

**AMENDMENT NUMBER 4 TO
PROFESSIONAL SERVICES AGREEMENT BETWEEN
NTH Consultants, Ltd
AND THE CITY OF ANN ARBOR**

This Amendment Number 4 ("Amendment") is to the agreement between the City of Ann Arbor, ("City") and NTH Consultants, Ltd., ("Contractor") for Professional Engineering Services, which is dated January 26, 2022 ("Agreement"). City and Contractor agree to amend the Agreement as follows:

- 1) Article III, SERVICES, is amended to read as follows:
 - A. The Contractor agrees to provide Professional Engineering Services ("Services") in connection with the Project as described in Exhibit A, and as amended for additional tasks by Amendment Number 4 (Exhibit A-4). The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any time by a written order. If the changes add to or deduct from the extent of the services, the compensation shall be adjusted accordingly. All such changes shall be executed under the conditions of the original Agreement.
 - B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
 - C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory, and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement. The Contractor shall also comply with and be subject to the City of Ann Arbor policies applicable to independent contractors.
 - D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.
- 2) Article V, COMPENSATION, is amended to read as follows:
 - A. The Contractor shall be paid in the manner set forth in Exhibit B, and as amended by Amendment Number 4 (Exhibit B-4). The total fee to be paid the Contractor for the Services shall not exceed \$2,871,287.77. The original contract amount was \$589,405.30. The Amendment No. 1 amount was \$214,102.47. The Amendment No. 2 amount was \$140,080.00. The Amendment No. 3 amount was \$227,700.00. The Amendment No. 4 amount is \$1,700,000.00. Payment shall be made monthly, unless another payment term is specified in Exhibit B or Exhibit B-4, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.

- B. The Contractor will be compensated for Services performed in addition to the Services described in Article III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed, hours allocated, etc.) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

All terms, conditions, and provisions of the Agreement, unless specifically amended above, shall apply to this Amendment and are made a part of this Amendment as though expressly rewritten, incorporated, and included herein.

City and Contractor agree that for this Amendment and any documents related to the Agreement: 1) signatures may be delivered electronically in lieu of an original signature; 2) to treat electronic signatures as original signatures that bind them; and 3) signatures may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

This Amendment to the Agreement shall be binding on the Parties' heirs, successors, and assigns.

[SIGNATURE PAGE FOLLOWS]

For _____

Contractor Name

By _____

Name: _____

Title: _____

Date: _____

For City of Ann Arbor

By _____

Christopher Taylor, Mayor

By _____

Jacqueline Beaudry, City Clerk

Date: _____

Approved as to substance

Milton Dohoney Jr., City Administrator

Sue McCormick, Interim Public Services Area
Administrator

Approved as to form and content

Atleen Kaur, City Attorney

EXHIBIT A-4
SCOPE OF SERVICES

Mr. Glen Wiczorek, P.E.
City of Ann Arbor
919 Sunset Road
Ann Arbor, Michigan 48103

March 27, 2024
NTH Project No.: 62-210340
(Revised July 16, 2024)

**RE: Proposal to Provide Construction Engineering Services
Barton Dam Right Embankment Remediation
Ann Arbor, Michigan**

Dear Mr. Wiczorek:

NTH Consultants, Ltd. (NTH) is pleased to submit this proposal to provide construction engineering services associated with the Barton Dam Right Embankment Remediation Project. Barton Dam is regulated by the Federal Energy Regulatory Commission (FERC) and the FERC dam ID is P-3142. The project will consist of the construction of a stabilizing berm on the downstream slope of the right embankment as well as other ancillary work to develop site staging, improve site access, and remediate other critical items at the dam such as removing the existing reverse filter and filling the existing toe ditch pond as required by FERC.

Based on the Request for Proposal that was posted for prospective bidders on January 19, 2024, the contractors will have an available construction period that is currently planned to extend from approximately October 2024 until October 2026, however, based on recent interviews with proposers, construction will most likely be substantially completed during the 2025 calendar year. The contract documents do contain an interim milestone date of March 31, 2025, for the contractor to complete all activities associated with widening of the railroad underpass including the replacement of the existing gabions and placement of a temporary wearing course for construction purposes, which may be slightly altered during contract negotiations given the later than anticipated start of July 1, 2024.

The following sections present our current understanding of the proposed construction, our assumptions related to staffing for the construction period extending from October 2024 to October 2026 as well as our estimated fees for the proposed construction period.

PROJECT BACKGROUND

Barton Dam was constructed over 100 years ago and for a number of years, there have been issues associated with seepage at the toe of the right embankment. In 2022, following our review of rehabilitation options in conjunction with FERC to address the seepage issue and improve overall stability, it was determined that a stabilization berm constructed on the downstream slope of the right embankment would be the safest and most cost-effective solution to address the ongoing issues. As such, NTH and our subconsultant DLZ, developed plans and specifications for construction of the berm as well as other dam site improvements required by FERC or desired by the City to improve access to the dam. These included:

- Removal of the existing reverse filter.

- Filling of the existing collector toe ditch pond.
- Widening the access path beneath the railroad bridge and improvement of the final surface.
- Abandoning the existing toe drains within the footprint of the stabilization berm.
- Abandoning the existing toe collector ditch and constructing a realigned collector ditch.
- Raising the dam crest to a uniform elevation of 802.0.
- Replacement of the existing stairway to the dam crest.
- Significant dewatering efforts to maintain dam stability during site development.

Based on this concept, engineering drawings and specifications were prepared for prospective bidders to construct the stabilization berm as well as the other site improvements described above. Based on the tight construction market and the City's desire to open the project to as many prospective bidders as possible, a construction completion date of October 2026 was selected to allow the project to be accommodated by as many qualified bidders as possible based on the amount of similar construction ongoing within the region. Subsequently, four bids were received on March 7, 2024, with contractor base bids ranging from \$5.18 Million to \$10.38 Million

Based on the anticipated date for the selected contractor to receive the notice to proceed from the City of Ann Arbor of October 1, 2024, and the final completion date established in the contract documents of October 31, 2026, the contractor will have a period on the order of 68 weeks of favorable weather to complete the project scope, which may be slightly altered during contract negotiations given the later than originally anticipated start of July 1, 2024.

CONSTRUCTION ENGINEERING STAFFING AND LEVEL OF EFFORT ASSUMPTIONS

The construction engineering team that NTH will provide to the project will include many of the individuals that were involved in the design effort thereby providing consistency as the project moves forward into construction. Our proposed team is presented on the attached Organization Chart for Barton Dam Construction Engineering Services.

As noted on the organization chart, the following individuals and their project-specific roles during construction are presented below. In addition, resumes for each individual are also attached to this proposal.

Project Manager: David Lutz, P.E. – Dave will serve as the NTH project manager (PM) and will provide direction to staff throughout the project. In all cases, he will be available to the City to address any issues that arise during the construction process.

Engineer of Record: Steve McManus, P.E. (Geosyntec) – Steve was extensively involved in the study phase doing a significant amount of the hydraulic and stability modeling. Once the project moved into the design phase, he served as the design project manager. Because of his deep understanding of the design, as well as FERC requirements related to safely constructing the stabilization berm, NTH will partner with Geosyntec, Steve's current employer, to serve in the role of Engineer-of-Record (EOR) and QCIP Supervisor throughout the construction phase. In this role, he will oversee field construction engineering services and be the lead project member to address any technical or other project issues as they develop in the field during construction. Throughout the construction process, the Field Resident Engineer (FRE) will report directly to Steve and daily

will communicate construction progress as well as any issues that develop requiring resolution from the design team. Throughout the construction period, Steve will make regular trips to the site to oversee that construction activities are consistent with the contract documents and FERC guidelines. As issues or questions arise, he will meet with the contractor and the field engineering team to resolve as many questions and potential issues in the field as possible. The EOR will participate in the monthly project progress meetings and will review the contractor's planned upcoming work activities.

Project Advisor: Keith Swaffar, P.E. – Based on Keith's involvement on the project from the investigation through the design phase, he will serve as a resource to both the PM and the EOR as design or construction arise during the next phase of the project. His efforts may include review and comment on contractor RFI's and submittals, evaluating and responding to differing site condition claims, as well as evaluating alternative contractor means and methods from those originally anticipated during the design process. The project advisor will make occasional site visits to view construction activities as well as conditions exposed during the construction process.

Field Resident Engineer (FRE): Jose Bravo, EIT – Jose has been intimately involved with the design effort including engineering evaluations and design document preparation. Jose has also participated in the Potential Failure Mode Analysis (PFMA) session with FERC. On this basis, Jose has an in-depth knowledge of both the design intent and details as well as the critical construction issues including dewatering that will be mandatory to safely build the project. In this role he will have several daily responsibilities that were documented during the recent PFMA conference. In addition, Jose will serve as the principal field engineer and as additional inspection, testing and surveying staff are required during the construction process, he will notify the PM and EOR of the staff requirements and as these individuals are placed on the project, he will assign their daily inspection, testing or surveying responsibilities as well as oversee their efforts in the field.

Supplemental Field Resident Engineer (FRE): George Hanna Kachl – Mr. Hanna Kachl brings 45 years of extensive experience in construction supervision, surveying, estimating, scheduling, as well as inspection, administration, and field construction observation for large municipal civil engineering projects. His background as a geotechnical field engineer includes oversight and assessment of groundwater dewatering and remediation systems, groundwater well installations, geotechnical investigations, geotechnical instrumentation and monitoring, and construction observation of temporary shafts and various ground improvement techniques. In this role, he will supplement or rotate with the FRE as needed during project execution.

Project Administrator: Abdunasser Almadhoun, P.E., CCS – Mr. Almadhoun has extensive experience in implementing project controls and maintaining documentation for large infrastructure projects. For the Barton Dam rehabilitation project, he will be responsible for the preparation of RFI responses, submittal reviews, evaluations, and preparation of responses, engineer review of pay applications and preparation of approval recommendations to the owner, evaluation of contractor claims and development of draft responses for the City's consideration. He will also be responsible for final review of all field reports and monthly transmission of project inspection reports and test data to the City of Ann Arbor.

Assistant Project Administrator: Lawrence Gilbert, P.E. – Mr. Gilbert is a 50+ year veteran of the engineering and construction industry. Based on his experience in the civil and heavy construction industry, he will be an invaluable resource to the project in the evaluation of claims as well as RFI's that the contractor may submit.

In addition to the principal NTH and Geosyntec staff noted above, additional field inspection staff will be provided by NTH or Geosyntec as required based on the contractor's level of effort throughout the construction process. In addition, when testing of engineered materials is required in the field, NTH will provide certified engineering technicians to provide field testing services, as necessary.

During the course of the project, surveying services will be provided by Midwestern Consulting, an Ann Arbor based engineering and surveying firm that NTH has worked with in the past on a number of projects requiring surveying.

In addition to the individuals identified above, our project team will also include DLZ who was part of the design team. Their role during construction will be primarily limited to review of submittals and shop drawings for certain aspects of the project that they designed, providing input to technical RFI's prepared by the contractor and addressing questions and issues that arise from Amtrak or EGLE.

SCOPE OF SERVICES

Throughout the construction process, NTH will provide the required construction engineering services to document that the stabilization berm as well as the other required site activities are performed in accordance with the contract documents. The tasks that we have identified in preparing this proposal include not only the anticipated services related to the project's construction, but we have also included fees to address ongoing questions and design considerations from EGLE and Amtrak as well as incorporating these efforts into the Issued for Construction design set.

Services to be provided for the project are discussed below:

Task 1 – Project Management

Management of the project team will be provided by David Lutz, P.E. Dave's services will include regular coordination and communication with the project team to ensure that the City's expectations are being met and that the project has adequate resources provided to successfully document, observe, and complete the project. This task will also include monthly invoicing and progress report submission as necessary to the City of Ann Arbor.

Task 2 – Preconstruction Activities

Task 2 includes several items that are required that were outside the services identified in Amendment 3 to the NTH contract. The current items included in the Task 2 updated budget and their budget amounts include:

- EGLE Permit efforts required by the contractor immediately prior to or during construction.
- Field inspection by a qualified engineer as required by the CDSSMP associated with the installation of Ground Monitoring Points at the dam crest within the project construction limits.
- Preparation of an issued for construction set of project documents that meets the needs of the contractor's field staff.

Task 3 –Construction Observation and Administration

With the expected Notice to Proceed to be provided to the contractor of October 1, 2024, the active construction period for 2024 is approximately 8 weeks before work is likely suspended until 2025. Based on our experience with similar types of construction, the 2025 and 2026 construction periods could be as much as 30 and 28 weeks, respectively.

Following issuance of the NTP, the NTH team will provide the following services:

- Review, comment, and approve project submittals prepared by the contractor.
- Review and respond to technical Requests for Information (RFIs) submitted by the contractor.
- Attend regular project progress meetings.
- Provide engineering inspection of contract activities in the field and prepare daily documentation and reports of the contractor’s work.
- Provide testing as required to document materials placed in the field meet project requirements.
- Develop and maintain a log of non-conforming work items for the project and track each item until it is completely resolved.
- Provide FERC-mandated daily monitoring and inspection related to dewatering systems and their discharge.
- Provide daily toe drain and dewatering inspections on contractor non-working days as required by the CDSSMP document.
- Observe and document instrumentation data at the project site including piezometer water levels and ground monitoring points.
- Participate in a monthly project status meeting with the City and the Contractor.
- Review payment requests and provide comments to the City.
- Review contractor claims associated with unforeseen conditions at the site and provide recommendations to the City relative to approval or denial.
- Provide 1x monthly inspection of dam during period of non-construction (December to March) plus an additional startup and shutdown inspection per the CDSSMP document.

Task 4 – Project Closeout

Tasks associated with final project closeout will include:

- Preparing as-built drawings of the final berm construction including ancillary items of construction based on surveying records and redline markups from the contractor.
- Closing out issues associated with construction.
- Preparing documentation related to construction required by FERC.
- Closing out project permits including Amtrak, EGLE and Washtenaw County.

- Finalizing documents related to the construction for City of Ann Arbor and FERC records.

Additional efforts outside of construction, including post-construction monitoring required by EGLE for channel performance, are not currently included in our scope.

SCHEDULE

The NTH Construction Engineering team will be prepared to commence field inspection and testing services as soon as the contractor receives the NTP from the City. Initial activities are anticipated to consist of review and approval of contractor submittals and developing responses to contractor prepared RFIs.

Once construction commences, our FRE will be onsite full-time to provide inspection and testing services for the initial stages of work. As the contractor ramps up operations, additional inspection and testing staff will be added to the project as required to maintain appropriate records of construction inspection and testing to satisfy FERC requirements.

LEVEL OF EFFORT

Based on the current project schedule, the selected contractor can expect the City of Ann Arbor to provide a Notice to Proceed (NTP) on approximately October 1, 2024, and the project requires all work to be completed by October 31, 2026. In addition, the contract establishes an interim milestone date of March 31, 2025 for completion of the underpass widening beneath the railroad overpass to facilitate access to the dam site for construction equipment, which may vary given current project timeline.

Based on our knowledge of the project and the local construction period for earthwork projects, we estimate that over the period from October 2024 to the end of October 2026, there will be approximately 68 weeks where active construction associated with the stabilization berm can occur. Although the selected contractor has not provided a formal project schedule at this time, we estimate, based on the recent contractor interviews, that a construction period on the order of 43 weeks is reasonable to complete the project. As such, we have developed our estimate for construction engineering services on the basis of a 43-week active construction period. If the actual construction schedule deviates from this assumed duration, additional fees may apply.

EXHIBIT B-4
FEE SCHEDULE

Contractor shall be paid for those Services performed pursuant to this Amendment inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions as set in the original Contract.

The total fee to be paid the Contractor for the Services shall not exceed \$2,871,287.77. The original contract amount was \$589,405.30. The Amendment No. 1 amount was \$214,102.47. The Amendment No. 2 amount was \$140,080.00. The Amendment No. 3 amount was \$227,700.00. The Amendment No. 4 amount is \$1,700,000.00.



Mr. Glen Wiczorek, P.E.
March 27, 2024
(Revised July 16, 2024)

PROFESSIONAL FEES

Based on the anticipated construction period as stated above, and considering the required field inspection, testing and surveying level of effort required for the project, we suggest the following budget for each of the tasks identified above:

Task 1: Project Management	\$ 39,000
Task 2: Preconstruction Activities	\$ 29,900
Task 3: Construction Observation, Administration, Testing, Surveying, Shop Drawing Review, and Maintaining Construction Documentation*	\$1,481,100
Task 4: Project Closeout	\$ 150,000
Proposed Construction Engineering Budget	\$1,700,000

* - Based on 43 weeks of active construction.

Barton Dam Remediation
Construction Engineering Services
Contract Amendment Assumptions

Anticipated Active Construction Periods

- Anticipated 2024 Construction
 - Submittal preparation, review and comment /approval
 - PFMA workshop with FERC and Contractor
 - Modular wall design
 - Mobilization
 - SESC Installation
 - Utility locating
 - Staging Area and Access Road Construction
 - Removal of existing canopy beneath railroad bridge
 - Gabion Removal
 - Modular Block Wall Construction at railroad underpass
 - Retaining wall realignment
 - Tree removal
 - Dam crest filling
- Anticipated 2025 Construction
 - SESC Maintenance
 - Tree removal at compensatory cut and excavation, if needed
 - Reverse filter removal and associated dewatering
 - Pond filing and associated dewatering
 - Collector ditch abandonment and associated dewatering
 - Topsoil stripping
 - Unsuitable soil removal and replacement
 - Replacement of topsoil with engineered fill
 - Realigned toe ditch construction and berm base material placement
 - Abandon toe drains
 - Complete berm construction
 - Extend piezometers
 - Remove access stairs and construct new stairway
 - Topsoil placement
 - Seeding
 - Place permanent pavement beneath underpass
 - Remove access road

- Site restoration
- Demobilization and project closeout
- Anticipated engineering manpower loading
 - Project startup and submittal review and approval
 - Project manager – 18 hours
 - Principal Engineer – 30 hours
 - Project advisor – 40 hours
 - Engineer of record – 24 hours
 - Resident Engineer – 40 hours
 - Project Engineer – 30 hours
 - Project Administrator – 40 hours
 - Senior Staff Engineer – 80 hours
 - DLZ – 60 hours
 - 2024 Construction (October through November: 8 weeks)
 - Project manager – 4 hours per week
 - Project advisor – 8 hours per week
 - Engineer of record – 24 hours per week
 - Resident Engineer – 58 hours per week
 - Engineering technician (testing / instrument reading) - 20 hours per week + equipment and lab charges
 - Surveyor – 3 visits per week
 - 2 days will be 5 hours per day by a one-man field surveyor
 - 1 day per week will be 6 hours by a 2-man field crew
 - Total of 16 field hours per week, with a 1:1 of office time
 - Project administrator – 12 hours per week
 - Admin – 10 hours per week
 - DLZ – RFI and shop drawing review – 50 hours; 4 meetings
 - Non-Construction Period Inspections – November-March
 - 1 Inspection per Month + 1 Inspection before and after construction
 - 2025 Construction (mid-April through mid-November: 30 weeks)
 - Project manager – 4 hours per week
 - Project advisor – 6 hours per week
 - Engineer of Record – 24 hours per week
 - Resident Engineer – 58 hours per week
 - Field Engineer (construction oversight and instrument reading) – 16 hours per week (NTH or Geosyntec depending on availability)
 - Engineering technician – 24 hours per week + lab and equipment charges
 - Project administrator – 12 hours per week
 - Admin – 12 hours per week

- Surveyor – 3 visits per week
 - 2 days will be 8 hours per day by a one-man field surveyor
 - 1 day per week will be 8 hours by a 2-man field crew
 - Total of 24 field hours per week, with a 1:1 ratio of office time
- DLZ – RFI and shop drawing review – 50 Hours + 1 Site Visit; 4 meetings
- 5 additional weeks of CA are accommodated in the project budget for 2024/2025 seasons depending on verification of final construction schedule from the contractor, weather, and previously-agreed 43-week active construction period.
- Project Close Out, As-Built Drawings, and documentation for FERC
 - Project manager – 15 hours
 - Project advisor – 16 hours
 - Engineer of record – 110 hours
 - Resident Engineer – 110 hours
 - CAD Support – 200 hours
 - Project administrator – 80 hours
 - Admin – 90 hours
 - Surveyor – 40 hours
 - DLZ – 60 hours