DESIGN-BUILD CONTRACT
BOOK 1

Little Rapids Habitat Restoration
Roadway Reconstruction
Design-Build Project

1 ½ Mile Road
Chippewa County Road Commission

Original Issue Addendum 1
April 16, June 5, 2015
20 ACCEPTANCE OF PROJECT

20.1 Substantial Completion

20.1.1 Notice by Design-Builder

Design-Builder shall provide written notice to CCRC when all of the following have occurred with respect to the part of the Project generally described in Book 1, Section 4:

(a) Design-Builder has completed all Work (except for items only included in the requirements for Final Acceptance and as noted below).
   - Top course paving
   - Removal of temporary access roads
(b) Design-Builder has ensured that the Work has been performed in accordance with the requirements of the Contract Documents.
(c) Design-Builder has received all applicable Governmental Approvals required for Project use.
(d) Design-Builder has furnished to CCRC certifications from Design-Builder’s Design Manager, in form and substance satisfactory to CCRC, certifying conformity of the Design Documents with the requirements of the Contract Documents.
(e) Design-Builder has furnished to CCRC certifications from Design-Builder’s Project Manager, in form and substance satisfactory to CCRC, certifying conformity of the construction with the Design Documents.
(f) Design-Builder has furnished to CCRC certifications, in form and substance satisfactory to CCRC, certifying that there are no outstanding nonconformances other than those identified on the Punch List.
(g) Design-Builder has ensured that the Project may be used without damage to the Project or any other property on or off the Site, and without injury to any Person.
(h) Design-Builder has obtained all applicable third party approvals relating to the Work (including Utility Owners as required under any applicable utility agreements and Book 2, Section 6 and third parties as identified in Book 2, Section 5), and all third parties have completed all work that involves obligations by Design-Builder (including Utility Owners under any applicable utility agreements and Book 2, Section 6 and third parties as identified in Book 2, Section 5).
(i) Design-Builder has ensured that the Project is fully opened to traffic and that no further work is required which would involve any lane or shoulder closure except for the following: Shoulder closures may be allowed (except on weekdays from 6 a.m. to 9 a.m. and 3 p.m. to 6 p.m.), at CCRC’s sole discretion, for Punch List, maintenance, final cleanup, slope restoration, and landscape planting items.

20.1.2 Correction of Defects

Upon receipt of Design-Builder’s notice under Book 1, Section 20.1.1, CCRC will conduct such inspections, surveys and/or testing as CCRC deems desirable. If such inspections, surveys and/or tests disclose that any Work does not meet the requirements of the Contract Documents, CCRC will promptly advise Design-Builder as to Nonconforming Work (including incomplete Work) necessary to be corrected as a condition to Substantial Completion, Nonconforming Work (including incomplete Work) which may be corrected as Punch List items and/or whether Design-Builder shall reassess the accuracy and completeness of its notice. Upon correction of the Nonconforming Work (including incomplete Work) identified as a prerequisite to Substantial Completion, Design-Builder shall provide written notification to CCRC and CCRC will conduct additional inspections, surveys and/or tests as CCRC deems desirable. This procedure shall be repeated until CCRC finds that all prerequisites to Substantial Completion have been met.

20.1.3 Notice of Substantial Completion

CCRC will issue a Notice of Substantial Completion at such time as:

(a) CCRC determines that all conditions set forth in Book 1, Section 20.1.1 have been satisfied.
(b) CCRC determines that all Nonconforming Work (including incomplete Work) identified as prerequisites to Substantial Completion has been corrected.

(c) CCRC has prepared a Punch List.

20.2 Final Acceptance

20.2.1 Conditions to Final Acceptance

20.2.1.1 Performance of Work after Substantial Completion

Promptly after Substantial Completion has occurred, Design-Builder shall perform all Work, if any, which was deferred for purposes of Substantial Completion, and shall satisfy all of its other obligations under the Contract Documents, including ensuring that the part of the Project generally described in Book 1, Section 4 has been completed and all components have been properly adjusted and tested.

20.2.1.2 Conditions for the Letter of Final Completion

Design-Builder shall provide to CCRC a signed letter notifying CCRC of Final Completion in accordance with Book 1, Section 20.2.1.3 when all of the following have occurred:

(a) All requirements for Substantial Completion have been fully satisfied.

(b) CCRC has received all Released for Construction Documents, Design Documents, As-Built Documents, right-of-way record maps, surveys, material certifications, test data and other deliverables required under the Contract Documents;

(c) All special tools, equipment, furnishings and supplies purchased by and/or used by Design-Builder as provided in the Contract Documents have been delivered to CCRC and all replacement spare parts have been purchased and delivered to CCRC free and clear of Liens.

(d) All of Design-Builder’s and Subcontractors’ personnel, supplies, equipment, waste materials, rubbish and temporary facilities have been removed from the Site, Design-Builder has restored and repaired all damage or injury arising from such removal to the satisfaction of CCRC and the Site is in good working order and condition.

(e) Design-Builder has furnished to CCRC certifications from Design-Builder’s Design Manager, in form and substance satisfactory to CCRC, certifying conformity of the Design Documents with the requirements of the Contract Documents.

(f) Design-Builder has furnished to CCRC certifications from Design-Builder’s Project Manager, in form and substance satisfactory to CCRC, certifying conformity of the construction with the Design Documents.

(g) Design-Builder has furnished to CCRC certifications, in form and substance satisfactory to CCRC, certifying that there are no outstanding nonconformances.

(h) Design-Builder has delivered to CCRC a notice of completion for the Project in recordable form and meeting all statutory requirements.

(i) The Punch List items have been completed to the satisfaction of CCRC.

(j) All of Design-Builder’s other obligations under the Contract Documents (other than obligations which by their nature are required to be performed after Final Acceptance as determined by CCRC) have been satisfied in full or waived in writing by CCRC, including Design-Builder payment to its subcontractors and suppliers.

(k) A waiver of lien has been furnished to CCRC by all sub-consultants, material suppliers or other entities hired by the contractor to perform work for the Project.

20.2.1.3 Requirements for the Letter of Final Completion

The Letter of Final Completion referred to in Book 1, Section 20.2.1.2 shall include the following statement:

To the best of Design-Builder’s knowledge and belief, the Work under the Contract has been completed in strict accordance with the Contract Documents, no lawful debts for labor or materials
are outstanding and no federal excise tax has been included in the Contract Price; all requests for funds for undisputed work under the Contract, including changes in the Work, and under all billings of whatsoever nature are accurate, complete and final and no additional compensation over and above the final payment will be requested or is due under the Contract or under any adjustment issued thereunder for said undisputed work; there are no outstanding claims, Liens or stop notices relating to the Project, including claims by Utility Owners; there is no existing default by Design-Builder under any Utility Agreement, and no event has occurred which, with the passing of time or giving of notice or both, would lead to a claim relating to the Work or event of default under any Utility Agreement; and upon receipt of Final Acceptance, Design-Builder and Subcontractors acknowledge that CCRC and any and all employees of CCRC and their authorized representatives will thereby be released, discharged and acquitted from any and all claims or liability for additional sums on account of undisputed work performed under the Contract.

If Design-Builder is unable to provide the letter in the above form, the letter shall certify that all such outstanding matters are set forth in an attached list which shall describe the outstanding matters in such detail as may be requested by CCRC. The letter shall include a representation of Design-Builder that it is diligently and in good faith contesting all such matters by appropriate legal proceedings and shall provide a status report regarding the same including an estimate of the maximum payable with respect to each such matter.

20.2.2 Inspection and Issuance of Notice of Final Acceptance

Upon CCRC’s receipt of the Letter of Final Completion, CCRC will make final inspection and CCRC will either issue a Notice of Final Acceptance or notify Design-Builder regarding any Work remaining to be performed. If CCRC fails to issue a Notice of Final Acceptance, Design-Builder shall promptly remedy the defective and/or uncompleted portions of the Work. Thereafter, Design-Builder shall provide to CCRC a revised Letter of Final Completion with a new date based on when the defective and/or uncompleted portions of the Work were corrected. The foregoing procedure shall apply successively thereafter until CCRC has issued a Notice of Final Acceptance.

20.2.3 Overpayments; No Relief from Continuing Obligations

Final Acceptance will not prevent CCRC from correcting any measurement, estimate or certificate made before or after completion of the Work, or from recovering from Design-Builder and/or the Surety(ies), the amount of any overpayment sustained due to failure of Design-Builder to fulfill the obligations under the Contract. A waiver on the part of CCRC of any breach by Design-Builder shall not be held to be a waiver of any other or subsequent breach. Final Acceptance shall not relieve Design-Builder from any of its continuing obligations hereunder, or constitute any assumption of liability by CCRC.

20.3 Opening of Sections of Project to Traffic

20.3.1 Plan for Opening to Traffic

The Contract Schedule shall set forth Design-Builder’s plan for completing sections of the Project and opening them to traffic. CCRC may request that Design-Builder expedite certain sections of the Project, and Design-Builder shall accommodate such requests to the extent that it can do so without significant disruption to its schedule or a significant (per Book 1, Section 13) increase in its costs. Notwithstanding the foregoing, if CCRC orders Design-Builder to open portions of the Project which cannot be accommodated without significant disruption to Design-Builder’s schedule or a significant increase in Design-Builder’s costs, such direction shall be considered a CCRC-Directed Change.

20.3.2 Direction to Open Following Design-Builder Failure to Perform

If Design-Builder is delinquent in completing shoulders, drainage structures or other features of the Work, CCRC may, but is not obligated to, order all or a portion of the Project opened to traffic notwithstanding such incomplete elements. Design-Builder shall then conduct the remainder of the construction operations, minimizing obstruction to traffic. Except as provided in Book 1, Section 20.3.1, Design-Builder shall not receive any added compensation due to the added costs attributable to the opening of the Project to traffic.
| **Utility Work** | (a) The Work associated with Relocation of Utilities, including the design, construction, installation, manufacture, supply, testing and inspection, adjustments (including manholes and valves), and otherwise required by the Contract Documents, including all labor, Materials, equipment, supplies, utilities and subcontracted services provided or to be provided by Design-Builder and/or the Utility Owners, and (b) any Betterments added to the Work pursuant to Book 2, Section 6.3.4. |
| **Waterway Clear Opening** | The summation of the structure’s clear spans measured along the 1 ½ Mile Road alignment. Box culvert walls, the space between adjacent box culverts, bridge piers, and abutments are not included in the calculation of Waterway Clear Opening. Clear spans will be measured from the face of the culvert walls, face of abutment walls, and face of piers in accordance with Book 2 Section 13.2.2.1. |
| **Work** | All duties and services to be furnished and provided by Design-Builder as required by the Contract Documents, including the administrative, design, engineering, quality control, quality assurance, Relocation, procurement, legal, professional, manufacturing, supply, installation, construction, supervision, management, testing, verification, labor, Materials, equipment, documentation and all other efforts necessary or appropriate to achieve Final Acceptance except for those efforts which the Contract Documents specify will be performed by CCRC or other Persons. In certain cases the term is also used to mean the products of the Work. |
| **Working Day** | Any Calendar Day other than Saturday, Sunday, a Holiday, all days between and including December 24 to January 1, and CCRC furlough days as directed by the CCRC. |
| **Working Drawings** | Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which illustrate the construction of the Work. |
| **Work Order** | A written order by CCRC requiring performance by the Design-Builder. |
PROJECT REQUIREMENTS

BOOK 2

Little Rapids Habitat Restoration
Roadway Reconstruction
Design-Build Project

1 ½ Mile Road
Chippewa County Road Commission

Original Issue-Addendum 1
April 16 - June 5, 2015
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1 INTRODUCTION

The Design-Builder shall conduct all Work necessary to meet the requirements of the Contract.

1.1 Introduction to Books 2 and 3

This introduction is intended to provide instructions to the Design-Builder on the relationship between Books 2 and 3. It does not replace the order of precedence set forth in Book 1. Book 1, Section 1.3 defines the order of precedence for the Contract Documents. If there are any conflicts between this introduction and Book 1, Section 1.3; Book 1, Section 1.3 shall control.

Book 3 sets forth the standards applicable to the Project. Book 3 includes modifications that apply to the standards listed in Book 3. In some instances, only specific sections of the given standard apply. These sections are specified in Book 2. The MDOT Frequently Used Special Provisions, MDOT Supplemental Specifications, MDOT Traffic and Safety Special Provisions, and certain other special provisions are included as standards in Book 3. Other special provisions not included in Book 3 shall not be used by the Design-Builder without prior Approval of CCRC.

Book 2 sets forth requirements that are intended to apply to this Project. Book 2 incorporates the standards in Book 3 by reference. In many cases, Book 2 will modify, supplement, or replace the standards in Book 3.

The text of Book 2 shall take higher precedence than the exhibits of Book 2.

1.2 Project Description

1.2.1 Project Limits

The Project point of beginning (POB) on 1 ½ Mile Rd. is approximately the joint line between the old pavement and new pavement (placed in July of 2014) near the west end of the Project west end of the south guardrail run. The Project point of ending (POE) on 1 ½ Mile Rd. is approximately the joint line between the old pavement and new pavement near the east end of the Project west spring point of S. Whitehead Road. See Exhibit 2-11-A for more details.

The Design-Builder shall perform the Work within CCRC Right-of-Way and county and city owned property (limited to areas required for construction as Approved by the county or city).

1.2.2 General Description

The Project is located in Sugar Island Township, Chippewa County, Michigan. It is located on 1 ½ Mile Rd., which is a causeway across the St Mary’s River connecting Island No. 1 and Sugar Island. The project replaces two existing metal culverts with a structure that will provide a Waterway Clear Opening between 500 feet and 700 feet. The desired Waterway Clear Opening is 600 feet. Approximately 500 feet of roadway at each end of the structure will be reconstructed to improve vertical alignments. The Design-Builder will provide 11-foot wide paved lanes and 4-foot wide paved shoulders in each direction for the entire length of reconstruction. In addition, a minimum 5-foot wide fishing area is to be provided for the length of the structure on the south side of the structure. See Book 2, Section 11 for more details.

The Project includes the following:

- Reconstruction of approximately 1/3 of a mile of 1 ½ Mile Rd.
- Mill and fill of approximately 1/6 of a mile of 1 ½ Mile Rd.
- Removal of existing metal culverts
- Construction of a new structure
- Maintenance of traffic
- Signing and pavement markings
• Soil erosion and sedimentation control
• Utility coordination

The Design-Builder shall not rely on the physical description contained in this Section 1 to identify all Project components. The Design-Builder shall determine the full scope of the Project by thorough examination of the RFP and the Project Site, or as may be reasonably inferred from such examination.

1.2.3 Other Projects Within the Corridor

The Design-Builder shall coordinate its Work and cooperate with the holders of separate contracts, both present and future, and their forces.

The Design-Builder shall conduct the operations so as to cooperate with and interfere as little as possible with activities of other contractors, Utilities, or any public authority on or near the Work, and as directed by CCRC. CCRC may perform other work and permit public Utility companies and others to do work on or near the Project.

The Design-Builder shall also perform its Work to ensure public convenience and safety.
The Design-Builder or CCRC can schedule an over-the-shoulder review meeting during the course of the development of each design package, prior to issuance of Released for Construction Documents. These meetings may take the place of work product submittals at CCRC’s discretion. The over-the-shoulder reviews are not critical activity points that restrict the progress of design. They are simply reviews of the design as it progresses and opportunities for CCRC to provide comments and feedback on the design. The DQM shall define the frequency, timing, content, and format of the over-the-shoulder reviews.

2.5.3  Transportation Management Plan

The Design-Builder shall develop, implement, and maintain a Transportation Management Plan (TMP), including the Temporary Traffic Control Plan (TTCP) and Work Area Access Plan.

See Book 2, Section 18 for more information.

The TMP shall be submitted according to the current CPM Schedule. The TMP shall be Released for Construction prior to submittal of Roadway Preliminary Plans (70%). MOT Plans shall be included with roadway submittals following the Approval of the TMP unless otherwise Approved by the CCRC Project Manager.

2.5.4  Bridge Preliminary Plans (30%)

Bridge Preliminary Plans shall be submitted for CCRC Approval and shall meet, at a minimum, the requirements as stated in the MDOT Bridge Design Manual, Section 3.02.01 for new projects for the proposed structure.

2.5.5  Roadway Base Plans (30%)

Roadway Base Plans shall be submitted for CCRC Approval and shall meet, at a minimum, the requirements as stated in the MDOT Program/Project Management System Task Manuals, Task 3360. The removal and construction plans shall utilize field survey for base mapping.

2.5.6  Drainage

The Design-Builder shall submit the following plans for CCRC Acceptance:

- Project Drainage Overview Map.
- Hydrologic Report
- Drainage Design Report
- Bridge Hydraulic Report
- Scour Report

See Book 2, Section 12 for more information.

The Project Drainage Overview Map and Hydrologic Report shall be submitted prior to or with the Roadway Base Plans. The Drainage Design Report shall be submitted prior to or with the Roadway Preliminary Plans. The Bridge Hydraulic Report shall be submitted prior to or with the Bridge Preliminary Plans. The Scour Report shall be submitted with the Bridge Preliminary Plans, and upon approval of the Bridge Hydraulic Report.

2.5.7  Environmental Documents

The Design-Builder must have issued permits or regulatory agency Approval prior to construction involving any regulated activity. CCRC will submit permit applications to the regulatory agencies.

See Book 2, Section 4 for more information.

The Design-Builder shall submit documents to CCRC as required to obtain permits.
2.5.8 Right-of-Way
If the Design-Builder’s design requires additional ROW, the Design-Builder shall provide all required documentation in accordance with the MDOT Road Design Manual, Chapter 5 for the additional ROW required.

See Book 2, Section 7 for more information.

2.5.9 Geotechnical
The Design-Builder shall submit the following plans for CCRC Approval or Acceptance.

- Subsurface Investigation Plan
- Subsurface Investigation Results including the field log for each foundation boring, the final log for each foundation and roadway boring, and lab test data
- Foundation Analysis and Design Report
- Plotted borings on proposed plans and profiles and cross-sections

See Book 2, Section 8 for more information.

These Plans shall be submitted according to the current CPM schedule. The foundation analysis and design report shall be submitted prior to or with the Bridge Plans.

2.5.10 Landscape Documents
Not used.

2.5.11 Bridge Plans (70%)
Bridge Plans at 70% completion shall be submitted for CCRC Approval and shall meet, at a minimum, the following requirements for the proposed structure:

- General plan of site
- General plan of structure
- Existing structure removals
- Substructure plan and elevation
- Substructure details
- Superstructure plan and section
- Superstructure details
- Deck plan and section
- Deck details
- Design calculations may be requested to support 70% design

2.5.12 Roadway Preliminary Plans (70%)
Roadway Preliminary Plans shall be submitted for CCRC Approval and shall meet, at a minimum, the requirements as stated in the MDOT Road Design Manual, Section 14.36.01. The deliverables include the same sheets as the Base Plans, except that the level of detail shall be at approximately 70%. The removal and construction plans shall utilize field survey for base mapping.

The Design-Builder shall submit cross-sections at a minimum of 50’ intervals including existing ground, the proposed surface of the roadway, the proposed sideslopes, and plan grade elevations. Some type of vertical and horizontal scale reference shall be used.

Signing and Pavement Marking Plans shall be included with the Roadway Preliminary Plans.
2.5.13 **Bridge Load Rating**

The Design-Builder shall submit the bridge load rating Bridge Analysis Assumptions and Summary forms for CCRC Acceptance. These calculations shall be submitted prior to the Bridge RFC Documents. See Book 2, Section 13 for more information.

2.5.14 **Released for Construction Documents**

Released for Construction Documents (RFC) shall be submitted for CCRC Acceptance.

The Design-Builder shall ensure that the Released for Construction Documents for bridges are in general conformance with the requirements for Final Plans as stated in the MDOT *Bridge Design Manual* Section 3.03.01 for new or reconstruction projects or Section 4.03.02 for rehabilitation projects, as well as all other requirements for Released for Construction Documents. The Design-Builder does not need to provide pay item or miscellaneous quantity tables in the plans.

The Design-Builder shall ensure that the Released for Construction Documents for roadways are in general conformance with the requirements for Final Plans as stated in the MDOT *Road Design Manual* Section 14, as well as all other requirements for Released for Construction Documents.

2.5.14.1 **RFC Documents**

Released for Construction (RFC) Documents shall constitute the documents issued for the purposes of construction and shall contain the following (at a minimum):

- Design plans
- Design calculations
- Design reports
- Specifications (indexed and numbered)
- The Design-Builder shall provide CCRC with one electronic pdf file of all Released for Construction Documents. If RFC documents are submitted in more than one package, a final package that compiles all RFC documents must be submitted after all individual RFC submittals are returned as accepted. This compiled package must be presented in a logical manner (i.e. consecutive page numbering, table of contents, etc.).
- Governmental and Utility Owner approvals if not already in Contract documents.
- ROW documentation for additional right of way, including grading consents, obtained for the project as a result of the Design-Builder’s design.

2.5.14.2 **RFC Quality Assurance**

When the Design-Builder has completed the RFC Documents and wishes to submit a RFC Document of an item or element to obtain CCRC’s Acceptance, the Design-Builder’s Quality Assurance staff shall certify that:

- The design meets all applicable requirements of the Contract Documents, applicable law, and the governmental approvals.
- The design has been checked in accordance with the Design-Builder’s approved DQM.
- All required ROW has been secured, along with any and all approvals from governmental agencies, and Utility owners.
- All comments from CCRC and other reviewing agencies from previous submittals are resolved.

2.5.14.3 **RFC Design Calculations**

The Design-Builder shall submit calculations according to the following requirements:
• The Design-Builder shall ensure that all title blocks of calculation sheets include the calculation title, file number, page number, initials of the designer, checker and back-checker, and dates of when design, checking, and back-checking occurred.

• The Design-Builder shall ensure that all calculations indicate the design requirement, the assumptions made, the methods used, the source of the information, and the cross-reference for the applicable design drawings.

• The Design-Builder shall ensure that all structure calculations and bridge rating calculations performed using software are independently checked by a Michigan-licensed Professional Engineer with ten years minimum experience. The Design-Builder shall ensure that hand calculations are verified.

• The Design-Builder shall ensure that all calculations include the final iteration and are readily accessible, clear, understandable, concise, complete, and accurate so the final design of an element is easily determined.

• The Design-Builder shall ensure that all calculations are bound and numbered with a table of contents.

• The Design-Builder shall ensure that all calculations identify the code or standard utilized and indicate the specific section referenced in the right-hand column.

• In the calculations, the Design-Builder shall reference the computer programs and versions used.

• The Design-Builder shall ensure that all manual calculations are printed, neatly and legibly.

• All calculations, manual or computer generated, shall be on 8½-inch by 11-inch or 11-inch by 17-inch standard paper. Minimum allowable font size is 12 point.

2.5.14.4 RFC Submittal Requirements

All Released for Construction Documents shall meet the following requirements:

• All Work, including modifications to the Work, is designed under the authority of and signed by a Michigan-licensed Professional Engineer.

• The timing of submission of these documents is indicated in the Project Schedule.

• The limits of excavation have been identified for all excavation work.

• The limits of all stay-in-place elements of temporary works have been identified.

• Estimated quantities shall be included for all items which require inspection or testing in accordance with the MDOT Materials Source Guide.

• Product cut sheet information shall be submitted as required to define the Work.

• All shop drawings, and other items necessary to construct the Work are submitted, or are identified for future receipt and review after the RFC submittal is submitted and returned (i.e. shop or working drawings and product data sheets).

• For all materials, material strength, type, grade, and ASTM or AASHTO designation shall be included. The Design-Builder shall obtain CCRC’s signature on all Released for Construction Documents prior to release of those documents for construction. All submittals will be reviewed within 10 Working Days, unless otherwise noted.

The Design-Builder may proceed with construction of certain elements or portions of the Project in accordance with Released-for-Construction plans before the design of the entire Project has been completed at the Design-Builder’s sole risk.
2.5.15.4 Re-submittal Process

Re-submittals of Design Documents may be required if deemed necessary by the Design-Builder’s Design Quality Assurance staff or CCRC. Each re-submittal must address all comments received from a prior submittal in a manner satisfactory to the commenting party. The Design-Builder shall not be entitled to any additional compensation or time extension due to any re-submittal requirement by the review process or CCRC.

The Design-Builder shall resubmit the Design Document (as well as any other required design re-submittal) as many times as necessary to address the comments of the quality process and CCRC.

The Design-Builder may continue its design activities, at its sole risk, during the re-submittal process. Such continuation in no way relieves the Design-Builder of the responsibility to incorporate the comments of the re-submittal process into the Design Documents.

Changes made to plans, specifications, and documents from previous submittals shall be indicated for ease of review when resubmittals are made.

2.6 Construction Management

2.6.1 Construction Management Responsibilities and Goals

Design-Builder Responsibility: The Design-Builder shall be responsible for providing all administration, design, and construction Work in accordance with the Contract Documents. The Design-Builder shall not be relieved of its obligation to perform the Work in accordance with the Contract Documents, or any of its other obligations under the Contract Documents, by oversight, spot checks, audits, reviews, tests, inspections, acceptances, or approvals by any Persons, or by any failure of any Person to take such action.

The Design-Builder shall perform onsite-offsite fabrication inspection of proposed structure components including box culvert sections, in accordance with MDOT standard fabrication inspection requirements and provide test reports and certifications.

CCRC Responsibility: CCRC will provide onsite construction engineering, testing excluding precast box culvert plant fabrication inspection, and inspection similar to the standard approach used on traditional CCRC projects. CCRC will may perform random QA offsite plant inspections during proposed structure component precast box culvert fabrication.

Goals

The Design-Builder shall develop and implement a construction management approach that:

- Promotes quality in the work product.
- Coordinates the design with the construction and promotes communication between Key Personnel and CCRC throughout the process.
- Ensures that changes during construction to Released for Construction documents are reviewed by the Project designers and are appropriately recorded.
- Ensures that all work is appropriately inspected and/or tested in accordance with CCRC practices by CCRC and/or the Design-Builder.

2.6.2 Field Office

Not used.

2.6.3 Internet Access

Not used.

2.6.4 Video Record

Before the start of a construction, the Design-Builder shall videotape the entire Project Work Area, and surrounding areas to record the pre-construction condition. The video record shall be completed in
accordance with the Special Provision for Audio-Visual Filming (see Book 3). The Design-Builder shall provide a copy on DVD to CCRC.

2.6.5 Shop and Working Drawing Documents
The Design-Builder shall generate shop drawings, working drawings, and material and equipment documentation as necessary to clearly define, control, construct, and inspect the Project. These shop and working drawings shall be submitted to the Design-Builder’s design team for review and internal approval. All such drawings shall be reviewed by qualified personnel, and shall be stamped “Approved for Construction” if the drawings meet the requirements of the design. After the Design-Builder’s design team completes review of a shop or working drawing, the drawing shall be submitted to CCRC and shall follow the review requirements for Released for Construction Documents. Shop or working drawings requiring signing and sealing shall be signed and sealed by a Michigan-licensed Professional Engineer, prior to being issued for construction.

Shop and working drawings and calculations for excavation shoring, cribs, cofferdams, falsework, temporary support systems, formwork, and other temporary Project elements shall be prepared by the Design-Builder. Shop and working drawings and calculations shall describe the methods of construction proposed to be used for the Project. Receipt and review of submittals for temporary Project elements by CCRC shall in no way constitute Approval of the planned Project element.

The Design-Builder shall make no changes in any approved shop or working drawing after the Design-Builder’s design team has approved them. Any deviations from approved shop or working drawings shall require the fabricator to submit revised drawings to the Design-Builder’s design team for approval, as outlined above.

2.6.6 Product Data
The Design-Builder shall submit to CCRC for Acceptance all manufacturers’ warranties, guarantees, instruction sheets, parts lists, and other product data within 20 Days of installation of the items to which they relate, and in any event prior to Final Acceptance.

The Design-Builder shall ensure that the product data cited in this section are organized and indexed in a manner that allows easy review and retrieval of information.

2.6.7 Maintenance Management Plan
The Design-Builder shall prepare a Maintenance Management Plan and a Maintenance Report detailing all maintenance activities performed. The Maintenance Report shall be submitted every four weeks.

See Book 2, Section 19 for more information.

The Maintenance Management Plan shall be submitted within 30 days of Award of the Contract.

2.6.8 Utility Tracking Report
The Design-Builder shall submit a Utility Tracking Report that lists all Utilities within the Project limits every four weeks.

See Book 2, Section 2.2.1.3 and Book 2, Section 6 for more information.

2.6.9 Geotechnical
The Design-Builder shall submit for Acceptance the Settlement Monitoring Plan if the Geotechnical Instrumentation and Monitoring Plan requires settlement instrumentation.

See Book 2, Section 8 for more information.

2.6.10 Sewer Video Inspections
Not used
2.6.11 Culvert Removal

The Design-Builder shall submit a work plan to CCRC for removing the culverts under the existing causeway prior to performing the Work.

See Book 2, Sections 4 and 12 for more information.

2.6.12 Survey Records and Reports

The Design-Builder shall document the surveying work as outlined Section 9.

2.6.13 As-Built Documents

The Design-Builder shall submit to CCRC for Acceptance As-Built Documents that depict the final completed Project, according to the MDOT Road Design Manual Section 14.73. Acceptance of the As-Built documents must be granted by CCRC as a condition of Final Acceptance, according to Book 1, Section 20.

The Design-Builder shall submit all CADD files used in the design plans, in AutoCAD, meeting CCRC design requirements.

2.6.14 Construction Deliverables

Unless otherwise indicated, all deliverables shall be submitted in Adobe Acrobat (pdf) files.

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<td>Acceptance</td>
<td>Every four weeks with Invoice</td>
<td>2.6.8</td>
</tr>
<tr>
<td>Geotechnical Instrumentation and Monitoring</td>
<td>Acceptance</td>
<td>Prior to construction</td>
<td>2.6.9</td>
</tr>
<tr>
<td>Culvert Removal Work Plan</td>
<td>Acceptance</td>
<td>Prior to construction</td>
<td>2.6.11</td>
</tr>
<tr>
<td>Survey Records and Reports</td>
<td>Acceptance</td>
<td>Final Acceptance</td>
<td>2.6.12</td>
</tr>
<tr>
<td>As-Built Documents</td>
<td>Acceptance</td>
<td>According to current CPM schedule and after construction</td>
<td>2.6.13</td>
</tr>
</tbody>
</table>

CCRC will respond with comments or acceptance within 5 Working Days of receipt of each deliverable.
Deliverable Format
The Design-Builder shall provide CCRC with a complete electronic pdf file of each submittal. Multiple files may be used if necessary due to file size constraints or variations in paper size (letter vs. tabloid). Each page or sheet shall be numbered sequentially from the first page in the file to the last page.
The Design-Builder shall submit a table of contents for each submittal that contains multiple pages, containing the following information: discipline, page or sheet number, page or sheet title (for example, Special Provision for XX or Maintenance of Traffic Plans).

2.7 Human Resource Management
The Design-Builder shall conduct all Work necessary to meet the requirements of human resource management, including personnel, facilities, and equipment.
All personnel performing Work on the Project shall have the experience, skill, and knowledge to perform the Work assigned to them. All personnel performing Work on the Project shall also have appropriate required professional licenses and certifications.

2.7.1 Key Personnel
Key Personnel shall meet the requirements of the MDOT prequalification specific to their role on the Project. Unless otherwise approved by CCRC, the Key Personnel for the Project shall include the following:

- Submitter’s Project Manager
- Project Superintendent
- Construction Quality Control Manager
- Design Manager
- Design Lead Geotechnical Engineer
- Design Lead Hydraulics Engineer
- Design Lead Structures Engineer
- Design Lead Road Engineer
- One of the Design-Builder’s key personnel shall be on-site at least 50% of the time during construction unless otherwise approved by CCRC Project Manager.

2.7.1.1 Approval of Key Personnel
CCRC will have the right to Approve or reject the Design-Builder’s Key Personnel during their participation on the Project. Reference Book 1, Section 7.4 for employee performance requirements. CCRC will Approve of any replacement. Such Approval will be based on the qualification requirements set forth in the RFQ and elsewhere in the Contract Documents for all Key Personnel.

2.7.1.2 Directory of Key Personnel
The Design-Builder shall prepare a directory of Approved Key Personnel that includes the following information for each individual: name, Project title, Project office address, Project office location, e-mail address and telephone numbers (office, mobile). The directory shall be kept current throughout the course of the Project. The Design-Builder shall identify a person and phone number that will be available at all times while Work is being performed.
2.7.2 Deliverables

Unless otherwise indicated, all deliverables shall be submitted in Adobe Acrobat (pdf) files.

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>For Acceptance or Approval</th>
<th>Submittal Schedule</th>
<th>Reference Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directory of Key Personnel</td>
<td>Approval</td>
<td>Within 30 days of Award and not less than 5 days prior to start of construction</td>
<td>2.6.1</td>
</tr>
<tr>
<td>Weekly Labor Hour Report</td>
<td>Acceptance</td>
<td>Every four weeks with Invoice</td>
<td>2.2.1.4</td>
</tr>
</tbody>
</table>

CCRC will respond with comments or approval within 10 Working Days of receipt of the Directory of Key Personnel.
EXHIBIT 2-6-B
Project Specific Coordination Clause

Cloverland Electric Cooperative – Electric

Cloverland Electric Cooperative (Cloverland) has existing overhead transmission lines along the north side of the causeway, and crossing to the south side near the west end of the project limits. This overhead line transmits power from Sugar Island to the Sugar Island Ferry Dock at the west end of 1 ½ Mile Rd.

Temporary Condition:
The project reconstruction limits are to be finalized by the Design-Builder and provided to Cloverland concurrent with RFC plan submittal for the temporary maintenance of traffic road. Once work on the temporary road begins, Cloverland will install new riser poles at each end of the project reconstruction limits for the purpose of transferring the existing overhead line to an underground line. Once the temporary road is able to support heavy construction vehicles, the Design-Builder shall provide a trench for a temporary underground electric line at no cost to Cloverland or the Project. The bottom of the trench shall be at least 2-feet below the final surface of the temporary road, and must span the entire length of the temporary road. Cloverland will then install the temporary underground electric line in the trench. The electric line will remain unpowered until construction of the temporary road is complete. Once power is switched to the temporary line, Cloverland will remove all existing power poles within the impact limits within 48-hours.

Permanent Condition:
For a proposed box culvert structure, Cloverland will supply 6-inch conduit, conduit connection supplies and expansion joints, if necessary, to the Design-Builder for installation on top of the proposed box culvert structure. The conduit shall be installed on the north side of the causeway within the limits of the paved shoulder and for the entire length of the box culvert structure at no cost to Cloverland or the Project.

For a proposed bridge structure, Cloverland will supply 6-inch conduit, conduit connection supplies and expansion joints, if necessary, to the Design-Builder for installation on the bridge structure. The conduit may be installed on the fascia or the first bay between the beams. The Design-Builder shall be responsible for all materials required to attach the conduit to the bridge structure at no cost to Cloverland or the Project.

Installation of all conduit, hand holes, power poles, etc. outside of the box culvert structure limits will be the responsibility of Cloverland, and shall be coordinated with the Design-Builder. Cloverland will install and activate all permanent electric lines before the newly constructed causeway is open to traffic. Removal of the temporary electric line will be performed by the Design-Builder at no cost Cloverland or the Project.

If the Design-Builder’s design does not encompass the above utility coordination efforts, the Design-Builder shall contact Cloverland immediately and begin the additional coordination necessary to accommodate the existing utility within the Design-Builder’s design and construction plans.

See Exhibit 2-6-A for contact information or contact the CCRC Project Manager.

AT&T – Telecommunications

AT&T has an existing underground telecommunication line along the south side of the causeway. This underground line transmits data from the mainland to all of Sugar Island.

Temporary Condition:
The project reconstruction limits are to be finalized by the Design-Builder and provided to AT&T concurrent with RFC plan submittal for the temporary maintenance of traffic road. Once work on the temporary road begins, AT&T will install a south-to-north crossing under the existing roadway at each end of the project impact limits. Once the temporary road is able to support heavy construction vehicles, the Design-Builder...
shall provide a trench for a temporary underground telecommunications line at no cost to AT&T or the Project. The bottom of the trench shall be at least 2-feet below the final surface of the temporary road, shall be at least 1-foot from the temporary electric line in all directions, and shall span the entire length of the temporary road. AT&T will then install the temporary underground telecommunications line in the trench. Once the temporary road is active, AT&T will require 3-days to splice and completely transfer all telecommunications to the temporary line. The Design-Builder shall remove the existing line within the existing causeway project impact limits at no cost to AT&T or the Project.

Permanent Condition:

For a proposed box culvert structure, AT&T will supply two 4-inch conduits, conduit connection supplies and expansion joints, if necessary, to the Design-Builder for installation on top of the proposed box culvert structure. The conduit shall be installed on the south side of the causeway within the limits of the paved shoulder and for the entire length of the box culvert structure at no cost to AT&T or the Project.

For a proposed bridge structure, AT&T will supply two 4-inch conduit, conduit connection supplies and expansion joints, if necessary, to the Design-Builder for installation on the bridge structure. The conduit may be installed on the fascia or the first bay between the beams on the south side of the bridge structure. The Design-Builder shall be responsible for all materials required to attach the conduit to the bridge structure at no cost to AT&T or the Project.

Installation of all conduit, hand holes, crossings, etc. outside of the box culvert structure limits will be the responsibility of AT&T, and shall be coordinated with the Design-Builder. AT&T will install and activate all permanent telecommunication lines before the newly constructed causeway is open to traffic. Removal of the temporary telecommunication line will be performed by the Design-Builder at no cost AT&T or the Project.

If the Design-Builder’s design does not encompass the above utility coordination efforts, the Design-Builder shall contact AT&T immediately and begin the additional coordination necessary to accommodate the existing utility within the Design-Builder’s design and construction plans. See Exhibit 2-6-A for contact information or contact the CCRC Project Manager.
The fishing access must extend continuously from the proposed structure to the parking area, and must meet all the requirements of the fishing access on the proposed structure, including but not limited to ADA compliance, barrier protection, and pavement section.

11.2.2 Paving Design Requirements

11.2.2.1 Grading

Proposed subgrade elevation shall be set by the profile and cross section determined by the Design-Builder.

The Design-Builder shall provide positive drainage below the subbase layer to direct flow of water towards headwall weep holes within the limits of the box culvert structure if a box culvert structure is used. Weep holes in culvert top slabs will not be permitted.

11.2.2.2 Subgrade Undercutting

Not used.

11.2.2.3 Pavement Section

The Design-Builder shall use the HMA pavement sections as shown in the following tables:

### Table 1: Minimum HMA Pavement Section for Full Reconstruct Areas

<table>
<thead>
<tr>
<th>Location</th>
<th>Item</th>
<th>Description</th>
<th>Minimum Thickness (in)</th>
<th>Application Rate (Lb/Syd)</th>
<th>Performance Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½ Mile Road</td>
<td>*Top Course (AWI=220 min)</td>
<td>13A 2 220</td>
<td>58-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Leveling Course</td>
<td>13A 2 220</td>
<td>58-28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>**Aggregate Base</td>
<td>22A 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>***Subbase</td>
<td>- 18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Underdrain, Subbase, 6 inch</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curb and Gutter, Detail D2</td>
<td>use as needed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* HMA to contain 3% air void.

** Aggregate Base shall extend to 1.0 foot beyond the outside edge of the paved shoulder or 1.0 foot beyond the back edge of curb and gutter where curb and gutter is used.

*** Subbase shall be daylighted in embankment section and provided full depth to a point 1.0 foot minimum beyond the paved shoulder in cut sections.

### Table 2: Minimum HMA Pavement Section for Mill and Fill Areas

<table>
<thead>
<tr>
<th>Location</th>
<th>Item</th>
<th>Description</th>
<th>Minimum Thickness (in)</th>
<th>Application Rate (Lb/Syd)</th>
<th>Performance Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ½ Mile Road</td>
<td>Cold-Milling</td>
<td>-</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Top Course (AWI=220 min)</td>
<td>13A 2 220</td>
<td>58-28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* HMA to contain 3% air void.
11.3  Construction Requirements

11.3.1  Reusing Existing Materials
If materials that currently exist on the Project will be disturbed and re-used on the Project, these materials shall be stockpiled for CCRC to properly sample, test and Accept. Other means besides stockpiling may be acceptable and can be proposed by the Design-Builder for CCRC approval.

11.3.2  Removal of Miscellaneous Objects
The Design-Builder shall remove and properly dispose of all waste material encountered within the Project that are not otherwise designated for removal, salvage, or reuse, including abandoned automobiles, furniture, appliances, signs, garbage, and any other waste materials.

The Design-Builder shall be aware that CCRC has knowledge that three (3) small bridges once existed on the causeway. The bridges ultimately failed and were removed. The extent of the original removal is unknown, and the Design-Builder may encounter old bridge elements during excavation of the existing causeway. These elements may include, but are not limited to, abutments, foundations, beams, cobbles, concrete, rock fill and piling. If encountered, the Design-Builder shall remove these elements to the extent necessary to meet all requirements of the Contract at no additional cost to CCRC.

The Design-Builder shall be aware that CCRC does not have knowledge or as-builts that show what type of fill was used to construct the causeway. The Design-Builder may encounter atypical fill items during excavation of the existing causeway. These elements may include, but are not limited to, concrete, cobbles, rock fill, trash, lumber, boulders, peat, organic material, etc. If encountered, the Design-Builder shall remove these elements to the extent necessary to meet all requirements of the Contract at no additional cost to CCRC.

The Design-Builder shall be responsible for excavation, removal and disposal of all material, regardless of the type of material, on the causeway for construction of the new proposed structure, road, MOT road and to meet all requirements of the Contract. CCRC will not participate in any additional compensation for this work.

11.3.3  Disposal of Excess Materials
The Design-Builder shall dispose of surplus excavated material in accordance with the MDOT Standard Specifications.

11.3.4  Removal of Pavement
Unless indicated otherwise in the Contract Documents, the Design-Builder shall remove all existing pavement within the Project reconstruction limits. The Design-Builder shall saw-cut the pavement with neat lines at the removal terminations.

11.4  Deliverables
The Design-Builder shall develop roadway submittals in accordance with the requirements of Book 2, Section 2.
EXHIBIT 2-11-B

Proposed Laneage and Cross Slopes
TYPE B GUARDRAIL

4' HMA SHOULDER 2% 11' HMA LANE 2% 11' HMA LANE 2% 4' HMA SHOULDER 2%

TYPICAL ROAD CROSS SECTION *

5' HMA FISHING AREA 2% 4' HMA SHOULDER 2% 11' HMA LANE 2% 11' HMA LANE 2% 4' HMA SHOULDER 2%

TYPICAL STRUCTURE CROSS SECTION *

CRASH-WORTHY LONGITUDINAL BARRIER

PEDESTRIAN RAILING AS APPROVED BY CCRC

*FISHING AREA TO EXTEND CONTINUOUSLY TO PARKING AREAS. SEE SECTION 11.2.1.5.
13.2.2 Design Parameters

13.2.2.1 Geometrics

The lane layout, shoulder width, clear roadway width, and fishing area shall be in accordance with Exhibit 2-11-B (Proposed Laneage and Cross Slopes).

Shoulder cross slopes must match lane cross slopes.

The bottom of the superstructure (i.e. the bottom face of the culvert top slab for box culverts or the bottom of the beams for bridges) shall be at a minimum elevation of 583.70 (IGLD 85 Datum). For box culvert structures, the top face of the culvert bottom slab shall be at a maximum elevation of 571.70 (IGLD 85 Datum). There shall be at least 6 inches of clean washed stone covering the bottom slab of box culverts.

For bridge structures, the river bottom/proposed ground line shall be determined using straight line grading from upstream to downstream through the causeway. Stone or gravel materials that are consistent with the substrate material upstream and downstream shall be used to shape the river bottom/proposed ground line. There shall be no obstructions between the bottom of the superstructure and the river bottom/proposed ground line adjacent to bridge piers.

See Exhibit 2-13-A for details.

In order for a span to be counted towards the Waterway Clear Opening, it must completely satisfy the above requirements from the upstream face of the structure to the downstream face of the structure.

13.2.2.2 Loads and Forces

For a proposed box culvert structure, loads and forces must conform to section 406.03 of the MDOT Standard Specifications for Construction, the AASHTO LRFD Bride Design Specifications, and MDOT standards. Design box culverts for HL-93 live loading. Designing box culverts for HL-93 Modified live loading is not required.

For a proposed bridge structure, apply live loading according to the AASHTO LRFD Bridge Design Specifications, except use HL-93-Modified live loading according to the MDOT Bridge Design Manual.

Apply pedestrian live loading to the fishing area according to the AASHTO LRFD Bridge Design Specifications.

Design components, other than box culverts, including, but not limited to, headwalls, wing walls, foundations and connections, according to the AASHTO LRFD Bridge Design Specifications, the MDOT Bridge Design Manual, MDOT Bridge Design Guides, MDOT Road Design Manual and MDOT Standard Plans.

The Design-Builder shall not design a bridge with fracture-critical components. A non-redundant bridge is prohibited.

The temperature range used to determine thermal forces and movements shall be in conformance with the AASHTO LRFD Bridge Design Specifications Article 3.12 for cold climate temperature range. The type of structure used in determining the temperature range shall be defined by the material of the main supporting members of the superstructure or substructure being considered. Thermal movements and any resulting forces must be taken into account in the design of the structure.

Apply Load Modifiers according to Article 1.3 of the AASHTO LRFD Bridge Design Specifications except as specified herein. Use the following Load Modifiers:

\[ h_D = 1.0 \]
\[ h_R = 1.0 \]
\[ h_I = 1.05 \]
13.2.2.3 Load Rating

For box culvert structures, the Design-Builder shall perform a load rating according to subsection 406.03.C of the MDOT Standard Specifications for Construction.

For bridges, the structure must meet all Michigan legal loads and unrestricted Class A overloads. The Design-Builder shall use the Load Rating procedures according to the MDOT Bridge Analysis Guide, AASHTO Manual for Bridge Evaluation, and the MDOT Michigan Structure Inventory and Appraisal Coding Guide. The following Load Ratings shall be calculated:

- The Inventory Rating, National Bridge Inventory (NBI) Item 66
- The Operating Rating, NBI Item 64
- The Michigan Operating Rating, MDOT Item 64M
- The Michigan Overload Class, MDOT Item 193

Perform the above Load Rating using as-designed conditions and assuming the future wearing surface has been placed. Calculations shall be submitted for review prior to Acceptance of RFC documents for the bridge. These calculations shall include at minimum program calculation input and output and the Bridge Analysis Assumptions and Summary forms found at the following website. If the Design-Builder wishes to submit the latter information in a different format, that will be acceptable as long as all of the information requested on these forms is furnished.

http://www.michigan.gov/mdot/0,4616,7-151-9625_24768_59520---,00.html

Calculations shall be submitted for CCRC review prior to Acceptance of RFC Documents for the bridge. The Design-Builder shall rate the bridge using the AASHTOWare™ Bridge Rating software or an approved equal. The bridges shall be modeled using the “Girder System” method. If the bridge structure cannot be modeled using the Bridge Rating software due to limitations of the software, the Design-Builder shall rate the structure using hand calculations or other software as approved by CCRC. The bridge deck shall be analyzed using hand calculations.

If the Design-Builder does not currently have the Bridge Rating software, they shall obtain it from AASHTO.

http://www.aashtoware.org/Pages/default.aspx

Any assumptions made in the analysis (material properties, section losses, etc.) shall be listed in an Assumption Sheet. The Design-Builder shall submit any hand calculations, spreadsheets, etc. used to determine input into the Bridge Rating software. If formulas are hidden, a brief description of the procedure shall be included. When other programs are used instead of the Bridge Rating software, load and capacity information shall be provided at locations of interest, including but not limited to 10th points of the spans. The Bridge Analysis Assumptions and Summary forms shall be submitted as a *.pdf. These forms shall be marked with the design engineering firm’s logo or letterhead.

All Load Ratings shall be sealed by a Professional Engineer licensed in the State of Michigan.

13.2.2.4 Cast-in-place Concrete Design

For box culvert structures, design concrete components including, but not limited to, headwalls and wingwalls according to the AASHTO LRFD Bridge Design Specifications.

For bridges, concrete deck over prestressed concrete beams shall be cast continuous over pier(s).

The barrier railing shall not be considered as a structural part of the cross-section for design.

The Design-Builder shall apply low-temperature protection of concrete when required according to the Standard Specifications. The Design-Builder shall provide a 7 day wet cure on all permanently exposed surfaces of the bridge deck. Forms can remain on the fascias or the underside of the bridge deck for seven days in lieu of the wet cure for these two surfaces.
13.2.2.5 Precast Concrete Beam Design
Design prestressed concrete beams as simple span beams for all dead load and live load. Design the bridge deck continuous over piers for live loads and superimposed dead loads. The connection details between beams at the continuity diaphragm shall be per the MDOT Bridge Design Guides.

A bridge design with side–by-side concrete box beams is prohibited.

13.2.2.6 Steel Beam Design
Steel beams are not allowed for this Project.

13.2.2.7 Slope Stability
The Design-Builder shall check the overall stability of earth slopes near all structures, including the box culvert structure ends or bridge abutments. Overall stability includes internal, external, compound, and global. The factor of safety for slope stability shall be meet the requirements of AASHTO LRFD sections 10.5.2.3 and 11.6.2.3. The steepest permanent slope allowed will be 1:2 (V:H).

13.2.2.8 Drainage
For box culvert structures, one (1) 2-inch weep hole shall be provided in the headwalls at the north and south ends of each concrete box culvert channel to promote drainage of the fill section above the concrete box culverts. 6-inch outlets shall be provided at underdrain outlet locations as defined in Book 2, Section 11.

For bridges, deck drains may be used to provide positive deck drainage.

13.2.2.9 Signs, Lighting, Signals and Utilities
Conduits shall not be placed on the outboard side of fascia girders. Conduits shall be supported by beams.

Bridge elements shall be designed by the Design-Builder to accommodate the forces and moments resulting from loads (e.g., dead, wind, and ice) applied to any attached signs, lighting, signals, and utilities.

13.2.2.10 Bridge Bearings
The elastomeric bearings shall be laminated steel-reinforced elastomeric bearings. The bearings shall be designed according to AASHTO LRFD Method A as described in AASHTO LRFD Bridge Design Specifications section 14.7.6.

13.2.2.11 Bridge Deck Joints
The Design-Builder shall not use open transverse joints or open longitudinal joints in the bridge decks.

Expansion joint devices shall be utilized between the approach slab and the sleeper slab. No expansion joints or expansion joint devices shall be located on the bridge deck.

13.2.2.12 Bridge Railings

The pedestrian railing (located at the south face of the structure) need not be crash-worthy if vehicular traffic is prevented from impacting the pedestrian railing by a separate crash-worthy barrier, railing or guardrail. The pedestrian railing must be 42” tall and be constructed of hot-dip galvanized steel. The pedestrian railing must satisfy the requirements contained in the AASHTO LRFD Bridge Design Specifications.

13.2.2.13 Approach Slabs
The Design-Builder shall disregard AASHTO LRFD section 3.11.6.5 for the purpose of designing the abutment.

The Design-Builder shall provide an approach slab and sleeper slab at each end of a bridge according to MDOT Bridge Design Guide 6.20.03A. The Design-Builder shall provide an underdrain system beneath all
13.2.2.14 Abutments
The Design-Builder shall apply a penetrating water repellent treatment to the vertical face of the abutment and back-wall above the bridge seats and apply Substructure Horizontal Surface Sealer to the top horizontal surfaces of all abutment bridge seats. Integral and semi-integral abutments are prohibited.

13.2.2.15 Piers
Hammer head pier caps, steel pier caps, and non-redundant, fracture critical-pier caps will not be allowed.

Pier caps shall extend continuously to the river bottom/proposed ground line elevation. The river bottom/proposed ground line elevation shall be determined by straight line grading between the elevations of the existing river bottom at a point 100’ upstream to a point 100’ downstream of the centerline of each pier contraction scour elevation. Cap and column type piers are prohibited.

Pier Noses shall be provided on the upstream and downstream end of all piers. A metal ice breaker shall be utilized on the upstream end of all piers. See MDOT Bridge Design Guide 5.21.01 for nosing and ice breaker details.

13.2.2.16 Foundation and Foundation Piling
The Design-Builder shall not use timber piles as foundations for permanent structures.

The Design-Builder shall not use spread footings as foundations for permanent structures.

13.2.2.17 Bridge Deck
The Design-Builder shall provide a minimum 2-inch thick HMA wearing surface on top of the concrete bridge deck. An approved preformed deck waterproofing membrane shall be placed, according to subsection 710.03.C of the MDOT Specifications for Construction, between the HMA wearing surface and the concrete bridge deck. Barrier and / or railing shall be used interchangeably for the term “curb” in Section 710.03.C.

The pavement section for the HMA wearing surface shall match the Top Course requirements in Book 2, Section 11.2.2.3.

13.2.3 Aesthetic Treatment
Not used.

13.2.3.1 Painting Requirements
Not used.

13.2.3.2 Concrete Surface Coating Requirements
Not used.

13.2.3.3 Bridge Railing
The steel railing shall be hot-dip galvanized.

13.2.4 Materials
All bridge materials shall be in accordance with the 2012 MDOT Standard Specifications for Construction and MDOT Materials Source Guide.

The Design-Builder shall not use steel sheet piling, masonry, timber, or aluminum as load bearing supports for permanent superstructures or substructures. The use of steel sheet piling will be allowed for earth retainage.
13.2.4.1 Cast-in-place Concrete

The Design-Builder shall not use lightweight concrete for structural members. The Design-Builder shall comply with the 2012 MDOT Standard Specifications for Construction pertaining to concrete mix design requirements.

13.2.4.2 Reinforcing Steel

All reinforcement except reinforcement entirely embedded in the prestressed concrete beams shall be epoxy coated.

The Design-Builder shall use laps or mechanical splices as required to facilitate continuation of reinforcement. Welded splices shall not be used.

13.2.4.3 Precast Concrete

The release and final strengths shall be determined by the Design-Builder and shall not exceed the values in the MDOT Bridge Design Manual Section 7.01.03 LRFD.

13.3 Construction Requirements

All necessary permanent and temporary structures including excavation, slopes and embankment shall be within CCRC ROW and within areas identified on state or federal permits included within this RFP. Temporary structures may be constructed outside of the ROW if written permission is obtained from the land owner.

The attachment of temporary concrete barrier (TCB) to the proposed bridge deck during construction staging is prohibited.

Waterproof all joints in concrete against earth per the MDOT Standard Specifications for Construction.

Longitudinal bridge deck construction used to facilitate part-width construction must be located along a permanent lane line.

Box Culvert Waterproofing

All joints in concrete against earth material shall be waterproofed per the MDOT Standard Specifications for Construction. This is including, but not limited to, all parallel and transverse joints on the top surface of the concrete box culverts. These joints shall be treated with cold applied culvert joint sealer per Section 406.03 of the MDOT Standard Specifications for Construction.

All concrete surfaces, not treated with cold applied culvert joint sealer, in contact with earth material and located above the OHWM, as defined in Book 2, Section 1, shall be waterproofed per the MDOT Special Provision for Substructure Horizontal Surface Sealer. At a minimum, this includes the top of all concrete box culverts and the inside faces of concrete headwalls. Concrete surfaces near joints that will receive cold applied culvert joint sealer shall be free of waterproofing sealer.

Eye Bolts

The Design-Builder shall furnish and install galvanized or stainless steel eye bolts spaced every 25 feet along the downstream face of the proposed structure for Sea Lamprey monitoring for the entire length of the structure. The eye bolts shall meet the following requirements:

- The bolt diameter shall be a minimum of 1”
- The inside hole diameter shall be a minimum of 2”
- The embedded length shall be a minimum of 6” if cast in concrete
- The Eye Bolts shall be adhesive anchored according to the manufacturers recommendations if installed after the concrete is cast.
13.3.1 Removal of Existing Structure
Not used.

13.3.2 Field and Shop Painting of Structural Steel
Not used.

13.3.3 Structural Metals
Not used.

13.3.4 Bracing and Steel Sheet Piling
The Design-Builder shall provide temporary and/or permanent bracing required during construction per the Design-Builder’s design.

13.4 Deliverables
See Book 2, Section 2.5.
EXHIBIT 2-13-A

Box Culvert Structure Elevation
BRIDGE STRUCTURE ELEVATION VIEW

MIN. ELEV = 583.70

BOTTOM FACE OF BRIDGE BEAM

TOP OF FIVER BOTTOM/PROPOSED GROUND LINE

MAX. ELEV = VARIES

+ DETERMINE USING STRAIGHT GRADING FROM UPSTREAM TO DOWNSTREAM THROUGH THE CAUSEWAY

BOX CULVERT STRUCTURE ELEVATION VIEW

MIN. F.I.F. = 583.70

BOTTOM FACE OF CULVERT TOP SLAB

6" MIN. CLEAN WASHED STONE

TOP FACE OF CULVERT BOTTOM SLAB

MAX. ELEV = 571.70

ALL ELEVATIONS ARE IGLE 35 DATUM
APPLICABLE STANDARDS
BOOK 3

Little Rapids Habitat Restoration
Roadway Reconstruction
Design-Build Project

1 ½ Mile Road
Chippewa County Road Commission

Original Issue Addendum 1
April 16 - June 5, 2015
<table>
<thead>
<tr>
<th>Organization</th>
<th>Standard</th>
<th>Availability</th>
</tr>
</thead>
</table>
| MDOT         | C&T Research Records and MATES  
http://www.michigan.gov/mdot/0,1607,7-151-9622_11044_25626--.00.html | W |
| MDOT         | Density Testing and Inspection Manual  
| MDOT         | Design Survey Manual  
http://mdotcf.state.mi.us/public/design/surveymanual/ | W |
| MDOT         | Drainage Manual  
http://www.michigan.gov/stormwatermgt/0,1607,7-205--93193--.00.html | W |
| MDOT         | Frequently Used Special Provisions  
http://mdotwas1.mdot.state.mi.us/public/desssp/spss/gotoview.cfm?ds=27 The following Frequently Used Special Provisions shall be excluded from the project: 12SP105A, 123SP303A,123SP501D,123SP807A | W |
| MDOT         | Geometric Design Guides  
http://mdotwas1.mdot.state.mi.us/public/tands/plans.cfm | W |
| MDOT         | Geotechnical Investigation And Analysis Requirements For Structures March 2004  
| MDOT         | Guidelines for Plan Preparation, Road Sample Plans  
http://www.michigan.gov/mdot/0,4616,7-151-9625_21540_36037-171026--.00.html | W |
| MDOT         | Guidelines for Plan Preparation, Bridge Sample Plans  
http://www.michigan.gov/mdot/0,4616,7-151-9625_21540_36037-171399--.00.html | W |
| MDOT         | HMA Production Manual  
| MDOT         | Maintaining Traffic Typicals  
http://mdotwas1.mdot.state.mi.us/public/tands/plans.cfm | W |
REFERENCE INFORMATION DOCUMENTS INDEX

Little Rapids Habitat Restoration
Roadway Reconstruction
Design-Build Project

1 ½ Mile Road
Chippewa County Road Commission

Original Issue Addendum 1
April 16 - June 5, 2015
### ENVIRONMENTAL
- AOC Fact Sheet 2013.pdf
- Distribution Maps (Alternative A).pdf
- Draft Little Rapids EA Final Draft v2.pdf
- GLC Fact Sheet 2013.pdf
- Ice Condition Study.pdf
- Little Rapids Joint Permit Application to MDEQ and USACE.pdf
- Little Rapids Monitoring Plan DRAFT.pdf
- Little Rapids QAPP Final.pdf
- LSSU Sediment Study Final Report.pdf
- Perceptions of the St Marys River.pdf
- St Marys River Hydraulic Report.pdf
- USACE Model Memo (Jan-2011).pdf

### GEOTECHNICAL
- 2012 Preliminary Report - Geotechnical Exploration.pdf
- 2012 Proposed Boring Locations.pdf
- 2015 Geotechnical Investigation.pdf

### ROW

### SURVEY
- Causeway Survey Package (June 2012).zip
- Causeway Survey (AutoCAD).dwg
- Causeway Survey (Microstation).dgn
- Shallow Water Survey (AutoCAD).dwg
| **Survey Data - Combined Points.csv** |
| **TRAFFIC** |
| **CAUSEWAY ROAD HISTORY.pdf** |
| **MOT 2-Lane Concept.jpg** |
| **UTILITY** |