AMENDMENT NUMBER 3 TO THE
PROFESSIONAL SERVICES AGREEMENT BETWEEN
GEOSYNTEC CONSULTANTS OF MICHIGAN, INC.
AND THE CITY OF ANN ARBOR

This Amendment Number 3 ("Amendment") is to the agreement between the City of Ann Arbor, ("City") and GEOSYNTEC CONSULTANTS OF MICHIGAN, INC., ("Contractor") for Professional Engineering Services, which is dated January 3, 2023 ("Agreement"). City and Contractor agree to amend the Agreement as follows:

1) Article II, DURATION, is amended to read as follows:

This Agreement shall remain in effect until satisfactory completion of the Services specified below unless terminated as provided for in Article XI. The terms and conditions of this Agreement shall apply to the earlier of the Effective Date or Commencement Date.

Contractor agrees to extend this Agreement through September 30, 2026.

2) 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 1, Amendment Number 2, and Amendment Number 3 (Exhibit A-3). 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.

3) 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 1, Amendment Number 2, and Amendment Number 3 (Exhibit B-3). The total fee to be paid the Contractor for the Services shall not exceed $440,700.00. The original contract amount was $100,000.00. Amendment No. 1 amount was $115,700.00. Amendment No. 2 amount was $125,000.00. Amendment No. 3 amount is $100,000.00. Payment shall be made monthly, unless another payment term is specified in Exhibit B or Exhibit B-3, 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

Dated: _____

By _____

Jacqueline Beaudry, City Clerk

Dated: _____

Approved as to substance

_____

Milton Dohoney Jr., City Administrator

Dated: _____

_____

Jordan Roberts, Interim Public Services Area Administrator

Dated: _____

Approved as to form and content

_____

Atleen Kaur, City Attorney

Dated: _____

EXHIBIT A-3
SCOPE OF SERVICES

SCOPE OF SERVICES CHANGES

The additional Professional Engineering Services included in this Amendment No. 3 is provided below.

Proposed Work Plan – Superior Dam Concrete Repair Plan

The overall project goal for fiscal year (FY) 2026 (July 1, 2025, to June 30, 2026) is to develop a concrete repair plan for the spillway and powerhouse at Superior Dam that details the recommended concrete repairs in order of necessity and provides estimated costs to complete the recommended repairs. A field investigation will first be performed to collect additional information on the concrete comprising the spillway and powerhouse to supplement available information from previous investigations. Geosyntec Consultants of Michigan, Inc. (Geosyntec) will then perform structural analyses using the collected information to identify the importance of the elements composing the concrete structures in the overall stability of the structures as it relates to credible potential failure modes (PFMs). The recommended repairs will be ordered based on the importance and observed condition of the elements. This scope of work is being completed to address previous recommendations from the inspections required under the Code of Federal Regulations (CFR) Title 18, Part 12, Subpart D (Part 12D).

The following sections provide a detailed scope of work to complete the project goal for the City of Ann Arbor (the City). A similar concrete repair plan for Barton Dam was performed in FY2025 (July 1, 2024, to June 30, 2025).

Field Investigation

Geosyntec will review available project drawings. A field investigation of the concrete structures at Superior Dam (i.e., powerhouse and spillway) will be performed by Mr. Michael Dupuis, a structural engineer at Geosyntec with dam safety experience. Additionally, Mr. Dupuis was part of Geosyntec's independent consultant (IC) team that performed the ninth FERC Part 12D inspection for Barton Dam in 2023 and he is familiar with the concrete structures. A local engineer from Geosyntec will assist with the field investigation. Mr. Dupuis will inspect the concrete structures for deterioration and cracking and perform non- destructive tests (e.g., Schmidt hammer) at accessible locations that appear to be in poor condition. Locations in poor condition and any results from non-destructive tests will be summarized on project drawings and provided to the City. Geosyntec assumes that a detailed crack map will not be prepared as part of this scope.

Geosyntec will subcontract Materials Testing Consultants (MTC) of Ann Arbor, Michigan to perform non-destructive field testing, collect concrete cores, and perform laboratory testing. Non-destructive field testing and sampling of concrete will be used to gain a more accurate estimate of the extent and depth of concrete deterioration and/or the concrete compressive strength for structures that are sensitive to strength in the structural analyses.

The locations and size of cores collected will be identified based on observations from the field investigation and results of preliminary structural analyses. It is currently assumed that MTC will use a thin-walled concrete core drill to collect 4-inch-diameter cores that are at least 8-inches long from areas that can be easily accessed by the coring equipment (i.e., not the spillway interior, not via boat access). If the coring equipment cannot easily access a specified location, a location that is accessible and considered to have concrete conditions representative of the original location will be selected for sampling. During the collection of the sample, the approximate depth of deterioration observed in the core will be documented. MTC will use ground penetrating radar scanning before coring to place cores between steel reinforcement. After collecting cores, MTC will repair the concrete using non-shrink grout. A local engineer from Geosyntec with dam safety experience will provide oversight during the concrete sampling. Up to three concrete cores will be collected and tested for compressive strength. The sample locations observed depths of deterioration, and results of the laboratory testing will be provided to the City.

For the purposes of the cost estimate, it is assumed Geosyntec's field investigation will be completed within one, six-hour-day. It is assumed the concrete sampling can be completed within two, eight-hour-days. The concrete testing by MTC is expected to be completed within four to six weeks after sampling.

Structural Analyses

Geosyntec will develop best-guess estimates of the structural properties including concrete compressive strength, reinforcement size and spacing, reinforcement strength, concrete cover, and element thickness using information collected from the field investigation, previous reports, and the available project drawings. Geosyntec will also develop lower bound estimates of these properties to use in sensitivity analyses as part of the structural analyses.

Simplified structural analyses will be performed on a unit width basis using hand calculations and available spreadsheets for the following structural elements at a minimum.

- Spillway
  - Upstream barrel arches
  - Downstream sloped slabs and crest beams
  - Downstream apron
  - Piers
  - Right retaining wall (upstream and downstream)
- Sluiceway
  - Concrete-encased steel cross beams (upstream and downstream)
  - Right and left training walls
  - Downstream sloped slab and apron
  - Walkway deck
- Powerhouse
  - Upstream retaining wall
  - Penstock and thrust block
  - Powerhouse structure
  - Training walls

The use of simplified structural analyses is proposed for this scope to provide an initial understanding of the stability of as many of the elements comprising the concrete structures as practicable. Based on the results of initial structural analyses and conditions observed in the field investigation, elements may be further analyzed using two-dimensional (2D) finite element models

(FEM) for portions of the concrete structures and analyze these models. The models will be developed to evaluate stress concentrations around openings and complex load paths. For the purposes of the cost estimate, it is assumed up to one 2D FEM will be required to provide additional detailed analyses.

The structural analyses will estimate factors of safety for structural stability and stresses that develop within the elements. The elements with low calculated factors of safety and/or large stresses will be assessed as to whether their failure would directly or indirectly contribute to a credible potential failure mode (PFM) (i.e., a PFM that has a non-negligible probability of occurring) resulting in an uncontrolled release of the reservoir. For example, the failure of a cross beam within the sluiceway may not result in an uncontrolled release of the reservoir but could contribute to the failure of the spillway/sluiceway wall which would likely result in an uncontrolled release of the reservoir. The elements that contribute to credible PFMs will be considered of higher importance in the concrete repair plan.

The sensitivity analyses will be used to identify how sensitive the calculated factors of safety and stresses within the structural elements are to changes in the strengths and dimensions. Elements that contribute to credible PFMs with large uncertainties in the estimates of strengths and dimensions that are sensitive to changes in these parameters will be considered of higher importance in the concrete repair plan.

Results of structural and sensitivity analyses will be summarized in a report and submitted to the City. Geosyntec anticipates the models for the structural analyses can be set up while awaiting results of the laboratory testing. Geosyntec assumes there will be one, two-hour- meeting with the City to present findings from the structural analyses.

Concrete Repair Plan

Geosyntec will develop a plan with recommended concrete repairs in order of necessity. As recommended in the ninth FERC Part 12D periodic inspection report (Geosyntec 2024), the recommended repairs will be organized into structural elements that: (1) are associated with credible PFMs; (2) pose a health and safety risk to the public or City personnel; and (3) require general maintenance because they do not pose structural stability or public safety concern. The approximate extent of recommended repairs will be shown on project drawings included with the repair plan. For repairs requiring more than concrete patching, conceptual details will be provided with the concrete repair plan. However, a detailed drawing set for all the repairs is considered outside the scope of this project.

Costs for the repair of each element will be estimated. Volumes of concrete required for repair will be estimated based on the extent of deterioration observed in the field investigation and the depth of deterioration observed in the concrete samples. If a concrete core was not collected near the element, a conservative volume estimate will be made. Additional concrete cores may be collected prior to issuing a bid for construction to more accurately estimate the concrete volumes required for repair. The volumes will then be used to estimate repair costs based on typical costs per cubic yard of material. For repairs requiring more than concrete patching, costs will be estimated based on similar repairs for other projects.

Geosyntec will begin preparing the concrete repair plan after discussing the results of the structural analyses with the City. Geosyntec has prepared a similar concrete repair plan for Barton Dam and plans to follow that template for Superior Dam. Geosyntec expects to have a draft of the concrete repair plan completed and submitted to the City by January 2026. Geosyntec assumes there will be one, two-hour-meeting with the City to answer questions and discuss comments on the draft concrete repair plan. Geosyntec will address one round of comments from the City and

submit the final concrete repair plan with cost estimates to the City in March 2026.

Proposed Schedule

It is assumed that approval from the City for this project will be received on or before July 1, 2025. The field investigation is expected to be completed shortly after the start of FY2026 (July/August). The structural analyses and concrete repair plan are expected to be completed before March 2026 in order to provide adequate time for the City to plan for the development of detailed designs for structural repairs and plan for financing construction of the repairs.

EXHIBIT B-3
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 Compensation Schedule included herein states natures and amount of compensation the Contractor may charge the City.

The total amount of fees to be paid under the amended Agreement shall not exceed $440,700.00. The original contract amount was $100,000.00. Amendment No. 1 amount was $115,700. Amendment No. 2 amount was $125,000.00. Amendment No. 3 amount is $100,000.00, and is broken down in the table below:

Fee Proposal – Superior Dam Concrete Repair Plan

A breakdown of estimated costs for each task to be performed as part of the Superior Dam Concrete Repair Plan FY26 work is provided in Table 1 below.

Table 1
Summary of Estimated Costs
Superior Dam Concrete Condition Assessment

Task	Task Description	Geosyntec Labor Hours	Geosyntec Labor	Geosyntec Expenses	Subcontractor Expenses	Total Cost
1	Field Investigation	80	$14,950	$1,550	$10,950	$27,450
2	Structural Analysis	124	$26,350	$850	$0	$27,200
3	Concrete Repair Plan	224	$43,800	$1,550	$0	$45,350
	Total	428	$85,100	$3,950	$10,950	$100,000