU described in detail. If the table is approved, the DBT shall modify the Progress Schedule to show a separate group of activities for BU and these activities shall encompass all the design and construction work in each BU. The Progress Schedule for design review shall be developed such that information from other dependent BUs is available at the time of submission of the BU at hand. Work activities shall be further separated in the Progress Schedule to show a meaningful completion status (i.e. separate activities comprising the placement of a bridge deck on steel beams shall describe; shoring, form building, steel placement, placement of conduit & joints, pouring concrete, forming parapets, pouring or slip forming parapets, provision of membranes, provision of wearing surfaces, curing, repair, form removal, cleaning, etc.).

The Final Review Submission and Construction Plans shall specifically be identified by the Buildable Unit code. If the design of a BU requires input information from an adjacent or

related BU, the source for that information in previously approved plans shall be cited or the DBT shall provide an estimated value of the data. The input data shall also be carefully identified. In the same way any assumption, calculations or results from the stage and BU which are used as input to another BU shall be similarly identified, and where appropriate, compared back to that BU to verify previous assumptions. Should assumptions not match values calculated later, the DBT shall re-analyze all affected components and determine appropriate changes. Should those elements have already been constructed, the DBT shall recommend repairs, adjustments, modifications, or replacement of the existing work as necessary to comply with the Scope of Work. All costs for re-design, re-submissions, modifications, removals, disposal of materials and new work needed to remedy the project and bring it to compliance shall be borne by the Contractor and no time extensions shall be approved.

## 21.4 Comment Resolution Process

This section establishes transmittal processes and interaction between the Department and the DBT during submittal reviews in addition to the requirements found within the Scope of Services and other Contract Documents. The process can be modified upon mutual agreement between the DBT and the Department with the intention of meeting the requirements of the Contract or specific submission needs. This process may be revised by mutual agreement of both parties.

Specific identified procedures may be amended, revised, eliminated, or added to address project specific needs or mutual party understanding.

This process shall utilize electronic transmittals for all design submissions unless otherwise specified in the Scope of Services. Plan and design submissions shall be in PDF format, Microsoft Excel, Microsoft Word, or other document types as mutually agreed and appropriate to and for the submission.

Submissions should generally conform to the Scope of Service and other specification included in the Contract Documents, as appropriate, with variations as mutually agreed.

The Department shall establish a file transfer website (typically, an ODOT Project SharePoint, ProjectWise site, or other appropriate file transfer and storage site), with controlled and controllable access, for uploading design submissions and subsequent transmittal of design review comments.

Project specific process details shall be discussed at the Pre-Design Meeting. These details include the responsible contacts (Department and DBT), file server location/IP address, known required persons needing access, and login requirements.

### A. Procedure

The Department will grant access to an identified DBT representative who will have authority and responsibility to create Buildable Unit Submission (BUS) folders and other folders within the transfer website. Each folder shall be logically named. Within each BUS folder, additional folders representing each stage of review (i.e. Interim/Final/Construction) will be created. If mutually agreeable, the DBT may perform this role if management by the DBT facilitates submissions.

With each Buildable Unit with each Design Submission, the DBT shall include a transmittal sheet describing the BUS, the BUS stage (Interim/Final/Construction), the contractual review response date (from the Department as well as any other third-party reviewer, if applicable), critical assumptions made for the BUS impacting subsequent BUS submissions, and any information which could facilitate review.

The DBT shall develop and utilize a Comment Resolution Spreadsheet (CRS) for each Buildable Unit with each Design Submission (Interim, Final, Construction) for use in logging and tracking review comments. The DBT shall provide a blank CRS to the Department and other third-party reviewers at Interim Design Submission. The Department and applicable reviewing agencies shall review for Contract requirements. The Department will utilize the CRS document to centralize all Department employee Buildable Unit Design Submission comments.

Department review comments will primarily focus on compliancy with the Contract Documents. The Department will refrain from making excessive preferential and formatting comments. Reviewer preferential comments shall be marked "Preference" within the CRS. While formatting comments do not need to be responded to, the Department reserves its right to reject a submission which, in its judgement, is not reasonably following required ODOT CADD standards.

An updated copy of the CRS shall be provided to all reviewers at the Final Submission. With the Final Submission on the transmittal page, the DBT shall identify major design revisions and design approaches made between Interim and Final Submission being outside the course of typical design progression and were not made to address Interim Review comments. The updated copy shall include all comments received at Interim submittal along with the DBT's written disposition of all Non-Compliant comments made during formal Interim design submittals. The Department and other appropriate third-party reviewing agencies will review the DBT's formal disposition to Interim Submittal review comments as well as revised plans to respond to previous comments. The Department will include any additional comments based on the Final Design Submittal review within the CRS.

The DBT shall clearly identify if an ODOT Interim review comment responded with an "Accept" by the DBT is not being corrected within a Final submission. If an "Accept" comment is not being addressed, the DBT shall clearly describe the intended resolution for the RFC submission. The Department may require additional information before the Construction Plan submission or may request a Comment Resolution meeting (or phone call if appropriate) to understand the DBT's design direction. The DBT shall memorialize the time of the Comment Resolution Meeting within the CRS submitted with the Construction Plans.

In the event the DBT believes that any review comment, or direction issued by the Department or other third-party review, require a change to a Contract, the DBT shall first contact the Department for clarification and shall, within 10 days of receipt of the comments or direction, provide written notice to the District Project Manager and Project Engineer concerning the reasons why the DBT believes the scope has been changed.

The DBT is not required to comment nor respond to ODOT identified Preference comments.

For comments considered substantial to the Department or the DBT, the DBT shall schedule a Comment Resolution Meeting with the Department to discuss.

1. The Department shall notify the DBT, either within the CRS or other notice, if the Department requires a Comment Resolution Meeting.
2. The DBT shall notify the Department within seven days of any “Non-Compliant” comments they intend to “Dismiss” or “Resolve”. The DBT shall schedule a Comment Resolution Meeting prior to the next stage submittal.
3. For less substantial comments and as agreed by the Department and the DBT, a comment resolution conference call may be sufficient.

The DBT shall obtain Department concurrence with the “Non-Compliant” comment dismissal and this concurrence shall be documented on the CRS.

The DBT shall resolve all outstanding issues and comments from the Final Submittal (or other outstanding comments) and prepare a full set of Design Documents stamped “Checked and Ready for Released for Construction” (RFC). The Department’s expectation is that no revisions shall be made except for those required to address Final review comments. If other revisions are required unrelated to review comments, the DBT shall notify the Department and coordinate revisions for concurrence.

The Department shall review to ensure all comments from final reviews have been resolved or “Closed” to the satisfaction of the Department. There is no formal review period for Construction submission.

The DBT has the responsibility for ensuring the RFC meets all contract requirements. If upon Department review it is determined that it is questionable as to whether comments received from the Department or other agencies have been resolved or addressed appropriately, the DBT shall stop construction of the portion of the Buildable Unit in question, consult with the commenter to resolve such comments. The DBT shall document resolution of the comment within the CRS.

The DBT continues to be liable for design accuracy regardless of ODOT review.

#### B. General Third-Party Requirements

A “Third-Party”, regarding the Design-Build Comment Resolution process, is any overseeing agency with oversight and design approval authority of relevant portions of the design as identified in the Contract.

Other third-party reviewers may not utilize the CRS.

It is the DBT’s responsibility to reasonably add all third-party markups and comments received; the DBT shall consolidate third-party comments into the CRS corresponding to each Buildable Unit and save on the ODOT Project SharePoint site. Any plan markups shall also be scanned by the DBT and included on SharePoint within the appropriate BUS folder.

The DBT shall address all third-party review comments. All third-party review comments shall be, initially, considered as a “Non-compliant” comment type, as identified below.



With ODOT's concurrence, the DBT may subsequently identify comments as potentially a "Preference" or "Recommendation". The DBT shall obtain Department concurrence with the "Non-Compliant" comment dismissal and this concurrence shall be documented on the CRS.

### C. Comment Resolution Spreadsheet

Minimum requirements of the CRS along with information on content is included below. The DBT may modify format or include additional information with Department concurrence.

|   |  |
|---|--|
| Reviewer  |  |
| Comment ID No                                     | Consecutive listing  |
| Document  | Submittals may include multiple components including plans, reports, calculations, etc. This column will list which item the comment is on.  |
| Page  | Page reference/location comment refers to  |
| Comment type                                      | <p>Either "Non-compliant", "Preference", or "Recommendation".</p> <p>Non-compliant - elements that do not meet requirements of the Contract.</p> <p>Preference - elements which depict the owner's preferred design method or result but are not required by the Contract.</p> <p>Recommendation - a general noted item intended to make the designer aware of potential troublesome design methods.</p> |
| Contract Section                                  | If Comment Type is Non-compliant to the Contract, the reviewer shall include the Contract Document of the requirement that is non-compliant (for example, Scope Section 8.2, L&D Volume 1, BDM, etc.)  |
| Reviewer Note                                     | A Reviewer Note is optional but is recommended to ensure the designer understands the intent to the comment made. Reviewer shall note if a Comment Resolution Meeting or discussion is desired.  |
| Reviewer Agency                                   | Representing Agency  |
| Reviewer Name                                     | Name of reviewer   |
| DBT Response                                      |  |
| Resolution Code<br>(Approve, Dismiss, or Resolve) | <p>Accept - DBT agrees with the comment and addressed the comments</p> <p>Dismiss - DBT disagrees with the comment based on comment no longer applying because the design has changed, reviewer error, or other reasons.</p> <p>Resolve - DBT needs additional clarification and/or coordination to address the comment accordingly. Comment may also reflect a change</p>                               |

|                         |   |
|-------------------------|---|
|                         | to the Contract Documents which will require additional discussion and direction by the Department due to the financial/schedule impacts.   |
| DBT Comment/Disposition | The DBT shall provide a more detailed response to the comment as necessary. Response shall note if a Comment Resolution Meeting or discussion is desired.   |
| Reviewer Response       |   |
| Status                  | Open - the submittal did not address the original comment made.<br>Closed - the submittal or disposition addresses the original comment.<br><br>The DBT shall schedule a comment resolution meeting with the Department to discuss any comments from previous submittals that remain "Open" according to the reviewer. The DBT and the Department will also discuss whether review comments are in conformance with the Contract Document requirements or preferential comments. For less substantial comments and as agreed by the Department and the DBT, a comment resolution conference call may be sufficient. |
| Reviewer Name           | Name of reviewer  |
| Date Closed             | Date that the reviewer responded to the comment.  |
| Comments                | Provide a more detailed response clarifying why comment remains "Open" or other information   |

## 21.5 Document Management

The DBT shall create and maintain a BUS Log sheet to facilitate submission tracking. The BUS Log shall identify the name of the Buildable Unit, brief description of the BUS, Interim Design submission date, Interim Submission review comments transmittal date, Final Submission date, Final Submission comments transmittal date, Released for Construction date, and a BUS Comments field. The BUS Comments field shall note any necessary resubmissions, dates of Comment Resolution meetings with noted submission stages, Over-the-Shoulder meeting dates resulting in design adjustments, or any other needed summarized data to help understand the BUS process. The BUS Log Sheet may be modified as necessary to facilitate review. The BUS Log shall be maintained in the master project folder, or in a location mutually agreeable and accessible to the DBT and the Department.

The DBT shall create a folder for each BU on the Department's Project SharePoint Site. Each BU folder shall have an "Interim", "Final", and "RFC" folder. All Design Documents (plans, calculations, reports, etc.) submitted at each phase (Final, Interim, RFC) shall be uploaded by the DBT to the Project SharePoint Site. An updated CRS at each submittal shall be included in each folder with the latest including all comments "closed". Meeting minutes from comment resolution meetings or over-the-shoulder reviews shall be prepared by the DBT and saved to SharePoint.

## 21.6 Optional Pre-submission Meeting

The DBT may request a Pre-submission Meeting to be held prior to, or concurrent with, the submission of a Buildable Unit. The intention of the Pre-submission meeting is an opportunity for the DBT to explain design intent to facilitate owner review. Formal assembly and submittal of drawings or other documents will not be required, but the DBT is encouraged to provide informal submittals to facilitate reviews.

## 21.7 Optional Over-the-Shoulder Reviews

The DBT or the Department may request “Over-The-Shoulder” (OTS) review of designs at any time in the design process. The OTS is an informal review of a partial design during development. This may include in-progress drawings, calculations, sketches, design concepts, proposed specifications, or any other document used or created during the design. They are to facilitate communication and the design process. These can be in the form of a phone call, meeting, correspondence, or any other means of information sharing between the DBT and the Department.

An Over-the-Shoulder review may be necessary to discuss direction on potential design changes. An OTS may be requested during any period in the design development. Appropriate third-party agencies, as well as the DBT and Department, may also participate in these meetings. The DBT or the Department may include the decision or direction given in an OTS within the applicable CRS submission.

The OTS reviews shall not replace the formal Interim and Final Review. Likewise, the Department may also request an OTS review during any stage of design to facilitate review or design development.

## 21.8 Major Design Decision

Separate submittals for concurrence with major design decisions are required. The submittals may be required during any phase of Design. Major design decisions involve significant utility relocation, unforeseen acquisition of ROW by the Department, traffic operation or geometric decisions that involve two or more viable solutions, designs not typical nor standards not ordinarily exercised by members of the engineering profession practicing under similar conditions at the same time and locality, and any other decision that impacts the public, operation of the facility or designs which require future long term excessive maintenance. The level of development of the submittal is dependent upon the level of detail necessary to accurately depict the major design decision.

When the DBT becomes aware of additional decisions during the design, they must advise the District Project Manager in writing.

## 21.9 Interim Design Review Submission

For each Buildable Unit, the DBT shall submit the Interim Design submission for review by the Department and other third-party agencies as appropriate.

Interim Design Submission is defined as followed:

- A. Maintenance of traffic, traffic signals, lighting, utilities (water, power, sanitary, etc.), and landscaping shall be developed to Stage 2 level of detail as defined the ODOT Location & Design, Volume 3.
- B. Full signing plans are not required at Interim; however, all overhead signage and major ground mounted signage shall be shown on plan sheets (may be shown on pavement marking plans if signing plans are not submitted).
- C. All other plan components and supplemental submittal requirements as defined as Stage 1 per the ODOT Location & Design, Volume 3.

Unless indicated below, the Department will have 10 Work Days from receipt to review complete submissions. The following are excluded as Work Days: State Holidays, Federal Holidays, Saturdays, Sundays, the Friday after Thanksgiving, Christmas Eve, and the days between Christmas and New Year's Day. This review time must be shown on the required Progress Schedule.

The start of the review period will begin the day after the submittal is received by the reviewing agency except if submitted on a Friday in which case the review period will begin the following Monday (unless Monday is a State holiday in which case the review period will begin on the following Tuesday).

Following this review, the DBT shall correct any errors, incorporate modifications, perform required investigations, and make related changes to the plans and supporting documents prior to submitting the plans for Final Design review.

**Plan Review Distribution Table:** The DBT shall supply an electronic version (in PDF format) along with half size (11" x 17") paper prints simultaneously to the parties indicated below, except that **each affected utility company shall receive one full size (22"x34") plans.**

|   | Number of half size Sets |
|---|--------------------------|
| ODOT District Production                            | 1                        |
| ODOT District Construction                          | 1                        |
| ODOT Central Office, Division of Highway Operations |                          |
| _____SW_____ Region Real Estate                     | 1                        |
| Each affected utility or railroad company           | 1 full size              |

## 21.10

## FINAL DESIGN Review Submission

For each Buildable Unit the DBT shall submit the Final Design submission for review by the Department and other third-party agencies as appropriate.

The Final Design submission shall include submittal requirements as defined as Stage 3 per the ODOT Location & Design, Volume 3, however, subsummary and general summary sheets are not required. Quantity summaries shall be provided in electronic format (Excel and PDF) prior to construction for the Department's use in establishing testing requirements.

The Department shall have 10 Work Days from receipt to review complete submissions. The following are excluded as Work Days: State Holidays, Federal Holidays, Saturdays, Sundays, the Friday after Thanksgiving, Christmas Eve, and the days between Christmas and New Year's Day. This review time must be shown on the required Progress Schedule.

The start of the review period will begin the day after the submittal is received by the reviewing agency except if submitted on a Friday in which case the review period will begin the following Monday (unless Monday is a State holiday in which case the review period will begin on the following Tuesday).

Following the review, the Department will return to the DBT marked plans noted 'ACCEPTED', 'ACCEPTED AS NOTED' or 'NOT ACCEPTED' as described in section 105.02 of the Construction and Material Specifications. The DBT shall correct errors, incorporate changes, perform investigations, and make related changes to the plans and supporting documents prior to submitting construction plans.

Plan Review Distribution Table: The DBT shall supply an electronic version (in PDF format) along with half size (11" x 17") paper prints simultaneously to the parties indicated below except that each affected utility company shall receive one full size (22"x34") plans:

|   | Number of half size Sets |
|---|--------------------------|
| ODOT District Production                            | 1                        |
| ODOT District Construction                          | 1                        |
| ODOT Central Office, Division of Highway Operations |                          |
| _____SW_____ Region Real Estate                     | 1                        |
|   |                          |

## 21.11 Released for Construction Plans

After the review comments for the Final Design review submission have been complied with, and following approval of the design documentation, the DBT shall prepare plan sets for use during construction. All review comments shall be resolved in writing by the DBT to the satisfaction of the Department and appropriate third-party agencies before the DBT submits the construction plans. No revisions shall be made except for those revisions needed to address Final Design review comments.

Each plan sheet shall have its last revised date noted on the sheet and clearly marked 'Released for Construction'. The 'Released for Construction' plan set shall be signed, dated, and sealed by a Professional Engineer. Physical construction shall not begin until the plans marked 'Released for Construction' are delivered to each party on the Plan Distribution Table below.

No time extensions will be approved by the District Construction Engineer if the plan distribution is not completed, and project delays occur as a result.

Plans Distribution Table: The DBT shall supply an electronic version (in PDF format) along with full size (22" x 34") and/or half size (11" x 17") paper prints of each plan submission simultaneously to the parties indicated below:

|  | # of Full Sets | # of Half Sets |
|--|----------------|----------------|
| ODOT District Production                                 |                | 1              |
| ODOT District Construction                               |                | 1              |
| ODOT Central Office, Division of Highway Operations      |                |                |
| ODOT Central Office, Division of Construction Management |                |                |
| Federal Highway Administration                           |                |                |
| _____Greene___ County Engineer                           |                | 1              |
| ____Xenia____ City Engineer                              |                | 1              |
| _____SW___ Region Real Estate                            |                | 1              |
| Each affected utility or railroad company                | 1              |                |

## 21.12 Railroad Submittals

### A. Design Submittals to Railroads

The DBT shall perform ongoing coordination of their design, and anticipated construction schedule with the railroad throughout the Project. This coordination shall include, but is not limited to, Interim and Final BU plan submittals as well as informal submittals and resubmittals, as determined by the DBT, in accordance with the Governing Regulations to ensure a design acceptable to the railroad. Upon concurrence of design with the railroad, the DBT shall submit professional engineer signed, stamped, and dated RFC plans to the railroad for final review and

approval. This submission shall include resolution of all comments received throughout the design process. The railroad will attempt to complete their review of BU's within the timeframes identified in the contract, however for all BU submittals, the DBT shall include at least 90 Calendar Days for railroad review for Interim, Final, and Construction Plans in the Project Progress Schedule.

For projects with railroad involvement, a separate BU shall be submitted for review that includes all work components over, under, within and adjacent to the railway that could impact or influence railroad operations. Buildable units for railroad review submissions shall not be defined by types of work but shall be determined by the limits of railroad regions of concern. The BU shall include all work within the applicable railroad region of concern (as agreed with the railroad and DBT) and shall not be segmented partial design pieces of an entity but shall be the overall design phased submission of the entity. Subdivision of work components that impact or influence railroad operations into multiple BU's shall not be performed unless previously agreed to by the Department and railroad.

#### B. Construction Submittals to Railroads

The DBT shall continue coordination with the railroad after design is complete. This coordination shall include, but is not limited to, required construction submittals in accordance with the Governing Regulations. Unless otherwise approved by the Department and railroad, the DBT shall not make construction submittals to the railroad until railroad approval of the Construction Plan BU submission. Railroad review times for these submittals are in accordance with the Rail Agreement.

### 21.13 Plan Distribution Addresses

Ohio Department of Transportation, District 8.  
505 South State Route 741  
Lebanon, Ohio 45035

Ohio Department of Transportation Central Office  
Division of Highway Management  
1980 West Broad Street  
Columbus, Ohio 43223  
Attn: (Contact Person)

Ohio Department of Transportation Central Office  
Division of Construction Management  
1980 West Broad Street  
Columbus, Ohio 43223  
Attn: (Contact Person)

Ohio Department of Transportation Central Office  
Office of Environmental Services  
1980 West Broad Street  
Columbus, Ohio 43223  
Attn: (Contact Person)

Federal Highway Administration  
200 North High Street  
Room 328  
Columbus, Ohio 43215-2408  
Attn: (Contact Person)

Greene County Engineer  
615 Dayton-Xenia Rd., Xenia, OH 45385  
Attn: Stephanie Goff

City Of Xenia Engineer  
966 Towler Road, OH, Xenia 45385  
Attn: Chris Berger

Ohio Department of Transportation District 8  
Engineering Department  
505 South State Route 741  
Lebanon, Ohio 45035  
Attn: Katherine DeStefano

Ohio Department of Transportation - SW Real Estate Region  
Engineering Department  
505 South State Route 741  
Lebanon, Ohio 45035  
Attn: Suzanne Enders

Utility Companies  
(As shown in section 12)

## **21.14 Plan Revisions**

Plan Revisions are DBT requested, ODOT directed, or condition necessary changes to the Released for Construction plans which materially modifies the design intent, materially revises the Plan to an extent which would require revised design calculations, materially revises plan dimensions or plan depictions, or otherwise would modify the Released for Construction plans in a manner which a competent engineer would identify as a necessary design re-evaluation.

Plan Revisions are required to follow Interim, Final, and Released for Construction review processes. Plan Revision review timeframes and review breadth shall be dependent and commensurable on the identifiable impacts of the Plan Revision as agreed by ODOT.

## **21.15 As-Built Construction Record-Drawing Plans**

At the completion of the construction work for each respective Buildable Unit, the DBT shall provide a "Red-Line" set of drawings that clearly identify all changes made to the Released for Construction Plans. They may be noted by hand markup of the revisions, utilizing the Clouding command in MicroStation (or other CAD software) or the Clouding command in PDF editing



software. The red-lined drawings shall have a Contractor signed verification on the title sheet indicating all field changes are being incorporated into the red-lined drawings.

Prior to Final Acceptance of the Work, the DBT shall furnish the Department formal As-Built Construction Record-Drawing plans. The DBT shall provide a general summary within the final As-Built Construction Record-Drawing plans. The formal As-Built Construction Record-Drawing shall include all red-lined changes. Red-line changes shall be denoted utilizing the Clouding command in MicroStation (or other CAD software) or the Clouding command in PDF editing software. The As-Built Construction Record-Drawing shall have a signed verification on the title sheet from the Designer and the Contractor indicating that all red-lined and field changes have been incorporated into the As-Built Construction Record-Drawing.

Note: The Contractor's verification statement indicates all known field modifications made after the RFC plans were sealed by the Designer have been included in the formal Record-Drawing. The Contractor's verification statement shall be signed by the Contractor's Project Manager (or acceptable representative).

Note: The Designer's verification indicates the Designer's acknowledgement of the red-line and field changes, the presented field changes have been included within the As-Built Construction Record-Drawing and is the Designer's concurrence that these changes meet the design intent of the Contract. The Designer's verification statement shall be signed by the Lead Designer's representative.

The DBT may choose to omit the "Red-Line" submission and submit only formal As-Built Construction Record-Drawing.

As-Built Construction Record-Drawing plans shall be submitted using the following method:

PDF Images created according to the documentation on the Office of Contracts website

<http://www.dot.state.oh.us/DIVISIONS/CONTRACTADMIN/CONTRACTS/Pages/TIFF.aspx>

In addition to the information shown on the construction plans, the Record-Drawing plans shall show the following:

1. All deviations from the original approved construction plans, which result in a change of location, material, type, or size of work.
2. Any utilities, pipes, wellheads, abandoned pavements, foundations, or other major obstructions discovered and remaining in place which are not shown, or do not conform to locations or depths shown in the plans. Underground features shall be shown and labeled on the Record-Drawing plan in terms of station, offset and elevation.
3. The final option and specification number selected for those items which allow several material options under the specification (e.g., conduit).
4. Additional plan sheets may be needed if necessary to show work not included in the construction plans.

Notation shall also be made of locations and the extent of use of materials, other than soil, for embankment construction (rock, broken concrete without reinforcing steel, etc.).

The Plan index shall show the plan sheets which have changes appearing on them.

Two copies of the As-Built Construction Record-Drawing plans shall be delivered to the Project Engineer for approval upon completion of the physical work but prior to the request for final payment. After the Department has approved the As-Built Construction Record-Drawings, the associated electronic files shall be delivered to the District Capital Programs Administrator. Acceptance of these plans and delivery of the associated electronic files is required prior to the work being accepted and the final estimate approved.

The plans shall be prepared in conformance with the Location and Design Manual, Volume 3, Section 1200 - Plan Preparation.