TOWN OF OXFORD, MAINE
THOMPSON LAKE DAM REHABILITATION

LIST OF DRAWINGS
1. TITLE SHEET
2. AERIAL VIEW OF DAM SITE
3. PROJECT NOTES
4. EXISTING DAM CONDITION: PLAN, DOWNSTREAM ELEVATION
5. EXISTING EAST SLUICE CONDITION: PLAN, SECTION
6. GENERAL ARRANGEMENT: PLAN, DOWNSTREAM ELEVATION
7. GENERAL ARRANGEMENT: UPSTREAM ELEVATION
8. EAST SLUICE SECTIONS
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10. DETAILS-2
11. COFFERDAM AND ENVIRONMENTAL CONTROLS: PLAN
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13. EAST SLUICE FISH SCREEN
14. CENTRAL SLUICE FISH SCREEN: PLAN, ELEVATION, SECTION
15. CENTRAL SLUICE FISH SCREEN: FRAME CONNECTION
16. CENTRAL SLUICE FISH SCREEN: ANCHOR PLATE, LIFTING LUG
17. WEST SLUICE FISH SCREEN GUIDE FRAME
18. FISH SCREEN STRUCTURAL STEEL NOTES

REFERENCES
1. SUBSURFACE EXPLORATION AND EVALUATION, PROPOSED REPAIR TO EXISTING RETAINING WALL, THOMPSON LAKE DAM, OXFORD, MAINE, MAIN-LAND DEVELOPMENT CONSULTANTS, LIVERMORE FALLS, SEPTEMBER 18, 2018
2. INSPECTION OF THOMPSON LAKE DAM, MBP CONSULTING, PORTLAND, ME, JUNE 4, 2018
3. APPLICATION FOR NRPA PERMIT, THOMPSON LAKE DAM REHABILITATION, TOWN OF OXFORD, MAY 2019

ISSUED FOR BIDS

TOWN OF OXFORD, MAINE
THOMPSON LAKE DAM REHABILITATION

LOCATION MAP

REFERENCES
1. SUBSURFACE EXPLORATION AND EVALUATION, PROPOSED REPAIR TO EXISTING RETAINING WALL, THOMPSON LAKE DAM, OXFORD, MAINE, MAIN-LAND DEVELOPMENT CONSULTANTS, LIVERMORE FALLS, SEPTEMBER 18, 2018
2. INSPECTION OF THOMPSON LAKE DAM, MBP CONSULTING, PORTLAND, ME, JUNE 4, 2018
3. APPLICATION FOR NRPA PERMIT, THOMPSON LAKE DAM REHABILITATION, TOWN OF OXFORD, MAY 2019

ISSUED FOR BIDS
1. The contractor shall check and verify all dimensions and elevations and become familiar with all existing conditions in the field prior to any construction. All dimensions and elevations shall be as specified in the drawings. All pertinent dimensions and elevations in the field any discrepancies shall be reported to the owner and engineer. All dimensions on the drawings are approximate and shall be verified by the contractor.

2. The contractor shall coordinate and approve all work with the town of Oxford (the owner) and the owner's representative (engineer) and notify the owner and engineer of any damage, non-conformance, and methods of problem rectification. All damage to the existing project facilities and environment shall be repaired by the contractor expeditiously, at no cost to the owner or engineer.

3. Prior to start of construction, the contractor shall review all available project information including the owner’s NRPA permit application for the stream, and any other permit(s) that may be in place with the MDEP.

4. Prior to construction, the contractor may need to remove and store the metal chain link fence, entrance dates, handrail, and steel platforms from the top of the dam and dam abutments. Following completion of construction, these structures shall be reinstalled at original locations and method of original installation.

5. Dam rehabilitation work requires installation of an upstream cofferdam and dewatering enclosed space to perform the work in the dry. The cofferdam shall be responsible for design, installation and maintaining the cofferdam and control of the stream flows.

6. Prior to start of construction, the contractor shall submit to the owner and engineer for review and approval the following:
   - Plan for cofferdam design, installation, maintenance, and removal
   - Plan for cofferdam dewatering
   - Plan for excavation and dewatering plans
   - Details of project work

7. During construction, the contractor shall maintain water level in Thompson Lake at seasonal stage which varies between 16 inches (max. summer), 9 inches (winter) and 7 inches (min. winter) measured from the top of the dam.

8. During construction, the contractor shall measure the lake level from the top of the dam daily. The log of lake level records shall be maintained and available for review by the owner and engineer.

9. All materials and debris obtained from removal and excavation work shall be disposed of properly in accordance with the MDEP and Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices.

10. Concrete

   1. Earth foundation surfaces upon or against which concrete is to be placed shall be free from water, mud, debris. Prior to concrete placement, earth foundation shall be thoroughly moist but not muddy to a depth of 6 inches. No concrete placement on earth surfaces shall be allowed without prior approval by the engineer.
   
   2. All existing concrete and stone Masonry surfaces upon or against which concrete is to be placed shall be clean, free of floating debris, and unsound fragments by using brushing, wet sandblasting, mechanical, or water pressure blasting (6,000 PSI max.). The surfaces shall be roughened to an amplitude of at least 1/8 inch and joints and voids shall be filled with 500 psi quick setting concrete or gravel prior to placing concrete. Stones shall be placed and bedded firmly in existing concrete and stone Masonry surfaces without prior approval by the engineer.
   
   3. Diameter holes for installation rebar dowels shall be drilled in existing concrete. Construction of new structures shall be clean, free from debris and obstructions, and wetted prior to grouting. A premix, non-shrink, non-metallic, self-leveling grout or proprietary epoxy or polyester resin grout approved by the engineer shall be used. Grout rebar dowels at least 24 hours prior to their emplacement in concrete. If labeling is requried, the contractor shall be notified to determine new location for a drilled hole.
   
   4. Each concrete lift shall not exceed 8 feet, measured vertically, unless indicated otherwise in the drawings.

11. All concrete placement at the existing structures shall be inspected and approved by the engineer.

12. Minimum yield strength of reinforcing shall be 60,000 PSI conforming to ASTM A615, Grade 60. All bending shall be in accordance with ASTM standards.

13. All reinforcing bar splices and embeddings shall be a minimum of 40 bar diameters, unless indicated otherwise on the drawings. Splices shall be extended so that no more than half of the reinforcing Steel is spliced at a given section.

14. All reinforcing in accordance with ACI SP-66. All hooks shall be standard hooks in accordance with ACI 318 U.S.

15. Minimum cover for reinforcing bars shall be 4 inches on water side and 3 inches on soil side, unless indicated otherwise on the drawings.

16. Welding shall be in accordance with the AWS D1.1. All welds shall be E70xx and shall be performed by a certified welder.

17. All steel plates, bars, and structural steel shapes shall conform to ASTM A-36.

18. All bolts, nuts, and washers shall conform to ACI A-325 and shall be galvanized.

19. Concrete anchors shall be Hilti® HAY or standard stainless steel adhesive anchor or approved equal. Install anchors to manufacturers recommended depth and anchor size U.S.

20. All reinforcement installed at the project structures shall be inspected and approved by the engineer prior to any concrete placement.

WATERSTOPS

1. Provide 9\_in. PVC ribbed center bulb waterstops, vinyllex or approved equal. Locally approved waterstops and concrete joints as indicated on the drawings or where directed by the engineer.

2. All waterstop tees, els and crosses shall be pre-fabricated by the waterstop manufacturer. Field welds shall be limited to only butt-welds. End lap shall be 3-1/2 Feet from exposed concrete surface, unless otherwise indicated in the drawings.

3. Provide 9\_t" shaped split waterstops for vertical construction joints bet. New conc. and exist. conc. - Masonry structures as indicated on the drawings.

EROSION/SEDIMENT CONTROL

1. Refer to the NRPA permit application for sequence of installation and removal of erosion and sediment control. Refer to the NRPA permit application for additional erosion and sediment control.

2. Location of silt fences and hardness and details of erosion/sediment controls shown on the project drawings are for the permit application only. The contractor shall develop a detailed, suitable to the site erosion/sediment control plan in accordance with the MDEP, owner and engineer for review and approval prior to start of construction. The contractor shall be responsible for all design, preparation and installation. Erosion/sediment control measures including a sediment basin(s), and schedule for installation and removal of erosion/sediment controls. The sediment basin(s) shall be provided for all water pumped from any excavation and from behind cofferdams.

3. The contractor shall take all necessary measures to ensure that construction activities do not result in measurable erosion of soils on the site during construction of the project covered by the approved erosion / sediment control control plan.

4. The contractor shall minimize runoff into work area by installation of temporary diversion dikes with level spreaders and check dams. Silt fencing shall be installed in outflow area of level spreaders or check dams where water may develop a ten feet depth.

5. During construction, all erosion and sediment control measures shall be inspected by the contractor weekly and immediately after rainfall of 1\_/2" or greater. Necessary repair or maintenance measures shall be conducted within 24 hours and reported to the engineer.

6. Wheeled or tracked equipment may not operate in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension as long as the gravel or rock brush of the contractor is designed to protect the vegetation. The contractor shall make a good faith effort to protect existing vegetation.

7. All temporary work pads, access ramps, etc. placed by the contractor using imported fill shall be underlain by a woven geotextile fabric. The contractor shall remove imported fill and geotextile fabric and dispose of off the site after completion of work.

8. Provide temporary vegetation of bare excavated or fill slopes in accordance with 'Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices' for temporary biodegradable erosion control matting such as North American Green Screen or Equal.

9. The contractor shall minimize disturbance to the bottom of Thompson Lake and to the streambed downstream of the dam.

10. Revegetate all disturbed areas. Loaming, seeding, and mulching shall be performed in accordance with specification 02090 of the contract document.
TOWN OF OXFORD, MAINE

THOMPSON LAKE DAM REHABILITATION

EXISTING EAST SLUICE CONDITION: PLAN, SECTION

MBP CONSULTING, PORTLAND, MAINE

Designed: MBP
Drawn: MBP
Revision: 0
Date: 10/21/19

ISSUED FOR BIDS
NOTES:
1. REMOVE AND DISPOSAL OF EXIST. CENTRAL SLUICE GATE TRASHRACK PRIOR TO COFFERDAM INSTALLATION.
2. REMOVE AND DISPOSAL OF EAST SLUICE STOPLOG STEEL GUIDES AND TWO ABANDONED WATER MILL INTAKE GATES AND HOISTS PRIOR TO INSTALLATION OF UPSTREAM CONC. OVERLAY.
EXIST. CONC. EAST ABUT. WALL

ABUT. WALL INTERPRETIVE SHAPE

EXIST. CONC. EAST ABUT. WALL

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ISSUED FOR BIDS

TOWN OF OXFORD, MAINE
THOMPSON LAKE DAM REHABILITATION

EB SLUICE SECTIONS

MBP CONSULTING, PORTLAND, MAINE

Designed: MBP
Drawn: MBP
Revision: 1
Date: 10/21/19
Scale as Noted

NOTES:

1. CUT OPENING IN EXIST. STEEL PLATFORM TO ACCOMMODATE GATE FRAME AND GATE BASED ON DATA OBTAINED FROM GATE MANUFACTURER.

2. PROVIDE BOX-OUTS IN SLUICE CONC. FLOOR SLAB AND SLUICE CONC. WALL OVERLAYS FOR GATE FRAME INSTALLATION PER DATA OBTAINED FROM GATE MANUFACTURER.

3. FOLLOWING GATE INSTALLATION, INSTALL TEMPORARY PREFABRICATED BULKHEAD IN BULKHEAD SLOTS AND TEST GATE FOR MOVEMENT AND WATERTIGHTNESS AS DESCRIBED IN PROJECT SPECIFICATION 11285 FOR SS SLIDE GATE. AFTER COMPLETION OF GATE FIELD TESTING, REMOVE BULKHEAD AND INSTALL FISH SCREEN (DWG 13) IN BULKHEAD SLOTS.
TOWN OF OXFORD, MAINE
THOMPSON LAKE DAM
REHABILITATION

DETAILS - 2

MBP CONSULTING, PORTLAND, MAINE

T-SHAPED SPLIT WATERSTOP AT CONSTRUCTION JOINT
BET. NEW AND EXISTING STRUCTURES. DETAIL

EXPANSION BOLTS
3/8" x 3" @ 8" OC
(TYP. 2 PLCS - STAGGERED)

COMPRESSION BAR 3/8" x 3" (CONT.)
(TYP. – 2 PLCS)

PRIME WITH Sika. FLEX 429 AND
CAULK WITH Sika FLEX 1A SEALANT
IN 1/1/2 GROOVE, TOOL FINISH

EXIST. CONC. / MASONRY
STRUCTURE

NEW CONC. FACING

T-SHAPED SPLIT 9"
WATERSTOP

PLACE 2 BEADS OF G.E. SILICON
CAULK (SILPRUF) OR APPROVED EQUAL
PRIOR TO WATERSTOP INSTALLATION

2" 3/8" STEEL POST
(316L ASTM A276 @ 2'-0" TO 3'-0"
(0.0"

3/4" W FMT ANCHORS

HANDRAIL DETAILS

NO EXIST. CONC./STONE MASONRY STRUCTURE

ISSUED FOR BIDS

TOWNSHIP 6 N., RANGE 23 W., 3RD P.M.
BANGOR, ME 04401
207-706-9867

MBP CONSULTING, PORTLAND, MAINE
10/21/19

10" CONC. FACING

PROVIDE GROUT BED (STEEL
TROWEL FINISH) FOR ROUGH
CONC./STONE MASONRY SURFACE

T-SHAPED SPLIT 9" WATERSTOP AT CONSTRUCTION JOINT
BET. NEW AND EXISTING STRUCTURES. DETAIL

NTS

NTS

NTS

NTS

NTS
NOTE:
THIS PROPOSED PLAN OF COFFERDAM AND ENVIRONMENTAL CONTROLS WAS DEVELOPED FOR THE NRPA PERMIT APPLICATION FILED WITH MDEP IN JUNE 2019. THE CONTRACTOR SHALL DEVELOP A PLAN FOR INSTALLATION OF COFFERDAM AND ENVIRONMENTAL CONTROLS AND SUBMIT THE PLAN TO THE OWNER AND ENGINEER FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.
NOTES:

1. PRIOR TO FISH SCREEN FABRICATION, THE CONTRACTOR SHALL SUBMIT THE DRAWING TO THE ENGINEER FOR REVIEW AND APPROVAL.
2. ALL FILLET WELDS SHALL BE 3/16", U.O.N.
3. ALL METAL MEMBERS SHALL BE A36 STEEL, U.O.N., AND HOT-DIPPED GALVANIZED AFTER FABRICATION.
4. VERIFY LIFTING LUG PROFILE IS COMPATIBLE WITH CRANE HOOK PROFILE PRIOR TO FABRICATION.
5. SEE DRAWING 18 FOR ADDITIONAL STRUCTURAL STEEL NOTES AND REQUIREMENTS.
ISSUED FOR BIDS

TOWN OF OXFORD, MAINE
THOMPSON LAKE DAM REHABILITATION
CENTRAL SLUICE FISH SCREEN CONNECTION DETAIL

MBP CONSULTING, PORTLAND, MAINE

Designed: MBP CONSULTING
Scale as Noted

1. HILTI ANCHORING ADHESIVE SHALL BE HILTI HET-RE 500 V3. HOLE SHALL BE CLEANED WITH WIRE BRUSH AND COMPRESSED AIR PER HILTI REQUIREMENTS. INSTALLATION SHALL BE PER HILTI REQUIREMENTS.

HOLE FILLED WITH HILTI ANCHORING ADHESIVE (NOTE 1)

1/2" GALV. THREADED ROD (A307) @ 1'-5" O.C. IN 15/16" Ø HOLE FILLED WITH HILTI ANCHORING ADHESIVE (NOTE 1)
SCREEN LIFTING LUG SECTION

NOTE:
1. VERIFY LIFTING LUG PROFILE IS COMPATIBLE WITH CRANE HOOK PROFILE PRIOR TO FABRICATION.
NOTES:
1. PRIOR TO FISH SCREEN GUIDE FABRICATION, THE CONTRACTOR SHALL SUBMIT THE DRAWING TO THE ENGINEER FOR REVIEW AND APPROVAL.
2. ALL FILLET WELDS SHALL BE 3/16".
3. ALL METAL MEMBERS SHALL BE A36 STEEL AND HOT-DIPPED GALVANIZED AFTER FABRICATION.
1. Work and materials shall conform to the 2015 International Building Code, State of Maine Building Codes, and other applicable codes and standards and shall meet the requirements of local authorities having jurisdiction.

2. See other project drawings, specifications and construction documents for additional requirements.


4. Contractor shall provide owner’s engineer with copies of fabricator’s welders’ current AWS certification prior to construction.

5. All shop and field welds shall be made by certified welders, and shall conform to the American Welding Society Code, AWS D1.1, latest edition, using E70-18 electrodes. Carefully control welding technique to avoid distortion, including clamping prior to welding. Minimum weld size shall be 3/16” fillet.

6. Structural steel rolled shapes, plates, bars and tubes shall conform to the following:
   - ASTM A-572, Grade 50: Lifting Lugs (Fy = 50,000 psi)
   - ASTM A-36: Other rolled shapes, plates and bars. (Fy = 36,000 psi)
   - ASTM A-36: Threaded rods (Fy = 36,000 psi)
   - Note: Steel materials, including bolts and rods, shall be hot-dipped galvanized.

7. Holes for bolts shall be drilled to a diameter that is 1/16” larger than the nominal diameter of the bolt unless otherwise noted (“LON”). All holes in steel components shall be drilled. Use of cutting torches for holes is not permitted.

8. Shop drawings for steel shall be submitted for review and approval.

9. The structural design is based on the full interaction of all its connected parts. No provisions have been made for any temporary conditions that may arise during construction prior to the completion of the structure. The Contractor shall be solely responsible for adequate design and construction of all forms, shoring and temporary bracing during the progress of the project.

10. All work, including demolition, shall be performed by experienced workman and coordinated with adequate supervision by the contractor’s project supervisor.

11. The Contractor shall be responsible for the safety of adjacent structures, property, and the public. The Contractor shall comply with all federal, state and local safety requirements.

12. Work not indicated on a part of the Drawings but reasonably implied to be similar to that shown at corresponding places shall be included.

13. These structural documents shall be used for this project only and not for any other purpose. The Contractor shall not modify these documents or make changes in construction from the intent of these documents without written approval from the owner’s engineer. Use of part but not all of these documents is not permitted.

14. The Contractor is required to examine the Drawings and Specifications carefully, visit the site and fully inform themselves as to all existing conditions and limitations, prior to submitting their Bid. Failure to visit the site and familiarize themselves with the existing conditions, interferences and other limitations will in no way relieve the successful Bidder from furnishing any materials or performing any work in accordance with Drawings and specifications (at no additional cost to the Owner).

15. Details indicating existing conditions are based on assumptions, some of which have not yet been field verified. It is critical that the contractor verify actual existing conditions prior to purchasing or fabricating new materials and notify the owner’s engineer immediately if actual conditions differ from those indicated on the structural details.

16. Contractor shall take all necessary precautions to ensure that existing dam components are not damaged during construction. All damaged areas shall be completely restored to the full satisfaction of the Owner at no additional cost to the Owner.

17. Stored materials shall be kept under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack materials in such a manner that prevents warping or crushing.

18. Pre-manufactured materials shall be installed in accordance with manufacturer’s requirements and recommendations. Substitutions for specified pre-manufactured materials may be made but only after specific written approval has been provided by the owner’s engineer prior to installation.

19. Except where slope is specified, new materials shall be installed plumb, level, and straight. Contractor shall not fabricate materials until interferences have been identified and resolved.

20. No change in size or position of the structural elements shall be made without prior written approval of the owner’s engineer. Fully repair any damage to galvanized finishes.

21. Temporary erection bracing shall be provided to hold structural steel securely in position. Contractor shall regard the steel members as a non-self-supporting steel frame requiring temporary lateral bracing until construction is complete.

22. Remove and legally dispose of demolished materials.