

CONTRACT

THIS CONTRACT is between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 ("City") and Michels Construction, Inc ("Contractor") a(n) Delaware corporation located at 817 Main Street, PO 128, Brownsville, Wisconsin 53933 Based upon the mutual promises below, the Contractor and the City agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled **Barton Dam Right Embankment Remediation Project** in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, all of which are incorporated as part of this Contract:

Non-discrimination and Living Wage
Declaration of Compliance Forms (if
applicable)
Vendor Conflict of Interest Form
Prevailing Wage Declaration of
Compliance Form (if applicable)
Bid Forms
Contract and Exhibits
Bonds

General Conditions Standard
Specifications Detailed
Specifications Plans
Addenda
ARPA Contract Addendum

ARTICLE II - Definitions

Administering Service Area/Unit means **Public Services / Water Treatment**.

Project means **Barton Dam Right Embankment Remediation Project RFP 24-03**.

Supervising Professional means the person acting under the authorization of the manager of the Administering Service Area/Unit. At the time this Contract is executed, the Supervising Professional is: **Glen Wiczorek** whose job title is **Senior Utilities Engineer**. If there is any question concerning who the Supervising Professional is, Contractor shall confirm with the manager of the Administering Service Area/Unit.

Contractor's Representative means **Eric Justman** whose job title is **President**.

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within 28 consecutive months.

- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount equal to \$500.00 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

ARTICLE IV - The Contract Sum

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of: \$9,355,700.00.
- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the City and Contractor.
- (C) For the purposes of this contract, the construction type of Heavy will apply.
- (D) The wage determination applicable to this contract is MI20220157 attached as an appendix.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the City.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this Contract, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any Contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this Contract.

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

ARTICLE XI – Electronic Transactions

The City and Contractor agree that signatures on this Contract may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Contract. This Contract 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.

[Signatures are on the Following Page]

MICHELS CONSTRUCTION, INC

By: _____
Name: Eric Justman
Title: President
Date: _____

CITY OF ANN ARBOR

By: _____
Name: Milton Dohoney Jr.
Title: City Administrator
Date: _____

Approved as to substance:

By: _____
Name: Sue McCormick
Title: Interim Public Services Area
Administrator
Date: _____

Approved as to form:

By: _____
Name: Atleen Kaur
Title: City Attorney
Date: _____

(Signatures continue on following page)

CITY OF ANN ARBOR

By: _____

Name: Christopher Taylor _____

Title: Mayor _____

Date: _____

By: _____

Name: Jacqueline Beaudry _____

Title: City Clerk _____

Date: _____

Barton Dam Right Embankment Remediation

Base Bid Form

The City of Ann Arbor is issuing this request for Proposals to qualified contractors to perform earth work and other improvements associated with the Barton Dam Right Embankment Remediation project. The work area is located between Barton Pond and the Barton Nature Area Parking Area. The proposed project will entail the construction of an earthen buttress on the right embankment as well as other site improvements including widening of the existing underpass access path, replacement of the existing underpass canopy, adding a trail along the toe of the dam's right embankment, replacement of the existing stairway to the dam crest, removal of the existing reverse filter at the site, filling of the existing toe drain pond, and ***potentially*** excavation of earth near the canoe launch. This compensatory cut, ***near the canoe launch may be*** needed to offset the fill placed within the floodplain. Any items required for a complete project that are not included in the following table shall be assumed to be incidental.

Name of Bidder: Michels Construction, Inc.

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
1	General Conditions, Bonds, Insurance.	LS	1	\$316,605.00	\$316,605.00
2	Mobilization and Demobilization	LS	1	\$411,836.00	\$411,836.00
3	Install, Maintain, and Remove SESC	LS	1	\$262,370.00	\$262,370.00
4	Chemical Grouting at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	GAL	50 0	-	-
5	Install Cementitious Grout Holes at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	EA	80 0	-	-
6	Cementitious Grouting at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	CF	120 0	-	-

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
7	Site Preparation: Signage and Traffic Control, Clearing and Grubbing, Install, Maintain, and Remove Temporary Haul Route, Relocation of Emergency Stockpiles of Sand and Gravel. Demolish: Wooden Fence along Huron River, Remnant Collector Ditch Weir Posts, Steel C-Channel Toe Drain ID Posts, Block Wall and Geosynthetic Reinforcing Near TD-39, and Aggregate Ballast Upslope of TD-39, etc.	LS	1	\$1,315,105.00	\$1,315,105.00
8	Underpass Widening: Remove Existing Pavement, Canopy, Railing, and Gabions, Prepare Subgrade, Install Modular Block Wall, Place Backfill and Temporary Surface Course on Underpass.	LS	1	\$141,285.00	\$141,285.00
9	Remove and Replace Existing Retaining Wall North of Underpass	LS	1	\$42,590.00	\$42,590.00
10	Strip Topsoil and Raise Grade of the Right Embankment Crest to Elevation 802.0 feet.	CY	630	\$88.00	\$55,440.00
11	Reverse Filter Dewatering	LS	1	\$554,680.00	\$554,680.00
12	Remove Reverse Filter and Backfill. Excavation shall be closed on same day it is opened.	TON	1300	\$337.00	\$438,100.00
13	Topsoil Stripping at the Stabilization Berm	ACRES	2.1	\$12,030.00	\$25,263.00
14	Excavation to Reach Subgrade of Granular Filter and Removal and Replacement of Unsuitable Soils at the Stabilization Berm, including required cuts to achieve the proposed subgrade elevation at the Stabilization Berm (Estimated Quantity for Bidding Purposes). Excavation shall be closed on same day it is opened.	TON	2000	\$130.00	\$260,000.00
15	Dewater the Collector Ditch Pond and Surrounding Ground	LS	1	\$239,140.00	\$239,140.00
16	Remove and Replace Unsuitable Soils from the Collector Ditch Pond (Estimated Quantity for Bidding Purposes)	TON	3200	\$152.00	\$486,400.00
17	Fill the Collector Ditch Pond with Engineered Fill	LS	1	\$79,235.00	\$79,235.00

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
18	Realign and Construct the Collector Ditch. Remove, Relocate, and Replace the Existing Culvert. Abandon the existing headwall and construct headwalls for the relocated culvert.	LS	1	\$972,590.00	\$972,590.00
19	Provide dewatering for collector ditch abandonment and general dewatering as necessary	LS	1	\$191,290.00	\$191,290.00
20	Inspect and Abandon Toe Drains TD-12 through TD-59.	LS	1	\$97,750.00	\$97,750.00
21	Place and Compact MDOT 2NS Fine Aggregate for the Stabilization Berm and Granular Filter Above and Below the Mineral Drain	CY	4900 5400	\$160.00	\$864,000.00
22	Place and Compact MDOT 17A Coarse Aggregate for the Mineral Drain	CY	4000	\$199.00	\$796,000.00
23	Place and Compact MDOT Class II Granular Fill for the Stabilization Berm	CY	6300 6000	\$128.00	\$768,000.00
24	Place Topsoil on the Stabilization Berm	CY	1400 2500	\$51.00	\$127,500.00
25	Demolish Existing Piezometer Surface Monuments. Raise Existing Piezometers and Install Locking Monuments. Install Overland Discharge of Artesian Flow at PZ-3. Install Underdrain (Perforated and Solid-Wall), Including Cleanouts, T Inspections, and Surface Monuments	LS	1	\$109,055.00	\$109,055.00
26	Construct the Permanent Access Path and Improve Existing Path Areas South of the Underpass and North of the Underpass	LS	1	\$47,740.00	\$47,740.00
27	Remove and Replace Stairway and Guard Railing atop the Adjacent Spillway Retaining Wall	LS	1	\$62,070.00	\$62,070.00
28	Remove Temporary Surface Course and Construct Final Pavement at Underpass. Replace Access Path Canopy and Railing	LS	1	\$150,680.00	\$150,680.00
29	Excavate and dispose of soils for compensatory cut — Moved to Additional Optional Bid Items	LS	1	-	-

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
30	Revegetation of the Work Area and Final Site Restoration, including repairs to Border-to-Border Path. Fill Ruts in the Existing Site Access Road and the Barton Nature Area Parking Lot.	LS	1	\$29,486.00	\$29,486.00
31	Miscellaneous Allowance (to be used at the Owner's discretion)	LS	1	\$ 75,000.00	\$ 75,000.00
32	Permitting and Associated Requirements Allowance (permit fees and other charges paid directly to permitting agencies)	LS	1	\$ 95,000.00	\$ 95,000.00
33	Allowance for Additional FERC Requirements	LS	1	\$ 100,000.00	\$ 100,000.00
34	Allowance for Purchase of Wetland Credits per EGLE	LS	1	\$ 225,000.00	\$ 225,000.00
35	Project Closeout	LS	1	\$8,245.00	\$8,245.00
36	Administrative Compliance with CWIFP, AIS, Davis Bacon, Certified Payroll and Other Regulatory Reporting.	LS	1	\$8,245.00	\$8,245.00

ADDITIONAL OPTIONAL BID ITEMS ¹

Optional Item No.	Description	Units	Quantity	Unit Cost	Total Cost
A1	Between Underpass and Spillway: Remove Existing Gabions, Prepare Subgrade, Install Modular Block Wall, and Place Backfill	FEET	142	\$1,095.00	\$155,490.00
A2	In lieu of A1, between Underpass and Spillway: Remove Existing Gabions, Prepare Subgrade, Install new gabion baskets and Place Backfill	FEET	142	\$1,390.00	\$197,380.00
A3	<i>Excavate and dispose of soils for compensatory cut</i>	LS	1	\$67,090.00	\$67,090.00
A4²	<i>Provide an alternate cost for Bid Item No. 8 if the modular block wall elements along the Huron River beneath the railroad underpass are replaced with gabion baskets²</i>	LS	1	\$234,370.00	\$234,370.00

¹ To be executed at the direction of the Owner.

² ***Provide a complete cost, not a deduct or add cost.***

The bid items identified above include the major items of work anticipated for the project. Detailed requirements for each element of the project are presented on the contract drawings.

Total Base Bid (Items 1 through 36) \$ 9,355,700.00

Total Base Bid (Written)

Nine Million Three Hundred Fifty-Five Thousand Seven Hundred and 00/100 Dollars

Proposed Work Start Date 9-3-2024

Total bid amount shall be shown in both words and numbers. In case of discrepancies, the amount shown in words shall govern.

Signature of Bidder J. Black Date 3-7-2024

Notice to Bidders:

1. Bids must be for all work elements and must have each blank space of the bid form completed.
2. The Owner reserves the right to waive any informality in any Bid, to reject any Bid, to reject all bids and to delete any part of the above items.
3. The bidder acknowledges that quantities provided are estimates and are not guaranteed and are solely for the purpose of bid comparison. Final payment for all unit price items will be based on the actual quantities. No minimum or maximum quantities are guaranteed by the Owner.
4. The Contractor is responsible for verification of all Bid quantities and to report to the Owner's Representative any discrepancies found prior to ordering materials or equipment for construction.
5. The bidder hereby certifies it has carefully examined the contract documents (including geotechnical data) provided by the Owner for bidding purposes and finds them compatible with the work requirements.
6. The bidder declares it has familiarized itself with the location of the proposed work and site conditions.
7. The foregoing unit prices shall include all applicable Federal, State and Local Taxes.
8. ***The bidder acknowledges the interim completion date for completion of the underpass widening work elements by March 31, 2025.***

Bidder must sign below that he/she has read and understood all addendums related to this project. Failure to acknowledge any addendum issued may disqualify the Bidder.

Addendum No.	Addendum Date	Signature of Bidder
1	2-15-2024	<u>J. Black</u>
2	2-23-2024	

F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

Authorized Negotiator

Name: Jim Black

Title: Assistant Secretary

Phone Number: 920-539-3405

Email Address: JiBlack@michels.us

CITY OF ANN ARBOR
AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM

Notice: The contract or purchase order to which this addendum is attached is made using federal assistance provided to the City of Ann Arbor by the U.S. Department of Treasury under the American Rescue Plan Act ("ARPA" and "ARPA Funds"), Sections 602(b) and 603(b) of the Social Security Act, Pub. L. No. 117-2 (March 11, 2021). In using such funds, the City must comply with the terms of ARPA, regulations issued by the U.S. Department of the Treasury ("Treasury") governing the expenditure of monies distributed from the ARPA Funds (including, without limitation, the Interim Final Rule (86 Fed. Reg. 26,786 (May 17, 2021) and Final Rule (87 Fed. Reg. 4,338 (Jan. 27, 2022))), the Award Terms and Conditions applicable to the ARPA Funds, and such other guidance as Treasury has issued or may issue governing the expenditure of monies distributed from the ARPA Funds (collectively, the "Regulatory Requirements"). Additionally, pursuant to the Regulatory Requirements, the City must comply with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 other than such provisions as Treasury has determined or may determine are inapplicable to the ARPA Funds and pursuant to 2 C.F.R. §200.327 the City must include within any contract applicable provisions described in Appendix II to 2 C.F.R. Part 200, each of which is contained in this Addendum.

The following terms and conditions apply to you, the contractor or vendor, as a contractor of the City of Ann Arbor, according to the City's Award Terms and Conditions; by ARPA and its implementing regulations; and as established by the Treasury Department.

1. **ARPA Requirements.** Contractor agrees to comply with the requirements of Section 603 of ARPA, the Treasury's regulations implementing that section, and guidance issued by Treasury regarding the foregoing. Contractor also agrees to comply with all other applicable federal laws, regulations, and executive orders, and Contractor shall provide for such compliance by other parties in any agreements it enters into with other parties relating to this Contract.
2. **Termination for Cause and for Convenience.** The City reserves the right to immediately terminate this Contract in the event of a breach or default of the Contract by Contractor in the event Contractor fails to: 1) meet schedules, deadlines, and/or delivery dates within the time specified in the Contract; 2) make any payments owed; or 3) otherwise perform in accordance with the Contract. The City also reserves the right to terminate this Contract immediately, with written notice to Contractor, for convenience, if the City believes, in its sole discretion that it is in the best interest of the City to do so. Contractor will be compensated for work performed and accepted and goods accepted by the City as of the termination date if the Contract is terminated for convenience of the City.
3. **Equal Employment Opportunity**
 - A. Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by EO 11375, "Amending Executive Order 11246 Relating to Equal Employment

Opportunity,” and as supplemented by regulations at 41 CRF part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

B. If this contract is a Federally Assisted Construction Contract exceeding \$10,000, during the performance of this Contract, Contractor agrees as follows:

- i. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- ii. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- iii. Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with Contractor's legal duty to furnish information.
- iv. Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- v. Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- vi. Contractor will furnish to the Administering Agency and the Secretary of Labor all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Administering Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- vii. In the event of Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended, in whole or in part, and Contractor may be declared ineligible for further Government contracts or Federally Assisted Construction Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965. Such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- viii. Contractor will include the provisions of paragraphs B(i) through (vii) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. Contractor will take such action with respect to any Subcontract or purchase order as the Administering Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Provided, however, that in the event Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Administering Agency, Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The City further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work. Provided, that if the City so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract.

- ix. The City agrees that it will assist and cooperate actively with the Administering Agency and the Secretary of Labor in obtaining the compliance of Contractor and any Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor; that it will furnish the Administering Agency and the Secretary of Labor such information as they may require for the supervision of such compliance; and that it will otherwise assist the Administering Agency in the discharge of the agency's primary responsibility for securing compliance.
- x. The City further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally Assisted Construction Contracts pursuant to the Executive Order and that it will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractor and any Subcontractors by the Administering Agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the City agrees that if it fails or refuses to comply with these undertakings, the Administering Agency may take any or all of the following actions: cancel, terminate, or suspend, in whole or in part, this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from

such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

C. If this Contract is not a Federally Assisted Construction Contract exceeding \$10,000, the provisions of this section shall not apply.

4. **Copeland "Anti-Kickback" Act.** Contractor and any subcontractors performing work under the Contract shall comply with all applicable provisions of the Copeland "Anti-Kickback" Act (18 U.S.C. § 874; 40 U.S.C. §3145) as supplemented by Department of Labor regulations (29 C.F.R. Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The City shall report all suspected or reported violations to Treasury.
5. **Contract Work Hours and Safety Standards Act.** If this Contract is for an amount in excess of \$100,000 and involves the employment of mechanics or laborers, Contractor must comply with 40 U.S.C. §§3702 and 3704, as supplemented by Department of Labor regulations (29 C.F.R. Part 5). Under 40 U.S.C. §3702 of the Act, Contractor must compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. §3704 are applicable to construction work and provide that no laborer or mechanic must be required work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
6. **Rights to Inventions Made Under a Contract or Agreement.** Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the Federal Government and the recipient in any resulting invention in accordance with 37 C.F.R. part 401, "Rights to Inventions Made by Non-profit Organizations and Small Business Firms Under Government Grants, Contracts, and Cooperative Agreements," and any applicable implementing regulations.
7. **Clean Air Act and Federal Water Pollution Control Act**
 - A. *Clean Air Act.* Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§7401 *et seq.* Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.
 - B. *Federal Water Pollution Control Act.* Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251 *et seq.* Contractor agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each

Subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.

8. Debarment and Suspension

- A. This Contract is a covered transaction for purposes of 2 CFR §180.210 and 31 CFR §19.210. Therefore, this Contract is a lower-tier covered transaction for purposes of 2 C.F.R. Part 180 and 31 C.F.R. Part 19 if (1) the amount of this Contract is greater than or equal to \$25,000 (2 C.F.R. §180.220(b)(1); 31 C.F.R. §19.220(b)(1)); (2) the Contract requires the consent of an official of the Department of the Treasury (2 C.F.R. §180.220(b)(2); 31 C.F.R. §19.220(b)(2)); or (3) this Contract is for federally required audit services (2 C.F.R. §180.220(b)(3); 31 C.F.R. §19.220(b)(3)).
- B. As a covered transaction, Contractor is required to verify that its principals (defined at 2 CFR §180.995) or its affiliates (defined at 2 CFR §180.905) of both Contractor and its principals are not excluded (defined at 2 CFR §180.935) and are not disqualified (defined at 2 CFR §180.935). Contractor represents and warrants that, as of the execution of this Contract, neither Contractor and its principals nor any subcontractor or sub-consultant performing work under this Contract (at any tier) is included on the federally debarred bidder's list listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 C.F.R. §180 that implement Executive Orders 12549 (3 C.F.R. part 1986 Comp., p. 189) and 12689 (3 C.F.R. part 1986 Comp., p. 235), "Debarment and Suspension." Additionally, Contractor's completed Certification Regarding Debarment, Suspension and Other Responsibility Matters is attached hereto (Attachment 2) and incorporated herein. This certification is a material representation of fact relied upon by the City and all liability arising from an erroneous representation shall be borne solely by Contractor.
- C. If at any point during the Contract term, Contractor or its principals or any subcontractor or sub-consultant performing work at any tier is included on the federally debarred bidder's list, Contractor shall notify the City immediately.
- D. If any of the foregoing persons are excluded or disqualified and the Secretary of the Treasury has not granted an exception pursuant to 31 C.F.R. §19.120(a) (a) this Contract shall be void; (b) City shall not make any payments of federal financial assistance to Contractor; and (c) City shall have no obligations to Contractor under this Contract.
- E. Contractor must comply with 2 CFR pt. 180, subpart C and 31 CFR pt. 19, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
- F. If it is later determined that Contractor did not comply with 2 CFR pt. 180, subpart C and 31 CFR pt. 19, in addition to remedies available to the City, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

9. Byrd Anti-Lobbying Amendment. Contractor certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee

of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. §1352. Contractor shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

Purchases over \$100,000 - Contractors must sign the certification included as Attachment 1 and shall cause any subcontractors with a subcontract (at any tier) exceeding \$100,000 to file with the tier above it the same certification

10. Procurement of Recovered Materials

- A. This section shall apply if (1) this Contract involves the purchase of an item designated by the Environmental Protection Agency ("EPA") in 40 C.F.R. Part 247 that exceeds \$10,000 or (2) the total value of such designated items acquired during The City's preceding fiscal year exceeded \$10,000.
- B. In the performance of the Contract, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items, unless the product cannot (1) be acquired competitively within a timeframe providing for compliance with the Contract performance schedule, (2) meet Contract performance requirements, or (3) be acquired at a reasonable price.
- C. Information about this requirement, along with the list of EPA-designated items, is available on EPA's website. Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

- 11. Prohibition on Contracting for Covered Telecommunications and Video Surveillance Services or Equipment.** Contractor shall not use funds under this Contract to purchase, or enter into subcontracts to purchase, any equipment, services, or systems that use telecommunications equipment or services as a substantial or essential component of a system that is subject to 2 CFR § 200.216 (generally, video surveillance or telecommunications equipment produced by Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company, their subsidiaries or affiliates, or any entity that the Secretary of Defense reasonably believes to be an entity owned or controlled by the government of a foreign country). In the event Contractor identifies covered telecommunications equipment or services that constitute a substantial or essential component of any system, or as critical technology as part of any system that is subject to 2 CFR § 200.216, during Contract performance, Contractor shall alert the City as soon as possible and shall provide information on any measures taken to prevent recurrence.

- 12. Buy USA - Domestic Preferences for Certain Procurements Using Federal Funds.** Contractor should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. For purposes of this section "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of

coatings, occurred in the United States and "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

13. Solicitation of Minority and Women-Owned Business Enterprises. Contractor hereby agrees to comply with the following when applicable: The requirements of Executive Orders 11625 and 12432 (concerning Minority Business Enterprise), and 12138 (concerning Women's Business Enterprise), when applicable. Accordingly, the contractor hereby agrees to take affirmative steps to assure that women and minority businesses are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:

- A. Including qualified women's business enterprises and small and minority businesses on solicitation lists;
- B. Assuring that women's enterprises and small and minority businesses are solicited whenever they are potential sources;
- C. When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by small and minority business, and women's business enterprises;
- D. Where the requirement permits, establishing delivery schedules which will encourage participation by women's business enterprises and small and minority business; and
- E. Using the services and assistance of the Small Business Administration, and the U.S. Office of Minority Business Development Agency of the Department of Commerce; and the North Carolina Office for Historically Underutilized Businesses.

For the purposes of these requirements, a Minority Business Enterprise (MBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by members of the following groups: Black, Hispanic, Asian or Pacific Islander, American Indian, or Alaskan Natives. A Women Business Enterprise (WBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by women.

14. Access to Records; Record Retention

- A. Contractor agrees to provide the City, the Department of the Treasury, the Treasury Office of Inspector General, the Government Accountability Office, and the Comptroller General of the United States, or any authorized representatives of these entities, access to any records (electronic and otherwise) of Contractor which are directly pertinent to this Contract to conduct audits or any other investigations. Contractor agrees to permit any of the foregoing parties to reproduce such records by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

- B. Contractor agrees to provide the Treasury Department or authorized representatives access to construction or other work sites pertaining to the work being completed under the Contract.
- C. No language in this Contract is intended to prohibit audits or internal reviews by the Treasury Department or the Comptroller General of the United States.
- D. Contractor agrees to retain all records covered by this section through December 31, 2031, or such longer period as is necessary for the resolution of any litigation, claim, negotiation, audit, or other inquiry involving the Contract.

15. Assurances of Compliance with Title VI of the Civil Rights Act of 1964. Contractor and any subcontractor, or the successor, transferee, or assignee of Contractor or any subcontractor, shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. §§2000d *et seq.*), as implemented by the Department of the Treasury's Title VI regulations, 31 C.F.R. Part 22, which are herein incorporated by reference and made a part of this Contract. Title VI also provides protection to persons with "Limited English Proficiency" in any program or activity receiving federal financial assistance, 42 U.S.C. §§2000d *et seq.*, as implemented by Treasury's Title VI regulations, 31 C.F.R. Part 22, and herein incorporated by reference and made a part of this Contract.

16. Other Non-Discrimination Statutes. Contractor acknowledges that the City is bound by and agrees, to the extent applicable to Contractor, to abide by the provisions contained in the federal statutes enumerated below and any other federal statutes and regulations that may be applicable to the expenditure of ARPA Funds:

- A. The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 *et seq.*), which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
- B. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
- C. The Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101 *et seq.*), and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and
- D. Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§12101 *et seq.*), which prohibits discrimination on the basis of disability in programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.

17. Other Applicable Statutes and Regulations

A. Prohibition on Providing Funds to the Enemy (2 CFR 183)

- i. The Contractor must exercise due diligence to ensure that none of the funds, including supplies and services, received under this Contract are provided directly or indirectly (including through subcontracts) to a person or entity who is actively opposing the United States or coalition forces involved in a contingency operation in which members of the Armed Forces are actively engaged in hostilities. The Contractor must terminate or void in whole or part any subcontract with a person or entity listed in the System Award Management Exclusions (SAM) as a prohibited or restricted sources pursuant to subtitle E of Title VIII of the NDAA for FY 2015, unless the Federal awarding agency provides written approval to continue the subcontract.
- ii. The Federal awarding agency has the authority to terminate or void this Contract, in whole or in part, if the Federal awarding agency becomes aware that the Contractor failed to exercise due diligence as required by paragraph (i) of this clause or if the Federal awarding agency becomes aware that any funds received under this Contract have been provided directly or indirectly to a person or entity who is actively opposing coalition forces involved in a contingency operation in which members of the Armed Forces are actively engaged in hostilities.
- iii. In addition to any other existing examination-of-records authority, the Federal Government is authorized to examine any records of the Contractor and its Subcontracts to the extent necessary to ensure that funds, including supplies and services, available under this Contract are not provided, directly or indirectly, to a person or entity that is actively engaged in hostilities.
- iv. The Contract must include the substance of this clause, including paragraph, in subcontracting agreements that have an estimated value over \$50,000 and will be performed outside the United States, including its outlying areas.

B. Contractor agrees to comply with the Regulatory Requirements applicable to this Contract, which include, without limitation, the following:

- i. 2 C.F.R. Part 200 Appendix II requirements;
- ii. Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200, as applicable;
- iii. Universal Identifier and System for Award Management (SAM), 2 C.F.R. Part 25, pursuant to which the award term set forth in Appendix A to 2 C.F.R. Part 25;
- iv. OMB (Office of Management and Budget) Guidelines to Agencies on Government-wide Debarment and Suspension (Non-procurement), 2 C.F.R. Part 180, including the requirement to include a term or condition in all lower tier covered transactions (contracts and subcontracts described in 2 C.F.R. Part 180, subpart B) that the award is subject to 2 C.F.R. Part 180 and Treasury's implementing regulation at 31 C.F.R. Part 19;

- v. Recipient Integrity and Performance Matters, pursuant to which the award term set forth in 2 C.F.R. Part 200, Appendix XII to Part;
- vi. Government-wide Requirements for Drug-Free Workplace, 31 C.F.R. Part 20; and
- vii. Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328), which limits certain political activities of federal employees, as well as certain other employees who work in connection with federally funded programs.

18. Conflicts of Interest; Gifts and Favors

- A. Contractor understands that (1) the City will use ARPA Funds to pay for the cost of this Contract and (2) the expenditure of ARPA Funds is governed by the City's Conflict of Interest Policy and the Regulatory Requirements (including, without limitation, 2 C.F.R. §200.318(c)(1)).
- B. Contractor certifies to the City that as of the date hereof, to the best of its knowledge after reasonable inquiry, no employee, officer, or agent of the City involved in the selection, award, or administration of this Contract (each a "Covered Individual"); no member of a Covered Individual's immediate family; no partner of a Covered Individual; and no organization (including Contractor) which employs or is about to employ a Covered Individual has a financial or other interest in, or has received a tangible personal benefit from, Contractor. Should Contractor obtain knowledge of any such interest or any tangible personal benefit described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to the City in writing.
- C. Contractor certifies to the City that it has not provided, nor offered to provide, any gratuities, favors, or anything of value to an officer, employee, or agent of the City. Should Contractor obtain knowledge of the provision, or offer of any provision, of any gratuity, favor, or anything of value to an officer, employee, or agent described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to the City in writing.

19. Publications. Any publications produced with funds from this award must display the following language: "This project [is being] [was] supported, in whole or in part, by federal award number [enter project FAIN] awarded to [name of recipient] by the U.S. Department of Treasury."

20. Miscellaneous

- A. *Increasing Seat Belt Use in the United States.* Pursuant to Executive Order 13043, 62 Fed. Reg. 19,216 (Apr. 18, 1997), the City encourages Contractor to adopt and enforce on-the-job seat belt policies and programs for its employees when operating company-owned, rented, or personally owned vehicles.

B. *Reducing Text Messaging While Driving*. Pursuant to Executive Order 13513, 74 Fed. Reg. 51,225 (Oct. 6, 2009), the City encourages Contractor to adopt and enforce policies that ban text messaging while driving.

21. Conflicts and Interpretation. To the extent that any portion of this Addendum conflicts with any term or condition of this Contract expressed outside of this Addendum, the terms of this Addendum shall govern.

FOR CONTRACTOR

By _____
Name:
Title:

Date: _____

FOR THE CITY OF ANN ARBOR

By _____
Milton Dohoney Jr., City Administrator

Date: _____

- (This form is required only for purchases of more than \$100,000) -

**ATTACHMENT 1
CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM**

**31 C.F.R. PART 21 – New Restrictions On Lobbying
CERTIFICATION REGARDING LOBBYING**

The undersigned certifies, to the best of the undersigned's knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31 of the U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies and affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

ATTACHMENT 2
CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM
CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies to the best of its knowledge and belief that neither it nor any of its officers, directors, or managers who will be working under the Contract, or persons or entities holding a greater than 10% equity interest in it (collectively "Principals"):

1. Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department or agency in the United States;
2. Have within a three-year period preceding this proposal, bid, or agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust or procurement statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are presently indicted for or otherwise criminally or civilly charged by a government entity, (federal, state or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies that they are "Actively" registered with SAM (System for Award Management) and have been assigned the following Unique Entity Identifier (UEI): _____. The undersigned further certifies that it shall not knowingly enter any transaction with any subcontractor, material supplier, or vendor who is debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department/agency.

I understand that a false statement on this certification may be grounds for rejection of this proposal or bid, or termination of the award or, in some instances, criminal prosecution.
The Contractor, _____, certifies as stated above:

Signature

Date

Print Title and Name of authorized representative

I am unable to certify to one or more the above statements. Attached is my explanation.

Signature

Date

Print Title and Name of authorized representative

ATTACHMENT 3

CITY OF ANN ARBOR AMERICAN RESCUE PLAN ACT (ARPA) CONTRACT ADDENDUM
System for Award Management (SAM) record search for business name and business principal
– *(Screenshot of Results)*

CITY OF ANN ARBOR C2R2 PROJECT C2A-018
FEDERALLY FUNDED PROGRAM-SPECIFIC BOILERPLATE

Funds were added under sections 602 and 603 of section 9901 of the Social Security Act of section 9901 of Public Law No. 117-2, known as American Rescue Plan Act of 2021 (“ARPA”), signed into law on March 11, 2021 <https://home.treasury.gov/policy-issues/coronavirus/assistance-for-state-local-and-tribal-governments/state-and-local-fiscal-recovery-funds> as the Coronavirus State and Local Fiscal Recovery Funds (“FRF”). The State of Michigan was awarded \$6.54 billion dollars under the Fiscal Recovery Fund, on May 13, 2021.

OMB Uniform Guidance for Non-federal Agencies Receiving These Funds The U.S. Department of Treasury has indicated in the Coronavirus State and Local Fiscal Recovery Fund Frequently Asked Questions that are accessible at U.S. Department of Treasury State and Local Fiscal Recovery Funds, located at <https://home.treasury.gov/system/files/136/SLFRF-Final-Rule-FAQ.pdf>, that the SLFRF awards are generally subject to the requirements set forth in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 CFR Part 200 (the “Uniform Guidance”). All reimbursements requested under this program should be accounted for with supporting documentation. Eligible applicants should maintain documentation evidencing that the funds were expended in accordance with federal, state, and local regulations. In accordance with federal Uniform Guidance, funds received under this program shall be included on the eligible applicant’s Schedule of Expenditures of Federal Awards (SEFA) and included within the scope of the eligible applicant’s Single Audit.

Programs are required to follow the Uniform Guidance provisions that are included in the document. Applicants must review the eCFR Uniform Guidance at <https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200?toc=1> for complete requirements.

The SLFRF awards are generally subject to the requirements set forth in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 CFR Part 200 (the “Uniform Guidance”). In all instances, your organization should review the Uniform Guidance requirements applicable to your organization’s use of SLFRF funds, and SLFRF-funded projects. The following sections provide a general summary of your organization’s compliance responsibilities under applicable statutes and regulations, including the Uniform Guidance, as described in the 2022 OMB Compliance Supplement Part 3. Compliance Requirements (issued May 12, 2022).

The Award Terms and Conditions of the SLFRF financial assistance agreement sets forth the compliance obligations for recipients pursuant to the SLFRF statute, the Uniform Guidance, and Treasury’s Final Rule. Recipients should ensure they remain in compliance with all Award Terms and Conditions.

ADDENDUM No. 1

RFP No. 24-03

Barton Dam Right Embankment Remediation

Due: February 29, 2024 at 3:00 PM (local time)

The following changes, additions, and/or deletions shall be made to the Request for Proposal for Barton Dam Right Embankment Remediation, RFP No. 24-03 on which proposals will be received on/or before the date and time listed above. The bid opening will be at Larcom City Hall (301 E Huron Street, Ann Arbor, MI 48104).

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum consists of seventy-six (76) pages.**

Bidder is to acknowledge receipt of this Addendum No. 1, including all attachments (if any) in its Bid by so indicating on page B-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum will be considered nonconforming.

The following forms should be submitted in the proposal:

- **Attachment B – General Declarations**
- **Attachment C – Legal Status of Bidder**
- **Attachment D – City of Ann Arbor Prevailing Wage Declaration of Compliance**
- **Attachment E – City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Attachment G – Vendor Conflict of Interest Disclosure Form**
- **Attachment H – City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**
- ~~**Attachment K – Federal DBE Participation – NOT USED**~~
- **Attachment L – Federal Debarment Certification**
- **Attachment Y – City of Ann Arbor Corps Water Infrastructure Financing Program (CWIFP) – Contract Addendum, Applicable Federal Requirements for CWIFP Projects November 2023 (excerpt). Submittable forms:**
 - Attachment 1 (City of Ann Arbor document). Certification Regarding Lobbying**
 - Attachment 2 (City of Ann Arbor document). Certification Regarding Debarment, Suspension and other Responsibility Matters**
 - Attachment 3 (City of Ann Arbor document). SAM Record Search**

Bids that fail to provide the completed forms listed above upon bid opening may be rejected as non-responsive and may not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

SECTION 1 GENERAL INFORMATION

Revise Item G

Each respondent should submit in a sealed envelope:

- One (1) original proposal
- ~~Three (3)~~ **Two (2)** additional proposal copies
- One (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format.

BID FORM MODIFICATIONS

The following changes are being made to the Bid Form. The Bid Form is being reissued in its entirety for use in submitting the proposal:

- *Deleted Chemical and Cementitious Grouting*
- *Updated filter material quantity*
- *Updated topsoil quantity*
- *Deleted Bid Item 29*
- *Updated Class II quantity*
- *Added Alternate Bid Item A2*
- *Added Alternate Bid Item A3*

E. SCHEDULE OF PRICING/COST – 20 POINTS

Barton Dam Right Embankment Remediation

Base Bid Form

The City of Ann Arbor is issuing this request for Proposals to qualified contractors to perform earth work and other improvements associated with the Barton Dam Right Embankment Remediation project. The work area is located between Barton Pond and the Barton Nature Area Parking Area. The proposed project will entail the construction of an earthen buttress on the right embankment as well as other site improvements including widening of the existing underpass access path, replacement of the existing underpass canopy, adding a trail along the toe of the dam's right embankment, replacement of the existing stairway to the dam crest, removal of the existing reverse filter at the site, filling of the existing toe drain pond, and ***potentially*** excavation of earth near the canoe launch. This compensatory cut, ***near the canoe launch may be*** needed to offset the fill placed within the floodplain. Any items required for a complete project that are not included in the following table shall be assumed to be incidental.

Name of Bidder: _____

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
1	General Conditions, Bonds, Insurance.	LS	1		
2	Mobilization and Demobilization	LS	1		
3	Install, Maintain, and Remove SESC	LS	1		
4	Chemical Grouting at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	GAL	50 0		
5	Install Cementitious Grout Holes at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	EA	80 0		
6	Cementitious Grouting at TD-23 and TD-43 Subcontractor: _____ (Estimated Quantity for Bidding Purposes) Item Removed	CF	120 0		

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
7	Site Preparation: Signage and Traffic Control, Clearing and Grubbing, Install, Maintain, and Remove Temporary Haul Route, Relocation of Emergency Stockpiles of Sand and Gravel. Demolish: Wooden Fence along Huron River, Remnant Collector Ditch Weir Posts, Steel C-Channel Toe Drain ID Posts, Block Wall and Geosynthetic Reinforcing Near TD-39, and Aggregate Ballast Upslope of TD-39, etc.	LS	1		
8	Underpass Widening: Remove Existing Pavement, Canopy, Railing, and Gabions, Prepare Subgrade, Install Modular Block Wall, Place Backfill and Temporary Surface Course on Underpass.	LS	1		
9	Remove and Replace Existing Retaining Wall North of Underpass	LS	1		
10	Strip Topsoil and Raise Grade of the Right Embankment Crest to Elevation 802.0 feet.	CY	630		
11	Reverse Filter Dewatering	LS	1		
12	Remove Reverse Filter and Backfill. Excavation shall be closed on same day it is opened.	TON	1300		
13	Topsoil Stripping at the Stabilization Berm	ACRES	2.1		
14	Excavation to Reach Subgrade of Granular Filter and Removal and Replacement of Unsuitable Soils at the Stabilization Berm, including required cuts to achieve the proposed subgrade elevation at the Stabilization Berm (Estimated Quantity for Bidding Purposes). Excavation shall be closed on same day it is opened.	TON	2000		
15	Dewater the Collector Ditch Pond and Surrounding Ground	LS	1		
16	Remove and Replace Unsuitable Soils from the Collector Ditch Pond (Estimated Quantity for Bidding Purposes)	TON	3200		
17	Fill the Collector Ditch Pond with Engineered Fill	LS	1		

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
18	Realign and Construct the Collector Ditch. Remove, Relocate, and Replace the Existing Culvert. Abandon the existing headwall and construct headwalls for the relocated culvert.	LS	1		
19	Provide dewatering for collector ditch abandonment and general dewatering as necessary	LS	1		
20	Inspect and Abandon Toe Drains TD-12 through TD-59.	LS	1		
21	Place and Compact MDOT 2NS Fine Aggregate for the Stabilization Berm and Granular Filter Above and Below the Mineral Drain	CY	4900 5400		
22	Place and Compact MDOT 17A Coarse Aggregate for the Mineral Drain	CY	4000		
23	Place and Compact MDOT Class II Granular Fill for the Stabilization Berm	CY	6300 6000		
24	Place Topsoil on the Stabilization Berm	CY	1400 2500		
25	Demolish Existing Piezometer Surface Monuments. Raise Existing Piezometers and Install Locking Monuments. Install Overland Discharge of Artesian Flow at PZ-3. Install Underdrain (Perforated and Solid-Wall), Including Cleanouts, T Inspections, and Surface Monuments	LS	1		
26	Construct the Permanent Access Path and Improve Existing Path Areas South of the Underpass and North of the Underpass	LS	1		
27	Remove and Replace Stairway and Guard Railing atop the Adjacent Spillway Retaining Wall	LS	1		
28	Remove Temporary Surface Course and Construct Final Pavement at Underpass. Replace Access Path Canopy and Railing	LS	1		
29	Excavate and dispose of soils for compensatory cut — Moved to Additional Optional Bid Items	LS	1		

Item No.	Description	Units	Quantity	Unit Cost	Total Cost
30	Revegetation of the Work Area and Final Site Restoration, including repairs to Border-to-Border Path. Fill Ruts in the Existing Site Access Road and the Barton Nature Area Parking Lot.	LS	1		
31	Miscellaneous Allowance (to be used at the Owner's discretion)	LS	1	\$ 75,000.00	\$ 75,000.00
32	Permitting and Associated Requirements Allowance (permit fees and other charges paid directly to permitting agencies)	LS	1	\$ 95,000.00	\$ 95,000.00
33	Allowance for Additional FERC Requirements	LS	1	\$ 100,000.00	\$ 100,000.00
34	Allowance for Purchase of Wetland Credits per EGLE	LS	1	\$ 225,000.00	\$ 225,000.00
35	Project Closeout	LS	1		
36	Administrative Compliance with CWIFP, AIS, Davis Bacon, Certified Payroll and Other Regulatory Reporting.	LS	1		

ADDITIONAL OPTIONAL BID ITEMS ¹

Optional Item No.	Description	Units	Quantity	Unit Cost	Total Cost
A1	Between Underpass and Spillway: Remove Existing Gabions, Prepare Subgrade, Install Modular Block Wall, and Place Backfill	FEET	142		
A2	In lieu of A1, between Underpass and Spillway: Remove Existing Gabions, Prepare Subgrade, Install new gabion baskets and Place Backfill	FEET	142		
A3	<i>Excavate and dispose of soils for compensatory cut</i>	LS	1		
A4²	<i>Provide an alternate cost for Bid Item No. 8 if the modular block wall elements along the Huron River beneath the railroad underpass are replaced with gabion baskets²</i>	LS	1		

¹ To be executed at the direction of the Owner.

² ***Provide a complete cost, not a deduct or add cost.***

The bid items identified above include the major items of work anticipated for the project. Detailed requirements for each element of the project are presented on the contract drawings.

Total Base Bid (Items 1 through 36) \$_____

Total Base Bid (Written)

Proposed Work Start Date _____

Total bid amount shall be shown in both words and numbers. In case of discrepancies, the amount shown in words shall govern.

Signature of Bidder _____ Date _____

Notice to Bidders:

1. Bids must be for all work elements and must have each blank space of the bid form completed.
2. The Owner reserves the right to waive any informality in any Bid, to reject any Bid, to reject all bids and to delete any part of the above items.
3. The bidder acknowledges that quantities provided are estimates and are not guaranteed and are solely for the purpose of bid comparison. Final payment for all unit price items will be based on the actual quantities. No minimum or maximum quantities are guaranteed by the Owner.
4. The Contractor is responsible for verification of all Bid quantities and to report to the Owner's Representative any discrepancies found prior to ordering materials or equipment for construction.
5. The bidder hereby certifies it has carefully examined the contract documents (including geotechnical data) provided by the Owner for bidding purposes and finds them compatible with the work requirements.
6. The bidder declares it has familiarized itself with the location of the proposed work and site conditions.
7. The foregoing unit prices shall include all applicable Federal, State and Local Taxes.
8. ***The bidder acknowledges the interim completion date for completion of the underpass widening work elements by March 31, 2025.***

Bidder must sign below that he/she has read and understood all addendums related to this project. Failure to acknowledge any addendum issued may disqualify the Bidder.

Addendum No.	Addendum Date	Signature of Bidder

F. AUTHORIZED NEGOTIATOR / NEGOTIATIBLE ELEMENTS (ALTERNATES)

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City.

Authorized Negotiator

Name: _____

Title: _____

Phone Number: _____

Email Address: _____

CONTRACT SPECIFICATION REVISIONS

SECTION I GENERAL INFORMATION

Add W

W. FEDERAL REQUIREMENTS

The City has applied for loan assistance through the Federal program, Corps Water Infrastructure Financing Program (CWIFP). The Contractor shall adhere to Federal requirements as specified in the November 2023 manual Applicable Federal Requirements for CWIFP Projects. Required contract language and excerpts from the CWIFP manual are included in Section VI - Attachments of these Specifications. The complete manual is available at the following website: <https://www.usace.army.mil/Missions/Civil-Works/Infrastructure/revolutionize/CWIFP/>.

Where CWIFP Federal requirements may conflict with other requirements of these Specifications, the CWIFP Federal requirements shall be followed.

SECTION 01 10 00 SUMMARY OF WORK

Revise 1.1.B. as follows:

- B. Principal items of work for the Barton Dam, Right Embankment Remediation include the following:
 - 1. ~~Grouting of Toe Drains (TDs) TD-23 and TD-43. Not Used~~
 - 2. Site clearing and grubbing.
 - 3. Installation, maintenance, and removal of erosion protection and stormwater management.
 - 4. Installation, maintenance, and removal of temporary construction fencing, haul roads, and signage...
 - 5. ...

Revise 1.2 Revise Drawing 39 as follows:

Toe Drain ~~Grouting and~~ Abandonment

39

SECTION 01 14 00 WORK RESTRICTIONS

Revise 1.4.A as follows:

- A. The Contractor shall schedule the work for the following tasks based on the constraints given in such a manner as to maintain the pump station operation. At a minimum, the Construction Schedule shall indicate a proposed start date and duration for each of the items listed in this section. No construction shall begin on any of the items listed in this section until the proposed schedule has been approved. Tasks to be included are:
 - 1. Install SESC measures.
 - 2. ~~Perform grouting of TD-23 and TD-43.~~
 - 3. Perform site preparation and prepare laydown area including fencing, crossing, signage, temporary haul road as well as necessary clearing and grubbing.
 - 4. Remove underpass canopy, railing, pavement, and gabions. Install modular block wall system for underpass widening, place backfill, place temporary working surface course.
 - 5. ...

Remove 1.4.B

- ~~B. Unless otherwise approved by the Engineer, the Contractor shall complete the grouting program at Toe Drains (TDs) 23 and 43 (as shown on Sheet 39 of the Drawings) within 60 days of receiving notice to proceed from the Owner or be subject to the liquidated damages specified in the contract.~~

SECTION 01 20 00 MEASUREMENT AND PAYMENT

Revise 1.2.Item No. 1.1

Item No. 1 – General Conditions, Bonds, Insurance & FERC Potential Failure Mode Analysis (PFMA) Workshop

1. Payment for this lump sum item will be ***allocated on a monthly basis per the Contractor's proposed schedule.*** ~~paid in full after proof of bonds and insurance is provided to the Engineer.~~

SECTION 01 31 00 PROJECT MANAGEMENT AND COORDINATION

Revise 1.4.A as follows:

- A. Protect survey control and reference points. Promptly notify Engineer of any discrepancies ***or damage*** discovered.

Add Section 1.11 as follows:

1.11POTENTIAL FAILURE MODE ANALYSIS (PFMA) WORKSHOP WITH FERC

A. The Federal Energy Regulatory Commission (FERC), which licenses Barton Dam, has previously conducted a PFMA workshop with the City and the Design Team. Prior to construction commencing, FERC requires that a supplemental PFMA workshop be conducted with project staff from FERC, the City of Ann Arbor, the Design Team, and the selected contractor to review potential failure modes during construction and requirements to manage the associated risks.

B. The PFMA workshop will be conducted over a three-day period (up to 8 hours per day) The Contractor shall have the following project individuals in attendance for each PFMA session: Contractor's Project Manager and Superintendent, as well as the Dewatering Subcontractor's Superintendent and Design Engineer.

SECTION 01 35 13 GENERAL PROVISIONS

Revise 3.15.A and Add 3.15.B as follows:

- ~~A. The substantial completion date for construction is expected to be September 15, 2025, with final completion being November 30, 2025. ***The Substantial completion date is July 31, 2026 and the final completion date is October 30, 2026.***~~

- B. The Contract requires an Interim Milestone date for completion of the railroad underpass widening of no later than March 31, 2025.***

SECTION 31 23 00 EXCAVATION, BACKFILL AND COMPACTION

Add 2.1.H as follows:

2.1 MATERIALS

H. MDOT Open Graded Aggregate 34G

Material used to backfill existing toe drains shall conform to MDOT 34G open graded aggregate.

Add 3.1.H as follows:

3.1 Excavaton

H. The Contractor shall monitor weather conditions frequently such that all daily excavation and backfill requirements can be met prior to anticipated heavy rain events.

SECTION 31 23 19 DEWATERING

Updated Specification is attached in its entirety.

SECTION 31 32 23 GROUTING

Delete entire specification.

SECTION 31 36 00 GABIONS

Added Specification is attached in its entirety.

SECTION 32 93 00 VEGETATION

Add 2.2.A.1 as follows:

1. Furnish turf seed that meets specifications of an ~~80/20 Turf Type Tall Fescue Mix with perennial rye~~ **a no-mow, drought-resistant mix as given below:**
 - **15% Celestial Creeping Red Fescue**
 - **15% Big Horn Hard Fescue**
 - **15% Jetty Hard Fescue**
 - **15% Compass II Chewings Fescue**
 - **15% Sheep Fescue, Blue Hornet**
 - **15% Creeping Red Fescue**
 - **10% Annual Ryegrass**

Revise 2.3.B as follows:

- B. Erosion control blanket: Uniform open weave jute matting; excelsior matting; erosion control mulching fabric consisting of knitted construction of yarn interwoven with strips of biodegradable paper; or organic fiber protective fiber mat consisting of half-inch layer of chopped straw, knitted into mat with thin netting of biodegradable polypropylene. Shall be environmentally sensitive and certified weed ~~see~~ free. Performance capabilities shall have a shear stress rating of 84 Pa (1.75 lb/ft²) for slopes that are 2H:1V and flatter.

Revise 3.1.A as follows:

- A. The Contractor shall not begin work in this section until the final grading has been approved by the ~~Resident Project Representative~~ **Engineer**.

Revise 3.2.A as follows:

- A. Test the soil for the appropriate pH and submit test results to the ~~Resident Project Representative~~ **Engineer**.

Revise 3.3.B.C.D as follows:

- B. The seeding shall be completed within three days after completion of final grading or as soon thereafter as conditions are favorable. Seeding shall occur between ~~March 15th and September 15th~~ **April 1st until June 1st, and September 1st until October 1st**.
- C. Provide minimum ~~6~~**12** inches of topsoil (according to AASHTO T267) in areas where vegetation is to be established. The seedbed shall be prepared by pulverizing and breaking up the soil to a minimum depth of two inches with a disk harrow, drag harrow, spike tooth harrow or similar tool. All rocks over two inches in diameter, clods and undesirable material that would interfere with seeding operations shall be removed. Immediately after seedbed preparation, the Contractor shall apply the fertilizer uniformly over the area at a rate of 155 pounds per acre (3.5 pounds per 1,000 square feet). Apply fertilizers by mechanical drop or rotary distributor, thoroughly and evenly incorporated with soil to a depth of 3 inches by disking or other approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
- D. The seed shall be drilled or broadcast uniformly over the seedbed at a rate of ~~220-450~~ pounds per acre (~~5~~**10.5** pounds per 1,000 square feet) using methods and equipment acceptable to the ~~Resident Project Representative~~ **Engineer**. The seeded area shall be passed over with a cultipacker or similar tool to help cover more seed and improve seeding establishment. Application of grass seed and fertilizer at the same time, in the same machine is not permitted.

ATTACHMENT A SAMPLE STANDARD CONTRACT

Revise Article III – Time of Completion B and C as follows:

- (B) The entire work for this Contract shall be completed within ~~Seventeen (17)~~ **Twenty-Eight (28)** consecutive calendar months.
- (C) The substantial completion date is ~~September 30, 2025~~ **July 31, 2026**, and the final completion date is ~~November 15, 2025~~ **October 30, 2026**. ***The Contract requires an Interim Milestone date for completion of the railroad underpass widening of no later than March 31, 2025.***

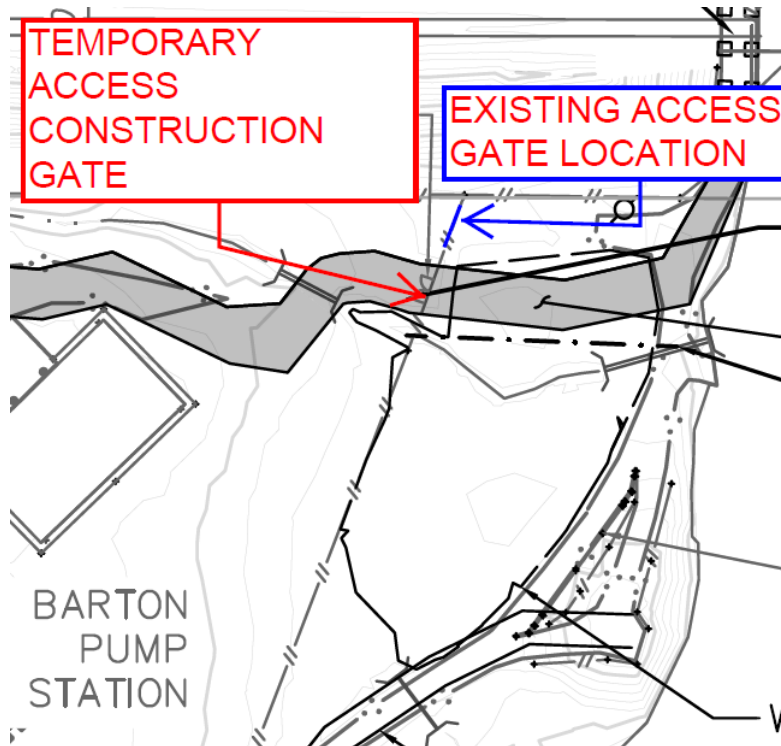
Add ATTACHMENT Y CITY OF ANN ARBOR CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP) – CONTRACT ADDENDUM, APPLICABLE FEDERAL REQUIREMENTS FOR CWIFP PROJECTS NOVEMBER 2023 (excerpt).

Contract Drawings

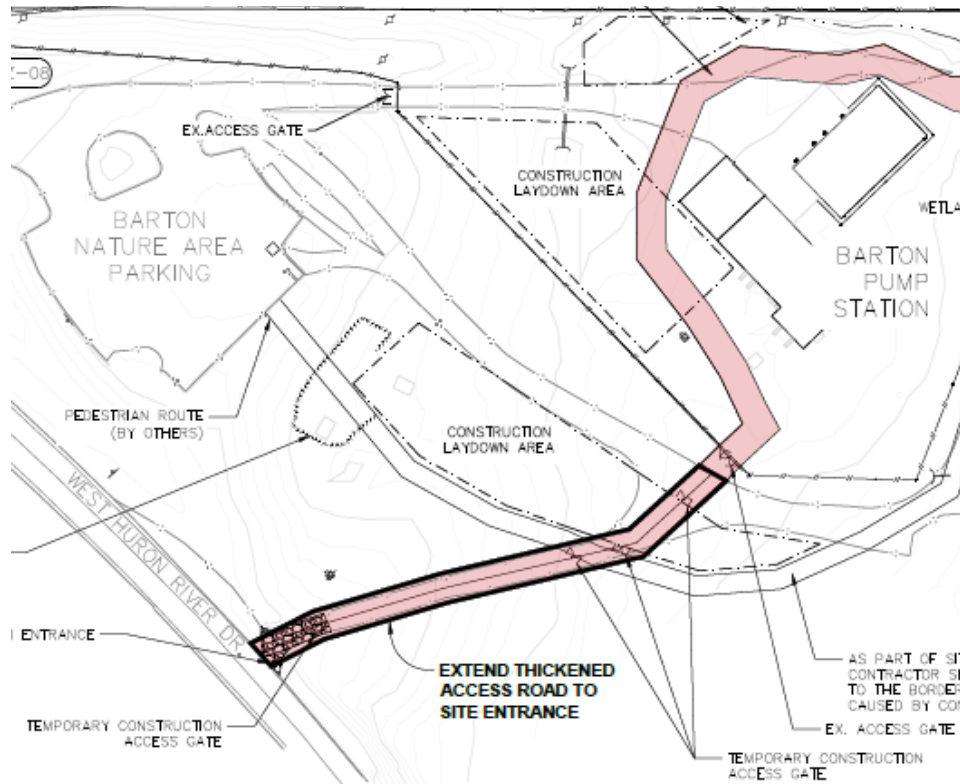
Issued for Construction Contract drawings will be provided to the successful bidder upon approval of plans and specifications by the Federal Energy Regulatory Commission.

Revise

- Sheet 2 – Remove Item B from the Proposed Construction Sequence.
- Sheet 2 – Add General Note 20; All excavations associated with the project must conform to all MIOSHA requirements.
- Sheet 5 – Sheet number label should be 5 of 48.
- Sheet 7 – Note 1 tree protection detail is on Sheet 11
- Sheet 10 – Update SESC Sequence Note C “Sweeping at least three times per week” or more if required based on road conditions during active construction.
- Sheet 12 - Revise the location of the access gate to northeast of the pump station (next to creek crossing). A new lockable gate will be required to be placed at the location indicated in the sketch below.

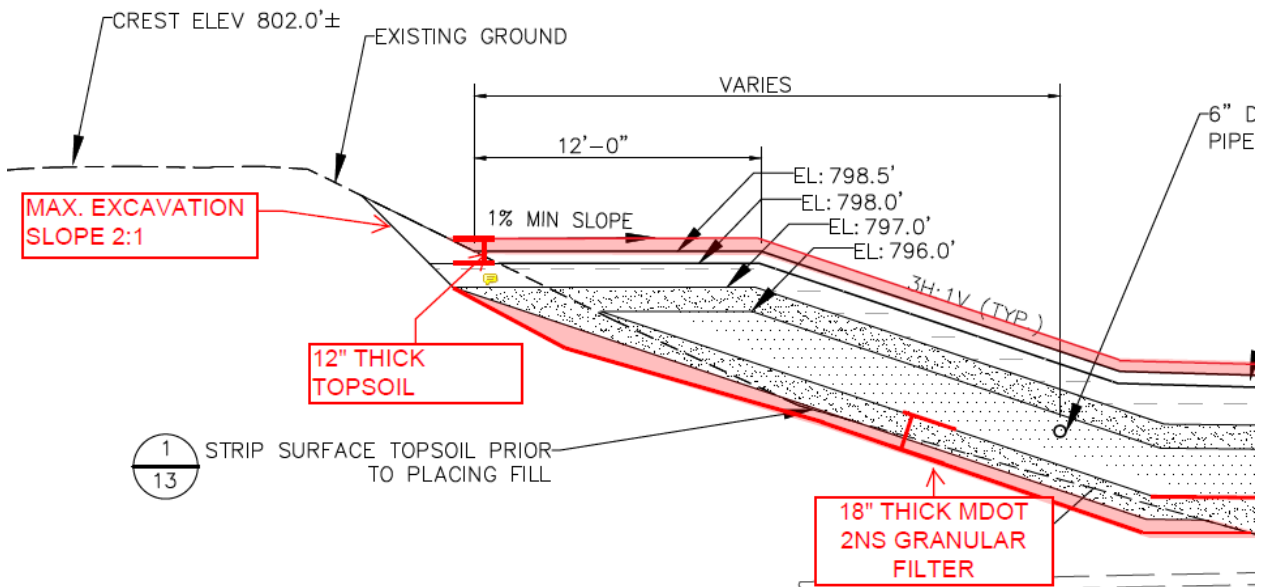


- Sheet 12 – Extend the thickened section of the access road to the construction entrance on Huron River Drive for the protection of existing watermain extending from the pump station. See sketch below:

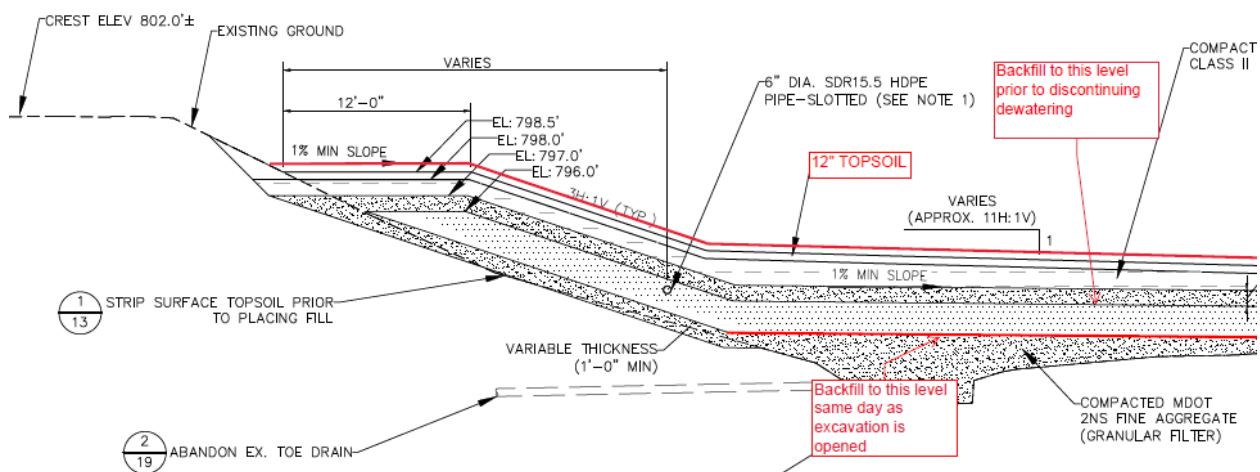


- Sheet 13 – For Note 2, unsuitable soils are those materials that when exposed contain more than 5% organic matter or those which as determined by the Engineer are unstable and will impede the placement and compaction of engineered materials associated with the stabilization berm.
- Sheet 16 - The weir posts extraction note, should be revised to say, “Cut off weir posts 6” below bottom of filter layer and leave remainder in place.
- Sheet 16 – Delete Note 5.
- Sheet 17 - Dewatering at the reverse filter must continue until the area is filled to surrounding grade and as needed to prevent soil instability caused by upward water gradients and can be discontinued upon approval of the Engineer.
- Sheet 19 – Add Note 8: “Hydraulic placement of pea gravel in the toe drains will not be permitted.”
- Sheet 19 – Under Tree Removal Sequence, Revise Note 2 to say “Stumps in the embankment shall be ground out. Stump holes and other holes from which obstructions are removed shall be backfilled as noted in Note 4”.
- Sheet 19 – Under Tree Removal Sequence, Revise Note 4 to say “Backfill the excavation with compacted MDOT 2NS Fine Aggregate to 1 foot below ground surface and finish to grade with MDOT 21AA”.
- Sheet 22 – Note 4 should be revised to say “See General Note 11. (Sheet 2) for construction equipment loading restrictions”.
- Sheet 25 – Update Note 4 to also include installing overland discharge to the proposed collector ditch with a 6” flexible HDPE pipe at PZ-6.

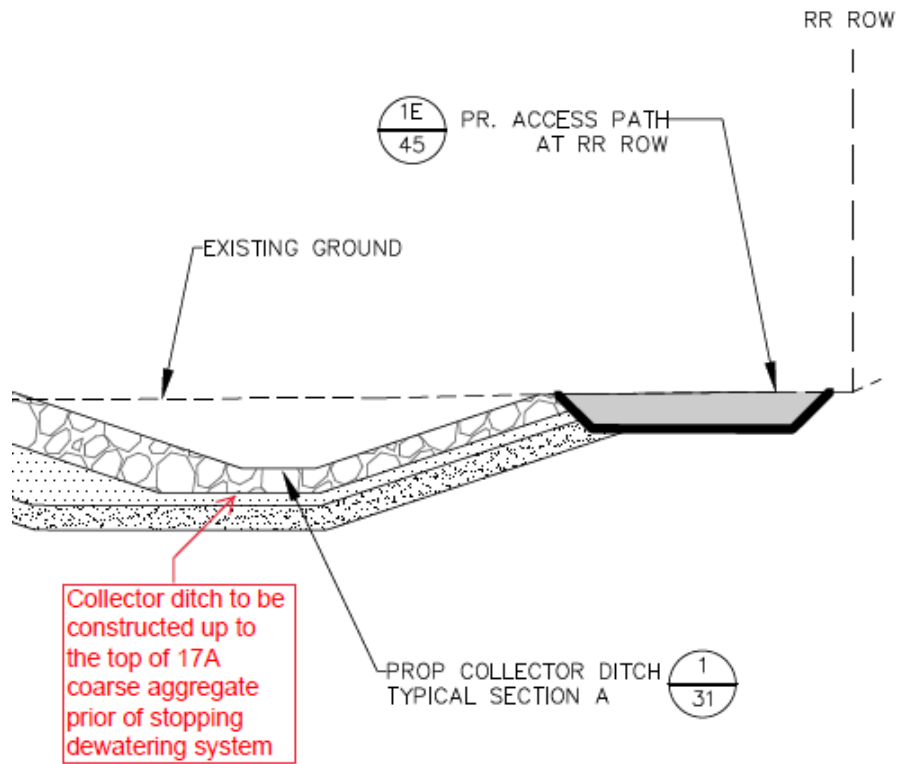
- Sheet 26 - Note 4 incorrectly references "Sheet XX." It should reference Sheet 39.
- Sheet 30 - The maximum cut slope for berm construction at the dam crest is 2-horizontal to 1-vertical, see Section 2. If the Engineer visually observes any indication of instability, the slope must be backfilled immediately, and the excavation resumed with more limited horizontal extent.
- Sheet 30 – Revised stabilization berm with thickened Topsoil layer to 12 inches for the entire stabilization berm and MDOT 2NS granular filter layer increased to 18 inches above the existing collector ditch for the reaches of the collector ditch that extend from TD-22 to TD-24 and from TD-42 to TD-44.



- Sheet 30 – The blanket portion of mineral drain (17A aggregate) must be constructed to the level indicated below, before discontinuing dewatering:



- Sheets 30 / 46 – The proposed collector ditch must be constructed to the top of the 17A aggregate before cessation of dewatering. Add note 7: Dewatering other project elements including the existing collector toe ditch abandonment must continue until the 24-inches of MDOT 17A mineral drain material is placed.



- Sheet 46 – For removal of unsuitable soils, subgrade preparation, and backfilling of the collector ditch pond, contractor shall draw ground water down to 24 inches below the lowest level of excavation and maintain it at that level for the duration of this portion of the work, The contractor may discontinue dewatering upon placement of 17A aggregate for its full depth and approval by the Engineer.
- Sheet 39 – Revise title to “Toe Drain Abandonment”. Delete Grout Hole Plan view and Grout Hole Section Detail.
- Sheet 47 - Add Note: “Permanent access path alignment will be adjusted to follow existing access path and to protect the kayak/canoe slide”.
- Sheet 48 – “Quantity for Replace Underpass Canopy” changed to 400 SF.

SECTION VI – ATTACHMENTS

Reissue in its entirety as follows:

SECTION VI – ATTACHMENTS

Attachment A – Sample Standard Contract

Attachment B – General Declarations

Attachment C - Legal Status of Bidder

Attachment D – Prevailing Wage Declaration of Compliance Form

Attachment E – Living Wage Declaration of Compliance Form

Attachment F – Living Wage Ordinance Poster

Attachment G – Vendor Conflict of Interest Disclosure Form

Attachment H – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment I – Non-Discrimination Ordinance Poster

Attachment J – Davis-Bacon Wage Requirements

~~Attachment K – Federal DBE Participation~~ - **Federal CWIFP Program does not require DBE Participation. This requirement is therefore deleted from this project.**

Attachment L – Federal Debarment Certification

~~Attachment M – Federal Good Faith Efforts~~ - **Federal CWIFP Program does not require Good Faith efforts. This requirement is therefore deleted from this project.**

Attachment N – Sample Certified Payroll Report Template

Attachment O – Historic Drawings (original Record Drawings)

Attachment P – Existing Geotechnical Data

Attachment Q – Barton Dam Temporary Construction Emergency Action Plan (TCEAP)

Attachment R – Railroad Permit

Attachment S – Joint Permit Attachment T – Drilling Program Plan

Attachment U – Piezometric Monitoring Data

Attachment V – Memorandum on High Flow Mitigation at Toe Drain 23

Attachment W – Construction Dam Safety Surveillance and Monitoring Plan (CDSSMP)

Attachment X - Quality Control Inspection Program (QCIP)

Attachment Y – City of Ann Arbor Corps Water Infrastructure Financing Program (CWIFP) – Contract Addendum, Applicable Federal Requirements for CWIFP Projects November 2023 (excerpt).

II. QUESTIONS AND ANSWERS

Questions are summarized below, with answers. Respondents are directed to take note in its review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: On the soil boring list, it indicates PZ-UR is boring TB-2202 and PZ-LR is boring 2203. The discrepancy is that borings 2202 and 2203 are shown in different locations, 150-200 feet away, from the piezometer locations. Soil boring list is on sheet 3/48 and boring locations are on page 6/48. Please advise.

Answer 1: The list provided in Sheet 3 could be misleading and has been misunderstood. This is just a list of borings separated in two separate columns. A corrected version of the table is provided below.

Soil Boring List
PZ-UR
PZ-LR
PZ-01
PZ-02
PZ-03
PZ-04
PZ-05
PZ-06
PZ-07
PZ-08
PZ-09
PZ-10
PZ-11
PZ-12
PZ-13
PZ-14
PZ-15
TB-2202
TB-2203
TB-2204
TB-2205
TB-2206
HAB-2201
HAB-2202
HAB-2203
HAB-2204
HAB-2205
HAB-2206

Question 2: During the Prebid meeting the request for additional information on the collector ditch flow was asked. Can you provide?

Answer 2: Collector ditch flows have generally been monitored on a quarterly basis over the period from 2009 until June 2023. Over this period, collector ditch flows have varied from 47 gallons per minute (gpm) in June 2023 to 220 gpm in June 2022.

Question 3: For the alternative bid item associated with removal and replacement of the existing gabions, please provide water depth information.

- Answer 3: Water depths associated with the replacement of the gabion baskets is historically in the range of 2 to 4 feet although levels can change under different flow conditions.
- Question 4: Is E – Section 01-10-00 Summary of Work B.1 – Omit?
Answer 4: Correct.
- Question 5: Schedule of Pricing Costs – Will owner issue new without Chemical Grouting Tasks?
Answer 5: An updated Bid Form with Chemical grouting struck out and other miscellaneous revisions are included with this addendum.
- Question 6: Revise Schedule of Pricing Costs to reflect “tons” for units of measure for purchased aggregates & sand.
Answer 6: The bid item is for measured quantities of aggregate placed.
- Question 7: The bid does indicate embankment crest re-grading to elevation 802.0, but elsewhere require “concrete benches” on crest to be protected. – Please clarify.
Answer 7: There are several areas within the west and east portions of the embankment that require raising the surface grade to Elevation 802.0 as noted on Sheets 24 and 26, respectively. There are concrete benches near the crest, these existing features shall be protected in accordance General Note 11 in Sheet 2.
- Question 8: Please provide details & specs for raising piezometers.
Answer 8: Details are provided on Sheet 45.
- Question 9: Are there 11 piezometers to be raised?
Answer 9: Yes, Sheet 21 includes a table with the required piezometers to be raised.
- Question 10: Please specify the anticipated award date.
Answer 10: The anticipated award date for the contract is May / June 2024 and a notice to proceed is anticipated to be issued July 1, 2024. To allow the project to fit into proposed bidders workload planning, the substantial completion date has been changed to July 31, 2026. In addition, an interim milestone date of March 31, 2025 has been established for completion of all work associated with the widening of the underpass beneath the existing railroad bridge.
- Question 11: Bid does require manifests for off-site disposal of materials. Please provide analytical data for all material anticipated to be disposed. If not available, is it contractors responsibility to analyze & characterize materials for disposal?
Answer 11: There are no known contaminants at the dam and as such, there is no analytical data available. If testing is required for disposal, the contractor should carry those costs in their bid.
- Question 12: Please confirm that bid items 4,5, and 6 will be omitted from Bid Form.
Answer 12: Confirmed. See updated Bid Form contained within this addendum.
- Question 13: Please provide any available Geotech borings & soils classification for soils beneath the gabions at railroad underpass. If soils data are not available will owner (or his engineer) provide a design for the block wall footing? If not is contractor responsible?
Answer 13: The contract specifications require the Contractor to retain a licensed engineer to design the modular block wall system and submit the design for review by the Engineer. The available geotechnical information is provided as Attachment P. TB-2202 is closest to the proposed retaining wall and underpass. Additionally, a

Mussel Survey was performed near the underpass by ASTI for project permitting purposes. This document will be included in the Issued for Construction documentation. Excerpt from the photo log table from the Mussel Survey Report is presented below:



Photo 10. Most of the substrate was cobble, with gravel, sand and silt.



Photo 11. View of boulder just under the railroad bridge.

Question 14: Please clarify bid items for which you anticipate a Pre-Installation Meeting.

Answer 14: Items of work envisioned for Pre-Installation Meetings include:

- Dewatering System
- Power Generation
- Modular Element Concrete Placement
- Modular Retaining Wall Installation
- Excavation and Backfill Sequencing and proposed equipment
- Haul Road Construction

Question 15: Clarify warranty applicability and Period of Performance.

Answer 15: Refer to Attachment A Section 25 – Responsibility for Work and Warranties.

Question 16: Are we required to power sweep Huron River Drive 3x per week?

Answer 16: Confirmed, see Specification 01 57 23 – 3 3.3 D.3

Question 17: Please clarify which method of stump removal will be required, that in Section 31-10-00-2 3.2.A.3 or per details on sheet 19 of 48?

Answer 17: Stumps shall be ground out per Section 31-10-00-2 3.2.A.3. Notes on Sheet 19 have been revised per this Addendum.

Question 18: Is the correct tolerance of Optimum Moisture +/- 2%?

Answer 18: Correct. Reference Specification Section 31 23 00 3.2 A.

Question 19: Please provide a copy of the FERC-approved Drilling Program Plan.

Answer 19: Drilling requirements are included in the plans and specifications. Bid according to the drawings and the updated Dewatering Specification.

- Question 20: Is sheet piling not permitted even if the design is sealed by a PE? With Vibration Monitoring Plan?
- Answer 20: Due to headroom limitations beneath the railroad underpass and vibration safety considerations associated with the stabilizing berm construction, the use of driven sheet piles will not be permitted for underpass widening or berm construction. However, the use of sheeting piling for other elements of the work may be considered by the Engineer and alternate pricing for gabion baskets is requested in the Bid Form.
- Question 21: Will the owner or engineer retain the Retaining Wall Design Engineer (RWDE) or does Contractor?
- Answer 21: The specifications require the contractor to retain the Retaining Wall Design Engineer for the modular wall system selected.
- Question 22: The bid documents state that a precast modular block wall shall be installed on a leveling pad and constructed in the wet. Has the engineer considered the erosive forces at the river and potential subsequent failure of the modular wall system?
- Answer 22: The design engineer retained by the contractor for the modular block wall system being proposed should evaluate the appropriate base material for the wall considering flows within the Huron River at the wall location. Based on hydraulic modeling of the Huron River in the area of the proposed modular block wall a water velocity of 6 feet per second should be considered for design of the wall base and modular wall elements.
- Question 23: Section 32-32-16, page 8 specifies Verification of Soil Compaction. Please clarify how verification of compaction is to be conducted while modular wall system is constructed in the wet.
- Answer 23: The backfill material behind the modular block wall beneath the underpass will consist of MDOT 6A aggregate. This material may require some compactive effort during placement but will not require compaction verification due to its predominately stone nature. For other materials associated with the project, verification testing will be provided by the Owner.
- Question 24: Section 32-32-16, page 11, footer 1 states "Exposure class should be specified by city/purchaser prior to order placement." Please clarify if the intent is to specify exposure class prior to design.
- Answer 24: The exposure class for the concrete mix is considered as "severe" as noted in Concrete Mix Properties table under 2.1C.
- Question 25: Seed placement says topsoil to be decompacted 12" deep (ref. Specification 32 93 00 Vegetation). Is the intention to mix topsoil with backfill prior to seeding?
- Answer 25: The intention is for any topsoil that has been compacted in the embankment due to construction activity prior to seeding to be sufficiently decompacted to facilitate seed germination and growth.
- Question 26: Please provide details and specifications for stormwater culverts.
- Answer 26: Refer to Sheet 42 for proposed Culver Outlet Headwall, proposed culvert profile and pipe requirements. Refer to Specification 33 42 13 Section 2.1 for HDPE Culvert
- Question 27: What Type of temporary wearing course is needed at 2' thick at underpass. (Sheet 44, note 4)
- Answer 27: Wearing course material shall consist of 21AA. The bidder/contractor may suggest an alternative for approval.

Question 28: What is the length of the new Canopy?

Answer 28: Approximately 32 feet long.

Question 29: How many tee's and wye's are there for the new underdrain system?

Answer 29: Sheet 48 provides the quantities for underdrain Cleanouts and T inspection Lines.

END OF ADDENDUM

Section 31 23 19 Dewatering

SECTION 31 23 19 DEWATERING

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. For the following project elements, positive dewatering using wellpoints or dewatering wells will be required for:
 - a. Reverse Filter Removal
 - b. Collector Ditch Pond dewatering, removal of sediments and backfilling
 - c. Existing Collector Toe Ditch Abandonment
- B. Dewatering may also be required to maintain dam stability if unsuitable soils or soils that exhibit instability are identified, during topsoil removal from the existing dam embankment or other excavation and require removal below the phreatic water surface within the dam.
- C. At all locations where proposed construction work requires dewatering, the dewatering system shall be designed and constructed by the Contractor. The locations and designs of the dewatering systems shall be the responsibility of the Contractor and presented in a plan submitted to the City for approval. For work elements requiring dewatering, including the reverse filter removal, backfilling the existing collector ditch and collector ditch pond, relocation of the existing collector ditch and where required for removal of any unsuitable soils, ground water shall be drawn down to 24 inches below the lowest level of excavation for any project element and maintained at that level for the duration of the construction effort required for each element.
- D. The Contractor shall not perform excavations for any dewatering efforts outside of the limits indicated explicitly on the Contract Documents. Any dewatering efforts shall comply with all regulatory permit restrictions imposed on the project including the EGLE/USACE Joint Permit Application (JPA), or other applicable permits.
- E. At any point during the work, should excavation instability be identified as a result of ineffective groundwater control, the resident engineer shall have the authority to stop work and direct excavations to be backfilled until groundwater has been successfully drawn down and the threat of instability removed.
- F. The Contractor designing, constructing, or operating dewatering systems shall have a minimum of 5 years of experience in performing the type of work on similar type projects. The Contractors' site superintendent / foreman shall have a minimum of 5 years of experience on similar type projects.
- G. Soil boring logs and laboratory test results from soil borings performed at the site are available in ATTACHMENT P.

The Contractor shall submit Dewatering Plans to the City at least 30 days prior to the start of construction for removal of the existing reverse filter, the cleanout and backfilling of the existing toe ditch pond, as well as abandonment and backfilling of the existing collector

ditch. The plan shall be sealed by a Professional Engineer, licensed in the State of Michigan. The plan submitted will require approval by the Engineer and must comply with the requirement of the FERC-approved Drilling Program Plan (DPP). The dewatering plans shall present, at a minimum, the following information:

1. Locations and details regarding the dewatering system including, but not limited to, well points, dewatering wells, piping, electrical sources, and discharge points. Sheet piling shall not be permitted as part of any coffering or temporary shoring system.
 2. Critical dewatering areas include the reverse filter, the existing collector ditch pond, and the existing collector toe ditch. If dewatering efforts in these areas are interrupted, it may result in damage to the constructed work, or instability to the existing features of the dam. As such, redundant systems (such as power) shall be incorporated into the dewatering plans.
 3. The means for monitoring and testing of discharge water to ensure that piping or removal of embankment or foundation materials during dewatering operations is not occurring will be the use of a weir box. For the project the use of sediment bags will not be permitted. The contractor provided a weir box shall allow for visual observation for the presence of fines being pumped during the dewatering process. If sediments are noted in the discharge at any time, the contractor shall take immediate action to eliminate the discharge of any soil fines.
 4. Any Erosion and Sediment Control structures required in accordance with Section 01 57 13.
- H. The Contractor shall verify that geotechnical instrumentation baseline readings were obtained prior to initiating the dewatering system.
- I. Cofferdams will not be allowed as part of this construction unless approved by the Engineer in writing.
- J. Hours of operation for power-operated construction-type devices shall be limited to those listed in Section 01 35 13, General Provisions, as well as City of Ann Arbor regulations regarding operation of engines within the city limits. An exception to this restriction is allowed for the case where electrical service to operate a dewatering system becomes unavailable and backup power generating devices (e.g. diesel generators) are required.
- K. During critical dewatering operations (if any) the Contractor shall maintain, on-site, backup power generating devices (e.g. diesel generators) as required to operate dewatering pumps in the event that electrical service becomes unavailable (e.g. during power outages). The Contractor shall also have in-place the means, methods, and procedures necessary to switch over to the backup power generating devices in a timely manner as required to prevent damage to the embankment in the event that the dewatering system should fail to operate.
- L. Upon initiation of any dewatering system, or significant change thereto, as determined by the Engineer, the contractor shall have continuous on-site presence for the initial three days of dewatering. After this period of time, when dewatering systems are active, the contractor shall have an alarm system in place to remotely alert the Contractor's designated responsible person if the dewatering system is not operating as intended. In

the event of an alarm, the Contractor must restore service within a period no greater than 4 hours.

- M. Effluent from the dewatering system(s) must be discharged through a weir box with white floor and sides to facilitate inspection and sampling of the effluent by the Resident Engineer. Discharge to a filter bag is not permitted.
- N. The Resident Engineer will observe the dewatering discharge several times each day for the presence of soil particles. If the volume of soil in the effluent is noted to increase for three subsequent observations, the Contractor shall immediately investigate the cause of the soil piping and correct the issue to the Engineer's satisfaction.
- O. For each project element for which dewatering is required, the Contractor may not shut down the element specific dewatering system until the shutdown is approved by the Resident Engineer.
- P. Existing monitoring wells and piezometers shall not be used for dewatering purposes.
- Q. Following the completion of dewatering, any wells or well points used for dewatering purposes will be cut-off a minimum of 6-inches below grade and filled with cement slurry. Extraction of wellpoints or screens will not be permitted.
- R. Submittals
 - 1. Submit, for Engineer's record, a copy of all discharge permits.
 - 2. Submit plans and specific component documentation for the proposed dewatering system, including sediment monitoring method, standby equipment and power supply, groundwater disposal plan, supervisor resume.
 - 3. Submit a quality control/quality assurance plan for the dewatering plan.

PART 2 MATERIALS

- A. Provide materials and equipment suitable to meet the design requirements.

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 31 36 00 GABIONS

**SECTION 31 36 00
GABIONS**

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes requirements for furnishing, assembling, filling, and tying double twist woven wire mesh gabion baskets for use beneath the railroad underpass as well as along the Barton Dam tailrace shoreline.
- B. Furnish all labor, materials, equipment, and incidentals needed to complete the Work.

1.2 REFERENCES

United Facilities Guide Specifications (UFGS) Section 31 36 00 Gabions

- A. MDOT, 2020 Standard Specifications for Construction (SSC), Section 902 Aggregates
- B. ASTM A90/A90M, Standard Test Method for Weight of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
- C. ASTM A370, Test Methods and Definitions for Mechanical Testing of Steel Products
- D. ASTM A428/A428M, Standard Test Method for Weight (Mass) of Coating on Aluminum-Coated Iron or Steel Articles
- E. ASTM A641/A641M, Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
- F. ASTM A764, Specification for Metallic Coated Carbon Steel Wire, Coated at Size and Drawn to Size for Mechanical Springs
- G. ASTM A856, Standard Specification for Zinc-5% Aluminum-Mischmetal Alloy-Coated Carbon Steel Wire
- H. ASTM A902, Terminology Relating to Metallic Coated Steel Products
- I. ASTM A975, Standard Specification for Double-Twisted Hexagonal Mesh Gabions and Revet Mattresses (Metallic-Coated Steel Wire or Metallic-Coated Steel Wire with Poly Vinyl Chloride (PVC) Coating)
- J. ASTM C33, Standard Specification for Concrete Aggregates
- K. ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

- L. ASTM C974, Standard Practice for Preparing Test Specimens from Basic Refractory Castable Products by Casting
- M. ASTM C975, Standard Practice for Preparing Test Specimens from Basic Refractory Ramming Products by Pressing
- N. ASTM D5312, Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
- O. D6711, Standard Practice for Specifying Rock to Fill Gabions, Revet Mattresses, and Gabion Mattresses
- P. AASHTO M288, Standard Specification for Geosynthetic Specification for Highway Applications
- Q. EN 10245-1, Steel wire and wire products - Organic coatings on steel wire – Part 1: General Rules

1.3 DEFINITIONS

- A. Gabion: double-twisted wire mesh cages, uniformly partitioned into cells, connected with other similar units, and filled with stone at the project site to form flexible, permeable, monolithic structures.
- B. Reno mattress: a double-twisted wire mesh container uniformly partitioned into internal cells with relatively small height in relation to other dimensions, having smaller mesh openings than the mesh used for gabions; interconnected with other similar units and filled with stone at the project site to form flexible, permeable, monolithic channel linings, revetments, scour protections and other erosion control structures.
- C. Stone Fill: rock filling the gabion baskets.

1.4 SUBMITTALS

- A. Gabion Plan: submit a plan from an engineer licensed in the State of Michigan that outlines the requirements for the gabion baskets and stone fill that meet the criteria outlined in Paragraph 2.01(A) and meet required factors of safety for failure modes associated with a gravity retaining wall system.
- B. Test Reports:
 - 1. Stone Fill: test reports summarizing the results of the testing procedures of ASTM C33 and ASTM C136.
- C. Certificates:
 - 1. Stone Fill: submit proof that the stone fill used in the Gabion Baskets meets

the requirements outlined in the approved Gabion Plan.

2. Gabion Baskets: certification that the wire baskets comply to the specifications in ASTM C974 or ASTM C975.
- D. Qualifications: submit proof that the contractor has prior experience installing Gabion baskets at a similar scale and under similar conditions to those shown on the drawings.
- E. Shop Drawings: submit shop drawings of the gabion baskets from the chosen manufacturer that meet the requirements of the approved Gabion Plan.
- F. Manufacturer Specifications: submit product specifications of the gabion baskets from the chosen manufacturer that meet the requirements of the approved Gabion Plan.
- G. Assembly Procedure: submit a summary of the proposed assembly and placement procedure of the gabion baskets to the Engineer for review and approval.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Manufacture gabions with all components mechanically connected at the production facility. All gabions are supplied in the collapsed form, either folded or bundled for shipping. Bundles are banded together at the factory for ease of shipping and handling. Deliver gabions to the jobsite labeled in bundles. Labels show the dimensions of the gabions included the number of pieces. Lacing wire shall be shipped in coils, fasteners in boxes and preformed stiffeners in bundles. The supply to the jobsite of unassembled individual wire mesh components (panels) forming gabions will not be permitted.

PART 2 PRODUCTS

2.1 MATERIALS

- A. High Abrasion Resistant (HAR) Polymer Coated Gabions baskets (including wire type, mesh size, wire diameter, metallic coating, and rock fill) shall be designed by an engineer licensed in the State of Michigan to meet the following criteria:
 1. Adequate for permanent placement.
 2. Adequate rock fill size to allow the system to be globally and internally stable.
 3. Adequate basket size to allow the system to be globally and internally stable based on the proposed placement, fastening methods, and existing conditions.
 4. Adequate weight to support the proposed canopy frame and walkway.

5. Ability to withstand wave velocities up to 6 ft/s from the Huron River.
 6. Resistant to deterioration from periodic to constant submersion in fresh water.
 7. Resistant to deterioration from freeze/thaw cycles.
 8. Combatale with the existing gabion baskets and mattress to provide a widened gabion basket retaining wall and shore protection.
 9. The basket mesh shall be either:
 - a. Welded wire mesh in compliance with ASTM A974 with a uniform square or rectangular pattern and a resistance weld at each intersection. The welded wire connections shall conform to the requirements of ASTM A185, including wire smaller than W1.2 (0.124 in.). The wire mesh shall be galvanized before forming into mesh. Spiral binders, lacing wire, and stiffeners shall be produced from zinc-5 percent aluminum-mischmetal alloy (Zn-5Al-MM) coated wire.
 - b. Double twisted wire mesh which is zinc coated in compliance with ASTM A975. Fasteners, lacing wire, and stiffeners shall be produced from zinc-coated wire.
 10. Gabion Baskets shall have a height of 12 inches or greater.
 11. Gabion Baskets shall be fabricated within a dimension tolerance of plus or minus 5%.
 12. Ensure metallic coating weights conform to the requirements of ASTM A90, ASTM A428, or ASTM A856 as applicable.
- B. High Abrasion Resistant (HAR) Polymer Coated Reno Mattress is a double-twisted wire mesh mattress manufactured with a non-raveling mesh made by twisting continuous pairs of wires through three half turns (commonly called double-twisted) to form a hexagonal-shaped opening. Reno mattress sizes, wire diameters, mesh opening size, and tolerances shall comply with the requirements of ASTM A975. Reno mattresses are classified according to the wire coating, which is applied prior to manufacturing the mesh. HAR polymer coated Reno mattresses are manufactured from a heavily zinc coated soft or medium temper steel and overcoated with high abrasion resistant polymer as per ASTM A975.
- C. Mattress and Gabion baskets shall be fabricated, assembled, and installed in accordance with the nominal wire sizes and dimensions found in the approved Gabion shop drawings.
- D. Stone Fill must adhere to the aggregate requirements outlined in 2020 MDOT SSC, Section 902 Aggregates.

PART 3 EXECUTION

3.1 MATRESS FOUNDATION PREPARATION

- A. Site conditions are to be field verified prior to placing gabions to confirm the stability of the existing gabions and gabion mattress. Gabions and bedding or specified geotextiles shall not be placed until the foundation preparation is completed, and the subgrade surfaces have been inspected and approved by the Engineer.
- B. Surface irregularities, loose material, vegetation, and all foreign matter shall be removed from the proposed gabion wall extension foundation surface area.
- C. The surface of the finished material shall be to grade and free of mounds, dips, or windrows. Extra care should be taken with foundation preparations to ensure a level and smooth surface.

3.2 ASSEMBLY AND PLACEMENT

- A. The assembly and placement of gabions shall be per the approved assembly procedure.
- B. Stone fill shall be placed in the baskets by hand, No dumping of stone into the baskets will be allowed.
- C. Any damage to the wire or coatings during assembly, placement and filling shall be repaired promptly per the manufacturer's recommendations or replaced with undamaged gabion baskets.

END OF SECTION

**Attachment Y – City of Ann Arbor Corps Water Infrastructure
Financing Program (CWIFP) – Contract Addendum,
Applicable Federal Requirements for CWIFP Projects
November 2023 (excerpt)**

CITY OF ANN ARBOR
CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)
CONTRACT ADDENDUM

Notice: The contract or purchase order related to the City of Ann Arbor Barton Dam Right Embankment Remediation Project to which this addendum is attached may be funded, entirely or in part, through the City's participation in the Corps Water Infrastructure Financing Program (CWIFP). In the event such funding is approved and used, the City and its contractor for the Project must comply with the terms of CWIFP, including applicable federal requirements.

Additional information and a copy of the Applicable Federal Requirements for CWIFP Projects is available at the following webpage, and see Documents – Applicable Federal Requirements for CWIFP Projects:

<https://www.usace.army.mil/Missions/Civil-Works/Infrastructure/revolutionize/CWIFP/>

The following CWIFP terms and conditions apply to you, the contractor or vendor, as a contractor of the City of Ann Arbor:

1. **Debarment and Suspension.** Contractor certifies that it will not knowingly enter into a contract with anyone who is ineligible under the 2 CFR part 180 and part 1532 (per Executive Order 12549, 51 FR 6370, February 21, 1986) or who is prohibited under Section 306 of the Clean Air Act or Section 508 of the Clean Water Act to participate in the Project. Suspension and debarment information can be accessed at <http://www.sam.gov>. Contractor represents and warrants that it has or will include a term or conditions requiring compliance with this provision in all of its subcontracts under this Agreement. See, Attachments 2 and 3.
2. **Federal Lobbying Restrictions (31 U.S.C 1352).** Recipients of federal financial assistance may not pay any person for influencing or attempting to influence any officer or employee of a federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress with respect to the award, continuation, renewal, amendment, or modification of a federal grant, loan, or contract. Upon award of this contract, Contractor shall complete and submit to the City the Certification Regarding Lobbying (Attachment 1) and Disclosure of Lobbying Activities (SF-LLL) form. Contractor shall also require all subcontractors and suppliers of any tier awarded a subcontract over \$100,000 to similarly complete and submit the Certification Regarding Lobbying and Disclosure of Lobbying Activities form.
3. **Civil Rights and Non-Discrimination Obligations.** Contractor shall comply with the following federal non-discrimination requirements:
 - A. Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin, including limited English proficiency (LEP). (42 U.S.C 2000D, et. seq)
 - B. Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination against persons with disabilities. (29 U.S.C. 794, supplemented by EO 11914, 41 FR 17871, April 29, 1976 and EO 11250, 30 FR 13003, October 13, 1965)
 - C. The Age Discrimination Act of 1975, which prohibits age discrimination. (42 U.S.C 6101 et. seq)

4. Equal Employment Opportunity (EEO).

- A. The Contractor shall comply with Executive Order 11246, entitled 'Equal Employment Opportunity,' as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60). (EO 11246, 30 FR 12319, September 28, 1965)
- B. Contractor's compliance with Executive order 11246 shall be based on implementation of the Equal Opportunity Clause, and specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4.
- C. During the performance of this contract, the contractor agrees as follows:

The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

- D. The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- E. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- F. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

- G. The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- H. The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- I. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- J. The contractor will include the provisions of paragraphs 5(A) through (H) below in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States. (Sec. 202 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966–1970 Comp., p. 684, EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230, EO 13665 of April 8, 2014, 79 FR 20749, EO 13672 of July 21, 2014, 79 FR 42971)

5. Standard Federal Equal Employment Opportunity Construction Contract Specifications. (41 CFR 60-4.3)

- A. As used in these specifications:
 - i. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - ii. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - iii. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - iv. "Minority" includes:

- a. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
- b. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
- c. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
- d. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

- B. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6 a through n of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
- C. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- D. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor

during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

- E. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
- i. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - ii. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - iii. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - iv. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - v. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under F(ii) above.
 - vi. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective

bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

- vii. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- viii. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- ix. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- x. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- xi. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.
- xii. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- xiii. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- xiv. Ensure that all facilities and company activities are non-segregated except that separate or single- user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

- xv. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - xvi. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- F. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (5a through n). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 5a through n of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
- G. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner.
- H. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
- I. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- J. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- K. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

- L. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- M. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

6. Segregated Facilities. (41 CFR 60-1.8).

- A. The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensuring that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. This obligation extends to all contracts containing the equal opportunity clause regardless of the amount of the contract. The term "facilities," as used in this section, means waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, wash rooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees; Provided, that separate or single-user restrooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

- B. Goals can be found at: <https://www.dol.gov/agencies/ofccp/construction>

- C. Nationwide goal for all covered areas

- 7. AMERICAN IRON AND STEEL (AIS) REQUIREMENT.** The Contractor acknowledges to and for the benefit of the City ("Purchaser") and the United States Army Corps of Engineers ("the Corps") that it understands the goods and services under this Agreement are being funded with monies made available by the Water Infrastructure Finance and Innovation Act program of the Corps that has statutory requirements commonly known as "American Iron and Steel" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents, warrants and covenants to and for the benefit of the Purchaser and the Corps that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a

manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the Corps. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or the Corps to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or the Corps resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Corps or any damages owed to the Corps by the Purchaser). While the Contractor has no direct contractual privity with the Corps, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the Corps is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Corps.

8. Compliance with Davis-Bacon and Related Acts.

A. In any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/ or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in 29 C.F.R. § 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, provided that such modifications are first approved by the Department of Labor):

i. Minimum wages.

a. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid

the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. The CWIFP assistance recipient, City of Ann Arbor, on behalf of the U.S. Army Corps of Engineers (Corps), shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The CWIFP assistance recipient shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - 1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - 2) The classification is utilized in the area by the construction industry; and
 - 3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- c. The CWIFP assistance recipient, City of Ann Arbor, on behalf of the U.S. Army Corps of Engineers (Corps), shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The
- d. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the CWIFP assistance recipient agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent to the Administrator of the Wage and Hour Division (WHD Administrator), U.S. Department of Labor, Washington, DC 20210. The WHD Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the CWIFP assistance recipient or will notify the CWIFP assistance recipient within the 30- day period that additional time is necessary.
- e. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the CWIFP assistance recipient do not agree on the proposed classification and wage rate (including the amount

designated for fringe benefits, where appropriate), the CWIFP assistance recipient shall refer the questions, including the views of all interested parties and the recommendation of the CWIFP assistance recipient, to the WHD Administrator for determination. The WHD Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the CWIFP assistance recipient or will notify the CWIFP assistance recipient within the 30-day period that additional time is necessary.

- f. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
 - ii. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof. If the contractor does not make payments to a trustee or other third person, the contractor may consider part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
- B. Withholding. The City, shall upon written request of the CWIFP Director or an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the CWIFP Director may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
- C. Payrolls and basic records.
 - i. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and

social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- ii. The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the City. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3) (i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Website at <https://www.dol.gov/agencies/whd/forms/wh347> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the City, for transmission to the Corps, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the City.
- iii. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - a. That the payroll for the payroll period contains the information required to be provided under §5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
 - b. That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions

have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

- c. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 - iv. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.
 - v. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- D. The contractor or subcontractor shall make the records required under paragraph (a) (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of [name of the borrower, Corps, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Corps may, after written notice to the City of Ann Arbor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.
- E. Apprentices and trainees
- i. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or

subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the WHD Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- ii. Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the WHD Administrator determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
 - iii. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- F. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part which are incorporated by reference in this contract.
- G. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA may by appropriate instructions require, and also a clause requiring the subcontractors to include

these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

- H. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- I. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
- J. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and City of Ann Arbor, Corps, the U.S. Department of Labor, or the employees or their representatives.
- K. Certification of eligibility.
 - i. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - iii. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

9. **Contract Work Hours and Safety Standards Act.** The following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section shall be inserted in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by § 5.5(a) or § 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

- A. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

- B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- C. Withholding for unpaid wages and liquidated damages. The City shall upon its own action or upon written request of an authorized representative of the Department of Labor, or the Corps, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.
- D. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.
- E. In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in § 5.1, the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the EPA shall cause or require the City of Ann Arbor to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the City, Corps and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

10. Build America, Buy America.

- A. The Contractor acknowledges to and for the benefit of ("Purchaser") and the United States Army Corps of Engineers ("Corps") that it understands the goods and services under this Agreement are being funded with federal monies made available by the Corps Water

Infrastructure Financing Program that have statutory requirements commonly known as “Build America, Buy America,” that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States (“Build America, Buy America Requirements”) including iron and steel, manufactured products, and construction materials provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and Funding Authority:

- i. The Contractor has reviewed and understands the Build America, Buy America Requirements,
- ii. All of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and
- iii. The Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Purchaser or the Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

11. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment.

- A. The John S. McCain National Defense Authorization Act for Fiscal Year 2019 (P.L. 115-232), at Section 889, prohibits the Corps financial assistance recipients, including CWIFP borrowers, from expending loan funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in the Act, “covered telecommunications equipment or services” means:
 - i. Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
 - ii. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video

surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

- iii. Telecommunications or video surveillance services provided by such entities or using such equipment.
- iv. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

B. The Act does not prohibit:

- i. Procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements.
- ii. Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

ATTACHMENT 1

CITY OF ANN ARBOR CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of the undersigned's knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31 of the U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies and affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

ATTACHMENT 2

**CITY OF ANN ARBOR
CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)**

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies to the best of its knowledge and belief that neither it nor any of its officers, directors, or managers who will be working under the Contract, or persons or entities holding a greater than 10% equity interest in it (collectively "Principals"):

1. Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department or agency in the United States;
2. Have within a three-year period preceding this proposal, bid, or agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust or procurement statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are presently indicted for or otherwise criminally or civilly charged by a government entity, (federal, state or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies that they are "Actively" registered with SAM (System for Award Management) and have been assigned the following Unique Entity Identifier (UEI): _____. The undersigned further certifies that it shall not knowingly enter any transaction with any subcontractor, material supplier, or vendor who is debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department/agency.

I understand that a false statement on this certification may be grounds for rejection of this proposal or bid, or termination of the award or, in some instances, criminal prosecution.

The Contractor, _____, certifies as stated above:

Signature

Date

Print Title and Name of authorized representative

I am unable to certify to one or more the above statements. Attached is my explanation.

Signature

Date

Print Title and Name of authorized representative

ATTACHMENT 3

**CITY OF ANN ARBOR
CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)**

System for Award Management (SAM) record search for Contractor / Subcontractor business name and business principal – *(Printout or Screenshot of Results SAM.gov entity search results)*



U.S. Army Corps of Engineers

Corps Water Infrastructure Financing Program (CWIFP)

APPLICABLE FEDERAL REQUIREMENTS FOR CWIFP PROJECTS

NOVEMBER 2023



U.S. ARMY



US Army Corps
of Engineers®



APPENDIX A: CERTIFICATION REGARDING LOBBYING

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[SIGNATURE OF BORROWER'S AUTHORIZED REPRESENTATIVE]

[TYPED NAME]

[TITLE IN FULL]

DATE: _____



APPENDIX B: CWIFP SPECIFICATION PACKAGE AND BID CONTRACT LANGUAGE

Last Updated: April 2023

This is a reference document that provides all necessary contract language for CWIFP funded projects. Please note that some of the contract language in this package is required and must be included verbatim and some is suggested. For Suggested Contract Language, you may use your own language so long as it still ensures that provisions are included to guarantee compliance with the federal requirements.

USACE MAKES NO CLAIMS REGARDING THE LEGALITY OF THE FEDERAL LANGUAGE PROVISIONS WITH RESPECT TO STATE OR LOCAL LAW.

ECONOMIC AND MISCELLANEOUS AUTHORITIES

DEBARMENT AND SUSPENSION AND PROHIBITIONS RELATING TO VIOLATIONS OF CWA AND CAA WITH RESPECT TO FEDERAL CONTRACTS, GRANTS, OR LOANS

Suggested Contract Language:

Debarment and Suspension. Contractor certifies that it will not knowingly enter into a contract with anyone who is ineligible under the 2 CFR part 180 and part 1532 (per Executive Order 12549, 51 FR 6370, February 21, 1986) or who is prohibited under Section 306 of the Clean Air Act or Section 508 of the Clean Water Act to participate in the [Project]. Suspension and debarment information can be accessed at <http://www.sam.gov>. Contractor represents and warrants that it has or will include a term or conditions requiring compliance with this provision in all of its subcontracts under this Agreement.

NEW RESTRICTIONS ON LOBBYING

Suggested Contract Language:

Federal Lobbying Restrictions (31 U.S.C 1352). Recipients of federal financial assistance may not pay any person for influencing or attempting to influence any officer or employee of a federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress with respect to the award, continuation, renewal, amendment, or modification of a federal grant, loan, or contract. Upon award of this contract, Contractor shall complete and submit to the [Insert Borrower label (i.e. City, County, State)] the Certification Regarding Lobbying (Appendix A) and Disclosure of Lobbying Activities (SF-LLL) form. Contractor shall also require all subcontractors and suppliers of any tier awarded a subcontract over \$100,000 to similarly complete and submit the Certification Regarding Lobbying and Disclosure of Lobbying Activities form.

CIVIL RIGHTS, NONDISCRIMINATION, AND EQUAL EMPLOYMENT OPPORTUNITY AUTHORITIES AGE DISCRIMINATION ACT, SECTION 504 OF THE REHABILITATION ACT, AND TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

Suggested Contract Language:

CIVIL RIGHTS OBLIGATIONS. Contractor shall comply with the following federal non-discrimination requirements:

- a. Title VI of the Civil Rights Act of 1964, which prohibits discrimination based on race, color, and national origin, including limited English proficiency (LEP). (42 U.S.C 2000D, et. seq)
- b. Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination against persons with disabil-





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ities. (29 U.S.C. 794, supplemented by EO 11914, 41 FR 17871, April 29, 1976 and EO 11250, 30 FR 13003, October 13, 1965)

- c. The Age Discrimination Act of 1975, which prohibits age discrimination. (42 U.S.C 6101 *et. seq*)

EQUAL EMPLOYMENT OPPORTUNITY

Required Contract Language. Note the requirements include three separate sections to include in contracts: EEO, Standard Federal Equal Employment Opportunity Construction Contract Specifications, and Segregated Facilities. This language must be included verbatim:

Equal Employment Opportunity (EEO). The Contractor shall comply with Executive Order 11246, entitled 'Equal Employment Opportunity,' as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60). (EO 11246, 30 FR 12319, September 28, 1965)

Contractor's compliance with Executive order 11246 shall be based on implementation of the Equal Opportunity Clause, and specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4.

During the performance of this contract, the contractor agrees as follows:

The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color,

religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

4. The contractor will, in all solicitations or advancements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
5. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.



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6. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
 7. The contractor will comply with all provisions of Executive Order No. 11246 of Sept. 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
 8. The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
 9. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of Sept. 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
 10. The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States. [Sec. 202 amended by EO 11375 of Oct. 13, 1967, 32 FR 14303, 3 CFR, 1966-1970 Comp., p. 684, EO 12086 of Oct. 5, 1978, 43 FR 46501, 3 CFR, 1978 Comp., p. 230, EO 13665 of April 8, 2014, 79 FR 20749, EO 13672 of July 21, 2014, 79 FR 42971]
- Standard Federal Equal Employment Opportunity Construction Contract Specifications. (41 CFR 60-4.3)**
1. As used in these specifications:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;





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- c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. “Minority” includes:
 - i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to
- comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor’s or Subcontractor’s failure to take good faith efforts to achieve the Plan goals and timetables.
- The Contractor shall implement the specific affirmative action standards provided in paragraphs 6 a through n of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
3. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the



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Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

4. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

5. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

- d. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall





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provide notice of these programs to the sources compiled under 5b above.

- e. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- f. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- g. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- h. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- i. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- j. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.
- k. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.



- The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements



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of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

11. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
12. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Segregated Facilities. (41 CFR 60-1.8) The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensuring

that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. This obligation extends to all contracts containing the equal opportunity clause regardless of the amount of the contract. The term "facilities," as used in this section, means waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, wash rooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees; Provided, That separate or single-user restrooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

2 Goals can be found at: <https://www.dol.gov/agencies/ofccp/construction>

3 Nationwide goal for all covered areas

AMERICAN IRON AND STEEL (AIS) REQUIREMENT

Suggested Contract Language:

The Contractor acknowledges to and for the benefit of [Insert CWIFP Borrower Name] ("Purchaser") and the United States Army Corps of Engineers ("the Corps") that it understands the goods and services under this Agreement are being funded with monies made available by the Water Infrastructure Finance and Innovation Act program of the Corps that has statutory requirements commonly known as "American Iron and Steel" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents,



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warrants and covenants to and for the benefit of the Purchaser and the Corps that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the Corps. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or the Corps to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or the Corps resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Corps or any damages owed to the Corps by the Purchaser). While the Contractor has no direct contractual privity with the Corps, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the Corps is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Corps.

LABOR LAWS AND STANDARDS

Note that the language below addresses Davis Bacon and Related Acts and incorporates the CWIFP borrower as an authorized representative, in accordance with the CWIFP loan agreement, to ensure compliance with this federal requirement.

Required Contract Language.

Compliance with Davis-Bacon and Related Acts.

- a. In any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in 29 C.F.R. § 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, provided that such modifications are first approved by the Department of Labor):

1. Minimum wages.

- I. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made



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a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

II.

- A.** The CWIFP assistance recipient, [name of CWIFP borrower], on behalf of the U.S. Army Corps of Engineers (Corps), shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The CWIFP assistance recipient shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - i.** The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - ii.** The classification is utilized in the area by the construction industry; and
 - iii.** The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- B.** If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the CWIFP assistance recipient agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a



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report of the action taken shall be sent to the Administrator of the Wage and Hour Division (WHD Administrator), U.S. Department of Labor, Washington, DC 20210. The WHD Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the CWIFP assistance recipient or will notify the CWIFP assistance recipient within the 30-day period that additional time is necessary.

- C. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the CWIFP assistance recipient do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the CWIFP assistance recipient shall refer the questions, including the views of all interested parties and the recommendation of the CWIFP assistance recipient, to the WHD Administrator for determination. The WHD Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the CWIFP assistance recipient or will notify the CWIFP assistance recipient within the 30-day period that additional time is necessary.
- D. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers per-

forming work in the classification under this contract from the first day on which work is performed in the classification.

- III. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof. If the contractor does not make payments to a trustee or other third person, the contractor may consider part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- 2. Withholding. [name of CWIFP borrower], shall upon written request of the CWIFP Director or an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees,



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and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the CWIFP Director may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records.

- I. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or

mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

II.

- A. The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to [name of CWIFP borrower]. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3) (i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information



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may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Website at <https://www.dol.gov/agencies/whd/forms/wh347> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to [name of CWIFP borrower], for transmission to the Corps, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to [name of CWIFP borrower]).

B. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

i. That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being

maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

ii. That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

iii. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

C. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

D. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.



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III. The contractor or subcontractor shall make the records required under paragraph (a) (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of [name of the borrower, Corps, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Corps may, after written notice to the [name of CWIFP borrower], take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees –

I. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer

and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable



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classification. If the WHD Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- II. Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the WHD

Administrator determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- III. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses con-



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tained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and [name of CWIFP borrower], Corps, the U.S. Department of Labor, or the employees or their representatives.
10. Certification of eligibility.
 - I. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the

contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

- II. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - III. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.
- b. Contract Work Hours and Safety Standards Act. The following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section shall be inserted in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by § 5.5(a) or § 4.6 of part 4 of this title. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.
1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.





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2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$25 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
 3. Withholding for unpaid wages and liquidated damages. The [name of CWIFP borrower] shall upon its own action or upon written request of an authorized representative of the Department of Labor, or the Corps, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.
 4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.
- c. In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in § 5.1, the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the EPA shall cause or require the [name of CWIFP borrower] to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the [name of CWIFP borrower], Corps and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.



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BUILD AMERICA, BUY AMERICA ACT

Other language may be included on contracts for clarity on this federal requirement if an applicable waiver applies. For example, if CWIFP has determined that the project is covered under the pending program waiver, indicate in contract documents, “This Project is covered under the CWIFP Waiver (date TBD), which waives BABA requirements.”

Suggested Contract Language:

Build America, Buy America (Effective May 14, 2022)
The Contractor acknowledges to and for the benefit of (“Purchaser”) and the United States Army Corps of Engineers (“Corps”) that it understands the goods and services under this Agreement are being funded with federal monies made available by the Corps Water Infrastructure Financing Program that have statutory requirements commonly known as “Build America, Buy America;” that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States (“Build America, Buy America Requirements”) including iron and steel, manufactured products, and construction materials provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and

(c) the Contractor will provide any further verified information, certification or assurance of compliance with

this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Purchaser or the Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Suggested Contract Language:

Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment (Effective August 13, 2020). The John S. McCain National Defense Authorization Act for Fiscal Year 2019 (P.L. 115- 232), at Section 889, prohibits the Corps financial assistance recipients, including CWIFP borrowers, from expending loan funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, ser-



APPENDIX B: CWIFP SPECIFICATION PACKAGE AND BID CONTRACT LANGUAGE

vices, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in the Act, “covered telecommunications equipment or services” means:

- d.** Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- e.** For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- f.** Telecommunications or video surveillance services provided by such entities or using such equipment.
- g.** Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

The Act does not prohibit:

- a.** Procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements.
- b.** Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.



APPENDIX D: SAMPLE AIS CERTIFICATION LETTER

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX) I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in the US Army Corps of Engineers' Corps Water Infrastructure Financing Program.

Item, Products and/or Materials:

1. Xxx
2. Xxx
3. Xxx

Such process took place at the following location: _____

If any of the above compliance statements change while providing material to this project, we will immediately notify the prime contractor and the engineer.

Signed by company representative

ADDENDUM No. 2

RFP No. 24-03

Barton Dam Right Embankment Remediation

Updated Due Date and Time: March 7, 2024 at 3:00 PM (local time)

The following changes, additions, and/or deletions shall be made to the Request for Proposal for Barton Dam Right Embankment Remediation, RFP No. 24-03 on which proposals will be received on/or before the updated date and time listed herein. The bid opening will be at Larcom City Hall (301 E Huron Street, Ann Arbor, MI 48104).

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum consists of two (2) pages.**

Bidder is to acknowledge receipt of this Addendum No. 2, including all attachments (if any) in its Bid by so indicating on page B-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum will be considered nonconforming.

The following forms should be submitted in the proposal:

- **Attachment B – General Declarations**
- **Attachment C – Legal Status of Bidder**
- **Attachment D – City of Ann Arbor Prevailing Wage Declaration of Compliance**
- **Attachment E – City of Ann Arbor Living Wage Ordinance Declaration of Compliance**
- **Attachment G – Vendor Conflict of Interest Disclosure Form**
- **Attachment H – City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**
- ~~**Attachment K – Federal DBE Participation – NOT USED**~~
- **Attachment L – Federal Debarment Certification**
- **Attachment Y – City of Ann Arbor Corps Water Infrastructure Financing Program (CWIFP) – Contract Addendum, Applicable Federal Requirements for CWIFP Projects November 2023 (excerpt). Submittable forms:**
 - Attachment 1 (City of Ann Arbor document). Certification Regarding Lobbying**
 - Attachment 2 (City of Ann Arbor document). Certification Regarding Debarment, Suspension and other Responsibility Matters**
 - Attachment 3 (City of Ann Arbor document). SAM Record Search**

Bids that fail to provide the completed forms listed above upon bid opening may be rejected as non-responsive and may not be considered for award.

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I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the RFP documents which are outlined below are referenced to a page or Section in which they appear conspicuously. Offerors are to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)	Change
All mentions	As provided in RFP No. 24-03 Document and Addendum 1: Proposal Due Date: February 29, 2024 at 3:00 p.m. (local time) As updated herein: Proposal Due Date: March 7, 2024 at 3:00 p.m. (local time) <i>Comment: The Due Date and Time for responses to this RFP has been extended as outlined above. Note that all other dates are unchanged.</i> Offerors are responsible for any conclusions that they may draw from the information contained in the Addendum.

PERFORMANCE BOND

- (1) _____ of _____ (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____, for RFP No. _____ and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the Contract in accordance with its terms and conditions; or
 - (b) obtain a bid or bids for submission to the City for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the Contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.
- (6) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this bond. This bond 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.

SIGNED AND SEALED this _____ day of _____, 202____.

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Atleen Kaur, City Attorney

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Name and address of agent:

LABOR AND MATERIAL BOND

- (1) _____
of _____ (referred to as
"Principal"), and _____, a corporation duly
authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City
of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act
213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of
\$ _____, for the payment of which Principal and Surety bind themselves, their heirs,
executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written Contract with the City entitled _____

_____, for RFP No. _____; and this bond is given
for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required
under the Contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no
obligation if the Principal promptly and fully pays the claimants.
- (5) Principal, Surety, and the City agree that signatures on this bond may be delivered electronically
in lieu of an original signature and agree to treat electronic signatures as original signatures that bind
them to this bond. This bond 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.

SIGNED AND SEALED this _____ day of _____, 202__.

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Atleen Kaur, City Attorney

Name and address of agent:

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

- (1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended, which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any Contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section.

Pursuant to Resolution R-16-469 all public improvement contractors are subject to prevailing wage and will be required to provide to the City payroll records sufficient to demonstrate compliance with the prevailing wage requirements. A sample Prevailing Wage Form is provided in the Appendix herein for reference as to what will be expected from contractors. Use of the Prevailing Wage Form provided in the Appendix section or a City-approved equivalent will be required along with wage rate interviews.

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Contract a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Contract are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary

for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents or caused by agents or employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt.

Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section 13. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost- Plus- Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve

the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;
- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and the City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the

required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred. The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor. The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the

construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

- (1) The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of any work under this contract, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the required policies and endorsements. The certificates of insurance endorsements and/or copies of policy language shall document that the Contractor satisfies the following minimum requirements. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

Required insurance policies include:

- (a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

- (b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. The following minimum limits of liability are required:

\$1,000,000	Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
\$2,000,000	Per Project General Aggregate
\$1,000,000	Personal and Advertising Injury
\$2,000,000	Products and Completed Operations Aggregate, which, notwithstanding anything to the contrary herein, shall be maintained for three years from the date the Project is completed.

- (c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.
- (d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.
- (2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be

considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City for any insurance listed herein.

- (3) Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and un-qualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company(s); name and address of the agent(s) or authorized representative(s); name(s), email address(es), and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which may be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) and all required endorsements to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.
- (4) Any Insurance provider of Contractor shall be authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-authorized insurance companies are not acceptable unless approved in writing by the City.
- (5) City reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.
- (6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the City Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its Owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

CONTRACTOR'S DECLARATION

Section 44

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor, _____, represents that on _____, 20____, it was awarded a contract by the City of Ann Arbor, Michigan to _____ under the terms and conditions of a Contract titled _____. The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the City of Ann Arbor.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the City of Ann Arbor.

This affidavit is freely and voluntarily given with full knowledge of the facts.

Contractor Date

By _____
(Signature)

Its _____
(Title of Office)

Subscribed and sworn to before me, on this _____ day of _____, 20____
_____, _____ County, Michigan

Notary Public

County, MI My
commission expires on:

SECTION IV: STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:

<http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx>

SECTION V: DETAILED SPECIFICATIONS

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DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 10 00 SUMMARY OF WORK

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. Furnish all labor, materials, and equipment to complete in every detail and leave in working order all items of work called for herein or shown on the accompanying drawings entitled “Barton Dam, Right Embankment Remediation”.

- B. Principal items of work for the Barton Dam, Right Embankment Remediation include the following:
 - 1. Grouting of Toe Drains (TDs) TD-23 and TD-43.
 - 2. Site clearing and grubbing.
 - 3. Installation, maintenance, and removal of erosion protection and stormwater management.
 - 4. Installation, maintenance, and removal of temporary construction fencing, haul roads, and signage.
 - 5. Demolition of the existing block wall, gabion baskets and mattress, as well as stairway, underpass slab, and canopy structure.
 - 6. Underpass widening including construction of a modular block wall within the Huron River and temporary surfacing.
 - 7. Removal of existing retaining wall north of underpass and replacement with modular block wall.
 - 8. Removal and replacement of the existing railing and fencing from the underpass, between the underpass and the spillway, and the tip of the spillway abutment wall.
 - 9. Grading on crest of right embankment within City property to EL. 802.
 - 10. Implementation of groundwater controls.
 - 11. Removal of the existing reverse filter and replacement with engineered fill.
 - 12. Removal of the existing block retaining wall and aggregate ballast in the vicinity of TD-40.
 - 13. Removal of existing collector ditch lining and abandonment of toe drains TD-12 through TD-59.
 - 14. Construction of the realigned collector ditch.
 - 15. Filling of the existing collector ditch pond.
 - 16. Construction of proposed stabilization berm, including mineral drain and underdrain with cleanouts and T inspections.
 - 17. Removal of existing gabions between the underpass and the spillway. (Alternate bid item to be completed at the discretion of the Owner.).
 - 18. Construction of the modular block wall between the underpass and the spillway. (Alternate bid item to be completed at the discretion of the Owner.)
 - 19. Construction of stairway improvements.
 - 20. Construction of new permanent access path and improvement to existing access path.
 - 21. Extension and modification of existing piezometer risers and covers.

22. Removal of temporary surfacing and construction of the concrete slab at the underpass.
 23. Excavation and disposal of soils associated with the compensatory cut.
 24. Site restoration and closeout.
- C. Work considered under this Contract is located on land owned by the City of Ann Arbor, Michigan. The construction site address is:
- Barton Nature Area
1010 W. Huron Drive
Ann Arbor, Michigan 48103
- D. Unless otherwise noted herein, all work shall conform to the 2020 edition of the State of Michigan Department of Transportation Standard Specifications for Construction (MDOT-SSC) (only where specified), the Contract Drawings, and Detailed Specifications. Pay items, units of measure, and quantities shall be in accordance with the contract Drawings, Detailed Specifications, Engineers Estimate, and Bid Schedule for the project.
- E. The existing structures, utilities, and physical conditions are approximately as indicated on the Drawings, but the dimensions and locations of the existing structures, utilities, the nature of materials and the stability of beds or banks are not guaranteed. Prospective bidders shall visit the site and satisfy themselves as to the working conditions, as well as to the character of the work to be performed. It is mutually agreed that submission of a proposal, by the Contractor, shall be prima facie evidence that he has made an investigation of the site and has placed his own interpretations upon said conditions. Contractor shall verify all work-critical dimensions prior to performing any work or ordering materials.

1.2 DRAWINGS

The work shall conform to drawings entitled "Barton Dam, Right Embankment Remediation" as indicated below, which form a part of these specifications. The work shall also conform to such other drawings in explanation of details or minor modifications as the Project Representative may consider necessary on account of conditions found during prosecution of the work. The Contractor shall check all drawings and shall immediately report any and all discrepancies to the Project Representative. Parts and details not fully shown on the drawings shall be executed by the Contractor in accordance with the best-established industry and construction practices.

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PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

**SECTION 01 14 00
WORK RESTRICTIONS**

PART 1 GENERAL

1.1 SUMMARY

- A. The Contractor has the option of providing temporary facilities that can eliminate a constraint, provided it is done with the consent of the Owner and without cost to the Owner and provided that all requirements of these Specifications are fulfilled. Work not specifically covered in the following paragraphs may, in general, be done at any time during the contract period, subject to the operating requirements and constraints and construction requirements outlined hereinafter. All references to days in this Section shall be consecutive calendar days.
- B. The proposed construction activities required for this project will interfere with public access to Barton Dam, Barton Pond, the Huron River, and the Border-to-Border trail. Safety of the public must be taken into consideration and duly addressed during all construction activities.

1.2 GENERAL CONSTRAINTS

- A. The Contractor shall give Owner advance notice of proposed shutdowns of any roads or existing site access. Shutdowns shall be fully coordinated with the Owner at least 72 hours before the scheduled shutdown.
- B. The Contractor shall submit a proposed written plan of work, with a request to schedule shutdown work for Owner and Engineer approval. Work plan shall include sequence of events, needs for coordination with City of Ann Arbor staff.
- C. Any temporary work, facilities, roads, walks, protection of existing structures, etc. that may be required within the Contractor's work limits to maintain continuous and dependable plant operation shall be furnished by the Contractor at the direction of the Owner or Engineer at no extra cost to the Owner.
- D. The Owner shall have the authority to order work stopped or prohibited that would, in his opinion, unreasonably result in interrupting the necessary functions of the existing pump station plant at the dam site.
- E. If the Contractor impairs performance or operation of the existing pump station plant as a result of not complying with specified provisions for maintaining plant pump station operations, then the Contractor shall immediately make all repairs or replacements and do all work necessary to restore the plant to operation to the satisfaction of the Owner and Engineer. Such work shall progress continuously to completion 24 hours per day and seven workdays per week.
- F. After any damage to the existing facilities by the Contractor's Work that, in the opinion of the Owner, constitutes an emergency, the Contractor shall be immediately available

and provide immediate services for the repair of damage and mitigation of the emergency.

- G. Shutdowns shall be scheduled between Monday and Friday, unless there are extenuating circumstances approved by the Engineer.

1.3 ACCESS TO SITE, ROADWAYS, AND PARKING AREAS

- A. An unobstructed traffic route to all pump station areas shall be maintained at all times for the Owner's operations personnel and maintenance equipment. The Contractor shall be responsible for providing access to the construction area and for preparing and maintaining temporary access road, fence, and gate.
- B. An unobstructed traffic route around the pump station plant site shall be maintained at all times for the Owner's operations personnel, maintenance equipment, and delivery vehicles.
- C. The Contractor shall provide temporary measures to protect the existing pavement by filling over with temporary asphalt or supplying other measures acceptable to the Engineer, and he shall repair any damage to existing paved surfaces that occurs during the construction period. Any areas disturbed along the shoulders of the access road and interior roads and elsewhere inside and outside of the site shall be repaired, graded, seeded, etc. as necessary to match preconstruction conditions.
- D. The Contractor shall not undertake the restoration/construction of new roadway (paved, gravel, or asphalt overlay) shown on the Contract Drawings, until all other work on the dam improvements have been completed.
- E. It shall be the responsibility of the Contractor to obtain any permits required from the Washtenaw County Road Commission and City of Ann Arbor and to pay all associated fees with documentation of payment provided to the Engineer.
- F. The Contractor shall be responsible for removal of snow in areas of the Contractor's work.
- G. The Contractor will not disturb the maintenance of pump station operations without a written plan that is approved by the Owner and Engineer.
- H. City personnel shall have access to all areas that remain in operation throughout the construction period. The Contractor shall locate stored material, dispose of construction debris and trash, provide temporary walkways, provide temporary lighting, and other such work as directed by the Engineer to maintain personnel access to areas in operation. Access and adequate parking areas for plant personnel must be maintained throughout construction.

1.4 SPECIFIC OPERATIONAL CONSTRAINTS AND CONSTRUCTION SCHEDULE ACTIVITIES

- A. The Contractor shall schedule the work for the following tasks based on the constraints given in such a manner as to maintain the pump station operation. At a minimum, the Construction Schedule shall indicate a proposed start date and duration for each of the items listed in this section. No construction shall begin on any of the items listed in this section until the proposed schedule has been approved. Tasks to be included are:
1. Install SESC measures.
 2. Perform grouting of TD-23 and TD-43.
 3. Perform site preparation and prepare laydown area including fencing, crossing, signage, temporary haul road as well as necessary clearing and grubbing.
 4. Remove underpass canopy, railing, pavement, and gabions. Install modular block wall system for underpass widening, place backfill, place temporary working surface course.
 5. Remove existing retaining wall north of underpass and replace with modular block wall.
 6. Clear and grub the proposed work area.
 7. Regrade the embankment crest to Elevation 802.0 feet.
 8. Relocate emergency stockpiles of sand and gravel.
 9. Install reverse filter dewatering system, remove existing reverse filter and unsuitable soils, and backfill to original grade.
 10. Collector ditch pond filling - install dewatering system, remove unsuitable material, prepare subgrade, backfill collector ditch pond and place fill along existing embankment upslope of the collector ditch pond.
 11. Construct proposed collector ditch.
 12. Install surface water controls and dewatering system for the existing collector ditch.
 13. Remove existing block retaining wall, aggregate ballast, concrete-filled posts, and steel c-channel posts for TD-12 through TD-59.
 14. Abandon existing toe drains TD-12 through TD-59. Remove lining from existing collector ditch and backfill ditch.
 15. Strip topsoil and remove unsuitable soils within the footprint of the proposed stabilization berm. Perform the work in "strips" and place backfill to original grade same workday.
 16. Place stabilization berm with granular filter, mineral drain, and perforated underdrain.
 17. Raise existing piezometers and install locking monuments.
 18. Remove, relocate, and replace existing culvert.
 19. Alternate Bid Work Item: Remove existing gabions between underpass and spillway and replace with modular block wall.
 20. Excavate compensatory cut and dispose of spoils off site.
 21. Revegetate stabilization berm and working areas.
 22. Construct proposed permanent access path and improvements to existing access path.
 23. Remove and replace existing stairs, railing along Huron River, and fence atop the spillway abutment wall.
 24. Remove temporary wearing course at underpass and replace with permanent slab. Construct underpass canopy and railing.
 25. Remove temporary haul road, SESC measures, and complete final site restoration.
 26. Reverse Filter Removal

- 27. Berm Construction
- 28. Gabion Basket Removal
- 29. Underpass Extension Modular Block Wall Construction

- B. Unless otherwise approved by the Engineer, the Contractor shall complete the grouting program at Toe Drains (TDs) 23 and 43 (as shown on Sheet 39 of the Drawings) within 60 days of receiving notice to proceed from the Owner or be subject to the liquidated damages specified in the contract.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

**SECTION 01 20 00
MEASUREMENT AND PAYMENT**

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. The following subsections describe the method of measurement and basis of payment for the work to be done under the items listed in the BID PROPOSAL.
1. Each unit or lump sum price stated in the BID PROPOSAL shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications. Provide all labor, material, tools, equipment and services required to complete the work specified herein and indicated on the Drawings. Items included in the Specifications and on the project Drawings, but not shown in this section, are considered incidental to the project.
 2. The Contractor is responsible for surveying of project works such that the lines and grades noted on the project drawings are met. In addition, the Owner intends to retain an independent surveyor for the project for the purposes of verifying the contractor's lines and grades, as well as to verify quantities of those bid items that require measurement of volume associated with payment. For purposes of volume verification, the contractor shall provide safe access to the Surveyor to the work areas where volume measurements are required. Further, if the Contractor identifies areas that require Owner verification, he must notify the Owner's Surveyor at least 24 hours in advance such that there will be no project delays.
 3. Owner's surveyor is herewith designated as the surveyor retained by the owner and will be responsible for as-built information, unit price measurements for payment, and performing certification survey necessary to verify lines and grades, and layer thickness are in accordance with the contract drawings and Quality Control Inspection Program (QCIP).
 4. Measured material for payment will be by the ton (2,000 pounds) to the nearest 0.1 ton (200 pounds). The contractor shall submit manifests and weight tickets from the disposal site as evidence of quantity for each truckload of material disposed of off-site. The load for payment must be weighed on approved scales of sufficient length to permit simultaneous weighing all axle loads. Scales must be inspected, tested, and sealed as directed to assure accuracy with 0.5 percent throughout the range of the scales. Scales shall be checked and certified before hauling and rechecked and recertified whenever a variance is suspected.

1.2 MEASUREMENT AND PAYMENT

Item No. 1 – General Conditions, Bonds, Insurance

1. Payment for this lump sum item will be paid in full after proof of bonds and insurance is provided to the Engineer.

Item No. 2 – Mobilization and Demobilization

1. Half of the lump sum price for Mobilization and Demobilization will be for mobilization of all labor, materials, and equipment necessary for all preparatory work and operations to include:
 - a. Movement of personnel, equipment, supplies, and incidentals to the project site.
 - b. Establishment of the Contractor's and the Engineer field offices, and other facilities necessary to undertake the work on the project in accordance with Specification Section 01 35 13 "General Provisions".
 - c. Other work and operations which must be performed, or for expenses incurred, prior to beginning work on the various contract items on the project site.
 - d. Preconstruction costs, exclusive of bidding costs, which are necessary direct costs to the project, are expenditures required to prosecute the work on site, and are of a general nature rather than directly attributable to other pay items under the contract.
 - e. Preparation of staging areas for equipment and materials, that will include, but is not limited to, all excavation, dewatering, tree removal, site grading, wetlands protection and restoration, soil erosion and sedimentation control, and all other items necessary to make the site usable, whether specifically mentioned or implied.
 - f. Payment for mobilization shall constitute full payment for all labor, materials, and equipment necessary and will not exceed the following schedule:

Completion of Task	Percentage of Bid Price for Mobilization and Demobilization Allowed
Movement of Personnel, Equipment and Supplies	15
Establishment of Contractor's and City Engineer's Field Offices	10
Preparation of Staging Areas and Protection of Wetlands	25

2. The remaining half of the lump sum price for Mobilization and Demobilization will be for demobilization of all labor, materials, and equipment to include:
3. Restoration of staging areas, final site grading, and all other items necessary to complete the project according to the plans and specifications, whether specifically mentioned or implied.

- a. Removal of the Contractor's and the Engineer field offices, and other facilities required for construction.
- b. Removal of all equipment, supplies, personnel, and incidentals from the project site.
- c. Other work and operations which must be performed, or for expenses incurred, prior to completion of work on the various contract items on the project site.
- d. Any costs associated with repair of any road damage or sidewalk damage caused by heavy hauling shall be included with this item.
- e. Payment for demobilization shall constitute full payment for all labor, materials, and equipment necessary and will not exceed the following schedule:

Completion of Task	Percentage of Bid Price for Mobilization and Demobilization Allowed
Restoration of Staging Areas, and Repair of Roads and Sidewalks	25
Removal of Contractor's and City Engineer's Field Offices	15
Removal of Personnel, Equipment, and all Non-Permanent Features	10

Item No. 3 – Install, Maintain and Remove SESC

1. Payment for installing, maintaining, and removing the Soil Erosion and Sedimentation Control (SESC) shall constitute full payment for all labor, materials, and equipment necessary and will follow the following schedule:

Completion of Task	Percentage of Bid Price Allowed
Installing SESC Features	25
Maintaining SESC	5 per month up to 65
Removal of SESC Features	10

Item No. 4 – Chemical Grouting at TD-23 and TD-43

1. Payment for this item shall constitute full payment for all labor, materials, and equipment necessary and will be paid in full per gallon of chemical grout injected after the work is completed, inspected, and approved by the Engineer. Grout in hoses and wasted grout will not be paid for.

Item No. 5 – Install Cementitious Grout Holes at TD-23 and TD-43

1. Payment for each of the grout holes shall constitute full payment for all labor, materials, and equipment necessary and will be paid in full after they are completed, inspected, and approved by the Engineer.

Item No. 6 – Cementitious Grouting at TD-23 and TD-43

1. Measurement: Payment shall be based on the volume (in cubic feet) of grout placed.
2. The contract unit price for mixing and placing the cementitious grout shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 7 – Site Preparation. Signage and Traffic Control, Clearing and Grubbing, Install, Maintain and Remove Temporary Haul Route, Relocation of Emergency Stockpiles of Sand and Gravel. Demolish: Wooden Fence along Huron River, Remnant Collector Ditch Weir Posts, Steel C-Channel Toe Drain ID Posts, Block Wall and geosynthetic reinforcing Near TD-39, and Gravel Surfacing Upslope of TD-39, and all other items necessary whether specifically mentioned or not.

1. Payment for this item shall constitute full payment for all labor, materials, and equipment necessary and will be paid according to the following tasks upon completion, inspection, and approval by the Engineer of each task.

<u>Task</u>	<u>% of Bid Item No. 7</u>
a. Signage and Traffic Control	10
b. Clearing and Grubbing	25
c. Install Temporary Haul Route	20
d. Remove Temporary Haul Route	10
e. Relocation of Emergency Stockpiles of Sand and Gravel.	5
f. Demolish Wooden Fence along Huron River	5
g. Demolish Remnant Collector Ditch Weir Posts	5
h. Demolish Steel C-Channel Toe Drain ID Posts	5
i. Demolish Block Wall and Reinforcement Near TD-39	5
j. Remove Aggregate Ballast Upslope of TD-39	10

Item No. 8 – Underpass Widening. Remove Existing Pavement, Canopy, Railing, and Gabions, Prepare Subgrade, Install Modular Block Wall, Place Backfill and Temporary Surface Course on Underpass and all other items necessary whether specifically mentioned or not.

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary and will be paid according to the following tasks upon completion, inspection, and approval by the Engineer of each task.

<u>Task</u>	<u>% of Bid Item No. 8</u>
a. Remove Existing Pavement	10
b. Remove Canopy	5
c. Remove Railing	5
d. Remove Gabions	30
e. Prepare Subgrade	20
f. Install Modular Block Wall	20
g. Place Backfill and Temporary Surface	10

Item No. 9 – Remove and Replace Existing Retaining Wall North of Underpass

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to remove and replace the existing retaining wall and will be paid in full after the new retaining wall is completed, inspected, and approved by the Engineer.

Item No. 10 – Strip Topsoil and Raise Grade of Embankment Crest to Elevation 802.0 feet from Station -2+38 to 2+25 and 12+60 to 14+33.

1. Measurement: The total quantity of fill material for which payment will be made will be based on the volume (in cubic yards) between the underlying ground surface and the upper surface of the material at elevation 802.0 feet, as determined by topographic survey. No allowance will be made for additional material placed above or outside the required slope lines unless authorized.
2. The contract unit price for removing the topsoil and raising the grade of the embankment with engineered fill shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 11 – Reverse Filter Dewatering

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the Contract requirements and will be paid in full after the reverse filter is removed, backfilled, and the Engineer has approved cessation of dewatering.

Item No. 12 – Remove Reverse Filter and Backfill

1. Measurement: Material disposed of off-site will be measured for payment by the ton (2,000 pounds) to the nearest 0.1 ton (200 pounds). The contractor shall submit manifests and weight tickets from the disposal site as evidence of quantity for each truckload of material disposed of off-site.

2. The contract unit price for reverse filter material removed and backfill material placed shall constitute full payment for all labor, materials, and equipment necessary to remove the filter material, underlying unsuitable soils, and replace backfill in accordance with the drawings and specifications. Excavation shall be closed on same day it is opened. Excluded from this pay item is any excavation and backfill associated with the work outside of the footprint of the Reverse Filter.
3. The contract unit price for removing the reverse filter and backfilling shall constitute full payment for all labor, materials, and equipment necessary in accordance with the drawings and specifications. Payment will occur after being inspected and approved by the Engineer.

Item No. 13 – Topsoil Stripping at the Stabilization Berm

1. Measurement: Payment shall be based on the area (in acres) of topsoil removed.
2. The contract unit price for Topsoil Removed shall constitute full payment for all labor, materials, and equipment necessary to remove the topsoil in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 14 – Excavation to Reach Subgrade of Granular Filter and Removal and Replacement of Unsuitable Soils at the Stabilization Berm

1. Measurement: Material disposed of off-site will be measured for payment by the ton (2,000 pounds) to the nearest 0.1 ton (200 pounds). Payment shall be based on the weight (in tons) of soils removed in the excavation to reach the subgrade of granular filter and unsuitable soils removed and properly disposed of off-site. The contractor shall submit manifests and weight tickets from the disposal site as evidence of quantity for each truckload of material disposed of off-site.
2. Removal of unsuitable soils shall include those materials below the existing topsoil that require removal to achieve the stabilization berm proposed subgrade elevation. Excavation shall be closed on same day it is opened.
3. The contract unit price for Excavation to Reach Subgrade of Granular Filter and Removal and Replacement of Unsuitable Soils at the Stabilization Berm shall constitute full payment for all labor, materials, and equipment necessary to remove the Unsuitable Soils and backfill the resulting excavation in accordance with the drawings and specifications. Excluded from this pay item is any material removed and backfilled within the footprint of the reverse filter as included in Item No. 12. Payment will occur after being inspected and approved by the Engineer.

Item No. 15 – Dewater the Collector Ditch Pond and Surrounding Ground

1. The lump sum price for dewatering the pond and surrounding ground shall constitute full payment for all labor, materials, and equipment required to dewater the collector ditch pond as needed to facilitate removal of existing sediments and backfilling of the pond as indicated on the drawings. This item shall include all required equipment to perform the work and payment for this item will be paid in full after unsuitable soils are removed from the pond, the pond is backfilled, and the Engineer has approved cessation of dewatering.

Item No. 16 – Remove and Replace Unsuitable Soils from the Collector Ditch Pond

1. Measurement: Material disposed of off-site will be measured for payment by the ton (2,000 pounds) to the nearest 0.1 ton (200 pounds). The contractor shall submit manifests and weight tickets from the disposal site as evidence of quantity for each truckload of material disposed of off-site. Excavation shall be closed on same day it is opened.
2. Removal of unsuitable soils from the pond shall include those materials below the existing pond bottom that require removal to allow proper backfill according to the plans and specifications.
3. The contract unit price for Unsuitable Soils shall constitute full payment for all labor, materials, and equipment necessary to remove the Unsuitable Soils and backfill the resulting excavation in accordance with the drawings and specifications. Payment will occur after being inspected and approved by the Engineer.

Item No. 17 – Fill the Collector Ditch Pond with Engineered Fill

1. The lump sum price for filling the collector ditch pond shall constitute full payment for all labor, materials, and equipment required to fill the pond with engineered fill and place additional fill on the downstream slope of the dam adjacent to the pond as indicated on the drawings. Payment for this item will be paid in full after the work is completed, inspected, and approved by the Engineer.

Item No. 18 – Realign and Construct the Collector Ditch. Remove, Relocate, and Replace the Existing Culvert. Abandon the existing headwall and construct new headwalls for the relocated culvert as indicated on the drawings. Provide General Dewatering, as necessary, to facilitate performing the work.

1. The lump sum price shall constitute full payment for labor, materials, and equipment required for realigning and constructing the collector ditch including removing any lining materials and sediments along the length of the existing collector ditch alignment, dewatering as necessary, filling the existing collector ditch with engineered fill, removal of unsuitable soils along the proposed collector ditch alignment, excavating/grading for proposed collector ditch alignment, placing lining materials in the proposed collector ditch (2NS Fine Aggregate, 17A Coarse Aggregate, and 3x1 Coarse Aggregate), removing and replacing the existing culvert, and removing the

existing headwall and constructing the new headwall for the relocated culvert as indicated on the drawings. Excluded from this pay item is any material removed and backfilled within the footprint of the reverse filter as included in Item No. 12. Payment for this item will be paid in full after the work is completed, inspected, and approved by the Engineer.

Item No. 19 – Provide Dewatering for Collector Ditch Abandonment and General Dewatering.

1. Payment for this lump sum item shall constitute payment for all labor, materials, and equipment necessary to dewater the existing collector ditch during the abandonment process as well as any dewatering required to control groundwater migration into excavations associated with the removal of unsuitable soils following removal of the existing topsoil with the stabilization berm construction limits. This item will be paid in full after the collector ditch is abandoned, backfilled, and the Engineer has approved cessation of dewatering.

Item No. 20 – Inspect and Abandon Toe Drains TD-12 through TD-59.

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to inspect and abandon the Toe Drains per Contract Requirements and will be paid following abandonment of TD-12 through TD-59 and inspected and approved by the Engineer.

Item No. 21 - Place and Compact MDOT 2NS Fine Aggregate for the Stabilization Berm and Granular Filter Above and Below the Mineral Drain.

1. Measurement: Payment shall be based on the volume (in cubic yards) of 2NS Fine Aggregate Filter Material placed and compacted.
2. The contract unit price for 2NS Fine Aggregate shall constitute full payment for all labor, materials, and equipment necessary to place and compact the Fine Aggregate in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 22 - Place and Compact MDOT 17A Coarse Aggregate for the Mineral Drain.

1. Measurement: Payment shall be based on the volume (in cubic yards) of Coarse Aggregate Filter Material placed and compacted.
2. The contract unit price for 17A Coarse Aggregate shall constitute full payment for all labor, materials, and equipment necessary to place and compact the Coarse Aggregate in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 23 - Place and Compact MDOT Class II Granular Fill for the Stabilization Berm

1. Measurement: Payment shall be based on the volume (in cubic yards) of Granular Fill Material placed and compacted.
2. The contract unit price for Class II Granular Fill shall constitute full payment for all labor, materials, and equipment necessary to place and compact the Granular Fill in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 24 - Place Topsoil on the Stabilization Berm

1. Measurement: Payment shall be based on the volume (in cubic yards) of Topsoil placed.
2. The contract unit price for Topsoil shall constitute full payment for all labor, materials, and equipment necessary to place the Topsoil in accordance with the drawings and specifications.
3. Payment will occur after being inspected and approved by the Engineer.

Item No. 25 - Demolish Existing Piezometer Surface Monuments. Raise Existing Piezometers and Install Locking Monuments. Install Overland Discharge of Artesian Flow at PZ-3. Install Underdrain system (Perforated and Solid-Wall), Including Cleanouts, T Inspections, and Surface Monuments

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications and will be paid following completion of all work and after being inspected and approved by the Engineer.

Item No. 26 - Construct the Permanent Access Path and Improve Existing Path Areas South of the Underpass and North of the Underpass as Shown on Sheets 22-28, 32-38, 41, and 45.

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary and will be paid following completion of all work and after being inspected and approved by the Engineer.

Item No. 27 - Remove, Dispose of, and Replace Stairway and Guard Railing Atop the Adjacent Spillway Retaining Wall

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary in accordance with the drawings and specifications and will

be paid following completion of all work and after being inspected and approved by the Engineer.

Item No. 28 - Remove and Dispose of Temporary Surface Course and Construct Final Pavement at Underpass. Replace Access Path Canopy and Railing

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications and will be paid following completion of all work and after being inspected and approved by the Engineer.

Item 29 – Excavate and Dispose of Soils for Compensatory Flood Plain Cut (as Shown on Sheet 27).

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications and will be paid following completion of all work and after being inspected and approved by the Engineer.

Item No. 30 - Revegetation of the Work Area and Final Site Restoration, including repairs to Border-to-Border Path. Fill Ruts in the Existing Site Access Road and the Barton Nature Area Parking Lot.

1. Payment for this lump sum item shall constitute full payment for all labor, materials, and equipment necessary to perform the work in accordance with the drawings and specifications and will be paid following completion of all work and after being inspected and approved by the Engineer.

Item No. 31 – Allowance for Owner/Engineer Directed Work

1. This item is related to Discretionary allowance for Owner/ Engineer directed changes to the Contract sum resulting from additions, alterations, and administrative adjustments in the Contract Work.
2. This item includes payment for various items of Owner/Engineer directed additional Work, Work that is changed or altered by the Engineer or Project Owner, will be addressed under this Line Item and use of this line item will be entirely at the Owner's sole discretion. The conditions for payment will be in accordance with the General Conditions of the Contract.

Item No. 32 - Allowance for Permitting and Associated Requirements

1. Fees will be reimbursements in full for applicable permit fees and inspection fees incurred by the Contractor toward obtaining applicable permits and inspection fees from government agencies and municipalities to facilitate performing the scope of work required in the Contract Documents.

2. Payment for permits will be paid following proof of payment of each permit by the contractor and approval by the Engineer.

Item No. 33 - Allowance for Additional FERC Requirements

1. Fees will be reimbursements in full for any additional FERC requirements incurred by the Contractor to facilitate performing the scope of work required in the Contract Documents.
2. Payment for these requirements will be paid following proof of payment of each requirement by the contractor and approval by the Engineer.

Item No. 34 - Allowance for Purchase of Wetland Credits per EGLE Requirements

1. Fees will be reimbursements in full for the purchase of wetland credits required by EGLE and incurred by the Contractor to facilitate performing the scope of work required in the Contract Documents.
2. Payment for wetland credits will be paid following proof of payment by the contractor from the wetland bank (Crandall/Krummrey) and EGLE.

Item No. 35 - Project Closeout

1. Payment for this lump sum item will be paid following completion of all work per Contract requirements and after approval by the Engineer.

Item No. 36 - Administrative Compliance with CWIFP, AIS, Davis Bacon, Certified Payroll and Other Regulatory Reporting.

1. Payment for this lump sum item will be paid following completion of all work per Contract requirements and after approval by the Engineer.

Alternate Item No. 1 – Remove Existing Gabions Between Underpass and Spillway and Construct Modular Block Wall Between Underpass and Spillway, Including Associated Backfill

1. Payment for this lump sum item will be paid following completion of all work associated with this alternate item in accordance with the drawings and after being inspected and approved by the Engineer.

PART 2 MATERIALS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

**SECTION 01 29 00
PAYMENT PROCEDURES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of Values.
- B. Initial Application of Payment
- C. Application for Payment
- D. Application for Payment at Substantial Completion
- E. Final Payment Application

1.2 RELATED SECTIONS

- A. Section 01 33 00 - Submittal Procedures

1.3 SCHEDULE OF VALUES

- A. Submit typed schedule for review and approval. The approved schedule of values will be used to prepare future Applications for Payment.
- B. Submit Schedule of Values in PDF format to the Engineer within 15 days after date of Owner-Contractor Agreement.
- C. Format: Identify each line item with number and title of the major specification Section.
- D. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
- E. Revise schedule to list approved Change Orders, with each Application for Payment.
- F. Include the following Project Identification on the Schedule of Values:
 - 1. Project Name and Location
 - 2. Name of Engineer
 - 3. Project Number
 - 4. Contractor's Name and Address
 - 5. Date of Submittal

- G. Arrange Schedule of Values in a tabular form with separate rows for each Specification Section and separate columns for each major structure of area of Work. Additionally, separate line items for the following shall be included:
 - 1. Mobilization (Maximum 5% of Contract Total)
 - 2. Bonds & Insurance
 - 3. Allowances
 - 4. Project Close-Out
- H. Provide a breakdown of the Contract Price in sufficient detail to facilitate continued evaluation of Application for Payment and progress reports. Break principal subcontract amounts down into several line items.

1.4 INITIAL APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede submittal of the first Application for Payment include the following:
 - 1. List of Subcontractors
 - 2. List of Principal Suppliers and Fabricators
 - 3. Schedule of Values
 - 4. Contractor's Construction Schedule (preliminary, if not final)
 - 5. Submittal Schedule (preliminary if not final)

1.5 APPLICATIONS FOR PAYMENT

- A. Submit each pay application in electronic PDF format.
- B. Content and Format: Utilize Schedule of Values and Change Orders for listing items in Application for Payment.
- C. Payment Period: Payments made according to the schedule described in the General Conditions and or in accordance with the Owner's requirements.
- D. With each copy of the applications submit Waiver of Lien from all subcontractors or suppliers for work included in Application for Payment, other than the first pay application.
- E. Submit a completed Contractor's Declaration with each Application for Payment.

- F. A copy of the current Project Schedule Update as returned by Engineer with “No Exceptions”.

1.6 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION

- A. Following issuance of Certificate of Substantial Completion, submit an Application for Payment.
- B. Administrative action and submittals that shall proceed or coincide with this application include:
 - 1. Occupancy permits and similar approvals.
 - 2. Warranties (guarantees) and maintenance agreements..
 - 3. Test/adjust/balance records.
 - 4. Changeover information related to Owner’s occupancy, use, operation and maintenance.
 - 5. Final cleaning.
 - 6. Application for reduction of retainage, and consent of surety.
 - 7. Advice on shifting insurance coverage.
 - 8. List of incomplete work, recognized as exceptions to Engineer’s Certificate of Substantial Completion.
 - 9. As-Built Drawings.

1.7 FINAL PAYMENT APPLICATION

- A. Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:
 - 1. Completion of Project Closeout requirements.
 - 2. Completion of items specified for completion after Substantial Completion.
 - 3. Assurance that unsettled claims will be settled.
 - 4. Assurance that work not complete and accepted will be completed without undue delay.
 - 5. Proof that taxes, fees, and similar obligations have been paid.
 - 6. Removal of temporary facilities and services.

7. Removal of surplus materials, rubbish, and similar elements.
8. Change of door locks to Owner's access.
9. Contractor's waivers of liens for project.
10. Written description of how all punch list items were addressed.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project Superintendence
- B. Coordination and project conditions.
- C. Field engineering.
- D. Pre-Construction Conference.
- E. Site Mobilization Meeting.
- F. Progress meetings.
- G. Preinstallation meetings.

1.2 PROJECT SUPERINTENDENCE

- A. Contractor's superintendent shall be on site whenever active construction activities are ongoing. The assigned superintendent will have functional authority over construction activities for the duration of the project.

1.3 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate with utility companies for construction of utilities to the construction site.
- B. Coordinate with Owner/Engineer to request Owner-supplied surveying. The Owner-supplied Surveyor will provide a quality control check of the Contractor's lines and grades as contained in the project drawings. The Owner-supplied Surveyor will also verify excavation and fill volumes where payment is based on the actual volume of materials removed or placed during construction, such as compensatory cut excavation and placement of the granular filter. For payment verification purposes, the Contractor must provide safe access to the area requiring survey throughout the project. Further, if the Contractor identifies areas that require Owner verification, he must notify the Owner's Surveyor at least 24 hours in advance of the anticipated survey need.
- C. Coordinate with other contractors to complete connections to other work.
- D. Coordinate construction operations included under different Section of the Specifications that are dependent upon each other for proper installation, connection, and operation. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results. Where availability of space is limited,

coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair. Make adequate provisions to accommodate items scheduled for later installation.

- E. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at Site in accordance with Laws or Regulations. Contractor shall train Contractor's employees on use of these sheets and shall keep a master copy on hand at site.
- F. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Schedules
 - 2. Installation and removal of temporary facilities.
 - 3. Delivery and processing of submittals.
 - 4. Progress meetings.
 - 5. Request of information.
 - 6. Project closeout activities.
- G. Coordinate scheduling, submittals, and Work of the various sections of the Contract Documents to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- I. Coordinate activities and laydown areas with other contractors that may be on site to perform other work, such as construction of the Border to Border Trail.

1.4 FIELD ENGINEERING

The Contractor shall be responsible for the following:

- A. Protect survey control and reference points. Promptly notify Engineer of any discrepancies discovered.
- B. Control datum for survey is shown on Drawings.
- C. Field-verify all dimensions and measurements.
- D. Verify setbacks and easements; confirm drawing dimensions and elevations.

- E. Provide field-engineering/survey services as needed to perform tasks utilizing recognized engineering survey practices - establish elevations, lines, and levels, etc.
- F. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- G. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- H. Replace dislocated survey control points based on original survey control. Make no changes without prior written Notice to Engineer.
- I. Protect all existing open standpipe and vibrating wire piezometers at the site. Notify the Engineer immediately if any are damaged and promptly facilitate repairs.
- J. The Contractor shall have an independent utility locating firm mark the alignment of all underground utilities at the site, including all buried utilities that enter or leave the existing pump station at the site.

1.5 PRE-CONSTRUCTION CONFERENCE

- A. Owner will schedule a pre-construction conference and organizational meeting at the site or other convenient location prior to commencement of construction activities to review responsibilities and personnel assignments.
- B. Attendees: Owner, Engineer and Engineer's consultants, Contractor and its project manager and superintendent, major subcontractors, manufacturers, suppliers, utility companies, and other concerned parties shall be represented at the conference by persons familiar with, and authorized to conclude, matters relating to the work.
- C. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. Site Access and Badging
 - 2. Mobilization Schedule
 - 3. Tentative Construction Schedule.
 - 4. Critical Work Sequencing.
 - 5. Designation of Responsible Personnel.
 - 6. Coordination with Other Construction Work and Other Contractors.
 - 7. Procedures for Processing Field Decisions and Change Orders.
 - 8. Procedures for Processing Applications for Payment.
 - 9. Distribution of Contract Documents.
 - 10. Submittal of Shop Drawings, Product Data, Samples and Schedule.

11. Preparation of Record Documents.
12. Use of the Premises.
13. Office, Work, and Storage Areas.
14. Equipment Deliveries and Priorities.
15. Contractor's Quality Assurance Plan.
16. Safety Procedures.
17. First Aid
18. Security.
19. Housekeeping.
20. Working Hours.
21. Stormwater Management and Soil Erosion Control Provisions.
22. Utility Contacts.

D. In addition to the Pre-Construction Conference, the Engineer may also require a Pre-Excavation, Concrete Pre-Pour Conference, and/or other critical activity conferences. Contractor and Subcontractors performing excavation work on site shall describe their plans for shoring, dewatering, disposal of spoils, and any other particulars of the excavation process, including the technical basis for their selection of the means and methods to be employed.

1.6 SITE SAFETY MEETING

- A. The Contractor will schedule a conference at the project site prior to the Contractor's occupancy.
- B. Attendance should include the Owner, Engineer, Contractor's Superintendent, Contractor's Safety Officer(s), and all subcontractors.
- C. Agenda:
 1. Safety Procedures.
 2. First Aid
 3. Security

1.7 PROGRESS MEETINGS

The Contractor shall:

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record and distribute the minutes.
- C. Attendance Required: job superintendent, major subcontractors and suppliers, Owner, and Engineer as appropriate to agenda topics for each meeting.
- D. Prepare an agenda to include the following items as appropriate per meeting:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of RFIs.
 - 7. Review of off-site fabrication and delivery schedules.
 - 8. Maintenance of progress schedule.
 - 9. Corrective measures to regain projected schedules.
 - 10. Planned progress during succeeding work period.
 - 11. Coordination of projected progress.
 - 12. Maintenance of quality and work standards.
 - 13. Effect of proposed changes on progress schedule and coordination.
 - 14. Other business relating to Work.
- E. Record minutes and distributes copies within two days after meeting to participants, with copies to Engineer, Owner, participants, and those affected by decisions made.
- F. Submit updated construction schedule to the Owner/Engineer for review two days before each progress meeting.
- G. Revise construction schedule as needed after each progress meeting and resubmit to the Owner/Engineer with the meeting minutes.

1.8 PREINSTALLATION COORDINATION MEETING

- A. When required in individual specification sections, or as deemed necessary by the Contractor, Engineer, or Owner, the Contractor shall convene a preinstallation coordination meeting at the site prior to commencing work and shall:
 - 1. Require attendance of parties directly affecting, or affected by, work of the specific section.
 - 2. Notify Owner/Engineer five working days in advance of meeting date.
 - 3. Prepare agenda and preside at meeting:
 - 4. Review conditions of shutdown, installation, preparation, and installation procedures.
 - 5. Review coordination with related work.

6. Record minutes and distribute copies within two days after meeting to participants, with copies to Engineer/Owner participants, and those affected by decisions made.

1.9 FINAL INSPECTION MEETING

- A. When the Contractor has provided written notice that the project is complete, a final inspection meeting shall be scheduled with the Contractor, Engineer, and Owner.
- B. Engineer will notify the Contractor in writing of all items which this inspection reveals to be incomplete or defective.
- C. Contractor shall immediately take all necessary measures to remedy such deficiencies. A written description of how each item has been addressed shall be submitted to the Engineer and Owner.

1.10 CLOSEOUT/WARRANTY MEETING

- A. Prior to final application for payment, a closeout/warranty meeting shall be scheduled with the Contractor, Engineer, and Owner.
- B. Meeting agenda shall include:
 1. Project record document review.
 2. Verify receipt of spare parts and maintenance products.
 3. Review preventative maintenance schedule.
 4. Review submitted warranties and bonds.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal Procedures
- B. Certifications
- C. Shop Drawings
- D. Product Data
- E. Samples
- F. Manufacturers' Instructions
- G. Manufacturers' Field Reports
- H. Construction Schedule
- I. Submittal Schedule

1.2 SUBMITTAL PROCEDURES

- A. Bundle each submittal into a single PDF document, which shall include a cover sheet/transmittal prepared by the Contractor. Submittals where the cover sheet/transmittal is separate from the content will be rejected. Transmit each submittal from Contractor to Engineer using email. Submittals received from sources other than Contractor will be returned without action. Items from different specification sections shall be bundled individually. Number each submittal consecutively. Resubmittals should have the same number as the original, plus a letter designation for each Resubmittal (i.e., 7-A, 7-B)
- B. Indicate on the cover sheet/transmittal relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements. On Resubmittal, all changes shall be clearly identified for ease of review. Resubmittals shall be reviewed for the clearly identified changes only. Any changes not clearly identified will not be reviewed and original submittal shall govern.
- C. Include the following information on the cover sheet/transmittal for processing and recording action taken.
 - 1. Project name.
 - 2. Date.

3. Submittal number.
 4. Name and email of Engineer.
 5. Name, street address and email of Contractor.
 6. Index of contents (This may be included on a separate sheet following the cover/transmittal.)
 7. Name and address of subcontractor, as applicable. (May be included in the body of the submittal.)
 8. Name and address of supplier, as applicable. (May be included in the body of the submittal.)
 9. Name of manufacturer, as applicable. (May be included in the body of the submittal.)
 10. Number and title of appropriate specification sections.
 11. Drawing number and detail references, as appropriate.
 12. Contractor's approval of the contained submittal for compliance with the Drawings and Specifications.
- D. Schedule submittals to expedite the Project and deliver to Engineer at business address. Coordinate submission of related items. Coordinate related activities that require sequential activity.
- E. Submit a schedule of shop drawing submittals.
- F. Review and approve shop drawings, project data, and samples before submitting them.
- G. Verify field measurements, field construction criteria, catalog numbers, and similar data. Indicate on the submission exactly what was verified.
- H. Any markings done by Contractor shall be done in a color other than red. Red is reserved for Engineer's marking.
- I. Coordinate each submittal with the requirements of the Contract Documents.
- J. Provide space for Contractor and Engineer review stamps.
- K. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

- L. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- M. No claim will be allowed for damages or extension of time because of delays in the work resulting from rejection of material or from revision and resubmittal of shop drawings, project data, or samples.
- N. No extension of contract time will be authorized because of failure to transmit submittals to Engineer sufficiently in advance of the work to permit processing.
- O. Engineer reserves the right to withhold action on a submittal required coordination with other submittals until related submittals are received.
- P. Do not install materials or equipment which requires submittals until the submittals are returned with Engineer's/Owner's stamp and initials or signature indicating approval. The Owner shall have final approval authority.
- Q. Contractor's responsibility of errors, omissions, and deviations from requirements of Contract Documents in submittals is not relieved by the Engineer's review.
- R. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with requirements.
- S. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- T. Submittals not requested in conformance with this Specification will not be recognized or processed.
- U. Revise and resubmit as required, identify all changes made since the previous submittal.
- V. In the event that more than two re-submittals of any submittal are necessary to achieve conformance to the contract requirements, Contractor shall be charged for excess engineering. The Owner shall deduct these charges from the Contractor's final payment. Charges will be \$150.00/hr. minimum 4 hours, for each additional submittal of an item. A tabulated record of such charges will be provided for the Contractor's review prior to the processing of the final payment.
- W. Submit new project data and samples when the initial submittal is returned disapproved.

1.3 CERTIFICATIONS

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate that the material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

- C. Certifications may be recent or previous test results of the material but must be acceptable to Engineer.

1.4 SHOP DRAWINGS

- A. Shop Drawings: Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute them in accordance with Paragraph 1.2 - Submittal Procedures.
- B. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the project is not considered shop drawings.
- C. Shop drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. Include the following information:
 - 1. Dimension.
 - 2. Identification of products and materials included.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurements.
- D. Nameplate data for equipment including electric motors shall be included on shop drawings. Electric motor data shall state the manufacturer, horsepower, service factor, voltage, enclosure type, oversize wiring box, etc.
- E. Shop drawings shall indicate shop painting requirements to include type of paint and manufacturer.
- F. Standard manufactured items in the form of catalog work sheets showing illustrated cuts of the items to be furnished, scale details, sizes, dimensions, quantity, and all other pertinent information should be submitted and approved in a similar manner.
- G. Measurements given on shop drawings or standard catalog sheets, as established from contract drawings, and as approved by the Engineer, shall be followed. When it is necessary to verify field measurements, they shall be checked and established by Contractor. The field measurements so established shall be followed by Contractor and by all affected trades.
- H. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.5 PRODUCT DATA

- A. Product Data: Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with Paragraph 1.2 - Submittal Procedures.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- C. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

1.6 SAMPLES

- A. Submit full-size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers or materials, color range sets, and swatches showing color, texture, and pattern.
- B. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated. Prepare samples to match Engineer's sample. Include the following:
 - 1. Generic description of the sample.
 - 2. Sample source.
 - 3. Product name or name of manufacturer.
 - 4. Compliance with recognized standards.
 - 5. Availability and delivery time.
- C. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- D. Refer to other specifications sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
- E. Preliminary Submittals: Where samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product. Preliminary Submittals will be reviewed and returned with Engineer's mark indicating selection and other action.
- F. Except for samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. One will be returned marked with the action taken.

- G. Maintain sets of samples, as returned, at the site, for quality comparisons throughout the course of construction.
- H. Unless noncompliance with Contract Document provisions is observed the submittal may serve as the final submittal.
- I. Sample sets may be used to obtain final acceptance of the construction associated with each set.

1.7 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.8 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Owner.
- B. Submit report in duplicate, within 7 days of observation, to Engineer and Owner for Information.
- C. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.9 CONSTRUCTION SCHEDULE

- A. Bar Chart Schedule:
 - 1. Prepare a fully developed, horizontal bar chart type construction schedule. Schedule shall be prepared electronically in Microsoft Project with critical path and links shown. Submit a PDF of the schedule within 30 days of the date established for commencement of the work.
 - 2. Provide a separate item bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the work as indicated on schedule of values.
 - 3. Prepare schedule of sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for entire construction period.
 - 4. Secure time commitments for performing critical elements of the work from parties involved. Coordinate each element on schedule with other construction activities; include minor elements involved in the sequence of the work. Show each activity

in proper sequence. Indicate graphically sequences necessary for completion of related portions of the work.

5. Coordinate construction schedule with schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other schedules.
 6. Indicate completion in advance of the date established for substantial completion. Indicate substantial completion of schedule to allow time for Engineer's procedures necessary for certification of substantial completion.
 7. Contractor's schedule shall indicate that the grouting program at TD-23 and TD-43 be completed within 60 days of contract execution.
- B. Schedule Updating: Provide an updated construction schedule at each progress meeting. Color copies of the updated schedule shall be prepared for all attendees. The current revision date shall appear on each page of all submitted schedules.

1.10 SUBMITTAL SCHEDULE

- A. After development and acceptance of the construction schedule, prepare a complete schedule of submittals. Submit schedule within 10 days of the date required for establishment of construction schedule.
- B. Coordinate submittal schedule with the list of subcontracts, schedule of values, and the list of products as well as construction schedule.
- C. Prepare schedule in chronological order; include submittals required during the first 90 days. Provide the following information:
 1. Scheduled date for the first submittal.
 2. Related section number.
 3. Submittal category.
 4. Name of subcontractor.
 5. Description of the part of the work covered.
 6. Scheduled date for Resubmittal.
 7. Scheduled date for Engineer's final release or approval.
- D. The submittal schedule shall reflect critical path shop drawings that must be expedited.
- E. Following response to initial submittal, print and distribute copies to Engineer, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office.
- F. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.
- G. Schedule Updating: Provide an updated submittal schedule at each progress meeting.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.1 ENGINEER'S ACTION

- A. Except for submittals for record, information, or similar purposes, where action and return are required or requested, Engineer will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is Contractor's responsibility.
- B. Action Stamp: Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "No Exceptions Taken" that part of the work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents; final acceptance will depend upon the compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Make Corrections Noted" that part of the work covered by the submittal may proceed, provided it complies with notation or correction on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Returned for Resubmittal: When submittal is marked "Rejected" or "Revise and Resubmit" do not proceed with the part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Rejected" or "Revise and Resubmit" to be used at site, or elsewhere where work is in progress.
 - 4. Additional Information Needed: When submittal is marked "Submit Specified Item" Contractor shall submit requested information.
 - 5. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Acknowledge Receipt".
 - 6. The approval of Engineer shall not relieve Contractor of responsibility for errors on drawings or submittals as Engineer's checking is intended to cover compliance with drawings and specifications and not enter into every detail of the shop work.

END OF SECTION

**SECTION 01 35 13
GENERAL PROVISIONS**

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

- A. Requirements stated in Division 1 of these Specifications shall apply to all work in this Section.

PART 2 MATERIALS

(Not Used)

PART 3 EXECUTION

3.1 CONSTRUCTION DOCUMENTS

- A. The work shall conform to the drawings and specifications entitled "Barton Dam, Right Embankment Remediation".
- B. The parts and details not fully shown on the drawings shall be executed by the Contractor with the best-established industry and construction practices and as directed by the City Project Representative.
- C. The Contractor will be furnished four (4) sets of plans and specifications without charge. Additional plans and specifications will be furnished upon written request at the cost of reproduction.

3.2 LIMITATIONS OF OPERATIONS

- A. The Contractor shall limit his operations to cause as little disturbance as possible to areas outside the Construction Work Limits.
- B. Access to the site shall be off West Huron River Drive via the passage under the railroad bridge, and within the Construction Work Limits only. However, no equipment or materials shall be stored outside of the property owned by the City. Access to the site is also permitted via boat and floating plant (see Item D below). Access to the site will not be permitted from other locations including unauthorized crossings of the existing railroad right of way.
- C. Working hours shall be restricted to Monday through Friday, 7:00 am until 6:00 pm, excluding State and Federal recognized holidays, unless authorized otherwise by the City. In addition, power-operated construction-type devices and equipment shall not be operated at any time in such a manner that the noise created substantially exceeds the noise customarily and necessarily attendant to the reasonable and efficient performance of such devices and equipment.

- D. The Contractor shall perform his work in such a manner, and maintain the site in such a condition, that unfettered access to the site is maintained for City personnel and equipment at all times.
- E. The Contractor shall review all drawings, soil boring logs, gradation results, and laboratory testing results from the soil borings performed at the site (attached), and site conditions as required to be familiar with the subsurface conditions, groundwater seepage potential, and potential dewatering requirements. The soil boring logs, gradation results, and laboratory testing results are provided for information only and are not a guarantee of actual site conditions.
- F. The Contractor shall provide a full-time flagger at the site to facilitate safe coordination between construction traffic, private vehicles, and pedestrians.
- G. During topsoil stripping and site preparation operations on the existing dam, the contractor will be limited to working in strips no wider than 100 feet, as measured perpendicular to the axis of the dam. Concurrent working strips may not be located closer than 200 feet from each other (edge-to-edge). For each strip in which topsoil is removed, the surface grade must be returned to its original elevation prior to the completion of work for each day. As such, the contractor must plan daily activities to meet this project requirement.
- H. The Contractor will be required to construct access haul routes as noted on the contract drawings. Further, at no time will the contractor be allowed to use the existing dam crest as a haul route other than for the placement of fill at specific locations on the crest as noted on the Drawings.
- I. The Contractor shall abide by the construction loading limitations presented on the Drawings unless approved in writing by the Engineer. Upon request, the Contractor shall provide the Engineer with dimensions, payloads, and other equipment specifications necessary to evaluate the loading associated with the equipment to be used. If the Engineer finds the loading to be in excess of the permissible limits, the Contractor shall not use the unacceptable equipment.

3.3 USE OF PREMISES

- A. The Contractor shall contact the City prior to beginning work regarding any specific regulations concerning the use of premises.
- B. Should the contractor desire to utilize any space within the enclosed pump station area, the Contractor shall "daisy chain" their locks onto the existing gates so as not to impair pump station access for City personnel and to maintain security of the property.

3.4 CONSTRUCTION EMPLOYEE PARKING AREAS

- A. Construction employee parking areas shall be designated by the City prior to beginning work.

3.5 CONSTRUCTION LAYOUT

- A. The Contractor shall be responsible for establishing the construction base lines in the field from the information given on the drawings and any additional survey and construction layout as required. No separate payment will be made for this work. The cost shall be included in other items of work.
- B. Prior to the start of construction, the contractor will be responsible for delineating all wetland boundaries within the contractor's work area. Delineation requires the placement high visibility stakes or fencing to identify all wetland boundaries.

3.6 CONTRACTOR'S FIELD OFFICE

- A. A field office is required for this project in accordance with Section 809 of the MDOT Standard Specifications for Construction (SSC). The field office shall be located within the laydown area or the fenced pump station area identified in the contract drawings. The field office shall include restroom facilities as well as secure Wi-Fi internet access. The field office shall include furnished working space for all the City's Project Representatives including on-site engineering and surveying staff.

3.7 REFERENCE TO MDOT SPECIFICATIONS

- A. Whenever reference is made to the State of Michigan, Department of Transportation, Standard Specifications for Constructions (MDOT-SSC), the section or item number will be referred to and such reference, except for pay items, units of measure, and quantities, shall govern the conduct of the work herein, and have the same force and effect as though transcribed into these Specifications. The 2020 issue of the MDOT-SSC shall govern this project and shall be referred to throughout these Specifications as "MDOT". Pay items, units of measure, and quantities shall be in accordance with the contract Drawings, Detailed Specifications, Engineers Estimate, and Bid Schedule for the project.

3.8 WETLAND CREDITS

- A. The Contractor shall purchase wetland mitigation credits from Crandell Environmental of Charlotte, Michigan to satisfy the permit requirements for the project. Crandell shall issue a certificate acceptable to EGLE for satisfaction of the permit. The City will then forward the certificate to EGLE for issuance of the finalized permit. The designated allowance in these specifications shall be used for purchasing the credits.

3.9 OVERHEAD AND PROFIT MARK-UP

- A. On direct subcontractor change order work, the Contractor is limited to a maximum of 10% mark-up to cover the costs of overhead and profit.

3.10 SHOP DRAWINGS, SUBMITTALS, AND CERTIFICATIONS REQUIRED

- A. See Section 01 33 00, Part 1, of the General Specifications for submittal procedures. The following is a list of shop drawings, submittals, and certifications required and shall be reviewed and approved by the Engineer prior to the Contractor ordering equipment or materials for that work activity.
1. Excavation and Grading Plans – Equipment uses, quality control and verification measures, understanding of site excavation restrictions.
 2. Backfill and Compaction Plans – Equipment planned, lift thicknesses and density compliance testing.
 3. Removal of Unsuitable Material Plan – Site limitations/restrictions of excavation, dewatering requirements and procedures, disposal requirements.
 4. Proposed Stabilization Berm and Pond Infill Materials – Material and supplier data.
 5. Proposed Collector Ditch Materials – Material and supplier data.
 6. Soil Erosion and Sediment Control Plans – SESC methods and implementation, street sweeping plans, maintenance, and inspection plans.
 7. Grouting Work Plan – Subcontractor, experience, onsite supervision, equipment, mix design, pressure gauges, drilling methods and equipment.
 8. Instrumentation Protection Plan – Details, materials, and procedures to protect existing and new instruments, including but not limited to piezometers and survey points.
 9. Abandonment Plan for Existing Toe Drains – Procedures, equipment, and materials.
 10. Culvert Abandonment and Backfill – Procedures, equipment, and materials. measures. Reference Section 31 23 23, “Flowable Fill”.
 11. Handrailing Shop Drawings – Materials and installation methods.
 12. Fill Materials – MDOT pre-qualified supplier and gradations.
 13. Seed Mixture – Supplier and seed mix makeup.
 14. Geotextile Separation Fabric – Manufacturer, catalog cut sheet, installation procedures.
 15. Geogrid – Manufacturer, catalog cut sheet, installation procedures.
 16. Dewatering Plan for Reverse Filter Removal - Well point installation method, suction pipe configuration, water conveyance and disposal, drawdown measurement, backup systems planned.
 17. Dewatering Plan for Collector Ditch Pond Cleanout and Filling – Well point installation method, suction pipe configuration, water conveyance and disposal, drawdown measurement, backup systems planned.

18. Dewatering Plan for Collector Ditch Removal and Backfilling - Well point installation method, suction pipe configuration, water conveyance and disposal, drawdown measurement, backup systems planned.
19. Pipes, Pipe Couplings, Caps, Cleanouts, and Accessories – Product details and installation procedures.
20. Modular Block Wall Product Specifications and Shop Drawings, Including Wall Layout Plans for Each Wall – Material color, mix design, base preparation procedures and equipment, installation techniques and equipment planned, backfill procedures, and installation plans.
21. Canopy Plans and Product Data – Fabrication shop drawings, materials planned, shop erection, planned site erection and field welding / bolting.
22. Stairway Materials – Material supplier and material certifications, installation procedures, field construction methods and contractor experience.
23. Canoe and Kayak Launch Access Plan – Routes and methods to maintain safe access to and from the existing canoe and kayak launch on the Huron River.

3.11 CHECK SURVEYS

- A. The Contractor will be required to perform check surveys prior to and following work operations to determine excavation and in-place backfill quantities. Costs involved in this work shall be included in other items of work; no separate or additional payments will be made.
- B. In addition, the Owner's provided Surveyor will verify all excavation volumes associated with pay quantities that require verification.

3.12 DAMAGES

- A. The Contractor shall be solely responsible for any and all damages on City-owned and private properties that are a result of the Contractor's construction activities. These construction activities will include, but not be limited to; demolition activities; clearing and grubbing operations; grading and other earthwork activities; dewatering; cut slope instabilities; support of excavation instabilities; construction traffic; or other construction operations or activities. Any damages on City-owned or private properties that are a result of the Contractor's construction activities shall be repaired by the Contractor at no cost to the City.
- B. Any mitigations or other construction techniques necessary to reduce the potential for damage on City-owned and private properties shall be presented in the appropriate shop drawing submittal. The costs for these mitigations or techniques shall also be included in the bid price for the respective elements of work.

- C. The work consists of the improvements to an existing infrastructure element where existing features are critical to the safe operation of the existing facility. The Contractor shall take extreme care to avoid damaging existing features of the projects that are not to be demolished. Any existing features that are damaged by the Contractor shall be promptly repaired at no cost to the City.
- D. The Contractor shall be responsible for protecting any exposed surfaces on the dam or other structures during non-work periods, including during winter months when extended periods of non-work may occur. This protection will include but not be limited to potential erosion or damage to the dam from flood events or water seepage.

3.13 RECORDS AND REPORTS

- A. The Contractor shall maintain daily records of construction activities; various bid item quantities completed along with other relevant information and provide copies of such records to the Project Representative upon request.
- B. Within five days following the end of each calendar month, submit to the Project Representative a typed report summarizing the construction activities, various bid item quantities completed along with other relevant information for that month.

3.14 LAKE AND RIVER OPERATIONS

- A. The pool level of Barton Pond shall not be lowered beyond those levels established by the City. The City does not anticipate any pool drawdown during the course of this project.
- B. The water level of the Huron River is not to be lowered beyond those levels established by the City. However, the City does not anticipate any river level drawdown during the course of this project.

3.15 PROJECT COMPLETION

- A. The substantial completion date for construction is expected to be ***September 15, 2025***, with final completion being ***November 30, 2025***.

END OF SECTION

SECTION 01 57 13
SOIL EROSION AND SEDIMENTATION CONTROL

PART 1 DESCRIPTION

1.1 SUMMARY

- A. This work consists of installing and maintaining erosion and sedimentation controls to minimize soil erosion and control sediment from leaving the work site and affecting water resources of the State of Michigan and adjacent properties. Complete this work in accordance with this section and the City of Ann Arbor's SESC Manual. The Department considers the terms "stabilization" and "erosion control measures" as defined in the SESC Manual. The Contractor is responsible for obtaining the SESC permit from the City of Ann Arbor.
- B. Failure to install and maintain soil erosion controls may result in project shutdown, fines from EGLE, or both. The Contractor is responsible for obtaining applicable federal, state, and local permits when disturbing areas outside the project work area.

PART 2 MATERIALS

2.1 Materials in accordance with the following MDOT sections:

Geosynthetics (Silt Fence Fabric)	910
Turbidity Curtain	916

PART 3 EXECUTION

3.1 AREA LIMITATIONS

- A. Limit the area of earth disturbance to approximately 1.6 acres during clearing and grading. The Engineer may change the limits of exposed surface area based on the Contractor's ability to minimize erosion and prevent offsite sedimentation.
- B. Do not disturb lands and waters outside the project limits of earth disturbance without prior approval from the Engineer. Restore Contractor-disturbed areas beyond the plan or Engineer-approved limits at no additional cost to the Department.
- C. Obtain and give the Engineer copies of local, state, or federally required permits before disturbing sites outside the right-of-way, such as borrow, waste or disposal areas, haul roads, or storage sites. Provide temporary and permanent erosion and sedimentation controls in accordance with the permits.

3.2 TIME LIMITATIONS

- J. Clearing and grubbing of the work area shall be performed in strips no wider than 100 feet, as measured perpendicular to the axis of the dam. Concurrent working strips may not be located closer than 200 feet from each other (edge-to-edge). During this portion of the work, any exposed unsuitable materials must be locally excavated, removed, and replaced

with engineered fill. Excavations to remove and replace unsuitable materials must be limited to 250 square feet, as measured at the original ground surface. If the unsuitable materials extend beyond the 250-square-foot limit, the excavation shall be staged to excavate and backfill the initial 250 square feet prior to moving to the adjacent area. Excavations required for removal of unsuitable materials must at all times conform to MIOSHA requirements.

- A. At all times, any surficial excavation associated with removing existing topsoil or uncovered materials that are unsuitable for the final embankment construction must be backfilled to the original grade prior to the completion of work for the day. Absolutely no excavated areas shall be left over night without their original grade being restored.
- B. Following revetment and relocated toe ditch construction. Complete topsoil placement and stabilize slopes, channels, ditches, and other disturbed areas within 5 calendar days after final earth grade with permanent soil erosion control measures. Permanently restore and place topsoil on slopes and ditches within 150 feet of lakes, streams, or wetlands within 24 hours of achieving final earth grade using permanent soil erosion control measures.
- C. Do not prolong trimming, finishing final earth grade, or both, to permanently stabilize the project at one time.

3.3 CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS

- A. Construct temporary or permanent erosion and sedimentation controls in accordance with the City of Ann Arbor SESC Manual, details shown on the plans, or as directed by the Engineer. In case of a discrepancy, the City of Ann Arbor Manual governs.
- B. Maintain temporary erosion and sedimentation controls as necessary to ensure their effectiveness until permanent stabilization of the disturbed area has occurred. Dispose of sediment and debris removed from temporary sedimentation control devices in accordance with MDOT 205.03.P subsection.
- C. Maintain permanent erosion controls as necessary to ensure their effectiveness until project completion and acceptance. Repair damaged areas, replace lost devices, and remove sediment as required. Dispose of sediment and debris removed from permanent sedimentation control devices in accordance with MDOT 205.03.P subsection.
- D. Throughout the course of the project, roads in the project vicinity that are used for active truck access to the site shall be power swept a minimum of three times per week and more frequently if road conditions require or as directed by the Engineer.
 - 1. Check Dams: Install, maintain, and remove check dams across ditches.
 - 2. Silt Fence: Provide, install, maintain, remove, and dispose of silt fence consisting of woven geotextile fabric stapled to and supported by posts. Place material removed from trenching in the silt fence on the upslope side of the silt fence. In areas where water ponds behind the silt fence, provide a stone filter to channel away the water and prevent failure. Silt fence may remain in place after the required period if directed by the Engineer.

3. Construction Entrance: Provide, place, maintain, remove, and dispose of materials used to construct the construction entrances to the project site. Do not remove the construction entrances at the end of construction until directed by the City. The contractor shall power sweep West Huron River Drive a minimum of three times per week or more if required as a result of truck traffic entering and leaving the site.
4. Turbidity Curtain: Provide, install, maintain, remove, and dispose of shallow or deep turbidity curtain. Use shallow turbidity curtain when the water is no greater than 2 feet deep. Use deep turbidity curtain when the water is greater than 2 feet deep. Provide a floating or staked turbidity curtain. During removal, minimize sediment loss.

3.4 REMOVAL OF EROSION AND SEDIMENTATION CONTROL FACILITIES

- A. Remove or obliterate temporary erosion and sedimentation controls when the permanent controls are complete and approved unless otherwise directed by the Engineer. Do not remove temporary controls next to lakes, watercourses, or wetlands until the establishment of turf on the adjacent slopes. Before placing topsoil, permanent seed, and fertilizer, remove or incorporate mulch placed for temporary erosion control into the slope.
- B. Minimize erosion and sedimentation into watercourses during removal of erosion controls. Repair damage caused during the removal of erosion controls at no additional cost to the City.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Substantial Completion
- B. Final Inspection
- C. Request for Final Payment

1.2 SUBSTANTIAL COMPLETION

- A. Substantial completion shall be the date as certified by the Engineer when the construction of the Project, or a specified part thereof, is sufficiently completed, in accordance with the Contract Documents, so that the Project, or specified part, can be fully utilized for the purposes for which it was intended.
- B. Before requesting inspection for Certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the contract price.
 - 2. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
 - 3. Advise Owner of pending insurance changeover requirements.
 - 4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 5. Obtain and submit releases enabling Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificate, and similar releases.
 - 6. Complete final cleanup requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
 - 7. Provide all required demonstration and training sessions.

- C. Inspection Procedures: On receipt of a request for inspection, Engineer will either proceed with inspection or advise Contractor of unfilled requirements.
1. Engineer will prepare the Certificate of Substantial Completion following inspection or advise Contractor of construction that must be completed or corrected before the certificate will be issued.
 2. Engineer will repeat inspection when requested and assured that the work has been substantially completed.
 3. Results of completed inspection will be for the basis of requirements for final acceptance.
 4. Date of Substantial Completion will begin the warranty period unless noted otherwise.

1.3 FINAL ACCEPTANCE

- A. Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the contract price.
 3. Submit a copy of Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance. The list shall be endorsed and dated by the Engineer.
 4. Submit consent of surety to final payment.
 5. Submit a final liquidated damages settlement statement.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 7. Submit record drawings, maintenance manuals, damage or settlement survey, property survey, and similar final record information.
 8. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
- B. Reinspection Procedure: Engineer will inspect the work upon receipt of notice that work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.

1. Upon completion of reinspection, Engineer will prepare a certificate of final acceptance or advise Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.

1.4 REQUEST FOR FINAL PAYMENT

- A. Submit request for final payment in accordance with the Agreement and General Conditions, as may be modified by the Supplementary Conditions, using procedure specified in Section 01 29 00, Payment Procedures.
- B. Request for final payment shall include:
 1. Documents required for progress payments in Section 01 29 00, Payment Procedures.
 2. Documents required in the General Conditions, as may be modified by the Supplementary Conditions.
 3. Releases or Waivers of Lien Rights:
 - a. When submitting releases or waivers of Lien rights, provide release or waiver by Contractor and each subcontractor and supplier that provided Contractor with labor, material, or equipment.
 - b. Provide list of subcontractors and suppliers for which release or waiver of Lien is required.
 - c. Each release or waiver of Lien shall be signed by an authorized representative of entity submitting release or waiver to Contractor and shall include subcontractor's or supplier's corporate seal if applicable.
 - d. Release or waiver of Lien may be conditional upon receipt of final payment.
 4. Consent of Surety.
 5. Documentation that all punch list items are complete.
 6. Warranties.
 7. Record Drawings being maintained by the Contractor.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS
SECTION 02 30 00
UNDERGROUND UTILITY LOCATOR SERVICE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Means by which the contractor is to verify underground utility locations prior to start of any excavations, regrading of the ground surface, and penetrations of the ground surface. For the project, Utility Quality Level B as defined below will be required.

1.2 RELATED SECTIONS

- A. Section 01 10 00 – Summary of Work
- B. Section 31 10 00 – Clearing and Grubbing
- C. Section 31 23 00 – Excavation, Backfill, and Compaction

1.3 REFERENCE STANDARDS

- A. American Public Works Association, Uniform Color Code.
- B. American Society of Civil Engineers, CI/ASCE 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

1.4 SUBMITTALS

- A. Quality Control Submittals
- B. Investigative Report

1.5 DEFINITIONS

- A. Utility Quality Level B: Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.
 - 1. Retain an independent utility locator service company to field locate and mark existing underground utilities and service connections. The word "independent" as used above means a person not in the regular employment of the Contractor or having any vested interest in the Contractor's business.
 - 2. Level B locator service shall be performed in all project areas where excavations, regrading of the ground surface, and penetrations of the ground surface are to be performed.
 - 3. In heavy metal areas, such as near perimeter fences, ground penetrating radar shall be used to determine the location of underground utilities. The use of equipment that induce a tracing signal along the utility path (such as a Metrotech unit) can cause false readings, shall not be used within five feet of fences.

- B. The Level B investigation shall be performed as follows:
- b. The locator service shall field locate and mark underground utilities and service connections prior to excavation.
 - c. The contractor shall be responsible for coordinating the extent of the areas of subsurface investigation required to locate all underground utilities and service connections in the areas of excavation.
 - d. All costs associated with the repair of underground utilities and service connections hit/damaged during the investigative work shall be the responsibility of the contractor.
- C. Utility location services shall be in accordance with the provisions of CIASCE 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."
- D. Quality Control Submittals: Submit detailed experience and qualification information about the underground utility locator service company and the persons that will be performing the work. Detailed experience and qualification information shall include:
- 1. Personnel with minimum of five (5) years of experience in field locating, marking, and staking out of existing underground utilities and service connections.
 - 2. Project information of 5 similar projects, which the locator service company, had worked on during the past 5 years. Information shall include for each project:
 - a. Name and address of project.
 - b. Dates worked on project.
 - c. Name and telephone number of contact person at the project site for which the locator service was performed.
 - d. Description of types of utility locator equipment (investigation equipment) that company will utilize to perform the underground utility investigation.
 - e. Names of persons that the persons that will be performing the work, including the number of years of experience and training that the persons have in the use of the equipment. Include copy of training certificates for locator equipment proving the person performing the locator service are trained on the equipment being used.
 - 3. Submit Quality Control Submittals within 10 days of contract award.
 - 4. Investigative Report
 - a. Submit detailed written report and scaled drawings of the subsurface investigation, documenting all underground utilities and service connections located and identified.
 - b. All documentation shall be referenced to existing data (horizontal and vertical) previously established.

- c. Provide one (1) paper copy and one (1) PDF electronic copy of detailed written report and drawings.
- E. Submit Investigative Report at least one week prior to advancing construction within the scheduled areas of excavation within the project site.
 - 1. Coordinate the work to determine the extent of the areas of subsurface investigation required to locate all underground utilities and service connections in the areas of excavation.
 - 2. Coordinate the work with the City's Engineer to minimize utility disruptions and facility operations. Provide a schedule for the Work required to the City's Engineer for approval. Upon approval of the schedule, notify the City's Engineer a minimum of three (3) working days prior to performing the work.
 - 3. Within the areas of excavation, all underground utilities and service connections shall be field located, and their locations marked at least one (1) week prior to the performance of the required excavation work.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.1 WORK AREAS AND PERFORMANCE

- A. If any underground utilities and service connections are hit or damaged during the Work, immediately inform the Engineer for directions on how to proceed.
- B. The utility locator service investigative work, field location and marking of underground utilities and service connections and submission of the investigative report must be completed before any excavation work can begin.
- C. Contractor shall maintain markings throughout the contract duration or until a time when directed (in writing) by the Engineer that maintaining of the markings are no longer required.
- D. Provide subsurface investigation information, detailed written report, and drawings of the subsurface investigation, documenting all underground utilities and service connections located and identified, prior to the performance of the required excavation work.
- E. If during the Level B investigations, unknown underground utilities are discovered, the City's Engineer shall be notified as soon as possible or before the close of that business day.

F. Field Marking of underground utilities shall follow the American Public Works Association (APWA) uniform color code:

- | | |
|------------|---|
| 1. White: | Proposed Excavation. |
| 2. Pink: | Temporary Survey Markings. |
| 3. Red: | Electric power lines, cables, conduit, and lighting cables. |
| 4. Yellow: | Gas, oil, steam, petroleum, and gaseous material. |
| 5. Orange: | Communications, alarm, signal lines, cables, or conduit. |
| 6. Blue: | Potable water. |
| 7. Purple: | Reclaimed water, irrigation, and slurry lines. |
| 8. Green: | Sewer and drain lines. |

END OF SECTION

**SECTION 02 41 19
SELECTIVE DEMOLITION**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Demolition and removal of selected site elements.
- B. Related Requirements:
 - 1. Section 01 10 00 "Summary of Work" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 31 10 00 "Clearing and Grubbing" for site clearing and removal of above- and below-grade improvements not part of selective demolition.
 - 3. Section 31 23 00 "Excavation, Backfill and Compaction"

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor and must be properly disposed of off-site. The contractor shall maintain records of all disposed materials for review by the City, if requested.

1.4 SUBMITTALS

- A. Before start of demolition, submit demolition plans to Engineer for review, describing proposed sequence, methods, and equipment for demolition and disposal of each structure.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.1 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- C. Blasting will not be permitted. Perform demolition work in accordance with all applicable laws and ordinances.
- D. Wet down work during demolition operations to minimize dust.
- E. Demolition to include removal of existing ditch weir posts.

3.2 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site.
- B. Do not allow demolished materials to accumulate on-site.
- C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- D. Properly dispose demolished material in accordance with all applicable laws and regulations.
- E. Maintain accurate records of all disposal quantities and locations of disposal for review by the City, if requested.

END OF SECTION

DIVISION 03 – CONCRETE
SECTION 03 10 00
CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Form facing material for cast-in-place concrete.
 - 2. Shoring, bracing, and anchoring.
- B. Related Requirements:
 - 1. Section 03 20 00 "Concrete Reinforcing" for steel reinforcing bars.
 - 2. Section 03 30 00 "Cast-in-Place Concrete" for concrete materials, mix design, placement procedures, and finishes.

1.3 DEFINITIONS

- A. Form-Facing Material: Temporary structure or mold for the support of concrete while the concrete is setting and gaining sufficient strength to be self-supporting.
- B. Formwork: The total system of support of freshly placed concrete, including the mold or sheathing that contacts the concrete, as well as supporting members, hardware, and necessary bracing.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site and review the following:
 - 1. Special inspection and testing and inspecting agency procedures for field quality control.
 - 2. Construction, movement, contraction, and isolation joints.
 - 3. Forms and form-removal limitations.
 - 4. Shoring and reshoring procedures.
 - 5. Anchor rod and anchorage device installation tolerances.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Detailing fabrication, assembly, and support of forms.
 - 1. For exposed vertical concrete walls, indicate dimensions and form tie locations.
 - 2. Indicate dimension and locations of construction and movement joints required to construct the structure in accordance with ACI 301.
 - 3. Location of construction joints is subject to approval of the Engineer.
 - 4. Indicate location of water stops.
 - 5. Indicate proposed schedule and sequence of stripping of forms, shoring removal, and reshoring installation and removal.

1.6 INFORMATION SUBMITTALS

- A. Qualification Data: For testing and inspection agency.
- B. Minutes of preinstallation conference.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS SUBMITTALS

- A. Concrete Formwork: Design, engineer, erect, shore, brace, and maintain formwork, shores, and reshores in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.
 - 1. Design wood panel forms in accordance with APA's "Concrete Forming Design/Construction Guide."
 - 2. Design formwork to limit deflection of form-facing material to 1/240 of center-to-center spacing of supports.
- B. Design, engineer, erect, shore, brace, and maintain insulating concrete forms in accordance with ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads, so that resulting concrete conforms to the required shapes, lines, and dimensions.

2.2 FORM FACING MATERIALS

- A. As-Cast Surface Form-Facing Material:
 - 1. Provide continuous, true, and smooth concrete surfaces.
 - 2. Furnish in largest practicable sizes to minimize number of joints.
 - 3. Acceptable Materials: As required to comply with Surface Finish designations specified in Section 03 30 00 "Cast-In-Place Concrete, and as follows:
 - a. Plywood, metal, or other approved panel materials.
 - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - 1. APA HDO (high-density overlay).
 - 2. APA HDO (medium -density overlay); mill-release agent treated, and edge sealed.
- B. Concealed Surface Form-Facing Material: Lumber, plywood, metal, plastic, or another approved material.
 - 1. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces not exceeding specified formwork surface class.
 - 1. Provide forms with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

2.3 RELATED MATERIALS

- A. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4-inch by 3/4-inch, minimum.

- B. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
 - 1. Form Release Agent must be potable water approved in accordance with NSF/ANSI 61.
 - 2. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- C. Form Ties: Factory-fabricated, removable or snap-off, glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that leave no corrodible metal closer than 1-1/2" inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive damp proofing or waterproofing.

PART 3 EXECUTION

3.1 INSTALLATION OF FORMWORK

- A. Comply with ACI 301.
- B. Construct formwork, so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 and to comply with the Surface Finish designations specified in Section 03 30 00 "Cast-In-Place Concrete" for as-cast finishes.
- C. Limit concrete surface irregularities as follows:
 - 1. Surface Finish-1.0: ACI 117 Class D, 1 inch.
 - 2. Surface Finish-2.0: ACI 117 Class B, 1/4 inch.
 - 3. Surface Finish-3.0: ACI 117 Class A, 1/8 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
 - 1. Minimize joints.
 - 2. Exposed Concrete: Symmetrically align joints in forms.
- E. Construct removable forms for easy removal without hammering or prying against concrete surfaces.
 - 1. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces.
 - 2. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 3. Install keyways, reglets, recesses, and other accessories, for easy removal.
- F. Do not use rust-stained, steel, form-facing material.
- G. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces.
 - 1. Provide and secure units to support screed strips.
 - 2. Use strike-off templates or compacting-type screeds.

- H. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible.
 - 1. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar.
 - 2. Locate temporary openings in forms at inconspicuous locations.
- I. Chamfer exterior corners and edges of permanently exposed concrete.
- J. At construction joints, overlap forms onto previously placed concrete not less than 12 inches.
- K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work.
 - 1. Determine sizes and locations from trades providing such items.
 - 2. Obtain written approval of Engineer prior to forming openings not indicated on Drawings.
- L. Construction and Movement Joints:
 - 1. Construct joints true to line with faces perpendicular to surface plane of concrete.
 - 2. Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 3. Place joints perpendicular to main reinforcement.
 - 4. Locate joints for beams, slabs, joists, and girders in the middle third of spans.
 - 5. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 6. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 7. Space vertical joints in walls as indicated on Drawings.
 - 8. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
- M. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.
 - 1. Locate ports and openings in bottom of vertical forms, in inconspicuous location, to allow flushing water to drain.
 - 2. Close temporary ports and openings with tight-fitting panels, flush with inside face of form, and neatly fitted, so joints will not be apparent in exposed concrete surfaces.
- N. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- O. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- P. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete.
 - 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
 - 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 4. Install dovetail anchor slots in concrete structures, as indicated on Drawings.
 - 5. Clean embedded items immediately prior to concrete placement.

3.3 REMOVING AND REUSING FORMS

- A. Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete must be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work.
 - 1. Split, frayed, delaminated, or otherwise damaged form-facing material are unacceptable for exposed surfaces.
 - 2. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
 - 1. Align and secure joints to avoid offsets.
 - 2. Do not use patched forms for exposed concrete surfaces unless approved by the Engineer.

3.4 SHORING AND RESHORING INSTALLATION

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
- B. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- C. Plan sequence of removal of shores and re-shore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

END OF SECTION

SECTION 03 20 00 CONCRETE REINFORCING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel reinforcement bars.
 - 2. Welded-wire reinforcement.
- B. Related Requirements
 - 1. Section 03 10 00 "Concrete Forming and Accessories" for form-facing material and concrete accessories.
 - 2. Section 03 30 00 "Cast-in-Place Concrete" for concrete materials, mix designs, placement procedures, and finishes.
 - 3. Section 32 13 13 "Concrete Paving" for reinforcing related to concrete pavement and walks.

1.3 PREINSTALLATION MEETINGS

- B. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction contraction and isolation joints.
 - c. Steel-reinforcement installation.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Comply with ACI SP-066:
 - 1. Include placing drawings that detail fabrication, bending, and placement.
 - 2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.
- B. Construction Joint Layout:
 - 1. Indicate proposed construction joints required to build the structure.
 - 2. Location of construction joints is subject to approval of the Engineer.

1.5 INFORMATIONAL SUBMITTALS

- A. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement:

1. Deliver, store, and handle steel reinforcement to prevent bending and damage. and to avoid damaging coatings on steel reinforcement.
2. Store reinforcement to avoid contact with earth.

PART 2 PRODUCTS

2.1 STEEL REINFORCEMENT

- A. Reinforcing bars used in the underpass slab must be epoxy coated.
- B. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
- C. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A775, Grade 60, deformed.
- E. Steel Bars: ASTM A615/A615M, Grade 60, deformed bars.
- F. Epoxy Coating: ASTM A775/A775M or ASTM A934/A934M with less than 2 percent damaged coating in each 12-inch bar length.
- G. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.2 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
- B. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 1. For concrete surfaces exposed to view, where legs of wire bar support contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.
 2. For epoxy-coated reinforcement, use CRSI Class 1A epoxy-coated or other dielectric-polymer-coated wire bar supports.
 3. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch in diameter.
 4. Finish: Galvanized.
 5. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement and complying with ASTM A775A775M.

2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 EXECUTION

3.1 PREPARATION

- A. Protection of In-Place Conditions:
 1. Do not cut or puncture vapor retarder.
 2. Repair damage and reseal vapor retarder before placing concrete.
 3. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

3.2 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
- C. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
- D. Do not tack weld crossing reinforcing bars.
- E. Preserve clearance between bars of not less than 1 inch, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- F. Provide concrete coverage in accordance with ACI 318.
- G. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- H. Splices: Lap splices as indicated on Drawings for epoxy-coated bars.
- I. Bars indicated to be continuous, and all vertical bars shall be lapped not less than 36 bar diameters at splices, or 24 inches, whichever is greater.
- J. Stagger splices in accordance with ACI 318.
- K. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.
- L. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.
- M. Install structural thermal break insulated connection system in accordance with manufacturer's instructions.

3.3 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by the Engineer.
- B. Place joints perpendicular to main reinforcement.
- C. Continue reinforcement across construction joints unless otherwise indicated.
- D. Do not continue reinforcement through sides of strip placements of floors and slabs.

3.4 INSTALLATION TOLERANCES

- A. Comply with ACI 117.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:
 - 1. Section 03 10 00 "Concrete Forming and Accessories".
 - 2. Section 03 20 00 "Concrete Reinforcing".
 - 3. Section 31 23 00 "Excavation, Backfill, and Compaction".

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete Subcontractor.
 - e. Special concrete finish Subcontractor.
 - 2. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction joints, control joints, isolation joints, and joint-filler strips.
 - c. Semirigid joint fillers.
 - d. Vapor-retarder installation.
 - e. Anchor rod and anchorage device installation tolerances.
 - f. Cold and hot weather concreting procedures.
 - g. Concrete finishes and finishing.
 - h. Curing procedures.
 - i. Forms and form-removal limitations.
 - j. Methods for achieving specified floor and slab flatness and levelness.
 - k. Floor and slab flatness and levelness measurements.

- l. Concrete repair procedures.
- m. Concrete protection.

1.5 ACTION SUBMITTALS

- A. Product Data: For each of the following.
 - 1. Vapor retarders.
 - 2. Liquid floor treatments.
 - 3. Curing materials - include documentation from color pigment manufacturer, indicating that proposed methods of curing are recommended by color pigment manufacturer.
 - 4. Joint fillers.
 - 5. Repair materials.
- B. Design Mixtures: For each concrete mixture, include the following:
 - 1. Mixture identification.
 - 2. Minimum 28-day compressive strength.
 - 3. Relevant test data, no more than 6 months old, matching each mix design to be utilized, substantiating the stated mix design parameters.
 - 4. Durability exposure class.
 - 5. Maximum w/cm.
 - 6. Calculated equilibrium unit weight, for lightweight concrete.
 - 7. Admixture dosage rates:
 - a. Slump.
 - b. Air content.
 - c. Seven-day compressive strength.
 - d. 28-day compressive strength.
 - 8. Slump limit.
 - 9. Air content.
 - 10. Nominal maximum aggregate size.
 - 11. Synthetic fiber content.
 - 12. Intended placement method.
 - 13. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings:
 - 1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure. Location of construction joints is subject to approval of the Engineer.
- D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:
 - 1. Concrete Class designation.
 - 2. Location within Project.
 - 3. Exposure Class designation.
 - 4. Formed Surface Finish designation and final finish.
 - 5. Final finish for floors.
 - 6. Curing process.
 - 7. Floor treatment if any.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For the following:
 - 1. Installer: Include copies of applicable ACI certificates.
 - 2. Ready-mixed concrete manufacturer.
 - 3. Testing agency: Include copies of applicable ACI certificates.
- B. Floor surface flatness and levelness measurements report, indicating compliance with specified tolerances.
- C. Research Reports: For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.
- D. Preconstruction Test Reports: For each mix design for each class of concrete no older than 6 months utilizing materials that will be used for batching of concrete for this project.
- E. Minutes of preinstallation conference.
- F. Structural Inspection Quality Assurance Plan and written statement of responsibility.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician.
- B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 - 1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

1.8 CONSTRUCTION TESTING

- A. The concrete mix design is to be developed by the Contractor and approved by the Engineer.
- B. Construction Testing Service: If supplier does not have current mix data including slump, air content, and strength break history, engage a qualified testing agency to perform construction testing on each concrete mix at the supplier's plant.
 - 1. Include the following information in each test report:
 - a. Slump.
 - b. Air content.
 - c. Seven-day compressive strength.
 - d. 28-day compressive strength.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

1.10 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.
 - 1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 3. Do not use frozen materials or materials containing ice or snow.
 4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
 5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301.

2.2 CONCRETE MATERIALS

- A. Source Limitations:
1. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
 2. Obtain aggregate from single source.
 3. Obtain each type of admixture from single source from single manufacturer.
 4. Cementitious Materials.
- B. Portland Cement: ASTM C150/C150M, Type I or I/II or ASTM C595 Type IL.
- C. Fly Ash: ASTM C618, Class C or F.
- D. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
- E. Fiber-Reinforced: ASTM C1116/C1116M-10a.
- F. Silica Fume: ASTM C1240 amorphous silica.
- G. Blended Hydraulic Cement: ASTM C595/C595M, Type IL, Portland-limestone cement.
- H. Normal-Weight Aggregates: ASTM C33/C33M, Class 4S coarse aggregate or better, graded. Provide aggregates from a single source.

- I. Alkali-Silica Reaction: Comply with one of the following:
 - 1. Expansion Result of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
 - 2. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
 - 3. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.
- J. Maximum Coarse-Aggregate Size: $\frac{3}{4}$ -inch nominal.
- K. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- L. Air-Entraining Admixture: ASTM C260/C260M.
- M. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
- N. Water-Reducing Admixture: ASTM C494/C494M, Type A.
- O. Retarding Admixture: ASTM C494/C494M, Type B.
- P. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
- Q. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
- R. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
- S. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- T. Water and Water Used to Make Ice: ASTM C94/C94M, potable.

2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.4 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.

- D. Color:
 - 1. Ambient Temperature Below 50 deg F: Black.
 - 2. Ambient Temperature between 50 deg F and 85 deg F: Any color.
 - 3. Ambient Temperature Above 85 deg F: White.
- E. Curing Paper: Eight-feet-wide, natural colored polypropylene non-woven fabric with white polyethylene coating applied to one side with ultraviolet light stabilizers able to provide moisture retention for at least seven (7) days.
- F. Basis of design product: Armorlon Transguard 4000 by Reef Industries.
- G. Water: Potable or complying with ASTM C1602/C1602M.

2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 in accordance with ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.6 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
- B. Cement Binder: ASTM C150/C150M Portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
- C. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
- D. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand, as recommended by underlayment manufacturer.
- E. Compressive Strength: Not less than 4100 psi at 28 days when tested in accordance with ASTM C109/C109M.
- F. Repair Overlayment: cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
- G. Cement Binder: ASTM C150/C150M Portland cement or hydraulic or blended hydraulic cement, as defined in ASTM C219.
- H. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

- I. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
- J. Compressive Strength: Not less than 5000 psi at 28 days when tested in accordance with ASTM C109/C109M.

2.7 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
- B. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
 - 1. Fly Ash or Other Pozzolans: 25 percent by mass.
 - 2. Slag Cement: 50 percent by mass.
 - 3. Silica Fume: 10 percent by mass.
 - 4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
 - 5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- D. Cast-in-place concrete placed as indicated in the plans for the existing underpass improvements and underpass improvements shall meet the requirements for glass-fiber reinforcement per ASTM C1116/C116M-10a.
- E. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
- F. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
- G. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- H. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, and concrete with a w/cm below 0.50.

2.8 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for exterior slabs and pavements, foundation walls, footings, grade beams, and tie beams.
 - 1. Exposure Class: ACI 318 F2 S0 W0 C1.
 - 2. Minimum Compressive Strength: 4000 psi at 28 days.
 - 3. Maximum w/cm: 0.45.

4. Slump Limit: 5 inches, plus or minus 1 inch.
5. Air Content:
 - a. Exposure Classes F2 and F3: 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size.
6. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
7. Aggregate to be crushed limestone.

2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and furnish batch ticket information.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions:
 1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
 2. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete. All anchors are to be stainless steel or galvanized steel.
- B. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
- C. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
- D. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.3 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
 1. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
- B. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Engineer.
- C. Place joints perpendicular to main reinforcement.
- D. Continue reinforcement across construction joints unless otherwise indicated.

- E. Do not continue reinforcement through sides of strip placements of floors and slabs.
- F. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
- G. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
- H. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
- I. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
- J. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- K. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
 - 3. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
- L. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
- M. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 07 92 00 "Joint Sealants," are indicated.
- N. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- O. Doweled Joints:
 - 1. Install dowel bars and support assemblies at joints where indicated on Drawings.
 - 2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items, are complete and that required inspections are completed.
- B. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
- C. Notify Engineer and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- D. Do not add water to concrete during delivery, at Project site, or during placement.
- E. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- F. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
- G. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
- H. If a section cannot be placed continuously, provide construction joints as indicated.
- I. Deposit concrete to avoid segregation.
- J. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
- K. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
- L. Do not use vibrators to transport concrete inside forms.
- M. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
- N. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
- O. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- P. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
- Q. Do not place concrete floors and slabs in a checkerboard sequence.

- R. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- S. Maintain reinforcement in position on chairs during concrete placement.
- T. Screed slab surfaces with a straightedge and strike off to correct elevations.
- U. Level concrete, cut high areas, and fill low areas.
- V. Slope surfaces uniformly to drains where required.
- W. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
- X. Do not further disturb slab surfaces before starting finishing operations.

3.6 FINISHING FORMED SURFACES

- A. As-Cast Surface Finishes: Apply to concrete surfaces not exposed to public view.
 - 1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
 - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
 - b. Remove projections larger than 1 inch.
 - c. Tie holes do not require patching.
 - d. Surface Tolerance: ACI 117 Class D.
 - 2. ACI 301 Surface Finish SF-3.0: Apply to concrete surfaces exposed to public view including the edge of the slab that faces the Huron River, to surfaces to receive a rubbed finish, or to surfaces to be covered with a coating or covering material applied directly to concrete.
 - a. Patch voids larger than 3/4 inch wide or 1/2 inch deep.
 - b. Remove projections larger than 1/8 inch.
 - c. Patch tie holes.
 - d. Surface Tolerance: ACI 117 Class A.
- B. Rubbed Finish: Apply the following to as-cast surface finishes exposed to view.
 - 1. Grout-Cleaned Rubbed Finish:
 - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
 - b. Do not clean concrete surfaces as Work progresses.
 - c. Mix 1 part Portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white Portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
 - d. Wet concrete surfaces.
 - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
- C. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

- A. Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Broom Finish: Apply a broom finish to exterior concrete platforms, walkways, steps, ramps, and locations indicated on Drawings.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
 2. Coordinate required final finish with Engineer before application.

3.8 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
 1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
 2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
 3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
 4. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- B. Equipment Bases and Foundations:
 1. Coordinate sizes and locations of concrete bases with actual equipment provided.
 2. Construct concrete bases 4 inches high unless otherwise indicated on Drawings and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
 3. Minimum Compressive Strength: 4000 psi at 28 days.
 4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
 5. Prior to pouring concrete, place, and secure anchorage devices.
 6. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

7. Cast anchor-bolt insert into bases.
 8. Install anchor bolts to elevations required for proper attachment to supported equipment.
- C. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.
1. Cast-in inserts and accessories, as shown on Drawings.
 2. Screed, tamp, and trowel finish concrete surfaces.

3.9 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
- C. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
- D. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply in accordance with manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- E. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
 2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
 3. If forms remain during curing period, moist cure after loosening forms.
 4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
 - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
 - b. Continuous Sprinkling: Maintain concrete surface continuously wet.
 - c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
 - d. Water-Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
- F. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
1. Begin curing immediately after finishing concrete.
 2. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:

- a. Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - i. Lap edges and ends of absorptive cover not less than 12-inches.
 - ii. Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
- b. Moisture-Retaining-Cover or Curing Paper Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - i. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - ii. Cure all concrete slabs for not less than seven days.
 - iii. Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - iv. Water.
 - v. Continuous water-fog spray.
- c. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
 - i. Curing Paper Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - ii. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - iii. Cure for not less than seven days.
 - iv. Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - v. Water.
 - vi. Continuous water-fog spray.

3.10 TOLERANCES

- A. Conform to ACI 117.

3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
- B. Defer joint filling until concrete has aged at least one month(s).
- C. Do not fill joints until construction traffic has permanently ceased.
- D. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

- E. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- F. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.12 CONCRETE SURFACE REPAIRS

A. Defective Concrete:

1. Repair and patch defective areas when approved by Engineer.
2. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
3. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
4. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
5. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
6. Limit cut depth to 3/4 inch.
7. Make edges of cuts perpendicular to concrete surface.
8. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
9. Fill and compact with patching mortar before bonding agent has dried.
10. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
11. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement, so that, when dry, patching mortar matches surrounding color.
12. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
13. Compact mortar in place and strike off slightly higher than surrounding surface.
14. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by the Engineer.

B. Repairing Unformed Surfaces:

1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.

2. Correct low and high areas.
3. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
4. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
5. After concrete has cured at least 14 days, correct high areas by grinding.
6. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
7. Finish repaired areas to blend into adjacent concrete.
8. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
9. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
10. Feather edges to match adjacent floor elevations.
11. Correct other low areas scheduled to remain exposed with repair topping.
12. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
13. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
14. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.
15. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
16. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
17. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
18. Place, compact, and finish to blend with adjacent finished concrete.
19. Cure in same manner as adjacent concrete.

20. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
 21. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
 22. Dampen cleaned concrete surfaces and apply bonding agent.
 23. Place patching mortar before bonding agent has dried.
 24. Compact patching mortar and finish to match adjacent concrete.
 25. Keep patched area continuously moist for at least 72 hours.
 26. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- C. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.14 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
1. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
 2. Testing agency shall immediately report to Engineer, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Engineer, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
- B. Test reports shall include reporting requirements of ASTM C31/C31M and ASTM C39/C39M, including the following as applicable to each test and inspection:
1. Project name.
 2. Name of testing agency.
 3. Names and certification numbers of field and laboratory technicians performing inspections and testing.
 4. Name of concrete manufacturer.
 5. Date and time of inspection, sampling, and field testing.
 6. Date and time of concrete placement.
 7. Location in Work of concrete represented by samples.

8. Date and time sample was obtained.
 9. Truck and batch ticket numbers.
 10. Design compressive strength at 28 days.
 11. Concrete mixture designation, proportions, and materials.
 12. Field test results.
 13. Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
 14. Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:
1. Headed bolts and studs.
 2. Verification of use of required design mixture.
 3. Concrete placement, including conveying and depositing.
 4. Curing procedures and maintenance of curing temperature.
 5. Verification of concrete strength before removal of shores and forms from beams and slabs.
- E. Batch Plant Inspections: On a random basis, as determined by Engineer.
- F. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.

- b. Perform additional tests when concrete consistency appears to change.
- 3. Slump Flow: ASTM C1611/C1611M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
- 4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete:
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
- 5. Concrete Temperature: ASTM C1064/C1064M:
 - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
- 6. Compression Test Specimens: ASTM C31/C31M:
 - a. Cast and laboratory cure two sets of two 6-inch by 12-inch or two sets of three 4-inch by 8-inch cylinder specimens for each composite sample.
 - b. Cast, initial cure, and field cure two sets of two standard cylinder specimens for each composite sample.
- 7. Compressive-Strength Tests: ASTM C39/C39M:
 - a. Test one set of laboratory-cured specimens at seven days and one set of two specimens at 28 days.
 - b. Test one set of field-cured specimens at seven days and one set of two specimens at 28 days.
 - c. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 - d. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 - e. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
 - f. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

8. Additional Tests:
 - a. Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer.
 - b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.
 - c. Acceptance criteria for concrete strength shall be in accordance with ACI 301 section 1.6.6.3.
 - d. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 - e. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
 - f. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 48 hours of completion of floor finishing and promptly report test results to Engineer.

3.15 PROTECTION

- A. Protect concrete surfaces as follows:
 1. Protect from petroleum stains.
 2. Diaper hydraulic equipment used over concrete surfaces.
 3. Prohibit vehicles from interior concrete slabs.
 4. Prohibit use of pipe-cutting machinery over concrete surfaces.
 5. Prohibit placement of steel items on concrete surfaces.
 6. Prohibit use of acids or acidic detergents over concrete surfaces.
 7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
 8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

END OF SECTION

DIVISION 05 – METALS

SECTION 05 50 00 METAL FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Miscellaneous framing and supports.
 - 2. Products furnished, but not installed, under this Section include the following:
Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

- A. Product Data:
 - 1. Fasteners.
 - 2. Shop primers.
 - 3. Shrinkage-resisting grout.
- B. Shop Drawings: show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
 - 1. Miscellaneous framing and supports for applications where framing and supports are not specified in other Sections.
 - 2. Underpass canopy inspection hatches.
 - 3. Underpass canopy frame.
- C. Mill Certificates: Signed by stainless steel manufacturers, certifying that products furnished comply with requirements.
- D. Welding certificates.
- E. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- F. Research Reports: For post-installed anchors.

1.4 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding code:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept metal fabrications on site in labeled shipments. Inspect for damage. Protect metal fabrications from damage by exposure to weather and any chemicals that could cause deterioration of stored materials.

PART 2 PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. All steel used in construction of the pedestrian canopy under the railroad bridge is to be hot-dip galvanized.
- C. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- D. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing

2.2 FASTENERS

- A. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 3, heavy-hex steel structural bolts; ASTM A563, Grade DH3, heavy-hex carbon-steel nuts; and where indicated, flat washers.
- B. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
- C. Hot-dip galvanize or provide mechanically deposited, zinc coating on all fasteners.
- D. Post-Installed Anchors: chemical anchors.

2.3 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099000 "Painting."
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
- C. Use primer that contains pigments that make it easily distinguishable from zinc-rich primer.

- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- E. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- F. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- G. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- H. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

- I. Provide for anchorage of type indicated, coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.5 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize bearing and leveling plates.
- C. Prime plates with zinc-rich primer.

2.6 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.7 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
 - 1. Shop prime iron and steel items unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 2. Shop prime with primers specified in Section 099000 "Painting" unless zinc-rich primer is indicated.
- C. Preparation for Shop Priming: Prepare surfaces to comply with SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- D. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
 - 1. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLATION OF LOOSE BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.3 REPAIRS

- A. Touchup Painting:
 - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 2. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099000 "Painting."

- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

**SECTION 05 53 13
BAR GRATINGS**

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal bar gratings.
 - 2. Grating frames and supports.

1.2 ACTION SUBMITTALS

- A. Product Data:
 - 1. Clips and anchorage devices for gratings.
 - 2. Paint products.
- B. Shop Drawings:
 - 1. Include plans, sections, and attachment details.
 - 2. Signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Delegated Design Submittals: For gratings, including manufacturers' published load tables.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry.
- B. Mill Certificates: Signed by manufacturers of stainless-steel certifying that products furnished comply with requirements.
- C. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in state where Project is located and who is experienced in providing engineering services of the type indicated.
- B. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 - 1. AWS D1.1/D1.1M.
 - 2. AWS D1.2/D1.2M.
 - 3. AWS D1.3/D1.3M.
 - 4. AWS D1.6/D1.6M.

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with gratings by field measurements before fabrication.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00, "Quality Requirements," to design gratings.
- B. Structural Performance: Gratings to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Walkways and Elevated Platforms Other Than Exits: Uniform load of 60 lbf/sq. ft..
 - 2. Limit deflection to $L/360$ or 1/4 inch, whichever is less.
- C. Seismic Performance: Gratings to withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
- D. Component Importance Factor: 1.0.

2.2 METAL BAR GRATINGS

- A. Metal Bar Grating Standards: Comply with NAAMM MBG 531.
 - 1. Welded Steel Grating:
 - 2. Bearing Bar Spacing: 1-3/16 inches o.c.
 - 3. Bearing Bar Depth: 1.5 inches.
 - 4. Bearing Bar Thickness: 3/16 inch.
 - 5. Crossbar Spacing: 4 inches o.c.
 - 6. Traffic Surface: Plain.
 - 7. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. of coated surface.

2.3 GRATING FRAMES AND SUPPORTS

- A. Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.
- B. Unless otherwise indicated, fabricate from same basic metal as gratings.
- C. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.
- D. Galvanize steel frames and supports.

2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners. Select fasteners for type, grade, and class required.
- B. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, nuts, and, where indicated, flat washers; ASTM F593 for bolts and ASTM F594 for nuts, Alloy Group 1.
- C. Post-Installed Anchors: chemical anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load

imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.

- D. Material: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.6 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- B. Steel Bars for Bar Gratings: ASTM A36/A36M or steel strip, ASTM A1011/A1011M or ASTM A1018/A1018M.
- C. Wire Rod for Bar Grating Crossbars: ASTM A510/A510M.
- D. Uncoated Steel Sheet: ASTM A1011/A1011M, structural steel, Grade 30.
- E. Galvanized-Steel Sheet: ASTM A653/A653M, structural quality, Grade 33, with G90 coating.
- F. Stainless Steel Sheet, Strip, Plate, and Flat Bars: ASTM A240/A240M, Type 304.
- G. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304.

2.7 FABRICATION

- A. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.
- D. Fit exposed connections accurately together to form hairline joints.
- E. Welding: Comply with AWS recommendations and the following:
- F. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
- G. Obtain fusion without undercut or overlap.
- H. Remove welding flux immediately.

- I. Provide for anchorage of type indicated, coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings, frames, and supports rigidly in place and to support indicated loads.
- J. Fabricate toeplates to fit grating units and weld to units in shop unless otherwise indicated.
- K. Fabricate toeplates for attaching in the field.
- L. Toeplate Height: 4 inches unless otherwise indicated.
- M. Removable Grating Sections: Fabricate with banding bars attached by welding to entire perimeter of each section. Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.
- N. Provide no fewer than four weld lugs for each heavy-duty grating section, with each lug shop welded to two bearing bars.
- O. Provide no fewer than four saddle clips for each grating section containing rectangular bearing bars $\frac{3}{16}$ inch or less in thickness and spaced $\frac{15}{16}$ inch or more o.c., with each clip designed and fabricated to fit over two bearing bars.
- P. Provide no fewer than four weld lugs for each grating section containing rectangular bearing bars $\frac{3}{16}$ inch or less in thickness and spaced less than $\frac{15}{16}$ inch o.c., with each lug shop welded to three or more bearing bars. Interrupt intermediate bearing bars as necessary for fasteners securing grating to supports.
- Q. Provide no fewer than four flange blocks for each section of aluminum I-bar grating, with block designed to fit over lower flange of I-shaped bearing bars.
- R. Furnish threaded bolts with nuts and washers for securing grating to supports.
- S. Furnish self-drilling fasteners with washers for securing grating to supports.
- T. Furnish galvanized malleable-iron flange clamp with galvanized bolt for securing grating to supports. Furnish as a system designed to be installed from above grating by one person.
- U. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.
- V. Edge-band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.
- W. Do not notch bearing bars at supports to maintain elevation.

2.8 STEEL FINISHES

- A. Finish gratings, frames, and supports after assembly.

- B. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
- C. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
- C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.
- D. Fit exposed connections accurately together to form hairline joints.
- E. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- F. Attach toeplates to gratings by welding at locations indicated.
- G. Field Welding: Comply with AWS recommendations and the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
- H. Corrosion Protection: With a heavy coat of bituminous paint, coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals.

3.2 INSTALLATION OF METAL BAR GRATINGS

- A. Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.
- B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.

- C. Attach nonremovable units to supporting members by welding where both materials are same; otherwise, fasten by bolting as indicated above.

3.3 REPAIR

- A. Repair of Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

SECTION 06 10 00 ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wood products.
 - 2. Wood-preservative-treated lumber.
 - 3. Dimension lumber framing.
 - 4. Miscellaneous lumber.

1.2 DEFINITIONS

- A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. Lumber grading agencies, and abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. SPIB: The Southern Pine Inspection Bureau.
 - 4. WCLIB: West Coast Lumber Inspection Bureau.
 - 5. WWPA: Western Wood Products Association.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency in accordance with ASTM D5664.

4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates:
 1. For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
 2. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 PRODUCTS

2.1 WOOD PRODUCTS

- A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
- B. Factory mark each piece of lumber with grade stamp of grading agency.
- C. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
- E. Dress lumber, S4S, unless otherwise indicated.
- F. Maximum Moisture Content:
 1. Boards: 15 percent.
 2. Dimension Lumber: 15 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1, use categories as follows:
 1. UC2: Interior construction not in contact with ground but may be subject to moisture. Include the following items:
 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 3. Wood floor plates that are installed over concrete slabs-on-grade.

- B. UC3B (Commodity Specification A): Uncoated sawn products in exterior construction not in contact with ground, exposed to all weather cycles including intermittent wetting but with sufficient air circulation for wood to dry. Excludes sawn products not in contact with ground but with ground contact-type hazards. Include the following items:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood decking, railings, and joists and beams for decks that are not critical to the performance and safety of the entire system/construction and that are in locations easily accessible for maintenance, repair, or replacement.
- C. UC4A (Commodity Specification A): Non-critical sawn products in contact with ground and exposed to all weather cycles including continuous or prolonged wetting, and sawn products not in contact with ground but with ground contact-type hazards or that are critical or hard to replace. Include the following items:
 - 1. Wood framing members that are less than 6 inches above the ground.
 - 2. Joists and beams when they are difficult to maintain, repair, or replace and are critical to the performance and safety of the entire system/construction.
- D. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 1. For exposed items indicated to receive a stained or natural finish, chemical formulations are not to require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- E. After treatment, redry lumber to 19 percent maximum moisture content.
- F. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- G. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, omit marking and provide certificates of treatment compliance issued by inspection agency.
- H. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 - 4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.

5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 DIMENSION LUMBER FRAMING

- A. Railing: No. 2 grade.
 1. Application: Wood railing system.
 2. Species:
 - a. Southern pine or mixed southern pine; SPIB.
 - b. Spruce-pine-fir; NLGA.

2.4 FASTENERS

- A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.
- B. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- C. For redwood, use stainless steel fasteners.
- D. Nails, Brads, and Staples: ASTM F1667.
- E. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- F. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 ICC-ES AC58 ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.

2.5 METAL FRAMING ANCHORS

- A. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch-minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.
- B. Materials: Unless otherwise indicated, fabricate from the following materials:
- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.
 1. Use for interior locations unless otherwise indicated.
- D. Heavy-Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
 1. Use for wood-preservative-treated lumber and where indicated.
- E. Stainless steel bars and shapes complying with ASTM A276/A276M, Type 304.
 1. Use for exterior locations and where indicated.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- E. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- F. Install sill sealer gasket/termite barrier in accordance with manufacturer's written instructions at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- I. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- J. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
 - 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
- K. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere

with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

- L. Comply with AWWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
- M. Use inorganic boron for items that are continuously protected from liquid water.
- N. Use copper naphthenate for items not continuously protected from liquid water.
- O. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- P. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.10.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. ICC-ES evaluation report for fastener.
- Q. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

END OF SECTION

SECTION 06 15 33 WOODEN STAIRS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wood decking.
 - 2. Wood stair treads.
 - 3. Wood railings.

1.2 DEFINITIONS

- A. Boards: Lumber of less than 2 inches nominal (38 mm actual) in thickness and 2 inches nominal (38 mm actual) or greater in width.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal (114 mm actual) in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. SPIB: The Southern Pine Inspection Bureau.
 - 4. WCLIB: West Coast Lumber Inspection Bureau.
 - 5. WWPA: Western Wood Products Association.

1.3 SUBMITTALS

- A. Product data: For preservative-treated wood products. Include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
- B. Material Certificates:
 - 1. For lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by ALSC's Board of Review.
 - 2. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained. (For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.)
- C. Certificates of Inspection: Issued by lumber grading agency for exposed wood products not marked with grade stamp.
- D. Foundation Installation Technique – Describe the foundation installation procedures to be used to meet the requirements presented on the drawings. Submission should include equipment, materials and procedures that will be used to maintain stability of the foundation installation as well as the dam's right embankment.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials under cover and protected from weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.
- B. Handle and store plastic lumber to comply with manufacturer's written instructions.

PART 2 PRODUCTS

2.1 LUMBER, GENERAL

- A. Comply with DOC PS 20 and with grading rules of lumber grading agencies certified by ALSC's Board of Review as applicable. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by ALSC's Board of Review.
 - 1. Factory mark each item with grade stamp of grading agency.
- B. Maximum Moisture Content:
 - 1. Boards: 15 percent.
 - 2. Dimension Lumber: 15 percent.

2.2 WOOD DECKING

- A. Dimension Lumber Decking:
 - 1. No. 2 grade of any of the following species:
 - a. Southern pine or mixed southern pine; SPIB.
 - b. Spruce-pine-fir; NLGA.

2.3 WOOD STAIR TREADS

- A. Radius-Edged Board Stair Treads: 3/4-inch actual thickness of any of the following species and grades:
 - 1. Southern pine, Standard; SPIB.
- B. Half-Round or Rounded-Edged Nosing Board Stair Treads: 3/4-inch actual thickness of any of the following species and grades:
 - 1. Southern pine, B & B stepping; SPIB.

2.4 WOOD RAILINGS

- A. Dimension Lumber Railing Members:
 - A. No. 2 grade and any of the following species:
 - a. Mixed southern pine; SPIB.
 - b. Spruce-pine-fir or spruce-pine-fir (South); NLGA.
- B. Railing Boards: Any of the following species and grades:
 - 1. Southern pine, B & B finish; SPIB.
- C. Radius-Edged Railing Boards: S4S boards, same grade as decking.

2.5 DIMENSION LUMBER FRAMING

A. Deck and Stair Framing:

1. Any species and grade with a modulus of elasticity of at least 1,300,000 psi and an extreme fiber stress in bending of at least 1000 psi for 2-inch nominal thickness and 12-inch nominal width for single-member use.

2.6 POSTS

A. Dimension Lumber Posts: No. 2 grade and any of the following species:

1. Mixed southern pine; SPIB.
2. Spruce-pine-fir or spruce-pine-fir (South); NLGA.

2.7 PRESERVATIVE-TREATED LUMBER

- A. Pressure-treat boards and dimension lumber with waterborne preservative in accordance with AWP A U1; Use Category UC3b for exterior construction not in contact with the ground and Use Category UC4a for items in contact with the ground.
- B. Pressure treat timber with waterborne preservative in accordance with AWP A U1; Use Category UC4a.
- C. Pressure-treat poles with waterborne preservative in accordance with AWP A U1; Use Category UC4a.
- D. Preservative Chemicals: Acceptable to authorities having jurisdiction.
- E. Do not use chemicals containing arsenic or chromium.
- F. Use processes (for boards and dimension lumber) that include water-repellent treatment.
- G. Revise options in first paragraph below to eliminate items for which treated kiln-dried wood is not required.
- H. After treatment, redry boards and dimension lumber to 19 percent maximum moisture content.
- I. Mark treated wood with treatment quality mark of an inspection agency approved by ALSC's Board of Review.
- J. Application: Treat all wood unless otherwise indicated.

2.8 FASTENERS

- A. General: Provide fasteners of size and type indicated, acceptable to authorities having jurisdiction, and that comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.
 1. Use stainless steel unless otherwise indicated.
 2. For pressure-preservative-treated wood, use stainless steel fasteners.
 3. For wood decking, use stainless steel fasteners.

- B. Nails: ASTM F1667.
- C. Power-Driven Fasteners: ICC-ES AC70.
- D. Wood Screws and Lag Screws: ASME B18.2.1, ASME B18.6.1, or ICC-ES AC233.
- E. Carbon-Steel Bolts: ASTM A307 (ASTM F568M) with ASTM A563 (ASTM A563M) hex nuts and, where indicated, flat washers all hot-dip zinc coated.
- F. Stainless Steel Bolts: ASTM F593, Alloy Group 1 or 2 (ASTM F738M, Grade A1 or Grade A4); with ASTM F594, Alloy Group 1 or 2 (ASTM F836M, Grade A1 or Grade A4) hex nuts and, where indicated, flat washers.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Prime wood, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Section 099000 "Painting."
- C. Stain wood, including both faces and edges. Cut to required lengths and stain ends. Comply with requirements in Section 099300 "Staining and Transparent Finishing."

3.3 INSTALLATION, GENERAL

- A. Construct concrete foundations. During construction of concrete footings, contractor must protect open holes against caving and possible artesian flows. Protective measures may include, but are not limited to, temporary/sacrificial casings, heavy drilling fluid, and tremie placement of concrete. Other requirements established in the Drilling Program Plan may also apply.
- B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit work to other construction; scribe and cope as needed for accurate fit.
- C. Framing Standard: Comply with AF&PA WCD1 unless otherwise indicated.
- D. Install wood decking (and stair treads) with crown up (bark side down).
- E. Install plastic lumber to comply with manufacturer's written instructions.
- F. Secure decking to framing with screws.

- G. Install metal framing anchors to comply with manufacturer's written instructions.
- H. Do not splice structural members between supports unless otherwise indicated.
- I. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- J. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of members or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- K. Apply copper naphthenate field treatment to comply with AWPAC M4, to cut surfaces of preservative-treated lumber.
- L. Securely attach exterior rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. ICC-ES AC708 for power-driven fasteners.
 - 2. "Fastening Schedule" in ICC's International Building Code.

3.4 INSTALLATION OF STAIRS

- A. Provide stair framing members of size, space, and configuration indicated on the drawings.
- B. Stringer Spacing: At least three stringers for each 36-inch clear width of stair.
- C. Provide stair framing with no more than 3/8-inch variation between largest and smallest treads and risers within each flight.
- D. Treads and Risers: Secure by gluing and screwing to carriages. Countersink fastener heads, fill flush, and sand filler. Extend treads over carriages.

3.5 INSTALLATION OF RAILINGS

- A. Balusters: Fit to railings, screw in place. Countersink fastener heads, fill flush, and sand filler.
- B. Newel Posts: Secure to stringers and risers with lag screws.
- C. Railings: Secure wall rails with metal brackets. Fasten freestanding railings to newel posts and to trim at walls with countersunk-head wood screws or rail bolts.

END OF SECTION

DIVISION 09 – FINISHES

SECTION 09 90 00

PAINTING

PART 1 GENERAL

1.1 DESCRIPTION

- A. It is the intent of this Section that all painting necessary to result in a complete, finished appearing facility be accomplished. As the work of this Section, prepare surfaces that are to be painted and furnish and apply paint materials. Paint schedules follow the text of this Section and define the surface preparation and coating systems required to paint the various types of surfaces that are to be painted. The Paint Application Table below identifies the areas to receive the paint systems specified in the paint schedules. For items or areas not listed in the Paint Application Table, consult the Engineer for the proper system to be used. Exclusion from the Paint Application table does not necessarily mean that an item or area does not require painting.

- B. Acceptable manufacturers: Carboline or Tnemec. No substitutions.

- C. Paint Applications

Schedule M2: Exterior Metal

Paint all non-submerged metal provided or refurbished for the project including, but not limited to, new metal railings and base plates, piezometer boxes, and field cuts on existing metals.

- D. Prime and finish painting, regardless of the location in which the work is performed, shall conform to all requirements of this Section. Coordinate painting with the fabrication of components and with the work of other trades so as to ensure the full and correct application of paint materials.
- E. Stainless steel and brass shall not be painted.

1.2 DEFINITIONS

- A. For the purposes of this Section, the following definitions apply: "Exposed to View" means all surfaces in the final work that could be seen from any vantage point from any height with the gate dewatered.
- B. "Paint" means all pretreatment, prime, intermediate, and final coatings specified herein including clear, translucent, and opaque materials.

1.3 QUALITY ASSURANCE

- A. Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces. In the acceptance or rejection of installed painting, no allowance will be made for lack of skill on the part of painters.
- B. Apply paints following the recommendations in the "Applications Manual for Paint and Protective Coatings" published by McGraw-Hill.
- C. Provide manufacturer warranty for equipment, materials and products specified in this section against defective materials and workmanship. Provide warranty against defects for one year from the date of Substantial Completion and/or as described in the Contract Documents.

1.4 INDEPENDENT INSPECTION

- A. The Contractor shall hire an independent, National Association of Corrosion Engineers (NACE) certified, CIP Level 2 paint inspector for the project. Nelson Tank Engineering and Consulting and Dixon Engineering are pre-approved. In-house paint inspector, even if certified, will not be acceptable for this role. Inspector's scope shall include checking the following:
 - 1. Before placing coatings, check: surface preparation for conformance with the Specification; conditions including ambient and surface temperatures, humidity, dew point and other factors that might affect coatings; coating products; blast material and equipment; containment strategy; etc.
 - 2. After coating placement, check dry film thickness (DFT) of all coatings and total DFT, as per SSPC-PA2
 - 3. Upon full cure of final coat for submerged surfaces, perform holiday inspection by voltage spark detection in accordance with NACE SP0188. Areas not passing the spark detection shall be properly repaired then re-tested until passing.
 - 4. Coating surface. Flaws such as holidays, runs, etc., shall be flagged for correction and re-inspected after correction.
 - 5. Findings shall be indicated immediately to the Contractor by verbal or other communication.
- B. Inspector shall produce a report for each field visit, indicating findings as noted above and including a list of correction items and status of each item. Reports shall include photographs and other attachments as required. A separate report shall be produced for each day of inspection. A copy of all reports shall be submitted regularly to Contractor and Engineer, at least on a weekly basis.

1.5 SUBMITTALS

- A. Prior to ordering and delivering paint materials to the project site, submit the following:

1. Manufacturer literature demonstrating compliance with these Specifications and indicating paint formulation, rate of coverage, recommended uses and recommended application method.
2. Physical color chips or cards for the full range of colors available in each product.
3. Schedule of products and paint systems to be used including the following information:
 - a. Surfaces for system to be applied.
 - b. Surface preparation method and degree of cleanliness.
 - c. Product manufacturer, name, and number.
 - d. Method of application.
 - e. Dry film thickness per coat of coating to be applied.

1.6 PRODUCT HANDLING

- A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store only the approved materials at the job site. Store them in a suitable and designated area restricted to the storage of paint materials and related equipment. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste. Store volatile solvents, rags, and cleaning materials in a well-ventilated area.
- B. Use all means necessary to protect paint materials before, during, and after application and to protect the installed work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 PAINT MATERIALS

- A. Provide paint materials in accordance with the paint schedules that follow the text of this Section.
- B. All paint materials for each paint system shall be the products of a single manufacturer. All paint materials and equipment shall be compatible in use: finish coats shall be compatible with prime coats; prime coats shall be compatible with the surface to be coated; and all tools and equipment shall be compatible with the coating to be applied. Thinners, when used, shall be only those thinners specifically recommended for that purpose by the manufacturer of the material to be thinned.
- C. Furnish finish paint in the colors selected by the Owner from the manufacturer's standard available colors (a minimum of 12 colors must be available for each finish paint requiring color choice).

PART 3 EXECUTION

3.1 GENERAL

- A. At no time during the work shall open containers of paint, thinners, solvent or cleaners be placed directly over the waterway. Any paint, thinner, solvents or cleaner spilled within the dewatered work area shall be cleaned up immediately. In the event of any discharge of any fuel, chemical, lubricant, paint thinner, solvent, or cleaner into the Huron River, the Owner shall be notified immediately.
- B. Prior to beginning the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this application may properly commence. Verify that paint finishes may be applied in strict accordance with all pertinent codes and regulations and the requirements of these Specifications. In the event of discrepancy, immediately notify the Engineer. Do not proceed with application in areas of discrepancy until all such discrepancies have been fully resolved. Application of paint materials shall be deemed to indicate acceptability of the existing surface conditions.
- C. Paint inspection shall be in accordance with Section 01810, Testing and Materials Inspection.
- D. The Contractor shall seek technical assistance and guidance for surface preparation and application of coating systems from the manufacturer's technical representative as needed. The manufacturer shall have qualified personnel available to consult and make field visits as appropriate.

3.2 REMEDIATION AND CONTAINMENT

- A. It is anticipated that the existing gates and related equipment to be painted have lead-based paint on them. The Contractor shall follow the requirements of Section 01370, Lead-Based Paint Remediation.
- B. Results of existing lead testing are included in the Appendix of this Specification.
- C. As needed during construction, the City will collect additional paint samples and have them tested for lead. Either the City or the Contractor may call for additional testing. The Contractor shall provide at least one week notice in advance of needing additional lead testing.
- D. The City's responsibility will be limited to pulling and testing samples from *existing coatings before removal*. The City will not be responsible for environmental/industrial hygiene testing or other health and safety requirements as per Section 01370 of these Specifications.
- E. Containment shall include negative ventilation with air filtering/treatment to remediate blast media, dust, and coatings inside the enclosure and prevent them from exiting the enclosure.

- F. All abrasive blasting and spray application of coatings require full containment of work areas.
- G. Surface preparation and painting done in the field shall be fully contained. Only minor touchups that may be identified after containment is removed may be done without containment, provided that steps are taken to prevent fallout from exiting the work area or entering the water.
- H. For all operations, the Contractor shall be required to prevent fallout from coatings or blast media from being dispersed beyond the immediate work area or damaging public or private property.

3.3 SURFACE PREPARATION

- A. Prior to beginning surface preparation and painting operations, completely mask, remove, or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures, and all work of other trades that are not to receive the paint coating. Before applying paint, thoroughly clean and prepare all surfaces according to the specified surface preparation method. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- B. Prepare metal surfaces for painting by following the method indicated on the appropriate paint schedule. Preparation methods are referenced to the Steel Structures Painting Council (SSPC) Specifications. Do not prepare metal for painting when the relative humidity is higher than 85% or the metal is less than 5°F above the dew point. After surface preparation, thoroughly clean all surfaces of any remaining dirt, oil and grease and leave it ready to receive prime paint.
- C. Except for field touch-ups that may be identified after containment is removed, surface preparation shall be by abrasive blasting, using an appropriate medium per industry standards and environmental requirements. Field touch-ups may be accomplished by mechanical means (e.g., using Bristle-Blaster) that meets the same profile and cleanliness standard.

3.4 PAINT APPLICATION

- A. Apply paint in accordance with paint schedule requirements, the cited reference, all codes and regulations, and the recommendations of the paint manufacturer. Apply prime paint to metal surfaces within 24-hrs. after surface preparation. Do not apply paint in areas where dust is being generated.
- B. Do not apply paint when the surrounding air temperature as measured in the shade is below 40°F or when the temperature of the surface to be painted is below 35°F. Do not apply paint when it is expected that the relative humidity will exceed 85% or that the air temperature will drop below 40°F within 18-hrs. after the application of paint. Dew or moisture condensation should be anticipated and if such conditions are prevalent, delay painting until certain that the surfaces can be kept above the dew point. Follow all additional environmental limitation requirements of the paint manufacturer.

- C. Paint material mil thickness and numbers of coats that are indicated in the paint schedules are based on brush or roller application. Spray application of paint materials will be allowed in the field only for areas or surfaces that are very difficult to paint with brush or roller. Field spray application must be approved by the Engineer before its initiation. For areas that are spray painted, apply as many coats as necessary to achieve specified mil thickness.
- D. Allow sufficient drying time between coats of paint. During adverse weather, extend length of drying time as recommended by the paint manufacturer.
- E. Prior to applying each paint coating after the first, check mil thickness of previously applied coating(s). Correct for insufficient paint thickness by increasing the mil thickness of subsequent applications, if allowed by the paint manufacturer or by applying additional coatings to provide the specified paint thickness.
- F. Spot sand between coatings to remove paint defects visible to the unaided eye from a distance of 5-feet.

3.5 CLEAN UP

- A. During the progress of the work, do not allow the accumulation of empty containers or other excess items except in areas specifically set aside for that purpose.
- B. Following completion of painting in each area, promptly remove all masking and temporary protection. After paint has dried, reinstall all items removed for painting. Upon completion of this portion of the work, visually inspect all surfaces and remove paint and traces of paint from surfaces not scheduled to be painted.

PAINT SCHEDULES FOLLOW

PAINT SCHEDULE M2**SERVICE: EXTERIOR METAL**

Surface Preparation: SSPC-SP10 Near White Metal – Abrasive Blast

Paint Manufacturer	Application	Product Name	Product Type	No. Of Coats	Dry Mils/ Coat	Comments
Carboline	Primer	Carbozinc 621	Immersible Zinc	One	3 – 5	
Carboline	Intermediate	Carbogard 60	Polymamide Epoxy	One	4 - 6	Color shall contrast with Finish Coat color
Carboline	Stripe*	Carbothane 134	Polyurethane	One		
Carboline	Finish	Carbothane 134	Polyurethane	Two	2 – 3	
TOTAL SYSTEM THICKNESS					11 – 17*	
Tnemec	Primer	Series 90-97	Immersible Zinc	One	2.5-3.5	
Tnemec	Intermediate	Series 66HS	Polymamide Epoxy	One	4 - 6	Color shall contrast with Finish Coat color
Tnemec	Stripe*	Series 1074	Polyurethane	One		
Tnemec	Finish	Series 1074	Polyurethane	Two	2 – 3	
TOTAL SYSTEM THICKNESS					10.5- 15.5*	

*Note: All edges and corners shall be stripe coated. Specified millage does not include stripe coating.

END OF SECTION

DIVISION 31 – EARTHWORK
SECTION 31 09 13
CONSTRUCTION INSTRUMENTATION AND MONITORING

PART 1 GENERAL

1.1 SUMMARY

- A. The monitoring of all existing and new instruments at the project site will be in accordance with the Construction Dam Safety Surveillance and Monitoring Plan (CDSSMP) document which is included herewith as Attachment W. The CDSSMP provides details on monitoring responsibilities, frequencies and requirements associated with repair if required during the construction period.
- B. The Work specified in this Section includes extending risers, covers, and instrumentation wiring and removing or decommissioning geotechnical instrumentation to measure and monitor groundwater levels as required under the Contract Documents.
- C. Extend the height of the protective covers of the existing open standpipe piezometers and vibrating wire piezometers installed by others as shown on Sheet 45 of the Drawings. The height of the covers shall be 3'-0" (+/-1") above the existing or proposed grade, whichever is higher in elevation.
- D. The purpose of the geotechnical instrumentation program is to provide baseline data from monitoring wells, vibrating wire piezometers and ground monitoring points to monitor ground water levels and embankment stability throughout the construction period and beyond.
- E. Locations of the existing instrumentation are shown on the Drawings.
- F. All new and existing instruments are to be protected during all construction activities. The contractor will be responsible to replace or restore any existing or new instruments that are disturbed during the construction period. Instruments or monitoring points that are disturbed at any point during the project must be immediately replaced and re-baselined upon disturbance. Once the disturbance is noted, all work within 200 feet of the instrument or monitoring point will be suspended until the instrument is replaced or repaired and re-baselined.

1.2 REFERENCES

- A. Reference Standards:
 - 1. ASTM C778, Standard Specification for Standard Sand.
 - 2. Construction Instrumentation and Monitoring Plan, Section 31 09 13.
 - 3. Painting Section 09 90 00.

1.3 DEFINITIONS

- A. Open Standpipe Piezometer (OSP): In soil deposits, consist of a slotted PVC well screen and a PVC riser pipe.

- B. Vibrating Wire Piezometer (VWP): VWPs consist of single or multi-level pressure sensors capable of providing automatic, continuous measurement of groundwater levels with an electronic data logger.
- C. Above Ground Cover: Metal riser that is used to cover the PVC riser pipe that extends above the ground surface a distance of at least 24-inches.
- D. Flush Cover: Metal protector that is used to cover the PVC riser pipe with a lid installed flush to the ground surface.
- E. All covers installed as part of the project will have lockable covers with keys provided to the City.

1.4 SUBMITTALS

- A. Qualifications:
 - 1. Submit proof that the Contractor has experience extending metal covers or similar work.
 - 2. Personal Qualifications for Instrument Installation: Employ qualified technicians with a minimum of two (2) years of experience in the installation or decommissioning/abandonment of geotechnical instrumentation similar to that specified herein.
- B. Shop Drawings: Submit the Shop Drawings showing locations of all instrumentation that will require extended wiring, PVC risers, or new above ground covers. Provide detailed procedures (text and exhibits) on how the existing instruments will be extended to accommodate the increased ground surface elevation within the footprint of the stabilization berm.
- C. Instrumentation Installation Work Plan:
 - 1. Schedule: Submit the proposed schedule for extending the existing covers and installing the instrumentation extensions (wiring and/or PVC risers) with reference to project construction activities.
 - 2. Methods and equipment to be used for extending the existing covers.
- D. Instrumentation Decommissioning Work Plan: Provide plans, anticipated schedule, sequence, and details for decommissioning piezometers, as applicable.
- E. Product Data: Submit all applicable manufacturer's literature describing the geotechnical instrumentation, manufacturer's recommendations and instruction for installation, post-installation acceptance testing, monitoring, operation, and maintenance procedures for the geotechnical instrumentation, that are specified in this Section and as shown on the Drawings, including readout units, sensors, cables, and probes as applicable. Provide manufacturer's brochures on each product and all related equipment and accessories as applicable.

1.5 QUALITY ASSURANCE

- A. Each material required for extending the instrumentation height, including the cover, shall be the product of an acceptable manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: All instrumentation materials, including readout units and cables, shall remain the property of the Owner following completion of the Work.
- B. Extended Existing Above Ground Piezometer Covers:
 - 1. Provide 2" nominal diameter Schedule 40 PVC riser pipe with a vented cap to attach to the existing 2" nominal PVC riser.
 - 2. Provide 2" solvent joining coupler.
 - 3. Coarse sand: Conform to ASTM C778.
 - 4. Provide low-strength lean concrete for a 24"L x 24"W x 24"D concrete pad.
 - 5. Provide protective cover: Global Drilling Supply #GDS PC 4x7 or approved equal. The cover must be lockable.
 - 6. Reference Painting Section 09 90 00.
- C. Extended Existing Flush Piezometer Covers:
 - 1. Provide 2" nominal diameter Schedule 40 PVC riser pipe with a vented cap to attach to the existing 2" nominal PVC riser.
 - 2. Provide 2" solvent joining coupler.
 - 3. Coarse sand: Conform to ASTM C778.
 - 4. Provide steel rebar pins.
 - 5. Provide low-strength lean concrete for a 24"L x 24"W x 18"D concrete collar and 24"L x 24"W x 24"D concrete pad.
 - 6. Provide protective cover: Global Drilling Supply #GDS PC 4x7 or approved equal. The cover must be able to be bolted to the collar.
 - 7. Reference Painting Section 09 90 00.
- D. Extended Height Vibrating Wire Piezometers (VWPs):
 - 1. Provide materials needed to extend the wiring of the existing VWP's to the top of the proposed above ground cover height. Each VWP re-installation shall accommodate the same number of sensors as the existing installation. Protect each VWP sensor from damage during re-installation.
- E. Identification Tags: Label all instrumentation with tags as shown on the Drawings, as applicable.

2.2 MIXES

- A. Concrete mix shall be in accordance with MDOT Section 901. Concrete mix design shall be submitted to the Engineer for review and approval.

PART 3 EXECUTION

3.1 INSTALLATION

A. General Requirements:

1. General requirements associated with instrumentation are presented in the Construction Dam Safety Surveillance and Monitoring Plan document included herewith as Attachment W.
2. The installation of ground monitoring points (GMPs) are planned for the dam crest. The frequency is anticipated to be every 100-feet but the exact spacing will be included in the CDSSMP upon approval by FERC.
3. Install VWP wiring extensions in accordance with each respective manufacturer's recommendations, as applicable, at the locations shown on the Drawings. Instruments shall be installed in accordance with the approved Instrument Installation Schedule as required in this Section.
4. Install PVC riser extensions for OSPs and VWPs in the method outlined in the approved Instrumentation Installation Work Plan.
5. Install extended/new above ground covers in the method outlined in the approved Instrumentation Installation Work Plan.
6. All instruments shall be clearly marked, labeled, and protected in the field to avoid being covered, obstructed, or otherwise damaged by construction operations or vandalized by the public. Protective covers shall be marked.

3.2 PROTECTION

- A. Protect the instruments from damage. Replace or repair damaged instruments prior to continuing work, or as required by the Engineer at no additional cost to Owner.

3.3 MONITORING

- A. The Owner will retain a third party to monitor the geotechnical instruments throughout the construction process as stated in the Construction Dam Safety Surveillance and Monitoring Plan (CDSSMP) (Attachment W).
- B. Review and Alert Levels:
 1. The Review and Alert Levels are noted in the Construction Dam Safety Surveillance and Monitoring Plan (CDSSMP) attached hereto and can be adjusted at the request of the Contractor, but subject to the written approval of the Engineer. The Contractor shall stop work and cooperate with the Engineer's investigation of the cause of the exceedance if, at any time, Review and Alert Levels are noted.
 2. Regardless of the specified instrumentation and the measured quantities in reference to the established Review and Alert Levels, take immediate actions should observed ground or structural deformation of any kind occur in reaction to the related

construction activities, regardless of its magnitude, and be deemed to cause an unsafe condition by the Contractor or the Engineer.

END OF SECTION

**SECTION 31 10 00
CLEARING AND GRUBBING**

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. Furnish all labor, materials, equipment, and incidentals required to perform all clearing, grubbing, scalping, tree and shrub removal, and vegetative and tree debris piles removal and disposal as specified.

1.2 REGULATORY REQUIREMENTS

- A. Codes and Standards:
 - 1. Observe state and local laws and code requirements for the hauling and disposing of trees, shrubs, stumps, roots, rubbish, debris, and other matter. Contractor is responsible for all permits and fees.

1.3 SPECIAL WARRANTY

- A. Guarantee that Work performed under this Section will not permanently damage trees, shrubs, turf, or plants designated to remain, or other adjacent work or facilities.
- B. Replace items damaged due to the Contractor's operations which appear within one year after completion of the project, at no expense to the City.

PART 2 PRODUCTS

(Not Used)

PART 3 EXECUTION

3.1 PREPARATION

- A. Protection:
 - 1. Protect streets, roads, adjacent property, and all other facilities and structures from damage caused by the Contractor's operations.
 - 2. Return to original condition, satisfactory to the City, facilities damaged by the Contractor's operations.

3. Protect trees, shrubs, and grassed areas by using fences, barricades, wrapping, or other methods.
4. Do not stockpile material or equipment beneath trees.
5. Do not remove trees without prior approval from the Resident Project Representative unless shown or specified.

3.2 APPLICATION

A. Clearing and Grubbing:

1. Clearing and Grubbing
 - a. Tree removal for the project cannot be performed between April 15 and September 30 of any year.
 - b. Clear and scalp all areas where excavation or fill is to be made. Stripping of topsoil on the existing revetment in preparation for construction of the stabilization berm will be limited to strips that are no wider than 100 feet, as measured perpendicular to the axis of the dam. Concurrent working strips may not be located closer than 200 feet from each other (edge-to-edge). For each strip, the surface grade must be returned to its original elevation prior to the completion of work for each day. As such, the contractor must plan daily activities to meet this project requirement.
 - c. Scalping includes the removal of material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and decayed vegetable matter from the surface of the ground. Scalping is not intended to include topsoil.
2. No burning is allowed on job site.
3. Stumps in the embankment should be ground out and stump holes, and other holes from which obstructions are removed, shall be backfilled with suitable material and compacted in accordance with MDOT Section 202.
4. Control air pollution caused by dust and dirt and comply with governing regulations.

B. Topsoil Removal

1. Description of Topsoil:
 - a. Comply with MDOT Section 917.
2. Stripping Operation:
 - a. Remove heavy growths of grass from areas before stripping.

- b. Strip topsoil to depth encountered, preventing intermingling with the underlying subsoil or other objectionable material.
 - c. Stripping shall be limited to 100-foot-wide strips at a time, and no more than one strip ahead of the current working area.
 - d. Following the stripping effort, the exposed subgrade shall be inspected by the site Engineer to identify any exposed unsuitable materials that will require removal and replacement. Excavations associated with the removal of unsuitable soils that are exposed will be limited to 250-feet squared in area at the initial ground surface. If the extent of unsuitable soils extend beyond this limit, then excavate and completely backfill the initial excavation before excavating adjacent soils.
 - e. Following topsoil stripping and removal and replacement of any unsuitable materials, the strip surface shall be restored to the original grade prior to the completion of work for the day.
3. Storage:
- a. Stockpile topsoil in areas designated by the City.
 - b. Construction storage piles are to allow free drainage of surface water.
 - c. Stored topsoil in excess of quantities required for construction shall be removed from the site and disposed of in accordance with all local regulations regarding hauling and disposal that apply to this work.
 - d. Provide temporary siltation control barriers around all stockpiles.

3.3 FIELD QUALITY CONTROL

- A. Restore any areas outside the work limit lines where disturbed by the Contractor's operations.

3.4 CLEANING

- A. Final Disposal:
 - 1. Remove and properly dispose of all trees, shrubs, stumps, roots, brush, masonry, rubbish, scrap, debris, pavement, curbs, fences, and any miscellaneous items as required to permit construction of the new Work.

END OF SECTION

SECTION 31 23 00
EXCAVATION, BACKFILL, AND COMPACTION

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. Furnish all labor, materials, equipment, and incidentals required for excavation, backfill, and compaction as required to complete the work.

1.2 RELATED SECTIONS

- A. Section 01 35 13 General Provisions
- B. Section 31 10 00 Clearing and Grubbing
- C. Section 31 23 19

1.3 SUBMITTALS

- A. Submit source - locations and quality - laboratory tests of all fill materials to show compliance with materials specifications.
- B. Submit Excavation and Disposal Plan for each excavation operation.

1.4 SITE CONDITIONS

- A. Provide and maintain barricades, warning lights, warning signs, and other protection required by applicable laws for safety of persons and property.
- B. Protect adjacent structures, utilities, and property during construction operations.
- C. Protect excavations by shoring, bracing, or other methods required to prevent soil movement.
- D. Engineered fill materials shall only be placed on exposed subgrade soils that have been approved by the Engineer. If any unsuitable soils containing organic matter or that exhibit instability are noted, notify Engineer immediately such that remedial measures can be taken to stabilize the exposed subgrade in preparation for placement of engineered fill.
- E. Provide and maintain frost protection. Placement of fills on frozen subgrade or placement of frozen fill material will not be allowed.

- F. If any excavation encounters groundwater, immediately stop, backfill the excavation and install a temporary groundwater control system around the excavation perimeter such that groundwater inflows the resulting instability associated with excavation can be eliminated.

PART 2 PRODUCTS

2.1 MATERIALS

- A. MDOT Class II Granular Material

 Soils used for Class II Granular Fill shall consist of material conforming to MDOT Section 902.
- B. MDOT 17A Coarse Aggregate

 Soils used for 17A Coarse Aggregate shall consist of material conforming to MDOT Section 902.
- C. MDOT 2NS Fine Aggregate

 Soils used for Fine Aggregate shall consist of material conforming to MDOT Section 902.
- D. MDOT 6A Coarse Aggregate

 Soils used for 6A Coarse Aggregate shall consist of material conforming to MDOT Section 902.
- E. MDOT 21AA Dense-Graded Aggregate

 Soils used for 21AA Dense-Graded Aggregate shall consist of material conforming to MDOT Section 902.
- F. MDOT 3x1 Coarse Aggregate

 Soils used for 3x1 Coarse Aggregate shall consist of material conforming to MDOT Section 916.
- G. MDOT 4G Open-Graded Aggregate

 Soils used for 4G Open-Graded Aggregate shall consist of material conforming to MDOT Section 902.

PART 3 EXECUTION

3.1 EXCAVATION

- A. All excavations shall maintain a stable slope in accordance with MIOSHA regulations; however, slopes shall be no steeper than 2.0H:1V unless otherwise shown on the plans.

Any excavations that show signs of instability at a slope of 2:1 shall be flattened so that a stable slope configuration is obtained.

- B. All excess materials not suitable for reuse will become the property of the Contractor and shall be removed from the limits of the City's property and properly disposed of.
- C. All local regulations regarding hauling and disposal apply to this work.
- D. Periodically inspect excavations. If any signs of instability are found, promptly notify the Engineer and immediately begin remedial action. Actively retain and brace excavations.
- E. Excavate to elevations or depths as shown on the plans.
- F. Unless otherwise approved by the Engineer, all excavations must be backfilled before work is completed for any day.
- G. See additional excavation requirements and constraints as noted in the Drawings.

3.2 COMPACTION

- A. Backfill Material shall be placed in loose lift thickness layers not exceeding 8 inches unless approved by the Engineer. Each layer shall be compacted to 95% of the maximum dry density as determined by ASTM D-1557, Modified Proctor. At time of placement and compaction, the Backfill Material shall have a moisture content within a range extending from 2 percent below optimum moisture content to 2 percent above optimum moisture content as determined by ASTM D1557.
- B. All embankments and fills shall be placed and compacted in accordance with MDOT SSC Section 205. Compaction of fill shall be accomplished using a static drum roller. Vibratory compaction is not permitted with the exception of limited and necessary applications, with small equipment (such as jumping jacks) and with prior written approval by the Engineer.
- C. Topsoil shall be spread over all disturbed areas to a depth of 6 inches. No compaction of topsoil is required.
- D. A compaction test shall be performed by the City or its representative for every 500 sq. yds. of fill placed but at least one compaction test will be performed on each lift, regardless of its size.
- E. Fill and backfill materials that fail compaction or moisture content testing shall be reworked, scarified, and moisture adjusted as necessary to obtain required compaction and moisture content.

END OF SECTION

SECTION 31 23 19 DEWATERING

PART 1 GENERAL

1.1 GENERAL DESCRIPTION

- A. At locations where proposed construction work is at a lower elevation than the elevation of Barton Pond, the Huron River, or ground water at the time of performing the work, suitable cofferdams (protection dikes, structural coffer boxes, or other such measures) and dewatering systems (including well points and properly designed localized sumps) shall be designed and constructed by the Contractor. The locations and designs of the cofferdams and the dewatering systems shall be the responsibility of the Contractor and presented in a plan submitted to the City for approval. For work elements requiring dewatering, including the reverse filter removal, backfilling the existing collector ditch and collector ditch pond, relocation of the existing collector ditch and where required for removal of any unsuitable soils, ground water shall be drawn down to 24 inches below the lowest level of excavation and maintained at that level for the duration of the construction effort required for each element.
- B. The Contractor shall not perform excavations for any coffering or dewatering efforts outside of the limits indicated explicitly on the Contract Documents. Any coffering or dewatering efforts shall comply with all regulatory permit restrictions imposed on the project including the EGLE/USACE Joint Permit Application (JPA), or other applicable permits.
- C. The Contractor designing, constructing, or operating cofferdams and dewatering systems shall have a minimum of 5 years of experience in performing the type of work on similar type projects. The Contractors' site superintendent/foreman shall have a minimum of 5 years of experience on similar type projects.
- D. Soil boring logs and laboratory test results from soil borings performed at the site are available in ATTACHMENT P.
- E. The Contractor shall submit Coffering and Dewatering Plans to the City at least 30 days prior to the start of construction for removal of the existing reverse filter, the cleanout and backfilling of the existing toe ditch pond, as well as abandonment and backfilling of the existing collector ditch. The plan shall be sealed by a professional engineer, registered in the State of Michigan. The plan submitted will require approval by the Engineer and must comply with the requirement of the FERC-approved Drilling Program Plan (DPP). The cofferdam and dewatering plans shall present, at a minimum, the following information:
 - 1. The locations of cofferdams, if any, and details concerning the cofferdams' materials and method of installation.
 - 2. Locations and details regarding the dewatering system including, but not limited to, well points, pumps, sumps, ditches, piping, electrical sources, and discharge points.

Sheet piling shall not be permitted as part of any coffering or temporary shoring system.

3. Critical dewatering areas include the reverse filter, the existing collector ditch pond, and the existing collector ditch. If dewatering efforts in these areas are interrupted, it may result in damage to the constructed work, or instability to the existing features of the dam. As such, redundant systems (such as power) should be incorporated into the dewatering plans.
 4. The means for monitoring and testing of discharge water to ensure that piping or removal of embankment or foundation materials during dewatering operations is not occurring. If sediments are noted in the discharge at any time, the contractor shall take immediate action to eliminate the discharge of any soil fines.
 5. Any Erosion and Sediment Control structures required in accordance with Section 01 57 13.
- F. The Contractor shall verify that geotechnical instrumentation baseline readings were obtained prior to initiating the dewatering system.
- G. The design, construction, and performance of the cofferdams are the sole responsibility of the Contractor. By designing the cofferdams and submitting the Dewatering Plans for the project, the Contractor has indicated that he has observed the sites, has reviewed the subsurface conditions, and has accounted for those conditions in the design and performance of the cofferdams and the dewatering systems. Any and all damages associated with the installation, performance, or removal of the cofferdams and dewatering systems are the responsibility of the Contractor and shall be repaired by the Contractor at no cost to the City.
- H. Hours of operation for power-operated construction-type devices shall be limited to those listed in Section 01 35 13, General Provisions, as well as City of Ann Arbor regulations regarding operation of engines within the city limits. An exception to this restriction is allowed for the case where electrical service to operate a dewatering system becomes unavailable and backup power generating devices (e.g. diesel generators) are required.
- I. During critical dewatering operations (if any) the Contractor shall maintain, on-site, backup power generating devices (e.g. diesel generators) as required to operate dewatering pumps in the event that electrical service becomes unavailable (e.g. during power outages). The Contractor shall also have in-place the means, methods, and procedures necessary to switch over to the backup power generating devices in a timely manner as required to prevent damage to the embankment in the event that the dewatering system should fail to operate.
- J. Existing monitoring wells and piezometers shall not be used for dewatering purposes.
- K. Submittals
1. Submit, for Engineer's record, a copy of all discharge permits.

2. Submit dewatering plans of the proposed dewatering system, including sediment monitoring method, standby equipment and power supply, groundwater disposal plan, supervisor resume.
3. Submit a quality control/quality assurance plan for the dewatering plan.

PART 2 MATERIALS

- A. Provide materials and equipment suitable to meet the design requirements.

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 31 23 23 FLOWABLE FILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes operations necessary to complete backfilling operations with flowable fill materials indicated on the drawings and as specified herein.

1.2 RELATED REQUIREMENTS

- A. Section 02 41 16: Removing/Abandoning Utilities and Structures
- B. Section 03 30 00: Cast-In-Place Concrete
- C. Section 31 23 00: Excavating, Filling, and Grading
- D. Section 31 50 00: Temporary Earth Retention System
- E. Section 31 66 16.53: Drilled Piers and Soldier Piles
- F. Section 33 11 13 Water Main Services
- G. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.3 REFERENCE STANDARDS

- A. ASTM (ASTM International)
 - 1. ASTM C138 - Standard Test Method for Density (Unit Weight) Yield, and Air Content (Gravimetric) of Concrete
 - 2. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete
 - 3. ASTM C150 - Standard Specification for Portland Cement
 - 4. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 - 5. ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars
 - 6. ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
 - 7. Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is indicated, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Contract is advertised for Bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth in the Specifications or shown on the Drawings will be waived because of any provision of or omission from said standards or requirements.

1.4 SUBMITTALS

- A. Submit proposed flowable fill mix design to Engineer for approval.

PART 2 - MATERIALS

2.1 CEMENT

- A. Use cement conforming to ASTM C150, Type I or ASTM C150 Type I with ground granulated blast furnace slag.

2.2 FLY ASH

- A. Use Class F fly ash that meets the requirements of ASTM C-618 with no limits on the loss on ignition, fineness, or detailed requirements of the specification.
- B. The Manufacturer will certify, in writing that the material supplied is non-contaminated in accordance with the current Environmental Protection Agency (EPA) requirements.
- C. Do not use type C fly ash without the written authorization of the Engineer.
- D. Do not use flowable fill material manufactured with Type C fly ash in any areas that will require excavation as a part of the project.

2.3 GROUND GRANULATED BLAST FURNACE SLAG

- A. Use ground granulated blast furnace slag grade 100 or higher, ASTM C989, unless otherwise approved by the Engineer.

2.4 WATER

- A. Use potable water or approved equivalent.

2.5 AGGREGATE MATERIAL

- A. Use MDOT 2NS Fine Aggregate conforming to MDOT Section 902.

2.5 ADMIXTURE

- A. DaraFill Control Low Strength Material Additive (CLSM), or an Engineer approved equivalent, may be used at the option of the Contractor in the preparation of a flowable fill mix design.
- B. DaraFill CLSM Additive is manufactured by Grace Construction Products, Cambridge, MA.

2.6 MEASURING AND MIXING

- A. Stabilized Fly Ash Mixture
 - 1. Provide mixtures containing 5% of Portland cement based on the dry weight of the fly ash. Occasional batches of the mixture with a cement content of as low as 4% will be

allowed provided immediate action is taken to restore the cement content to the specified range.

2. Measure slump at the point of placement.
 - a. The mixture used for general backfill in trenches, against structures etc., will have a slump ranging between 7 and 10 inches.
 - b. The mixture used for backfill that is required to stand and not flow laterally, or that which is to be used in water will have a slump ranging between 4 and 6 inches.
3. Mix with temperatures below 50 degrees Fahrenheit, measured at the point of placement, will not be accepted.

B. Controlled Low Strength Mixture

1. Provide mixtures containing a maximum of 100 pounds of Portland cement per cubic yard or incorporate up to a maximum of 50% substitution of ground granulated blast furnace slag for cement.
2. Prepare the mixture design in accordance with the recommendations of the CLSM Additive's manufacturer.

C. Strength Requirement

1. The mixture generally will have a specified unconfined compressive cube strength of 40 psi minimum at 28 days of age and will not exceed a maximum of 75 psi at 365 days of age (excluding Class C Fly ash)
2. In the event that the laboratory strength does not conform to the required 28-day strength, the backfill material supplier must demonstrate that the required strength has been met. This may be done by the use of penetrometer, CBR laboratory test adapted to the field, or an appropriate plate load test.

PART 3 - EXECUTION

3.1 MEASURING OF MATERIALS

- A. Submit the method used to measure fly ash and cement for acceptance if a cement stabilized fly ash mixture is used.
- B. Base cement content on the dry weight of the fly ash in the mix or as specified for the CLSM mixture.
- C. Correct the batched weight of fly ash, if used, for its moisture content and measured in such a way that compliments the type of batch plant being utilized, thus assuring that the percentage of cement based on the dry weight of fly ash is being satisfactorily controlled.
- D. Measure water, although its control will be a function of consistency (slump and workability of the mix).

- E. A standard unit weight can be determined by use of a standard bucket using ASTM C138 as a guide with the exception that the material not be rodded. When weights of materials are established, the unit weight bucket along with delivery weights can be used as a basis of payment.

3.2 BATCHING AND MIXING

- A. The stabilized fly ash can be mixed by a pug mill, central concrete mixer, ready-mix truck, turbine mixer, or other acceptable equipment or method.
- B. Central batch the CLSM and add the CLSM Additive at the site.
- C. Record the actual batch weights, mixing time, and mix temperature for each slump test and set of test specimens made.
- D. Foreign material may be acceptable providing it has no deleterious effect on the mixer, placing procedure, or mixture properties. Generally, occasional lumps of solid material limited to a maximum of 2 inches in diameter can be permitted.

3.3 PLACEMENT

- A. Place the material by end or side dumping, chutes, conveyors, or other suitable method. Pumping, if used, must be demonstrated prior to using this method on the project site.
- B. Lines and grades will be as shown on the design drawings.
- C. Monitor structures for signs of uplift during the placement of the flowable fill material. If any movement is noted, immediately stop the placement of the flowable fill. Allow the flowable fill to sit for a minimum of 24-hours before resuming the placement of the flowable fill material.
- D. Protect flowable fill mixtures from freezing temperatures for the initial 24 hours after placement. Protection may consist of earth cover, straw, or a sacrificial layer of the stabilized fly ash mix. Strength gain from the Portland cement will be slow with temperatures of 50 degrees Fahrenheit and lower.
- E. The maximum allowable lift thickness is 36 inches.

3.4 TESTING AND INSPECTION

- A. Use the moisture content as measured by ASTM D2216 in the mixing process to provide for the moisture correction required for control of production.
- B. Perform slump tests in accordance with ASTM C143. Test as required to establish slump for a new application and as a control of continuing usage.
- C. Prepare a set of four 3-inch by 6-inch cylinders of CLSM or stabilized fly ash. Provide moisture cure for cylinders.

END OF SECTION

SECTION 31 32 23 GROUTING

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes requirements for supplying and placing grout as shown on the Drawings and as specified to complete the Work:
 - 1. Chemical Grouting
 - 2. Low-Pressure Injection Cementitious Grouting
- B. The types of grouts included in this section are:
 - 1. Acrylamide Grout
 - 2. Cementitious (Cement-Bentonite) Grout
- C. Furnish all labor, materials, equipment, and incidentals needed to complete the Work.
- D. Related Sections:
 - a. Section 01 35 13, General Provisions
 - b. Section 31 09 13, Construction Instrumentation and Monitoring
 - c. FERC approved Barton Dam Right Embankment Drilling Program Plan (DPP)

1.2 REFERENCES

- A. Reference Standards:
 - 1. ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
 - 2. API 13A, Drilling Fluids Materials
 - 3. ACI 301, Specification for Structural Concrete
 - 4. ASTM C94, Standard Specification for Ready-Mixed Concrete
 - 5. ASTM C150, Standard Specification for Portland Cement
 - 6. ASTM C827, Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mix
 - 7. ASTM C940, Standard Test Method for Expansion and Bleeding of Freshly Mixed Grouts for Preplaced-Aggregate Concrete in the Laboratory
 - 8. ASTM D6910, Standard Test Method for Marsh Funnel Viscosity of Clay Construction Slurries
 - 9. FERC, Guidelines for Drilling in and Near Embankment Dams and Their Foundations

9. USACE EM 1110-1-3500, Chemical Grouting
10. USACE EM 1110-1-3506, Grouting Technology
11. MDOT, 2020 Standard Specifications for Construction

1.3 DEFINITIONS

- A. Admixtures: Any material other than cement, aggregate or water that is used as part of a cement grout mixture.
- B. Cementitious Grout: Mixture of cement and bentonite with or without sand, and water with the possible addition of fluidifiers or thixotropic additives, and/or set additives or other grout materials that have a long-term hydraulic conductivity on the order of 1×10^{-4} .
- C. Grouting: Low pressure injection of cementitious grout mixture under controlled pressure through grout pipes or holes placed at locations as required through a zone to fill voids within the embankment.
- D. Effective Grouting Pressure: The mean injection pressure measured at the midpoint of a particular stage, while the grout is being pumped. Maximum grouting pressures shall be limited to 1-pound per square inch (psi) per foot of depth.
- E. Pressure Gauges: Pressure gauges used shall be capable of reading to 1-psi.
- F. Primary Holes: Primary holes are the first grout holes that are drilled in a planned pattern order to start the grouting process.
- G. Refusal: The point at which grouting of any single grout hole or array of grout holes is considered complete.
- H. Secondary Holes: Secondary holes are grout holes that are drilled and grouted following completion of the primary holes.
- I. Water/Cement Ratio: The proportion by volume of cement grout mixture between the amounts of water and loose cement, plus any admixtures.
- J. Toe Drain (TD): As numbered sequentially starting near the spillway and as labeled by existing posts and shown on the Drawings.
- K. Tertiary Holes: Tertiary holes are grout holes that are drilled and grouted following completion of grouting in the secondary holes.

1.4 SUBMITTALS

- A. Qualifications: Grouting will be a critical element of the project that must be conducted by only well experienced contractors. Preapproved grouting contractors are identified below. If the bidder wishes the owner to consider contractors not listed below, at a minimum, the qualifications noted below must be submitted to be considered for approval by the owner.
 1. Contractor placing chemical grout must have a minimum of 5 years of experience using acrylamide grout in small-diameter pipe joints.

2. Contractor must have a minimum of 5 years of experience placing cementitious and / or chemical grout, including work on 2H:1V slopes.
3. The following contractors have been prequalified to conduct the grouting operation based on their past project experiences:
 - a. Spartan Specialties, Ltd.
 - b. DVM Utilities, Inc.
 - c. Inland Waters Pollution Control Services, LLC
4. Grout mix design meeting the permeability requirements identified above.

B. Grout Hole Installation Plan

1. The Contractor shall prepare a grout hole installation plan that corresponds to the requirements of the approved Drilling Program Plan presented in Attachment T. Prior to installation, the plan must be approved by the Engineer as well as FERC.

C. Product Data: the following must be submitted to the Engineer for review and approval.

1. Copies of manufacturer's specifications and installation instructions for all proprietary materials.
2. Certification that materials meet specification requirements.
3. Proposed mix design for cementitious grout.
4. Documentation of the proposed cure time for chemical grout.
5. Copies of proposed design mix for cementitious (cement-bentonite) grout.

D. Quality Assurance/Control Submittals: the following must be submitted to the Engineer for review and approval.

1. Grouting Work Plan: At minimum, must include exhibits, material description and application details, and written procedures that will be used to install both the chemical and cementitious (cement-bentonite) grout.
2. Grouting Equipment List: Include manufacturer specifications for the equipment needed to install both the chemical and cementitious (cement-bentonite) grout, including mixing equipment, monitoring gauges, grout ports, and other proposed equipment. Submit pressure gauge calibrations.
3. Training: Submit documentation that the personnel handling the chemical grout have completed the manufacturer required training. Contractor must provide a similar training for the inspection staff monitoring the grout injection.
4. Quality Control Plan, including production control, quality control by laboratory testing per requirements specified herein, and in situ performance assessment to confirm column diameter, drilling tolerances, column strength, and in-situ permeability.

5. Safety Plan: Submit proposed safety plan including emergency coordination, etc.
6. Field Verification Reports:
 - A. Cure time of chemical grout.
 - B. Mix design of cementitious (cement-bentonite) grout used during installation.
 - C. Grout take volume summary for chemical grout and cementitious grout (on daily basis).
 - D. Injection pressure summary for cementitious grout installation.
 - E. Locations of chemical and cementitious grout installation (exhibits and summary).
 - F. Post-grouting inspection reports of TD-22, TD-23, TD-24, and TD-43.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Transport, store and handle all materials as prescribed by the manufacturers of the materials in original, unopened containers with the manufacturer's name, product labels, product identification, and as detailed on the accepted data sheets.
- B. Protect materials from mechanical and environmental damage.
- C. Store grout materials in a dry place and per suppliers' specification. Maintain materials in a clean and undamaged condition. Contractor to be responsible for replacing damaged or destroyed materials at no cost to Owner. Do not use materials beyond their expiration date.
- D. Furnish cement either in sacks or in bulk. Use material in chronological order of delivery. If furnished in bulk, supply weighing devices to accurately measure dry cement weight.
- E. Screen all cement to remove any and all lumps or foreign matter before introducing it to the mixer.

1.6 PROJECT/SITE CONDITIONS

- A. Water Control: Contractor is solely responsible for the control of groundwater and groundwater inflows. Contractor shall comply with all erosion and sedimentation control requirements required either by the Contract Documents and/or by the regulatory agencies. Cleaning of pumps, hoses and other equipment shall be only at locations that comply with these requirements.
- B. Prevent grout from entering, clogging, or affecting adjacent toe drains or any other underground utilities.

PART 2 PRODUCTS

2.1 MATERIALS

A. Acrylamide Grout:

1. Use grout, catalyst, accelerator, and tracer dye all from a single manufacturer.
2. Alternative chemical grouts must be approved by the Engineer.

B. Cementitious (Cement-Bentonite) Grout: Prepare design mixes of cement-bentonite grout that meets the requirements of ASTM C827. Mixes are subject to the following limitations:

1. Cement:

- a. Portland cement, ASTM C150, Type 1L furnished in 94-lb, moisture-resistant bags.
- b. Provide bulk cement with methods of measurement, handling, transporting, and storing that conform to the manufacturer's recommendations. Should cement be furnished in cloth or paper bags, package within plastic or rubber vapor barriers.
- c. Grout Mix Properties: Proportioned to provide the required strength when mixed with soil as specified herein, and of mixing consistency as required to perform the work.
- d. Do not use cement which has deteriorated because of improper storage or handling.

2. Bentonite:

- a. Shall be a commercially processed, powdered montmorillonite clay conforming to API SPEC 13A.
- b. Protect bentonite from moisture and contamination both in transit and during storage at the Site.

3. Mixing water shall be potable and meet the requirements of ASTM C94.

4. Fluidifiers: Do not use fluidifiers without written approval of the Engineer.

5. Admixtures: Do not use admixtures without written approval of the Engineer.

6. 2NS Sand must meet the requirements of MDOT SSC, Section 902 2NS fine aggregate.

7. Manchette Tube:

- a. Must be PVC or metal pipe.
- b. Flexible rubber sleeves must cover the grout ports, allowing the grout to flow out of the tube and restricting grout backflow into the tube.

2.2 MIXES

A. Proportioning and Design of Mixes: Mixes subject to the following limitations:

1. Cementitious (Cement-Bentonite) Grout

- a. Bentonite concentration cannot exceed 5 percent of the weight of the cement in the mix design.
- b. Bentonite must be hydrated for a minimum of 12 hours before mixing.
- c. The following table presents a sample mix design:

Component	Ratio	Weight (lbs)
Cement	1	94
Water	1.09	102.83
Bentonite	3.00%	2.820
Welan Gum	0.10%	0.094
Rheobuild 1000	1.59%	1.50

- d. The Contractor may use the sample mix design included in these specifications or provide a new mix design. The mix design provided by the Contractor must be developed by an Engineer licensed in the State of Michigan. This new mix design must also be submitted to the project Engineer for review and approval.
2. Use an independent testing company acceptable to the Engineer for preparing and reporting proposed mix designs.
3. Proportion mixes by either laboratory trial batch or field experience methods. Comply with ACI 211.1 and report to the Engineer the following data:
- a. Brand, type, and composition of cement
 - b. Amounts of water used in trial mixes.
 - c. Proportions of each material per cubic yard
 - d. Gross weight and yield per cubic yard of trial mixtures
 - e. Measured flow time using a Marsh cone. Flow time shall exceed 40 seconds.
 - f. Bleed Test results per ASTM C940 using a 250 ml graduated cylinder. Fill the cylinder with grout to the 200 ml mark, and let the cylinder sit undisturbed for one hour before measuring the amount of bleed.
4. Submit written reports of proposed grout mix to the Engineer for review, at least 30 days prior to start of Work. Do not begin grout production until mixes have been reviewed and approved by the Engineer.

5. Admixtures: Do not use any fluidizers, accelerators, or admixtures without written approval of the Engineer.

PART 3 EXECUTION

3.1 GENERAL SEQUENCE

A. Chemical Grouting

1. Locate and mark the locations of TD-22, TD-23, and TD -24 as well as TD-42, TD-43, and TD-44.
2. Pre-construction CCTV Inspection of TD-22, TD-23, TD-24, TD-42, TD-43 as well as TD-44.
3. Install chemical grout based on the detailed procedures included in the approved Grouting Work Plan within TD-23 and TD-43.
4. Perform periodic CCTV inspections of TD-22 and TD-24 as well as TD-42 and TD-44 as directed by the Engineer.
5. Based on grout takes, the Engineer will identify the locations for low-pressure injection grouting of cementitious (cement-bentonite) grout.

B. Low-Pressure Injection Grouting

1. Layout and install primary and secondary grout holes. The need for tertiary grout holes will be field determined and approved by the Engineer. Drilling procedures must adhere to the guidelines included in FERC, "Guidelines for Drilling in and Near Embankment Dams and Their Foundations".
2. Inject the cementitious (cement-bentonite) grout based on the detailed procedures included in the approved Grouting Work Plan. Maximum grouting pressures for cementitious grout shall be no more than 1-psi per foot of depth.
3. Perform periodic CCTV inspections of TD-22 through TD-24 and TD-42 through TD-44 as directed by the Engineer.
4. Perform post-grouting CCTV inspection of TD-22 through TD-24 and TD-42 through TD-44.

3.2 EXAMINATION

A. Site Verification of Conditions:

1. Examine the areas and conditions under which grout is to be installed.

2. Notify the Engineer of conditions detrimental to the proper and timely completion of the Work.
3. Do not proceed with the Work until unsatisfactory conditions have been remediated.

3.3 INSTALLATION

A. General:

1. Place grout as shown and per manufacturer's instructions. If manufacturer's instructions conflict with the Contract Documents, do not proceed until the Engineer provides clarification.
2. Dry packing will not be permitted.

B. Equipment:

1. Chemical Grouting: inflatable grout packer with integral scrapers or approved alternative.
2. Grout Mixer with pump and circulating line with adequate capacity to mix, stir, and pump required grout continuously, but not less than 60 cubic feet per hour.
3. Pressure Gauges: maximum specified grout pressure must fall in the middle third of the pressure gauge's range. Contractor must always maintain a minimum of one calibrated and fully equipped pressure gauge as an operable spare. The spare gauge, if of new manufacture, calibrated by the factory, or recently calibrated by an independent agency, may be used as a standard for routine verification of the accuracy of the in-service gauge. Verify the accuracy of the in-service gauge at least once per 100 hours of operation. Pressure gauges shall have the ability to read pressures as low as 0.5 pounds per square inch (psi).
4. Drilling Equipment must adhere to requirements in FERC, "Guidelines for Drilling in and Near Embankment Dams and Their Foundations".

3.4 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction:

1. Effective grouting pressures not to exceed 1 psi per foot depth below the downstream face of the embankment at the point of placement.
2. Chemical Grouting: Volume of grout injected per joint or crack not to exceed 60 gallons (8 cubic feet) without Engineer approval.
3. Low-Pressure Injection Grouting: Volume of grout injected into any set (isolated row) of grout ports is not exceed 15 cubic feet.
4. Engineer or a designated representative must be present during all grouting operations.

5. Field revisions to the grout mix must be approved by the Engineer.
6. The use of tertiary holes will be at the direction of the Engineer following completion of grouting efforts at the primary and secondary holes.

END OF SECTION

**SECTION 31 34 00
GEOSYNTHETICS**

PART 1 GENERAL

1.1 SUMMARY

This work consists of providing and installing geosynthetic products on a surface approved by the Engineer.

PART 2 MATERIALS

2.1 GENERAL

Material in accordance with the following MDOT sections:

Non-Woven Geotextile Separator	910
Non-Woven Stabilization Geotextile	910
Road Grade Biaxial Geogrid	910

PART 3 EXECUTION

3.1 GEOTEXTILE PLACEMENT

- A. Place or install geotextile separator or stabilization geotextile products in accordance with the manufacturer's installation guidelines and this subsection.
- B. Do not operate equipment that is required to place backfill directly on geotextile products. Eliminate wrinkles or waves that develop during placement. Place the products in direct contact with the soil below before placing backfill on the geotextile products. Do not expose geotextile to ultraviolet degradation for more than 7 days.
- C. Shingle-lap longitudinal and transverse joints at least 2 feet or seam the joints in accordance with the manufacturer's recommendations. Ensure that field or factory seams meet the minimum grab tensile strength for the product application. Do not use nylon thread for geotextile seaming. Place seams facing upward for inspection purposes. Repair tears or damage to the geotextile in accordance with the manufacturer's recommendations.

3.2 GEOGRID PLACEMENT

- A. All areas immediately beneath the installation area for the geogrid must be properly prepared as shown on the plans, as specified, or as directed by the Engineer. Place or install the geogrid in accordance with the manufacturer's installation guidelines and this subsection.
- B. To prevent undue exposure or damage to the geogrid, place only the amount of geogrid required for immediately pending work. Do not expose geogrid to ultraviolet degradation for more than 7 days.

- C. The geogrid must be unrolled parallel to the centerline of the roadway.
- D. Place the geogrid taut prior to placement of subsequent aggregate layer.
- E. Anchor the geogrid in position after placement until placement of the subsequent aggregate layer. Overlap adjacent rolls of geogrid 2 feet minimum. Whenever possible, the placement of the subsequent aggregate layer must proceed from the centerline of the geogrid placed out to assist in tensioning the geogrid. Place at least 6 inches of the subsequent aggregate layer over the geogrid before allowing construction vehicles on the geogrid.

3.3 AGGREGATE OR GRANULAR MATERIAL PLACEMENT

- A. Spread and shape the subsequent layer of aggregate or granular material after placing geosynthetic to create a stable work platform before compaction. Place additional aggregate or granular material, as required by applicable sections, and compact. Fill ruts with additional aggregate or granular material and compact before placing each subsequent layer.

END OF SECTION

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 32 13 13 CONCRETE PAVING

PART 1 GENERAL

1.1 SUMMARY

Work to include concrete paving (replacing existing concrete paving) at the any portion(s) of the proposed Border-to-Border Trail (by others) that become damaged, as shown on the Drawings. This repair work shall be performed in accordance with the MDOT SSC, Section 602.

1.2 REFERENCE SPECIFICATION

MDOT SSC Section 602 “Concrete Pavement Construction”

PART 2 MATERIALS

2.1 GENERAL

Provide materials in accordance with MDOT SSC Section 602 for Concrete Grade 3500.

PART 3 EXECUTION

3.1 CONSTRUCTION

All concrete paving to be completed in accordance with MDOT SSC Section 602, “Concrete Paving”.

END OF SECTION

SECTION 32 32 16
PRECAST MODULAR BLOCK RETAINING WALL

PART 1 GENERAL

1.1 SUMMARY

- A. This Section includes furnishing all materials and labor required for the design and construction of a precast concrete modular block (PMB) retaining wall with or without geosynthetic reinforcement. Precast modular block retaining wall blocks under this section shall be cast utilizing a wet-cast concrete mix and exhibit a final handling weight in excess of 1,000 pounds (450 kg) per unit and may utilize concrete-reinforcing steel.
- B. Scope of Work: The work shall consist of furnishing materials, labor, equipment, and supervision for the construction of a precast modular block (PMB) retaining wall structure in accordance with the requirements of this section and in acceptable conformity with the lines, grades, design and dimensions shown in the project site plans.
- C. Drawings and General Provisions of the Contract, including General Conditions and Division 03, Division 31, Division 32 and Division 33 also apply to this Section.

1.2 REFERENCES

- A. Where the specification and reference documents conflict, the City's designated representative will make the final determination of the applicable document.
- B. Definitions:
 - 1. Precast Modular Block (PMB) Unit – machine-placed, “wet cast” concrete modular block retaining wall facing unit.
 - 2. Geotextile – a geosynthetic fabric manufactured for use as a separation and filtration medium between dissimilar soil materials.
 - 3. Geogrid – a geosynthetic material comprised of a regular network of tensile elements manufactured in a mesh-like configuration of consistent aperture openings. When connected to the PMB facing units and placed in horizontal layers in compacted fill, the geogrid prevents lateral deformation of the retaining wall face and provides effective tensile reinforcement to the contiguous reinforced fill material.
 - 4. Drainage Aggregate – clean, crushed stone placed within and immediately behind the precast modular block units to facilitate drainage and reduce compaction requirements immediately adjacent to and behind the precast modular block units.

5. Unit Core Fill – clean, crushed stone placed within the hollow vertical core of a precast modular block unit. Typically, the same material used for drainage aggregate as defined above.
6. Foundation Zone – soil zone immediately beneath the leveling pad and the reinforced zone.
7. Retained Zone – soil zone immediately behind the drainage aggregate and wall infill for wall sections designed as modular gravity structures. Alternatively, in the case of wall sections designed with geosynthetic soil reinforcement, the retained zone is the soil zone immediately behind the reinforced zone.
8. Reinforced Zone – structural fill zone within which successive horizontal layers of geogrid soil reinforcement have been placed to provide stability for the retaining wall face. The reinforced zone exists only for retaining wall sections that utilize geosynthetic soil reinforcement for stability.
9. Reinforced Fill – structural fill placed within the reinforced zone.
10. Leveling Pad – hard, flat surface upon which the bottom course of precast modular blocks is placed. The leveling pad may be constructed with crushed stone or other material or systems that are approved by the Engineer. A leveling pad is not a structural footing.
11. Wall Infill – the fill material placed and compacted between the drainage aggregate and the excavated soil face in retaining wall sections designed as modular gravity structures.

C. Reference Standards

1. Design
 - a. AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014.
 - b. Minimum Design Loads for Buildings and Other Structures – ASCE/SEI 7-10.
 - c. International Building Code, 2018 Edition.
 - d. FHWA-NHI-10-024 Volume I and GEC 11 Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes.
 - e. FHWA-NHI-10-025 Volume II and GEC 11 Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes.
 - f. National Concrete Masonry Association (NCMA) Design Manual for Segmental Retaining Walls (ASD), 3rd Edition
2. Precast Modular Block Units
 - a. ACI 201 – Guide to Durable Concrete
 - b. ACI 318 – Building Code Requirements for Structural Concrete
 - c. ASTM A615 – Steel Bars for Concrete Reinforcement
 - d. ASTM A767 – Galvanized Steel Bars for Concrete Reinforcement
 - e. ASTM A775 – Epoxy-Coated Steel Reinforcing Bars
 - f. ASTM C33 – Standard Specification for Concrete Aggregates
 - g. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
 - h. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

- i. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - j. ASTM C143 – Standard Test Method for Slump of Hydraulic-Cement Concrete.
 - k. ASTM C150 – Standard Specification for Portland Cement
 - l. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - m. ASTM C260 – Standard Specification for Air-Entraining Admixtures for Concrete.
 - n. ASTM C494 – Standard Specification for Chemical Admixtures for Concrete.
 - o. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
 - p. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - q. ASTM C666 – Standard Test Method for Concrete Resistance to Rapid Freezing and Thawing.
 - r. ASTM C845 - Standard Specification for Expansive Hydraulic Cement.
 - s. ASTM C920 – Standard Specification for Elastomeric Joint Sealants.
 - t. ASTM C989 - Standard Specification for Slag Cement for Use in Concrete and Mortars.
 - u. ASTM C1116 – Standard Specification for Fiber-Reinforced Concrete.
 - v. ASTM C1157 - Standard Performance Specification for Hydraulic Cement.
 - w. ASTM C1218 - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
 - x. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures.
 - y. ASTM C1611 – Standard Test Method for Slump Flow of Self-Consolidating Concrete.
 - z. ASTM C1776 – Standard Specification for Wet-Cast Precast Modular Retaining Wall Units.
 - aa. ASTM D6638 – Standard Test Method for Determining Connection Strength Between Geosynthetic Reinforcement and Segmental Concrete Units (Modular Concrete Blocks).
 - bb. ASTM D6916 – Standard Test Method for Determining Shear Strength Between Segmental Concrete Units (Modular Concrete Blocks).
3. Drainage Pipe
- a. ASTM D3034 – Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - b. ASTM F2648 – Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Preconstruction Meeting. As directed by the City, the Contractor shall schedule a preconstruction meeting at the project site prior to commencement of retaining wall construction. Participation in the preconstruction meeting shall be required of the Contractor, Retaining Wall Design Engineer (RWDE), Retaining Wall Installation Contractor (RWIC), Grading Contractor if different than the Contractor, and Engineer. The Contractor shall provide notification to all parties at least 10 calendar days prior to the meeting.
1. Preconstruction Meeting Agenda:
 - a. The RWDE shall explain all aspects of the retaining wall construction drawings.
 - b. The RWDE shall explain the required bearing capacity of soil below the retaining wall structure and the shear strength of in-situ soils assumed in the retaining wall design to the Engineer.
 - c. The RWDE shall explain the required shear strength of fill soil in the reinforced, retained and foundation zones of the retaining wall to the Engineer.
 - d. The RWDE shall explain any measures required for coordination of the installation of utilities or other obstructions in the reinforced or retained fill zones of the retaining wall.
 - e. The RWIC shall explain all excavation needs, site access and material staging area requirements to the Contractor or Grading Contractor.

1.4 SUBMITTALS

- A. Product Data. At least 14 days prior to construction, the Contractor shall submit the retaining wall product submittal package to the Engineer for review and approval. The submittal package shall include technical specifications and product data from the manufacturer for the following:
1. Precast Modular Block System brochure and proposed block color.
 2. Precast Modular Block concrete test results specified in paragraph 2.01, subparagraph B of this section as follows:
 - a. 28-day compressive strength
 - b. Air content
 - c. Slump or Slump Flow (as applicable)
 3. Drainage Pipe
 4. Geotextile

5. Geosynthetic Soil Reinforcement (if required by the retaining wall design). The Contractor shall provide certified manufacturer test reports for the geosynthetic soil reinforcement material in the manufactured roll width specified. The test report shall list the individual roll numbers for which the certified material properties are valid.
- B. Installer Qualification Data. At least 14 days prior to construction, the Contractor shall submit the qualifications of the business entity responsible for installation of the retaining wall, the RWIC, per paragraph 1.07, subparagraph A of this section. The proposed installer shall have related project experience installing wall systems within and adjacent to rivers and streams.
- C. Retaining Wall Design Calculations and Construction Shop Drawings. At least 14 days prior to construction, the Contractor shall furnish electronic versions construction shop drawings and the supporting structural calculations report to the City for review and approval. This submittal shall include the following:
 1. Signed, sealed, and dated drawings and engineering calculations prepared by a Professional Engineer registered in the State of Michigan, in accordance with these specifications.
 2. Qualifications Statement by the RWDE summarizing their Experience.
 3. Certificate of Insurance of the RWDE as specified in paragraph 1.06, subparagraph B of this section.

1.5 CONSTRUCTION SHOP DRAWING PREPARATION

- A. The Retaining Wall Design Engineer (RWDE) shall coordinate the retaining wall construction shop drawing preparation with the Engineer. The Contractor shall furnish the RWDE the following project information required to prepare the construction shop drawings. This information shall include, but is not limited to, the following:
 1. Current versions of the site, grading, drainage, utility, erosion control, landscape, and irrigation plans,
 2. Electronic CAD file of the civil site plans listed in (1),
 3. Report of geotechnical investigation and all addenda and any supplemental reports,
 4. Recommendations of the Engineer regarding effective stress shear strength and total stress shear strength (when applicable) parameters for in-situ soils in the vicinity of the proposed retaining wall(s) and for any fill soil that may potentially be used as backfill in retained and/or foundation zones of the retaining wall.
- B. The RWDE shall provide the Engineer with a certificate of professional liability insurance verifying the minimum coverage limits of \$1 million per claim and \$1 million aggregate.

- C. Design of the precast modular block retaining wall shall satisfy the requirements of this section. Where local, state, or national design or building code requirements exceed these specifications, these requirements shall also be satisfied.
- D. The RWDE shall note any exceptions to the requirements of this section by listing them at the bottom right corner of the first page of the construction shop drawings.
- E. Approval or rejection of the exceptions taken by the RWDE will be made in writing as directed by the Engineer.
- F. The RWDE shall determine the appropriate standard(s) to be utilized, and to which the precast modular block design shall be based upon, except as noted herein. Refer to Part 1.02, Paragraph C, Part 1.
- G. In the event that a conflict is discovered between these specifications and a reasonable interpretation of the design specifications and methods referenced in paragraph F above, these specifications shall prevail. If a reasonable interpretation is not possible, the conflict shall be resolved per the requirements in paragraph 1.02, subparagraph A of this section.
- H. Soil Shear Parameters. The RWDE shall prepare the construction shop drawings based upon soil shear strength parameters from the available project data and the recommendations of the Engineer. If insufficient data exists to develop the retaining wall design, the RWDE shall communicate the specific deficiency of the project information or data to the Engineer in writing.
- I. Allowable bearing pressure requirements for each retaining wall shall be clearly shown on the construction drawings.
- J. Global Stability. Overall (global) stability shall be evaluated in accordance with the principals of limit equilibrium analysis as set forth in FHWA-NHI-10-024 Volume I and FHWA-NHI-10-025 Volume II GEC 11 Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, or other methods, as determined by the RWDE, as referenced in Section 1.06, Part F. The minimum factors of safety shall be as follows:

Normal Service (Static)	1.3
Seismic	1.1
Rapid Drawdown (if applicable)	1.2

Note: RWDE to select appropriate FOS

- K. Seismic Stability. Seismic loading shall be evaluated in accordance with AASHTO Load and Resistance Factor Design (LRFD) methodology, or NCMA (ASD) methodology as determined by the RWDE as referenced in Section 1.06, Part F.

1.6 QUALITY ASSURANCE

- A. RWIC Qualifications. In order to demonstrate basic competence in the construction of precast modular block walls, the RWIC shall possess the following:
1. Experience.
 - a. Construction experience with a minimum of 3,000 square feet (280 square meters) of the proposed precast modular block retaining wall system.
 - b. Construction of at least three (3) precast modular block (large block) retaining wall structures within the past three (3) years.
 - c. Construction of at least 5,000 square feet (465 square meters) of precast modular block (large block) retaining walls within the past five (5) years.
 - d. Experience with wall construction in and adjacent to streams and rivers.
 2. RWIC experience documentation for each qualifying project shall include:
 - a. Project name and location.
 - b. Date (month and year) of construction completion.
 - c. Contact information of City or Contractor.
 - d. Type (trade name) of precast modular block system used.
 - e. Maximum height of the wall constructed.
 - f. Face area of the wall constructed.
 3. In lieu of these specific requirements, the Contractor may submit alternate documentation demonstrating competency in Precast Modular Block retaining wall construction.
- B. RWDE Qualifications and Statement of Experience. The RWDE shall submit a written statement affirming that he or she has the following minimum qualifications and experience.
1. The RWDE shall be licensed to practice in the State of Michigan.
 2. The RWDE shall be independently capable of performing all internal and external stability analyses, including those for seismic loading, compound stability, rapid draw-down and deep-seated, global modes of failure.
 3. The RWDE shall affirm in writing that he or she has personally supervised the design of the retaining walls for the project, that the design considers all the requirements listed in paragraph 1.06 and that he or she accepts responsibility as the design Engineer of record for the retaining walls constructed on the project.
 4. The RWDE shall affirm in writing that he or she has designed a minimum of approximately 3,000 face square feet (280 face square meters) of modular block earth retaining walls within the previous five (5) years.
 5. In lieu of these specific requirements, the Engineer may submit alternate documentation demonstrating competency in Precast Modular Block retaining wall design.

- C. The City reserves the right to reject the services of any Engineer, engineering firm, or Contractor who, in the sole opinion of the City, does not possess the requisite experience or qualifications.

1.7 QUALITY CONTROL

- A. The City's Representative/Engineer shall review all submittals for materials, design, RWDE qualifications and the RWIC qualifications.
- B. The Contractor shall retain the services of an Engineer who is experienced with the construction of precast modular block retaining wall structures to perform inspection and testing. The City or its representative shall inspect the placement of concrete at the plant, and placement of the blocks at the site. The cost of inspection shall be the responsibility of the Contractor. Inspection shall be continuous throughout the construction of the retaining walls.
- C. The Engineer shall perform the following duties:
 - 1. Inspect the construction of the precast modular block structure for conformance with construction shop drawings and the requirements of this specification.
 - 2. Verify that soil or aggregate fill placed and compacted in the reinforced, retained and foundation zones of the retaining wall conforms with paragraphs 2.04 and 2.05 of this section and exhibits the shear strength parameters specified by the RWDE.
 - 3. Verify that the shear strength of the in-situ soil assumed by the RWDE is appropriate.
 - 4. Inspect and document soil compaction in accordance with these specifications:
 - a. Required dry unit weight.
 - b. Actual dry unit weight.
 - c. Allowable moisture content.
 - d. Actual moisture content.
 - e. Pass/fail assessment.
 - f. Test location – wall station number.
 - g. Test elevation.
 - h. Distance of test location behind the wall face.
 - 5. Verify that all excavated slopes in the vicinity of the retaining wall are bench-cut as required.
 - 6. Notify the RWIC of any deficiencies in the retaining wall construction and provide the RWIC a reasonable opportunity to correct the deficiency.

7. Notify the Contractor, City and RWDE of any construction deficiencies that have not been corrected in a timely manner.
8. Document all inspection results and provide reports to City, RWDE, and RWIC.
9. Test compacted density and moisture content of the retained backfill with the following frequency:
 - a. At least once every 500 square feet (45 square meters) (in plan) per vertical lift, and
 - b. At least once per every 18 inches (460 mm) of vertical wall construction.
- D. The Contractor's engagement of the Engineer does not relieve the RWIC of responsibility to construct the proposed retaining wall in accordance with the approved construction shop drawings and these specifications.
- E. The RWIC shall inspect the on-site grades and excavations prior to construction and notify the RWDE and Contractor if on-site conditions differ from the elevations, assumptions, and grading conditions depicted in the retaining wall construction shop drawings.

1.8 DELIVERY, STORAGE AND HANDLING

- A. The RWIC shall inspect the materials upon delivery to ensure that the proper type, grade and color of materials have been delivered.
- B. The RWIC shall store and handle all materials in accordance with the manufacturer's recommendations as specified herein and in a manner that prevents deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, UV exposure or other causes. Damaged materials shall not be incorporated into the work.
- C. Geosynthetics
 1. All geosynthetic materials shall be handled in accordance with ASTM D4873. The materials should be stored off the ground and protected from precipitation, sunlight, dirt and physical damage.
- D. Precast Modular Blocks
 1. Precast modular blocks shall be stored in an area with positive drainage away from the blocks. Be careful to protect the block from mud and excessive chipping and breakage. Precast modular blocks shall not be stacked more than three (3) units high in the storage area.
- E. Drainage Aggregate and Backfill Stockpiles
 1. Drainage aggregate or backfill material shall not be piled over unstable slopes or areas of the project site with buried utilities.

2. Drainage aggregate and/or reinforced fill material shall not be staged where it may become mixed with or contaminated by poor draining fine-grained soils such as clay or silt.

PART 2 MATERIALS

2.1 PRECAST MODULAR BLOCK RETAINING WALL UNITS

- A. All units shall be wet-cast precast modular retaining wall units conforming to ASTM C1776.
- B. All units for the project shall be obtained from the same manufacturer. The manufacturer shall be licensed and authorized to produce the retaining wall units by the precast modular block system patent holder/licensor and shall document compliance with the published quality control standards of the proprietary precast modular block system licensor for the previous three (3) years or the total time the manufacturer has been licensed, whichever is less.
- C. Concrete used in the production of the precast modular block units shall be first-purpose, fresh concrete. It shall not consist of returned, reconstituted, surplus or waste concrete. It shall be an original production mix meeting the requirements of ASTM C94 and exhibit the properties as shown in the following table:

Concrete Mix Properties

Freeze Thaw Exposure Class ⁽¹⁾	Minimum 28-Day Compressive Strength ⁽²⁾	Maximum Water Cement Ratio	Nominal Maximum Aggregate Size	Aggregate Class Designation ⁽³⁾	Air Content ⁽⁴⁾
Severe	4,000 psi (27.6 MPa)	0.45	1 inch (25 mm)	3S	6.0% +/- 1.5%
Maximum Water-Soluble Chloride Ion (Cl⁻) Content in Concrete, Percent by Weight of Cement^(5,6)					0.15
Maximum Chloride as Cl⁻ Concentration in Mixing Water, Parts Per Million					1000
Maximum Percentage of Total Cementitious Materials By Weight ^(7,9) (Very Severe Exposure Class Only):					
Fly Ash or Other Pozzolans Conforming to ASTM C618					25
Slag Conforming to ASTM C989					50
Silica Fume Conforming to ASTM C1240					10
Total of Fly Ash or Other Pozzolans, Slag, and Silica Fume ⁽⁸⁾					50
Total of Fly Ash or Other Pozzolans and Silica Fume ⁽⁸⁾					35
Alkali-Aggregate Reactivity Mitigation per ACI 201					
Slump (Conventional Concrete) per ASTM C143⁽¹⁰⁾			5 inches +/- 1½ inches (125 mm +/- 40 mm)		
Slump Flow (Self-Consolidating Concrete) per ASTM C1611			18 inches – 32 inches (450 mm – 800 mm)		

(1) Exposure class is as described in ACI 318. "Moderate" describes concrete that is exposed to freezing and thawing cycles and occasional exposure to moisture. "Severe" describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture. "Very Severe" describes concrete that is exposed to freezing and thawing cycles and in continuous contact with moisture and exposed to deicing chemicals. Exposure class should be specified by City/purchaser prior to order placement.

(2) Test method ASTM C39.

(3) Defined in ASTM C33 Table 3 *Limits for Deleterious Substances and Physical Property Requirements of Coarse Aggregates for Concrete*.

(4) Test method ASTM C231.

(5) Test method ASTM C1218 at age between 28 and 42 days.

(6) Where used in high sulfate environments or where alkali-silica reactivity is an issue, water soluble chloride shall be limited to no more than trace amounts (from impurities in concrete-making components, not intended constituents.)

(7) The total cementitious material also includes ASTM C150, C595, C845, C1157 cement. The maximum percentages shall include:

(a) Fly ash or other pozzolans in type IP, blended cement, ASTM C595, or ASTM C1157.

(b) Slag used in the manufacture of an IS blended cement, ASTM C595, or ASTM C1157.

(c) Silica fume, ASTM C1240, present in a blended cement.

(8) Fly ash or other pozzolans and silica fume shall constitute no more than 25 and 10 percent, respectively, of the total weight of the cementitious materials.

(9) Prescriptive limits shown may be waived for concrete mixes that demonstrate excellent freeze/thaw durability in a detailed and current testing program.

(10) Slump may be increased by a high-range water-reducing admixture.

(11) Alkali Silica Reaction (ASR) Testing shall be conducted using ASTM C1260 and ASTM C1567.

D. Concrete reinforcing steel, when required for the specified block, shall conform to ASTM A615 and have a minimum yield strength of 60,000 psi. When required by the City to be galvanized or epoxy-coated, reinforcing steel shall conform to ASTM A767 or ASTM A775, respectively, and have a minimum yield strength of 60,000 psi.

E. At least 4 inches of concrete cover shall be maintained against the water, and 2 or 3 inches against earth over all reinforcing steel bars.

F. Each concrete block shall be cast in a single continuous pour without cold joints. With the exception of half-block units, corner units and other special application units, the precast modular block units shall conform to the nominal dimensions listed in the table below and be produced to the dimensional tolerances shown.

Block Type	Dimension	Nominal Value	Tolerance
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28" (710 mm) Block	Height	18" (457 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	28" (710 mm)	+/- 1/2" (13 mm)
41" (1030 mm) Block	Height	18" (457 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	40-1/2" (1030 mm)	+/- 1/2" (13 mm)
60" (1520 mm) Block	Height	18" (457 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	60" (1520 mm)	+/- 1/2" (13 mm)
52" (1320 mm) XL Block	Height	36" (914 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	60" (1520 mm)	+/- 1/2" (13 mm)
72" (1830 mm) XL Block	Height	36" (914 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	60" (1520 mm)	+/- 1/2" (13 mm)
96" (2440 mm) XL Block	Height	36" (914 mm)	+/- 3/16" (5 mm)
	Length	46-1/8" (1172 mm)	+/- 1/2" (13 mm)
	Width*	60" (1520 mm)	+/- 1/2" (13 mm)

* Block tolerance measurements shall exclude variable face texture

- G. With the exception of half-block units, corner units and other special application units, the precast modular block units shall have two (2), circular dome shear knobs that are 10 inches (254 mm), 7.5 inches (190 mm), or 6.75 inches (171 mm) in diameter and 4 inches (102 mm) or 2 inches (51 mm) in height. The shear knobs shall fully index into a continuous semi-cylindrical shear channel in the bottom of the block course above. The Peak interlock shear between any two (2) vertically stacked precast modular block units, with 10-inch (254 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 6,500 lb/ft (95 kN/m) at a minimum normal load of 500 lb/ft (7kN/m). as well as an ultimate peak interface shear capacity in excess of 11,000 lb/ft (160 kN/m). The peak interlock shear between any two (2) vertically stacked precast modular block units, with 7.5-inch (190 mm) or 6.75-inch (171 mm) diameter shear knobs, measured in accordance with ASTM D6916 shall exceed 1,850 lb/ft (27 kN/m)

at a minimum normal load of 500 lb/ft (7kN/m) as well as an ultimate peak interface shear capacity in excess of 10,000 lb/ft (146 kN/m). Test specimen blocks tested under ASTM D6916 shall be actual, full-scale production blocks of known compressive strength. The interface shear capacity reported shall be corrected for a 4,000 psi (27.6 MPa) concrete compressive strength. Regardless of precast modular block configuration, interface shear testing shall be completed without the inclusion of unit core infill aggregate.

- H. The 28-inch (710 mm) and 41-inch (1030 mm) precast modular block units may be cast with a continuous vertical core slot that will permit the insertion of a 12-inch (305 mm) inch wide strip of geogrid reinforcement to pass completely through the block. When installed in this manner, the geogrid reinforcement shall form a non-normal load dependent, positive connection between the block unit and the reinforcement strip. The use of steel for the purposes of creating the geogrid-to-block connection is not acceptable.
- I. Without field cutting or special modification, the precast modular block units shall be capable of achieving a minimum radius of 14 ft - 6 in (4.42 m).
- J. The precast modular block units shall be manufactured with an integrally cast shear knobs that establishes a standard horizontal set-back for subsequent block courses. The precast modular block system shall be available in the standard horizontal set-back facing batter options listed below:

18-inch High Blocks		36-inch High Blocks	
<u>Horizontal Set-Back/Blk. Course</u>	<u>Max. Facing Batter</u>	<u>Horizontal Set-Back/Blk. Course</u>	<u>Max. Facing Batter</u>
3/8" (10 mm)	1.2°	3-1/4" (83 mm)	5.2°
1-5/8" (41 mm)	5.2°		
9-3/8" (238 mm)	27.5°		
16-5/8" (422 mm)	42.7°		

The precast modular block units shall be furnished with the required shear knobs that provide the facing batter required in the construction shop drawings.

- K. The precast modular block unit face texture shall be selected by the City from the available range of textures available from the precast modular block manufacturer. Each textured block facing unit shall be a minimum of 5.76 square feet (0.54 square meters) with a unique texture pattern that repeats with a maximum frequency of once in any 15 square feet (1.4 square meters) of wall face.
- L. The block color shall be selected by the City from the available range of colors available from the precast modular block manufacturer.
- M. All precast modular block units shall be sound and free of cracks or other defects that would interfere with the proper installation of the unit, impair the strength or performance of the constructed wall. PMB units to be used in exposed wall construction shall not exhibit chips or cracks in the exposed face or faces of the unit

that are not otherwise permitted. Chips smaller than 1.5" (38 mm) in its largest dimension and cracks not wider than 0.012" (0.3 mm) and not longer than 25% of the nominal height of the PMB unit shall be permitted. PMB units with bug holes in the exposed architectural face smaller than 0.75" (19 mm) in its largest dimension shall be permitted. Bug holes, water marks, and color variation on non-architectural faces are acceptable. PMB units that exhibit cracks that are continuous through any solid element of the PMB unit shall not be incorporated in the work regardless of the width or length of the crack.

N. Preapproved Manufacturers.

Manufacturers of Redi-Rock Retaining Wall Systems as licensed by Redi-Rock International, LLC, 05481 US 31 South, Charlevoix, MI 49720 USA; telephone (866) 222-8400; website www.redi-rock.com.

O. Substitutions. Technical information demonstrating conformance with the requirements of this specification for an alternative precast modular block retaining wall system must be submitted for preapproval at least 14 calendar days prior to the bid date. Acceptable alternative PMB retaining wall systems, otherwise found to be in conformance with this specification, shall be approved in writing by the City 7 days prior to the bid date. The City's Representative reserves the right to provide no response to submissions made out of the time requirements of this section or to submissions of block retaining wall systems that are determined to be unacceptable to the City.

P. Value Engineering Alternatives. The City may evaluate and accept systems that meet the requirements of this specification after the bid date that provide a minimum cost savings of 20% to the City. Construction expediency will not be considered as a contributing portion of the cost savings total.

2.2 GEOGRID REINFORCEMENT

A. Geogrid reinforcement shall be a woven or knitted PVC coated geogrid manufactured from high-tenacity PET polyester fiber with an average molecular weight greater than 25,000 ($M_n > 25,000$) and a carboxyl end group less than 30 (CEG < 30). The geogrid shall be furnished in prefabricated roll widths of certified tensile strength by the manufacturer. The prefabricated roll width of the geogrid shall be 12" (300 mm) +/- 1/2" (13 mm). No cutting of geogrid reinforcement down to the 12" (300 mm) roll width from a larger commercial roll width will be allowed under any circumstances.

B. The ultimate tensile strength (T_{ult}) of the geogrid reinforcement shall be measured in accordance with ASTM D6637.

C. Geogrid – Soil Friction Properties

1. Friction factor, F^* , shall be equal to $2/3 \tan \phi$, where ϕ is the effective angle of internal friction of the reinforced fill soil.

2. Linear Scale Correction Factor, α , shall equal 0.8.

- D. Long-Term Tensile Strength (T_{al}) of the geogrid reinforcement shall be calculated in accordance with Section 3.5.2 of FHWA-NHI-10-024 and as provided in this specification.
 - 1. The creep reduction factor (RF_{CR}) shall be determined in accordance with Appendix D of FHWA-NHI-10-025 for a minimum 75 year design life.
 - 2. Minimum installation damage reduction factor (RF_{ID}) shall be 1.25. The value of RF_{ID} shall be based upon documented full-scale tests in a soil that is comparable to the material proposed for use as reinforced backfill in accordance with ASTM D5818.
 - 3. Minimum durability reduction factor (RF_D) shall be 1.3 for a soil pH range of 3 to 9.
- E. Connection between the PMB retaining wall unit and the geogrid reinforcement shall be determined from short-term testing per the requirements of FHWA NHI-10-025, Appendix B.4 for a minimum 75-year design life.
- F. The minimum value of T_{al} for geogrid used in design of a reinforced precast modular block retaining wall shall be 2,000 lb/ft (29 kN/m) or greater.
- G. The minimum length of geogrid reinforcement shall be the greater of the following:
 - 1. 0.7 times the wall design height, H.
 - 2. 6 feet (1.83 m).
 - 3. The length required by design to meet internal stability requirements, soil bearing pressure requirements and constructability requirements.
- H. Constructability Requirements. Geogrid design embedment length shall be measured from the back of the precast modular block facing unit and shall be consistent for the entire height of a given retaining wall section.
- I. Geogrid shall be positively connected to every precast modular block unit. Design coverage ratio, R_c , as calculated in accordance with AASHTO LRFD Bridge Design Specifications Figure 11.10.6.4.1-2 shall not exceed 0.50.
- J. Preapproved Geogrid Reinforcement Products.
 - 1. Miragrid XT Geogrids as manufactured by TenCate Geosynthetics of Pendergrass, Georgia USA and distributed by Manufacturers of the Redi-Rock Retaining Wall System.
- K. Substitutions. No substitutions of geogrid reinforcement products shall be allowed if the pre-approved modular block wall manufacturer is used.

2.3 GEOTEXTILE

- A. Nonwoven geotextile fabric shall be placed as indicated on the retaining wall construction shop drawings. Additionally, the nonwoven geotextile fabric shall be placed in the v-shaped joint between adjacent block units on the same course. The nonwoven geotextile fabric shall meet the requirements Class 3 construction survivability in accordance with AASHTO M 288.

B. Preapproved Nonwoven Geotextile Products

1. Mirafi 140N
2. Propex Geotex 451
3. Skaps GT-142
4. Thrace-Linq 140EX
5. Carthage Mills FX-40HS
6. Stratatex ST 142

2.4 DRAINAGE AGGREGATE AND WALL INFILL

Drainage aggregate (and wall infill for retaining walls designed as modular gravity structures) shall be MDOT 6A Coarse Aggregate, conforming to MDOT Section 902.

2.5 REINFORCED FILL

- A. Material used as reinforced backfill material in the reinforced zone (if applicable) shall be a granular fill material meeting the requirements of USCS soil type GW, GP, SW or SP per ASTM D2487 or alternatively by AASHTO Group Classification A-1-a or A-3 per AASHTO M 145. The backfill shall exhibit a minimum effective internal angle of friction, $\phi = 34$ degrees at a maximum 2% shear strain and meet the following particle-size distribution requirements per ASTM D6913.

U.S. Standard	
<u>Sieve Size</u>	<u>% Passing</u>
3/4" (19 mm)	100
No. 4 (4.76 mm)	0-100
No. 40 (0.42 mm)	0-60
No. 200 (0.07 mm)	0-15

- B. The reinforced backfill material shall be free of sod, peat, roots or other organic or deleterious matter including, but not limited to, ice, snow or frozen soils. Materials passing the No. 40 (0.42 mm) sieve shall have a liquid limit less than 25 and plasticity index less than 6 per ASTM D4318. Organic content in the backfill material shall be less than 1% per AASHTO T-267 and the pH of the backfill material shall be between 5 and 8.
- C. Soundness. The reinforced backfill material shall exhibit a magnesium sulfate soundness loss of less than 30% after four (4) cycles, or sodium sulfate soundness loss of less than 15% after five (5) cycles as measured in accordance with AASHTO T-104.
- D. Reinforced backfill shall not be comprised of crushed or recycled concrete, recycled asphalt, bottom ash, shale or any other material that may degrade, creep or experience a loss in shear strength or a change in pH over time.

2.6 LEVELING PAD

- A. The precast modular block units shall be placed on a leveling pad constructed from crushed stone or unreinforced concrete. The leveling pad shall be constructed to the dimensions and limits shown on the retaining wall design drawings prepared by the RWDE.
- B. Crushed stone used for construction of a granular leveling pad shall meet the requirements of the drainage aggregate and wall infill in section 2.4 or a preapproved alternate material.
- C. Concrete used for construction of an unreinforced concrete leveling pad shall satisfy the criteria for AASHTO Class B. The concrete should be cured a minimum of 12 hours prior to placement of the precast modular block wall retaining units and exhibit a minimum 28-day compressive strength of 2,500 psi (17.2 MPa).
- D. For the precast modular block retaining walls constructed within the Huron River, the contractor's submittal should include a description of the proposed construction means and methods including the proposed equipment to be used to construct the leveling pad within the river.

2.7 DRAINAGE

- A. Drainage Pipe
 - 1. Drainage collection pipe shall be a 4" (100 mm) diameter, 3-hole perforated, HDPE pipe with a minimum pipe stiffness of 22 psi (152 kPa) per ASTM D2412.
 - 2. The drainage pipe shall be manufactured in accordance with ASTM D1248 for HDPE pipe and fittings.
- B. Preapproved Drainage Pipe Products
 - 1. ADS 3000 Triple Wall pipe as manufactured by Advanced Drainage Systems, or Equal.

PART 3 EXECUTION

3.1 GENERAL

- A. All work shall be performed in accordance with OSHA/MIOSHA safety standards, state and local building codes and manufacturer's requirements.
- B. The Contractor is responsible for the location and protection of all existing underground utilities. Any new utilities proposed for installation in the vicinity of the retaining wall, shall be installed concurrent with retaining wall construction. The Contractor shall coordinate the work of subcontractors affected by this requirement.
- C. New utilities installed below the retaining wall shall be backfilled and compacted to a minimum of 98% maximum dry density per ASTM D698 standard proctor.

- D. The Contractor is responsible to ensure that safe excavations and embankments are maintained throughout the course of the project.
- E. All work shall be inspected by the Engineer as directed by the City.

3.2 EXAMINATION

- A. Prior to construction, the Contractor, Grading Contractor if different than the Contractor, RWIC and Engineer shall examine the areas in which the retaining wall will be constructed to evaluate compliance with the requirements for installation tolerances, worker safety and any site conditions affecting performance of the completed structure. Installation shall proceed only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Where applicable, remove existing gabions, gabion mattresses, and/or existing retaining wall as detailed in the contract documents.
- B. Fill Soil.
 - 1. The Engineer shall verify that reinforced backfill placed in the reinforced soil zone satisfies the criteria of this section.
 - 2. The Engineer shall verify that any fill soil installed in the foundation and retained soil zones of the retaining wall satisfies the specification of the RWDE as shown on the construction drawings.
- C. Excavation.
 - 1. The Contractor or Grading Contractor shall excavate to the lines and grades required for construction of the precast modular block retaining wall as shown on the construction drawings. The Contractor or Grading Contractor shall minimize over-excavation. Excavation support, if required, shall be the responsibility of the Contractor or Grading Contractor.
 - 2. Over-excavated soil shall be replaced with compacted fill in conformance with the specifications of the RWDE and Division 31, Section 31 23 00 – “Excavation, Backfill and Compaction”, of these project specifications.
 - 3. Embankment excavations shall be bench cut as directed by the project Geotechnical Engineer and inspected by the Engineer for compliance.
- D. Foundation Preparation.
 - 1. Prior to construction of the precast modular block retaining wall, the leveling pad area and undercut zone (if applicable) shall be cleared and grubbed. All topsoil, brush, frozen soil, and organic material shall be removed. Additional foundation soils found to be unsatisfactory beyond the specified undercut limits shall be undercut and replaced with approved fill as directed by the project Geotechnical Engineer. The Engineer shall ensure that the undercut limits are consistent with

the requirements of the project Geotechnical Engineer and that all soil fill material is properly compacted in accordance with project specifications. The Engineer shall document the volume of undercut and replacement.

2. Following excavation for the leveling pad and undercut zone (if applicable), the Engineer shall evaluate the in-situ soil in the foundation and retained soil zones.
 - a. The Engineer shall verify that the shear strength of the in-situ soil assumed by the RWDE is appropriate. The Engineer shall immediately stop work and notify the City if the in-situ shear strength is found to be inconsistent with the retaining wall design assumptions.
 - b. The Engineer shall verify that the foundation soil exhibits sufficient ultimate bearing capacity to satisfy the requirements indicated on the retaining wall construction shop drawings per paragraph 1.06 I of this section.

E. Leveling Pad.

1. The leveling pad shall be constructed to provide a level, hard surface on which to place the first course of precast modular block units. The leveling pad shall be placed in the dimensions shown on the retaining wall construction drawings and extend to the limits indicated.
2. Crushed Stone Leveling Pad. Crushed stone shall be placed in uniform maximum lifts of 6" (150 mm). The crushed stone shall be compacted by a minimum of 3 passes of a vibratory compactor capable of exerting 2,000 lb (8.9 kN) of centrifugal force and to the satisfaction of the Engineer.
3. Unreinforced Concrete Leveling Pad. The concrete shall be placed in the same dimensions as those required for the crushed stone leveling pad. The RWIC shall erect proper forms as required to ensure the accurate placement of the concrete leveling pad according to the retaining wall construction drawings.

3.4 PRECAST MODULAR BLOCK WALL SYSTEM INSTALLATION

- A. The precast modular block structure shall be constructed in accordance with the construction drawings, these specifications and the recommendations of the retaining wall system component manufacturers. Where conflicts exist between the manufacturer's recommendations and these specifications, these specifications shall prevail.
- B. Drainage components. Pipe, geotextile, and drainage aggregate shall be installed as shown on the construction shop drawings.
- C. Precast Modular Block Installation
 1. The first course of block units shall be placed with the front face edges tightly abutted together on the prepared leveling pad at the locations and elevations shown on the construction drawings. The RWIC shall take special care to ensure that the bottom course of block units is in full contact with the leveling pad, are set level and true and are properly aligned according to the locations shown on the construction drawings.

2. Backfill shall be placed in front of the bottom course of blocks prior to placement of subsequent block courses. Nonwoven geotextile fabric shall be placed in the V-shaped joints between adjacent blocks. Drainage aggregate shall be placed in the V-shaped joints between adjacent blocks to a minimum distance of 12" (300 mm) behind the block unit. If stone infill of hollow core blocks exceeds 45% of the block design volume, drainage aggregate will not be required to extend beyond the back of the blocks, with the approval of the RWDE.
 3. Drainage aggregate shall be placed in 9-inch maximum lifts and compacted by a minimum of three (3) passes of a vibratory plate compactor capable exerting a minimum of 2,000 lb (8.9 kN) of centrifugal force.
 4. Unit core fill shall be placed in the precast modular block unit vertical core slot. The core fill shall completely fill the slot to the level of the top of the block unit. The top of the block unit shall be broom-cleaned prior to placement of subsequent block courses. No additional courses of precast modular blocks may be stacked before the unit core fill is installed in the blocks on the course below.
 5. Base course blocks for gravity wall designs (without geosynthetic soil reinforcement) may be furnished without vertical core slots. If so, disregard item 4 above, for the base course blocks in this application.
 6. Nonwoven geotextile fabric shall be placed between the drainage aggregate and the retained soil (gravity wall design) or between the drainage aggregate and the reinforced fill (reinforced wall design) as required on the retaining wall construction drawings.
 7. Subsequent courses of block units shall be installed with a running bond (half block horizontal course-to-course offset). With the exception of 90-degree corner units, the shear channel of the upper block shall be fully engaged with the shear knobs of the block course below. The upper block course shall be pushed forward to fully engage the interface shear key between the blocks and to ensure consistent face batter and wall alignment. Geogrid, drainage aggregate, unit core fill, geotextile and properly compacted backfill shall be complete and in-place for each course of block units before the next course of blocks is stacked.
 8. The elevation of retained soil fill shall not be less than 1 block course (18 inches (457 mm)) below the elevation of the reinforced backfill throughout the construction of the retaining wall.
 9. If included as part of the precast modular block wall design, cap units shall be secured with an adhesive in accordance with the precast modular block manufacturer's recommendation.
- D. Geogrid Reinforcement Installation (if required)
1. Geogrid reinforcement shall be installed at the locations and elevations shown on the construction drawings on level fill compacted to the requirements of this specification.
 2. Continuous 12" (300 mm) wide strips of geogrid reinforcement shall be passed completely through the vertical core slot of the precast modular block unit and

extended to the embedment length shown on the construction plans. The strips shall be staked or anchored as necessary to maintain a taut condition.

3. Reinforcement length (L) of the geogrid reinforcement is measured from the back of the precast modular block unit. The cut length (L_c) is two times the reinforcement length plus additional length through the block facing unit. The cut length is calculated as follows:

$$L_c = 2*L + 3 \text{ ft } (2*L + 0.9 \text{ m}) \text{ (28" (710 mm) block unit)}$$
$$L_c = 2*L + 5 \text{ ft } (2*L + 1.5 \text{ m}) \text{ (41" (1030 mm) block unit)}$$

4. The geogrid strip shall be continuous throughout its entire length and may not be spliced. The geogrid shall be furnished in nominal, prefabricated roll widths of 12" (300 mm) +/- 1/2" (13 mm). No field modification of the geogrid roll width shall be permitted.
 5. Neither rubber tire nor track vehicles may operate directly on the geogrid. Construction vehicle traffic in the reinforced zone shall be limited to speeds of less than 5 mph (8 km/hr) once a minimum of 9 inches (230 mm) of compacted fill has been placed over the geogrid reinforcement. Sudden braking and turning of construction vehicles in the reinforced zone shall be avoided.
- E. Construction Tolerance. Allowable construction tolerance of the retaining wall shall be as follows:
1. Deviation from the design batter and horizontal alignment, when measured along a 10' (3 m) straight wall section, shall not exceed 3/4" (19 mm).
 2. Deviation from the overall design batter shall not exceed 1/2" (13 mm) per 10' (3 m) of wall height.
 3. The maximum allowable offset (horizontal bulge) of the face in any precast modular block joint shall be 1/2" (13 mm).
 4. The base of the precast modular block wall excavation shall be within 2" (50 mm) of the staked elevations, unless otherwise approved by the Engineer.
 5. Differential vertical settlement of the face shall not exceed 1' (300 mm) along any 200' (61 m) of wall length.
 6. The maximum allowable vertical displacement of the face in any precast modular block joint shall be 1/2" (13 mm).
 7. The wall face shall be placed within 2" (50 mm) of the horizontal location staked.

3.5 WALL INFILL AND REINFORCED BACKFILL PLACEMENT

- A. Backfill material placed immediately behind the drainage aggregate shall be compacted as follows:
1. 98% of maximum dry density at $\pm 2\%$ optimum moisture content per ASTM D698 standard proctor or 85% relative density per ASTM D4254.

- B. Compactive effort within 3' (0.9 m) of the back of the precast modular blocks should be accomplished with walk-behind compactors. Compaction in this zone shall be within 95% of maximum dry density as measured in accordance with ASTM D698 standard proctor or 80% relative density per ASTM D 4254. Heavy equipment should not be operated within 3' (0.9 m) of the back of the precast modular blocks.
- C. Backfill material shall be installed in lifts that do not exceed a compacted thickness of 9" (230 mm).
- D. At the end of each workday, the RWIC shall grade the surface of the last lift of the granular wall infill to a $3\% \pm 1\%$ slope away from the precast modular block wall face and compact it.
- E. The Contractor shall protect, or direct the Grading Contractor to protect, the precast modular block wall structure against surface water runoff at all times through the use of berms, diversion ditches, silt fence, temporary drains and/or any other necessary measures to prevent soil staining of the wall face, scour of the retaining wall foundation or erosion of the reinforced backfill or wall infill.

3.6 OBSTRUCTIONS IN THE INFILL AND REINFORCED FILL ZONE

- A. The RWIC shall make all required allowances for obstructions behind and through the wall face in accordance with the approved construction shop drawings.
- B. Should unplanned obstructions become apparent for which the approved construction shop drawings do not account, the affected portion of the wall shall not be constructed until the RWDE can appropriately address the required procedures for construction of the wall section in question.

3.7 COMPLETION

- A. For walls supporting unpaved areas, a minimum of 12" (300 mm) of compacted, low-permeability fill shall be placed over the granular wall infill zone of the precast modular block retaining wall structure. The adjacent retained soil shall be graded to prevent ponding of water behind the completed retaining wall.
- B. For retaining walls with crest slopes of 5H:1V or steeper, silt fence shall be installed along the wall crest immediately following construction. The silt fence shall be located 3' to 4' (0.9 m to 1.2 m) behind the uppermost precast modular block unit. The crest slope above the wall shall be immediately seeded to establish vegetation. The Contractor shall ensure that the seeded slope receives adequate irrigation and erosion protection to support germination and growth.
- C. The Contractor shall confirm that the as-built precast modular block wall geometries conform to the requirements of this section. The Contractor shall notify the City of any deviations.

END OF SECTION

**SECTION 32 93 00
VEGETATION**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. The work shall consist of furnishing all labor, equipment, and material necessary to final grade, seed, mulch, fertilize, maintain, and establish vegetation for the areas indicated on the Drawings and as specified herein.

1.2 SUBMITTALS

- A. Submit a complete materials list of items proposed for the work and a description of how the work will be completed.
- B. Submit seed and fertilizer certifications for all bags used in the project, including name and location of seed supplier(s) and a complete list of each seed mix by weight and proportion that is being supplied before the seed mix is ordered.
- C. Submit Seed and mulch equipment and turf maintenance equipment.
- D. Submit Installer qualifications.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure live seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.
- B. All seeds shall be packaged and kept dry to ensure adequate protection against damage and to maintain dormancy while in transit, storage, or during planting operations.
- C. All seed mixture(s) shall be delivered to the site in vendor's sealed containers and labeled, in compliance with the Federal Seed Act and applicable State laws.
- D. Seed shall not be delivered and stored longer than 9 months prior to date of installation.
- E. Straw mulch shall be stored off the ground under a cover that provides protection from moisture and humidity.
- F. Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.

1.4 MAINTENANCE

- A. Maintain vegetated surfaces and supply additional topsoil where necessary, including areas affected by erosion.
- B. Replant damaged grass areas showing root growth failure, deterioration, bare or thin spots and eroded areas.
- C. Establish and maintain all turf in a vigorous, well-kept condition and warrant them against defects including death, improper maintenance, and unsatisfactory growth for a period of one (1) year.

1.5 QUALIFICATIONS

- A. Installer Qualifications: The work of this section shall be performed by a Contractor with a minimum of 5 years of documented experience and specializing in seeding lawn installations and turf maintenance.

PART 2 PRODUCTS

2.1 GROWING MEDIA

- A. Fertilizer: starter fertilizer 20-27-5 (Nitrogen-Phosphorous-Potassium)

2.2 SEED MIXTURE

- A. The following permanent seed mixture shall be used:
 - 1. Furnish turf seed that meets specifications of an 80/20 Turf Type Tall Fescue Mix with perennial rye.
 - 2. Seed mix shall not include annual ryegrass, KY 31 (coarse-leaf tall fescue), Linn (perennial ryegrass cultivar), Orchardgrass, Redtop, and Timothy.
 - 3. Any alternative seed mixtures intended for use on the project site must be submitted to the Engineer for review and approval.
 - 4. The permanent seed mixture to be used on the project stability berm and collector ditch shall be no-mow and drought resistant.

2.3 MULCH

- A. Mulching material: Oat or wheat straw, reasonably free from weeds, foreign matter detrimental to plant life, and in a dry condition.

- B. Erosion control blanket: Uniform open weave jute matting; excelsior matting; erosion control mulching fabric consisting of knitted construction of yarn interwoven with strips of biodegradable paper; or organic fiber protective fiber mat consisting of half-inch layer of chopped straw, knitted into mat with thin netting of biodegradable polypropylene. Shall be environmentally sensitive and certified weed see free. Performance capabilities shall have a shear stress rating of 84 Pa (1.75 lb/ft²) for slopes that are 2H:1V and flatter.

PART 3 EXECUTION

3.1 EXAMINATION

- A. The Contractor shall not begin work in this section until the final grading has been approved by the Resident Project Representative.
- B. Prior to seeding, examine and verify the acceptability of the job site. Notify the Engineer if conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions, or obstructions. Do not proceed with the work until unsatisfactory conditions have been corrected or resolved in writing by the Engineer.
- C. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
- D. Coordination is required to ensure rainfall/groundwater seepage does not result in soil moisture conditions that will cause excessive rutting during lawn installation operations. Suspend soil spreading, grading and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

3.2 PREPARATION

- A. Test the soil for the appropriate pH and submit test results to the Resident Project Representative.
- B. De-compaction: De-compact areas trafficked by construction activities to a minimum depth of 12 inches.
- C. Rough Grading: Grade surfaces to assure drainage away from structures and to prevent ponding and pockets of surface drainage. Provide subgrade free from irregular surface changes and as follows:
 - 1. Rough grade shall equal plus/minus 0.20 feet, subgrade tolerance shall be free of exposed boulders or stones exceeding 1 inch in greatest dimension.
 - 2. Fill in all areas of settlement to proper grade before subsequent placement of topsoil.

3.3 APPLICATION

- A. Do not temporarily seed slopes 3H:1V or steeper after placing topsoil. Only permanently seed those slopes.
- B. The seeding shall be completed within three days after completion of final grading or as soon thereafter as conditions are favorable. Seeding shall occur between March 15th and September 15th.
- C. Provide minimum 6 inches of topsoil (according to AASHTO T267) in areas where vegetation is to be established. The seedbed shall be prepared by pulverizing and breaking up the soil to a minimum depth of two inches with a disk harrow, drag harrow, spike tooth harrow or similar tool. All rocks over two inches in diameter, clods and undesirable material that would interfere with seeding operations shall be removed. Immediately after seedbed preparation, the Contractor shall apply the fertilizer uniformly over the area at a rate of 155 pounds per acre (3.5 pounds per 1,000 square feet). Apply fertilizers by mechanical drop or rotary distributor, thoroughly and evenly incorporated with soil to a depth of 3 inches by disking or other approved method. Fertilize areas inaccessible to power equipment with hand tools and incorporate into soil.
- D. The seed shall be drilled or broadcast uniformly over the seedbed at a rate of 220 pounds per acre (5 pounds per 1,000 square feet) using methods and equipment acceptable to the Resident Project Representative. The seeded area shall be passed over with a cultipacker or similar tool to help cover more seed and improve seeding establishment. Application of grass seed and fertilizer at the same time, in the same machine is not permitted.
- E. Seed sowing is not permitted immediately following rain, when the ground is too dry, or during windy periods.
- F. The approved mulch shall be applied over the seeded area at a rate of 2 tons per acre (one bale per 1,000 square feet) for straw. Hydro mulching will not be permitted.
- G. Mulching material shall be kept in place with asphalt emulsion applied at a minimum rate of 60 gallons per ton of mulching material.
- H. The Contractor shall seed and mulch all access roads, slopes, ditches, spoil areas and all other areas disturbed by construction.
- I. Seeded areas shall be watered as necessary to promote good growth during the germination and establishment period. During the establishment period the Contractor shall water a minimum of one inch over the seeded area two times per week. In dry weather, more frequent watering will be required. A minimum of 12 waterings is required.
- J. The Contractor shall perform the first mowing at a height not to exceed 5 inches. The grass shall not be cut shorter than 3 inches.

3.4 INSTALLATION

A. Establishment blanket:

1. Cover seeded slopes where grade is 2:1 or greater with establishment blanket. Roll matting down over slopes without stretching or pulling. Any mat used shall be biodegradable, no mats containing plastic netting will be permitted.
2. Lay matting smoothly on soil surface, burying top end of each section in narrow 6-inch trench. Leave 12-inch overlap from top roll over bottom roll. Leave 4-inch overlap over adjacent section.
3. Staple outside edges and overlaps at 36-inch intervals.
4. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
5. In ditches, unroll matting in direction of flow. Overlap ends of strips 6 inch with upstream section on top.

3.5 ADJUSTING

- #### **A.**
- Any vegetated areas which are found to not have an adequate growth of cover during the first year, shall be re-seeded as soon as weather conditions permit, at no additional cost to the City.

3.6 PROTECTION

- #### **A.**
- The Contractor shall secure the work area and protect the vegetated areas from any traffic, disturbances, wildlife, or public use until vegetation is accepted.

END OF SECTION

DIVISION 33 – SUBDRAINAGE

SECTION 33 42 13 STORMWATER CULVERTS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. This work includes the removal and realignment of the culvert connecting the Collector Ditch Pond (and Collector Ditch) to the Huron River as shown in the contract drawings.

1.2 SUBMITTALS

- A. Shop Drawings: Indicate dimensions, layout of piping, pipe inverts, and gradient of slope.
- B. Product Data: Provide data on pipe products and pipe accessories.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Project Record Documents: Record location of pipe runs, connections, and principal invert elevations.
- E. Pipe Bedding

PART 2 PRODUCTS

2.1 CULVERT MATERIALS

- A. Single Wall Culvert Pipe: 15.5-inch inner diameter High Density Polyethylene (HDPE), corrugated, smooth inner-walled pipe with fused ends meeting the requirements of ASTM F667.
- B. All joints shall be water-tight and shall be joined with gaskets meeting the requirements of ASTM F667 and compatible with the pipe as recommended by the manufacturer. Gaskets shall incorporate a closed-cell synthetic expanded rubber gasket meeting the requirements of ASTM D1056 Grade 2A2.
- C. All Pipe shall be installed and handled following the manufacturer's instructions.
- D. The Contractor shall order and install pipe made by a single approved manufacturer.
- E. Pipe Bedding Material: per MDOT 902

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the excavations, dimensions, and elevations are as indicated on the drawings and are in accordance with the specifications. Each piece of pipe and each joint be cleaned and examined for defects before it is installed. No cracked, broken, or defective piece should be discovered after having been installed. If discovered, it shall be removed and replaced with a sound piece in a satisfactory manner by the Contractor at no additional cost.
- B. Sections of pipe which have cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. Undamaged portions of the pipe shall then be rejoined using heat fusion joining method.

3.2 PREPARATION

- A. Remove large stones or other hard matter that could damage piping or impede consistent backfilling or compaction.
- B. Do not place pipe until the subgrade has been approved by the Resident Project Representative. Over-excavate unsuitable subgrade soils as directed by the Resident Project Representative and replace with suitable compacted fill as directed by the Resident Project Representative.
- C. Pipe shall be stored on a clean, level ground surface to prevent scratching or gouging. If pipe is stacked for storage, the stacking shall be in accordance with manufacturer's recommendations. Pipe shall be handled during unloading, movement to the site of installation, or during installation at the site so that it is not pulled over sharp objects or cut by chokers or lifting equipment.

3.3 INSTALLATION

- A. Install pipe and accessories in accordance with manufacturer's written instructions.
- B. Fused sections of pipe shall be handled carefully to avoid damage to the pipe. Chains or cable type chokers shall not be used to handle pipe. Nylon slings shall be used to handle pipe. Spreader bars shall be used when lifting long fused sections.
- C. Proper and suitable tools and appliances for the safe and convenient cutting, handling, fusion, and installation of the pipe and fitting shall be used.
- D. Suitable fittings shall be used where shown on the Plans and as required to install the pipe systems.
- E. All lines shall be closed off with bulkheads or solid caps when pipe installation is not in progress. Pipe shall be thoroughly cleaned before it is laid and kept clean until it is accepted in the completed Work.
- F. Place pipe in the trench in accordance with the Plans. At all times the Contractor shall exercise due care in handling the pipe to prevent crushing or kinking of the pipe.

- G. Heavy equipment, including bulldozers and rollers, may not be operated directly on top of any pipe until a minimum of one (2) foot of fill has been placed and compacted, unless otherwise specified by the pipe manufacturer. In cases where less than one (2) foot of fill exists above the pipe, a plate tamper must be used for compaction directly above the pipe, and the pipe should never be crossed or driven upon by bulldozers, rollers, and other heavy equipment.
- H. Pipe shall not be placed in water or when the subgrade is saturated or frozen. If forecasts indicate sub-freezing temperatures are expected following pipe installation, a minimum amount of fill must be placed and compacted above the crown of the pipe before daily operations are completed to prevent heaving or movement.

3.4 INSTALLATION TOLERANCES

- A. Lay pipe to alignment and slope gradients as shown on the plans.
- B. Install anchor blocks and ties as necessary to secure the pipe in place along length of pipe and at outlet.

3.5 TESTING

- A. The Contractor shall perform visual inspection of the 15" diameter HDPE pipe in order to verify pipes were installed without damage or open joints. The visual inspection shall be performed with the City Project Representative after placed and immediately prior to being covered with the specified backfill material.

END OF SECTION

SECTION 33 46 00 UNDERDRAINS

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. This work includes construction of the drainage systems as shown on the drawings, including placement of aggregates and piping.

1.2 SUBMITTALS

- A. Shop Drawings: Indicate dimensions, layout of piping, pipe inverts, and gradient of slope.
- B. Product Data: Provide data on pipe products and pipe accessories.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Project Record Documents: Record location of pipe runs, connections, and principal invert elevations.
- E. Filter Aggregate and Pipe Bedding
- F. Samples: Two pieces, minimum 12 inches by 12 inches, of filter fabric.

PART 2 PRODUCTS

2.1 PIPE MATERIALS

- A. Solid Pipe: 6-inch inner diameter High Density Polyethylene (HDPE), non-corrugated, smooth walled pipe with a minimum diameter to thickness ratio, DR, of 15.5. All joints shall be water-tight and shall be fusion welded by a qualified party.
- B. Perforated Pipe: 6-inch inner diameter High Density Polyethylene (HDPE), non-corrugated, smooth walled pipe with a minimum diameter to thickness ratio, DR, of 15.5 with 1/8" slot widths.
- C. Perforations shall be provided by slots with a maximum width of 1/8-inch. The length of slots shall not exceed 1 3/8-inch and shall be oriented as shown on Sheet 46 of the Plans. The water inlet area shall be a minimum of 0.75 in²/ft.
- D. For 6-inch HDPE pipe, provide pipe animal and debris guards, end caps, and other accessories as recommended by the pipe manufacturer.
- E. Unless otherwise shown or specified, pipe fittings and joints shall conform to ASTM F714 Standard Specification, with butt fusion joints as specified by ASTM D3261 and installed and handled following the manufacturer's instructions.

- F. The Contractor shall order and install pipe made by a single approved manufacturer, but if different approved manufactures are installed, the Contractor shall follow all manufacturers' recommendations with regards to compatibility of fusion techniques.
- G. Pipes shall be high density, high molecular weight, PE 3408 polyethylene resin material extruded from resin meeting the Standard Specifications of ASTM D3350 with a minimum cell classification of PE 345444C and SDR rating of 15.5. The material shall be listed by PPI (Plastics Pipe Institute, a Division of the Society of the Plastics Industry) in PPI TR-4 with a 73°F hydrostatic design basis of 1,500 psi and a 140°F hydrostatic design basis of 800 psi. The PPI listing shall be in the name of the pipe manufacturer and shall be based on the ASTM D2837 Standard Test Method.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the excavations, dimensions, and elevations are as indicated on the drawings and are in accordance with the specifications. Each piece of pipe and each fitting shall be cleaned and examined for defects before it is installed. No cracked, broken, or defective piece should be discovered after having been installed. If discovered, it shall be removed and replaced with a sound piece in a satisfactory manner by the Contractor at no additional cost.
- B. Sections of pipe which have cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. Undamaged portions of the pipe shall then be rejoined using heat fusion joining method.

3.2 PREPARATION

- A. Remove large stones or other hard matter that could damage piping or impede consistent backfilling or compaction.
- B. Do not place pipe until the subgrade has been approved by the Resident Project Representative. Over excavate unsuitable subgrade soils as directed by the Resident Project Representative and replace with suitable compacted fill as directed by the Resident Project Representative.

3.3 INSTALLATION

- A. Install pipe and accessories in accordance with MDOT 404 and manufacturer's instructions.
- B. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.
- C. Shore pipe to required position; retain in-place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- D. Any pipe damaged during construction shall be replaced by the Contractor to the satisfaction of the Resident Project Representative at no additional cost to the Owner.
- E. Fused sections of pipe shall be handled to avoid damage to the pipe. Chains or cable type chokers shall not be used to handle pipe. Nylon slings shall be used to handle pipe. Spreader bars shall be used when lifting long fused sections.

- F. Proper and suitable tools and appliances for the safe and convenient cutting, handling, fusion, and installation of the pipe and fitting shall be used.
- G. Suitable fittings shall be used where shown on the Plans and as required to install the pipe systems. Properly executed electrofusion fittings may be used at the Contractor's option. If required for unusual circumstances, mechanical joint adapters, flanges, unions, grooved-couplers, transition fittings, and some mechanical couplings may be considered for use to mechanically connect HDPE pipe if the preferred connection methods are not possible; use of mechanical connections is subject to the review and approval of the Engineer and ODNR. If used, no additional payment shall be made for electrofusion or mechanical fittings.
- H. All lines shall be closed off with bulkheads or solid caps when pipe installation is not in progress. Pipe shall be thoroughly cleaned before it is laid and kept clean until it is accepted in the completed Work.
- I. Before placing the pipe, the aggregate material as specified in the Contract Drawings shall be placed and compacted in the bottom of the trench.
- J. Place pipe in the trench in accordance with the Plans. At all times the Contractor shall exercise due care in handling the pipe to prevent crushing or kinking of the pipe.
- K. Heavy equipment, including bulldozers and rollers, may not be operated directly on top of any pipe until a minimum of three (3) feet of fill has been placed and compacted, unless otherwise specified by the pipe manufacturer. Some circumstances exist where the Plans call for less than three (3) feet total fill above certain areas of pipe. In cases where less than three (3) feet of fill exists above the pipe, a plate tamper must be used for compaction directly above the pipe, and the pipe should never be crossed or driven upon by bulldozers, rollers, and other heavy equipment.
- L. Pipe shall not be placed in water or when the subgrade is saturated or frozen. If forecasts indicate sub-freezing temperatures are expected following pipe installation, a minimum amount of fill must be placed and compacted above the crown of the pipe before daily operations are completed to prevent heaving or movement.

3.4 INSTALLATION TOLERANCES

- A. Lay pipe to alignment and slope gradients as shown on the plans.

3.5 PROTECTION

- A. Protect pipe and bedding from damage or displacement.

3.6 TESTING

- A. The Contractor shall perform visual inspection of the 6" diameter HDPE pipe in order to verify all pipes were installed without damage or open joints. The visual inspection shall be performed with the project Engineer after placed and immediately prior to being covered with the specified backfill material.

END OF SECTION

ATTACHMENTS

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Attachment J – Davis-Bacon Wage Requirements

Attachment K – Removed per Addendum 1

Attachment L – Federal Debarment Certification

Attachment M – Removed per Addendum 1

Attachment N – Sample Certified Payroll Report Template

Attachments O through X – Reference material; see RFP

ATTACHMENT B **GENERAL DECLARATIONS**

City of Ann Arbor
Guy C. Larcom Municipal Building
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, General Information, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered 2 , the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder declares that it has become familiar with the City Conflict of Interest Disclosure Form and certifies that the statement contained therein is true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS 07 DAY OF March, 2024.

Michels Construction, Inc.
Bidder's Name


Authorized Signature of Bidder

817 Main Street, Brownsville, WI 53006
Official Address

James Black
(Print Name of Signer Above)

920.539.4305
Telephone Number

jblack@michels.us
Email Address for Award Notice

ATTACHMENT C
LEGAL STATUS OF BIDDER

(The bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of Delaware, for whom Michels Construction, Inc., bearing the office title of Secretary, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

* An individual, whose signature with address, is affixed to this Bid:


(initial here)

Authorized Official



Date March 07, 2024

(Print) Name James Black Title Senior Manager - Estimating
Secretary of Michels Construction, Inc.

Company:

Michels Construction, Inc.

Address:

817 Main Street, Brownsville, WI 53006

Contact Phone () 920.539.4305 Fax () _____

Email jblack@michels.us

ATTACHMENT D

PREVAILING WAGE DECLARATION OF COMPLIANCE

The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the Contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any Contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

- (a) To pay each of its employees whose wage level is required to comply with federal, state, or local prevailing wage law, for work covered or funded by this contract with the City,
- (b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall have been deemed a material breach of the terms of the contract and grounds for termination of same by the City.

Michels Construction, Inc.
Company Name

Signature of Authorized Representative
03/07/24
Date

James Black, Senior Manager Estimating and Secretary of Michels Construction, Inc.
Print Name and Title
817 Main Street, Brownsville, WI 53006
Address, City, State, Zip
920.539.4305, jblack@michels.us
Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

ATTACHMENT E

LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a Contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here ☐ No. of employees _____

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state, or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$15.90/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$17.73/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance with Section 1:815(3).

Check the applicable box below which applies to your workforce

- ☐ Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- ☒ Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Michels Construction, Inc.
Company Name

817 Main Street
Street Address


Signature of Authorized Representative

03/07/2024

Date

Brownsville, WI 53006
City, State, Zip

James Black, Senior Manager - Estimating and
Secretary of Michels Construction, Inc.
Print Name and Title

920.539.4305, liblack@michels.us
Phone/Email address

ATTACHMENT F

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2023 - ENDING APRIL 29, 2024

\$15.90 per hour

If the employer provides health
care benefits*

\$17.73 per hour

If the employer does **NOT**
provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.
V.

W. ENFORCEMENT

X. The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint contact
Colin Spencer at 734/794-6500 or cspencer@a2gov.org**

Revised 2/1/2023

ATTACHMENT G



Vendor Conflict of Interest Disclosure Form

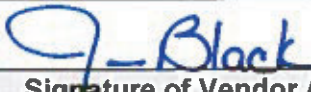
All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	☐ Relationship to employee
	☐ Interest in vendor's company
	☐ Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Michels Construction, Inc.	920.539.4305	
Vendor Name	Vendor Phone Number	
	03/07/24	James Black
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500, procurement@a2gov.org

COI - Ver. 1 - 6/9/16

ATTACHMENT H

DECLARATION OF COMPLIANCE

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

- (a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy, including but not limited to an acceptable affirmative action program if applicable.
- (b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.
- (c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.
- (d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

Michels Construction, Inc.

Company Name



03/07/24

Signature of Authorized Representative

Date

James Black, Senior Manager - Estimating and Secretary of Michels Construction, Inc.
Print Name and Title

817 Main Street, Brownsville, WI 53006
Address, City, State, Zip

920.539.4305, jblack@michels.us
Phone/Email Address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

ATTACHMENT I

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below. You can review the entire ordinance at www.a2gov.org/humanrights.

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter.

ATTACHMENT J

DAVIS-BACON AND RELATED ACTS/PREVAILING FEDERAL WAGES

P.L. 111-88 requires compliance with the Davis-Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see Wage Decision included herein) must be paid on this project. The Wage Decision, including modifications, must be posted by the Contractor on the job site. The "Contracting Agency" or "Contracting Officer" for Davis-Bacon Wage Decision posters on jobsites is the loan applicant/bond issuer. A copy of the Labor Standards Provisions for Federally Assisted Projects is included and is hereby a part of this contract.

REPLACE THIS PAGE WITH THE APPROPRIATE WAGE DECISION AND MODIFICATIONS.

NOTE: The required/appropriate Wage Decision must be obtained from the United States Department of Labor (DOL) at: sam.gov/content/wage-determinations

The Wage Decision that appears in the contract specifications must be that which was in effect on the date 10 days before bid opening. Updated Wage Decisions can be included in the contract documents as an addendum.

A single category of Wage Determinations should be used unless multiple classifications can be justified as a substantial part of the project. If using multiple Wage Determination classifications, the contract must be at least \$1 million and must comprise at least 20 percent of the total project cost.

Questions regarding prevailing wage and labor standards provisions should be directed to the DOL Wage and Hour Division. Regional offices can be found on the DOL website at dol.gov/agencies/whd or by calling 866-487-9243. To submit an email inquiry, use the [WHD Contact Form](#)

"General Decision Number: MI20230157 05/19/2023

Superseded General Decision Number: MI20220157

State: Michigan

Construction Type: Heavy PIPELINE

Counties: Michigan Statewide.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g. an option is exercised) on or after January 30, 2022:	• Executive Order 14026 generally applies to the contract. • The Contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	• Executive Order 13658 generally applies to the contract. • The Contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for

performance of work on the contract does not appear on this wage determination, the Contractor must still submit a conformance request.

Additional information on Contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023
1	05/12/2023
2	05/19/2023

*** ENGI0325-012 05/01/2023**

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
GROUP 1.....	\$ 36.18	25.25
GROUP 2.....	\$ 33.45	25.25

SCOPE OF WORK: The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as "distribution work," starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

Group 1: Backhoe, crane, grader, mechanic, dozer(D-6 equivalent or larger), side boom(D-4 equivalent or larger), trencher (except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer(less than D-6 equivalent), endloader(under 2yd. capacity), side boom(under D-4 capacity), backfiller, pumps(1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader). Tamper(self-propelled), boom truck (with non-powered boom), concrete saw(20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service). Oiler, hydraulic pipe pushing machine, grease person and hydrostatic testing operator.

MICHIGAN STATEWIDE

they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on Contractor requirements and worker protections under the EO is available at

<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5(a)(1)(ii)).

.....

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CSA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on

* a conformance (additional classification and rate) ruling

"General Decision Number: MI20230095 02/24/2023

Superseded General Decision Number: MI20220095

State: Michigan

Construction Type: Building

County: Oakland County in Michigan.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g. an option is exercised) on or after January 30, 2022:	• Executive Order 14026 generally applies to the contract. • The Contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	• Executive Order 13658 generally applies to the contract. • The Contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the Contractor must still submit a conformance request.

Additional information on Contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification	Publication Date
0	01/06/2023
1	02/03/2023
2	02/24/2023

ASBE0025-002 06/01/2022

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR.....	\$36.63	32.91

BOIL0169-001 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$35.95	34.52

* BRMI0001-001 06/01/2022

	Rates	Fringes
BRICKLAYER.....	\$35.95	25.18
TILE FINISHER.....	\$30.75	22.67
TILE SETTER.....	\$37.88	22.67

CARP0687-003 06/01/2021

	Rates	Fringes
CARPENTER (Including Acoustical Ceiling Installation, Drywall Hanging, Form Work Metal Stud Installation & Scaffold Building).....	\$35.16	29.22

CARP1045-001 06/01/2020

	Rates	Fringes
CARPENTER (Floor Layer – Carpet, Resilient, & Vinyl Flooring).....	\$ 30.60	24.58

CARP1102-002 06/01/2020

	Rates	Fringes
MILLWRIGHT	\$ 35.30	34.10

ELEC0058-011 07/02/2022

ELECTRICIAN

	Rates	Fringes
Excludes Alarm Installation & Low Voltage		24.91
Wiring.....	\$ 44.34	
Low Voltage Wiring		14.72
Installer.....	\$ 31.58	
Technician.....	\$ 39.33	14.95

ELEV0036-002 01/01/2023

	Rates	Fringes
ELEVATOR		
MECHANIC.....	\$ 59.82	37.335+a+b

FOOTNOTES:

A . PAID HOLIDAYS: New Years Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

B . Employer contributes 8% basic hourly rate for 5 years or more of service of 6% basic hourly rate for 6 months to 5 years of service as vacation pay credit.

ENGI0324-017 06/01/2022

OPERATOR: Power Equipment

	Rates	Fringes
GROUP 1.....	\$ 46.44	24.95
GROUP 2.....	\$ 44.94	24.95
GROUP 3.....	\$ 43.44	24.95
GROUP 4.....	\$ 43.14	24.95

	Rates	Fringes
GROUP 5.....	\$ 42.32	24.95
GROUP 6.....	\$ 41.46	24.95
GROUP 7.....	\$ 40.49	24.95
GROUP 8.....	\$ 38.78	24.95
GROUP 9.....	\$ 30.44	24.95

FOOTNOTES:

Tower cranes: to be paid the crane operator rate determined by the combined length of the mast and the boom.
If the worker must climb 50ft. or more to the work station, \$.25 per hour additional.

Derrick and cranes where the operator must climb 50ft. or more to the work station, \$.25 per hour additional
to the applicable crane operator rate.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with boom and jib or leads 400' or longer

GROUP 2: Crane with boom and jib or leads 300' or longer

GROUP 3: Crane with boom and jib or leads 220' or longer

GROUP 4: Crane with boom and jib or leads 140' or longer

GROUP 5: Crane with boom and jib or leads 120' or longer

GROUP 6: Regular crane operator, and concrete pump with boom operator

GROUP 7: Backhoe/Excavator/Trackhoe, bobcat/skid Loader, broom/sweeper, bulldozer, grader/blade,
highlift, hoist, loader, roller, scraper, tractor & trencher

GROUP 8: Forklift & extend-a-boom forklift

GROUP9: Oiler

.....

IRON0025-019 06/01/2022

IRONWORKER

	Rates	Fringes
REINFORCING.....	\$ 31.43	34.77
STRUCTURAL.....	\$ 34.50	38.44

IRON0025-022 06/01/2022

	Rates	Fringes
IRONWORKER STRUCTURAL (Metal Building Erection Only).....	\$ 25.81	26.43

LAB00259-002 08/01/2022

	Rates	Fringes
LABORER: Asbestos Abatement (Removal from Floors, Walls & Ceilings).....	\$ 32.78	14.97

LAB00334-005 06/01/2022

LABORER: Landscape & Irrigation

	Rates	Fringes
GROUP 1.....	\$ 23.82	7.60
GROUP 2.....	\$ 21.60	7.60

CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator, lawn sprinkler installer, skidsteer(or equivalent)

GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

LABO1076-003 06/01/2022

LABORER

	Rates	Fringes
Common or General; Grade Checker; Mason Tender – Brick/Cement/Concrete; Pipelayer; Sandblaster.....	\$ 29.75	16.95

PAIN0022-003 06/01/2022

	Rates	Fringes
PAINTER: Brush and Roller.....	\$ 32.85	20.41
PAINTER: Drywall Finishing/Taping.....	\$ 32.85	20.41
PAINTER: Spray.....	\$ 26.86	17.66

PAIN0357-002 06/01/2022

	Rates	Fringes
GLAZIER.....	\$ 37.15	20.98

PAID HOLIDAYS: New Year's Day, Decoration Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day; provided that the employee has worked the last full regular scheduled work day prior to the holiday, and the first full regular scheduled work day following the holiday, provided the employee is physically able to work.

PLAS0067-001 04/01/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER.....	\$ 30.63	14.07

PLAS0067-004 04/01/2014

	Rates	Fringes
PLASTERER.....	\$ 30.63	14.07

*PLUM0098-001 06/01/2022

	Rates	Fringes
PLUMBER, Excludes HVAC Pipe and Unit Installation.....	\$ 35.24	30.54

PLUM0636-011 06/05/2022

	Rates	Fringes
PIPEFITTER (Includes HVAC Pipe Installation; Excludes HVAC System Installation).....	\$ 41.61	29.35

ROOF0149-001 07/01/2021

	Rates	Fringes
ROOFER.....	\$ 38.16	25.91

SFMI0704-001 08/01/2022

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 48.17	30.99

SHEE0080-001 06/01/2022

	Rates	Fringes
SHEET METAL WORKER, Includes HVAC Duct and Unit Installation.....	\$ 47.64	26.15

TEAM0247-001 06/01/2018

TRUCK DRIVER

	Rates	Fringes
GROUP 1		
Flatbed; Pickup; Dump & Tandem.....	\$ 26.71	0.70+a
GROUP 2		
Semi.....	\$ 26.86	0.70+a
GROUP 3		
Lowboy.....	\$ 26.96	0.70+a

PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If any of the above holidays fall on a Sunday, the following Monday shall be considered the holiday and, if work is performed, the rate shall be double time.

FOOTNOTE:

a. \$456.70 per week, plus \$67.10 per day.

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* SUMI2011-020 02/01/2011

	Rates	Fringes
ELECTRICIAN (Alarm Installation).....	\$ 24.31	5.53
INSTALLER – OVERHEAD DOOR.....	\$ 27.98	0.00
IRONWORKER, ORNAMENTAL.....	\$ 18.48	7.93
TRUCK DRIVER: Tractor Haul Truck.....	\$ 13.57	1.18

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026(\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order(EO)13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the Contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year.

Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on Contractor requirements and worker protections under the EO is available at

<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate(current union negotiated rate for local), a survey rate(weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Union Average Rate Identifiers

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CSA rate of the union locals from which the rate is based.

1.) Has there been an initial decision in the matter? This can be:

- On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

J-17

Branch of Construction Wage Determinations Wage and
Hour Division

U.S. Department of Labor
200 Constitution Avenue,
N.W. Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue,
N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W. Washington, DC
20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Labor Standards Provisions for Federally Assisted Projects - 29 CFR Part 5

§5.5 Contract provisions and related matters.

(a) The Agency head shall cause or require the contracting officer to insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in Sec. 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

(1) *Minimum wages.* (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in Sec. 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination, and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

ATTACHMENT L
FEDERAL DEBARMENT CERTIFICATION FORM

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary
Exclusion Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension (1986) and Executive Order 12689, Debarment and Suspension (1989) at 2 C.F.R. Part 180.

**(BEFORE COMPLETING CERTIFICATION, READ THE INSTRUCTIONS ON THE WHICH ARE
AN INTEGRAL PART OF THE CERTIFICATION)**

1. The prospective recipient of Federal assistance funds certifies, by Response, that it is in compliance with the requirements of 2 C.F.R. Part 180 and that neither it, its principals, nor its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this Response.

ATTESTATION

By signing this report, I certify to the best of my knowledge and belief that the foregoing is true, complete, and accurate. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Sections 3729-3730 and 3801-3812).

Michels Construction, Inc.
Company Name

James Black, Senior Manager - Estimating and Secretary of Michels Construction, Inc.
Name and Title of Authorized Representative


Signature Date

March 7th, 2024

ATTACHMENT 1

**CITY OF ANN ARBOR
CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)**

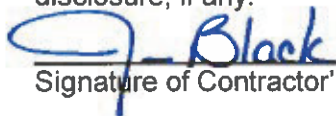
CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of the undersigned's knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31 of the U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, **Michels Construction, Inc.**, certifies and affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

James Black, Senior Manager - Estimating and Secretary of Michels Construction, Inc.
Name and Title of Contractor's Authorized Official

March 07, 2024

Date

ATTACHMENT 2

CITY OF ANN ARBOR
CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)

CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies to the best of its knowledge and belief that neither it nor any of its officers, directors, or managers who will be working under the Contract, or persons or entities holding a greater than 10% equity interest in it (collectively "Principals"):

1. Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department or agency in the United States;
2. Have within a three-year period preceding this proposal, bid, or agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust or procurement statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are presently indicted for or otherwise criminally or civilly charged by a government entity, (federal, state or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and
4. Have within a three-year period preceding this application/proposal had one or more public transactions (federal, state or local) terminated for cause or default.

The undersigned bidder, proposer, contractor, or subcontractor, as appropriate, certifies that they are "Actively" registered with SAM (System for Award Management) and have been assigned the following Unique Entity Identifier (UEI): CDE7H8M86MB5. The undersigned further certifies that it shall not knowingly enter any transaction with any subcontractor, material supplier, or vendor who is debarred, suspended, declared ineligible, or voluntarily excluded from covered transactions by any federal or state department/agency.

I understand that a false statement on this certification may be grounds for rejection of this proposal or bid, or termination of the award or, in some instances, criminal prosecution.

The Contractor, Michels Construction, Inc., certifies as stated above:


Signature

03/07/24
Date

James Black, Senior Manager - Estimating and Secretary of Michels Construction, Inc.
Print Title and Name of authorized representative

I am unable to certify to one or more the above statements. Attached is my explanation.

Signature

Date

Print Title and Name of authorized representative

ATTACHMENT 3

CITY OF ANN ARBOR CORPS WATER INFRASTRUCTURE FINANCING PROGRAM (CWIFP)

System for Award Management (SAM) record search for Contractor / Subcontractor business name and business principal – *(Printout or Screenshot of Results SAM.gov entity search results)*

MICHELS CONSTRUCTION, INC. ● Active Registration

Unique Entity ID:
CDE7H8M86MB5

Doing Business As:
(blank)

Purpose of Registration:
All Awards

Expiration
Date

Dec 10, 2024

CAGE/NCAGE:
9C1R4

Physical Address:
**817 MAIN ST
BROWNSVILLE, WI 53006-
1444 USA**

ATTACHMENT L
FEDERAL DEBARMENT CERTIFICATION FORM

**Certification Regarding Debarment, Suspension, Ineligibility and Voluntary
Exclusion Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension (1986) and Executive Order 12689, Debarment and Suspension (1989) at 2 C.F.R. Part 180.

**(BEFORE COMPLETING CERTIFICATION, READ THE INSTRUCTIONS ON THE WHICH ARE
AN INTEGRAL PART OF THE CERTIFICATION)**

1. The prospective recipient of Federal assistance funds certifies, by Response, that it is in compliance with the requirements of 2 C.F.R. Part 180 and that neither it, its principals, nor its subcontractors are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
2. Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this Response.

ATTESTATION

By signing this report, I certify to the best of my knowledge and belief that the foregoing is true, complete, and accurate. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Sections 3729-3730 and 3801-3812).

Company Name

Name and Title of Authorized Representative

Signature Date

FEDERAL DEBARMENT CERTIFICATION FORM (CONTINUED)

Instructions for Certification

1. By signing and submitting this Response, the prospective recipient of Federal assistance funds is providing the certification as set out below.
2. The certification in this class is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department of Labor (DOL) may pursue available remedies, including suspension and/or debarment.
3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to which this Response is submitted if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The prospective recipient of Federal assistance funds agrees by submitting this Response that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the DOL.
5. The prospective recipient of Federal assistance funds further agrees by submitting this Response that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

ATTACHMENT N

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

2017 Rev. 0

MICHIGAN DEPARTMENT OF TRANSPORTATION CERTIFIED PAYROLL

COMPLETION OF CERTIFIED PAYROLL FORM FULFILLS THE MINIMUM MDOT PREVAILING WAGE REQUIREMENTS

(1) NAME OF CONTRACTOR / SUBCONTRACTOR (CIRCLE ONE)										(2) ADDRESS																													
(3) PAYROLL NO.										(4) FOR WEEK ENDING										(5) PROJECT AND LOCATION										(6) CONTRACT ID									
(a)		(b)		(c)		(d) DAY AND DATE				(e)		(f)		(g)		(h)		(i)		(j) DEDUCTIONS						(k)													
EMPLOYEE INFORMATION		WORK CLASSIFICATION		Hour Type		HOURS WORKED ON PROJECT				TOTAL HOURS ON PROJECT		PROJECT RATE OF PAY		PROJECT RATE OF FRINGE PAY		GROSS PROJECT EARNED GROSS WEEKLY EARNED		TOTAL WEEKLY HOURS WORKED ALL JOBS		FICA		FEDERAL		STATE		OTHER		TOTAL DEDUCT		TOTAL WEEKLY WAGES PAID FOR ALL JOBS									
NAME:																\$0.00												\$0.00		\$0.00									
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										
NAME:															\$0.00												\$0.00		\$0.00										
ETH/GEN: ID #:		GROUP/CLASS #:		S											\$0.00												\$0.00		\$0.00										

Date _____

I, _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)
_____ ; that during the payroll period commencing on the
(Building or Work)
_____ day of _____, _____, and ending the _____ day of _____, _____,
all persons employed on said project have been paid the full weekly wages earned, that no rebates have
been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)
weekly wages earned by any person and that no deductions have been made either directly or indirectly
from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part
3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,
63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are
correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the
applicable wage rates contained in any wage determination incorporated into the contract; that the
classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide
apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of
Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a
State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

- ☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in
the above referenced payroll, payments of fringe benefits as listed in the contract
have been or will be made to appropriate programs for the benefit of such
employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

- ☐ — Each laborer or mechanic listed in the above referenced payroll has been paid,
as indicated on the payroll, an amount not less than the sum of the applicable
basic hourly wage rate plus the amount of the required fringe benefits as listed
in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE
THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.	